



Digitized by the Internet Archive
in 2025

Section A of Science Abstracts

SECTION A, PHYSICS: SECTION B, ELECTRICAL ENGINEERING

Physics Abstracts

Q
1
§3
Sec. A
vol. 63-67
1960-64
Subject
Index
pt. 2
Nlc
Science

Cumulative Subject Index

1960-1964 : Part II

(VOLUMES 63-67).

Published by THE INSTITUTION OF ELECTRICAL ENGINEERS

Savoy Place, London, W.C. 2

**In association with The Institute of Physics and The Physical Society
and The American Institute of Physics**

FOREWORD

In order to publish the Cumulative Subject Index covering the years 1960-1964 as soon as possible after the completion of this period, it was decided to present a simple amalgamation of the published annual indexes. However, where a new subject heading was introduced during the 5-year period this has been noted and the attention of the reader drawn to the appended "see also" headings under which the relevant earlier literature will be found.

As in the annual subject indexes, the entries under each subject heading are arranged in alphabetical order of the first word, irrespective of the year of the entry.

The numbers after the entries are the serial numbers of the abstracts, and the respective years are indicated by the initial number, giving the last digit of the year; this "3=1234" means "Abstract 1234 of 1963"; "0=3456" means "Abstract 3456 of 1960".

May 1967

D. S. Hopper
Director, Science Abstracts.

This index is published in two parts:

Part I Letters A-M

Part II Letters N-Z

Nebulae

- See also Galaxies
 accretion of matter into planetary or satellite systems 2=19274
 Andromeda, 75 cm survey detection 1=18196
 atomic excitation cross-sect. for forbidden lines 4=25518
 Balmer-line ratios in planetary nebulae 4=2357
 bright rim structures, movement interpretation 2=17298
 brightness, homogeneous sphere model, central energy source 0=18842
 clusters, formation and stability 2=21735
 Coma cluster, neutral hydrogen meas. 1=18124
 Coma cluster, 75 cm survey detection 1=18196
 cometary, origin 1=34
 cometary, origin and shock wave focusing 4=10843
 cometary, synchrotron radiation 0=8510
 Crab, coronal eclipse, 169 Mc/s study 0=18669
 Crab, cosmic-ray acceleration in 0=13075
 Crab, eclipse by solar corona 1=15537
 Crab, efficiency of acceleration of relativistic particles 0=15466
 Crab, fine structure detection, 38 Mc/s 4=30984
 Crab, force-free mag. fields 0=18602
 Crab, γ -rays from, possible identification 0=13077
 Crab, kinematics of filaments 0=10522
 Crab, mag. field development, analysis 4=4868
 Crab, nature of emission 0=10523
 Crab nebula, popular review 2=24164
 Crab, occultations by solar corona, June 1962 3=13936
 Crab, occultations, and solar supercorona meas. 1=15536
 Crab, occultations, test for Chapman corona 1=15535
 Crab, 1-2 μ i.r. photometric obs. 4=29408
 Crab, 1390 Mc/s radiation, linear polariz. 3=9277
 Crab, optical and radio emission calc. 1=7068
 Crab, r.f. occultations by solar corona (1957-8) 0=4863
 Crab, radio emission, 3 cm study 0=18668
 Crab, radio obs. during lunar occultation 4=30985
 Crab, radio polarization, 9.6cm 4=2467
 Crab, radio polarization, 21 cm 3=23713
 Crab, radio waves, scattering by solar corona 1=15534
 Crab, as source of cosmic-ray photons 2=1743, 22694
 Crab, 10 cm radiation, polarization 1=15567
 Cygnus, dark cloud of the Great Rift 0=12322
 Cygnus loop and related nebulosities 0=10524
 dark, distance and absorbing power 0=14453
 dark, distance and absorbing power 2=2550
 dark, thin, investig. by star counts 3=3609
 dark, thin, investigation by star counts 2=24157
 diffuse, bright rims 0=10525
 diffuse, rel. to early-type star models 2=1000
 diffuse galactic, Taurus and Scorpius-Ophiuchus regions 3=16422
 diffuse nebulae, some physical processes 1=53
 diffuse, photoelectric photometry 0=6616
 diffuse, stimulated 3.04 cm emission of H 2=4856
 diffusion of resonance radiation 3=9240
 diffusion of resonance radiation 3=16403
 dust nebulae, light scattering 4=29406
 emission, radial velocities, small cloud of Magellan 4=30970
 escape of resonance-line radiation 2=4831
 Eta Carinae (NGC 3372), radio flux at 1400 Mc/s 0=4867, 8476
 near η Carinae, effect on airglow spectra 3=6990
 evolution of central stars, planetary nebulae 4=2370
 evolutionary connection between stars and nebulae 0=18847
 extinction by dust clouds in bright nebulae 4=2373
 extragalactic distrib., zone of avoidance 2=19341
 extragalactic objects, rel. to cosmology models 2=2521
 extragalactic, radio spectrum and source size 4=10927
 extragalactic, redshift rel. to isophotal diam. 2=21731
 extragalactic, redshift, systematic error 1=18126
 faint, use of electronic camera 0=6619
 far-u.v., summary 2=17299
 filamentary, formation mechanism 1=19012
 filaments, formation 0=18821
 forbidden nebular lines, wavelengths 1=2639
 formation nearly simultaneously with stars 0=10513
 Fraunhofer line profiles, anomalous 2=17177
 Galactic, star chains and dark filaments 0=10516
 gas-dust filament, gravitational instability 4=13897
 gas dust, filament stability 3=23698

Nebulae — contd

- gas, self-absorption of Balmer radiation due to 2s H atoms 4=29407
 gaseous, evolution, age estimate 2=4832
 gaseous, expected u.v. emission spectra 4=2372
 globules, internal flow and grav. contraction 2=15391
 glow, 1290-1350A, 1350-1550A bands, lack of evidence 2=15367
 heavy-element lines in planetary nebulae 0=18843
 initial luminosity function 0=6612
 instability, self-gravitating gas cloud 4=17970
 interactions, low-velocity dispersions 0=2087
 internal chemical element occurrence 1=15411
 interstellar emission, study using Fabry-Perot etalon 0=16552
 luminosity classification, including spiral nebulae 2=2552
 Lyman α -line observation 1=6722
 Lyman α -line observation 1=10390
 L α quanta diffusion 2=24155
 M17, radio and optical distrib. 2=1024
 M17 region, at 3.75 cm wavelength, study 1=18203
 M31 radio map, 1400 Mc/s 4=2464
 NGC1097, gas movement discontinuities 1=9291
 NGC 6853 and 7293 radio-emission 2=1023
 9.6 discrete radio sources, observations 2=1021
 North America, 3727 A O II radiation 3=9148
 observations 1959-60, conference 3=9139
 Omega, 9.1 cm obs. 3=9278
 Orion, internal motions 0=10521
 Orion, model, HII region formation 4=23883
 Orion, 9.1 cm obs. 3=9278
 Orion, 1-2 μ i.r. photometric obs. 4=29408
 in photographic i.r. 1=15517
 photometry and radiometry 1=2640
 planetary, distance scale based on H β emission 2=15382
 planetary, dynamical problems 0=10518
 planetary, expanding, role of light pressure 4=10844
 planetary, galactic distrib. 4=23873
 planetary, H distrib., e density, ionization, mass. 3=23697
 planetary, He ionization rel. to structure 4=20902
 planetary, high-excitation, thermal equil. 3=1536
 planetary, internal kinematics 0=10520
 planetary, ionization structure 3=21120-1
 planetary, local density variations 0=10519
 planetary, mass meas., radio 4=13966
 planetary, masses and forms 2=24156
 planetary, masses and forms. 3=3608
 planetary, NGC 6572, 7027 2=17295
 planetary nebulae, with 2 shells 1=6720
 planetary, new or unclassified, spectral classification 4=23859
 planetary, optical thickness and central star temp. 3=9249
 planetary, origin 2=17288
 planetary, origin in shock wave in red giants 2=9095
 planetary, possible electron-driven expansion 4=2371
 planetary, review and theory 1=1657
 planetary, shape rel. to mag. field 2=24159
 planetary, shape rel. to mag. flds. 3=3611
 planetary, spectra, recombination, calc. 4=12351-3
 planetary, spectrophotometry 3=21122
 planetary, spiral and barred spiral electric discharge theory 3=18645
 planetary, with two shells 0=18820
 planetary, Zanstra theory for condensations 3=9245
 primeval, angular momentum transfer, by magneto-hydrodynamic waves 0=292
 radial velocities and internal motions of diffuse nebulae, study using Fabry-Perot etalon 4=26919
 radial velocity determ. 2=19342
 radial velocity determination 2=19342
 radiative recombination of hydrogenic ions 0=17707
 radio sources, polarization, 3 cm, search 3=18663
 radio sources, spectra 1=15566
 red-shift, quadratic law 2=17230
 reflection, u.v. temps. 2=17296
 scatterings by resonance-line photon 4=29371
 self-ionization of light atoms and Fe ions 0=846
 solar nebula, origin 3=9250
 spectra, with collisional excit. and ioniz., calc. 4=10841
 spectra, forbidden, mag. dipole transitions, theory 4=2363
 spectra, forbidden N I lines obs. 1=19592
 spectra, O III, recombination, calc. 4=4867
 spectra obtained with electronic camera 0=6619

Nebulae—contd

- spectra, spherical shell model 4=10842
 spectrum calc. with collisional excit. and ioniz. 4=10841
 spectrum excitn. from u.v. star quanta absorpt. 3=3612
 spherical clusters, quasistationary state 4=26917
 spiral, and cosmic electrical discharges 1=9290
 spiral, irregular and barred 2=7029
 spiral and irregular, ionized gas distrib. 2=15385
 stellar, spiral existence 1=9291
 structure, from light absorption study 0=18791
 temp. required for thermonuclear reactions 0=6620
 temps. for nuclear reactions 0=6620
 u.v. emission, 1225-1350 Å, due to early-star corpuscular emission 0=18840
 u.v., planetary nebulae, theory 2=17300
 ultraviolet, 1225-1350 Å, due to early-star corpuscular emission 0=18840
 H β flux, use for distance scale 2=15382
 H, LTE departures in higher levels 2=4770
 H radiation spectrum for spherical shell model 4=10842
 H II, r.f. emission, Strömgren spheres emission 0=4862
 H II region, initial development 4=17988
 H II, regions with outward decreasing density 0=12324
 hydrogen two quanta transition from 2s level 1=33
 H/He relative abundances 1=15518
 He spectrum, effect of optical depth 2=15383
 He, triplet, effect of optical depth 2=15383
 Ne IV, transition probabilities of forbidden lines 0=17670

Neodymium

- allotropy at high press. 4=26560
 antiferromagnetism, by s-f-exchange model 2=4214
 antiferromagnetism, transitions, 1.6-20°K, neutron diff. exam. 4=13273
 atomic g_J factor 1=19585
 atomic spectrum, line classification, Zeeman effect and isotope shift 4=9644
 atoms, h.f.s. by atomic beam magnetic resonance 3=4709
 diffusion, anomalous, in Ag and Pb 3=13065
 e.s.r. Nd³⁺ in CaWO₄ and Nd^{143,145} mag. moment ratios 4=15677
 elec. cond., 1.3-300°K 1=5003
 elec. resistance, effect of pressure 1=14356
 elec. resistance, effect of pressure 1=17604
 electronic transitions in CdF₂ 0=13698
 glasses, laser amplification factor at 1.06 μ 4=16706
 ion, time-resolved spectra, meas. in spark 2=14204
 ionization potential 0=14964
 ions, Nd³⁺, paramag. resonance in CaF₂ at 20°K 1=9055
 ions, relaxation processes, resonance coupling, under pulsed excitation 4=17604
 laser action of ions in silicate glass, simultaneous with Yb ions 3=7737
 laser, continuous-wave 3=22014
 laser, glass, La-Ba-Th-borate, Nd doped, 4F_{3/2} \rightarrow 4I_{13/2} 4=14948
 laser line relax. time meas. 4=24923
 liquid, surface tension, 1030-1186°K 3=5425
 luminescence, Nd³⁺ in Ba glass and CaWO₄, electron beam prod., 100°K 4=26245
 luminescence, Nd³⁺ in CaF₂, spectrum, var. conc. 4=15613
 luminescence of Nd³⁺ in silicate glass, transfer from optical excitation of Ce³⁺ 4=28721
 mag. behaviour, 300-1500°K 0=11810
 magnetic props., calc. 0=11807
 magnetization and approach to saturation 0=13776
 in molten Nd tribromide, elec. conductivity 4=8220
 n. m. r. of Nd³⁺ in CaWO₄, Na compensated or uncompensated 4=13348
 photoelectric emission 2=7646
 photoelectric emission 3=5694
 specific heat, 0.4°-4°K, nuc. and mag. analysis 4=9853
 spectrum, atomic, additional levels 4=6480
 spectrum, isotope shifts in NdI 4=12371
 spectrum, isotopic shift 0=15662
 spectrum, visible, rel. to 4f shell transitions 3=13182
 Nd³⁺ e.s.r. in CaF₂ 3=3172
 Nd ethyl sulphate, spin-lattice relaxation 1=14809
 Nd⁺⁺⁺, ionic distrib. coefficient in CaF₂ 1=14990
 Nd³⁺, in crystals, magnetic and spectroscopic theoretical investigation 2=21295
 Nd³⁺ e.s.r. in CdS, at 1.4°K 4=7333
 Nd³⁺, e.s.r. in Nd ethylsulphate 4=13328
 Nd³⁺ e.s.r. in SrTiO₃ 4=26417

Neodymium—contd

- Nd³⁺ e.s.r. in SrTiO₃ 4=26441
 Nd³⁺, in ethyl sulphate, cross relax. time 2=10707
 Nd³⁺ fluoresc. in PrCl₃, 5-6 μ , 4-2°K 4=28732
 Nd³⁺ in glass, fluorescence, environmental effects 4=20485
 Nd³⁺ glass, maser, optical, 1.06 μ 3=22008
 Nd³⁺, i.r. absorption spectra in soln. 3=9462
 in La ethyl sulphate, ground state population changes, direct optical detection 2=21238
 Nd³⁺ in LaBr₃, absorption spectrum 3=3009
 Nd³⁺ magnetization process, in gallate garnets, high temp. var., calc. 4=20517
 Nd³⁺, optical maser characteristics in CaF₂ 2=8508
 Nd³⁺, optical maser characteristics in SrMoO₄ 2=8509
 Nd³⁺, radiationless resonance energy transfer from UO₂²⁺ in Ba crown glass 4=22914
 Nd³⁺ spectrum, in LaCl₃, crystal quantum no. reassignments 4=25829
 Nd³⁺ spectrum in LaCl₃ 4=4260
 Nd³⁺ spectrum, in LaCl₃, erratum 4=17572
 Nd^{143,145} in LaCl₃, double resonance, mag. moment r³ 2=23714

Neodymium compounds

- garnets, ferromag. props. 1=12543
 salts, energy level assignments 0=7686
 Nd-activated glass, as optical quantum generator, flash spectrum, time variation 3=25444
 Nd chloride, soln. in alcohol-water, temp. depend. 3=21374
 Nd ditelluride, Hall effect 3=20340
 Nd ethyl sulphate, crystal fields, from γ -ray anisotropy of oriented Pm¹⁴⁴ 1=3587
 Nd ethylsulphate, e.s.r. 3=8714
 Nd ethylsulphate, e.s.r. of Nd³⁺, temp. depend. 4=13328
 Nd ethyl sulphate, electronic spectra, analysis 4=1740
 Nd ethylsulphate, mag. h.f.s. coupling of Pm isotopes 3=12906
 Nd ethyl sulphate, nuclear orientation of Ce^{137,137m} in 1=2162
 Nd ethylsulphate, nuclear orientation of Dy^{155,157} 1=10958
 Nd ethylsulphate, spin lattice relaxation at liq. He temps. 0=10232
 Nd ethylsulphate, vibr. energy levels and spec. heat 4=1364
 Nd gallate, paramag. susceptibility, temp. var. 2=2271
 Nd-Al, crystal structure, new cpds. 2=4437
 NdAl₃, mag. moment and Curie pt. 3=991
 NdBr₃ powder, emissivity 0=16919
 NdBr₃-NdBr₂, conductance max. 4=8220
 NdCd₁₁, electronic configuration and dimensions 3=13237
 NdCl₃ in alcohol-water soln., absorption spectra, -87°K 3=1691
 NdCl₃, diluted with LaCl₃, absorption and fluorescence spectrum 1=10101
 NdCl₃, fluorescence spectrum, analysis 0=8015
 NdCl₃.6H₂O, higher ground state electron levels 2=16606
 NdCl₃.6H₂O, 1.1-4.2°K, 2-2660 c/s 3=8719
 NdCl₃.6H₂O specific heat, 1.2° to 220°K 1=17415
 NdCl₃.6H₂O, spin-lattice relax. 1.1° to 4.2°K 3=3183
 NdCl₃-SrCl₂, electron exchange between adjacent oxidation states 4=8220
 NdCo₅, ferromag. coupling and thermomag. props. 2=10640
 NdCoO₃, thermal cond. meas., heat transfer processes 4=30532
 Nd-Fe system compound, crystal structure, atomic 4=4605
 NdFeO₃, mag. props., neutron diff. study, 1.25-955°K 0=10187
 NdH₂ (x = 2.02-2.75), ferromag. props., variation with temp. 3=15744
 NdI₃, molten, elec. cond. of Nd 3=21404
 Nd³⁺:LaBr₃[Cl₃], blue fluorescence excitation by ruby laser 4=20483
 Nd-Mg double nitrate, reflection spectrum 3=23063
 Nd in Mg, supersat. solid soln., decomposition, effect of cold plastic deformation 4=10435
 NdMg nitrate, mag. and thermal props. 2=12384
 NdMg nitrate, spin-lattice relaxation 2=14836
 Nd₂Mg₃(NO₃)₁₂.24H₂O, absorption spectrum 4=7145
 Nd₂Mg₃(NO₃)₁₂.24H₂O, crystal space group 4=7632
 Nd(NO₃)₃.6H₂O electron transitions in far i.r. 4=1419
 Nd(NO₃)₃.6H₂O, far i.r. absorptn. at liquid He temps. 3=3006

Neodymium compounds—contd

- Nd_2NiO_4 , antiferromagnetism 3=18107
 Nd_2O_3 , specific heat and thermodyn. props. 3=20104
 Nd_2O_3 , thermal expansion, X-ray diff. meas., 20-1050°C 4=17372
 Nd_2O_3 , vaporization 1=8263
 NdS , thermal emission, 800°-1500°C meas. 4=14744
 NdS , thermal expansion, X-ray determ. 4=30523
 NdS , Nd_2S_3 , thermal exp., 20-1020°C, Debye temp. 4=22508
 Nd_2S_3 , 800°-1500°C meas. 4=14744
 $\text{Nd}_2(\text{SO}_4)_3 \cdot 8\text{H}_2\text{O}$, Gd^{3+} e.s.r. 2=10698
 in SrF_2 , absorption spectra, luminescence, 77° K, optical maser 3=20482

Neon

- absorption on carbon black 1=20684
 absorption spectrum 0=9770
 adsorption on Pt 2=8889
 acoustic wave propag., by localized r.f. breakdown 4=19019
 afterglow, enhanced, on short-circuiting discharge 2=19908
 afterglow, following pulsed d.c. excitation 4=14597
 arc, rel. to C cathode hybrid spots 3=4070
 arc, elec. cold-cathode characteristics, at pulsed-current loading 3=4077
 arc, elec., low-pres., optical radiation phenom. 3=4078
 arcs, electric, and their radiation spectrum 2=9551
 atoms, charge exchange with $\text{Xe}^{3+,4+}$ 2=15891
 atoms, charge exchange with $\text{Xe}^{3+,4+}$ 3=5630
 atom, elastic electron scatt., semiempirical calc. 4=9671
 atoms, electron scatt., inelastic, continuum, oscillator strength determ. 4=25516
 atoms, electron scatt., Thomas-Fermi approx. 1=19605
 atoms, electron scattering, sharp resonance 4=25566
 atoms, excitation, direct and stepwise, effect, cross-sections 4=19977
 atoms, excitation functions 2=18424
 atoms, excitation induced by H^+ and He^+ impact, 5-35 keV 4=25540
 atoms, Gaussian wave-functions 4=25504
 atoms, gyromagnetic ratio in $^3\text{P}_2$ state 0=17669
 atoms, Hartree-Fock SCF wave-functions 2=515
 atoms, ionization by colls. with Xe^{n+} 3=7426
 atoms, laser scatt., 4=25541
 atoms, metastable, collision cross-sections with A, He, Ne 0=2727
 atom and Ne II, resonance lines 3=14355
 atom- Ne^+ collisions, electron capture and stripping 3=4725
 atom, $1s^2 2s 2p^4$ configs., analytic self-consist. field functions 4=15273
 atom, photoeffect, sum rules 4=25544
 atoms, polarizability, dipole, calc. 0=9736
 atomic polarizability and London force consts. 4=3790
 atoms, polarizability and mag. susceptibility 1=4914
 atom, readjustment after K-shell ionization by X-rays 4=9653
 atom, recombination rate constants, three-body 4=17852
 atomic scatt. factor and charge distrib. radius 2=10857
 atomic scatt. factor, X-ray, rel. to theory 4=3797
 atoms, 736A line transition probability 4=28133
 atoms, two-electron transitions to autoionizing states 3=19927
 atom, 3d-4f transition and 4f config. 4=6479
 atom, $2p^5 n l$ states, coupling schemes calc. 4=1189
 atomic wave-functions 2=8059
 atoms wave functions and correlation energies 4=3789
 breakdown, electric, rel. to added Ar (0.01-0.3%) 3=19221
 breakdown, u.h.f., formative time-lags 3=7491
 colliding with Fe and W, thermal accommodation coeffs., theory and expt. 4=15814
 compressibility, quantum hard-sphere model 3=21434
 compressibility, theory rel. to expt. 2=19605
 condensed film at low temp., optical props. 0=740
 counters, pulse-powered, use in hodoscope 2=3426
 crystal struct., atomic, ~10°K, electron diff. obs. 4=29123
 crystalline Ne^{20} and Ne^{22} , lattice const., X-ray study 1=15070
 crystals, surface energy calc. 4=17336
 d.c. glow discharge, plasma conductivity 1=16287
 density, 20×10^6 atmospheres 3=21100
 diamagnetism, calc. 0=17795
 diffusion and drift of positive ions 4=21463
 diffusion in Duran glass 4=4073

Neon—contd

- diffusion in H 2=1194
 diffusion in liquid hydrogen 1=10510
 diffusion in NH_3 2=19608
 diffusion, in Ne- CO_2 mixtures 1=6895
 diffusion of Ne^{22} - Ne^{20} in pure Ne, thermal 3=14203
 diffusion, solubility and permeability in Vycor glass 0=5051
 discharge, c.w. laser action up to 133 μ 4=30086
 discharge, d.c., in Ne-Hg vapour mixture 3=9734
 discharge, elec., probe noise in various regions 3=14550
 discharge electric, hot cathode, moving striations 4=11544
 discharge, electric by pulsed 3200 Mc/s discharge, boundary movement 4=21471
 discharge electric, stationary and moving stratification 4=8646
 discharge, glow, anomalous, charge-exchange 3=19219
 discharge, high-frequency, striations 4=474
 discharge, low-pressure, with positive column, periodic structure 4=18739
 discharges, point-to-plane, in Ne and Ne-A mixtures 2=9545
 discharge, positive column, h. f. cond., electron density and temp. 4=5575
 discharge, positive column theory rel. to expt. 2=19909
 discharge, striations, fast-running, peculiar excitation 3=19195
 discharges, use in particle track visualization 2=5559
 discharge, wave of stratification striations 2=7574
 double ionization by electron impact 0=2317
 elec. discharge, cathode fall for monocrystalline Ge, Si, Cu 0=19633
 electric discharge, current buildup 2=3023
 elec. discharge, effect of a.m. h.f. field, striation waves 0=10889
 elec. discharge, effect of radiation on striations 0=2334
 electric discharge, electrodeless h.f. spectroscopic study 2=11627
 elec. discharge, electron energy distrib. 1=16316
 elec. discharge, electron velocity distrib., 0.1-20 mm Hg 0=16981
 elec. discharge, glows, moving striations, Ne_2^+ formation 0=10890
 elec. discharge, h.f. superimposed on d.c. glow, effects 0=7086
 elec. discharge in He-Ne, maser oscillations and population inversion 1=7440
 elec. discharge, l.p. constricted, plasma temp., electron conc. 1=13092
 electric discharge, low-current, positive column study 1=4581
 elec. discharge, moving striations, negative sections 0=19637
 electric discharge, positive column constriction 3=14549
 electric discharge, positive column, electron energy distrib. function 2=168
 elec. discharge, probe meas., 1-20 mm Hg 0=19690
 electric discharge, pulsed, afterglow dependence on density 1=4576
 electric discharge, pulsed, electron temp. and particle conc. 2=165
 electric discharge, r.f. in Ne- O_2 , optical maser action 2=22908
 elec. discharge, under s.h.f. pulses 0=16982
 electric discharge, v.h.f., in restricted gap, spectra 1=4907
 electron capture from multiply charged Kr ions 2=17791
 electron diffusion coeff., thermal, meas. 4=8613
 electron drift velocity, 77-373°K 1=2300
 electron scatt., multiple, 40-130 keV, spatial distrib. 4=887
 electron stopping power 0=352
 equation of state, P-p-T, 27-300°K, up to 200 atm, from corresp. states 4=14205
 excitation in discharge positive column 3=24238
 excitation of upper levels, in d.c. discharge, quenching collision broadening 4=14598
 fast $\text{Ne}^{0,+2+,3+}$ colls. with inert-gas atoms, slow-ion production 2=154
 fast $\text{Ne}^{0,+2+,3+}$ colls. with inert-gas atoms; slow-ion production 3=366
 first ionization coeff. 0=5271
 flash tube, detector of ionizing particles 1=7163
 gas flow, free-molecular, momentum transfer to metal surfaces 3=5456
 gas, ionization by H^- and O^- ions 1=4558

Neon—contd

gas, ionized, rarefied, charge-carrier diffusion 3=16906
 gas maser, optical output 3=525
 gas, scattering of electrons 1=16424
 glow, cathode fall, changes, with polycryst. Mo cathode 4=11549
 glow discharge, effect of hollow cathode on striations 3=7477
 glow discharge, harmonics 0=19647
 glow discharge, moving striations, effect of standing stratification 3=9754
 glow discharge, positive column instability 2=7582
 glow discharge, positive column instability in mag. field 1=284
 glow discharge, positive ion prodn. by Penning mechanism 3=7474
 glow discharge, striation production 0=2336
 glow-discharge tubes, effect of A, Kr, Xe admixtures 2=11632
 glow. reference tube, rel. to Ar, Kr, Xe admixtures 3=4054
 ground-state wave-functions 1=13930
 h.f. discharges, optical and electrical props. 1=2950
 h.f. electrical discharges, effect on coupled circuit 1=5425
 intermolecular potential functions, 2nd virial coeff. 1=7503
 ion beam, range in metals from sputtering yield 3=5721
 ion beam on W, photon prod., 25-100 eV 3=21900
 ion collisions in H and D 0=10881
 ion mobilities from electron density meas. 4=2948
 ion mobilities in He-Ne mixtures 1=7028
 ion-molecule reactions with H₂ under electron bombard. 4=4694
 ion Ne²⁰, charge distrib. at high velocities 3=7447
 ionization cross-sections near threshold, electron impact 1=16257
 ionization by electrons, mass spectrometers study 2=15883
 ionization by electrons and protons, Born approx. 2=9529
 ionization front velocity in column excited by u.h.f. at one end 3=4037
 ionization by h.f. pulse, recombination 3=4024
 ionization, multiple, by electrons 0=7070
 ionization by protons, 0.15-1.1 MeV 3=4006
 ionization in pulsed discharge 2=1388
 ions, bombard. metals, secondary electron emission 4=8822
 ions bombarding W, ionic entrapment and thermal desorption 4=13693
 ions, ionization of inert gases 0=12578
 ions in Ne gas, at 500°K, transfer, exchange cross-section, field, temp. var. 4=29870
 ions, Ne⁺-A, Ne⁺-Ne potential energy functions 1=818
 ions, Ne⁺, range in quartz, 7.5-52 keV 1=336
 ions, Ne⁺, sputtering of f.c.c. metals, Ge and Si 2=13608
 ions, range and ionization in emulsions 0=12772
 ions, recomb., temp. var. 3=24222
 ions, scatt. in Ne gas, with electron capture 0=12590
 ions, sputtering of Cu, atom, energy distrib. 4=24754
 ions, sputtering in Cu, temp. var. 4=10018
 ions, sputtering of KCl, 400 eV 3=4215
 ions, 20-100 eV, sputtering of Au 2=13607
 ionization cross-section, partial, when bombarded with protons, 0.8-3.75 MeV 4=27481
 ionization, electron, first Townsend coeff. meas. 4=5555
 ionization by electron impact, with fast crossed-beam 4=24589
 ionization, first and second coeffs, meas. 4=18681
 ionization, first Townsend coeff. meas. 4=24587
 ionization and formation of long-lived excited ions 4=25492
 ionization, and He⁺, Ne⁺, Ar⁺ beam losses 4=24594
 ionization by pulsed 3200 Mc/s discharge, boundary movement 4=21471
 ionization, by 30-1000 eV He atoms, meas. 4=27482
 isotherms at temp. 0-150°C and press. < 2900 atm 1=6879
 isotopic abundances in meteorites 2=951
 isotopes in liquid state, vapour pressure, by phenomenological cell model 1=9385
 isotopic ratio, Ne²⁰/Ne²² 3=454
 isotope separation by molecular pumps, calc. 0=4161
 laser action up to 57.355 μ 4=11823
 laser, pulsed radiation generation 4=5851
 in lasers, 6328 Å oscillation modes 4=14934

Neon—contd

laser transitions, probabilities 4=11825
 in lasers, Zeeman effect, at 3.39 μ 4=14936
 lifetimes of l = 3 orbitals, meas. by method of delayed coincidences 0=7702
 liquefaction and use in laboratory 4=21368
 liquefaction, Linde, 66°K, 50-200 atm. 3=21640
 liquid, density and short-range coordination 2=21893
 liquid, heat transfer coeffs. meas. 4=8201
 liquid, radical distrib. function 2=19537
 liquid, structure det. by X-ray diffraction 2=2705
 liquid, thermal conductivity 3=18802
 liquid, viscosity 3=21310
 lubricating full journal bearings 0=5046
 magnetoplasma, Faraday effect, microwave cavity meas. 4=18894
 maser, optical, He-Ne, hole burning effects 2=11784
 maser, optical, He-Ne, 3.39 μ 3=19495
 maser, optical, oscills., ~1.8 μ , f-d transitions 3=14806
 μ -meson capture rate from bound state 4=6365
 metastable states, decay rate, in He-Ne discharge 4=28132
 meteorites, stone, high content 2=6999
 mixtures with A, potential parameters, from viscosity 1=14122
 molec. ion formation, under static discharge 0=243
 molecular parameters, self-consistent set 1=12335
 molecule-ion, formation kinetics 2=16569
 negative striations 1=8314
 optical pumping in He-Ne, 1.269 μ emission 4=767
 pair coupling, NeI 5g level 4=28116
 Penning mixtures, Ne-H, primary ioniz. coeff. 4=21462
 photoionization cross-section, 80-600 Å meas. 4=12390
 plasma, cold, negative radiation temperature 3=9787
 plasma, electron collisions, energy transfer and frequ. 4=24586
 plasma, electron density, rate of fall 4=24664
 plasma, Ne-A mixtures, diamag. moment 0=19693
 plasma, radiation temperature resonances, r.f. meas. 3=4121
 plasma, temp. and electron density meas. 1=313
 positive ion production, by energetic He⁺ impact 4=24569
 positive ions, 5-25 keV, sputtering of Cu 1=8363
 powerful impulsive discharges, electron energy meas. 3=7452
 preconduct current pulses, at low press. and audio freq. 0=1105
 prod. from air decomposition plant 3=16472
 production and use 3=16471
 purification, cataphoretic 4=24276
 refractive index and verdet const., theoretical deriv. 1=8164
 scattering by Ni, polycrystalline 4=19996
 in scintillation counters, mixed with A, Xe, for neutron detection. 1=3077
 solid, cohesive energy calc. 4=28301
 solid, crystal structure, at 4-24°K 4=10544
 solid, excitation energies in Ne:A system, calc. 2=2065
 solid, H, D impurity 1s-2p transitions obs. 4=30503
 solid, lattice thermal cond. at low temp. 2=10341
 solid, neutron absorption cross-section 0=20153
 solid, at 0°K, quantum variational calc. 4=20150
 solid, optical absorption by A impurity 1=19747
 solid, thermal cond. 0=9868
 spark lines, pressure broadening and Stark effect 0=5874
 spectra in highly ionized state, meas. 3=10448
 spectra of Ne IV, V, VI in 2200-3000 Å 3=10459
 spectrum, atoms, new He-Ne laser stimulated transitions 4=21681
 spectrum, discharge, electric, r.f., similarity to Geisler tubes at high powers 4=5612
 spectrum, 1.15 μ 2p₁ ← 2s, transition, isotope shift and saturation behaviour 3=19944
 spectrum, stimulated transitions 4=28131
 sputtering of K 2=3093
 stimulated emission of new i.r. transitions 4=12383
 striation waves rel. to stimulated running striations 3=19191
 thermal cond., up to 500°C 0=8711
 thermal cond. of mixtures with other inert gases 0=104
 thermal conductivity, 25°, 50° and 75°C, up to 2600 atm 4=21183
 thermal diffusion factor, temp. dependence 1=15948

Neon—contd

- thermal transpiration at high temps. and
 3×10^{-3} –2.5 mm Hg press. 4=5224
- thermodynamic props., T–s, p–v diagrams 4=11231
- u.h.f. breakdown, time-lags 2=3024
- u.s. absorpt. 2=7256
- u.v. emission in corona discharge 0=1123-4
- vapour pressure of isotopes 1=10628
- vapour pressures of isotopes 0=8700
- vapour pressure of isotopic liquid 1=8262
- vapour pressure of isotopic liquid above b.p. 0=14683
- vapour pressure of isotopes in solid state 1=6067
- vapour pressure of solid and liq. meas. 2=15804
- viscosity meas., oscillating disc method 3=14185
- viscosity and thermal cond. of Kr–A, Kr–Ne, Kr–He mixtures 1=10526
- viscosity and thermal cond. of mixtures with A and He. 3=168
- viscosity, 20°C, abs. meas. 0=16723
- viscosity, 20°–80°K 0=92, 8705
- viscosity, 25°, 50° and 75°C, up to 1800 atm 4=21176
- work function, photoelectric, of Mo, Ni 4=568
- X-ray absorption coefficients, 2 to 8A, meas. 4=3784
- X-ray spectra, identification of K α satellites 1=9912
- H ion production in, by proton beams 2=1386
- He–Ne continuous laser, near i.r. props. 3=7317
- He–Ne gas masers with external mirrors 3=9985
- He/Ne laser, intensity, var. with pressure and relative conc. 3=14805
- He–Ne laser, pulsed voltage operation 2=20140
- He–Ne maser, optical, enhancement during after-glow 3=14801
- He–Ne, maser, optical new transitions, on dominance removal 3=17090
- He–Ne, maser, optical, power output, varying plasma length and discharge current 3=17087
- Hg + Ne mixture, ion distrib. in discharges 1=5431
- He–Ne planar laser, Zeeman effects 3=2145
- Ne, glow discharge, moving striations and anode spots 1=5432
- Ne, ion–Ne atom collision, ejected electron energy distrib. 2=20750
- Ne ions, range in solids and gases 2=7674
- Ne–methane, cosmic ray muons in, energy-loss-rate 3=24821
- NeI, excitation by H⁺ and He⁺ 3=12770
- Ne I, i.r. spectrum, new lines 2=3703
- NeI spectral lines, precise meas. of separation 3=1814
- Ne I transition probabilities using e.m. shock tube 4=19961
- Ne II line broadening in plasma 3=10454
- NeII spark spectra in low-pressure plasma 3=7609
- Ne II Stark broadening in fully ionized plasma 4=18853
- Ne VII, VIII, IX, spectra, grazing incidence meas. 4=25490
- Ne⁺, bombard. of Cu and Ni (100) faces 3=13020
- Ne⁺, bombard. of Cu, sputtering ratios 0=9110
- Ne⁺, bombard. of metals, secondary emission 0=9078
- Ne⁺, excited by electron impact, time correl. of photons 4=19962
- Ne⁺, ionization cross-sections, for electrons 4=16433
- Ne⁺, prod. by electron beams 1=16256
- Ne⁺, reflection on solid surfaces 1=10744
- Ne⁺ sputtering of Cu, 5–20 keV 3=4217
- Ne⁺ sputtering of Cu, Ni, Fe, Mo, 100–1000 eV 3=4216
- Ne⁺ stripping and neutralization, 100–450 keV, 4=24568
- Ne⁺, structure, effect on electron emission production 1=16391
- Ne⁺, 20 keV sputtering of Cu 4=17459
- Ne⁺, Zn diffusion in CuZn alloy, effect of bombardment 1=14322
- Ne₂⁺ formation from Ne⁺, reaction rates meas. 4=11532
- Ne⁺, ²⁺ ion beams, 10 to 100 keV, detection by nuclear track emulsions 2=20052
- Ne⁺ ions in glow discharges 0=5292
- Ne₂⁺, resonance charge exchange 0=8999
- Ne³⁺, electron capture, 6–90 keV, in Kr and Ne 0=8998
- Ne⁴⁺, 2³S state, 20-parameter calc. 3=2561
- Ne²⁰, diffusion in fused quartz 1=17558
- Ne²⁰, energy levels analysis 2=22736
- Ne²⁰, energy levels of nucleus, spin, parity 2=1888
- Ne²⁰ ions, energy loss in Ni, O₂ and nuclear emulsions 0=17051
- Ne²⁰ ions, energy loss and range in solids 2=1931
- Ne²⁰ and Ne²², atomic- and melting heats, and entropies at low temps. 0=12416

Neon—contd

- Ne²⁰ nucleus energy level rotational bands 1=13660
- Ne²¹, cosmogenic, in meteorites 1=18060
- Ne²¹, cosmogenic, in meteorites, depth variation 1=18059
- Ne²², diffusion in fused quartz 1=17558
- Ne⁺–A collisions, energy transfer at 75 keV 1=5981
- Ne–Ar discharge, pulsed microwave 3=14537
- Ne–Ar with Hg discharges, resonance radiation meas. 4=21475
- Ne–D₂ mixture, phase separation, temp. dependence 4=24178
- Ne–nD₂ liquid mixtures, excess free energy 4=2668
- Ne–nD₂ liquid systems, phase separation 3=3801
- Ne–H₂ mixtures, elec. discharge, low press., striations 4=16448
- Ne–pH₂, phase separation, 0.95–86% Ne, 24.56°K 3=23871
- Ne–He gas maser, optical output 3=525
- Ne–He gas mixture, cataphoresis 4=24275
- Ne–He gas mixture, propag. of ultrasonics 0=14721
- Ne–He laser 4=8983
- Ne–He laser, gas discharge aspects 4=18718
- Ne–He laser oscillation patterns, 3.39 μ , evaporographic obs. 4=27687
- Ne (73%)–He (27%), liquefaction, Linde, 66°K, 50–200 atm. 3=21640
- Ne–He maser, optical, saturation at 3.39 μ 3=19497
- Ne–He mixtures, elec. breakdown 0=2340
- Ne–He mixtures, glow discharge characteristics 0=7085
- Ne–He mixtures, laser effect transitions 3=22475
- Ne–He mixture, laser transition coupling 4=14935
- Ne–He mixtures, viscosity, temp. depend. 0=6820
- Ne–He and Ne–Ar mixtures, viscosity meas. at 20° and 30°C 4=21177
- Ne–He optical maser, Zeeman effect 2=16025
- Ne(78%)–He(22%), plasma, low-pressure, weakly ionized, electron mobility 3=14525
- Ne–He system, population study by resonant cavity spectroscopy 4=19288
- Ne–He 2s–2p transitions in laser 3=6358
- Ne–Hg mixtures, plasma props., meas. 3=14597
- Ne–Kr, diffusion of Kr⁸⁵ 3=3822
- Ne–Kr gas mixture, 2nd virial coeff. 2=15640
- Ne⁺–Ne, resonant electron capture 4=24588
- Ne⁺ and Ne²⁺, ionization by electron impact 4=5560
- Ne⁺–Xe, and Ne–Xe⁺ collisions; ionization 2=3718
- Ne²⁺–Xe, and Ne–Xe²⁺ collisions, ionization 3=2583
- Xe–Ne mixture, viscosity and thermal cond. 1=159
- Neon compounds**
- HeNe⁺, emission spectrum? 3=12822
- (NeA)⁺, formation and detection 0=12583
- Neptunium**
- conductivity, elec., temp. var. down to liquid He temps. 4=6918
- electric and thermoelectric props., 300–900°K 0=11657
- heats of soln., formation, thermistor micro-calorimeter 2=1305
- physical props., allotropic transformations 0=12056
- resistivity at 0.75°K 0=1084
- specific heat, in α -phase, temp. depend. 0=2789
- thermo electric power rel. to temp. 4=17542
- thermoelectric power, 20°K–room temp. 2=12552
- thermoelectricity, temp. var. down to liquid He temps. 4=6918
- vapour pressure 4=27385
- X-ray spectra, h.f.s. 1=14615
- Neptunium compounds**
- absorption spectra 0=20656
- Np, hexafluoride, vapour-pressure anomalies 2=8077
- Np³⁺ hexahalide solns., spectra, electron transfer and 5f \rightarrow 6f transitions 4=5186
- Np³⁺, electronic energy levels, theory and expt. 4=22310
- NpF₆, mag. and spectroscopic props., theory 0=7768
- NpF₆, paramagnetic resonance 0=3126
- NpF₆ in UF₆, mag. susceptibility 2=18890
- NpO₂, quadrupole–quadrupole interaction effects 1=6426
- NpO₂Rb(NO₃)₃, nuclear orientation of Np²³⁷ 2=393
- Neutrinos and antineutrinos**
- absorpt. in Coulomb field of nuclei 3=10086
- absorption in dense matter, rel. to Pauli exclusion princ. 4=11974
- absorption by nucleons, isotopic structure and interactions 2=3313

Neutrinos and antineutrinos—cont'd

absorption by nucleons, isotopic structure and interactions 3=4377
 analogy between Foldy-Wouthuysen and Lorentz transformations, for zero mass neutrino 4=21832
 ang. correl. with γ -quanta in K-capture 1=13735
 ang. correlation with electrons in β -decay 0=2502
 ang. correlation with electrons and photons in β -decay 0=2651
 ang. correlation with γ -rays, in L-capture 0=5720
 ang. distrib., Brookhaven 1962, compatibility with weak interaction theory 3=19610
 antiferromagnetic exchange integrals, meas. of ratio 2=12795
 antineutrino helicity in $\pi^- \rightarrow \mu^- + \bar{\nu}_\mu$, identity with β -decay 1=12093
 antineutrino momentum correlation in decay of polarized neutrons 1=500
 antineutrino resonant scatt., cosmic-ray evidence 1=483
 antineutrinos, detection by $p(\bar{\nu}, \beta^+)n$ 0=3955
 antineutrinos, properties, review 1=16726
 antineutrinos, resonance scatt. by electrons, rel. to μ decay 0=9333
 in astrophysics and cosmology 4=25000
 as basis of unified particle model "charge-on" concept 1=9722
 in β -decay theory 0=5696
 β - ν correlation in neutron decay 0=7349
 β and μ -meson decay products 1=16827
 from black-body radiation at $\sim 10^9$ K, supernova outburst prediction 1=2636
 boson prod. in protons and Fe 2=3312
 capture expts. proposed, rel. to intermediate boson theory 0=15252
 capture by protons and deuterons, with parity non-conservation 0=1269
 charge, charge radius and mag. moment 4=3382
 charge concept in global symmetry of weak interactions 1=13318
 charge moment meas. method, by scatt. with electrons 4=21833
 chargelessness, Lorentz-group treatment 1=4756
 correlation with electrons in He^6 β -decay 1=13711
 cosmic ray expts., from data deep underground 4=6164
 cosmic ray prod., in stars, e^+ detect. method 3=22224
 in cosmic rays, detection and interactions 1=19300
 in cosmic rays, neutrino astronomy 0=5631
 cosmic rays, primary, and early stages of universe and anti-matter regions 3=22224
 cosmological abundance of two types 4=13869
 cosmology, direction in time of neutrino travel 3=3534
 in cosmology, large population due to previous high-energy reactions, possible detection 1=10369
 cosmology, Olbers paradox problem 2=17231
 density in universe, upper limit 1=18007
 density in universe, upper limit 3=1507
 detection, > 100 GeV, from electron cascade, Cherenkov radio radiation, possibility 3=17242
 detection proposed by $\text{Rb}^{87} + \nu \rightarrow \text{Sr}^{87m} + e^-$ 0=20392
 detection in sun, by $\nu + \text{Be}^9$ reaction 3=19886
 discovery and measurement, review 3=4365
 doublets, quaternion formulation 4=24988
 dualon hypothesis, review 1=7223
 e^\pm prod., on nucleons, lower bound calc. 3=14952
 e.m. form factor 4=9167
 e.m. interactions, rel. to weak interact. with electrons 3=10085
 e.m. wave absorption, theory and possible expt. 4=6019
 $e^- \nu$ ang. correl. in β -decay, det. of form of interaction 0=1385
 $e^- \nu$ ang. correl. in neutron decay 0=11175
 $e^- \nu$ ang. correl., parity non-conservation 0=9315
 $e^- \nu$ and $e^- \nu$ scatt. 0=7336
 electric dipole moment, upper limit 0=15345
 electron-neutrino ang. correl., cloud-chamber invest. 2=5618
 electron pair annihil. prod., energy spectrum 4=21843
 from electrons and μ -mesons, identity 0=7332
 emission by hot stars 0=848
 emission of "mixed" neutrino in β -, μ - and π -decays 0=2525
 emission of $\nu \bar{\nu}$ pair in ν - e interaction 0=12838
 emission by stars, in late C-burning phases 3=13896
 energy density, and energy density of H rest mass 1=19172

Neutrinos and antineutrinos—cont'd

energy density, and energy density of H rest mass 2=22483
 energy density and ν -N scattering cross-section 3=14953
 field theory, rel. to momentum space and Pauli principle 1=13273
 field theory and transformations, in curved space-time 4=9166
 fields, as waves in Weyssenhoff fluid; interactions 2=28
 form factor, e.m. 4=15042
 four-component, rel. to lepton conservation 4=25059
 four-component theory 3=10083
 four-component theory of $\pi^\pm \rightarrow \mu^\pm + \nu + \gamma$ decay 0=2566
 four-fermion interactions with spin $\frac{3}{2}$ neutrinos 0=5693
 four, in lepton interactions rel. to SU_3 symm. 4=24991
 $\gamma + \gamma \rightarrow \nu + \bar{\nu}$ calc., cosmology implications 4=25060
 gas, density and pressure, var. temp., chemical pot. 4=4854
 geometrical unified-field theory 1=8050
 gravitational effects in cosmology 1=10369
 gravitational theory 0=14493
 half-life, precise meas. 0=2546
 helicity in association with e and μ 2=3258
 helicity in μ^- capture and β^+ decay 0=15328
 high-energy expts., test of intermediate boson theory 0=11085
 high energy interactions review and C.E.R.N. programme 4=21835
 high energy neutrinos, absorption 1=13390
 hyperon production by ν , cross-section with six form factors 4=9284
 infrared divergence, theory 0=11089
 interaction, predominance of μ over e , single neutrino explanation 4=880
 interactions with complex nuclei, assuming existence of a neutral lepton current 1=3161
 interactions, e.m. field—neutrino, intermediate boson production 4=9168
 interactions with electrons and nucleons at high energy, calc. 1=3162
 interactions, and existence of two kinds 3=10084
 interactions, high energy, cosmic-ray flux use possibility 3=22253
 interactions at high energy, cross-sections 0=17300
 interactions, high energy, review 4=21834
 interactions, intermediate boson prod., calc. 3=19609
 interactions, $\nu + N \rightarrow N + e + \pi$, theory 3=595
 interactions, μ prod. on N, calc. from μ prod. on nuclei 4=28016
 interactions, with nucleons, meson production 4=3434
 interactions with nucleons, pion production 2=18100
 interactions with nucleons, resonance effects in intermediate boson theory 1=12049
 interactions in spark chamber, existence of two kinds of ν 2=20308
 interactions, vector boson polarization 4=865
 interactions, for weak interaction selection rules tests 4=16817
 known properties, review, and astrophysical role 3=24686
 lepton pair production 4=11973
 leptonic structure and family interrelation 2=11913
 losses in nuclear processes 2=22485
 Majorana theory of muon's neutrino 3=10082
 mass effect on β -decay transitions, theory 1=9827
 $\mu + A \rightarrow \mu + A + \nu + \bar{\nu}$, cross-section in Coulomb field 1=19159
 from μ decay, effects of nonzero mass 1=16750
 and μ decay, non-zero rest mass effect 3=22158
 $\mu \rightarrow e + \nu + \bar{\nu}$, Michel parameter 2=5699
 μ , mass meas. proposal, from 3-secondary decays, momentum spectra, high energy 4=881
 μ prod., at great depth, detection possibility 3=19608
 $\mu^- + \text{He}^3 \rightarrow \text{H}^3 + \nu$, mass, upper limit 2=3369
 $\mu^- + \text{He}^3 \rightarrow \text{H}^3 + \nu$, mass, upper limit 3=4417
 $\mu^- + p \rightarrow \Lambda + \nu$, cross-sections 1=19173
 muonic, decay electron spectrum for finite mass 3=10135
 muonic, mass from π^- decay 4=19542
 muonic, mass rel. to decay electron spectrum 4=19540
 muonic, mass, upper limit meas. in $\mu + \text{He}^3 \rightarrow \text{H}^3 + \nu$ 4=19484
 muonic, rest-mass effects 4=19483
 muonic, scattering, effect of mag. moments 4=21760
 neutrino beams, production and possible expts. 1=16752

Neutrinos and antineutrinos—contd

neutrino differences for electron and muon association 3=4359
 "neutrino flip" in universal Fermi interaction 2=11863
 neutrino with mass, possibility of existence and decay rate 4=15041
 neutrino theory of light, photon as "bound state" of two neutrinos 4=30202
 $n + \nu \rightarrow \text{lepton} + \text{baryon}$, weak-interact. theory 4=5955
 nuclear excitation by antineutrinos, low-energy, from reactor, possibilities 3=17244
 nuclear reactions, rel. to ν_e and ν_μ identity 2=12228
 $\nu + A \rightarrow \nu + A + \mu^+ + \mu^-$, cross-section in Coulomb field 1=19159
 $\nu + A \rightarrow \nu + A + \mu^+ + \mu^-$, cross-sections in Coulomb field 2=22465
 $\nu + A \rightarrow \pi + \mu + A$, diffraction mechanism, in nucleus field 3=24688
 ν - K_{es} mode, non-locality and asymmetry 4=9170
 $\nu + n \rightarrow \mu^- + p$ and $\bar{\nu} + p \rightarrow e^- + p$, resonances, theory 0=11085
 $\nu + n \rightarrow p + e^-$, cross-section, calc. 1=3162
 $\nu + n \rightarrow p + e^-$, mediation by Regge particles, theory 3=24608
 ν -N collisions, π prod. scatt. amplitude 2=18154
 $\nu + N \rightarrow e + N$, cross-section, rel. to nucleon form-factors 0=17300
 ν -N interaction, π -meson production 3=4429
 ν -N interaction, π -meson production 2=3363
 ν -N and $\bar{\nu}$ -N collisions, pion prod. 3=7825
 $\nu + N \rightarrow N + e$, rel. to inner structure of the nucleon 1=16768
 ν_μ , mass uncertainty 4=25001
 $\nu + N \rightarrow Y + l$, hyperon polarization 4=955
 $\nu + p \rightarrow p + e^- + \pi^+$, theory 3=10148
 $\nu + Z \rightarrow \mu + \pi + Z$, in nuclear Coulomb field 3=2293
 $\nu\bar{\nu}$ pairs, photoproduction on electrons 1=16751
 $\bar{\nu} + e^- \rightarrow \pi^- + \pi^0$, cross-sections 1=19173
 $\bar{\nu} + e^- \rightarrow \pi^- + \pi^0$, cross sections 2=22482
 $\bar{\nu} + p \rightarrow \Lambda + \mu^+$, cross-sections 1=19173
 $\bar{\nu} + p \rightarrow \Lambda + \mu^+$, cross-sections 2=22482
 $\bar{\nu} + p \rightarrow n + e^+$, calc. 1=3162
 $\bar{\nu} + p \rightarrow p + e^+ + \pi^-$, theory 3=10148
 only one neutrino existence in weak interactions 4=11970
 1-spinor field theory 4=27776
 $p + \nu \rightarrow \nu + \mu + \bar{e} + p$, theory 4=9106
 pair emission by hot plasma, calc. 3=7824
 pair production from photons 2=3299
 pair production from photons 3=2232
 pairs, bremsstrahlung emission, in nondegenerate gas, applic. stars 0=11141
 pairs, production in stars 4=4855
 particle mixture theory, assuming two kinds 3=7773
 photon theory of Jordan 3=16724
 photoneutrino emission in stars 3=23693
 photoproduction on electrons and radn from stars 3=577
 photoproduction on electrons and radiation from stars 2=273
 π, β decay differences, review 4=19455
 $\pi \rightarrow \mu(\text{or } e) + \nu$, corrections for ν mass 4=30245
 π -meson pair prod. on nuclei 4=30214
 π -meson or strange particle prod. at 1 GeV 2=18099
 π prod. by ν -N collision, weak-interaction matrix element 2=18153
 possible high-energy neutrino expts., theory 0=9332
 production in atmosphere 2=5774
 production in atmosphere 3=4493
 production, in $e^- + e^-$ annihilation in stars. 1=10875
 prod. of e^-e^+ pair in nucleon field 0=12913
 production by $\gamma + e^-$ and $e^+ + e^-$, evolution from stars 1=8445
 production, $\gamma + \gamma \rightarrow \nu + \bar{\nu}$, forbiddenness for local coupling 1=5700
 production, $\gamma + \gamma \rightarrow \nu + \bar{\nu} + \gamma$, reaction rate, method of calc. 1=5700
 prod., high-energy from p-synchrotron, horn focussed, external target 3=17343
 production of intermediate boson pairs, cross-section 4=5959
 production, in $\mu + A \rightarrow \mu + A + \nu + \bar{\nu}$, cross-sections in Coulomb field 2=22465
 production, in $\mu + p \rightarrow \Lambda + \nu$, cross-sections 2=22482
 production at 1 GeV, by CERN proton synchrotron 2=3119
 production from $1-10^5$ GeV N-N interactions 3=4366

Neutrinos and antineutrinos—contd

production of π and K-mesons at high energies 3=22163
 production of vector bosons and muons 3=10070
 proposed detection by resonance absorption in crystals at low temp. 0=3954
 quantum field theory 4=9050
 radiation from degenerate electron gas 4=882
 radioactivity and stellar emission 4=10818
 reactions, with C^{12} - N^{12} , rel. to type of neutrino 2=10145
 reactions, high-energy, conserved vector current and partially conserved axial-vector current hypotheses 4=28015
 reactions due to neutrinos, search for 4=6314
 reactions on spinless targets, Regge poles 4=25004
 Regge pole in high-energy reactions 3=22104
 relativistic hydrodynamic model 1=8043
 relativistic quantum theory 3=4327
 review for the non-specialist 4=6017
 review, problems 4=879
 review, theor. and exper. work 1=3160
 role in astrophysics, review 4=30213
 scatt. by nuclear Coulomb field 1=19120
 scatt. on nucleons in anomalous muon interact. model 3=5984
 scatt., by nucleons, high energy neutrinos, possibilities 3=17244
 scattering, by $e, \nu_e, \bar{\nu}_e$, spin correl. calc. 4=21836
 scattering on electrons, higher approximations 3=2241
 scattering, rel. to lepton currents 2=20254
 scattering on nuclei, rel. to $\mu^+\mu^-$ and e^+e^- pair prodn. 3=7880
 scattering on nuclei, rel. to $\mu^+\mu^-$ and e^+e^- pair production 2=20380
 scattering on nucleons in anomalous muon interaction model 2=16183
 scattering by nucleons, search at 1 GeV 3=578
 scattering by polarized electron, energy depend., theory 4=16269
 second neutrino and particle classifications 3=14871
 second neutrino and Sakata scheme generalization 3=4363
 from Σ^+ decay, polarization, validity of $|\Delta I| = \frac{1}{2}$ 0=15443
 single four-component neutrino theory 3=7823
 solar flux detection possibilities 1=21968
 spark chamber, CERN 3=24690
 spectra from stopped π and μ mesons 2=9887
 and star collapse 4=20899
 and star, collapse 4=26900
 star prod. of neutrinets by $\gamma + \gamma$ or $\gamma + (A, Z)$, small calc. cross-section 4=7952
 in stars evolution, prevention of supernovae 4=26899
 stars, super, sizes and masses calc. 4=23850
 stellar and cosmic, degradation 4=2387
 stellar emission, $\gamma + \gamma \rightarrow \gamma + \nu + \bar{\nu}$ process 3=24689
 stellar emission of photoneutrinos and pair annihilation neutrinos 1=8445
 stellar emission processes 2=2541
 stellar evolution, influence of neutrino processes 4=2334
 strange, rel. to elementary particle vacuum cloud 4=9076
 strange neutrino, ν' , as a basic particle in composite model of particles 1=15308
 strong radio sources, detection rel. to intermediate bosons 4=26962
 use to study weak interactions, capabilities of present accelerators 0=11140
 sun, detection by $Cl^{37}(\nu, e^-)Ar^{37}$ 4=20818-19
 sun radiation, intensity calc. on p-p cycles 4=26942
 from sun, and He content 4=29436
 theory, weak interaction concepts 1=8444
 transformation groups and proper states, gauge invariance 1=16749
 two-component, discussion 0=17274
 two-component eqn., invariance under transformations 1=13315
 two-component equation rel. to Maxwell's equations 1=16500
 two-component theory, compar. with Dirac particle theory 0=11173
 two kinds, rel. to basic particle-lepton symm. 4=3299
 two kinds, from interactions in spark chamber 2=20308
 two kinds proposed, conservation laws in lepton processes 0=12831
 2 kinds, rel. to 6-dimensional manifold systematization 3=12437
 two-neutrino hypothesis, lepton-baryon symmetry 2=22546

Neutrinos and antineutrinos—contd

- two-neutrino theory, approx. symmetries 3=538
- two-neutrino theory, rel. to fund. particle models 3=543
- two neutrinos or only one? review 4=16868
- 2 types, existence, theory 3=24687
- two-types, rel. to lepton currents in strangeness non-conserving processes 2=22484
- two types, rel. to lepton props. and universal interaction 0=11102
- unified model based on two kinds of neutrinos 4=6018
- unified model for elementary particles 2=11930
- universal degeneracy 3=3533
- universal density 4=30965
- wave eqns. and observables, canonical form 4=16839
- weak interactions, with nucleons, meson production 4=19420
- weak interactions, structure 4=11910
- Weyl's eqns. for two ν , from antisymm. tensor of rank two 4=11971
- Weyl's reln., elementary proof 4=11972
- $\text{He}^3(\nu, p)\text{D}$, 35 MeV 4=6147
- $\text{K}_0 \rightarrow \pi^+ + e^+ + \nu$ 2=22615

Neutron diffraction

- by assembly of atoms, cross-section, calc. 0=9366
- Born approx., time formalism 3=6905
- Bragg reflections in neutron crystal spectrometer 1=20498
- crystal plate, passage of slow neutrons 1=7251
- by crystals, thermodynamic Green's function methods 1=2369
- diffractometer collimators, optimum dimensions 1=511
- diffractometers design 2=11963
- ferromag. metals, band-theoretical interpretation 3=25540
- in ferromagnetics, spin-spin and spin-phonon interactions 1=14731
- in ferromagnetics, spin-spin and spin-phonon interactions 1=17971
- helical spin structures 1=6346
- interferometer for slow neutrons 2=9871
- in perfect crystals, theory 0=3203
- photographic detectors 2=20373
- photography of patterns 2=6868
- rare-earth ions, paramag. diffr., crystal field effects 1=20054
- single crystal equipment with high refl. angle spectrometer, crystal, at centre of reactor Ispra 2=9868
- BF_3 proportional counter 2=7874
- by Co-Fe alloy, polarized beam production 1=2062
- Dy, magnetic ordering 1=6347
- Er, measurements 298°-4.2°K 1=6348

Neutron diffraction crystallography

- See also Crystal structure, atomic.
- absorption filter for small wavelength beam 4=29088
- alkali halides, inelastic scatt., structure factors 3=22643
- alloys, binary and ternary, scatt. probability for conc. heterogeneities 1=12635
- alloys, lattice distortion effects 4=2064
- alloys, ordered, theory, review 4=2062
- alloys, unordered substitutional, lattice distortion effects 1=15060
- angle fixed with varying wavelength rather than vice-versa 4=7598
- anomalous absorpt. due to interference, ideal crystal 2=21502
- apparatus, two-circle, at Rossendorf 3=20822
- binary alloys, liquid-like, scattering data interpretation 3=11282
- coherent scatt. amplitudes for Cd and Eu 2=2385
- collimator choice for crystal spectrometer 0=18335
- collimator, optimum dimensions, calc. 3=6831
- collimators, optimum design 0=20150
- conference, Kyoto, September 1961 2=12750
- conference, Madras (1963) 4=20744
- conference (Reading, 1960) 0=18333
- use of correlation in 2-dimensional recording 4=29087
- cryostat for studies at liquid H_2 and He temps. 1=11865
- cryostat, for studies of polycrystals 0=12016
- crystal grating, u.s. 4=15416
- crystal monochromator, theory 4=17804

Neutron diffraction crystallography—contd

- crystal spectrometers, resolution and luminosity 2=14969
- crystals, with isolated impurity atoms, vibrational spectrum 3=25187
- developments and future aims 0=4604
- diffractometer 3=13433
- diffractometer with automatic programming-control system 3=1280
- diffractometer, construction and operating characteristics 3=20819
- diffractometer for high-flux reactor 0=3199
- diffractometer on IRT reactor 4=17805
- diffractometer JAERI 3=6829
- diffractometer, Oak Ridge data problems, procedure and precision 4=29086
- diffractometer, Oak Ridge, description 4=29089
- diffractometer with Pb monochromator 0=16292
- diffractometer, programmed multichannel 4=7600
- diffractometer, remote-controlled 1=11551
- diffractometers 4=4592
- diffractometers, single-crystal, automatic, review 3=8818
- dispersion relations meas., scatt. surface method 2=10822
- dynamical theory, recent developments 3=1301
- effect of nuclear spin states 1=19687
- elastic scatt., resonance from bound nuclei 2=14361
- in "elementary excitations" theory 4=9803
- four-circle diffractometer, geometrical props., optimum azimuth meas. 4=23413
- γ -Fe, f.c.c., antiferromagnetism determ. 2=21350
- goniometer, 3-circle, geometric props. 3=18288
- goniometer, three-circle, uses 3=1277
- goniostat, full circle, for diffrn. intensity data 3=8822
- helical spin structures, diffraction 1=20497
- H-bonded crystals, analysis 4=23416
- imperfect crystals, inelastic 1-phonon scatt. 1=20501
- impurities, isolated, effect on scattering 4=22474
- impurity centres in crystals, theory, scatt. cross-sections 1=20502
- impurity centres in crystals, theory, scatt. cross-sections 2=8817
- ionic crystals, charged defect and impurity diffuse scatt. theory 2=8818, 14996
- lattice parameter determination, error sources 1=15042
- lattice vibration detm. rel. to interatomic force consts. 3=749
- line profiles, meas. and interpretation (conference) 2=23831
- magnetic crystals, slow neutron scattering, theory 4=13578
- magnetic inelastic scattering 3=1116
- magnetic and molec. structures, recent progress 3=1289
- measurement of weak disordered scatt. using cold neutrons 4=26639
- metals, b.c.c., aspherical 3d-electron atomic scatt. factor 1=12633
- methods and some results 1=20451
- microdensitometer, integrating video 4=7595
- monochromator crystals, goniometer 2=16980
- mosaic crystals, collimation calc. 4=29146
- multiple scatt., static approx. for diffraction pattern 3=6013
- neutron monochromator using 111 reflection from Ge 3=23428
- nuclear coherent scatt. amplitudes of Th, U and Pu 2=10832
- "null matrix" method 3=13585
- pattern photography 3=1290
- phase transition points, second-order, scattering theory 0=16299
- point defect, cross-section calc., atomic relaxn., correction 4=30552
- point defects and lattice distortions, effect on neutron scatt. 1=957
- polarons in ionic crystals, conduction electrons, lattice vibrations 2=815, 8812
- rare earth Mn oxides, mag. struct. 4=20516
- rare-earth metals, mag. props. 3=1107
- research in Australia 3=3289
- review, phonon spectrum 4=2063
- sample-holder error, correction for 1=20481
- single-crystal automatic diffractometer, liq. He goniometer-mounted cryostat 0=4614
- single crystal diffraction intensities, effects of simultaneous reflections 4=23411

Neutron diffraction crystallography—contd

- single crystal diffractometers, conference 3=14932
 single-crystal diffractometry 0=3196
 single-crystal, intensity meas. 4=30842
 slow neutrons, parallel-sided crystal "optical wave"
 theory 2=816, 8813
 solid solutions, f.c.c., static distortions, intensity
 weakening 1=6524
 solid solutions, review 2=8865
 spectrometer, double-axis, Cracow 3=1281
 spectrometer, double-crystal type, theory 1=20453
 spectrometer, triple axis, focussing, graphical
 aid 4=22475
 spectrometers, design and data collection 4=23412
 spectrometers, resolution and luminosity 3=1279
 spinel-type solid solutions, scattering, rel. to composition
 and degree of inversion 3=20830
 step drive for diffractometers, use of "Slo-Syn" 1=15032
 thermal motion in crystals and molecules,
 conference 0=21153
 time-of-flight integrated intensity on kinematic diffr.
 theory 4=7599
 time-of-flight techniques, new method 4=13577
 two-circle device for 3-dim. data 1=20471
 water mol., H-bonded, study 2=15038
 $\text{Al}_2\text{Ca}_3(\text{SiO}_3)_3$, structure refinement, thermal and positional
 parameters calc., comp. with X-ray parameters 4=29092
 $\text{Al}_2\text{O}_3 \cdot 3\text{CaO} \cdot 6\text{H}_2\text{O}$, structure analysis 4=29093
 Ar, inelastic scattering meas. 4=27171
 BP, coherent Bragg scatt. 3=1312
 BaNiO_2 , mag. structure analysis 4=29102
 CaWO_4 , structure analysis, temp. parameters
 meas. 4=29102
 CdO, Cd scatt. amplitudes 2=15011
 CdS, coherent Bragg scatt. 3=1312
 Co mag. form factors, spin density distrib., Hartree-Fock
 calc. 3=1103
 Cr, antiferromag. props. 3=1109
 Cr^{3+} , paramagnetic, rel. to antiferromag. props. 2=21349
 CuSO_4 , mag. structure meas. 4=29102
 D_2 , solid, at 12° K 1=20528
 EuO , rel. to ferromagnetism 2=21334
 Eu_2O_3 , Eu scatt. amplitudes 2=15011
 Fe, diffraction intensities, effects of simultaneous
 reflections 4=23411
 Fe, effect of moving lattices on diffraction
 pattern 4=13576
 Fe mag. form factors, spin density distrib., Hartree-Fock
 calc. 3=1103
 $\text{Fe}_{1-x}\text{Ge}_x$, by polarized neut. diffractometer 4=28810
 Fe-Ni alloys, mag. moments and degree of order 3=1106
 Fe_2O_3 - V_2O_5 system, rel. to mag. props. 2=18921
 FeSiO_4 , mag. structure and transitions meas. 4=29102
 FeSn_2 , antiferromagnetism 3=1111
 Ge, 1.18A, double crystal rocking spectrometer 4=15790
 H atom location and thermal motion detm. 3=6832
 H_2 , solid, at 12° K 1=20528
 HoD_3 , structure, space gp., comparison with X-ray
 diffr. 4=29112
 InSb , 1.18A, double crystal rocking spectrometer 4=15790
 KHC_2O_4 , H_2 -atom posn. meas. 4=29132
 $\text{Li}_2\text{SO}_4 \cdot \text{H}_2\text{O}$, coherent Bragg scatt. 3=1312
 Lu, slow-neutron cross-section 1=2219
 Mg, neutron coherent scattering length 3=25708
 MgV_2O_4 spinel 4=13597
 MnAu_2 , helical antiferromagnetism 1=12546
 $\text{Mn}_x\text{Fe}_{1-x}\text{O}_4$, ferrite 3=1114
 MnTe, crystal structure meas. com. with X-ray
 diffr. 4=28771
 $\text{Na}_2\text{Al}_2\text{Si}_2\text{O}_{10} \cdot 2\text{H}_2\text{O}$ (natrolite) 4=13603
 NaCl, spin-orbit effect 3=18294
 NaHF_2 , NaDF_2 , H-bond meas. 4=28308
 Ni, crit. scattering 3=1117
 Ni, crystal dynamics meas. 4=28359
 Ni mag. form factors, spin density distrib., Hartree-Fock
 calc. 3=1103
 NiO, magnetic form factor 3=1104
 NiZrH_3 , NiZrD_3 , space group, atom pos., comp. with X-ray
 results 4=29125
 O_2 , β -phase solid, structure, constants 4=29127
 α -Pb azide, improved structure calc. 4=10538
 Pb monochromator 0=13976
 PbO, tetragonal 2=4413
 $\text{PdH}_{0.93}$, thermal motion 1=7532

Neutron diffraction crystallography—contd

- Si, spin-orbit effect 3=18294
 TbC_2 , Tb slow-neutron cross-section 1=2219
 UF_6 , fluorine form meas. 4=29146
 UFe_2 , ferromag. props. 3=1113
 UO_2 , $\text{UO}_2 \cdot x\text{H}_2\text{O}$, structure, atomic arrangement, space
 group 4=29145
 U_3O_8 , space group, posn. of atoms, spacing, comp. with X-ray
 and powder methods 4=29144
 U_4O_{10} , structure, atomic arrangement, space group 4=29145
 V, spin-orbit effect 3=18294
 V-Fe alloy, atomic magnetic moment detm. 3=1105
 Yb, slow-neutron cross-section 1=2219
 YbC_2 , Yb slow-neutron cross-section 1=2219
Neutron diffraction examination of materials
 alkali metals in liquid state 1=5266
 alloys, magnetic, spin arrangement review, 4=17615
 antiferromagnetics at low temp. in mag. field 0=13849
 antiferromagnets, mag. cross-section, effect of long-
 range order 1=7773
 apparatus for study of solids, universal 3=20608
 Born approx., time formalism 3=6905
 cold neutron research, review 0=7840
 crystals, imperfections, small clusters 3=13584
 4,4'-dichlorodiphenyl sulphone, C-H bond vibra-
 tions 0=4660
 diffractometers 4=4592
 fluids, law of corresponding states, cross-section
 relations 0=14650
 franklinite, magnon dispersion 3=3127
 franklinite, spin wave dispersion relation 1=20119
 graphite, artificial, crystalline anisotropy 3=5101
 graphite, thermal neutrons, scatt. 2=3344
 helical magnetic structures, scattering cross-
 section 3=18097
 iron group alloys, mag. moments, induction 2=12731
 liquefied gases, Al single-crystal sample cell 1=2745
 liquid struct., review 4=24165
 liquids, cold neutron interaction, effect of short-range
 order 4=24166
 liquids, H-bonded 3=5428
 liquids, radial distrib. analysis 2=17438
 mag. crit. temp. change in scatt. cross-section 4=28757
 mag. form factors, precise meas. 0=11800
 mag. phenomena in cryst. cpds. 0=3042
 mag. scatt. by exchange-coupled lattices,
 theory 0=16138
 mag. substances, review 0=11848
 magnetic crystals, scatt., theory 4=17632
 magnetic disorder scattering, meas. technique 3=1101
 magnetic helical structure, scatt. of polarized neutrons,
 calc. 3=6718
 magnetic materials, polarized neutron scattering,
 survey 4=1816
 magnetic props. of several substances 4=13105
 magnetic structures, slow neutron scatt., cross-
 sections and polarization 3=23182
 magnetism conference (Sheffield, 1959) 0=16120
 material research, review articles 4=13621
 measurement of weak disordered scatt. using cold
 neutrons 4=26639
 metals, magnetic, spin arrangement,
 review 4=17615
 multiple Bragg reflection from single crystals 2=19069
 n-paraffins, low frequency motions 4=12551
 polyethylene, crystalline, low-frequency motions 4=12551
 polypropylene, isotactic and atactic, low-frequency
 motions 4=12552
 rare earth antiferromagnetic cpds. 0=10188
 rare earth intermetallic cpds., mag. order 4=30716
 rare earth Mn oxides, mag. struct. 4=20516
 research in Australia 3=3289
 review, experimental methods 4=17829
 secondary extinction correction, Darwin formula 4=4637
 single-crystal specimens adjustment 2=4519
 solid solutions, inelastic 1-phonon scatt. 1=20501
 spectrometer for single crystal analysis, resolution
 and luminosity 1=20470
 sphere distrib. calc. from circles in section 4=2099
 spin density wave states, possible detection 3=2772
 transition-simple metal alloys, mag.
 scattering 2=12787, 14797
 trifluorides of 4d-transition elements, mag.
 ordering 1=1251

Neutron diffraction examination of materials—contd

water, diffusive motion of atoms 0=79
 Al single crystals, lineage struct. effect on rocking curves 4=23521
 AuMn, mag. structure 2=10683
 Au₂Mn, helicoidal antiferromagnetism 1=14763
 BiFeO₃, magnetic ordering, 20 and 600°K 3=5018
 Bi-Pb molten alloys 0=3521
 α-CdS, anomalous diffr. due to absorption by Cd¹¹³ 1=4046
 Ce, 4.2-300°K, phase transitions 1=9135
 Co, hexagonal, mag. form factor 4=30712
 Co, mag. form factor meas., spin density temp. var. explanation 4=4353
 Co, spin rotn., poly-domain structure study 4=28802
 CoAl₂O₄, ferrimag. prop. meas. 4=28836
 CoCr₂O₄, spiral ferrimag. configuration study 4=28835
 Co_{0.98}Fe_{0.02}, magnetic—nuclear neutron scattering amplitude 3=18099
 Co-Ni, mag. moments and degree of order 3=25539
 CoPt, mag. structure study, comp. with X-ray diffr. 4=28804
 Cr, antiferromagnetic structure 3=23195
 Cr, antiferromagnetism, proposed expt. 0=11910
 Cr, antiphase antiferromagnetic structure of single crystals 0=1816
 Cr, helical spin arrangement 0=21019
 Cr, magnetic structure 0=3041
 CrBr₃, mag. structure 2=18916
 Cr₃C₂ 1=2534
 CrCl₂, antiferromag. props. 0=10184
 CrF₂, antiferromag. props. 0=10184
 Cr₂O₃, mag. structure meas. 4=28822
 CrPt₃, ordered, ferromag. 2=12729
 CrS, mag. structure meas. 4=28762
 CrSe, mag. structure 1=9042
 Cr₃S₄, mag. structure meas., comp. with theory 4=28800
 Cr₃Se₄, mag. structure meas., comp. with theory 4=28800
 Cr₃Te₄, mag. structure meas., comp. with theory 4=28800
 CsMnF₃, mag. structure meas. 4=28859
 Cu, phonon dispersion in [100] direction 2=18526
 Cu₂MnAl, meas. for determ. of mag. moment distrib. 4=15644
 β-CuZn, short-range order study 3=16105
 Dy, coherent scatt. amplitudes 2=19075
 ErFeO₃, mag. props., 1.25-955°K 0=10187
 Eu, antiferromagnetism, below 91°K 4=13265
 Eu, mag. structure 2=12667
 Fe alloyed to Mn, Cr and Va, mag. moments, disorder, neutron diffr. study 4=28817
 Fe, critical scattering 0=16137
 Fe, scattering near crit. mag. temp. 4=13187
 Fe, small-angle scatt. by spin waves, theory confirmed 0=13805
 FeAl₂O₄, ferrimag. prop. meas. 4=28836
 FeCl₂, at low temp. in applied mag. field 0=13849
 FeCl₃, antiferromag. structure 2=18927
 Fe-Co alloys, mag. moment distrib. 3=18098
 Fe—Co, phase transformation, order—disorder 3=23478
 FeCO₃, antiferromag. state 0=11851
 Fe—Cr—Ni, paramag. study 4=15628
 FeCr₂O₄, magnetic struct. 4=13268
 FeCr₂O₄, mag. structure investig. 4=28833
 FeCr₂S₄, mag. structure, meas. 4=29116
 Fe—Mn, paramag. study 4=15628
 β—FeNaO₂, mag. structure meas. 4=28839
 FeO, 290 and 4.2°K, defect studies 0=3094
 α-Fe₂O₃, antiferromagnetic spin waves 0=8065
 α-Fe₂O₃, spin density of canted moment, meas. 4=28814
 Fe₃O₄, low temp. transition, mag. structure 0=13803
 FePd₃, ordered, ferromag. 2=12729
 FeRh, antiferromag.—ferromag. transformation 2=4220
 FeRh(50-50at. %), mag. transition, antiferro-ferro 4=23031
 Fe_{0.47}Rh_{0.53}, mag. moments, localized 3=15856
 FeS, magnetic spin fluct. scatt., temp. var. 4=28828
 Fe_{0.996}S, diffraction investig. of magnetic and structural props. 3=1023
 Fe_{0.902}S, mag. structure meas. 4=28762
 Fe_{1-δ}S 0=11913
 Fe_{1-δ}S, magnon scatt. calc. 4=28827
 Fe₇Se₈, mag. order and transitions, temp. var. 4=28816

Neutron diffraction examination of materials—contd

Fe—Si (10-27 at. %), Fe atom moments at var. sites 4=7263
 Fe₃Si₂, mag. order study 4=28794
 FeSn₂, antiferromag. 2=8660
 Gd, ferromagnetism, normal from 77 to 290°K 4=13182
 GeNi₂O₄, antiferromagnetic structure, meas. 4=28855
 He, liquid 0=7351
 He, liquid, atomic distrib., effects of λ-transition and pressure 0=12541-2
 He II 0=7021
 HoCo₈, mag. structure 3=8682
 HoFeO₃, mag. props., 1.25-955°K 0=10187
 HoIr₃, molecular moments meas. 4=28829
 K₂NiF₄, antiferromag. structure study 2=12799
 K₂NiF₄, antiferromagnetic stacking faults 4=13275
 K₂NiF₄, mag. structure, order study 4=28858
 La₂NiO₄, 117-210°K radial distrib. functions 1=2746
 La₂NiO₄, mag. structure, order study 4=28858
 La_{0.5}Sr_{1.5}MnO₄, mag. structure, order study 4=28858
 LiFe garnet, ferrimagetism, sublattice, neutron diffr. exam. 4=13236
 LiFeO₂, ordered and disordered, mag. structure 4=4394
 LiFe₃O₈, structure, sublattice mag. 4=28840
 LiH 2=15021
 Li_{1-x}Mn_{1-x}Se, mag. structure transitions 1=2467
 MgAl₂O₄, cation distrib., oxygen parameter meas. 4=29121
 MgZn ferrite magnetic structure 3=23184
 MnAl₂O₄, ferrimag. prop. meas. 4=28836
 Mn₂As, mag. structures 2=12741
 MnBr₂, at low temp. in applied mag. field 0=13849
 MnCO₃, antiferromag. state 0=11851
 Mn_{0.2}Cr_{0.8}Sb, poss. ferro-antiferromag. transition 0=3043
 MnF₂, antiferromagnetic spin wave dispersion, 4.2°K 4=13272
 Mn₂FeO₄, space gp., structure meas., ferrimag. intensity calc. 4=28842
 Mn₅Ge₃, mag. structure near Curie point 4=10281
 MnL₂, mag. ordering at low temps. 2=8661
 Mn₄N, mag. structure 0=11850
 MnNi₃, mag. order study 4=28794
 MnOOH, mag. structure meas., 4.2°K 4=28770
 MnPt₃, ordered, ferromag. 2=12729
 β—MnS, spin ordering, rel. to Moriya theory 2=12796
 Mn₂Sb_{0.7}As_{0.3}, mag. structures 2=12741
 MnSe₂, antiferromag. transition, temp. var., meas. 4=28822
 MnSn₂, antiferromag. transition, temp. var., meas. 4=28822
 MnTe, mag. structure meas. 4=28771
 MnV₂O₄, spinel, magnetic structure 3=5026
 MnYO₃, mag. order and prop. study 4=28820
 MnYO₃, magnetic ordering of Mn³⁺ ions 3=20610
 NH₄MnF₃, mag. structure meas. 4=28859
 Na, liquid, dynamics, vibrational modes 3=1675
 Na, liquid, f-sum rule, violation, 100, 200, 300°K 3=5429
 Na, 90°K, normal vibr. dispersion data 2=10320
 NaI, lattice vibrations 0=13479
 NaMnF₃, mag. structure meas. 4=28859
 Nb₂M₄O₇, (M = Mg, Mn, Fe, Co or Ni), magnetic structure determination 1=2535
 Nd, antiferromagnetism transitions, 1.6-20°K 4=13273
 NdFeO₃, mag. props., 1.25-955°K 0=10187
 Ni supercond. periodic struct. 4=18591
 Ni—Cr ordering 4=2000
 Ni₃Er, ferromag. structure meas. 4=28822
 Ni—Fe alloys, ferromag. spin-wave energies 4=13199
 NiMn, antiferromag. structure determination 0=11922
 NiO, antiferromagnetic domains 0=21063
 NiO, magnetic structure 0=11919
 NiO, Ni²⁺ aspherical 3d electron distrib. 1=6103
 NiS, mag. structure meas. 4=28762
 O, liquid 0=12414
 O, mag. props., antiferromag., 4.2-27°K 4=7633
 O—H—O bond, length, symmetry meas. 4=28175
 Pb, no mag. sub-lattice revealed 3=15913
 Pd alloys, mag. moments, induction 2=12731
 Pd₃Mn, antiphase domain structure 3=6729
 RbMnF₃, mag. structure meas. 4=28859
 S, liquid and plastic, structure 0=3517
 Ta₂M₄O₇, (M = Mg, Mn, Fe, Co or Ni), magnetic structure determination 1=2535
 TbIr₂, molecular moments meas. 4=28829
 TbMn₂, ferrimagetism, 4.2°K 4=13251

Neutron diffraction examination of materials—contd

- TiO₂, isotopically enriched, scatt. amplitudes for
 Ti⁴⁶⁻⁵⁰ 0=9684
 Tm, coherent scatt. amplitudes 2=19075
 Tm, mag. ordering 2=12663
 Tm, mag. structures study 2=14810
 U bar, crystalline texture study 0=18416
 U drawn rods, texture 0=6394
 YCo₂, mag. structure 3=8682
 Y₃Fe₅O₁₂, mag. structure 3=23186
 YNd garnet, magnetization curves and structure 3=23183
 ZrZn₂, ferromag., spin density 4=20552

Neutron spectra

- in BR-5 reactor, high-energy spectrum 1=19565
 bare Pu²³⁹ critical assembly, leakage spectrum 1=17218
 beam from WWR-S reactor 2=1949
 from breakup of deuterons on interactions with
 other particles 1=5791
 Bulk Shielding Reactor, calc. 0=9719
 capture spectroscopy, anticoincidence γ -ray
 spectrometer 1=13380
 cold neutron sources 2=20362
 collimation, 2.7 MeV neutrons 2=7876
 compound nuclei of high ang. momentum 1=17157
 d-d fusion, det. of centre-of-mass motion 2=20694
 from D-D reactions 1=16915
 (d,n) reactions with light nuclei 1=13846
 (d,n) reactions in Ne^{20,22} 2=10137
 d(n,2n)p at 14 MeV 2=9932
 d + n \rightarrow p + 2 n, 14.7 MeV 4=6056
 in d + p reactions 1=4798
 derivation from transmission data 1=505
 from deuteron diffraction scattering 1=13836
 deuteron disintegration on D, T, He³, at 9 MeV 3=2327
 from deuteron disintegration by protons 0=20244
 from diffusing media, velocity distrib., time-of-flight
 study 0=9369
 diffusing medium, thermal neutron spectrum 0=12980
 distrib. about resonance in moderator 4=25109
 epithermal, inside reactor, meas. method 3=25026
 epithermal, meas. by resonance detectors 2=7870
 evaporated from excited nucleus 3=7980
 evaporated from nuclei, proton bombarded 2=14088
 evaporation, in α -bombardment of V, Co, Ni 2=14139
 evaporation processes, Monte Carlo calc. 0=13217
 Experimental Breeder Reactor, Idaho; meas. 0=12999
 fast, calcs. rel. to radiation damage 4=17231
 fast chopper meas. 2=18137
 from fission, calculation 0=2691
 fission, computer programme 4=30359
 in fission, energy and number rel. to fissioning nucleus
 props. 2=506
 in fission; energy and number rel. to fissioning nucleus
 props. 3=686
 fission fragments, individual yields 2=18369
 fission, at 0, 45 and 90° to fragment flight 4=1117
 from fission of U²³⁵, U²³³, Pu²³⁹, Pu²⁴⁰, Cf²⁵² 1=5947
 in graphite assembly, expt. rel. to theory 2=20355
 HIFAR reactor 4=6427
 (heavy ion, xn)Tb¹⁴⁹ [Dy^{149,150,151}], x = 3 to 9, rel. to ang.
 momentum 4=22234
 heavy moderator, velocity spectrum 0=12974
 heterogeneous laminar reactor 1=3492
 heterogeneous reactor, slowing-down spectrum 1=2266
 homogeneous and heterogeneous water systems 2=5677
 in lattices, ang. thermal flux 3=12723
 lunar surface, leakage spectrum 1=18033
 Maxwellian, hardened, fission and capture cross-
 section 1=17173
 meas., by emulsions, microscope with punched card
 read out 4=9229
 meas. in moderators and reactor lattices 0=7657
 measurement 1=510
 from μ^- absorption by O¹⁶ 1=13467
 μ^- absorption at rest, virtual pion effects 0=17368
 from μ capture in C¹², Ne²⁰, Si²⁸, S³² 1=17134
 $\mu^- + \text{He}^4 \rightarrow \text{H}^3 + n + \nu$ 3=14997
 in (μ ,n) reactions 1=5929
 (n,na) in KI(Tl) and CsI(Tl), 12.1 to 21.5 MeV 3=2479
 (n,n'), (p,n) reactions, statistical model 2=5875
 nonmirror nuclei, (p,n) spectra rel. to isobaric
 state 2=13940
 nuclear reactor, fission, beamhole, VVR-M 4=1149

Neutron spectra—contd

- nuclear reactor, fission, conversion to fission,
 by U 4=1167
 nuclear reactor fuel element, composite, rapid,
 approx. 4=9612
 nuclear reactors, fast, calc. 4=1135
 nuclear reactors, fission, calc. 4=1143
 nuclei bomb. with 190 MeV protons, rel. to neutron evap.
 theory 0=5736
 p-d collisions at 135 MeV 1=19192
 from p-d reaction, 0, 180°, 4 MeV 0=17332
 (p,n) reactions in intermediate weight nuclei at
 5 MeV 1=8714
 (p,n) reactions, interpretation of groups 2=22809
 (p,n) reactions, 30, 50 MeV, and isobaric state excitation
 in spectra obs. 4=3653
 p-nucleus interaction at 32 MeV for 17 natural
 isotopes 1=19460
 photoneutrons from Co at 90° 2=423
 photoneutrons, comp. with photoproton spectra 0=7598
 π^- capture in Cu, Sn, Pb, n spectra 4=17179
 $\pi^- + d \rightarrow 2n + \gamma$, proposed det. of n-n scatt.
 length 1=4800
 π^- interacts. in emulsions 3=17312
 polarized neutrons, using mag. field 3=2269
 in polyethylene 2=5648
 prompt fission neutrons 1=4879
 prompt neutrons from Pu²⁴¹ fission 1=13872
 pulsed source in heavy moderator, calc. 0=9370
 pulsed source, space-energy distrib., time
 variation 2=9855
 in reactor, analysis rising matrix method 4=3741
 reactor, average, rel. to displacement damage 3=17517
 reactor calc., spatially dependent thermal
 spectra 2=6018
 reactor core, zero energy fast, VERA, prop. counter
 meas. 4=25469
 reactor, fast n, at high power, RA reactor 4=9616
 in reactor lattices, energy and spatial distrib. 1=17206-7
 in reactor, meas. 3=19912
 in reactor, meas. with Au and S probes 3=25018
 from reactor with modified split core 3=6334
 reactor spectrum, meas. using fast
 chopper 1=13448
 in reactor, thermal and epithermal 1=17224
 reactor, after traversing graphite, Pb, Fe
 1-10 MeV 4=12312
 reactor, water-cooled and moderated 1=7413
 reactors, fission, threshold detectors, meas.
 method 1=13908
 recoil spectra induced in nuclear emulsions 2=5652
 s- and p-wave, near A = 50, subshell effect 2=10116
 s- and p-wave neutron spectroscopy, heavy nuclei
 level spacings 1=13652
 s- and p-waves, peak height anal. and level assign-
 ments 0=5785
 s- and p-wave neutron spectroscopy, level density and
 neutron excess 1=13653
 s- and p-wave neutron spectroscopy, neutron
 resonance widths 1=13654
 scattered neutrons in Fe, Pb and U layers 1=19482
 scattering in poisoned media, thermal, eigenfunction
 calc. 4=25107
 secondary, due to 14 MeV neutron bomb. 0=11442
 secondary, due to 14 MeV neutron bomb. of U^{235,238} 0=11181
 secondary, due to 14 MeV neutrons passing through fissile
 material 0=9683
 shields, laminated, fast n calc. 4=30235
 slow neutrons in neutron beam 1=10897
 solids and liqs., rel. to mol. rot. 4=30413
 sources, various 0=17361
 space depend., in heterogeneous reactors 3=8157
 spectrum in medium with temp.
 discontinuity 1=13434
 swimming bath reactor, epithermal and fast
 neutrons 2=3672
 temperature distribution in heavy-gas moderator 2=1951
 temperature distribution in heterogeneous media 2=9856
 in thermal column of power-station reactor 1=771
 thermal flux in medium with temp. discontinuity 1=13434
 thermal, in moderator near temp. discontinuity 4=19896
 thermal neutrons in monatomic heavy gas 2=5667
 thermal, in reactor, calc. methods 4=1123

Neutron spectra — contd

thermal, in reactor, spatial dep. rel. to utilization factors 2=8039
 thermal, spatial dependence 2=16453-4
 thermal spectra in reactor, reflection correction 4=3742
 thermalization models in low-enrichment water-moderated reactor 0=12991
 thermalization, time dependent, space independent 2=11959
 time dependent, in graphite 4=12016
 time-dependent, in stationary free nuclei medium 1=17107
 time-of-flight, (d, n) and (n, n') fast neutrons 4=16916
 unmoderated assemblies, measurement 1=13899
 VVR reactor, fast 2=18384
 VVR-S reactor, Inst. Atomic Physics, Roumanian P.R. Academy 1=5954
 WWR-S reactor, Bucarest, thermal neutron spectrum 1=3481
 in water 2=5648
 water moderated reactor 0=7386
 Wigner-Wilkins thermal spectra calc., versus experiment 0=12975
 from ZOE reactor, emulsion meas. 0=12792
 250 keV-5 MeV, emulsion meas. 0=12793
 A⁴⁰, photoneutrons, up to 50 MeV bremsstrahlung energy 0=9660
 Ag(d, n), meas. with threshold detectors 4=22170
 Ag¹⁰⁷ (γ, n), rel. to giant res. splitting 2=16387
 Ag¹⁰⁷ (γ, n), rel. to giant res. splitting 3=6230
 Ag¹⁰⁹ (p, n) 1=2209
 Al(d, n), meas. with threshold detectors 4=22170
 Al, fast neutron scatt. 3=6254
 Al (O¹⁶), at 160 MeV 1=17157
 Al, photoneutrons from 30 MeV bremsstrahlung 4=3640
 Al(γ, n) 0=1430
 Al(p, n), 143 MeV 3=10349
 Al²⁷(n, np), 14.8 MeV, by cpd. nucleus theory 3=17481
 from Al²⁷(γ, n) reaction 1=5890-1
 Al²⁷(p, n)Si²⁷ 2=18272
 Al²⁷, scattering of 2.7 MeV neutrons 2=7991
 in Al, spherical and slab cases, 3 and 15 MeV 4=30233
 Am²⁴¹-Be(α, n) source 4=19520
 Au-O¹⁶ reaction, 164-142 MeV 4=22237
 from Au (γ, n) 1=2205
 Au(γ, n), 14 and 19 MeV 4=1066
 Au, proton bombarded, 6-12 MeV 3=12669
 from B¹⁰(d, n)C¹¹ 1=12211
 B¹⁰(d, n)C¹¹ 8.4 to 12.0 MeV 4=9555
 B¹⁰(d, nγ)C¹¹, rel. to C¹¹ energy levels 0=20455
 B¹¹(d, n)C¹², C¹²*, 12.3 MeV 4=22173
 Ba^{137, 138} (p, n) reactions, rel. to La^{137, 138} level densities 4=9409
 Be(d, n), meas. with threshold detectors 4=22170
 from Be(p, n) reaction at 680 MeV 0=2550
 Be⁹(α, n)C¹² 1=5939
 Be⁹(α, n)C¹² 2=14137
 Be⁹(α, n)C¹², ang. corr. with γ-ray spectra 1=19527
 Be⁹(α, n_{0,1})C¹², 14 to 23 MeV 4=9568
 Be⁹(α, n)C¹² using Po²¹⁰ α-source 4=1109
 Be⁹(d, n)B¹⁰, at 1.41, 1.88, 2.35 MeV 0=20457
 Be⁹(d, nγ)B¹⁰ 2=13817
 Be⁹(d, n)B¹⁰, 80 keV 3=2488
 Be⁹(d, nγ)B¹⁰, n-γ ang. correl. study 2=20669
 Be⁹(He³, n)C¹¹ 2=18360
 Be⁹(He³, n)C¹¹, 2 MeV 3=19881
 Be⁹(p, n)B⁹ reaction, for proton energies of 8 to 14 MeV 1=8728
 Be⁹(γ, n)Be⁸, at 5-17 MeV 1=8689
 Be⁹(t, n)B¹¹ 2=18360
 Be⁹(x, n)C¹², at 5.6 and 5.78 MeV 0=17609
 Bi(γ, n), excited transitions 4=22118
 Bi(γ, n), 14 and 19 MeV 4=1066
 Bi, photoneutrons 0=17616
 Bi, photoneutrons 1=7367
 C, scattering 0=7606
 C¹²(d, n)N¹³ at 4 MeV 1=19507
 C¹², 15 MeV scatt. 2=18329
 C¹²(γ, n)C¹¹ 3=662
 C¹²(γ, n)C¹³, using 30-5 MeV photons 3=4621
 C¹²(He³, n)O¹⁴, 1.8 to 5.3 MeV 2=1926
 C¹²(n, n')C¹² neutrons 2=9866
 C¹², photoneutrons at 30 MeV 0=11435
 C¹² + C¹² reaction at 9-29 MeV 0=13251

Neutron spectra —contd

C¹²(He³, n)O¹⁴, 1.8 to 5.5 MeV 4=9563
 C¹³(He³, n)O¹⁵ at 1.6 to 3.4 MeV 1=19526
 C¹³(α, n)O¹⁶, 14 to 23 MeV 4=9568
 C¹³(p, n)N¹³ 0=17499
 C¹⁴(p, n)N¹⁴, at up to 5 MeV 0=17583
 from C¹⁴(d, n)N¹⁵ 1=12212
 C¹⁴(d, n)N¹⁵ 4=9559
 C¹⁴(He³, n)O¹⁶ at 1.6 to 3.4 MeV 1=19526
 C¹⁶, delayed neutrons 1=7343
 Ca photoneutrons 0=5774
 Ca⁴⁰(d, n)Sc⁴¹, rel. to Sc⁴¹ levels 1=619
 Ca⁴⁰(γ, n)Ca³⁹ 4=17116
 Ca⁴⁰(γ, n), 15-30 MeV 4=22115
 Ca(μ, n), 7 to 23 MeV 4=3684
 Cd¹¹⁴(p, n) 1=2209
 Cf²⁵² fission 1=17170
 Cf²⁵², spontaneous fission, prompt neutrons 2=14145
 CH₄, liq., scattering rel. to mol. interaction 2=5002
 Cl^{35, 37}(α, n)K^{38, 40}, ground-state Q values 1=8778
 Co(d, n) 3=24963
 Co(d, n), meas. with threshold detectors 4=22170
 Co⁵⁹(p, n) 1=2209
 Co⁵⁹(p, n), 6.5 MeV direct processes 3=12667
 Co(p, n), at 7-8 MeV, evidence for statistical model 1=696
 Co⁵⁹, total photoneutron yield, from threshold to 30 MeV 0=20478
 Cr, 2.35 MeV neutron scattering 0=7607
 Cu(d, n) 3=24963
 Cu (O¹⁶), at 160 MeV 1=17157
 Cu⁶³(p, n)Zn⁶³ 2=18272
 DD and DT reactions 3=2276
 D-D fusion in Zeta 4=3013
 D-H reactions meas. 3=6290
 D(p, n), 143 MeV 3=10349
 D(t, n)He⁴, evidence for α excited state 2=22661
 in D₂O, after scattering, meas. 4=16092
 F¹⁹(α, n)Na²² 1=17152
 F¹⁹(d, n)Ne²⁰, Ed = 1.98 MeV 4=12262
 F¹⁹(d, nγ)Ne²⁰, at 0.5-2 MeV 0=9535
 F¹⁹(d, n)Ne²⁰, at 3.57 MeV 1=7398
 F¹⁹(p, n)Ne¹⁹, 5 to 11 MeV 3=17466
 Fe(d, n) 3=24963
 in Fe, spherical and slab cases, 3 and 15 MeV 4=30233
 Fe, 2.35 MeV neutron scattering 0=7607
 Fe⁵⁶(p, n)Co⁵⁶ 2=18272
 Fe⁵⁶, inelastic scatt. at 1.0-3.3 MeV 1=8734
 H-containing media, fast neutrons calc. 2=18116
 H₂BO₃ solutions, thermal 4=911
 in HF-H₂O soln., scattering, meas. 4=16092
 H₂O with absorbers 4=25112
 in H₂O, after scattering, meas. 4=16092
 from (He³, n) reactions on light nuclei 4=19824
 He⁴(γ, np)D³ 3=6093
 In(p, n), at 7-8 MeV, evidence for statistical model 1=696
 In¹¹⁵(γ, n), rel. to giant res. splitting 2=16387
 In¹¹⁵(γ, n), rel. to giant res. splitting 3=6230
 In¹¹⁵(p, n) 1=2209
 K photoneutrons 0=5774
 K^{39, 41}(α, n)Sc^{42, 44}, ground-state Q values 1=8778
 Li bombarded by deuterons, study of Be⁸ energy levels 0=3976
 Li(p, n), 143 MeV 3=10349
 Li, photoneutrons, up to 50 MeV bremsstrahlung energy 0=9660
 Li(t, n)Be, 0.8-2.6 MeV, rel. to thick target yields 4=17190
 Li⁶(n, dn') and Li⁷(n, tn'), 1.5-7.5 MeV 4=1089
 Li⁶(p, n) 0=7551
 Li⁶(p, n)Be⁶, 10 MeV protons 4=1007
 Li^{6, 7}(n, n'), secondary spectra 4=9531
 Li^{6, 7}(t, n) 2=18360
 Li⁷(α, n)B¹⁰, at 13.5 and 13.9 MeV 2=5969
 Li⁷(d, n)Be⁸, Ed = 1.98 MeV 4=12262
 Li⁷(He³, n) 2=18360
 Li⁷(p, n) 0=5785
 Li⁷(p, n) 0=7551
 Li⁷(p, n)Be⁷ 3=10346
 from Li⁷(p, n)Be⁷, Li⁶ loaded glass scintillator 2=5687
 Li⁷(p, n)Be⁷, 4.5 MeV 4=9503
 Li⁷(p, n)Be⁷, time-of-flight, rel. to Li target thickness 4=27713

Neutron spectra—contd

- Li⁷(p,n)Be^{7,*}, relative yields of neutron groups leading to ground and 430 keV state of Be⁷ 1=2212
 143 MeV protons bombarding nuclei 2=7987
 Mg²⁶(d,n)Al²⁶, at 2 and 6.54 MeV, neutron spectra 1=9876
 Mn(p,n), at 7-8 MeV, evidence for statistical model 1=696
 Mn⁵⁵, total photoneutron yield from threshold to 30 MeV 0=20478
 N¹⁴(γ , n), using 30.5 MeV photons 3=4622
 N¹⁴, photoneutrons up to 50 MeV bremsstrahlung energy 0=9660
 N¹⁵ elastic scattering, 440 to 1960 keV 4=22146
 N¹⁷, delayed neutrons 1=7362
 Na²³(d,n)Mg²⁴ 2=12215
 Nb (C¹², xn, xp) 1=17155
 Nb (O¹⁶, xn, xp) 1=17155
 Nb(p,n), at 7-8 MeV, evidence for statistical model 1=696
 Nb⁹³(p,n) 1=2209
 Ne^{20,22}(d,n)Na^{21,23} 2=1522
 Ne²²(d,n)Na²³ 4=22176
 Ni(d,n) 3=24963
 Ni (O¹⁶), at 160 MeV 1=17157
 Ni, proton bombarded, 6-12 MeV 3=12669
 and Ni⁵⁸(n,p)Co⁵⁸ branching ratio, and n dosimetry errors 4=19536
 O¹⁶(γ , n), giant dipole states decay 4=25374
 O¹⁶(γ , n), giant res. up to 170 MeV 2=20593
 O¹⁶(γ , n), giant res. up to 170 MeV 3=8076
 O¹⁶(γ , n)O¹⁵ 2=14078
 O¹⁶(γ , n)O¹⁵ 4=17116
 O¹⁶(γ , n)O¹⁵, pronounced structure 3=662
 O¹⁶(γ , n)O¹⁵, using 30.5 MeV photons 3=4621
 from O¹⁶(He³, n)Ne¹⁸ 1=12218
 O¹⁸, elastic scattering, 405 to 2702 keV 4=22147
 O¹⁸(γ , n), using 30.5 MeV photons 3=4622
 Pb(γ , n) excited transitions 4=22118
 Pb(γ , n) reaction 2=22796
 in μ -Pb- μ -Ag capture reactions 2=5948
 Pb, 2.35 MeV neutron scattering 0=7607
 Pb^{207,208}, time-of-flight, from γ , n reaction, and energy levels 4=1029
 Pb²⁰⁸, inelastic scattering, up to 4.5 MeV 3=17477
 Pb²¹⁰-Be source 0=15359
 Po 0=9542
 Po- α -Be source, meas. 3=17498
 Po-Be source 4=914
 Po-Be source, scintillation spectrometer 4=27864
 Po-Be source, using fast neutron spectrometer 4=12022
 Po-Be sources 2=5690
 Po-Be sources, central group 4=15193
 Po²¹⁰-B¹⁰(α , n)Po²¹⁰-B¹¹(α , n) sources 2=3620
 Pt(γ , n) 4=22118
 Pu-Be sources, central group 4=15193
 Pu-Be source, meas. by time-of-flight method 3=10131
 Pu + Be source 3=15159
 Pu²³⁹ fission 1=17170
 Pu²³⁹ fission, by thermal n 4=3715
 Ra-Be (α , n) source 4=22133
 Ra-Be source 4=914
 Ra + Be fast neutron source, study of Be⁸ energy levels 0=3976
 Rh(p,n), at 7-8 MeV, evidence for statistical model 1=696
 Rh, proton bombarded, 6-12 MeV 3=12669
 Rh¹⁰³(γ , n) rel. to giant res. splitting 2=16387
 Rh¹⁰³(γ , n), rel. to giant res. splitting 3=6230
 Rh¹⁰³(p,n) 1=2209
 S³²(d,n)Cl³³, rel. to Cl³³ levels 1=619
 S³²(γ , n)S³¹ 4=17116
 S³², photoneutrons 3=19832
 S³², scatt., 4.6 MeV 2=20635
 Sb-Be source, photoneutron energy 1=2066
 Sb¹²³(p,n) 1=2209
 Si²⁸(d,n)P²⁸, rel. to P²⁸ levels 1=619
 Sn¹¹²(p,n) 1=2209
 Sn¹²⁰(p,n) 1=2209
 T-D reactions meas. 3=6290
 T(d,n)He⁴, meas. using associated α -particle 2=5685
 T(d,pn)T, virtual state of He⁴ 3=2331
 T(He³, np)He⁴ 1=19293
 T(He³, n)Li⁵ 1=19293
 T(p,n)He³, 8 nsec resolution, meas. 2=5688
 Ta, proton bombarded, 6-12 MeV 3=12669

Neutron spectra—contd

- Ta (C¹², xn, xp) 1=17155
 Ta(d,n), meas. with threshold detectors 4=22170
 Ta(γ , n), 14 and 19 MeV 4=1066
 Ta (O¹⁶, xn, xp) 1=17155
 Ta¹⁸¹(γ , n), rel. to giant res. splitting 2=16387
 Ta¹⁸¹(γ , n), rel. to giant res. splitting 3=6230
 Tb¹⁵⁹(γ , n), rel. to giant res. splitting 2=16387
 Tb¹⁵⁹(γ , n), rel. to giant res. splitting 3=6230
 from U bomb. by 14 MeV neutrons 1=17160-1
 U(γ , n) 4=22118
 U-H₂O lattice 3=25029
 U-monoisopropylidiphenyl lattice 3=25029
 U, natural, equilib. spectrum ten group calc. 0=12952
 U, natural, fast neutron spectrum induced by thermal neutrons 2=14120
 U (O¹⁶, xn, xp) 1=17155
 U²³³ fission 1=17170
 U^{233, 235} in critical aqueous solns, η meas. 2=10155
 U²³⁵ fission 1=17170
 U²³⁵, fission neutron spectrum 2=8017
 U²³⁵ fission neutrons 3=12715
 U²³⁵ fission, by thermal n 4=3715
 U²³⁵ fission by thermal n 4=19851
 U²³⁵, fission by thermal neutrons 2=14149
 U²³⁵, fission by thermal neutrons 3=6311
 U²³⁵ slow fission, prompt neutrons 3=19893
 U²³⁵, total and fission cross-section study 0=13294
 from U^{235, 238} fission 0=13305
 U^{235, 238}, fission, ν/ν' ratio 0=9708
 U²³⁸, fission, nuclear temp. det. 3=8104
 V (C¹², xn, xp) 1=17155
 V (O¹⁶, xn, xp) 1=17155
 V (p,n) 1=695
 V(p,n), at 7-8 MeV, evidence for statistical model 1=696
 in ZH 2=5648
Neutron spectrometers
 Brookhaven fast chopper, modification 0=17348
 Chalk river crystal spectrometer, design of third axis 4=15076
 chamber for fast-neutron spectrometry 4=16921
 chopper for slow neutrons, rotating-crystal type, theory and operation 1=5738
 choppers, 2-rotors with flat slits, pulse shape and transmission function 3=19658
 chronotron calibration 1=2927
 chronotron for fast spectrometer 0=17353
 cloud chamber, methane diffusion 2=5537
 collimators, optimum dimensions, effect of total reflection 1=511
 collimators, rubber Soller slit 3=2281
 conical 2-crystal monochromator 1=12091
 control system, programmed 3=24753
 crystal, Bragg reflections 1=20498
 crystal, for diffraction at centre of reactor Ispra 2=9868
 crystal, efficiency meas. 1=10897
 crystal, for polarized neutrons 4=918
 crystal structure analysis, design and data collection 4=23412
 crystal type, for cross-section meas., 0.01-0.1 eV 0=17625
 crystal type, for diffraction, collimator choice 0=18335
 crystal type, Inst. Atomic Physics, Bucharest 0=15370
 crystal-type, for JEN-1 reactor at Madrid 2=18134
 crystal-type, for weak fluxes of slow neutrons 1=13447
 data recording system, automatic 4=15077
 decay spectrometer 4=19537
 depolarization, prevention 3=6014
 diffraction, for single crystal analysis, resolution and luminosity 1=20470
 distributed amplifier for m μ sec pulses 1=5581
 double-crystal, automatic, for reactor research 2=3356
 double-crystal, universal, nuclear and crystallographic applications 0=15369
 use of electron linear accel. at 30 MeV 4=622
 emulsion techniques, sampling and track meas methods 2=16105
 fast chopper installation 2=5692
 fast chopper for reactor neutron meas. 1=13448
 fast coincidence circuit with time analyser 0=9249
 fast-neutron scintillation, high-efficiency 2=1688

Neutron spectrometers—contd

for fast neutrons from reactions and collimated beams 4=16915
 fast pulse-shape discriminator, 1-30 MeV 2=5272
 fast, for reactor flux meas. 4=28092
 fast time-of-flight spectrometer 1=13846
 filter, variable thickness 3=17289
 fission, multiplication in Be⁹, using U²³⁵ converter 4=9594
 flat crystal, resolving power calc. 4=6079
 use of 4 in. hydrogen bubble chamber 0=2466
 by gas-recoil counter 1=19218
 geometrical consideration 3=20820
 Harwell low-energy time-of-flight project 0=9378
 high resolution neutron spectroscopy 1=2067
 high resolving power, plane- and bent-crystal type 0=11186
 higher-order contamination, Be crystal 2=3357
 isochronous flight path, ang. distrib. meas. 4=6082
 linear electron accelerator, 30 MeV, for neutron prodn. 3=5727
 for long-wavelength absorption meas. 1=16812
 low-energy spectra meas. 2=5648
 mechanical monochromator with helical slots 1=7254
 mechanical monochromators, effect of reflection 1=10896
 mechanical selector for slow neutrons 0=9379, 20156
 mechanical velocity selector 0=9380
 for monochromatic beams in thermal region 1=10895
 monochromator, single crystal, slow n 3=24748
 monochromators, with several disks and longit. rotational axis 3=19657
 monocrystal, anomalous reflections 1=19215
 multi-channel time-of-flight fast-neutron spectrometer 1=514
 neutron diffrn. research in Australia 3=3289
 using Nevis synchrocyclotron as pulsed neutron source 0=9381
 nomogram for interconverting units 3=17291
 nomogram for time-of-flight spectrometry 2=13821
 nuclear emulsion calibr. for RaD-Be source 4=25115
 with one data unit 2=5684
 plane crystal, 130 signal/noise ratio 0=5572
 polarized beam, right and left-handed implications 3=18294
 use of polarized type 4=16918
 processing output data, recorded on mag. tape 1=2935
 proton-recoil proportional counter with γ -discrim. 3=4412
 proton recoil spectrometer with Xe gas scintillation trigger 0=20457
 proton recoil telescope, semiconductor detector, meas. of flux and spectrum, 3.5 to 14 MeV 4=27866
 use of reaction Li⁶(n, t)He⁴ above 150 keV 3=19656
 reliability analysis of three methods for cont. spectra 4=16917
 resonance data analysis 0=5571
 review, biological and physical applications 0=17361
 for s- and p-wave anal. 0=5785
 scintillation, for fast n, using coincidence 3=10130
 scintillation, for fast neutrons 4=15075
 scintillation, organic scintillator 2=18141
 scintillation, for Po-Be source spectrum 4=27864
 scintillation type, for fast neutrons 1=4802
 semiconductor, detectors appl. 2=20199
 shape of bursts from phased chopper velocity-selectors, calc. 1=5737
 single-crystal, fast neutrons, γ -ray discrimination 2=18139
 single crystal, thermal neutron inelastic scattering effects 0=15366
 slow chopper and time-of-flight spectrometer, theory and design 0=7387
 slow-neutron crystal type, for resonance scatt. expts. 3=6012
 slow neutrons, U²³⁵ cross-section study 0=13294
 solid and liquid media, lattice dynamics 1=7525
 spectroscopy with nuclear explosions 0=20483
 stilbene, decay time discrim., γ -suppression 4=6084
 with stilbene scintillation crystal, for fast spectra 0=20161
 telescope arrangement, with 4 proportional counters 1=3194
 telescope type, for fast neutrons 2=1697
 time analyser, μ sec multichannel 3=3984
 time-of-flight 0=7386

Neutron spectrometers—contd

time-of-flight, appl. to diffr. crystallography 2=10822
 time-of-flight, circuits 1=11891
 time-of-flight, encoder for time interval variation 1=16912
 time-of-flight, fast chopper, at ORNL 1=17131
 time-of-flight, fast, coincidence circuits 1=18740
 time-of-flight, fast discriminator 3=19145
 time-of-flight, for fast neutrons 0=9383
 time-of-flight, fast neutrons 2=9867
 time-of-flight, for fast neutrons 2=13817
 time-of-flight for fast neutrons, chronotron 1=7011
 time-of-flight, 15 MeV c-scattered neutrons 2=9866
 time-of-flight, for 50-1000 keV 0=11181
 time-of-flight, improved 3=22395
 time-of-flight, increasing counting rate 0=17351
 time-of-flight instrument 1=2088
 time-of-flight, μ sec region 0=2552
 time-of-flight, nsec range 4=16913
 time-of-flight, for 0.5 to 15 MeV 0=20157
 time-of-flight, 0.5 to 15 MeV 3=19655
 time-of-flight, for 1 to 100 keV 2=5688
 time-of-flight, pulse time recording 0=2474
 time-of-flight, pulsed source, use of microtron 3=22139
 time-of-flight, semi-monochromatizing chopper 2=5691
 time-of-flight, slow-fast coincidence system 4=6080
 time-of-flight, for use with tandem accel. 3=4413
 time-of-flight, tape recording 0=17352
 time of flight technique for fast neutrons 0=17349
 time-of-flight, 20-channel time analyser for 1=4541
 time of flight, 256 channel analyzer with mag. memory 4=9223
 time-of-flight, 2×10^{-9} sec resolution time 2=13820
 time-of-flight, 2000 channel 0=9382
 time-to-amplitude converter, μ sec 2=19859
 triple axis, focussing, graphical aid 4=22175
 triple-axis type, focusing effects 4=916
 with two proportional counters, 1-10 MeV range 2=20367
 velocity selector, resonance 4=9224
 velocity selectors, phased choppers 3=4408
 window filter 4=16920
 for 2-10 MeV region 4=12022
 200 m flight path velocity spectrometer 4=16914
 256-channel selector, with pulsed cyclotron beam and Be target 2=1696
 Au-Ge junction 0=1234
 Be monochromators, competitive extinction 1=16814
 Co-Fe crystals used, precision cutting 3=20821
 H₂ bubble chamber appl. 2=9862
 He⁴, energy range extension 4=16919
 He³ filled, using pulse risetime discrimination 4=15078
 using Li⁶(n, α)He³ and two Si diodes 2=5686
 Li⁶(Eu) scintillation detector 0=17354
 Li⁶T:Eu scintillator in polyethylene moderating sphere 1=16813
 Li⁶T:Eu scintillator, response rel. to temp. 4=9225

Neutrons and antineutrons
 See also Cosmic rays, neutrons; Nucleons and anti-nucleons.
 age in D₂O, calc. 2=5672
 age in diphenyl 0=12979
 age in graphite, pulsed source method 3=2285
 age to indium resonance, D-D neutrons, heavy water 2=5671
 age meas. in metal-water lattices 2=5680
 age to In resonance in water, from D(d, n)He³ reaction 0=12986
 age in water, heavy water, D-D source, calc. 2=5670
 age in water, Po-B neutrons 0=12982
 age in water, U²³³ fission neutrons 0=15628
 antineutron annihilation star, electronic decay of π^0 1=13456
 antineutron prod. and annihilation in H, π prod. 2=18142
 antineutrons, properties, review 1=16726
 apparatus, velocity selector, resonance 4=9224
 asymmetry parameter, from μ^- capture by He⁴ 3=12460
 in atmosphere, leakage to radiation belt 1=15332
 in atmosphere, upper from solar flare radiation, dosage 4=26813
 "bare", local V-A theory, radiative corrections 3=591
 beam prodn., monochromatic and polarized 4=918
 beam, slow-neutron spectrum 1=10897

Neutrons and antineutrons—contd

beam from WWR-S reactor, spectrum 2=1949
 beam tube, in FRM reactor 2=10187
 beams, collimator surfaces for good definition 3=7867
 beams from Ge monochromator 3=23428
 beams, high-energy, of 45% polarization
 production 0=11182
 beams, polarized and focused, from mag. bottles 1=19219
 beams, seminar and conference, London (1962) 3=10128
 beams, 10^{-3} –10eV, prod. and study 3=24741
 β -decay 0=7349
 β -decay, electron polarization, radiative
 corrections 2=5644, 9851
 β -decay, energy spectrum V–A interaction
 theory 4=25011
 β -decay of polarized neutrons, asymmetries 0=11174
 β -decay of polarized neutrons, theory 2=16137
 β -decay, radiative corrections 3=24735
 β -decay theory, absence of V–A interference 0=12938
 capture in Li^7 , F^{19} and Al^{27} , rel. to nuclear
 polarization 1=5923
 capture, mag. spectrometer for int. conversion
 spectra 2=20313
 capture, (n, γ), Compton spectroscopes 2=5608
 capture, thermal and resonance, in Nd^{144} and
 Nd^{146} 1=2224
 charge, comparison with electron and
 proton 0=5521-2, 9310
 charge distrib. 2=9830
 charge, expt. limits 3=10091
 charge form factor 4=6023
 charge structure 2=20342
 charged radius, vanishing, rel. to Γ vector meson 2=9784
 chopper, model 2=16204
 chopper rotors, use of Mg–Cd alloy 3=8772
 chopper and time-of-flight device 1=19214
 cold, mag. mirrors, channels and bottles 1=19219
 cold neutron research on liquids and solids,
 review 0=7840
 cold neutrons, experimental techniques 0=7351
 cold, storage in cavity with Be walls 2=20376
 cold, storage in cavity with Be walls 3=7870
 collimators, optimum design 0=20150
 cross-sections, foil activation expt. 2=5650
 decay, e^- - ν ang. correl., from recoil p spectrum 3=7861
 decay, e^- - ν angular correl. 0=11175
 decay, electromagnetic corrections 0=15379
 decay, half-life 0=12937
 decay of polarized neutrons, spatial asymmetries 1=500
 decay, rare mode 0=15307
 decay, $\nu_1 + n \rightarrow p + e^-$, effect of ν helicity 0=15328
 deuteron-bound, form-factor radius, by electron
 scatt. 2=20600
 di-neutron, existence, from n–d scatt. 3=22137
 dineutron, existence possibility 4=6055
 di-neutron, possible existence from d–T react. at
 160–180 keV 2=11944
 distribution with a plane source in a non-multiplying
 media 4=19530
 e.m. structure, from electron–deuteron
 scattering 1=12080
 effective temperature, measurement 1=17233
 electric form factor, sign 2=5643
 electric form factor, slope, rel. to polarizability 4=27859
 electric and magnetic structure 1=7234
 electric polarizability, calc. using relativistic meson
 theory 1=10887
 electromag. structure, from e–d inelastic
 scatt. 1=12079
 electromagnetic props., charge-core model, appl. to
 e–d scatt. 1=7232
 electromagnetic structure and e–d scatt. 3=5985
 in electron-capture radioactivity, review 1=2192
 emission from U^{235} fragments 4=25442
 energy of photoneutrons from Sb–Be source 1=2066
 evaporated from proton bombarded nuclei 2=14088
 fast neutrons, scattered by light nuclei 2=13806
 Fermi age in iron and steel 0=7369
 fission energy, age in water 2=5985
 "flux", defence of use 2=1687
 flux, disturbed, near detectors 2=16208
 flux in JEN-1 reactor 2=3665

Neutrons and antineutrons—contd

flux perturbations by thermal neutron
 detectors 2=5651
 flux in reactor, effect of cylindrical channel 2=3664
 flux in rocks 0=16404
 flux at surface of holes in a reactor 2=3661
 flux, terminology discussed 1=13424-5
 flux, unit 1=9696
 flux in VVR-S nuclear reactor 2=6049, 6056
 form factor 0=20146
 form factor, charge, in H^3 , He^3 4=6143
 form factor, Dirac, from π electroproduction 4=19544
 form factor, rel. to electron–deuteron scatt. 2=13787
 form factor meas., electron–neutron coincidences 3=4397
 form factor, rel. to electron scatt. 2=22523
 form factor, from scatt., e–d, e–p 3=14971
 form factors, from deuteron disintegration 3=17351
 form factors, rel. to deuteron
 electrodisintegration 3=2326
 form factors, Dirac and Pauli, from e–p and e–d
 scatt. 1=7233
 form factors, from e–d scatt. 3=14959
 form factors, from e–d scatt. 3=19612
 form factors, from inelastic e–d scatt. data 4=19487
 form factors, from inelastic e^- -d scatt. at 300–
 650 MeV 0=9365
 form factors, from quasielastic e–d scatt. 4=25206
 14.6 MeV, incident on S^{32} 3=19862
 fundamental experiments 2=1616
 gas of, binding energy 0=9286
 gas of neutrons, energy per particle 1=19204
 heating in reactor fuel elements 1=13895
 Hughes (D.J.), contributions 0=19961
 isotopic spin operator, eigen values 0=7312
 and K^0 , small charge theory 4=21746
 lifetime meas. in water samples 2=7860
 lifetime in reactor core 1=5951
 macroscopic preps. of neutron gas 4=29557
 mag. form factor, ratio to that of proton 0=20147
 mag. form factor, suggested det. 0=350
 mag. moment, anomalous 0=5555
 mag. moment, hyperon and K-meson contrib. 0=5554
 mag. moment, from π electroproduction on p and
 d 0=17402
 magnetic moment, calc. and exper. values 1=5721
 magnetic radius 2=3556
 magnetic radius 3=2438
 mass difference, n–H 0=20246
 mass difference, n–p 3=6609
 mass difference, n–p, from T(p,n) He^3 threshold 4=19610
 mass difference p–n, meson theory 0=1275
 mass difference with protons, rel. to electron scatt.
 expts. 4=9187
 mass, rel. to electron mass 0=5553
 meson-theoretical structure 2=20600
 meson theory, strong-coupling, form factors 3=12449
 moderation, finite solid assembly, diffusion neutron
 cooling 0=12992
 moderation by H_2 , Monte Carlo calc. 0=12976
 moderation, by monatomic gas 0=7370
 moderation, neutron age in D_2O – H_2O mixtures 0=12984
 moderation, Po–Be neutrons in Al-, Zr- or Fe-water
 mixtures 0=12983
 moderation, stochastic process calc. of distri-
 butions 0=12981
 moderation in water, Wigner–Wilkins thermal spectra
 calc., rel. to expt. 0=12975
 moisture meas. 3=7076
 monochromator using Ge crystal 1=8465
 monochromator, 0.001–2 eV range 2=18140
 monochromators, goniometer for large crystals
 used 2=16980
 multiplying assembly, probab. distrib. 3=10404
 n–p pairs, γ -ray absorpt. 3=15052
 neutron-absorbing CaB_6 bricks 1=2061
 neutron gas, low-density, energy calc. 1=4803
 neutron–neutron well logging theory 3=10118
 neutron–proton mass difference 1=16767
 nuclear n–p separation energies, tables 1=16964
 and nuclei, historical review 0=21044-5
 origin of elements, theory, neutron-capture
 process 1=17109
 p–n mass diff., S-matrix calc. 4=27839

Neutrons and antineutrons—contd

p-n mass difference 3=7840
 pairing correl. in nuclei 3=12542
 pairing energy in nucleus 3=10199
 photoneutron standard, construction and absolute calibration 1=10893
 polarizabilities, from scatt. meas. and meson theory 4=6034
 prompt, in fission of heavy nuclei, emission moment 4=25441
 prompt neutron lifetime, two-group calc. 0=12988
 prompt neutron periods of metal critical assemblies 0=13307
 in proposed dimensional expression of mass 1=18239
 proton-neutron mass difference 2=13794
 pulsed, deuteron reaction, deuteron pulsation system 2=5396
 pulsed source for reactor measurements 1=4885
 pulses, monoenergetic, prod. by total refl. 3=4410
 in quantum field theory, basic ideas 2=22378
 radiative capture, mag. dipole matrix element 3=19710
 radiography 1=10287
 radiography technique 3=16475
 reactor asymmetric thin regions, net current 3=4683
 reactor kinetics, integral equation for density 2=3662
 reactor neutronics, mathematical problems 0=17640
 reactor shielding, multigroup calc. 2=14175
 reactor thermal flux in cell with temp.-discont. 2=8030
 reactors, boiling water, shielding calc. 2=8041
 in reactors, component of approx. collimated fast beam 0=15622
 in reactors, loose coupled systems, dynamics 2=6002
 in reactors, space-time kinetic eqns. 2=16452
 refraction of cold neutron sheaves, refractive index expression 4=29085
 resonance peaks, correction for exptl. resolution 1=17982
 S-wave neutrons, resonance transmission, computational methods 1=19208
 self-shielding in simple plane lattice 0=13337
 slow, flux measurement 2=6072
 slowing down, energy distrib., Boltzmann eqn., exact and asympt. soln. 4=21870
 slowing-down, Fermi age in light water, calc. 1=16804
 slowing-down of fission neutrons in BeO to 1.44 and 0.3 eV 3=4404
 slowing-down, group-theoretical treatment 1=8463
 slowing down in infinite homog. medium, exact and asympt. time-energy distrib. 4=21871
 slowing-down length in water, using pulsed source 0=3975
 slowing-down relaxation time, in moderators 0=7371
 slowing down as stochastic process 2=11957
 slowing-down time in water, meas. 0=12977
 slowing-down, with or without capture, in homog. infinite medium 0=11178
 solar, source of radiation belts, inner and outer 4=26835
 source, α + Be, He pressure build-up avoidance 4=15074
 source laboratory, up to 1000 Curie 4=9219
 source, Po-Be, γ -spectrum 4=19704
 source, polarized, T(d, n)He⁴, 0.1-7.7 MeV 2=293
 sources 1=10287
 sources, calibration 4=19519
 sources, data manual 2=13699
 sources, Ra α + Be, intercalibration measurements 1=7253
 spin and charge states, generalized field theory 3=24603
 star models, Fermi neutron gas 0=10526
 stars stability 4=26898
 stars, as X-ray sources 4=29378
 static potential, from n-e⁻ interaction analysis 0=11176
 storage of cold neutrons in a cavity, discussion 0=13000
 structure; core and meson-cloud model 2=1680
 structure and form-factor 1=16837
 temperature, in graphite 0=12971
 terminology, flux, macroscopic cross-section, multiplication const. 1=13424-5
 thermal flux, energy-space distrib. calc. 4=12297
 thermal group constants for H mixtures, calc. 0=12978
 thermal, N.B.S. density standard 2=18390
 thermal neutron flux kernel temp. dependence 1=16807
 thermal neutrons, energy distrib. in solid moderator assembly 1=16794
 thermal to resonance neutron densities, ratio, thick In foil meas. 0=12994

Neutrons and antineutrons—contd

thermal, spatial distrib. meas. 2=20358
 thermal spectra across lattice cells, calc. 3=2530
 thermal, transport in heavy-gas moderator, theory 2=10171-2
 thermalization, heavy crystalline moderator 0=12969
 thermalization lattice containing U and Pu fuel in water, calc. 0=12991
 thermalization, theory 0=12987
 thermalization, time dependent, space independent 2=11959
 time-of-flight from π^- + p reaction 0=2568
 time-of-flight, time-shared, computer analysis 4=27870
 total cross-section for Pu²⁴¹ below 12 eV 1=11027
 total cross-sections for 765 MeV 1=683
 total cross-sections for U²³⁵ and Th²³², 2-8 MeV 4=12238
 transmission along air-filled ducts in water, fast and thermal fluxes 2=22535
 transport, energy-dependent, for plane geometry 2=7864
 transport eqn., Chebyshev polynomial approximation 1=10891
 transport eqn., numerical soln. 4=3423
 transport equation, complex cells, Monte-Carlo calc. 4=19528
 transport equation, numerical integration 0=12374
 transport m.f.p. meas. in graphite by poison method corr. 4=19532
 transport, Milne's problem, velocity depend. 2=16201
 transport problems, soln. by conditional Monte Carlo 2=4968
 transport processes 0=16616
 transport theory 0=15363-4
 transport theory 2=2654
 transport theory, critical thickness of slabs 1=10890
 transport theory problems 4=906
 transport, Yvon approx. method appl. 2=11950
 unit of flux 1=7248
 in VVR-S reactor, flux 2=8043
 in water, spatial distrib. from N¹⁷ source 0=12993
 word, origin 1=7245
 Cf²⁵² fission, prompt neutrons 4=19838
 in D discharge, axial distrib. 1=7246
 NaCl, monochromator using Ge crystal 1=8465
 O¹⁶, neutron elastic scattering, rel. to slowing-down lengths 1=16811
 Pb, crystal growth, large single, for neutron monochromatization 3=23403
 Po-Be, age in Dowtherm-A 4=15068
 Si, monochromator using Ge crystal 1=8465
 in Tb¹⁵⁹, resonance spins, determ. with polarized neutrons and Tb target 4=17069
 Zn, crystal growth, large single, for neutron monochromatization 3=23403

absorption

See also Nuclear excitation; Nuclear reactions, neutrons.
 activation analysis, self-shielding for finite cylinders 4=7805
 antineutrons, theory 0=15343
 in arbitrary body, by multiple scatt. 0=12943
 capture cross-section meas., γ -ray detector 4=9164
 capture in crystals, correlation functions 3=20068
 capture, slow, by atoms in crystal lattice 2=10302
 collision number for slow down from high speeds 2=7865
 concrete, 0.5-14 MeV, var. thicknesses, calc. 4=6070
 cross-sections by pulsed source method 2=5683
 cross-sections, thermal, burnup calc. 2=5658
 cross-sections for various elements, pile oscillator meas. 3=24946
 crystalline powder 1=13431
 decay of thermalized neutron pulse 1=13439
 delayed, in reactor, short-term effect, calc. 0=4150
 Doppler broadening of cross-sections 3=10418
 Doppler broadening for Maxwellian gas 3=19049
 Doppler effect in neutron absorption resonances 1=5919
 effective cadmium cutoff energies 1=507
 in emulsion, Li⁶-loaded, escape from Li⁶(n, α)H³ 2=18331
 energy distrib., Wilkins eqn. 2=5679
 energy dose absorbed, calorimetric meas. 4=6087
 fission neutrons, in U-water media 0=3974
 fission neutrons, in water 0=3972
 fission-to-indium age in water 1=16805
 flux meas., analysis of foil activation expts. 2=5681

Neutrons and antineutrons—contd**absorption—contd**

- flux perturbation theory 2=9859
- foils, thermal self-shielding and edge effects 4=913
- graphite, rethermalization, cross-section meas. 1=17239
- graphite, slowing-down lengths 1=16811
- graphite-thorium moderators, resonance absorpt. 3=25028
- heavy water slowing-down lengths 1=16811
- heterogeneous reactors, resonance absorption theory 1=3488-9
- in homogeneous media, fast neutron spectrum 1=19211
- ice, at 90°K, meas. 2=9860
- industrial-shielding calc. 2=9873
- inelastic cross-section meas. by sphere transmission, for fission neutrons 0=7624-6
- in infinite homogeneous medium, exact theory 1=19209
- in iron-water shields, calc. of attenuation 2=20712
- in liquids, resonance absorption, Doppler effect 1=18437
- in materials with grain structure 4=912
- mean lifetime experiments with thermal neutrons, interpretation 1=504
- measurement in VVR-S reactor by oscillator method 2=6046
- metal-water shields, thermal neutron flux distrib. 1=17237
- metals, at 2200 M/sec 2=6046
- model, non-escape probability for convex bodies 0=12973
- in moderator, stochastic study 0=21052
- monoisopropylidophenyl, U^{235} fission neutrons 2=18127
- Monte Carlo calc., reciprocity theorem 2=5673
- NBS standard thermal neutron flux recalibration 2=3354
- rel. to "negative states" of resulting nucleus 3=12571
- neutron age in diphenyl-impregnated graphite 1=2060
- neutron temperature spatial dependence in moderators 1=3192
- neutrons in nuclei, $90 < A < 130$ 1=19485
- nomogram for foil calc. 0=9372
- in nonmoderating assemblies 3=17287
- nuclear capture cross-section, effect of resonance absorber 2=14108
- nuclear reactor core of concentric cylinders 4=19856
- nuclear reactor shielding, materials data 2=3668
- optical-model fringe absorption and neutron strength function, erratum 3=8113
- optical model, fringe, rel. to strength function 2=20654
- optimum conditions, rel. to Beer's law 3=24041
- paired-chamber type pile oscillator 2=5465
- passage of fast neutrons through lead and iron 1=19213
- plexiglas 2=20357
- polyethylene, 0.5-14 MeV, var. thicknesses, calc. 4=6070
- polyethylene, removal cross-section 2=20357
- principles 1=10287
- rare-earth oxide control rods, relative worths 0=13377
- rate meas. in reactor, probe effects 3=12726
- reactor calc., spatially dependent thermal spectrum 2=6018
- reactor control materials, relative worth 1=11053-4
- by reactor control rods 1=13888
- reactors, resonance 4=30360
- resonance absorbers, Maxwellian-averaged cross-sections calc. 0=12970
- resonance absorption, in close-packed lattice 0=7666
- resonance absorption, in heterogeneous structures 4=28081
- resonance absorption, in homogeneous U-H mixtures 0=7619
- resonance absorption, in infinite homogeneous medium 0=9373
- resonance absorption integral, temp. depend. 0=7375
- resonance absorption integrals, calc. 0=13280
- resonance absorption integrals, Dancoff correction 0=12990
- resonance absorption integrals, effect of reaction-width fluctuations 0=7376
- resonance absorption integrals, evaluation, numerical approx., tables 0=20151
- resonance absorption integrals for 42 elements 0=9666
- resonance absorption, interference from potential scatt. 2=5947
- resonance absorption, in lumps with nonunif. temp. distrib. 3=6323
- resonance absorption in power reactor 0=7667

Neutrons and antineutrons—contd**absorption—contd**

- resonance absorption, theory rel. to expt. 2=16202
- resonance absorption in U, geometry effects 0=13268
- resonance, approx. to Doppler broadening functions 4=12308
- resonance, calc., lack of temp. effect 3=22147
- resonance capture in Au rod, Monte Carlo calculations 1=13822
- resonance capture in fuel element bundles 1=3485
- resonance capture in heterogeneous reactors, variational principle 4=22256
- resonance capture, in lowest U^{238} reson., for U-C and U- H_2O lattices 1=17203
- resonance capture in nonheavy absorbers 1=16806
- resonance capture, rel. to Pt^{196} level spins 0=20355
- resonance capture in U^{238} rod 2=3601
- resonance cross-sections, Doppler-broadened, calc. 4=12018
- resonance escape probab. in hydrogenous lattices 0=13369
- resonance escape probab. in slab lattices 0=4152
- resonance integral representation generalized for all cases 1=17240
- resonance integrals, capture and fission cross-sections, Fortran program 4=25463
- resonance line shape function evaluation 2=3589
- resonance neutrons, spatial distribution 2=13815
- resonance, rel. to non-uniform temp. distrib. 2=18132
- resonance self-shielding in capture cross-section meas. 4=22150
- resonance, in slug, distrib. 4=3424
- resonances, low-energy, Doppler broadening 2=5931
- resonant, by crystals, Doppler broadening 2=18520
- screening of fuel elements, at neutron absorption resonances, close-packed lattice 0=9720
- self shielding factors 1=11045
- shielding, best material combination 4=30318
- shielding nuclear reactors, n-group flux determ. using Lie series 4=22262
- shielding of point sources, by metal/hydrogenous shield 4=12318
- shielding from relativistic synchrocyclotron neutrons 2=7868
- in slab lattices, epithermal flux 3=15254
- slow neutrons, interference between direct and resonance capture 2=468, 22828
- slowing-down eqn., exact soln. 2=5676
- in slowing-down, group-theoretical treatment 1=8463
- slowing-down, in infinite absorbing medium 2=22534
- slowing down theory, energy distrib. source 2=5674
- slowing-down in water, rel. to inelastic scattering in U 3=2275
- soil, 0.5-14 MeV, var. thicknesses, calc. 4=6070
- solid moderators, Wilkins and higher order eqns. 2=5678
- by source, in cavity in B soln. 4=19519
- spectra in homogeneous, heterogeneous water systems 2=5677
- spectra about resonance in moderator 4=25109
- standard boron solutions, for cross-section meas. and ref. 1=16808
- statistical time moments and asymptotic formula 0=363
- surface absorpt. on nucleus, S-wave strength function 3=2349
- thermal flux depression, by absorbing foil 1=16809
- thermal, in reactor grade graphite 2=12272
- thermal, reactor, resonance capture 2=3676
- thermal utilization factor calc. 4=12298
- thermal, in water, cross-sections 2=3348
- thermalization, chemical binding effects 1=7252
- thermalization in lattices, characterization 3=2527
- total cross-section in solid and liquid Pb 1=12351
- total cross-sections for Z , C, Al, Cu, Cd, Pb and U at 15-120 MeV 1=5922
- total cross-sections of Ti, V, Y, Ta, W 1=13827
- transmission of cold neutrons in hydrogenous liquids 0=3523
- transmission data anal., in KeV region 0=5785
- transmission expts., automatic analysis resonance parameters 2=295
- transmission meas., Li^6 loaded glass scintillator 2=5687
- transparency of plane slab for time-dependent neutron currents 0=12967

Neutrons and antineutrons—contd
absorption—contd

uranium total neutron cross-sections 1=13829
velocity spectrum in heavy moderator 0=12974
water, age of U^{233} fission neutrons 1=17205
in water at 0.005 eV, inelastic cross-section 0=6795
in water from Sb + Be source 0=3973
water, slowing down time scale 3=22148
in water, thermal absorption cross-section 2=7860
water, U^{235} fission neutron age 2=18127
zircaloy 2, effective total and resonance cross-sections 2=6035
A, solid, total cross-section 0=20153
Ag, absorption cross-section 1=2223
Ag, transmission cross-sections 1=2216
Ag-In-Cd control rod in pressurized water reactors 3=6336
Al, transmission cross-sections 1=2216
As, resonances 2=18332
As, $(2.7-10) \times 10^{-3}$ eV total effective cross-section 2=20630
Au foils, self-shielding coeff. 3=4407
Au, long-wavelength cross-sections 1=16812
Au, thermal 2=22823
Au¹⁹⁷, absorption rate discontinuities 4=3739
in B carbide, spatial, energy distrib. 2=1692
in B, cross-section using spherical transmission method 1=13440
B-loaded emulsion 1=415
B, long-wavelength cross-sections 1=16812
B, standard absorption cross-section, precision meas. 2=7866
B, thermal 4=6072
B¹⁰, slow-neutron cross-section, precise det. 0=15597
B¹⁰, transmission, in neutron energy meas. 1=2066
Be, slowing down, collision density calc. 4=21876
Be, slowing-down lengths 1=16811
BeO, slowing down, collision density calc. 4=21876
BeO, slowing-down lengths 1=16811
Bi, transmission cross-sections 1=2216
Br, neutron strength function determ. 0=5649
Cd, absorption cross-section 1=2223
by Cd plates in aqueous medium, Po-Be and Ra-Be sources 3=4405
Cd, Sm, Gd filters, cut-off energies 2=11958
Cd¹¹³, anomalous diffraction in α -CdS 1=4046
Cl, thermal neutrons 1=13444
Co, transmission, rel. to nuclear radius 1=2218
Co⁵⁹, thermal neutrons, cross-section 1=17130
Cr capture 2=20637
Cr, capture, up to 50 keV 4=19795
Cu, absorption cross-section 1=2223
Cu absorption cross-section, thermal neutrons 1=13820
Cu, transmission, rel. to nuclear radius 1=2218
Cu⁶³, absorption rate discontinuities 4=3739
D₂O soln. of MnSO₄ for source calibr. 4=920
Er¹⁶⁷, Doppler broadening for low-lying resonances 3=19649
Eu¹⁵¹, resonances < 1eV 2=5938
Fe, macroscopic cross-sections by pulsed neutron technique 4=3676
Fe, spatial distrib., at 4 and 14.9 MeV 0=3971
Fe, transmission, rel. to nuclear radius 1=2218
Fe/H₂O shield, multigroup calc. 4=25459
in H slabs 3=22456
H₂O, neutron slowing-down lengths 1=16811
H₂O, 0.5-14 MeV, var. thicknesses, calc. 4=6070
H₂O, removal cross-section 2=20357
Hf, epithermal nonabsorption probability, control rod worth 0=13378
Hg, absorption cross-section 1=2223
I, absorption cross-section 1=2223
In, absorption cross-section 1=2223
by In plates in aqueous medium, Po-Be and Ra-Be sources 3=4405
InSb, anomalous absorpt. thermal neutrons 2=21502
Li-loaded emulsion 1=415
LiF shielding, γ -ray free, processing 4=12020
in Lu^{175,176} 2=3596
Lu¹⁷⁶, absorption rate discontinuities 4=3739
Mo¹⁰⁰, cross-sections and capture integral 1=706
Na²³, 0.5-4 MeV cross-section 2=14107
Nb, resonance integral meas. 3=17484

Neutrons and antineutrons—contd
absorption—contd

Ne, natural, thermal neutrons 1=13823
Ne, solid, total cross-section 0=20153
Ni, transmission, rel. to nuclear radius 1=2218
Np²³⁷, total cross-section 1=19492
O¹⁶(n, α)C¹³ reaction 2=5942
P, 830-1200 keV 4=3675
Pb, absorption cross-section 1=2223
Pb, cold neutrons, total cross-section 2=20353
Pb, spatial distrib., at 4 and 14.9 MeV 0=3971
Pd¹⁰⁹, 1.5-10 eV, and energy levels 3=19859
Pd-Ni with adsorbed H, magnetized, single transmission effect for slow neutrons 2=6672
Pm¹⁴⁷, thermal cross-sections, resonance capture 2=12204
Pr, neutron resonances 2=388
Pt¹⁹⁵, resonance 1=13828
Pu²³⁹, at 0.0011 eV 0=7639
in Pu²⁴⁰, cross-sections 2=8047
Pu²⁴⁰, effective resonance-absorption integral 0=4135
Sb, absorption cross-section 1=2223
Sb, $(2.7-10) \times 10^{-3}$ eV total effective cross-section 2=20630
Se, neutron strength function determ. 0=5649
Se resonances 2=18332
Se, transmission, rel. to nuclear radius 1=2218
Se, $(2.7-10) \times 10^{-3}$ eV total effective cross-section 2=20630
Sm¹⁴⁹, cross-section for pile-neutrons 0=4125
Sm¹⁴⁹, total cross-section 0=11455
Te, $(2.7-10) \times 10^{-3}$ eV total effective cross-section 2=20630
Th, effective reson. integral, reactor meas. 3=2544
Th-graphite mixtures, resonance shielding 2=20721
Th²³⁰, capture cross-section of 2200 m/sec neutrons 2=5834
Th²³², and p wave reson. 4=2162
Th²³², thermal cross-section 0=7616
Th²³², thermal neutrons, cross-section 1=17130
Th²³³, thermal neutrons, cross-section 1=17130
U, effective reson. integral, reactor meas. 3=2544
U, resonance integral, temp. coeff. 1=16810
U²³⁸, neutron capture to fission ratio 2=14148
U²³³, thermal cross-sections 0=5802
U^{235,5}, at 0.0011 eV 0=7639
U²³⁵, capture cross-section, 0.02-2 eV 3=6258
U²³⁵, reson., screening effect of U²³⁸ reson., 4-60 eV n 4=1122
U²³⁵, transmission, neutron resonance 2=463
U²³⁶, thermal cross-section 0=7620
U²³⁸, capture 3=10419
U²³⁸, in mixtures of moderating materials 2=8026
U²³⁸, resonance integral in Calder Hall reactors 2=20707
U²³⁸, resonance parameters of neutron cross-section 3=10357
U²³⁸, 6.7eV resonance 2=7999
UO₂, resonance integral, temp. coeff. 1=16810
W¹⁸³, resonance 1=13828
Xe¹³⁵, cross-section 2=22824
Xe¹³⁵, Doppler broadening for low-lying resonances 3=19649
Xe¹³⁵, total cross-section 0=11455
Zn, absorption cross-section 1=2223
Zn, transmission, rel. to nuclear radius 1=2218
Zr, effect total and resonance cross-sections 2=6035
Zr, neutron resonances 2=388
Zr, resonances 2=18332
Zr, total cross-sections 4=19790
angular distribution
analysis, foil activation expt., neutron source in water 2=5650
Apsara swimming-pool-type reactor 0=15366
benzene scatt., slow n 4=9755
compound nuclei of high ang. momentum 1=17157
(d, n) reactions in Ne^{20,22} 2=10137
from deuteron diffraction scattering 1=13836
deuteron disintegration on D, T, He³, at 9 MeV 3=2327
deuteron scatt., spin-orbit effect 2=20344
from EWA reactor, scattered from channel 1=19569
elastic scattering by complex nuclei, exact theory 2=14101
elastic scattering, effect of spin-orbit interaction 2=3345

Neutrons and antineutrons—contd

angular distribution—contd

elastically scattered on C, N and S, in first-excited states 2=461, 22822
 elastically scattered on light elements, 2 MeV data 1=12202
 elastically scattered, on various nuclei, 2.9 MeV 2=7990
 elastically scattered, on various nuclei, 14 MeV 2=7989
 fission neutrons, calc. from statistical model 0=7640
 from (γ, n) reactions 1=5889
 from (γ, n) reactions 1=17073
 γ, n reactions in Al^{27} , Be^9 , C^{12} 0=7598
 graphite-water boundary, scatt., 1.3-3.9 MeV 4=27860
 graphite-water interface, 1.3-3.9 MeV 4=6067
 in homogeneous media, slowing-down distrib. 4=17218
 in media separated by cylindrical boundary 0=7350
 from μ capture in C^{13} , Ne^{20} , Si^{28} , S^{32} 1=17134
 from μ^- capture in Ca 1=19499
 from μ^- capture in Ca 2=22832
 from μ^- -meson capture 1=4873
 in (μ, n) capture by nuclei, Fermi gas model 1=13833
 in (μ, n) reactions 1=5929
 in (μ, n) reactions, rel. to universal Fermi interactions 1=4766
 $\mu^- + p \rightarrow n + \nu$ 0=9687
 n-d scatt. at 2-3 MeV 2=3420
 n- γ correlation in $\text{B}^{11}(\text{d}, n\gamma)\text{C}^{12}$ 1=5832
 (n, n' γ), by coincidences, n' γ 3=19870
 n-p scatt., 200 MeV 2=23120
 n-p scatt., 200 MeV 3=7866
 n-p scattering at 14.1 MeV 1=10888
 (n, 2n) ang. correl. 4=9524
 (n, 2n) reactions at 14 MeV, ang. correl. 3=24950
 (n, 2n) reactions, use in nuclear level determ. 1=4834
 optical model fringe absorption, $90^\circ > A > 120^\circ$ region 2=20654
 p-d collisions at 135 MeV 1=19192
 p + d reaction at 6-13.5 MeV 0=1276
 (p, n) in mirror nuclei 1=19463
 from (p, n) reactions on C^{13} and N^{15} 1=11010
 (p, n) reactions in intermediate weight nuclei at 5 MeV 1=8714
 photoneutrons from Co 2=423
 photoneutrons, fast 1=19437
 photoneutrons, forward peaking rel. to Z 4=19746
 from $\pi^- + p$ interaction 1=2083
 prompt fission neutrons 1=4879
 pulsed source, space-energy distrib., time variation 2=9855
 reactors, subcritical assembly, two-group analysis 2=12242
 resonance absorption, spatial distrib. 2=13815
 scattered neutrons, Mercury computer program for data standardization 4=25103
 scattered, in water 2=13812
 scattering on Al, Bi, Fe, Pb and Sn 0=20503
 in scattering on C, at 12 MeV, spin-orbit effects 1=2217
 scattering on Cr, Fe and Pb at 2.35 MeV 0=7607
 scattering, elastic and inelastic, at 2.9 MeV 0=9675
 scattering, inelastic at 14 MeV, statistical model 0=9668
 spectrometer, isochronous flight path 4=6082
 stripping reactions, wave-mechanical treatment 1=13805
 thermal, Milne problem perturbation solution 4=25108
 thermal neutrons in lattice 3=12723
 transport theory, Yvon approx. method 2=11950
 by various nuclei, angular distributions 1=7380
 in water, from 1.4 MeV D-D 2=5649
 $\text{Ag}^{109}(\text{p}, \text{n})$ 1=2209
 Al, elastic back-scattering at 14.6 MeV 0=458
 Al, elastic scatt. at 24 MeV 2=3580
 Al (O^{16}), at 160 MeV 1=17157
 Al, Si, K, Ca, Th, 3.1 MeV elastic scattering 4=12236
 in $\text{Al}^{27}(\gamma, \text{n})$ reaction 1=5890-1
 $\text{Al}^{27}(\text{p}, \text{n})\text{Si}^{27}$ 8-14 MeV 1=8730
 Al^{27} scatt., 2.78 MeV 3=15207
 $\text{Al}^{27}(\text{t}, \text{n})$ 1=19536
 $\text{Al}^{27}(\text{t}, \text{n})$ 3=4673
 Au(γ, n), 14 and 19 MeV 4=1066
 Au (O^{15}), at 160 MeV 1=17157
 Au- O^{16} reaction, 164-142 MeV 4=22237
 Au, photoneutrons, fast 2=7966
 $\text{B}^{11}(\alpha, \text{n})\text{N}^{14}$, 13-14 MeV 2=12219

Neutrons and antineutrons—contd

angular distribution—contd

$\text{B}^{11}(\alpha, \text{n})\text{N}^{14}$, rel. to reaction mechanism 2=10142
 $\text{B}^{11}(\text{d}, \text{n})\text{C}^{12}$ and B^{11} -d breakup reactions 3=8126
 $\text{B}^{11}(\text{d}, \text{n})\text{C}^{12}$, C^{12*} , 12.3 MeV 4=22173
 $\text{B}^{11}(\text{d}, \text{n})\text{C}^{12}$ (4.43 MeV), exchange stripping effects 2=1920
 $\text{B}^{11}(\text{d}, \text{n})\text{C}^{12*}(\gamma, \text{n})$ ang. correl. 3=15226
 $\text{B}^{11}(\text{d}, \text{n})\text{C}^{12}$, n- γ correl. 3=24967
 $\text{B}^{11}(\text{p}, \text{n})\text{C}^{11}$, 8-14 MeV 1=8730
 $\text{B}^{11}(\text{p}, \text{n})$, at 2-5.7 MeV 1=7373
 Be^9 , elastic scattering, rel. to slowing-down lengths 1=1681
 $\text{Be}^9(\alpha, \text{n})\text{C}^{12}$ 1=5939
 $\text{Be}^9(\alpha, \text{n})\text{C}^{12}$ 2=12221, 14137
 $\text{Be}^9(\alpha, \text{n})\text{C}^{12}$, at 14.1 MeV 2=3618
 $\text{Be}^9(\alpha, \text{n})\text{C}^{12}$; (n, γ) ang. correlations 1=19527
 $\text{Be}^9(\alpha, \text{n})\text{C}^{12}$, near 20 MeV 2=20676
 $\text{Be}^9(\alpha, \text{n})\text{C}^{12}$, 17.5-22.1 MeV 3=10388
 $\text{Be}^9(\alpha, \text{n})\text{C}^{12}$ distrib. and n- γ correl. 0=20465
 $\text{Be}^9(\alpha, \text{n})\text{C}^{12}$, at 3.35 MeV, n- γ correl. 2=5967
 $\text{Be}^9(\alpha, \text{n}_0)\text{C}^{12}$ 4=9568
 $\text{Be}^9(\text{d}, \text{n})\text{B}^{10}$ 3=24860
 $\text{Be}^9(\text{d}, \text{n})\text{B}^{10}$, at 1.14, 1.88, 2.35 MeV 0=20457
 $\text{Be}^9(\text{d}, \text{n})\text{B}^{10}$, rel. to stripping theory 0=17599
 $\text{Be}^9(\text{d}, \text{n})\text{B}^{10}$ at 2, 3, 4 MeV 1=19506
 $\text{Be}^9(\gamma, \text{n})\text{Be}^8$, below giant resonance, calc. 1=673
 $\text{Be}^9(\gamma, \text{n})\text{Be}^8$, from threshold to 5 MeV 1=10999
 $\text{Be}^9(\gamma, \text{n})$, at 5.4-9.0 MeV 2=22784
 from $\text{Be}^9(\text{n}, 2\text{n})\text{Be}^8$ 4=17159
 $\text{Be}^9(\text{n}, 2\text{n})\text{Be}^8$, correlation of emitted neutrons 1=7386
 $\text{Be}^9(\text{p}, \text{n})\text{B}^9$ 2=16411
 $\text{Be}^9(\text{p}, \text{n})\text{B}^9$, for 2.4-4.1 MeV protons 3=6243
 $\text{Be}^9(\text{p}, \text{n})$, at 2-5.7 MeV 1=7373
 $\text{Be}^9(\text{t}, \text{n})$ 2=10149
 $\text{Be}^9(\text{He}^3, \text{n})\text{C}^{11}$, 2 MeV 3=19881
 Bi, elastic scatt. at 15.2 MeV 3=2467
 Bi, elastic scatt. at 24 MeV 2=3580
 Bi(γ, n) 14 and 19 MeV 4=1066
 Bi, inelastic scatt. at 3.7-4.7 MeV, nonelastic scatt. at 1.52 MeV 0=9667
 Bi, photoneutrons 0=17616
 Bi, photoneutrons, fast 2=7966
 $\text{Bi}^{209}(\alpha, 2\text{n})\text{At}^{211}$ 0=13220
 $\text{Bi}^{209}(\gamma, \text{n})$, 1.5-11.5 MeV 4=3642
 Bi^{209} , inelastic scatt., first excited level 1=13808
 from $\text{Bi}^{209}(\text{n}, 2\text{n})\text{Bi}^{208}$ 4=17159
 C, elastic scatt. at 5.6 MeV 0=9670
 C, inelastic scatt. 1=13806
 C, scattering, from D-D reaction 0=7606
 C, scattering at 14 MeV, 20-140° angular range 1=17094
 C scattering, at 14 MeV, 20-140° angular range 2=22806
 $\text{C}^{12}(\alpha, \text{n})\text{O}^{15}$, 17.5-22.1 MeV 3=10388
 $\text{C}^{12}(\text{d}, \text{n})\text{N}^{13}$ 3=10376
 $\text{C}^{12}(\text{d}, \text{n})\text{N}^{13}$ at 4 MeV 1=19507
 in $\text{C}^{12}(\text{d}, \text{n})\text{N}^{13}$ reaction 1=5936
 C^{12} , elastic scattering, rel. to slowing-down lengths 1=16811
 in $\text{C}^{12}(\text{He}^3, \text{n})\text{O}^{14}$ 1=5940
 $\text{C}^{12}(\text{He}^3, \text{n})\text{O}^{14}$ 2=1926
 $\text{C}^{12}(\text{He}^3, \text{n})\text{O}^{14}$, at 5.5 MeV 0=15581
 $\text{C}^{12}(\text{He}^3, \text{n})\text{O}^{14}$, 1.8 to 5.5 MeV 4=9563
 in $\text{C}^{12}(\text{He}^3, \text{n})\text{O}^{14}$, rel. to props. of O^{16} 1=3460
 C^{12} , inelastic scatt. 14 MeV 3=15206
 C^{12} , photoneutrons at 30 MeV 0=11435
 C^{12} scattering polarization 3=19857
 $\text{C}^{12}(\text{t}, \text{n})$, at 0.35-2.4 MeV 1=19537
 $\text{C}^{12}(\text{t}, \text{n})$, at 0.35-2.4 MeV 3=4672
 $\text{C}^{13}(\alpha, \text{n})\text{O}^{16}$ 0=13245
 $\text{C}^{13}(\alpha, \text{n}_0)\text{O}^{16}$, 14 to 23 MeV 4=9568
 $\text{C}^{13}(\alpha, \text{n})\text{O}^{16}$, 12.14 MeV 2=12220
 $\text{C}^{13}(\text{d}, \text{n})\text{N}^{11}$, exchange term effects 4=19816
 $\text{C}^{13}(\text{d}, \text{n})\text{N}^{14}$ 0=11418
 $\text{C}^{13}(\text{d}, \text{n})\text{N}^{14}$, at 1.3 MeV 1=3459
 $\text{C}^{13}(\text{d}, \text{n})\text{N}^{14}$, 1.3-2.5 MeV 4=12264
 $\text{C}^{13}(\text{d}, \text{n})\text{N}^{14}$, 3.2-4.1 MeV 3=24970
 $\text{C}^{13}(\gamma, \text{n})$; below giant res. 1=19440
 $\text{C}^{13}(\gamma, \text{n})\text{C}^{12}$, below giant resonance, calc. 1=673
 $\text{C}^{13}(\text{He}^3, \text{No})\text{O}^{15}$ 1=19526
 $\text{C}^{13}(\text{p}, \text{n})\text{N}^{13}$ 0=17499
 $\text{C}^{13}(\text{p}, \text{n})\text{N}^{13}$ reaction, threshold to 13 MeV 1=8729
 $\text{C}^{13}(\text{p}, \text{n})$, at 2-5.7 MeV 1=7373
 $\text{C}^{13}(\text{p}, \text{n})\text{N}^{13}$, to 13.1 MeV 1=8715

Neutrons and antineutrons — contd

angular distribution — contd

from $C^{14}(d,n)N^{15}$ 1=12212
 $C^{14}(d,n)N^{15}$ 4=9559
 $C^{14}(He^3, n)O^{16}$ 1=19526
 Ca, elastic scatt. 2=12197
 Ca, elastic scatt., 3-4 MeV 3=19856
 Ca (μ , n), asymmetry 2=14122
 Ca (μ , n), 7 to 23 MeV 4=3684
 $Ca^{40}(d,n)Sc^{41}$ 0=4033
 $Ca^{40}(d,n)Sc^{41}$ 1=9874
 from Cd scatterer, 2.8 MeV 1=11025
 Cd, scattering at 14 MeV, 15-160° angular range 1=17094
 Cd scattering, at 14 MeV, 15-160° angular range 2=22806
 $Cd^{114}(p,n)$ 1=2209
 Ci^{252} , spontaneous fission, prompt neutrons 2=14145
 $Co^{244}(\alpha, 2n)Cr^{246}$ 0=13220
 $Co^{59}(p,n)$ 1=2209
 CoO, spin direction correl. 0=13806
 Cu, elastic back-scattering at 14.6 MeV 0=458
 $Cu(O^{16})$, at 160 MeV 1=17157
 from Cu scatterer, 2.8 MeV 1=11025
 $D(d,n)He^3$, $E_d = 1.6, 0.6$ MeV 2=480
 $D(d,n)He^3$, at 5-12 MeV 0=17428
 D, elastic scattering, rel. to slowing-down lengths 1=16811
 D plasma in Scylla 0=13385-7
 $F^{19}(d,n)Ne^{20}$, rel. to Ne^{20} nucleus structure 4=15232
 $F^{19}(d,n)Ne^{20}$, 1.0-1.3 MeV 3=6288
 $F^{19}(t,n)$ 1=19536
 $F^{19}(t,n)$ 3=4673
 Fe, elastic scatt. at 24 MeV 2=3580
 Fe, inelastic scatt. at 3.7-4.7 MeV, nonelastic scatt. at 15.2 MeV 0=9667
 from Fe scatterer, 2.8 MeV 1=11025
 Fe^{56} , inelastic scatt., first excited level 1=13808
 $Fe^{56}(n,n'\gamma)$, at 2.0 MeV, $n'-\gamma$ ang. correl. 2=20641
 H, elastic scattering, rel. to slowing-down lengths 1=16811
 He^3 , elastic scatt. 0=9367
 $He^3 + T$, 460-1087 keV 4=6148
 $He^4(\gamma,n)He^3$ 1=16918
 He^4 , scatt., 1.79 MeV 3=17281
 Ho, photoneutrons, fast 2=7966
 $I(\gamma, n)$, at 90 MeV 1=19437
 I^{127} , inelastic scatt., first excited level 1=13808
 I^{127} , inelastic scattering, asymmetry 0=9677
 $In^{115}(p,n)$ 1=2209
 La, photoneutrons, fast 2=7966
 $Li(\gamma, n)$, at 90 MeV 1=19437
 $Li(t,n)Be$, 0.8-2.6 MeV, rel. to thick target yields 4=17190
 $Li^6(d,n)Be^7$, ground and 1st excited state 3=15225
 $Li^6(n,n\gamma)Li^6$ by coupling shell model 1=9866
 $Li^{6,7}(\alpha, n)B^{9,10}$, up to 15 MeV 4=3702
 $Li^{6,7}$, elastic scatt., 14 MeV 4=17142
 $Li^7(\alpha, n)B^{10}$ 1=19528
 $Li^7(a,n)B^{10}$, at 13.5 and 13.9 MeV 2=5969
 $Li^7(d,n)Be^8$ 4=6080
 $Li^7(p,n)Be^7$ 1=19470
 $Li^7(p,n)Be^7$, 4.3 MeV, polarized neutrons 3=8089
 $Li^7(p,n)Be^7$, 4.5 MeV 4=9503
 $Li^7(p,n)Be^7$, 8-14 MeV 1=8730
 $Li^7(p,n)Be^7$, polariz., $E_p = 4.5$ MeV 3=17462
 $Mg^{24}(He^3, n)Si^{26}$, at 5.5 MeV 0=15581
 $Mg^{24}(n,n'-\gamma)Mg^{24}$, at 3.25 MeV, $n'-\gamma$ correl. 2=5940
 Mn^{55} , inelastic scatt. 2=459
 Mo, elastic scatt. by optical model 2=14102
 Mo, scattering at 14 MeV, 15-160° angular range 1=17094
 Mo, scattering, at 14 MeV, 15-160° angular range 2=22806
 N, scattering at 14 MeV, 20-140° angular range 1=17094
 N scattering, at 14 MeV, 20-140° angular range 2=22806
 $N^{14}(d,n)O^{15}$ 1=12214
 $N^{14}(d,n)O^{15*}$ (5.20, 5.25, 6.15 MeV), n ang. distrib. 4=6372
 $N^{14}(d,n)O^{15}$, to ground state and 6.79 and 6.86 MeV states 1=720
 $N^{14}(d,n)O^{15}$, at 0.66-5.62 MeV 0=13241
 $N^{14}(d,n)O^{15}$ stripping reaction 3=2486
 N^{15} elastic scattering, 440 to 1960 keV 4=22146
 $Nb(C^{12}, xn, xp)$ 1=17155
 $Nb(O^{16}, xn, xp)$ 1=17155
 $Nb^{93}(p,n)$ 1=2209

Neutrons and antineutrons — contd

angular distribution — contd

$Ne^{20}(d,n\gamma)Na^{21}$, $n-\gamma$ ang. correls. 3=10377
 $Ne^{20,22}(d,n)Na^{21,23}$ 2=1922
 $Ne^{22}(\alpha, n\gamma)Mg^{23}$, $\gamma-n$ angular correlation 1=11037
 $Ne^{22}(d,n)Na^{23}$ 4=22176
 Ni, 900 keV, elastic scatt. 3=2463
 $Ni(O^{16})$, at 160 MeV 1=17157
 Ni scatt. at 14 MeV, rel. to optical-model calcs. 4=3665
 O, 900 keV, elastic scatt. 3=2463
 from $O^{16}(d,n)F^{15}$ reaction 1=17147
 O^{16} , elastic scattering, rel. to slowing-down lengths 1=16811
 $O^{16}(\gamma, n)$, giant res. to 170 MeV 2=20593
 $O^{16}(\gamma, n)$, giant res. to 170 MeV 3=8076
 from $O^{16}(He^3, n)Ne^{18}$ 1=5941
 $O^{16}(He^3, n)Ne^{18}$, at 5.5 MeV 0=15581
 O^{16} , scattering at 2.0-4.11 MeV 2=20633
 $O^{18}(\alpha, n\gamma)Ne^{21}$, $\gamma-n$ angular correlation 1=11037
 O^{18} , elastic scattering, 405 to 2702 keV 4=22147
 Pb, elastic scatt. by optical model 2=14102
 Pb, inelastic scatt. at 3.7-4.7 MeV, nonelastic scatt. at 15.2 MeV 0=9667
 Po- α -O source 2=1688
 Pr, photoneutrons, fast 2=7966
 $Pr^{141}(C^{12}, 4n)Tb^{149}$ 2=22854
 $Rh^{103}(p,n)$ 1=2209
 S, scattering at 14 MeV, 20-140° angular range 1=17094
 S scattering, at 14 MeV, 20-140° angular range 2=22806
 $S(\mu, n)$, rel. to capture muon polarization 2=10129
 S^{32} , scatt., 4.6 MeV 2=20635
 from Sb scatterer, 2.8 MeV 1=11025
 $Sb^{123}(p,n)$ 1=2209
 Si, 900 keV, elastic scatt. 3=2463
 Sn, elastic scatt. at 24 MeV 2=3580
 from Sn scatterer, 2.8 MeV 1=11025
 $Sn^{112}(p,n)$ 1=2209
 $Sn^{120}(p,n)$ 1=2209
 $T(d,n)He^4$, 1 to 3 MeV, 4=30278
 $T(d,n)He^4$, at 6-11.5 MeV 1=7291
 $T(He^3, n)Li^6$ 1=19293
 $T(He^3, np)He^4$ 1=19293
 $T(p,n)He^3$, at 3.4-12.4 MeV 1=8520
 Ta (C^{12} , xn, xp) 1=17155
 Ta, elastic scatt. at 15.2 MeV 3=2467
 $Ta(\gamma, n)$, 14 and 19 MeV 4=1066
 Ta (O^{16} , xn, xp) 1=17155
 Te, scattering at 14 MeV, 15-160° angular range 1=17094
 Te scattering, at 14 MeV, 15-160° angular range 2=22806
 $Te^{130}(C^{12}, 5n)Ce^{137m}$ 2=22854
 Th, elastic scatt. at 15.2 MeV 3=2467
 Th^{232} , inelast. scatt. 2=10113
 U, elastic scatt. at 15.2 MeV 3=2467
 U^{235} fission by thermal n 4=19851
 U^{235} , in fission by thermal neutrons 3=6311
 U^{235} , in fission by thermal neutrons 2=14149
 U^{235} slow fission, prompt neutrons 3=19893
 from $U^{238} + n$ reactions and fission, 1 keV-15 MeV 4=12251
 $V(C^{12}, xn, xp)$ 1=17155
 $V(O^{16}, xn, xp)$ 1=17155
 Y, inelastic scatt. at 3.7-4.7 MeV, nonelastic scatt. at 15.2 MeV 0=9667
 Y, photoneutrons, fast 2=7966
 from Zn scatterer, 2.8 MeV 1=11025
 Zr, elastic back-scattering at 14.6 MeV 0=458
 Zr, inelastic scatt. at 3.7-4.7 MeV, nonelastic scatt. at 15.2 MeV 0=9667

capture

See Nuclear reactions, neutrons.

detection, measurement

See also Dosimetry; Neutron spectrometers.

absolute flux meas. with nuclear emulsions 1=5735
 absolute flux meas. by $Li^6(n, \alpha)He^3$ reaction in emulsion 2=18331
 absolute meas. of source output by Au foil activ. 4=16908
 absolute meas. of source output by coincidence technique 4=16909
 absolute neutron flux by gold activation 1=512
 absolute yield of 14 MeV neutrons, alpha counter meas. 1=2070
 absorption cross-sections by pulsed source method 2=5683
 absorbing foils, self-shielding and edge effects 4=913

Neutrons and antineutrons—contd
detection, measurement—contd

activation, β , using liquid scintillators, thermal n 4=9221
activation detector for 14 MeV pulsed neutron sources 2=13819
associated particle method in case of pulsed source 4=16910
in atmosphere, cosmic-ray produced, distribution 1=13593
atmospheric cosmic-rays 3=22222
B-loaded liquid scintillator, single photomultiplier 3=4409
backscatter with 2π sensitivity 4=21879
beam, energy distrib. meas. using activ. detectors 3=4406
bismuth fission chamber 1=13450
boron scintillators 0=17360
boron-semiconductor detector 0=5466
chemical dosimetry, flux of about 0.5×10^5 n cm^{-2} 4=25119
chopper, curved slit 2=9872
chopper, curved-slit, at Bucharest, design 2=5694
chopper with curved slits, of Inst. of Atm. Phys., Bucharest 2=5695
chopper mech., suspended in mag. field 3=2279
chopper for slow neutrons, rotating-crystal type, theory and operation 1=5738
choppers with straight slits, transmission function 4=9218
corona counter, rel. to use in reactor meas. 4=24942
cosmic-ray monitor 1=13574
cosmic rays, multiplicity effects, var. with incident energy 4=16988
counter, corona 3=24546
counter, corona-streamer, short dead-time 1=19217
counter, proportional, BF_3 2=7874
counters, cylindrical, efficiency, thermal 3=24747
counters, proportional, glass, BF_3 , thermal 3=24746
counting, pulse transformer design 4=9228
counting system for low-yield pulsed sources 0=15368
critical assembly flux data, techniques 0=13348
cross-sections, use of α -particle in $\text{T}(\text{d}, \text{n})\text{He}^4$ 2=5685
current ion chamber, frequency response 2=17985
decay electrons, wire "carpet" counter 2=5532
density standard, in graphite cylinder with cavity 4=27867
DePangher dosimeter, application to neutron fields outside accelerators 4=25117
detector with γ -suppression, fast neutrons 4=16907
detector shielding efficiencies at 14 MeV 2=20375
detectors, adjacent, interaction, flux disturbance 2=16208
diffraction patterns, photographic detection 2=20373
diffractometers, design 2=11963
in diffusion cloud chamber 3=19654
di-neutron, existence expts. 2=20341
dineutron, search in n-d scatt. energy var. 4=21858
discrimination between fast neutron and γ -ray pulses 2=13818
disperse scintillator counters 0=7385
dosimeter based on long BF_3 counter 4=21882
dosimeter, for fast n, Si rectifier, $\text{n}^+ - \text{p} - \text{p}^+$, diffused 3=24816
dosimeter, pocket γ -ray, fast-neutron response 0=9385
dosimeter, slow and fast, by selective fission fragment track registration 3=24752
dosimeter systems, chemical, for 14 MeV 4=25118
dosimeter, tissue, Hurst counter, 0.25-1 MeV 4=3428
dosimeters, Al phosphate glass 4=5892
dosimeters, existing and proposed 3=17292
dosimetry, current methods 3=2282
dosimetry, and for neutrons + γ -rays 1=13233
dosimetry, new emulsion with increased gelatine 3=24569
dosimetry, by $\text{Ni}^{58}(\text{n}, \text{p})\text{Co}^{58}$, branching ratio errors 4=19536
dosimetry, use of nuclear emulsions, type K 4=915
double moderator dosimeter 0=17359
effective temp. meas., natural Lu foils, calibration 1=16816
emulsions in gel form, for thermal fluxes 1=13451
epithermal spectra, by resonance detectors 2=7870
fast flux, low-intensity, using $\text{S}^{32}(\text{n}, \text{p})\text{P}^{32}$ 2=22540
fast flux meas. 0=15365
fast flux meas. in reactor 3=10430
fast flux meas. in zero-energy reactor 3=22149
fast-neutron detector, activation cross-sections 2=16209
fast neutron dosimetry in pile irradiations 0=12997
fast neutron short pulses, intensity determ. 0=7390

Neutrons and antineutrons—contd
detection, measurement—contd

fast-neutron spectroscopy, nomograph for knock-on proton data in emulsion 0=7388
fast neutrons, by continuously sensitive bubble chamber 1=13245
fast neutrons in presence of γ -rays 2=7872
fast neutrons in reactor, use of Np^{237} fission 0=20162
fast photoneutrons detected by $\text{Si}^{28}(\text{n}, \text{p})\text{Al}^{28}$ reaction 1=8688
fission chamber, design and performance 4=21883
fission chamber, small diameter 3=24540
fission chamber, small, U coated W wire in Ar at 15 atm. 3=17098
by fission in a flowing gas 0=7384
flat-response fast neutron BF_3 -detection systems 4=12021
fluctuations of ionization chamber current 4=27868
flux in boiling-water reactor, high-energy 3=6331
flux from $\text{C}^{12}(\text{d}, \text{n})\text{N}^{13}$ by activity of N^{13} 1=19520
flux gradients in reactors, automatic meas. 1=5955
flux in graphite prism, meas. 2=20359
flux, $\text{In}(\text{NO}_3)_3$ solution foils, non-perturbing 3=17290
flux, large, thermocouple system 2=3364
flux meas., calib. of Mn and Au foils 0=15367
flux meas., counter telescope 0=20163
flux meas., Dy detectors 3=2283
flux meas. using emulsions loaded with B and Li 1=415
flux meas. by neutron activated steel wires 2=12262
flux meas. by semicond. detector 2=12263
flux perturbation by Au detector foils 0=9371
flux, in reactor, correction factors 4=3760
flux and spectra, physical and biological applications 0=17361
flux, by "thin-film capture" using U^{238} and Th^{232} fission 4=3430
flux unit, "chad" 1=509
by foils, flux perturbation 3=22150
by foils, resonance activation 3=19653
 4π detector 1=16820
 4π , paraffin-moderated 4=9220
 γ -rays effects 4=3431
gas-ionization detectors 1=16615
by gas-recoil counter 1=19218
gas scintillators, high pressure, using A, Xe, N-Xe, N-A, Ne-Xe 1=3077
glass scintillators 0=5573
glass scintillators, B- and Li-containing 3=2277
glass scintillator, discrimination against γ -ray background 3=10132
glass scintillators for intermediate energy range 0=17145
graphite sphere neutron detector 0=17356
heavy ion-nuclei transfer reactions 2=10146
high-energy, efficient Cherenkov detector 0=17358
high flux, using short-life beta-source 4=6080
high resolution neutron spectroscopy 1=2067
high temp. ionization chambers 4=27869
image detectors, for radiography 4=11380
interferometer for slow neutrons 2=9871
intermediate energy 2=13204
intermediate energy, scintillation counter 3=17293
ionization-chamber detector of 0.3 eV resonance neutrons 3=2280
ionization chamber, H-Ne, for 2-3 MeV 3=24750
ionization chamber, He^3 -A filled 2=1622
ionization chamber, hexane 3=19505
ionization chambers for absorbed dose determ. 2=18033
in ionization chambers, liquid-hexane filled 3=19650
ionization chambers, operation and design 1=763
ionization and fission counters, high temp. operation, suitable materials 0=15189
isochronous flight path spectrometry, fast neutrons 4=6082
liquid He scintillator as polarimeter 2=9863
long counter, directional resolution, shielding 2=20363
long counter efficiency 2=18138
long counter, for fluxes of 0.1-4 MeV 1=5736
long counters, study by Monte-Carlo method 2=7869
low-energy detection, time of flight and $\text{NaI}(\text{Tl})$ crystal 1=513
in MeV region, choice from scintillator α/β ratio obs. 4=11853
by micaceous minerals, Makrofol and glass 4=19344

Neutrons and antineutrons—contd
detection, measurement—contd

monitor, from discriminator circuit 2=5272
monitors, cosmic ray, directional sensitivity 1=8529
monitor, for cosmic rays 0=15493
monitor for fast neutrons with background γ separation 4=9227
monitor, high-stability, for cosmic rays 1=2116
monitors using semiconductor detectors 1=1993
Monte-Carlo expts. 0=11183
multigrid counters 2=22538
 n^4 search, in fission reactions 3=22136
neutron fields, spatial integration with moving detectors 1=3195
neutron identification circuit for scintillation studies 3=14489
neutron temperature measurement with Lu^{176} 1=7255
from nuclear excited states, time-of-flight analysis 2=9874
nuclear reactors, use of neutron effects on GE 2=8044
1-10 MeV, with background discrimination 4=9226
organic liquid scintillators, efficiency det. 3=2278
organic phosphors as neutron detectors 3=4411
p-n transitions in semiconductors 2=3216
photographic film in contact with scintillating mixture 2=20372
photography of diffraction patterns 2=6868
photoneutron multiplicity meas. 3=10330
photoneutron multiplicity meas. 4=30236
photoneutrons from betatron γ -rays, pulse recorder 2=20366
plastic scintillator, detection efficiency, 4-76 MeV 2=11962
plastic scintillator, efficiency 1-14 MeV 2=3359
polarimeter, using liquid $\text{He}(n, n)$ scattering 2=5526
polarimeter, liquid He scintillation counter 1=19216
prompt neutrons per fission, meas. 2=5981
prop. counter, H filled, analysis by p recoil spectra 4=25469
proportional, boron-coated counter in corona zone 2=5689
proton recoil proportional counter 0=3880
from pulse discharge, toroidal 2=19868
pulse-shape circuit for γ -n discrimination 2=5270
pulse shape discriminating counters, organic scintillants 0=11184
pulse shape discrimination of neutrons and γ -rays 0=19990
pulse shape discriminator, with γ -ray background 2=5278
pulsed neutron source meas. of subcriticality of assembly 4=1126
from pulsed accelerators 2=1694
quartz crystal oscillator, plated, sputtering effect 1=4571
radiometer, portable transistor, using corona proportional counters 4=21880
rapid detector, for 1 to 100 keV 2=5688
reaction rates of detectors, thermal reactor spectrum 4=6448
for reactor control 0=9384
reactor in-core flux meas., semicond. counter 3=22452
reactor dosimetry, pile oscillator application 2=14179
reactor flux fluctuations, theory and expt. 4=3728
reactor flux monitoring by mica fission-track prod. 4=28091
reactor fuel elements failures 0=11473
reactor power and reactivity meas. using neutron detection probabilities 4=19859
reactor thermal flux, by perturbation expts. 2=6058
recording from pulse sources 4=919
refractometer, gravity, for scattering cross-sect. meas. 3=6018
reliability analysis of three methods for cont. spectra 4=16917
resonance velocity selector 4=21884
S-wave resonances, in time-of-flight exper. 1=12090
scintillation bubble chamber, for detection and analysis 4=12023
scintillation counter, directional 0=20158
scintillation counter, liquid, nearly 4π 2=18136
scintillation counter, low γ -sensitivity 2=20365
scintillation counter NE102, pulse height distrib., energy calc. 4=30237
scintillation counter, neutron and γ discrimination 2=20368

Neutrons and antineutrons—contd
detection, measurement—contd

scintillation detector for fast neutrons 3=14990
scintillation detector, pulse height distrib. and counter detection efficiency, calc. 4=6077
scintillation discs, pressure prep. 3=22151
scintillation-layer detector for γ -ray background 1=12035
scintillation pulses, comp. with those due to γ -rays 0=7245
scintillation spectrometer, organic scintillator 2=18141
scintillator containing B, for slow n 4=6076
scintillator of LiF-ZnS-lucite 2=16211
scintillator, liq., discrimination against γ -rays 4=27865
scintillator, plastic, detect. efficiency, 21-29 MeV 4=30238
scintillator for thermal neutrons 0=20159
scintillator of ZnS:Ag heated with H_3BO_3 2=16205
scintillators, organic, discrimination against γ 's 3=14991
scintillators, organic liquids, pulse height distrib. 2=5524
scintillators, organic, Monte Carlo calc. 4=9230
semiconducting Si surface barrier covered with B, Li and U 4=9222
semiconductor counter use 2=11960
semiconductor counters 2=9864
semiconductor detectors 2=5528, 11964
semiconductor dosimeter 0=2651
semiconductor fission probe 0=11462
semiconductor junction determ. proton-recoil and He^3 -filled 2=18135
shielded counter measurements of mixed neutron fields 1=3196
silicon detector for monoenergetic beams 2=16210
slow neutrons from reactor, fission-chamber monitor 2=3670
source calib., M^n bath technique improvements 4=12025
source calibrations, present status 0=7382
source calibrations, review 1=13455
source standardization, using reactor graphite stack 0=7383
sources, absolute strength meas. 0=7389
spark counter, Rosenblum type 1=12034
spark counters for fast neutron detection 1=5739
spark counters, multiple-wire, props. 2=5508
spectra measurements 1=510
spectrometer with one data unit 2=5684
spectrometer, proton recoil, with liquid H radiator and CsI(Tl) 2=7873
spectrometer time analyser, 256-channel, with memory unit 4=779
spectrometer, time-of-flight 3=589
spectrometer triaxial, phonon lines exptl. width calc. 4=917
spectrometric ionization chamber, Ne^{21} use 2=20370
with stable energy threshold 0=11185
Stern-Gerlach expt. 2=18115
stilbene scintillator, pulse shape discrimination 1=10813
sulphur-phosphorus, fast flux, from P^{32} activity 4=3429
surface-barrier diodes, fast neutron response 1=3193
telescope detector, for ring-target scatt. application 2=3361
thermal and fast neutrons, reactor flux 2=14180
thermal, flux in pile 1=13907
thermal flux standard, calibration 3=19651
thermal image, photographic detection 2=1695
thermal neutron flux, emulsion meas. 0=7257, 12794
thermal neutrons, ionization of gas in waveguide 1=13452
thermal, resonance flux meas. 2=7871
thermal and resonance, foil activation, calc. 4=3427
thermoluminescent dosimeter for fast doses 4=6078
thermonuclear emission, detection 0=17639
thermopile, B-coated 2=3362
threshold detectors, fast flux spectrum meas. 2=22537
threshold detectors for reactor spectra det. 1=13908
time analyser, matrical, with capacitive memory distributors 4=780
time-analyzer, 1024 channel, 1 μsec 4=16911
time-of-flight expts. with 15 MeV linear accelerator 0=17350
time-of-flight meas. by time-to-height converter 1=2930

Neutrons and antineutrons—contd
detection, measurement—contd

- time-of-flight method, applied to pulsed source 4=16905
time-of-flight method, encoder for time-interval variation 4=16912
time-of-flight selector 0=9383
time-of-flight spectroscopy, tape recording 0=17352
time-of-flight system, for 16 in. cyclotron 4=25116
time-of-flight technique for fast neutrons 0=17349
time-of-flight technique for fast neutrons, pulse shape discrimination in an organic phosphor 1=5734
time-of-flight techniques, π mass determ. 0=2569
time-of-flight "time expander" circuit 1=2069
time-of-flight, time-shared, computer analysis 4=27870
time of flight, 256 channel analyzer with mag. memory 4=9223
time-of-flight, using Van de Graff beams 0=2476
transient fluxes at low levels, counter design 1=4545
transmission meths., resonance analysis by IBM 2=7090
"twin" scintillation detector 0=20160
velocity spectrometer using Nevis synchro-cyclotron 0=9381
wide-range detector 1=13446
 A^{41} activity as flux meas. 2=12261
Al counter using $Al^{27}(n,p)Mg^{27}$ reaction 0=17357
using $Al^{27}(n,\alpha)Na^{24}$, reactor spectra comparison 1=17219
using $Al^{27}(n,p)Mg^{27}$, reactor spectra comparison 1=17219
 Al^{27} threshold detector 0=7626-7, 12996
 Am^{241} by gas scintillation detector 1=10814
Au foils, effective resonance integral 2=9869
Au and Mn foils calibration for flux meas. 2=11965
 B^{10} use by Li^7 formed 4=30239
 BF_3 counter, energy dependence of sensitivity 3=24539
 BF_3 counter, high efficiency 2=3363
 BF_3 counter, optimum location in neutron moderator 2=5693
 BF_3 counter in paraffin moderator 4=19535
 BF_3 counter in paraffin sphere, ang. response 3=24749
 BF_3 counters, count rate, temp. depend. 2=9732
 BF_3 proportional counter for cosmic rays 1=5607
 BF_3 shielded "long counter" 1=16817
 $B^{10}F_3$ proportional counter, γ -ray effects 4=3431
by Bi, D-T neutrons, time-of-flight expt. 3=6011
by C, D-T neutrons, time-of-flight expt. 3=6011
Cd, Sm, Gd filters, cut-off energies 2=11958
using $Cu^{63}(n,\gamma)Cu^{64}$, reactor spectra comparison 1=17219
using $Cu^{63}(n,2n)Cu^{62}$, reactor spectra comparison 1=17219
Dy foils in graphite, optimum thickness for thermal n 4=30240
using $Fe^{56}(n,p)Mn^{56}$, reactor spectra comparison 1=17219
 He^3 filled proportional counter 2=20374
 He^3 proportional counters, design 4=15079
 He^3 -Ne- CH_4 proportional counter for thermal neutrons 4=21881
In disk, foil depression factors 0=12995
In foil meas., absolute thermal flux, calc. 0=12998
Li Al silicate, Ce activated 1=1983
 Li^6 loaded glass scintillator 2=5687
 Li^{7*} de-excitation meas. from $B^{10}(n,\alpha)Li^{7*}$ 2=16207
 LiI scintillators for fast neutrons 2=20360
 $Li^6I(Eu)$ scintillation detector 0=17354
 Li^6I : Eu scintillator, γ -ray effects 4=3431
 Li^6I : Eu scintillator, response rel. to temp. 4=9225
Mg Al borate, Ce activated 1=1983
Mn-bath for neutron intensity 1=16818
 Mn^{56} two stage counting facility design 4=30322
 Np^{237} threshold detector 0=7626-7
P-polythene mixture, fast neutron meas. 3=2284
using $P^{31}(n,p)Si^{31}$, reactor spectra comparison 1=17219
Ra-Be(α,n) source, by Mn activation 4=19522
 $S^{32}(n,p)P^{32}$, as fast-neutron monitor, 2-20 MeV 3=12687
Si junction, neutrons from DD and DT reactions 3=2276
Th fission chamber for fast fluxes 1=13449
 U^{235} fission chamber, B^{10} shielded 3=690
 U^{235} fission, mean number emitted 2=1941
 U^{238} foils, bare and Cd-covered, activation 3=8166
 U^{238} threshold detector 0=7626-7
ZnS:Ag for dispersed fast neutrons 2=16206
ZnS(Ag)-paraffin scintillator 2=296
ZnS:Ag phosphor, Dy, Sm, Gd, B loaded 2=20361

diffusion

- absorber rods, symm. distrib., effectiveness 3=6015
in absorbing foil, thermal flux depression 1=16809

Neutrons and antineutrons—contd
diffusion—contd

- absorption area method for 3-group problems 0=12985
across a slab, albedo problem 1=16803
age in D_2O - H_2O mixtures 1=3191
albedo problem for a half-space 2=3351
albedo and transmission matrices, many group diffusion 4=15065
along empty tube in reactor, reactivity effect 0=5829
anisotropic, flat source in lead-water plate and rod lattices 4=15066
anisotropic flux effects 4=19531
anisotropic scatter, singular integral method generalization 2=5664
anisotropic scattering present, one-velocity Boltzmann eqn. 2=5663
anisotropy in singly and doubly periodic lattices 3=6324
annular voids, diffusion coeff. 2=13813
asymptotic reactor theory 2=6022
asymptotic theory from monoenergetic Boltzmann eqn. 4=5107
in atmosphere of planet Venus 2=19284
averaging of energy coeff. 4=25461
block inside moderator, resonance absorption 4=22265
Boltzmann eqn., continuous spectrum derivation 4=93
Boltzmann eqn., energy-depend., in plane geom. 4=908
Boltzmann eqn., monoenergetic, variational analysis 3=18755-6
Boltzmann eqn., 1-dimensional, energy dependent 0=15618
Boltzmann eqn., one-velocity, with first-order anisotropic scatt., soln. 2=3351
Boltzmann eqn., 1-velocity, general orthog. polynomial approx. 0=20149
Boltzmann eqn., spherical harmonics and discrete coord. methods 0=3969
Boltzmann transport eqn., Carlson discrete S_N approx. 3=22144
Boral, thermal neutrons 2=7862
buckling, time dependence in multiplying core 1=3190
calc., allowing for delayed n 4=6413
calc., iterations number reduction, EQUIPOISE-3 programme 3=10123
calculation, thin absorbing regions 0=12953
calculation of transport, numerical, generalised Galerkin method 4=27862
calculation, using modified spherical harmonics 4=11126
Case-Wigner method for anisotropic scatt. 4=6060
Case's general soln., applications 4=9215
cell calculations, S_n code accuracy 1=13883
coefficients, group-average calc. 2=13809
collision probabilities, comparison theorems 1=13432
collision probability in cylindrical reactor cell 2=10175
concrete, age to 1.44eV for d,d source 4=25114
concrete, thermal neutrons, pulsed-source method 4=6061
control rod reactivity, variational calc. 0=13379
cooling constant calc., finite Be oxide assembly 2=8037
cooling in finite moderator assembly 0=7373-4, 12992, 20528
cosmic-ray C^{14} prod. by neutrons, theory 3=17378
criticality estimates for spheres and slabs 1=13896
crystalline powder, diffusion length and Maxwell spectrum distortion 1=13431
cylinders, flux distrib., variational method 3=4402
cylindrical reactor, completely reflected 2=20706
at cylindrical surface by 2-group diffusion theory 1=17185
data for all elements 1=11048
delayed neutrons, effect on reactor stability 1=17209
density decay rate, in various moderator assemblies 0=9374
density and "importance", variational representations 1=17189
die-away expts., extrapolation distances 2=18130
diphenyl-diphenyl oxide as reactor moderator and coolant 0=5825
diphenyl, 85°, 130°C 4=12013
diphenyl-impregnated graphite, thermal diffusion length 1=5732
diphenyl and MIPB($C_{15}H_{16}$) 4=3758
in diphenyl, meas. with pulsed source 1=13445
in diphenyl, pulse method 3=2271
in diphenyl, temp. dependence, pulse method 1=5733
diphenyl, thermal 2=9857

Neutrons and antineutrons—contd

diffusion—contd

- discontinuous media 0=3970
- distrib. in moderator, monatomic gas model 1=19212
- distribution in moderator 0=20152
- effect of cylindrical channel 1=19564
- electrical analogy of transmission line, teaching 2=5996
- escape probabilities, approximation 4=1130
- Fermi's result, calc. by Markov chain statistics 2=11952
- Ficks' law generalization 4=25106
- flux distribution in media sep. by plane boundary 0=11179
- flux meas. as function of time 0=2145
- flux peaking at sharp corner 3=15255
- flux at a point, Monte Carlo estimation 3=24739
- fluxes, time dependent, multigroup theory 0=7355
- foils lying in plane, interaction 2=20347
- gas of hard spheres, scatt. theory 2=9852
- generalized multigroup theory 2=22532
- geometrical parameter for arbitrary homogeneous bodies 2=22867
- graphite, diffusion length, temp. variation 0=12958
- graphite, mean free path 0=7364
- graphite, parameters 4=6065
- graphite, pulsed source meas. 0=12951
- graphite, thermal decay const. meas., modified pulse method 4=3422
- graphite, thermal, temp. effects 4=910
- Green function for integro-differential operator 0=14546
- group diffusion eqns. for infinite reflector 3=19901
- group diffusion eqns., numerical soln. 1=17204
- half-space transport, anisotropic scatt. 4=12015
- in heavy gaseous moderators, calc. 2=18128
- heavy water, parameter meas. 4=6063
- heavy water, transport eqn. soln. 3=2272
- n-heptane, thermal neutrons 3=22143
- heterogeneous media, diffusion lengths 2=5660
- heterogeneous multiplying media, coupling 2=18388
- heterogeneous reactor, cylindrical fuel elements 3=10416
- homogenization of heterogeneous medium 0=7358
- ice, 0°C 3=6017
- ice, 0°- -80°C meas. 3=4401
- ice, thermal neutrons 0=7362
- importance, adjoint function perturbation theory relations 4=11125
- intermediate energy, into resonance absorber 1=13435
- invariant imbedding and neutron transport 0=5568, 16616
- inversion formula of Davison 2=21781
- isotropic dispersion, one-dim., in thin plate 4=15067
- with isotropic scattering, plane case, spherical harmonics, convergence rate 0=20148
- in kerosene, age to In reson., from Na-Be source 1=16802
- lattices, periodic, heterogeneous, calc. 4=909
- linear extrapolation distance, improvements on Milne solution 3=22449
- in liquids, meas. device 2=5666
- liquids, velocity correl. functions theory 2=11352
- m.f.p., velocity-dependent, Milne's problem 1=16800
- material buckling measurements in subcritical assembly 1=779
- media of high H content, space-energy distrib. 4=15070
- migration areas, heterogeneous reactors, calc. 4=22257
- Milne's problem for two adjacent half-spaces 1=15749
- Milne's problem, velocity 2=16201
- model bed, space-energy distrib. meas. methods 4=15257
- in monoisopropylidiphenyl, pulse method 3=2271
- monoisopropylidiphenyl, 20°C 4=12013
- moving medium 4=6059
- moving medium, theory 4=21863
- multichannel flux synthesis 2=10170
- multigroup bucklings, iteration method of specification 1=778
- multigroup diffusion eqns., computer programme 2=20715
- multi-group equation, soln. for reactors of circular and spherical symmetry 1=3487
- multigroup-multiregion diffusion eqns., soln. by expansions 1=17200
- multigroup, P₁ approx., general eqns. 3=2273
- multigroup theory for laminated reactor 1=13894
- multigroup transport, perturbation theory computer appl. 4=30232
- multilayer transport processes 0=1284

Neutrons and antineutrons—contd

diffusion—contd

- in multilayer system, space-time distrib., discrete coordinate method 2=22531
- multiplying medium, neutron flux due to source introduction, use of diffusion theory 1=3491
- neutron transport, cylindrical geom., spherical harmonic soln. of Boltzmann equation 1=503
- neutron transport problems, iterative method for spherical symmetry 1=3189
- "non-separable" multiplying systems, iteration 3=10122
- nuclear reactor moderators, near absorbing rods 4=9603
- nuclear reactors with cylindrical slug lattice, calc. 4=6411
- nuclear reactors, thermal, effect of empty channels in moderator 4=17216
- one-group theory, diffusion constant, definition 1=502
- one group theory rel. to Yankee startup expt. data 3=2520
- one-group, time-dependent, extrapolation length 2=7863
- one-speed, in two adjacent half-spaces, Case's method 4=19527
- one-velocity transport eqn. for cylinders and spheres, double spherical harmonic method 0=15617
- in paraffin, study by Monte-Carlo method 2=7869
- in paraffin, temp. depend. 3=19648
- parameter meas. by pulsed-neutron source technique 2=11953
- penetration in shields, Monte Carlo calc. 4=21875
- perturbation methods for reactor diffusion eqns. 0=15619
- pile, regular subcritical, flux distrib. calc. 2=10165
- plane source in infinite medium 2=13814
- plate lattice, thermal utilization 2=8028
- polyethylene, diffusion length 0=5826
- in polyethylene, temp. depend. 3=19648
- pulse in infinite slab, variational solution 4=21864
- pulsed neutron source, laboratory expts. for students 2=5995
- pulsed source in heavy moderator, energy spectrum calc. 0=9370
- pulsed source meas. in water 2=5656
- quasi-linear systems first boundary value problem 4=19899
- radiative transfer theory, book 1=4289
- random-walk interpretation and generalization of linear Boltzmann eqns. 0=10618
- reactivity, calc. using transport approx. 1=17210
- reactor calc., diffusion lengths 2=14165
- reactor cell-averaged diffusion coefficients, calc. 4=22258
- reactor cell calc., diffusion coeffs. weighting 2=12254
- reactor diffusion equations, accuracy and scope of difference solutions 1=784
- in reactor lattices, energy and spatial distrib. 1=17206-7
- in reactor, Sn method for soln. of transport equation 0=13340
- reactor stationary flux distrib., simulation by analogue computer 0=5834
- reactor, two-group kinetics 2=22871
- reactors, calculations, graphical methods 2=3646
- reactors, criticality condition, by multigroup theory 1=17184
- reactors, effective resonance integral calc. 2=8034
- reactors, fast fission activations of U²³⁵ foils 2=12252
- reactors, fast, two-zone, averaging of multi-group constants 2=12255
- reactors, linear extrapolation length of infinite plate 2=1944
- reactors, maximum prompt neutron lifetime 2=6021
- reactors, near partially inserted black rod 2=1946
- reactors, "sandwich", exact two-group theory 2=10177
- reactors, small cells, failure of approximations 2=6013
- reactors, thermal neutrons 1=13876
- reactors, transport eqn. for plane cell, soln. 2=8033
- in reactors, two-group theory, matrix formulation 2=6001
- reactors, in U fuel rod in moderator 2=14169
- reactors, voids between core and reflector 2=8027
- reduction of transport to multigroup diffusion, theory 4=30230
- in reproducing media, multigroup treatment 0=7356-7
- resonance escape, generalized equivalence theorem 2=8031
- rethermalization in graphite, cross-section meas. 1=17239
- ring of cylindrical rods, two-group theory 0=12954
- rocks of high H content, slowing-down calc. 4=15069
- sandwich reactor, effective thermal diffusion length 0=7662
- scattering media, asymptotic spectra meas. 1=19207

Neutrons and antineutrons—contd
diffusion—contd

self-diffusion coeff., rel. to incoherent inelastic scatt. 4=9217
 shields, laminated, fast n spectra calc. 4=30235
 single-group theory, useful analogy 1=13889
 slab geometry, anisotropic kernel, spectral analysis 4=12012
 slab geometry, thermal flux disadvantage factors 2=12247
 slowing down with anisotropic scatt. 2=12248
 slowing down of neutrons in heterogeneous system 1=2065
 slowing-down in sphere, P_{∞} point-source soln. 3=24740
 in solid, finite, thermal, Bragg cutoff effect 3=10124
 solids, one-velocity theory, inequalities 1=19206
 solution of integral transport equations in cylindrical geometry 4=30231
 with source, calc. 2=19606
 Soviet progress, conference 4=9002
 space-energy distrib., in heavy media 0=1453
 space-energy separability in pulsed systems 3=14989
 in spherical geometry, Boltzmann eqn. 1=8804
 spherical harmonic method, boundary conditions 2=9209
 square lattice cell, thermal neutron flux 0=12949
 surface leakage from reactor, calculation 0=4145
 teaching, meas. in polythene 4=3416
 temp. var., in moderators 4=3419
 in temperature gradient 2=7861
 theory, comp. with radiative transfer 0=5566
 theory, effective boundary conditions, review 0=9368
 theory of meas. with pulsed sources 0=7368
 theory, perturbation formulae 2=41
 theory, with velo. distrib. 4=15064
 thermal column, branched, flux distrib. meas. 2=16448
 thermal, in finite solid medium, Bragg cut-off 2=5662
 thermal flux in diffusion medium, space and energy separability 1=2064
 thermal flux in moderator of supercell 3=8158
 thermal, in heavy water, coeff. meas., remark 4=3421
 thermal, in media of nonuniform temp. 3=14988
 thermal neutron flux distrib., in space and energy 1=17214
 thermal neutron spectrum in diffusing medium 0=12980
 thermal neutron transport, few group calc. 2=5659
 thermal neutrons in moderators, meas. 3=10125
 thermal in non-absorbing medium, Milne's problem 2=5661
 thermal, in poisoned water 2=3349
 thermal reactors, minimum critical mass 2=6017
 thermal systems, Sn computations 1=13885
 thermal, in water, diffusion length, 24° - 82° C 4=21869
 thermal, in water, Dowtherm A 2=3347
 thermal neutrons, parameters from integral eqns. 4=6062
 thermal, in water, 23° - 244° C 2=3348
 thermalization, effect of diffusion initially 2=5668
 thermalization, heavy gas model 0=17344-5
 thermalization in heavy gaseous moderator 0=12968
 thermalization, Monte Carlo study 0=7372
 thermalization operator, generalized Horowitz 3=22142
 and thermalization in pulsed media 2=5657
 time-dependent adjoint eqns. 1=19210
 time-dependent, numerical soln. 0=5567, 12956
 transport eqn. 0=12374
 transport eqn., discrete-ordinates methods, accelerating convergence 4=21060
 transport eqn., effect of scatt. and cross-section 3=19647
 transport eqn., group study, use of spherical harmonics 0=4955
 transport eqn. in Milne-Eddington model 0=16633
 transport eqn. for plane problems, diffusion approx. 2=10178
 transport eqn. in plane and spherical geometries 0=12957
 transport eqn. in slab geom., spatial expansion 4=22253
 transport eqn. soln., discrete ordinate method 4=6075
 transport eqn. soln., synthetic method 4=3736
 transport eqn., spherical harmonics approx., variational boundary conditions 4=15929
 transport eqns., existence and uniqueness theorems 4=3420
 transport eqns., simple solutions 0=3471
 transport flux and current at grey plate surfaces 1=18325
 transport in infinite homog. media, eqn. soln. 3=2272
 transport mean free path in graphite 1=7249
 transport problems, constant-velocity 0=12960

Neutrons and antineutrons—contd
diffusion—contd

transport problems in multigroup theory 0=1284
 transport theory, energy-dependent, constant cross-sections 3=15258
 transport theory, energy-dependent, integral eqn. 3=588
 transport theory, iterative method 0=15364
 transport theory, one-velocity 2=3350
 transport theory, polynomial approx. 0=15363
 transport theory, stationary, Green functions 0=14546
 two-dimensional transport, many-fold moment calculation method 1=13886
 two-group approach 1=16799
 two-group eqns. soln., analytic method 3=6325
 two-group programme 4=3418
 two-group theory in plane geometry 2=3352
 two-mode variational procedure, thermal diffusion theory parameters 2=5658
 two-substance medium width cylindrical divider, non-stationary 4=30229
 two-temperature lattice, thermalization theory 2=20348
 Van Hove's $G_S(r,t)$, simple binary collision model 4=21059
 velocity-dependent transport theory 1=13433
 velocity distrib., time of flight study 0=9369
 velocity space distrib. from point source 4=9214
 void regions, effective coeff. 2=20350
 in water, age to In reson., from Na-Be source 1=16802
 water, age of Pu-Be neutrons 0=15362
 water, asymptotic spectra 1=19207
 in water, cold neutrons, self-diffusion coeff. for water 1=9386
 in water, diffusion hardening det. 3=6016
 water, at 14.1 MeV, attenuation 0=12972
 in water and ice, pulse method 2=18126
 in water, meas. with pulsed source 1=13445
 water, 0° - -80° C, rel. to molecular rotation 3=4401
 water, 0° , 20° C 3=6017
 in water, parameters for various scatt. kernels 4=21868
 in water, 16° - 89° C, and Dowtherm A at 185° C 2=5665
 in water, student expt., diffusion length meas. 2=22530
 in water, temp. dependence, pulse method 1=5733
 in water, thermal diffusion length 2=7860
 in water, thermal diffusion length, temp. depend. 0=12948
 water, thermal neutrons, at 20 - 50° C, diff. length 2=20351
 in water, 25 - 296° C, diffusion length meas. 1=16801
 Wilkins equation, eigenvalues 2=20349
 Yvon approx. method 3=22146
 Yvon approximation method 2=11951, 18125
 Al-water mixture, transport eqn. soln. 3=2272
 Al- H_2O mixtures, moderation from RaBe source to In resonance 0=5569
 B_4C , 4, 14.9 MeV 4=12014
 Be, 100° K, thermal, corrections 3=10124
 Be, pulse meas. 4=19534
 Be, semi-infinite slab, effect of Bragg cutoff 2=7859
 Be, slowing down, collision density calc. 4=21876
 Be, slowing down from 1.44 eV 0=7360
 Be, thermal neutron mean free path, temp. depend. 1=15361
 Be, BeO, lattice struct. effects on temp. var., review 4=19533
 BeO 0=9374
 BeO, sintered, by pulsed-source method 4=21866
 BeO, sintered, pulse study 4=3417
 BeO, slowing down, collision density calc. 4=21876
 BeO, temp. variation 0=9375
 D_2O cooling effect 0=7367
 D_2O , equivalence factors, age calc. 0=12955
 D_2O lattices, k_{∞} , multigroup diffusion calc. 0=15616
 D_2O , length meas. rel. to concentration 2=22529
 D_2O , thermal neutrons, parameters 4=6064
 in D_2O , thermal neutrons, 20° - 220° C 3=2270
 in D_2O , transport mean free path 1=7250
 in D_2O - U^{235} critical assemblies, few-group anal. 1=17199
 Eu, transmission meas., nuclear polarization 4=28318
 EuS, transmission meas., nuclear polarization 4=28318
 Fe, leakage rate 0=13360
 in Fe, >1.5 MeV, relax. length meas. 4=21867
 Fe-Al-water mixture, transport eqn. soln. 3=2272
 H_2 , slowing down time distrib., Monte Carlo calc. 0=12976
 H_2O , chopper meas. 4=9216

Neutrons and antineutrons—contd
effects—contd

- BeO, irradiated, He diffusion after annealing, from specific heat, below 4°K 3=15509
 BeO, lattice parameter changes, cracking 2=21516
 BeO, point defect cluster formation 4=22640
 BeO, structural changes 3=18298
 BeO, vacancy and interstitial defect formation 3=8426
 BeO, Wigner energy release, determ. by calorimetric method 4=18473
 Bi, dissolution and contact melting 1=19819
 C, internal friction, elasticity, glassy and baked C 4=10380
 C pyrolytic film resistors 1=1026
 CClF₃, u.s. cavitation 3=14122
 CH₄-D₂ mixtures, failure of T elastic collision model 3=18460
 CaCO₃, crystal structure changes 4=26564
 CaO, optical and e.s.r. spectra 3=13169
 CaTiO₃, crystal structure changes 4=26564
 Cd, dissolution and contact melting 1=19819
 Cd, pure, by thermal neutrons 3=2847
 CdS, elec. and photoelec. props. 3=4917
 Cr-steels, austenite-martensite transformations 1=4005
 Cr₂O₃, irradi. effect on elec. conductivity 4=10049
 Cs₂Sb, film, photoelectric emission 3=14632
 CsUO₂(NO₃)₂, fluorescence spectrum of uranyl ion 4=15612
 Cu and Cu-Al, defects rel. to yield strength 4=20650
 Cu, crystal imperfections, electron mic. contrast effects 4=17425
 Cu crystals, effect on strength 4=13398
 Cu crystals, on flow stress 3=20719
 Cu crystals, hardening mechanism, 0°C 3=20721
 Cu, damage, effect of plastic deformation, 1.8°K 3=6554
 Cu, rel. to dislocation etch pit study 3=22788
 Cu, dislocation loops 0=20805
 Cu, dislocation loops 2=12437
 Cu, dislocation loops, annealing 4=4053
 Cu, dislocation loops and hardening rel. to irradiation 1=10004
 Cu, dislocation pinning by radiation defects 2=21015
 Cu, effect on crystal structure and hardness 1=3698
 Cu, effect on internal friction 2=21402-3
 Cu, effect of irradiation on plastic deformation 1=9092
 Cu, elastic moduli, dislocation damping, Mc/s range 1=3955
 Cu, elastic modulus after cold working 2=6744
 Cu, elastic modulus and damping capacity 3=5059
 Cu, from electron microscope spot size and density 3=8939
 Cu, (111) faces, fast neutrons 2=8263
 Cu films, for various substrates and atmospheres 3=22869
 Cu, formation of dislocations 2=6350
 Cu, at 4.5°K, effect of initial defect conc. on annealing 4=12829
 Cu glide dislocations, rel. to irradi.-produced prismatic dislocations 3=17760
 Cu, hardening 2=21437
 Cu, hardening 3=23340
 Cu, hardening 4=30760
 Cu, hardening, -195°C 2=6396
 Cu, internal friction and elastic modulus 0=8103
 Cu, irradiation damage, energy release at 600-700°C 1=7608
 Cu, loop size distrib., measure and model 3=17722
 Cu metal, tensile strength changes 1=1336
 Cu, microstrain yield stress 4=28942
 Cu, plastic deform., slip lines and temp. depend. 4=10395
 Cu, primary atom energy distrib. 2=14481
 Cu, primary atom energy distributions, rel. to fast neutron irradi. 3=8431
 Cu, prismatic dislocs. and volume change on annealing 4=17460
 Cu, pure, by fast neutrons 3=2847
 Cu, slip, thermal activation energy and volume 4=10377
 Cu, strength 4=17728
 Cu, vacancy clusters causing small-angle scatt. 4=10009
 Cu-Al and Cu-Ga specific heats 4=6741
 Cu-Al, electrical resistivity 1=19821
 α Cu-Al, strength 4=17728
 Cu-Co, precipitation particle dissolution 2=16647
 Cu-Ni alloys, mag. susceptibility 0=2980
 Cu-Ni, vacancies, de-segregation on heat treatment, from cond., elec. 4=22645

Neutrons and antineutrons—contd
effects—contd

- Cu-Ni wires, resistivity 3=10719
 Cu₂O, defect conc. 4=1440
 Cu₂O, effect of irradiation on internal elec. field 2=23555
 Cu₂O, exciton absorption spectrum 4=1727
 Cu₂O, rel. to exciton spectra 3=17998
 Cu₂O, study by exciton spectroscopy 2=2105
 Cu-Sn, Cu-Sn-Pn alloys, phase transformation 2=12926
 D₂-CH₄ mixtures, failure of T elastic collision model 3=18460
 Fe alloys, effect on crystal structure and hardness 1=3698
 Fe, α-phase, slip bands, obs. 3=809
 Fe, defects in pure and doped samples 4=1832
 Fe, doped, resistivity when irradi. at 78°K 3=13034
 Fe, effect on crystal structure and hardness 1=3698
 Fe, effect of irradiation on stored energy 4=4098
 α-Fe, electron microscopic obs. 3=8477
 Fe, Fe-C alloys, plastic yield stress, Petch relation anomalies 4=10387
 Fe, ferromagnetic alloys, Italian I.E.N.G.F. work 4=22953
 Fe, hardness, elec. cond., lattice parameters 4=28509
 Fe, internal friction peaks 4=26513
 Fe, mag. props., very pure 3=23179
 Fe, magnetic "drag band" 3=8469
 Fe, magnetic props. 0=18189
 Fe, mechanical props. 0=7905
 Fe, point defects 3=17702
 Fe, primary damage state to 10 MeV 4=22649
 Fe, pure and doped, rel. to elec. resistance 4=12857
 Fe, pure, mechanical properties, 4° to 300°K 3=8759
 Fe, recovery meas. 20°-450°C and defect nature 4=6900
 Fe, strengthening by bombardment 4=23165
 Fe whiskers, torsional plasticity 3=8763
 Fe₃Al alloy, radiation-disordering 4=20707
 Fe₃Al, elec. and mag. props. 2=23233
 Fe₃Al, mag. moment, degree of order 4=26307
 Fe-C, defect production, rel. to C precipitation 3=22866
 Fe-C, hardness, coercive force, resistivity changes 2=23767
 Fe-Ni alloys, magnetic properties 4=28812
 Fe-Ni 50/50% alloy, ordering 2=6830
 Fe-Ni (50-50), phase transformation, order-disorder, by n irradi. 4=7496
 Fe-Ni ordering in a mag. field 4=10272
 Fe-Ni, uniaxial mag. anisotropy induced 4=1457
 γ-Fe₂O₃, Fe₃O₄, saturat. magnetization reduction 0=3008
 Fe-3% Si, B-H curves 0=13777
 GaAs, magnetoresistance 0=6121
 GaAs, n-type, optical and elec. props. 2=23387
 Ge, amorphous films, displacement spike recrystn. 4=17461
 Ge, carrier recombination level 2=12514
 Ge, crystal imperfection distrib., n type 4=6822
 Ge, damage, direct observation 3=6553
 Ge, damage, obs. by chemical etch 4=4060
 Ge, defects 0=6109
 Ge, defects, effect of recombination 0=15925
 Ge, effect on cell size 1=3703
 Ge, elec. breakdown, neg. resistance 1=17852
 Ge, elec. cond., effect of 14.2 MeV neutrons 2=6452
 Ge, elec. props., proton damage equivalence 4=17494
 Ge, electron-hole pairs, recombination processes 3=2884
 Ge, electron-hole recomb. 0=4338
 Ge, electron mobility variation at 77°K 2=4013
 Ge, energy levels 4=1433
 Ge, energy levels induced by neutron bombardment 2=2149
 Ge Esaki diodes 0=18029
 Ge, etch pits 0=13565
 Ge films, vacuum deposited, elec. cond. 4=15538
 Ge, Hall coeff. 0=18016
 Ge, Hall coeff. 2=23325
 Ge, holes, scattering by lattice defects formed by irradi. 4=12899
 Ge, n-type, disorder 2=6453
 Ge, n-type, drift mobility 0=18017
 Ge, n-type, electron removal rate, by fission neutrons 1=8941
 Ge, n-type, σ and μH 2=23326
 Ge, n-type, transitory elec. props. after pulse 0=13597
 Ge, recombination centres, production 0=6110

Neutrons and antineutrons—contd
effects—contd

n-type Ge, recombination processes 1=12437
 Ge, recombination—trapping effects in n-type 4=12900
 Ge thermal cond., fast neutrons 4=4003
 Ge, thermal conductivity 3=17674
 Ge, thermoelec. and elec. behaviour 3=10898
 Ge transistors 2=21180
 Ge, transmutation-doping, impurity conduction 0=13595
 Ge, transmutation doping and recoil effects 4=30595
 Ge, transport props. 4=10012
 Ge, tunnel (Esaki) diodes, radiation defects 3=17918
 H⁺ production in LiF crystals 2=615
 He, liquid, excitations 0=8918
 He, liquid, heating 0=8871
 Hf hydrides, structure stability 0=14015
 In films, dimeric : monomeric ionic current ratio of vapour, 773°-1373° K 3=19179
 InSb, i.r. transmission 4=1735
 InSb, semicond. props., recovery on heating 4=6976
 Ir (IV) cryst. hexagonal complexes, nuclear recoil defects annealing 2=21006
 KCl, effect on resistance to deformation and destruction 4=10352
 K₂CrO₄, effects of crystal defects 3=22871
 K₂CrO₄, thermal neutron capture, compression annealing 3=25311
 K₂SO₄, thermal recovery 2=23225
 K₂Sb, film, photoelectric emission 3=14632
 Li borosilicate glasses, Ce activated, scintillation 2=13704
 Li ferrite, irradi. effect on structure and mag. props. 4=13242
 Li salts, T release, thermal 3=23552
 Li₂CrO₄, thermal defect annealing kinetics 3=17700
 LiF, colloidal Li formation 4=6901
 LiF crystals, damage 4=28512
 LiF crystals, lattice expansion on neutron irradi. 4=10539
 LiF crystals, optical absorpt., lattice const. 2=2108
 LiF, defect growth 3=22888
 LiF, defects 2=20988
 LiF, dielec. dispersion study, damage 2=23492
 LiF, with divalent impurities, elec. and optical props. 2=12481
 LiF, effect of irradiation on crystal structure 2=15020
 LiF, effect of neutron irradiation on elec. conductivity 1=10020
 LiF, effect on resistance to deformation and destruction 4=10352
 LiF, elec. cond. 3=22981
 LiF, elec. cond., effect of irradiation temp. 3=2946
 LiF, fragmentation and reorientated zones 1=3702
 LiF, lattice defects 2=23158
 LiF, lattice defects 3=22702
 LiF, Li precipitation 0=4728, 7876
 LiF, Li precipitation 1=19820
 LiF, Li precipitation, e.s.r. study 0=4511
 LiF, low-temp. irradi., defects 4=1541
 LiF, mag. susceptibility 4=1803
 LiF, -195° to 100°C 3=22870
 LiF, optical absorption bands 4=28694
 LiF, secondary etch pits and wrinkles 0=7907
 LiF, thermal cond., point defects 0=1575
 LiF, two types of centre, e.s.r. study 1=20219
 LiF, vacancy formation by reactor irradi. 4=9946
 LiF, X-ray patterns, unusual effects 3=20948
 LiH, Li precipitation 0=4728
 LiI, luminescence 4=13079
 Mg, elastic fatigue, neutron irradiation effects 2=18983
 MgO, chemisorption of O₂, surface centre, e.s.r. obs. 4=23600
 MgO crystals, elec. effects 0=7944
 MgO crystals, flow and fracture 0=21147
 MgO, damage, brittleness and dislocations 3=25310
 MgO, defect clusters and macroscopic growth 4=12833
 MgO, dislocation behaviour and yield stress 3=18185
 MgO, e.s.r. studies of trapped electrons or holes 2=12479
 MgO, F-centres, spin-lattice relaxation 3=817
 MgO, fracture stress meas. 4=10392
 MgO, maser emission, spin magnetization 2=3163

Neutrons and antineutrons—contd
effects—contd

MgO, point defect cluster formation 4=22640
 MgO, point defects detected by e.s.r. 2=3907
 MgO, slip bands and microhardness 3=17761
 MgO, sorption of O₂, H₂, N₂O 3=13604
 Mn ferrite, irradi. effect on structure and mag. props. 4=13242
 Mo, crystal interstitial loops 4=22566
 Mo, damage recovery, annealing process 2=10380
 Mo foils, dislocation channelling 4=10014
 Mo, hardening, rel. to grain boundaries 3=4881
 Mo, irradi. damage and resistivity 3=22769
 Mo irradi., stored energy meas. rel. to recovery mechanism 4=15506
 Mo, irradiation, effect on K absorption spectra 2=23583
 Mo, lattice defects 3=22766
 Mo, lattice expansion 0=20851
 Mo, mechanical props., microstructure 2=10430
 Mo, point defects 2=23151
 Mo, vacancy annihilation 3=2787
 Mo, X-ray diffraction study 1=2399
 NO₂ prodn. in liquid N₂ and O₂, 14.6 MeV 3=8976
 NaBrO₃, thermal decomposition 3=6911
 NaCl, dissolution and contact melting 1=19819
 NaCl, vacancies, direct meas. 3=8427
 NaI:Tl, scintillation response to monoergic neutrons 0=17355
 (Na₂K)Sb, (Na₂K)CsSb, film, photoelectric emission 3=14632
 Nb, irradi. damage and resistivity 3=22769
 Nb, point defects 2=23151
 Nb, recovery at 150°C, vacancy migration 4=12729
 Nb₃Sn defects, effect on supercond. 4=18597
 Nb₃Sn, superconducting critical currents 4=11475
 NbZr, superconducting critical currents 4=11475
 Ni alloys, with Mn, Cr, Al, Mo and Fe, elec. and mag. props. 2=23233
 Ni ammonium salts, thermal recovery 3=8472
 Ni crystals, mag. props. 2=10652
 Ni, ferromag. viscosity, relaxation time 0=18185
 Ni, ferromagnetic alloys, Italian, I.E.N.G.F. work 4=22953
 Ni, ferromagnetic drag bands 4=13196
 Ni films, phase change and mag. props. variations 0=10338
 Ni films, for various substrates and atmospheres 3=22869
 Ni, phase transform. 4=23282
 Ni, plastic deformation, ferromag. meas. 4=10394
 Ni, point defect clustering 3=22721
 Ni, strengthening by bombardment 4=23165
 Ni-Cr (21.4 wt%), phase transform. K 4=23282
 Ni₃Fe, effect of foreign atoms on irradi. resistance at high temp. 4=7276
 Ni-Fe (50/50), ordering, and mag. props. 4=13207
 NiO, chemisorption of O₂ and H₂ 3=3366
 NiO, Li-doped, tritium release 2=17100
 NiO, sorption of O₂, H₂, N₂O 3=13604
 Np²³⁹, γ-γ coincidence and neutron activation det. in U²³⁸ 1=17248
 O₂ adsorption in NiO 3=13567
 Os (IV) cryst. hexagonal complexes, nuclear recoil defects annealing 2=21006
 Pb, dissolution and contact melting 1=19819
 Pb, supercond., crit. field 3=14451
 PbO, red and yellow, crystal structure changes 4=26564
 PbS i.r. detectors, lifetime 2=9447
 PbZrO₃, ferroelec. props. 3=13118
 Pt, irradi. damage, focusing collisions along twin boundaries 1=11246
 Pt, point defects production 0=20798
 Pt, Fe, thermal spikes, size meas. 3=22853
 Se, irradiation, effect on K absorption spectra 2=23583
 Si, annealing of damage 4=4005
 Si, B-doped, He detection on cleavage 4=22570
 Si, carrier lifetime 1=17714
 Si, carrier lifetime 3=22933
 Si, carrier lifetimes, annealing 2=23223
 Si, carrier removal rate, rel. to neutron irradi. 3=17517
 Si counter diodes, recoil spectra of Si 3=25307
 Si, damage and annealing processes 4=15509
 Si, defects 3=22725
 Si, defects, nature and size of damaged regions 0=2835

Neutrons and antineutrons—contd
moderation—contd

- slow, flux meas. 2=6072
 slowing down, energy distrib., Boltzmann eqn., exact and asympt. soln. 4=21870
 slowing down in infinite homog. medium, exact and asympt. time—energy distrib. 4=21871
 slowing-down spectrum, CANDU-type reactor 3=25031
 slowing-down in sphere, P_{∞} point-source soln. 3=24740
 slowing down as stochastic process 2=11957
 slowing down in water and iron-water assemblies 2=11955
 in solids and thermalization near equilibrium 4=25455
 Soviet progress, conference 4=9002
 spectra about resonance 4=25109
 temperature distrib. of neutrons in cylinder of hot moderator 3=25001
 temperature relaxation, in water 4=6068
 thermal column of an exponential experiment 3=15253
 thermal flux in moderator of supercell 3=8158
 thermal neutron spectrum, integral eqn. 3=12721
 thermal neutrons, distrib., in various media 4=15071
 thermal spectra in lattice cells, "Spectrox" method 4=1137
 thermal spectra, in poisoned media, eigenfunction calc. 4=25107
 thermal spectrum near temp. discontinuity 4=19896
 thermalization operator, generalized Horowitz 3=22142
 thermalization, time decay consts. 3=8167
 thermalization, transient phenomena 4=19893-4
 time-dependent neutron thermalization problem 3=24738
 toluene, pulsed source 4=25113
 transfer cross-section between overlapping thermal groups 3=8168
 transport eqn. soln., STRETCH computer programme 4=6074
 vel. depend. transport with high-energy sources 3=10126
 water, attenuation functions, from isotropic and unidirectional fission sources 3=2274
 in water, fast fission 3=7865
 in water and ice, pulse method 2=18126
 water moderated lattices, Dancoff correction, new formula 2=6064
 in water, 16°–89°C, diffusion length 2=5665
 in water, slowing-down and thermalization time 4=30234
 in water, slowing-down time meas. method 2=7867
 Wilkins eqn. and higher order eqns. 2=5678
 Wilkin's thermalization theory 2=13816
 zircaloy 2, cross-section meas. 2=6035
 in B carbide, at 3 and 15 MeV 2=1692
 in Be, (n, 2n) and (n, a) reactions 2=10118
 in Be, thermal flux energy distrib. 4=12019
 Be, thermalization time 2=5667
 $Cd_3Ta_2O_7$, use as reactor control material 3=4699
 H_2O , lifetimes to Cd and Ga cut-off energies 4=27863
 H_2O , thermal diffusion temp. var. 4=3419
 in H_2O , thermalization parameters, meas. method 4=21877
 H_2O, D_2O , pulsed source 4=25113
 Zr, cross-section meas. 2=6035
 in Zr hydride, pulsed source method 2=18129
 $ZrH_{1.75}$, thermalization, temp. dependence 4=21878

polarization

- after scattering by ferromagnet 1=20120
 analysis using scintillation bubble chamber 4=12023
 beam by Bragg reflection from Co–Fe alloy 1=2062
 beam, polarized, prod. 18–120 MeV 2=13810
 beam prodn., monochromatic 4=918
 beam sources, partially polarized, from nucleon–deuteron collisions, theory 1=12131
 beams, high-energy, 45% polarization, production 0=11182
 beams, 10^{-3} –10eV, prod. and study 3=24741
 β -decay, electron asymmetry 1=2058
 β -decay of polarized neutrons, asymmetries 0=11174
 collimators, reflecting, multi-channel 3=22140
 in Coulomb scattering 1=5731
 $d(d, n)He^3$, 4=30277
 $d + \gamma$ (12–30 MeV), and mesonic effects? 3=12513
 in (d, n) reactions, rel. to initial d polarization 4=9551
 decay of polarized neutrons, spatial asymmetries 1=500
 in deuteron diffraction splitting 2=5635
 deuteron photodisintegration, meas. 3=15044
 deuteron photodisintegration at 2.75 MeV 2=323
 deuteron scatt., spin-orbit effect 2=20344

Neutrons and antineutrons—contd
polarization—contd

- direct nuclear reactions; correl. of incoming and outgoing polarization 1=19431
 during transmission through matter 4=6058
 elastic scatt. of polarized neutrons at 2.8 MeV 2=3582
 elastic scattering by complex nuclei, exact theory 2=14101
 in elastic scattering on Cu, Zn, Mo, Cd 1=13807
 electrical polarizability, scattering 1=13430
 energy spectrum, polarized neutrons, using mag. field 3=2269
 helical magnetic structures, after scattering 3=18097
 intermediate energy, methods 4=3415
 magnetic crystals, elastic scatt. 3=15861
 magnetized mirrors and mag. materials, technique and analysis 4=9205
 meas. by diffusion cloud chamber 3=19654
 measurement 3=6014
 measurement, depolarizing plate double reflection methods 2=18124
 measurement, 5–40 MeV 4=3414
 measurement, by scatt. asymmetry, corrections for finite geometry and energy 3=19646
 μ^- absorption at rest, virtual π -meson effects 0=17368
 in (μ, n) reactions 1=5929
 due to muon capture by nucleus 1=2063
 n-d elastic collisions, < 2 MeV 2=16200
 n-d elastic scatt., < 1.0 MeV 2=16199
 n-d scatt., 1 MeV, elastic 3=12680
 in n-d scatt., 1.0 MeV 3=19637
 n-d scatt., 1.9–23.7 MeV 3=19645
 n-d scatt., at 1 and 2 MeV 0=11180
 n-d scatt., at 2–4 MeV 0=5564
 n-d scattering at 0.5–1.95 MeV 3=587
 in n-n scattering 2=5654
 n-p scatt. at 16 and 24 MeV 2=18120-1
 n-p scatt., at 77 MeV 0=7353
 n-p scatt. at 128 MeV 1=501
 n-p scattering below 100 MeV 2=1691
 n-p scattering at 140 MeV 2=5655
 neutron-electron scatt., rel. to quantum electro-dynamics 2=5563
 noncollinear spin densities, distinguish from collinear 3=19643
 nuclear scatt., cpd. nucleus and direct contribs. 3=2471
 nuclear scatt., elastic, near 1 MeV, optical model 3=4644
 optical model fringe absorption, $90^\circ < A < 120^\circ$ region 2=20654
 p-n scatt., 126 MeV, 33° – 82° c.m. meas. 4=16900
 polarizability in terms of S-matrix 1=19205
 polarized beams, prod. and nuclear reactions 2=12179
 reflection, Co mirror, reactor thermal flux 4=905
 by reflection from Co mirrors 4=16903
 rotator frequency, rel. to mag. moment precession, calc. 4=9213
 scatt. by C, 1 MeV elastic 3=12680
 scatt. by O, 1 MeV, elastic 3=12680
 on scatt. from various nuclei, at 2.09 MeV, optical model analysis 1=19479
 scattered from heavy nuclei 4=25402
 in scattering on C, at 12 MeV, spin-orbit effects 1=2217
 in scattering, elastic, 1.5 MeV 4=16902
 in scattering in ferromag. and antiferromag. substances 2=4231
 scattering in ferromagnetic and antiferromagnetic substances 3=3121
 in scattering, inelastic, distorted wave theory 0=17574
 scattering on nuclei at 0.38 to 2.1 MeV 1=8703
 after scattering, on nuclei with rotational and vibrational spectra 4=17141
 scattering with protons at 23.1 MeV 3=10121
 source using D(T, He^4)n reaction 4=16904
 spin-orbit interaction, two particle, effect 2=3345
 static meson theory, electric polarizability 1=8437
 stripping reaction $C^{12}(d, n)N^{13}$ 1=13845
 "supercold" polarized neutron prod. 0=20154
 thermal, spin reversal without depolarization, apparatus 2=11961
 transfer matrix method for beam transport calc., extension 1=2026
 transmission through polarized Ho^{165} nuclei 2=12207
 Al, elastic scatt. at 24 MeV 3=6255

Neutrons and antineutrons—contd
polarization—contd

Al, elastic, 2 MeV, ang. distrib. meas. 4=25404
 Al(p,n), 143 MeV 3=10349
 Al scatt., 2.6 MeV 4=9520
 Ar<65, scattering, 3.5 MeV 3=2470
 B¹¹(d,n)C¹², C¹²*, 12.3 MeV 4=22173
 Be during transmission through matter 4=6058
 from Be⁹, excited by circularly polarized γ 1=17077
 Be⁹(γ ,n)Be⁸, mag. dipole transition effects 3=22364
 Be⁹(γ , n) neutrons 2=5888
 Be⁹(γ ,n), for 2.75 MeV γ 4=22110
 Be⁹(p, n)B⁹, 3.7-8.5 MeV 3=19848
 Be⁹, photoneutrons 2=14074
 Bi, elastic scatt. at 24 MeV 3=6255
 Bi(γ ,n), 0.4-16 MeV 4=22119
 C, elastic scatt. of polarized neutrons, asymmetry 0=455
 C, elastic scatt. at 24 MeV 3=6255
 C¹³(d,n)N¹³ 1=719
 C¹²(d, n)N¹³ 1=19521
 C¹²(d, n)N¹³ 3=4666
 C¹²(d,n)N¹³, 6.5 MeV 3=22417
 C¹²(p,n)N¹²*, neutron polarization, calc. using impulse approx. 1=13793
 C¹², scatt. at 15°, polarized beam production 0=11182
 C¹³ scattering ang. distrib. 3=19857
 C¹³(γ , n); below giant res. 1=19440
 Co(d, n) 3=24963
 Co, elastic, 2 MeV, ang. distrib. meas. 4=25404
 by Co films, mag. props. and structure, atomic, var. with electrolysis conditions 3=23509
 by Co-Fe crystals, precision cutting 3=20821
 Cu(d, n) 3=24963
 Cu, polarization strength for 3.4 MeV neutrons 2=20632
 by Cu, scatt. of 3.4 MeV neutrons 3=22392
 D-D, angular and energy dependence, 275-450 keV deuterons 4=9307
 D-D neutrons, meas. with solenoid 0=17346
 D-D reactions, energy dependence 0=9376
 D(d, n)He³ 3=24807
 D(d, n)He³, at 1.9-11 MeV 2=1732
 D(d, n)He³, 5-30 MeV neutrons 2=482
 D(d, n)He³, at 8.2 MeV 0=443
 in D(d, n)He³ reaction 4=16978
 in D(d, n)He³ reaction below 200 keV 4=19604
 in D(d, n)He³ reaction, energy depend. 4=25204
 D(d, n)He³, 70-153 keV 4=16977
 D(d, n)He³, at 2-4.5 MeV 0=17589
 D(p,n), 143 MeV 3=10349
 Fe(d, n) 3=24963
 Fe, elastic scatt. at 24 MeV 3=6255
 Fe, elastic, 2 MeV, ang. distrib. meas. 4=25404
 Fe scatt., 2.6 MeV 4=9520
 Ho¹⁶⁵ + n, oriented, spin-spin interaction \ll spin-orbit interaction 4=25413
 Li(p,n), 143 MeV 3=10349
 Li⁶, scattering at 40, 90, 156 MeV 2=16414
 Li⁷(p,n)Be⁷, ang. distrib., E_p = 4.5 MeV 3=17462
 Li⁷(p,n)Be⁷, 4.3 MeV 3=8089
 Li⁷(p, n)Be⁷, 4.5 MeV 4=9503
 Li⁷(p, n)Be⁷, 4-10 MeV 2=14090
 in Li⁷(p,n)Be⁷ reaction 1=5911-12
 Li⁷(p, n)Be⁷ reaction 2=10101
 Li⁷(p, n)Be⁷, at 3-6 MeV 0=17589
 Mg during transmission through matter 4=6058
 Mo, elastic scatt. by optical model 2=14102
 Ni(d, n) 3=24963
 O, polarization strength for 2.5-3.2 MeV neutrons 2=20631
 by O¹⁶, scatt. of 2.5-3.2 MeV neutrons 3=22393
 Pb, elastic scatt. by optical model 2=14102
 Pb, elastic scatt. at 24 MeV 3=6255
 S, scatt., 2.6 MeV 4=9520
 Si, elastic, 2 MeV, ang. distrib. meas. 4=25404
 Si²⁸ scatt., rel. to differential cross-section 2=12198
 Sn, elastic scatt. at 24 MeV 3=6255
 from T(d, n)He⁴ 3=676
 in T(d, n)He⁴, neutron polarization 1=19291
 T(d, n)He⁴ as source, 0.1-7.7 MeV 2=293
 in T(d, n)He⁴, neutron polarization 2=22656
 T(d, n)He⁴ with polarized deuterons 2=22528
 T(p, n)He³ 0=9362
 T(p, n)He³ 4=3414

Neutrons and antineutrons—contd
polarization—contd

from T(p, n)He³ reaction, 1.9 to 3.5 MeV 4=15063
 T(d, n)He⁴ 0=2549
 T(d, n)He⁴ reaction, 4=30279
 V crystals, scattering 3=18057
 Zr, calc., 3.4 MeV 4=28037
 Zr, polarization strength for 3.4 MeV neutrons 2=20632
 by Zr, scatt. of 3.4 MeV neutrons 3=22392
 T(p, n)He³, 2.9-12 MeV protons 2=7908
production
 α - α fusion, det. of centre-of-mass motion 2=20694
 (α , n) due to α -particles from Rn and decay products 4=6376
 α , n, mixture of light and heavy (α emitting) nuclei giving spherical n source, calc. 3=22429
 (α , n) reactions, yields 4=3704
 (α , n) sources, radiation yield 4=6086
 amplifiers 1=16792-3
 anisotropy factors of total yield, D(d, n) and T(d, n) reactions 4=9308
 antineutrons, by charge-exchange of \bar{p} , annihilation in H 2=18142
 antineutrons, by 440 MeV antiprotons on C and Pb 0=15343
 antineutrons in nuclei, by protons 0=17329
 in atmos., by solar γ -rays, calc. 1=21081
 beam, from T(d, n)He⁴ by α -n coincidences 2=20371
 beams, high-energy of 45% polarization 0=11182
 beams, partially polarized, by nucleon-deuteron collisions, theory 1=12131
 beams with special properties, survey 3=24744
 bursts from phased chopper velocity-selectors, shape, calc. 1=5737
 Canadian standard source 0=9377
 cold beams from small low-temp. moderators 2=6037
 cold neutron sources, moderation study 2=20362
 cold neutron sources, review 3=24745
 cylindrical multiplying structure, heterogeneous theory 0=17644
 d⁺ beam of 400 m μ A on B target 2=5404
 d.c. neutron source, 10⁸ neutrons/sec 3=9868
 delay neutrons in nuclear fission, observation and props. 1=8793
 from deuterium, mechanism 3=10349
 in deuterium plasma pinches 1=9589
 deuteron disintegration, 26 MeV, by field of Au nuclei 4=6375
 electrostatic accelerator, 300 keV, appl. 2=9861
 in emulsion stars, from p-interaction 0=9617
 energy range 120 KeV-6 MeV, 12-20 MeV, suitable reactions 0=9676
 evaporation, ang. momentum effects, Po²¹⁰, At²¹⁰, Rb⁷⁸ and Mn⁵⁵ 4=19831
 evaporation from nuclei, Monte Carlo calc. 1=16960
 fast chopper installation 2=5692
 in fission of Am²⁴¹ and U²³⁵ by thermal neutrons 1=3477
 in fission, delayed neutrons, systematics 1=4882
 in fission, formula for average no. 4=6393
 fission instantaneous, rel. to nuclear shells 2=8014
 fission neutrons, average no. produced 4=6390
 fission neutrons, delayed, interpretation 0=7638
 fission neutrons, no. from mass distrib. curves 3=12714
 flux in graphite prism, meas. 2=20359
 14 MeV generator using H³(d, n)He⁴ 3=19386
 14 MeV, sealed-off source, self-calibrating 3=10129
 by 450 MeV protons in hydrogenous moderator 4=15061
 generator of 14 MeV pulses, high-yield 1=13454
 generator 14 MeV, using T³(d, n)He⁴ reaction 0=15365
 generator, 14 and 2.5 MeV 3=2286
 generator, high-intensity, Cockcroft-Walton deuteron accelerator 1=13453
 generator, low-voltage, flux 10¹¹ sec⁻¹ at 14 MeV 3=24743
 generator with spark ion source 2=20369
 generators, low-voltage, survey 2=22541
 generators for pulse and continuous operation 2=20364
 heavy ion reactions, n evaporation 3=17499
 linear deuterium pinches 1=749
 μ interactions in Pb 0=1292, 11194
 in μ^- -meson capture 1=4873
 in multiplying medium, stochastic model 2=3655
 multiplication, in thick fuel elements 1=780
 multiplying systems, spiking theory 1=17187
 muon capture in heavy nuclei 2=10127
 neutron tube, sealed-off 2=9870

Neutrons and antineutrons—contd

production—contd

by neutrons, 14 MeV, in various elements 0=11442
 neutrons and precursors in multiplying medium,
 probability distrib. 3=25002
 non-elastic interactions with nuclei at 14 MeV,
 yield 0=20486
 nuclear explosions as sources 0=20483
 by nuclear reactor, fission, beams, intense 3=22450
 p-d collisions at 13 MeV 1=19192
 in p + d reaction at 6-13.5 MeV, energy and ang.
 distrib. 0=1276
 (p, n), (p, 2n) reactions rel. to heavy nuclei
 synthesis 2=446
 p-nucleus reaction at 3 MeV for 17 natural
 isotopes 1=19460
 particle accelerators, pulsed, moderator effects 3=22138
 phased chopper velocity selector 2=3360
 photoneutron source for start-up of WWR-S
 reactor 2=1950
 π^- absorpt. in nuclei 3=10372
 $\pi^- + d \rightarrow 2n + \gamma$, proposed det. of n-n scatt.
 length 1=4800
 by $\pi + p$, Panofsky ratio 0=2574
 polarized beams 2=12179
 prompt neutrons in nuclear fission 1=13869
 prompt, number from fission of U^{235} , 238 , Pu^{240} ,
 Cf^{252} 2=3640
 pulsed accelerator source, using $T^3(d,n)He^4$
 reaction 1=508
 pulsed beam, bunching magnet design 2=3107
 pulsed generator to 10^{10-11} n/sec 2=16212
 pulsed source 0=7380-1
 pulsed source for reactor measurements 1=4885
 pulsed sources, kinetic behaviour in matter 2=5405
 pulsed subcritical assembly, time-dependent thermal
 flux 0=15634
 pulsed, very rapid, fast, l.p. h.t. discharge in d 3=19659
 pulses, duration $< 5 \times 10^{-10}$ sec 0=9100
 (γ , n) reactions at 25-100 MeV, yield 0=2677
 ring-shaped sources in research reactor 1=10894
 by rotating nuclei 0=13168
 slow neutrons, techniques 0=7351
 Soller-type collimator, total reflection effect 4=3432
 source, $Am^{241} - Be(\alpha, n)$ 4=19520
 source, calibration, absorption in D_2O soln. of
 $MnSO_4$ 4=920
 source calibration, by photographic method 1=10892
 source, Cockcroft-Walton type, 300 keV 4=30226
 source, pulsed, 10^{12} neutrons/sec 4=16905
 source, sealed tube with ionized H isotope beam
 absorbed on target 4=12024
 source, unidirectional, for reactor shielding
 studies 2=18285
 source, using $H^1(t, n)He^3$, as neutron source 3=24742
 sources, high-intensity, review and industrial
 applications 2=22542
 sources, Po-Be and Ra-Be, neutron spectra 4=914
 spectrum, prompt fission neutrons 1=17170
 in stars, $Ne^{21}(\alpha, n)Mg^{24}$ as source 4=15151
 in stars, S-type, mixing processes, time scale 0=13
 storage of cold neutrons in a cavity, discussion 0=13000
 sun, neutron eruptions, mechanism of non-stable
 processes 0=18767
 "supercold" polarized neutrons 0=20154
 target-rotation device 3=4414
 targets for accelerators, Zr on Cu and Ag base-
 layers, prep. 2=17979
 thermal neutron source, study 4=6085
 in thermonuclear reactions, energy distrib. 1=17180
 Θ pinch, without reversed trapped field 3=4144
 by unstable particles 2=5646
 $Al(\gamma, n)$, cross-section 3=6223
 Al, Li deuteride, proton bombarded, neutron
 polarization 2=13810
 Al, photoneutrons 0=1430
 Al^{27} , fast photoneutron yield 2=22792, 422
 $Al^{27}(t, n)$ 1=19536
 $Al^{27}(t, n)$ 3=4672
 At^{209} , ang. momentum effects in neutron
 evaporation 4=19831
 Au, fast photoneutrons 0=5777
 $B^{11}(p, n)$ reaction yield 4=19524

Neutrons and antineutrons—contd

production—contd

$B^{10}(d, n\gamma)C^{11}$, n- γ coincidences 0=20455
 $Be^9(p, n)$ reaction yield 4=19524
 $Be^9(t, n)$ yield 2=10149
 Bi isotopes, neutron separation energies 4=19638
 C^{12} , fast photoneutron yield 2=422, 22792
 $C^{12}(t, n)$, at 0.35-2.4 MeV 1=19537
 $C^{12}(t, n)$, at 0.35-2.4 MeV 3=4672
 Ca, photoneutrons 0=5774
 Cf^{252} , spontaneous fission, neutron production
 rate 3=24988
 D(d, n)He³, use of rare earth cpds. as high temp.
 targets 4=21855
 D(d, n)He³ reaction, ion sources design 2=18133
 D-D neutrons, target 0=20155
 by D-D reactions, different targets 3=19562
 in D-D reactions, yield 1=16915
 D-D, D-T sources, scattering by heavy
 moderators 2=5675
 in D discharge, axial distrib. 1=7246
 in D discharge, X-ray emission 1=7037
 D, high-power pulsed discharges 0=5317
 D, neutron generator 0=17347
 D, pinched discharge 0=1140
 D pinches, evidence 1=5466
 D pinches, evidence 1=5467
 D plasma in Scylla 0=13385-7
 D(t, n)He⁴ reaction, ion sources design 2=18133
 D-T source, 5×10^{13} /sec, for reactor meas. 4=16906
 D or T targets, construction 4=16714
 $F^{19}(t, n)$ 1=19536
 $F^{19}(t, n)$ 3=4672
 Hg isotopes, neutron separation energies 4=19638
 I^{127} , p and α reactions at BeV energies 0=15572
 In, p reactions at BeV energies 0=15573
 $In^{115}(\gamma, n)$ neutron yield energy and angular
 distrib. 3=15175
 K, photoneutrons 0=5774
 $Li^7(p, n)$, background neutron scatt. from Ta backing of
 target 3=2472
 $Li^6(p, n)$ reaction yield 4=19524
 $Li^7(p, n)$ reaction yield 4=19524
 $Li^7(p, n)Be^{7*}$, neutron yield near threshold 4=19777
 $Li^7(p, n)$, in collimation-detection system, for neutron
 cross-section meas. 0=5788
 $Li^7 + H^2$ reaction, low energy 4=30350
 Mn^{55} , ang. momentum effects in neutron
 evaporation 4=19831
 Np^{237} fission 0=11457
 $O(\gamma, n)$, cross-section 3=6223
 $O^{16}(p, n)$ reaction yield 4=19524
 P^{31} , photoneutron energy spectrum 3=6220
 $Pb(\beta, \gamma) \rightarrow Pb(\gamma, n)$ 0=20472
 Pb, by cosmic rays, effect of C absorbers 0=1343
 Pb, by cosmic rays, transition effect 0=15495
 in Pb, by fast cosmic-ray muons, meas. 4=9337
 in Pb, by 0.2-200 GeV cosmic-ray protons 4=9336
 Pb isotopes, neutron separation energies 4=19638
 Po- α -Be source, energy distrib. meas. 3=17498
 Po- α -O source, spectrum 2=1688
 Po^{210} , ang. momentum effects in neutron
 evaporation 4=19831
 $Po^{210}-Bi^{210}(\alpha, n)$, $Po^{210}-Bi^{211}(\alpha, n)$, energy spectra 2=3620
 Po-Be source, calibration 4=19521
 Po-Be sources 2=5690
 Po-Be sources, intensity rel. to γ -ray dose 2=22539
 Po-Li source, search for n- γ coincidences 3=590
 Pu^{239} , delayed neutrons from fission 4=6400
 Pu^{239} fission 0=11458
 Pu-Be source, neutron spectrum 2=5645
 Pu + Be source 3=15159
 Pu-Be source, spectrum, meas., by time-of-flight
 method 3=10131
 PuO_2 Be reduction 0=7379
 Ra sources, neutron emission, application to photo-
 neutron sources 4=25102
 Ra- α -Be, intensity, abs. meas. 2=20356
 Ra + Be source, absolute calibration 0=5570
 Ra-Be (α, n) source, spectrum 4=22133
 Ra-Be photoneutron source, absolute calibration 2=3355
 Ra-Be source, scattering by heavy moderators 2=5675

Neutrons and antineutrons—contd**production—contd**

- Ra + Be and $\text{Li}^7(\text{d}, \text{n})\text{Be}^8$ sources, Be^8 energy level study 0=3976
- RaD-Be source, meas. with nuclear emulsion 4=25115
- Rb^{78} , ang. momentum effects in neutron evaporation 4=19831
- using T-target, $\text{T}(\text{p}, \text{n})\text{He}^3$ reaction 4=24934
- $\text{T}^3(\text{p}, \text{n})\text{He}^3$ and $\text{D}(\text{d}, \text{n})\text{He}^3$ for n- N^{14} studies 0=4120
- $\text{T}(\text{d}, \text{n})\text{He}^4$, use of rare earth cpds. as high temp. targets 4=21855
- Ta, fast photoneutrons 0=5777
- Ta, photodisintegration, giant resonance 0=4112
- Th^{232} fission 0=2694, 11457
- Tl isotopes, neutron separation energies 4=19638
- U^{233} fission 0=7642, 11458
- U^{233} fission, delayed emission, rel. yields 4=9581
- U^{235} fission 0=2694, 11181, 11457-8, 11461, 13305
- U^{235} fission fragments, neutron emission 3=12713
- U^{235} by 14 MeV neutrons 1=17168
- U^{236} symmetrical fission 2=20693
- U^{236} symmetrical fission 3=8151
- U^{236} fission 0=2694, 9708, 11181, 11457, 13305
- U^{238} by 14 MeV neutrons 1=17168
- from U^{238} by 14 MeV neutrons 1=19545
- Zr-T target bombarded by deuterium ions 2=7875

reflection

- albedo calculations in reactor theory 0=12961-5
- backscattering from plane and spherical reflectors 4=21860
- Bragg reflection from Co-Fe alloy 1=2062
- collimators, multi-channel, as filter and polarizer 3=22140
- crystal monochromator, parasitic reflection 2=3353
- in cylindrical reactor, flux boundary conditions 4=1133
- off Fermi liquid surface, slow neutrons 3=7863
- glass mirrors, total 2=20352
- metallic reflection 2=294, 22533
- multigroup calculations of fluxes in reflector 0=12966
- optical devices for beam hole expts. 3=22145
- polarized, Co mirror, reactor thermal flux 4=905
- reflected flux from rod, transport theory 1=15746
- in refractometer, total 3=6018
- single crystals, multiple Bragg refl. 2=19069
- solid solutions, effect of thermal oscillations 3=3339
- total, from collimator surfaces, suppression 3=7867
- total, prod. of monoenergetic pulses 3=4410
- two-group albedo theory, reactor temp. coeff. calc. 0=13353
- from water, angular and spectral distrib., 0.3-14 MeV 0=7366
- Cd mirrors, total 2=20352
- by Co, magnetized, total 4=6066
- Cu mirrors, total 2=20352
- Fe mirrors, total 2=20352

refraction

(subheading abolished 1964)

No entries

scattering

- A = 50, near, s- and p-wave, subshell effect 2=10116
- acetylene, solid, effect of nuclear spin state 1=19687
- adiabatic approx. for heavy nuclei, validity 0=11305
- air-ground interface effects on neutron distribution, first-last collision model 4=21861
- albedo of slab wall, evaluation 4=27861
- alloys, of substitution multicomponent type 0=8272
- α , 15 MeV, D-wave contrib. 3=19644
- α -n, 14.1 MeV, ang. distrib. meas. 4=6057
- α -n, 16-26 MeV, elastic and inelast., meas. 4=21859
- on α -particles, at 2-3 MeV, ang. distrib. 2=3420
- α -particles, 2-23 MeV, meas. 2=13808
- ammonium salts, inelastic, cold neutrons 3=6010
- angular distrib., Mercury computer program for data standardization 4=25103
- angular distrib. on Pb, Bi, Fe, Sn and Al 0=20503
- anisotropic, Boltzmann eqn. degenerate solns. 4=18111
- anisotropic, first-order, Milne problem 2=13811
- anisotropic, transport, Boltzmann equation solution 4=907
- anisotropic, in transport eqn., Case-Wigner method 4=6060
- antiferromagnetic materials, energy distrib. 2=18914
- in antiferromagnetics, magneto-vibrational theory 2=21348
- in antiferromagnetics, magneto-vibrational theory 3=3149

Neutrons and antineutrons—contd**scattering—contd**

- antiferromagnetics, slow neutrons, calc. 2=752
- in antiferromagnetics, uniaxial 1=20158
- application to proton motion in NH_4 salts 2=6249
- atom, bound, resonance scatt. theory 4=5071
- atomic aggregates, thermal, Fermi approx. 4=12008
- and atomic system pair correl. function, time dependent meas. 4=11105
- by atomic systems, scatt. law 2=11946
- in antiferromagnetics, uniaxial 2=6678
- atoms, resonance, theory 2=14216
- average cross-sections in resonance region 1=11017
- back, detector with 2π sensitivity 4=21879
- backscattering from plane and spherical reflectors 4=21860
- benzene, bound protons 4=28237
- benzene, slow, per proton, ang. distrib. 4=9755
- blocking coefficients, calc. method 4=6343
- Bose liquid 0=10816
- Born approx., time formalism 3=6905
- bound nucleus, elastic scatt. at resonance 2=14361
- on closed-shell nuclei, nuclear potentials from phase shifts 1=8737
- coherent, from assembly of atoms, cross-sections 0=9366
- by collimator surfaces, reduction of net coherent scatt. ampl. 3=7867
- collision mean free path in lead 1=8460
- collision probabilities and resonance integrals for lattice 1=13879
- by complex harmonic oscillator potential, rel. to expt. 2=458
- complex nuclei, elastic, exact theory 2=14101
- complex potential, low energy, calc. 2=5647
- compound nucleus, spin determination 1=13617
- by conduction electrons in crystals theory 2=815, 8812
- corrections, Monte Carlo programming 2=5653
- by Coulomb field of nucleus, theory, electrodynamic effects 3=15204
- Coulomb scattering, polarization 1=5731
- cross-section detm. by gravity refractometer 3=6018
- cryostat (-130 to -190°C) for slow scattering expts. 3=7380
- crystal, anharmonic Bravais, one-phonon process 3=4822
- crystal, anharmonic, inelastic, $S(\mathbf{k}, \omega)$ function calc. 4=28351
- crystal, anharmonic, lattice dynamics 4=9824
- by crystal anharmonic vibrations 1=19481
- crystal, coherent, including anharmonic terms 3=20042
- crystal lattices, exclusion of coherent scatt. 3=22642
- on crystals, coherent, anharmonic effects 2=10236
- in crystals, cross-section meas., using mag. analyser 1=11196
- by crystals with cubic symmetry, temp. and energy var. 4=12010
- crystals, dispersion relations, meas. method 2=10822
- crystals, effect of anisotropic elastic constants and dislocation loops 4=4591
- on crystals, inelast., rel. to phonon spectrum 3=6474
- on crystals, inelastic, rel. to phonon spectrum 2=16603
- crystals, inelastic, quantum lattice relax. 4=22472
- crystals, lattice vibration study, impurity effect 4=22474
- crystals at low temp., resonance, Doppler effect 3=4801
- crystals, magnetic scattering, theory 4=28793
- crystals, multi-phonon processes 0=8194
- crystals, non-cubic, incoherent scatt., phonon density distrib. 0=13505
- crystals, one-phonon, energy distrib. of monochrom. neutrons 4=9832
- in crystals, 1-phonon transitions, freq. spectrum 1=14169
- by crystals, thermodynamic Green's function methods 1=2369
- in crystals, vibration spectrum determ. 1=17397
- by d, at low energy, calc. 4=21857
- d-n, diffraction, high-energy, double scatt. corrections 4=25207
- d-n, elastic, distortion of d^2S state 4=25208
- on deuterons, with correction for spins and isotopic spins 2=22524
- on deuterons, differential cross-section and polarization 0=5563

Neutrons and antineutrons—contd
scattering—contd

- on deuterons, doublet scatt. length, zero-range forces 3=24737
- on deuterons, elastic, high-energy, polarized cross-section, calc. 0=17343
- on deuterons, elastic, low energy, calc., allowing for polarization 0=12942
- on deuterons, elastic, spin-orbit interaction 2=20344
- on deuterons, rel. to H^3 and He^3 photodisintegration, theory 0=11239
- by deuterons, neutron polarization 3=19645
- on deuterons, 0.5-1.95 MeV, polarization and diff. cross-sections 3=587
- on deuterons, quasi-elastic, impulse approx. calc. 2=12016
- on diatomic gaseous molecule 4=2735
- dimethyl acetylene, inelastic, cold neutrons 3=6010
- e. m. form factors from deuteron data 4=9203
- in EWA reactor, from channel, ang. distrib. 1=19569
- effect of non-axially symmetric deformed potential 4=19632
- elastic, on Cu, Zn, Mo, Cd at 0.3-1.4 MeV 1=13807
- elastic, in cylindrical absorbers 0=11177
- elastic, effect of two-particle spin-orbit interaction 2=3345
- elastic and inelastic, 2.9 MeV, ang. distrib. 0=9675
- elastic liquid He^4 structure theory 2=1324
- elastic, low-energy, optical model 0=15592
- elastic, low-energy, optical model, appl. of fluctuation-dissipation theorem 0=20501
- elastic, and Mössbauer effect in systems with local degrees of freedom 4=25403
- elastic, by nuclei with rotational and vibrational spectra 4=22145
- elastic, observed probabilities 3=17286
- elastic, s-wave, coupled square-well model, giant resonance effect 1=8743
- elastic, 6-20 MeV, on He^4 , C^{12} , O^{16} 2=12200
- elastic, 2.8 MeV, by Fe, Cu, Zn, Cd, Sn and Sb 1=11025
- rel. to electrical polarization 1=13430
- on electrons, in crystalline fields outer electron config. 0=12028
- electrons, polarization effects rel. to quantum electrodynamics 2=5563
- equations, energy-depend spherical harmonics, decoupled 4=19468
- fast, energy spectra in graphite-moderated reactors 2=6039
- fast neutron physics conference, Houston (1963) 4=22142
- fast neutrons, by light nuclei, ang. distrib. 2=13806
- in Fermi liquid, slow neutrons 3=7863
- in ferrimagnetic crystals 1=12545
- ferrites, one-magnon, spin-spin interact. effects 3=25541
- ferrites, one-quantum, spin-phonon interaction 3=25542
- ferrites, slow neutrons, calc. 2=752
- in ferromag. and antiferromag. substances, polarization charge 2=4231
- ferromag. crystals, dislocations invest. with polarized neutrons 3=4871
- in ferromag. crystals, mag. scatt. line broadening 2=21332
- in ferromagnetic and antiferromagnetic subs. 3=3121
- ferromagnetic crystal, effect of domain walls 2=21333
- ferromagnetic, polarized nuclei, interference effects 4=20532
- in ferromagnetic substances at critical point, effect of mag. field 4=7240
- ferromagnetics with imperfections, spin wave theory 4=10252
- ferromagnetics, inelastic, diffusion const. of spin, formula 1=14732
- in ferromagnetics, slow inelastic scattering 3=15857
- by ferromagnets, polarization vector 1=20120
- $50^\circ < A < 90^\circ$, potential cross-sections, 0.5 to 100 eV 4=1084
- fission neutrons, inelastic scatt. in U 0=5801
- by fluctuating inhomogeneities in crystals 4=25836
- fluctuations, theory 0=16642
- flux shape in cylindrical rod for thermal neutrons 1=5729
- form factors, Dirac and Pauli, rel. to neutron structure 2=13805
- form factors, spin-wave, meas. possibilities 3=17288
- 14.1 MeV, by D, elastic and inelastic 4=16901
- 14.7 MeV, by Fe, inelastic 4=15219

Neutrons and antineutrons—contd
scattering—contd

- gas of hard spheres, using classical fluid theory 2=9852
- by gaseous NH_3 1=5730
- general system, quasi-classical treatment 2=11947
- glass mirrors, total reflection 2=20352
- graphite, energy distrib., three peaks in freq. distrib., expt. and theory 4=6711
- graphite (pyrolytic), lattice vibration study 3=2710
- graphite, scatt. law expt. 2=22526
- graphite, slow-neutron cross-section 0=7363
- by graphite, temp. and energy var. 4=12010
- graphite, thermal neutron scatt., theory and expt. 2=3344
- graphite-water boundary, ang. and energy distrib. 4=27860
- graphite-water interface, 1.3-3.9 MeV 4=6067
- harmonic oscillator, slow-neutron scatt., effect of ergodic behaviour 1=4799
- by heavy nuclei, effects of nuclear octupole moment and validity of adiabatic approximation 0=11305
- heavy nuclei, small-angle elastic 4=25402
- heavy water, slow neutron scattering 3=9445-6
- by helical magnetic structure 2=21335
- hexamethylenetetramine crystals, frequency distrib. det. 2=18519
- ice, cross-section and energy change 2=3346
- ice, diff. effective cross-section 1=16798
- ice, effect of nuclear spin state 1=19687
- ice, at $4^\circ K$, cross-section 1=19708
- by ice, low quantum transitions 1=11158
- ice, slow neutrons, meas. 2=20346
- in imperfect crystals, diffusion effects, energy broadening 2=595
- in imperfect crystals, diffusion effects, energy broadening 3=4859
- impurity in crystal, magnetic scattering, theory 4=25927
- inelastic, accompanying γ -rays 0=2682
- inelastic-cold, by hydrogenous liquids 0=12940
- inelastic, from collective nuclear states 3=2465
- inelastic in condensed media rel. to boson absorption 2=20312
- inelastic in condensed media rel. to boson absorption 3=7828
- inelastic, cross-section meas. for fast neutrons 0=7602
- inelastic cross-sections for fission-spectrum neutrons, by sphere transmission measurements 0=7624-6
- inelastic, cross-sections, optical model 3=19855
- inelastic, by deformed nuclei, single-particle transition 0=11444
- inelastic, direct interaction theory 0=11443
- inelastic, distorted-wave Born approx. 1=8736
- inelastic, at 14 MeV, statistical model comparison 0=9668
- inelastic, at 14.5 MeV, collision cross-sections for 24 elements from Be to Bi 0=7603
- inelastic, by "globular" organic cpds. 3=13393
- inelastic, in heavy moderators 2=5675
- inelastic, with heavy nuclei, rel. to capture cross-section 1=17117
- inelastic, incoherent, meas. by polarized monochromatic beam 4=15062
- inelastic, on light nuclei, 14 MeV 4=9517
- inelastic, rel. to many-particle scatt. system 3=12462
- inelastic, use in MnF₂ antiferromagnetic excitations obs. 4=15661
- inelastic magnetic scattering in cerium 1=6345
- inelastic, on medium and light nuclei, 0.4 to 1.2 MeV 4=9518
- inelastic moderation of fast monoenergetic neutrons 1=13443
- inelastic, (n, γ), at 3 MeV, on several nuclei 2=1898
- inelastic, by nuclei, gamma-ray study of energy levels 1=7381
- inelastic, by nuclei with rotational and vibrational spectra 4=22145
- inelastic, 0.2-1.2 MeV, cross-sections and spectra for Cd, Fe, Hg, Mo, Nb, Sb, Th, V, W 4=3664
- inelastic, solids and liquids, conference, Chalk River (1962) 3=8326
- inelastic, by solids and liqs., rel. to mol. rot. 4=30413
- inelastic, study of solid and liquid lattice dynamics 1=7525
- inelastic, surface direct processes 0=7601
- inelastic, up to 2.6 MeV, on Cr, Fe, Ni, Nb and Mo 2=12201

Neutrons and antineutrons—contd
scattering—contd

- inelastic wave distortion in optical model potential 2=16415
- inelastic, wave distortions 1=19480
- in isotropic lattices, theory 2=2047
- lattice vibrations, theory and expt., review 3=22634
- on light elements, 2 MeV data 1=12202
- by light nuclei, 14 MeV, optical-model analysis 4=1085
- light nuclei, optical model fit 4=19789
- from light nuclei, polarization 2=10101
- liquid diffusion studies, spinning globule model 2=19548
- liquids, atomic motions, use of A^{86} scatt. anomaly 2=3581
- liquids, cold neutrons, rel. to stochastic model 2=11353
- liquids, collective motion model 3=7140
- liquids, diffusion study, review and theory 2=21899
- in liquids, rel. to jump diffusion model 1=5271
- in liquids, microscopic dynamics 0=14651
- in liquids, molec. motion study, Van Hove's distrib. functions 4=21094
- liquids, quasi-scattering, theory 3=18797
- liquids, solar neutrons by hypersound 4=24205
- liquids, specimen holder for high temp. high pressure obs. 4=21095
- liquids, velocity correl. functions theory 2=11352
- low-energy, effect of target gas temp. on diff. cross-section 1=471
- by mag. crystals, review of Soviet work since 1958 3=1135
- magnetic crystals, polarization effects 3=15861
- magnetic helical structure, polarized neutrons, calc. 3=6718
- magnetic solids, due to band electrons 3=986
- magnetic substs., polarized, spin-orbit interference 4=13143
- many-body system, incoherent, inelastic, rel. to self-diffusion coefft. 4=9217
- measurement, disordered, weak, using cold neutrons 4=26639
- metals, rel. to electron-phonon interact. calc. 4=28352
- by metals, influence of electron-phonon interaction 2=20932
- methane gas, slow neutrons, interference scatt. effects 2=18475
- methane, inelastic, of slow neutrons, diff. cross-sections 1=15945
- methane, liq., rel. to mol. rotation 3=14142
- methane, slow neutrons, effect of rotational levels 1=19624
- methane, solid, freq. distrib. meas. at 6.5°K 4=22479
- methane, and vibr. excitation 4=30464
- methylamide, mols. in liq. state 3=2652
- moderation, approximate treatment 1=13437
- moderation, collision density calculation, Laplace transform methods 1=13442
- moderation by deuterium 1=13436
- moderation in graphite near thermal equilibrium 1=13441
- moderation in heavy water, Greuling-Goertzel calculations 1=13438
- moderators, effects of atomic motions 2=5669
- by moderators, thermal neutrons 2=20345
- by molecular rotators, slow-neutron, theory 0=5780
- molecules, appl. of classical self-correl. function 3=4732
- molecules, diatomic, quantum states transition 3=25074
- molecules in gases including H_2 2=292
- molecules, large energy transfer, theory 3=22516
- molecules, polar, hindered rotation 3=17284
- molecules, rigid rotator models 2=12304
- by molecules, slow neutrons 2=3763
- Monte Carlo calc., reciprocity theorem 2=5673
- Monte Carlo method for criticality problems 0=13325
- Monte Carlo shielding calculations 0=7354
- multiple scatt. in arbitrary body 0=12943
- multiple scatt. in hydrogen-like substances 0=12947
- multiple scatt., static approx. for diffraction pattern 3=6013
- multiple, in slowing-down, group-theoretical treatment 1=8463
- multiple, in thin plates 2=20343
- $n-\alpha$, polarized, 2 to 24 MeV 3=19638
- $n-d$, below 2 MeV, polarization 2=16200
- $n-d$, below 8 MeV, elastic 2=1690

Neutrons and antineutrons—contd
scattering—contd

- $n-d$, doublet and quartet scattering lengths, low-energy 4=9197
- $n-d$ doublet scatt. length, upper bound 3=19638
- $n-d$, doublet scattering length, upper bound 0=17341
- $n-d$, elastic, high-energy 0=17342
- $n-d$, elastic, < 1.0 MeV, polarization 2=16199
- $n-d$, $n-t$, $n-\alpha$, cross-section meas. in scintillation counter 4=30228
- $n-d$, 1 MeV, elastic, polarization 3=12680
- $n-d$, 1.0 MeV, neutron polarization 3=19637
- $n-d$, at 1 and 2 MeV 0=11180
- $n-d$, 2S length upper bound calc. 4=21856
- $n-d$, and search for dineutron, from energy var. 4=21858
- $n-d$, three-body formalism 3=19641
- $n-d$, threshold effects due to di-neutron 3=22137
- $n-d$, at 2-4 MeV, neutron polarization 0=5564
- $n-n$, from $d(n, p) 2n$, p spectrum high energy limit 4=25105
- $n-n$, low energy, from $\pi^- + d \rightarrow 2n + \gamma$ calc. 4=19525
- $n-n$, meas. from $\pi^- + d \rightarrow n + n + \gamma$, γ spectrum 4=25104
- $n-n$, peak interaction energy from $d(n, p) 2n$ 4=12009
- $n-p$, $p-n$ and $n-n$, effect of $n-p$ mass difference 4=12007
- $n-n$, polarization meas. 2=5654
- $n-n$ scatt. length from $D(n, p) 2n$ 2=1689
- $n-n$ scatt. length, from electron pair prod. in $\pi^- + d$ capture 0=12912
- $n-n$ scatt. length, proposed det. from $\pi^- + d \rightarrow 2n + \gamma$ 1=4800
- $n-n$ scattering length, by $D(n, p) 2n$ proton scattering peak 2=1728
- $n-n$ singlet scatt. length 3=19619
- (n, n), total cross-sections for light elements 3=10334
- $n-p$, cross-sections with 4th order meson eqn. 1=8430
- natrolite, and H_2O vibr., l.f. 4=4565
- near magic neutron numbers 82 and 126 3=22395
- neutron half-space transport, anisotropic scatt. 4=12015
- noncollinear spin densities, distinguish from collinear 3=19643
- in nonmoderating assemblies 3=17287
- nonspherical nuclei, elastic scatt. 3=22396
- Nuclear Data Library, Aldermaston, cross-sections etc up to 14 MeV 4=6342
- nuclear octupole moment effects 0=11305
- nuclear radii determination 0=11306
- nuclei, average transmission for many resonances 4=6344
- by nuclei, cloudy crystal ball model, analysis 0=9664
- nuclei, compound nucleus and direct contribs. 3=2471
- nuclei, crystals and fluids, survey 3=20829
- on nuclei, deformed, at high energy, optical model analysis 2=3587
- on nuclei, elastic and inelastic, rel. to optical model 1=8733
- on nuclei, elastic, optical model 1=5884
- on nuclei, inelastic, diff. cross-section 2=459
- on nuclei, inelastic, energy spectra, statistical model 3=2426
- on nuclei, inelastic, γ -ray spectra, statistical theory 1=7364
- nuclei, rel. to level densities and reaction mech. 3=8107
- nuclei, local optical potential, depth 4=12095
- on nuclei, low-energy, complex potential model 2=3579
- nuclei, low-energy resonances, spin meas. 3=12684
- by nuclei, rel. to neutron evap. theory 0=5736
- by nuclei, at 0.3-5.0 BeV, diffraction theory 0=12850
- on nuclei, at 0.3-5.0 GeV 1=5918
- on nuclei, 0.38 to 2.1 MeV, polarization 1=8703
- on nuclei, at 1 MeV, comp. with complex harmonic oscillator potential 2=458
- by nuclei, optical model potential, imaginary part 0=5779
- by nuclei, optical potential model, non-local 2=14105
- nuclei, polarization near 1 MeV, optical model 3=4644
- by nuclei, polarization, 1.5 MeV 4=16902
- nuclei, Soviet progress, conference 4=9002
- by nuclei, strength function Γ_n^0/D 0=17622
- nuclei; total cross-section meas. method 4=6241
- on nuclei, with vibrational and rotational spectra, polarization 4=17141
- nucleus optical potential isospin meas., with p scatt. 4=976

Neutrons and antineutrons — contd
scattering — contd

- by o- and p-hydrogen mols., Schrödinger eqn. 3=4734
- one-magnon zero phonon scattering of polarized neutrons 0=18174
- optical model fringe absorption, in $90^\circ < A < 120^\circ$ region 2=20654
- optical model of nucleus, polynomial potential 2=13945
- optical model rel. to resonance parameters 2=1897
- p-n cross-section 4=15207
- of π -mesons, at large orbital moments 0=5587
- π^- -n, at 4.5 GeV, meas. and peripheral collisions model 4=9242
- paramag. inelastic scattering by ions in crystalline field 1=9019
- by paramagnetic ions, inelastic 1=12523
- in paramagnetic materials, spin-lattice relaxation effects 2=21377
- by paramagnetic spin system 2=23639
- by paramagnetic spin system 3=6695
- paramagnetics, spin-spin interaction 2=23638
- paramagnetics, spin-spin interaction 3=6694
- partial differential scatt. cross-sections, slow neutrons 3=17282-3
- π -N, s and p-wave, π - π contribution 3=2310
- point defect, cross-section calc., atomic relaxn. correction 4=30552
- polarization meas., by asymmetry, corrections for finite geometry and energy 3=19646
- polarized beam, in matter 4=6058
- polarized neutrons at 2.8 MeV, elastic scatt. 2=3582
- from polarized nuclei, Mn⁵⁵ and Ho¹⁶⁵ 4=19763
- by polycrystals, inelastic, cold neutrons 2=13807
- polyethylene, energy distributions, determ. of molec. motions 4=3952
- by polyethylene, thermal energies 3=19908
- potential scatt., interference in resonance absorption 2=5947
- propane gas, slow neutrons 2=3764
- proton motions, det. by slow-neutron cross-sections 1=2308
- pulsed beam, fast, in 1/v scatterer, theory 2=9858
- quantum liqs., meas. of collective oscill. amplification 4=5097
- quasi-classical approx. 1=8462
- quasiclassical approx., Schofield time shift 3=4400
- quasi-elastic mag. scatt., gases or liquids 3=19642
- by rare-earth ions, magnetic form factors 2=23675
- by rare-earth ions, mag. scatt., theory 2=12711
- rare-earth ions, paramag. scatt., crystal field effects 1=20054
- rare earth oxides 0=20776
- rare earth oxides 3=743
- by rare-earths, 1 MeV, elastic 3=12681
- rare earths, paramagnetic, line width 2=8610
- in reactors, Fermi age, moments calcs. 2=16203
- recoil spectra in nuclear emulsions 2=5652
- removal cross-sections, 18 elements and cpds., 3, 15 MeV 4=12240
- renewal theory 3=10127
- resonance integral, approximation 0=15614
- resonance neutrons, spatial distrib. 2=13815
- resonance transfer, theory 4=19526
- ring target, with telescope detector 2=3361
- s-wave, model for giant resonances 0=1445
- scatt. chamber for resonance scatt. expts. 3=6012
- scattering, law expt. (Harwell), progress report 2=22526
- in scintillator, liquid, ALGOL computer programme 4=9212
- semi-monochromatizing chopper for meas. 2=5691
- slow, Fermi approx., validity 3=19640
- slow, intermediate scatt. function analysis 3=12682
- slow, meas. in Munich FRM reactor 4=19788
- slow neutrons, in crystals, elastic resonance scatt. 1=19707
- slow neutrons, effect of chemical binding on nuclear recoil 0=13131
- slow neutrons in Fermi liquid 1=18323
- slow neutrons, in Fermi liquids 2=21851
- slow neutrons, in ferrites and antiferromagnetics calc 2=752
- slow neutrons, inelastic mag. scatt. by phonons 1=19706

Neutrons and antineutrons — contd
scattering — contd

- slow-neutrons, proton motion study in NH₄ halides 1=2308
- slow neutrons by water molecule 1=19625
- slow, the "scatt. law" and G(**r**, t) 3=19639
- slow, study of rotational freedom of NH₄ ions and methyl groups 2=18460
- slowing down, anisotropic scatt. 2=12248
- slowing down in infinite media 1=19562
- small-angle elastic scattering at 14 MeV by nuclei 1=13810
- small angle, to study nuclear long-range potl. 3=15070
- solid solutions, disordered, lattice distribution effects 1=15054
- solids, liqs. and gases comparison 2=9854
- in solids and liquids, Chalk River (Sept. 1962) symposium 3=6456
- solids and liquids, symposium 1=16797
- space-time correlation function formalism for slow-neutron scatt. 0=9366
- spectra meas. with fast chopper 2=18137
- spherical nuclei, near magic and isolated collective reson. 3=24943
- spherical and ring geometry, multiple-scattering corrections 0=9665
- spinel-type solid solutions, rel. to composition and degree of inversion 3=20830
- spin-wave scattering theory 2=18915
- square-mound-potential gas, classical fluid theory 3=7864
- on stationary free nuclei, time-dependent spectra 1=17107
- stochastic study of neutron history in moderator 1=2059
- substances with helical magnetic structure, inelastic 3=18097
- t-n, inelastic, theory 4=12080
- terphenyls, liq. and solid, for slow neutrons 2=9854
- thermal, Doppler approx. 2=18117
- thermal, inelastic, by crystal in neutron spectrometer 0=15366
- thermal, Milne problem perturbation solution 4=25108
- thermal, by moderators, "sensitivity function" 2=11948
- thermal neutrons in homogeneous media 1=9895
- thermal, scatt. probability, characteristics 0=12946
- thermal spectra, in poisoned media, eigenfunction calc. 4=25107
- thermalization in heterogeneous system, Monte Carlo calculations 1=506
- thick slabs, fast scatt. 0=12944
- time-of-flight obs., multiple scatt. correction by Monte Carlo anal. 4=6083
- total cross-sections for H, C, Al, Cu, Cd, Pb and U at 15-120 MeV 1=5922
- transition metal and rare earth ions, rel. to "paired" electrons 3=977
- transport eqn., effect of scatt. term 3=19647
- transport eqn. numerical soln., multigroup calc. 4=24639
- transport theory, energy-dependent Milne's problem 4=19895
- 20 elements, elastic, 0.98 MeV, optical model analysis 4=22144
- on various nuclei, ang. distrib., 2.9 MeV 2=7990
- on various nuclei, ang. distrib., 14 MeV 2=7989
- by various nuclei, at 2.09 MeV, elastic, optical model analysis 1=19479
- vel. depend. transport with high-energy sources 3=10126
- in water, angular distrib. 2=13812
- water, backscatter. angular and spectral distrib., 0.3-14 MeV 0=7366
- water, cold neutrons, calc. and expt. 0=14648-9
- in water, cold neutrons, quasi-elastic, self-diffusion coeff. 1=9336
- water, constants in approx. empirical formula 2=18119
- water content gauge for soil and concrete, optimization 4=29243
- water, cross-section, calc. 0=15360
- water, cross-section and energy change 2=3346
- water, diff. effective cross-section 1=16798
- water, energy distribution 4=3413
- water, hindered rotation theory 3=17284
- by water and ice, lattice model 2=22527
- in water and ice, pulse method 2=18126

Neutrons and antineutrons—contd

scattering—contd

in water and ice, vibr. props. 2=10321
 water, inelastic; energy distrib. 25° and 75° C 3=127
 water, at 0.005 eV, inelastic cross-sections 0=80, 6795
 water, slow neutrons, cross-section calc. 0=2547, 12941
 water, slow neutrons, meas. 2=20346
 water, small-energy rotational transitions 3=23869
 water, study of diffusive motion of atoms 0=79
 Yvon's method for slabs 0=12945
 A liquid 0=14651
 A < 65, 3.5 MeV, polarization 3=2470
 A³⁶, thermal scatt. anomaly, negative energy level 2=3581
 Ag, cross-section 1=19483
 on Ag, differential elastic cross-section 1=19425
 Ag, elastic, 0.65 MeV meas. 4=12230
 Ag, elastic, at 6.7 MeV, diff. cross-sections 2=22821
 Ag, potential scattering 1=2216
 Ag, slow-neutron resonance parameters 1=700
 Al, cross-section 1=19483
 Al, at 8.3 BeV 2=16416
 Al, at 8.3 BeV 3=6257
 Al, elastic, back-angle, at 14.6 MeV 0=458
 Al, elastic, 0.3 MeV meas. 4=12231
 Al, elastic, 0.65 MeV meas. 4=12230
 Al, elastic, at 14 MeV 0=457
 Al, elastic, at 96 MeV, cross-sections 1=697
 Al, elastic at 96 MeV, optical model 1=698
 Al, elastic, polarized neutrons at 2.8 MeV 2=3582
 Al, elastic, 2 MeV, ang. distrib. meas. 4=25404
 Al, elastic, at 24 MeV, ang. distrib. 2=3580
 Al, elastic, 24 MeV, polarization 3=6255
 by Al, fast neutrons 3=6254
 Al, at 14 MeV, cross-section meas. 0=15594
 Al, inelastic, γ -ray spectrum 0=9679, 20502
 Al, liquid, 0.003–0.009 eV 2=7995
 Al, potential scattering 1=2216
 Al, Si, K, Ca, Th, ang. distrib. 3.1 MeV, elastic 4=12236
 Al, single crystals, thermal and cold neutrons, inelastic
 scatt. cross-sections 0=20777
 Al, 2.6 MeV, polarization 4=9520
 by Al²⁷, elastic and inelastic, 0.98–3.99 MeV 3=6140
 Al²⁷(n, γ), at 2.95 MeV 2=22819
 by Al²⁷, 2.7 MeV neutrons 2=7991
 by Al²⁷, 2.76 MeV, elastic and inelastic 3=15207
 Ar, fast 4=12233
 Ar, solid and liquid, inelastic graphical meas. 4=27171
 As, coherent scatt. amplitude 3=25201
 As, (2.7–10.0) $\times 10^{-3}$ eV, total effective cross-
 section 2=20630
 As⁷⁵, strength fn., spin var., calc. 4=28036
 Au, slow-neutron resonance parameters 1=700
 Au¹⁹⁷, inelastic, Hauer–Fleishback model calc. 4=28039
 on B, 14 MeV, theory and expt. 2=22820
 on B, inelastic, at 14 MeV 0=11445
 B, polarization, resonances 2=10101
 B¹⁰, inelastic, cross-section for excitation of 0.72 MeV
 γ -ray, from threshold to 5.2 MeV 0=7605
 B²⁰⁹, 19 keV, resonances 3=17486
 Ba, elastic, 0.65 MeV meas. 4=12230
 Ba, elastic, Wigner cusp obs. near threshold 3=22394
 Ba, 2.5 MeV, inelastic 4=12235
 Be, anisotropy rel. to Debye temp. 3=4823
 Be crystal, in the neutron monochromatization 2=3357
 Be, elastic, at 96 MeV, cross-sections 1=697
 Be, elastic at 96 MeV, optical model 1=698
 in Be, fission neutrons slowing down 2=10118
 by Be, 14.2 MeV, inelastic cross-section 4=17143
 Be, non-elastic, 14 MeV 2=3584
 Be, slow neutrons, lattice dynamics 3=747
 Be, thermal neutrons 0=7361
 Be, vibr. spectrum calc. 4=25840
 Be⁹, inelastic, at 14 MeV 0=11445
 Be⁹, 0.2–2.0 MeV, polariz. and differential cross-
 section 4=9519
 Be⁹, neutron elastic scattering, rel. to slowing-down
 lengths 1=16811
 from Be⁹, polarization, resonances 2=10101
 BeO, defects due to neutron irradiation 3=8426
 BeO, 5–6 Å, 100–400°K, calc., one and two-phonon
 processes 3=20099
 BeO, irradiated and annealed 1=19823
 BeO, polycryst., inelastic, 100°–1000°K 3=12911

Neutrons and antineutrons—contd

scattering—contd

BeO, slowing-down of fission neutrons to 1.44
 and 0.3 eV 3=4404
 BeO, rel. to temp. and microstructure 3=4403
 in BeO, thermal neutrons 0=7359
 Bi, cross-section 1=19483
 by Bi, D–T neutrons, time-of-flight expt. 3=6011
 on Bi, diff. elastic cross-section 2=7988
 Bi, differential cross-sections, for elastic scatt.,
 300–800 keV 4=25405
 on Bi, differential elastic cross-section 1=19425
 on Bi, elastic cross-sections, 2 MeV 1=12201
 Bi, elastic, at 14 MeV, diff. cross-section 0=4127
 on Bi, elastic, at 14.6 MeV 0=7609
 Bi, elastic, at 15.2 MeV, ang. distrib. 3=2467
 Bi, elastic low-angle, at 14.2 MeV 3=22398
 Bi, elastic, at 24 MeV, ang. distrib. 2=3580
 Bi, elastic, 24 MeV, polarization 3=6255
 Bi, γ -rays from inelastic scattering 0=20502
 by Bi, inelastic, 14.8 MeV 3=2464
 Bi, inelastic, at 3.7–4.7 MeV, nonelastic at 15.2 MeV, ang.
 distrib. 0=9667
 Bi, potential scattering 1=2216
 Bi, 3 MeV elastic, cross-section 4=12236
 Bi²⁰⁸, first excited level, ang. distrib. 1=13808
 Bi²⁰⁹, inelastic, Hauer–Fleishback model calc. 4=28039
 Bi²⁰⁹, inelastic, 2.95 MeV, γ -ray spectra 3=8106
 Br, resonant, meas. up to 400 eV 4=6359
 by C, of D–D neutrons 0=7606
 by C, D–T neutrons, time-of-flight expt. 3=6011
 C, at 8.3 BeV 2=16416
 C, at 8.3 BeV 3=6257
 C, elastic, at 5.6 MeV, ang. distrib. and diff. cross-
 section 0=9670
 C, elastic, at 96 MeV, cross-sections 1=697
 C, elastic at 96 MeV, optical model 1=698
 C, elastic, 24 MeV, polarization 3=6255
 C, elastic, 220 MeV 0=5738
 C, at 14 MeV, cross-sections 2=22806
 C, 14 MeV, inelastic, n¹– γ ang. correl. 3=24944
 C, 14 MeV, n, γ coincidences 3=17476
 on C, 14 MeV, theory and expt. 2=22820
 C, elastic, polarized neutrons at 2.8 MeV 2=3582
 on C, in first-excited states 2=461, 22822
 by C, inelastic, 14.8 MeV 3=2464
 C, inelastic, by excitation of 9.6 MeV level 1=13806
 on C, inelastic, at 14 MeV 0=11445
 C, low-energy, phase-shift calc. 4=3663
 C, Na, Mg, Al, Ni, Cu, Se, Te, 0.5, 0.8 MeV,
 30–140° 4=19786
 by C, 1 MeV, elastic, polarization 3=12680
 C, polarized neutrons, elastic scatt. at 2–4 MeV,
 asymmetry 0=455
 on C, at 12 MeV, spin–orbit effects 1=2217
 C, at 14 MeV cross-sections 1=17094
 on C, 155 MeV 1=5902
 C¹², angle distrib. 4=28011
 C¹², angular distrib., 5–60 MeV, relativistic
 calc. 4=28011
 by C¹², calc. of partial phases 4=6180
 C¹², elastic and inelastic, 14.1 MeV 4=19789
 by C¹², energy spectra 2=9866
 C¹², excitation of 7.66 MeV level 2=12133
 by C¹², 14 MeV 3=15206
 C¹², 15 MeV, separation of 4 first neutron
 groups 2=18329
 on C¹², at 4.6–9.8 MeV, with γ -ray prod. 0=4116
 by C¹², inelastic, at 14 MeV, cross sections 4=17145
 C¹², inelastic, at 14 MeV, distorted-wave
 Born approx. 1=8736
 C¹²(n, n' γ)C¹², cross-section 1=2221
 C¹²(n, n'), virtual excitation 3=12685
 C¹², neutron elastic scattering, rel. to slowing-down
 lengths 1=16811
 by C¹², phase shift analysis 3=15204
 C¹², polarization ang. distrib. calc., 1.45–
 4.10 MeV 3=19857
 from C¹², polarization, resonances 2=10101
 by C¹², 7.65 MeV level, 14 MeV neutrons, differential
 cross-sections 4=17144
 CH₂O₂, 0.2–2.7 $\times 10^{-3}$ eV, –100° to +200°C 1=13429

Neutrons and antineutrons—contd
scattering—contd

CH₄, liq., spectrum rel. to mol. interaction 2=5002
 CH₃SH, study of hindered rotation potential barrier 0=5912
 C₆H₆, 0.2-2.7 × 10⁻³ eV, -100° to +200°C 1=13429
 Ca, elastic, above 6 MeV, optical model 3=672
 Ca, elastic, at 14.6 MeV 0=7609
 by Ca, elastic, 3-4 MeV 3=19856
 Ca, elastic, 220 MeV 0=5738
 Ca, elastic, at 900 keV, cross-section 2=18327
 Ca, fast neutrons, elastic scatt., ang. distrib. 2=12197
 Ca, 14 MeV, n, γ coincidences 3=17476
 Ca, total cross-section, 1.25-2.1 MeV 4=17161
 Ca(OH)₂, lattice vibrations study 3=17643
 Cd atom, coherent scatt. 2=15011
 Cd, coherent scatt. amplitude 2=2385
 on Cd, elastic, at 14.6 MeV 0=7609
 Cd, elastic, 0.3 MeV meas. 4=12231
 Cd, elastic at 96 MeV, cross-sections 1=697
 Cd, elastic at 96 MeV, optical model 1=698
 Cd, at 14 MeV, cross-section 2=22806
 Cd mirrors, total reflection 2=20352
 Cd, 0.275-0.85 keV, optical-model analysis 4=9521
 on Cd sheet, generalized albedo 1=2267
 Ce, elastic, Wigner cusp obs. near threshold 3=22394
 Ce, inelastic, 3.0 MeV, rel. to zero spin identification 4=3536
 Ce¹⁴⁰, near threshold 3=6212
 Cm²⁴⁴, total cross-section, 0.01-900 eV meas. 4=22161
 Co, cross-section 1=19483
 Co, effect of domain walls 2=21333
 Co, elastic, at 14 MeV 0=457
 Co, elastic, 2 MeV, ang. distrib. meas. 4=25404
 Co, elastic, 3.25 MeV, polarization 4=17148
 Co, mag. order, high temp., thermal neutrons 4=28794
 Co, potential scattering 1=2218
 Co, by spin waves 2=8648
 Co⁵⁹, thermal, spin depend. 3=15213
 Co-Fe alloy, det. of spin-wave dispersion curve 1=1228
 Co-Fe, mag. scattering, polarized neutrons 0=4492
 Cr, differential cross-sections, for elastic scatt., 300-800 keV 4=25405
 Cr, inelastic, at 0.98-3.31 MeV, γ-ray spectra 3=2466
 Cr, at 2.9 MeV spectra and cross-section 2=5924
 Cr, at 2.35 MeV, ang. distrib. 0=7607
 Cr⁵², inelastic, and excitation, 1-4 MeV 4=17042
 Cu, cross-section 1=19483
 Cu, at 8.3 BeV 2=16416
 Cu, at 8.3 BeV 3=6257
 Cu, elastic, at 96 MeV, cross-sections 1=697
 Cu, elastic at 96 MeV, optical model 1=698
 Cu, elastic, polarized neutrons at 2.8 MeV 2=3582
 Cu, elastic, back-angle, at 14.6 MeV 0=458
 Cu, elastic, 3.25 MeV, polarization 4=17148
 Cu, inelastic, γ-ray spectrum 0=9679
 Cu mirrors, total reflection 2=20352
 by Cu, polarizing power for 3.4 MeV neutrons 3=22392
 Cu, potential scattering 1=2218
 Cu single crystal, slow-neutron scatt. by phonons 1=9970-1
 Cu, small-angle, at 2.8 MeV 2=460
 Cu, small-angle, due to vacancy clusters 4=10009
 Cu, U, Th, at 0.8 and 2.8 MeV, small angle 3=4646
 D atoms, upper bounds on scatt. length 0=5863
 D(n, p)2n, n-n, length 2=1729
 D, neutron elastic scattering, rel. to slowing-down lengths 1=16811
 D₂ molecule, slow, excitation calc. 4=25645
 D₂, quantum states transition 3=25074
 D₂O, energy distrib., meas. 4=16092
 D₂O, liquid and solid, vibrational props. 2=10321
 D₂O, scatt. low expt. 2=22526
 D₂O, 22° and 150° C 4=21862
 Dy, natural, resonance integrals 4=17150
 Er¹⁶⁶⁻⁸, low-energy resonances 1=17123
 Eu atom, coherent scatt. 2=15011
 Eu, coherent scatt. amplitude 2=2385
 Eu^{151,152}, resonances, spin states meas. 4=15165
 F¹⁹, inelastic, at 2.56 MeV, γ-ray ang. distrib. 0=7605
 F²⁰, 1-300 MeV, nuclear levels meas. 4=9395
 Fe, critical scattering 0=16137
 Fe, cross-section 1=19483

Neutrons and antineutrons—contd
scattering—contd

Fe, on d- and f-electrons, in crystalline fields, outer electron config. 0=12028
 Fe, elastic, 0.3 MeV meas. 4=12231
 Fe, elastic, 2 MeV, ang. distrib. meas. 4=25404
 Fe, elastic, 3.25 MeV, polarization 4=17148
 Fe, elastic, at 24 MeV, ang. distrib. 2=3580
 Fe, elastic, 24 MeV, polarization 3=6255
 Fe, elastic, Wigner cusp obs. near threshold 3=22394
 Fe, inelastic, critical 3=3120
 Fe, inelastic, γ-ray spectrum 0=9679, 20502
 Fe, inelastic, spatial distrib. at 4 and 14.9 MeV 0=3971
 Fe, inelastic, 3.4 to 4.6 MeV 1=12203
 Fe, inelastic, at 3.7-4.7 MeV, nonelastic at 15.2 MeV, ang. distrib. 0=9667
 Fe, inelastic, to 3.8 MeV, γ-rays prod. cross-section 2=5923
 in Fe layers, secondary spectrum 1=19482
 in Fe, mag. scattering, polarized neutrons 0=4492
 Fe mirrors, total reflection 2=20352
 Fe, ne·r crit. mag. temp. 4=13187
 Fe nonelastic cross-sections, by pulsed neutron technique 4=3676
 Fe, polarized neutrons, spin wave theory 3=6717
 Fe, total cross-section, meas. rel. to temp. 2=11945
 Fe, at 2.35 MeV, ang. distrib. 0=7607
 Fe, 2.6 MeV, polarization 4=9520
 Fe, Zn, Zr, Cd, Sn, Ba, Hg, Bi, U, 0.5, 0.8 MeV, 30-140° 4=19787
 Fe⁵⁶, energy level anal. 4=1018
 Fe⁵⁶, first excited level, ang. distrib. 1=13808
 Fe⁵⁶, inelastic, diff. cross-sections 2=459
 Fe⁵⁶, inelastic, for 0.84 MeV γ-ray meas. 2=18330
 Fe⁵⁶, inelastic, at 1.0-3.3 MeV, cross-sections 1=8734
 Fe⁵⁶, inelastic, at 2.0 MeV, n-γ ang. correl. 2=20641
 Fe⁵⁶, inelastic, at 2.56 MeV, γ-ray ang. distrib. 0=7605
 Fe⁵⁶, inelastic, at 3 MeV, direct-interaction contrib. 1=8735
 Fe⁵⁶(n, n'γ)_{0.845} at 2.0 MeV, n'-γ ang. correl. 4=6347
 Fe⁵⁶(n, n'γ) 4=12232
 Fe₃Al, polarized neutron study of magnetic-form factor 0=11828
 α-Fe₂O₃, spin fluctuations 1=20118
 Fe₃O₄, mag. scattering, polarized neutrons 0=4492
 Fe₃O₄ (magnetite), mag. scattering 1=20117
 Fe₃O₄, rel. to spin-wave dispersion curves 3=1152
 Fe₃O₄, spin waves, rel. to neutron polarization 2=10667
 Ga, coherent scatt. amplitude 3=25201
 Ga⁷¹, Ga⁶⁹, strength fn., spin var., calc. 4=28036
 Gd^{155,157}, low-energy resonances 1=17123
 Gd^{155,157}, resonances, spin states meas. 4=15165
 H, bound in benzene and diphenyl, total neutron cross-section meas. 4=28238
 H-containing media, fast neutron spectra calc. 2=18116
 by H liq. 1=15841
 H, neutron elastic scattering, rel. to slowing-down lengths 1=16811
 H₂ molecule, slow, excitation calc. 4=25645
 H₂, para and ortho, cross-sections 0=2548
 H₂, quantum states transition 3=25074
 H³, elastic, 3.72-10.72 MeV, diff. cross-sections, calc. 1=556
 by He⁴, 1.79 MeV, ang. distrib. 3=17281
 by He⁴, phase shift analysis 3=15205
 HF-H₂O soln., distrib., meas. 4=16092
 H₂O, energy distrib., meas. 4=16092
 H₂O, 0.2-2.7 × 10⁻³ eV, -100° to +200°C 1=13429
 H₂O, scatt. law expt. 2=22526
 H₂O, 22°, 150°C 4=15072
 H₂S, gaseous, total cross-section 3=4733
 H₂S, liq., 0.0058-0.187 eV meas. 3=14141
 H₂S, liquid state 0=15360
 He, double scatt., 15 MeV, right-left asymm. 4=9211
 He, liquid, atomic motions det. 1=4525
 in He liquid at λ-transition, rel. to zero-point energy 4=8543
 He, liquid, inelastic, rel. to thermodynamic functions, theory 0=8872
 He liquid, statistical mechanics application 4=24081
 He II, elementary excitations, energy spectrum 1=254
 He II, idealized expt., calc. 2=19467

Neutrons and antineutrons — contd
scattering — contd

HeII, liquid, rotating 1=18687
 HeII, using time-depend. Green's functions 2=7488
 He³, elastic, ang. distrib. 0=9367
 He³, elastic, 0.05-17.5 MeV, cross-section 1=9779
 He³, elastic, 1-6 MeV, diff. cross-sections 0=17435
 He³, 5-20 MeV, elastic scatt. calc. 0=9352
 He³, low-energy elastic 2=9931
 He³, 0.0003-11 eV cross-section 4=12083
 He⁴, low-energy, doublet splitting, rel. to tensor force of pion-theoretical potential 0=20311
 He⁴, at 90 MeV, calc. using impulse approx. 0=20247
 Hf, slow 4=29111
 Hf¹⁷⁸, spin of levels by resonant scattering 2=371
 on Hg, differential elastic cross-section 1=19425
 on Hg, elastic cross-sections, 2 MeV 1=12201
 Hg, elastic, 0.3 MeV meas. 4=12231
 Hg, elastic, 0.65 MeV meas. 4=12230
 Hg, inelastic, energy spectrum 2=3583
 Ho¹⁶⁵, polarized, 1 MeV, azimuthal asym. calc. 4=12234
 Ho-In alloy, det. of nuclear polarization 2=18511
 by I¹²⁷, 800 keV, inelastic 4=17149
 I¹²⁷, first excited level, ang. distrib. 1=13808
 I¹²⁷, inelastic, asymmetry in ang. distrib. 0=9677
 I¹²⁷, inelastic, 2.95 MeV, γ -ray spectra 3=8106
 I^{127,129}, fission prod., total cross-section meas. 4=17173
 In, coherent scatt. amplitude 3=25201
 In elastic, at 6.7 MeV, diff. cross-sections 2=22821
 In¹¹⁵, d-wave strength functions, determ. 4=6345
 In¹¹⁵, resonance, apparatus and method 3=6012
 In¹¹⁵, thermal activation cross-sections and reson. integrals meas. 4=17169
 In¹¹⁶, spin of levels by resonant scattering 2=371
 K, elastic, 0.3 MeV meas. 4=12231
 K, total cross-section, 0.9-2.1 MeV 4=17161
 K⁺ + n \rightarrow K⁰ + p 1=16899
 KBr, lattice dynamics, Green's function calc. 4=9824
 by KH₂PO₄, low freq. H vibs. 3=20384
 Kr, fast 4=12233
 La¹³⁹, inelastic, 2.95 MeV, γ -ray spectra 3=8106
 La¹³⁹, 2.95 MeV 2=10111
 Li, elastic, at 96 MeV, cross-sections 1=697
 Li, elastic at 96 MeV, optical model 1=698
 Li, elastic, Wigner cusp obs. near threshold 3=22394
 Li isotopes, elastic, inelastic, 14 MeV 2=18328
 Li⁶, impulse approx. 2=16414
 Li⁶(n, γ)Li⁶ 1=8866
 Li^{6,7}, 14 MeV, elastic, rel. to ang. and energy distrib. 4=17142
 Li^{6,7}, inelastic, 8.1-14.1 MeV 3=12683
 Li^{6,7}, inelastic, at 14 MeV 0=11445
 Li^{6,7}, polarization, resonances 2=10101
 Li⁷, cross-section, partial and total, 0.001 eV to 15 MeV 4=25408
 Li⁷, inelastic, at 14 MeV, distorted-wave Born approx. 1=8736
 Li⁶ and Li⁷, optical model for 1.5-14 MeV 3=2469
 Lu, slow-neutron cross-section 1=2219
 90 MeV, analysis, rel. to π -meson field theory 0=12930
 128 MeV, triple scatt. parameter 2=18122
 Mg, elastic, at 14.6 MeV 0=7609
 Mg, elastic, 0.3 MeV meas. 4=12231
 Mg, elastic, polarized neutrons at 2.8 MeV 2=3582
 Mg, inelastic, and excitation, 1-4 MeV 4=17042
 Mg, inelastic, γ -ray spectrum 0=9679, 20502
 Mg, inelastic lattice dynamics det. 2=18524
 Mg rel. to optical model and compound nuclei 2=10112
 Mg, polarization, resonances 2=10101
 Mg, scattering length, coherent 3=25708
 Mg²⁴, elastic and inelastic, 14.1 MeV 4=19789
 Mg²⁴, 14 MeV, first excited level excitation 4=6346
 Mg²⁴, inelastic, with Coulomb interaction 0=9629
 Mg²⁴, inelastic, diff. cross-sections 2=459
 Mg²⁴, inelastic, direct interaction theory 0=11443
 Mg²⁴, inelastic, at 3.25 MeV, n- γ correl. 2=5940
 Mg²⁴(n, γ), medium energy 2=14103
 Mg(OH)₂, lattice vibrations study 3=17643
 Mn, total cross-section, 0.1 eV-50 keV 4=19797
 Mn⁵⁵, γ -ray emission 0=5798
 Mn⁵⁵, inelastic, diff. cross-sections 2=459
 MnF₂, inelastic, by spin waves, cross-section calc. 1=14762

Neutrons and antineutrons—contd
scattering—contd

Mn⁵⁵ and Ho¹⁶⁵, 2, 5, 14 MeV, elastic 3=19828
 Mo, elastic, ang. distrib. and polarization 2=14102
 Mo, elastic, inelastic, 14 MeV, rel. to optical model calc. 3=673
 Mo, elastic, 3.25 MeV, polarization 4=17148
 Mo, at 14 MeV cross-sections 1=17094
 Mo, at 14 MeV, cross-sections 2=22806
 Mo, 0.275-0.85 keV, optical-model analysis 4=9521
 Mo, 2.5 MeV, inelastic 4=12235
 on N, in first-excited state 2=461, 22822
 N, at 14 MeV cross-sections 1=17094
 N, at 14 MeV, cross-sections 2=22806
 N₂, quantum states transition 3=25074
 N¹⁴, at 4.7-8.1 MeV, γ -ray prod. 0=4116
 N¹⁴, 14 MeV, elastic, cross-sections 3=24945
 N¹⁵, elastic, 440 to 1960 keV 4=22146
 N¹⁵, elastic, at 1.9-3.5 MeV, levels in N¹⁶ 1=8625
 N¹⁵, elastic, states in N¹⁶ 1=8590
 N¹⁵, elastic, up to 10 MeV, shell model calc. 4=17146
 N¹⁵(n,n)N¹⁵, elastic, 1.9-3.5 MeV 2=14106
 NH₃, liq., mol. rotation hindrance det. 3=14140
 NH₃, liquid state 0=15360
 NH₃ halides, slow-neutron cross-sections, proton motion study 1=2308
 NH₃K₂I₄·x, rotation of NH₄⁺ meas. 3=15418
 NH₄PF₆, rotation of NH₄⁺ meas. 3=15418
 (NH₄)₂S₂O₈, rotation of NH₄⁺ 3=15418
 NH₄SO₄F, rotation of NH₄⁺ meas. 3=15418
 by Na crystals, inelastic, force consts. 3=15422
 Na, elastic, 0.3 MeV meas. 4=12231
 Na, lattice dynamics study at 90°K 3=2709
 Na, liquid, dynamics, vibrational modes 3=1675
 Na, liquid, slow inelastic, meas. 4=18176
 Na, total cross-section, 0.9-2.1 MeV 4=17161
 by Na, total cross-sections, 2-10 MeV 4=17147
 Na, 2.5 MeV, inelastic 4=12235
 Na²³, diff. cross-sections, 1-350 keV 0=9534
 Na²³, diff. cross-sections, 200-800 keV 0=9681
 Na²³, elastic, 350-630 keV, levels in Na²⁴ 1=8626
 Na²³, 0.5-4 MeV cross-sections 2=14107
 NaI, lattice dynamics, Green's function calc. 4=9824
 Nb, crystal lattice dynamics obs., anomalies 4=3979
 Nb, 0.275-0.85 keV, optical-model analysis 4=9521
 Nb, 0.3-1.5 MeV, differential cross-section 4=6348
 Nb⁹³, inelastic 0=4121
 Nb⁹³, inelastic, calc. and meas., and energy levels 3=15110
 Nb⁹³, inelastic, and excitation, 1-4 MeV 4=17042
 Nd, cross-section using modified neutron spectrometer 0=9380
 Nd, total cross-section, 3.3-5 MeV meas. 4=22158
 Ne, cross-sections for slow neutrons 0=20504
 Ne, natural, thermal neutrons 1=13823
 by Ne²⁰, elastic, 1.6-3.2 MeV resonances 2=16395
 Ng²⁴(n, γ) 4=12232
 Ni-base alloys, magnetic theory 3=12964
 Ni, cross-section 1=19483
 Ni, on d- and f-electrons, in crystalline fields, outer electron config. 0=12028
 Ni, elastic, 0.3 MeV meas. 4=12231
 Ni, elastic, 0.65 MeV meas. 4=12230
 Ni, elastic polarized neutrons at 2.8 MeV 2=3582
 Ni, elastic, 3-25 MeV, polarization 4=17148
 Ni, 14 MeV, elastic large-angle rel. to optical-model calcs. 4=3665
 Ni, inelastic cold neutron scatt., phonon spectrum study 3=25185
 Ni, inelastic, critical 3=3120
 Ni, mag. scattering, polarized neutrons 0=4492
 Ni, 900 keV, elastic 3=2463
 Ni, polarized neutrons, spin wave theory 3=6717
 Ni, potential scattering 1=2218
 Ni²⁺ mag. scatt. cross-section, calc. 1=14667
 Ni^{58,60}, inelastic, and excitation, 1-4 MeV 4=17042
 Ni-Pd alloy, magnetic, rel. to absorbed H 3=5020
 Np²³⁷, total cross-section 1=19492
 O, 14 MeV, n, γ coincidences 3=17476
 O, 900 keV, elastic 3=2463
 by O, 1 MeV, elastic, polarization 3=12680
 O, at 2.9 MeV, spectra and cross-section 2=5924
 O₂, quantum states transition 3=25074

Neutrons and antineutrons—contd

scattering—contd

- by O^{16} , calc. of partial phases 4=6180
 O^{16} , differential cross-section 2-4.11 MeV 2=20633
 O^{16} , elastic, up to 15.0 MeV, ang. distrib. 4=9532
 O^{16} , 14 MeV, elastic, cross-sections 3=24945
 O^{16} , γ -ray prod. 0=4116
 O^{16} , inelastic, at 14 MeV, distorted-wave Born approx. 1=8736
by O^{16} , phase shift analysis 3=15205
 O^{16} , phase shifts, nuclear potential det. 1=8737
 O^{16} , polarization, resonances 2=10101
by O^{16} , 2.5-3.2 MeV, polarization 3=22393
 O^{18} , elastic, 405 to 2702 keV 4=22147
Pb, differential cross-sections, for elastic scatt., 300-800 keV 4=25405
Pb, at 8.3 BeV 2=16416
Pb, at 8.3 BeV 3=6257
Pb, elastic, ang. distrib. and polarization 2=14102
on Pb, elastic cross-sections, 2 MeV 1=12201
Pb, elastic, at 14 MeV, diff. cross-section 0=4127
Pb, elastic low-angle, at 14.2 MeV 3=22398
Pb, elastic, 0.65 MeV meas. 4=12230
Pb, elastic, at 96 MeV, cross-sections 1=697
Pb, elastic at 96 MeV, optical model 1=698
Pb elastic, 24 MeV, polarization 3=6255
Pb, inelastic, energy spectrum 2=3583
Pb, inelastic, spatial distrib. at 4 and 14.9 MeV 0=3971
Pb, inelastic at 3.7-4.7 MeV, nonelastic at 15.2 MeV, ang. distrib. 0=9667
Pb, lattice dynamics study at 100°K 3=2708
in Pb layers, secondary spectrum 1=19482
Pb, liquid, cold-neutron scatt. cross-section, calc., rel. to atomic motions 1=6853
Pb, liquid, inelastic 2=17437
Pb, liquid, time-dependent pair correlations 0=937
Pb, solid and liquid, with cold neutrons 3=4823
Pb, 3 MeV elastic, cross-section 4=12236
Pb, at 2.35 MeV, ang. distrib. 0=7607
 $Pb^{208}(n, n')Pb^{208m}$, for different energy distrib. 4=28047
 Pb^{208} 2=1896
 Pb^{208} , inelastic, diff. cross-sections 2=459
 Pb^{208} , inelastic, 2.5 MeV, rel. to zero spin identification 4=3536
 Pb^{208} , inelastic, at 3 MeV, direct-interaction contrib. 1=8735
 $Pb^{208, 209}$, at 4.2 MeV, compound-elastic scatt. in Pb^{208} 0=2685
 $Pb^{208, 209}$, inelastic, 14 MeV meas. 4=3666
 Pb^{208} , inelastic, ang. distrib. of 2-6 MeV γ -rays 1=17127
 Pb^{208} , inelastic, up to 4.5 MeV 3=17477
 Pb^{208} , inelastic, Hauer-Fleshback model calc. 4=28039
 Pb^{208} , 0.55 to 4.32 MeV, new resonances 1=8737
 Pb^{208} , total cross-section, 720 to 1890 keV 2=20634
Pr, neutron resonances 4=25406
Pr, total cross-section at 14 MeV, meas. 4=17171
 Pr^{141} , resonance, at 215 and 232 eV 1=13811
Pt, elastic, low-energy resonance parameters 1=707
 Pt^{195} , strength fn., spin var., calc. 4=28036
 Pu^{239} , elastic, and transport cross-sections 0=13272
 Pu^{239} , fission energies and 0.9 MeV, inelastic 4=12237
 Pu^{239} , inelastic, 8.1-14.1 MeV 3=12683
 Pu^{239} , inelastic, and excitation functions 3=6184
 Pu^{239} , low energy resonances, spins 2=7992
 Rh^{103} , seventeen resonances meas. 4=9537
S, elastic, at 14 MeV 0=457
S, in first-excited state 2=461, 22822
S, at 14 MeV cross-sections 1=17094
S, at 14 MeV, cross-sections 2=22806
on S, 14 MeV, theory and expt. 2=22820
S, 2.6 MeV, polarization 4=9520
by S^{32} , ang. distrib. for 0, 2.24, 4-5 MeV, levels 4=17164
 S^{32} , elastic and inelastic, 14.1 MeV 4=19789
 S^{32} , elastic and inelastic scattering 4.6 MeV 2=20635
Sb, coherent scatt. amplitude 3=25201
Sb, elastic, at 14 MeV, diff. cross-section 0=4127
Sb, inelastic, γ -ray spectrum 0=9679
Sb, at 2.9 MeV, spectra and cross-section 2=5924
Sb, $(2.7-10.0) \times 10^{-3}$ eV, total effective cross-section 2=20630
Se, cross-section 1=19483

Neutrons and antineutrons—contd

scattering—contd

- Se, inelastic, 3.4 to 4.6 MeV 1=12203
Se, potential scattering 1=2218
Se, $(2.7-10.0) \times 10^{-3}$ eV, total effective cross-section 2=20630
 Se^{77} , low-energy, width of observed levels 3=4645
 Se^{77} , strength fn., spin var., calc. 4=28036
Si, differential cross-sections, for elastic scatt., 300-800 keV 4=25405
Si, elastic, 2 MeV, ang. distrib. meas. 4=25404
Si, 900 keV, elastic 3=2463
Si, S, Ca, Ti, Fe, Ba, Pb, U, total and differ. cross-sect. calc. from optical potentials 4=28035
 Si^{28} , elastic and inelastic, 14.1 MeV 4=19789
 Si^{28} , inelastic, with Coulomb interaction 0=9629
 Si^{28} , polarization rel. to differential cross-section 2=12198
 Sm^{149} , spin assignments of low-energy resonances, using polarized neutrons and nuclei 3=2468
 Sm^{151} , fission prod., total cross-section meas. 4=17173
 Sm^{152} , resonances, total cross-sections 2=5926
Sn, at 8.3 BeV 2=16416
Sn, at 8.3 BeV 3=6257
Sn, elastic, at 14 MeV, diff. cross-section 0=4127
Sn, elastic, 0.3 MeV meas. 4=12231
Sn, elastic, 0.65 MeV meas. 4=12230
Sn, elastic, at 24 MeV, ang. distrib. 2=3580
Sn, elastic, 24 MeV, polarization 3=6255
Sn, inelastic, γ -ray spectrum 0=9679
Sr, 2.5 MeV, inelastic 4=12235
 $SrTiO_3$, slow inelastic, transverse optic mode study 2=23496
T, elastic, 1-6 MeV, diff. cross-sections 0=17435
T, 5-20 MeV, elastic scatt. calc. 0=9352
by Ta backings to Li targets, background effect 3=2472
Ta, elastic, at 14.6 MeV 0=7609
Ta, elastic, at 15.2 MeV, ang. distrib. 3=2467
Ta, slow-neutron resonance parameters 1=700
 Ta^{181} , inelastic, Hauer-Fleshback model calc. 4=28039
 $Ta^{181}(n, \gamma)$ at 2.95 MeV 2=10114
 $Ta^{181}(n, \gamma)$ at 2.95 MeV 3=6256
Tb, neutron resonances 4=25406
Tb, slow-neutron cross-section 1=2219
Te, elastic, 0.3 MeV meas. 4=12231
Te, elastic, 0.65 MeV meas. 4=12230
Te, at 14 MeV cross-sections 1=17094
Te, at 14 MeV, cross-sections 2=22806
Te, $(2.7-10.0) \times 10^{-3}$ eV total effective cross-section 2=20630
Th, elastic, at 15.2 MeV, ang. distrib. 3=2467
Th, elastic low-angle, at 14.2 MeV 3=22398
Th, small-angle, at 0.8 MeV 2=460
Th, 3.5-13.5 MeV calc. 2=20639
 Th^{232} , average transmission and p-wave strength functions 4=6344
 Th^{232} , fast neutrons, elastic and inelast. 2=10113
 Th^{232} , inelastic, Hauer-Fleshback model calc. 4=28039
 Th^{232} , 0.1-4 keV, total cross-section 4=19802
Ti, diff. cross-section and polarization 0=15569
Ti, elastic, at 14 MeV 0=457
Ti, elastic, at 900 keV, cross-section 2=18327
Ti, inelastic, 3.4 to 4.6 MeV 1=12203
 Ti^{46-50} , slow-neutron scatt. amplitudes 0=9684
 TiH_2 , H_2 conc., temp. effect, meas. 4=29146
Ti-Zr, disordered 3=17644
U, elastic, at 15.2 MeV, ang. distrib. 3=2467
U, elastic low-angle, at 14.2 MeV 3=22398
U, inelastic 0=5801
U, inelastic, energy spectrum 2=3583
U, inelastic, rel. to slowing-down time in water 3=2275
U, inelastic, 13-19 MeV 2=3584
in U layers, secondary spectrum 1=19482
U, natural, 0.3-1.5 MeV 4=3667
on U, scattered-neutron spectrum 1=17160-1
by U, small angle, elastic, 18-120 MeV 3=8105
U, small-angle, at 0.8 MeV 2=460
U, 3.5-13.5 MeV, calc. 2=20639
by U, total cross sections, 2-10 MeV 4=17147
by U^{233} , below 20 eV, elastic cross-section 2=14104
 U^{233} , inelastic, and excitation functions 3=6184
 U^{233} , total cross-section meas., 0.07-10 000 eV 4=17174
 U^{238} , fission energies and 0.9 MeV, inelastic 4=12237

Neutrons and antineutrons — contd

scattering — contd

- U^{238} , inelastic, and excitation functions 3=6184
 $U^{235,238}$, elastic, and transport cross-sections 0=13272
 $U^{235,238}$, inelastic, 8.1-14.1 MeV 3=12683
 $U^{235,238}$, inelastic, at 14 MeV 0=11181
 $U^{235,238}$, 1 keV - 15 MeV, cross-sections 4=12252
 U^{238} , cross-sections, partial and total, 1 keV to 15 MeV 4=25415
 U^{238} , average transmission and p-wave strength function 4=6344
 by U^{238} , below 1 MeV, inelastic 2=5927
 U^{238} , elastic, 0.001-5.6 eV, cross-section calc. 4=17175
 U^{238} , 14.7 MeV, inelastic 3=8104
 U^{238} , 40 keV-16 MeV, optical model calc. 3=4650
 U^{238} , inelastic, cross-sections for low-lying levels 0=13276
 U^{238} , inelastic, energy spectra 0=7621
 U^{238} , inelastic, 14 MeV, rel. to nucleus temp. 2=5925
 U^{238} , inelastic, Hauer-Fleshback model calc. 4=28039
 U^{238} , 0.1-4 keV, total cross-section 4=19802
 U^{238} , rotational-optical model anal. 4=28038
 V, crystals rel. to electron and nuclear polarization 3=18057
 V, differential cross-section and polarization 0=15569
 V, elastic, at 96 MeV, cross-sections 1=697
 V, elastic at 96 MeV, optical model 1=698
 V, inelastic, rel. to phonon spectrum 3=17641
 V, phonon freq. distrib. at several temp. 2=18523
 V, total cross-section 1=17132
 Va, lattice, vibr., and specific heat calc. 4=1400
 W, elastic low-angle, at 14.2 MeV 3=22398
 W^{184} , inelastic, Hauer-Fleshback model calc. 4=28039
 W^{184} , 0.3-1.5 MeV, elastic and inelastic 3=22399
 Y, from Y_2O_3 diff. 3=22391
 Y, inelastic at 3.7-4.7 MeV, nonelastic at 15.2 MeV, ang. distrib. 0=9667
 Y^{89} , low-energy, width of observed levels 3=4645
 Yb, slow-neutron cross-section 1=2219
 YbFe garnet, exchange field splitting 2=23679
 Zn, anisotropic system, dispersion relns. meas. 4=1381
 Zn, cross-section 1=19483
 Zr, differential cross-sections, for elastic scatt., 300-800 keV 4=25405
 Zr, elastic, back-angle, at 14.6 MeV 0=458
 Zr, elastic, at 14 MeV, diff. cross-section 0=4127
 Zr, elastic, 0.3 MeV meas. 4=12231
 Zr, elastic, 0.65 MeV meas. 4=12230
 Zr, elastic, 0.65 MeV meas. 4=12230
 Zr, elastic, 3.25 MeV, polarization 4=17148
 Zr, elastic, Wigner cusp obs. near threshold 3=22394
 Zr, inelastic, 3.4 to 4.6 MeV 1=12203
 Zr, potential scattering 1=2218
 Zr, inelastic at 3.7-4.7 MeV, nonelastic at 15.2 MeV, ang. distrib. 0=9667
 Zr, 0.275-0.85 keV, optical-model analysis 4=9521
 Zr, 0.3-1.5 MeV, differential cross-section 4=6348
 Zr, polarization calc., 3.4 MeV 4=28037
 Zr, total cross-sections 4=19790
 $Zr^{90}(n,n')Zr^{90m}$, to 5 MeV 3=15208
 by Zr, polarizing power for 3.4 MeV neutrons 3=22392

scattering, proton-neutron

- amplitude meas. by mirror refl. 2=9853
 ang. distrib., π -nucleon coupling const., calc. 0=1297
 backward narrow peak, due to $T=1$ and $T=0$ differences 4=9210
 backward peak, narrow, 2-3 GeV, explanation 3=12464
 below 20 MeV, non-S wave effects 3=14986
 charge-exchange cross-section rel. to π -N coupling const. 1=7247
 charge-exchange cross-section, upper limit, at 8.5 BeV 1=16777
 charge exchange, high-energy, ρ -meson Regge trajectory 3=22190
 charge exchange peak, obs. poss. in p-p or n-p elastic scatt. 4=25080
 charge exchange, role of ρ -meson 4=9261
 cross-section meas. in scintillation counter 4=30228
 cross-sections, Chew-Low extrapolation method 3=22129
 cross-sections, 600-1000 MeV, rel. to isotopic spin 1=16770
 and d form factor 3=19712
 deuteron Regge trajectory rel. to n-p scatt. 4=9302

Neutrons and antineutrons—contd

scattering, proton-neutron—contd

- difference from p-p cross-section, rel. to p-n charge exchange 4=16821
 dispersion reln. study at 10 MeV 3=10116
 dynamical effects of molecular electrons 3=1618
 elastic, high energy, backward peak 4=9209
 elastic, obs. poss. of n-p charge exchange peak 4=25080
 elastic, phase-shift analysis near 140 MeV 4=25079
 electron excitation effects, compensation 0=1278
 emulsion nuclei, at 9 GeV, slow pion prod. 3=596
 5 BeV, cross-section 1=12206
 14 MeV 2=3343
 Gelfand-Levitan eqn. 2=16198
 hydrogenous liquids, proton motion, neutron scatt. meas. 4=27165
 rel. to n-d interaction at 90 MeV 0=17340
 9 BeV, inelastic, interpretation 0=11168
 90-630 MeV, elastic, analysis, π -nucleon coupling const. 1=19246
 nucleon current operators, nuclear interact. effect 4=27908
 0.005-0.05 eV by protons in benzene mols., cross sections 4=12011
 below 100 MeV, rel. to polarization 2=1691
 100-300 MeV, evaluated for charge independ. interaction 2=13789
 140 MeV, polarization 2=5655
 phase-shift analysis, evidence for two-pion exchange interaction 1=4807
 phase-shift analysis at 95 MeV 1=13427
 phase shift analysis, test of charge independence 0=11157
 phase-shift analysis, 210 MeV 3=2257
 phase shift calc. 0=17251
 π^0 prod. at 600 MeV 3=15006
 and polarization of Dirac particle, theory 0=5565
 polarization meas. at 126 MeV, 33^0-82^0 c.m. 4=16900
 polarization, rel. to p-p phase shifts 1=4793
 polarization at 23.1 MeV 3=10121
 potential, fit, simple 4=6035
 on protons, π -meson pair doublet 1=13428
 on protons, two-body bound state model 4=16974
 quantum potential approach 1=13360
 "quasi-elastic diffraction" at high energy 1=13413
 quasi-elastic, in p-He interaction at 970 MeV 0=20139
 quasifree, impulse approx. interpret. 3=22128
 quasifree, 140 MeV, R and A parameters 3=22126
 scatt. length in triplet state, rel. to π -nucleon coupling const. 0=15395
 scatter pot. for slow neutrons 2=16198
 semiphenomenological $T=0$ potential 1=12085
 77 MeV, polarization effects 0=7353
 16 and 24 MeV, polarization 2=18120-1
 total cross-section, cold neutrons hydrogeneous cpds 4=9754
 total cross-section at 0.4926 and 3.205 MeV 3=4399
 triple scatt., D_t meas. at 170^0 4=16893
 triplet-even potentials, rel. to one-pion exchange 2=13787
 virtual particles in S-wave state 2=13744
 Wigner's condition 1=5699
 zero-energy parameters computed for different potentials 1=10889
 2.04, 2.85 GeV, ang. distrib. 3=17285
 3.3-7.8 GeV, total cross-sections 2=20331
 10 MeV, rel. to π - π resonances, calc. 4=19504
 10-28 GeV/c, total cross-sections 1=3185
 13.7-350 MeV, phase-parameter representation 1=8461
 13.7-350 MeV, phase-parameter representation 3=585
 22.5 MeV, diff. cross-section 3=2268
 22.5-110 MeV, ang. distrib. 3=10120
 30 GeV cross-section, inelastic 2=18123
 128 MeV, polarization and diff. cross-section 1=501
 142 MeV, phase shifts analysis 3=12454
 143 MeV, asymmetry 1=3182
 200 MeV, cross-section, π -nucleon interaction const. 2=23120
 200 MeV, cross-section π -nucleon interaction const. 3=7866
 210 MeV, P-wave phase shifts, rel. to deuteron photo-disintegration 1=2103
 212 MeV, quasi-elastic, depolarization 2=3335
 217 MeV, proton polarization 2=289
 350 MeV, π -N coupling constant det. 2=18118
 630 MeV, elastic 0=7352

Neutrons and antineutrons—contd**scattering, proton-neutron—contd**

- 630 MeV, π -N coupling const. 0=9407
to 665 MeV, $p\pi \rightarrow p\pi\pi^0$ reaction 0=12934
970 MeV, partial cross-section, from p-d interaction 0=9356

Nickel

- adsorption of Cl 1=20688
adhesion to Cr, at high temperatures 0=4699
adsorption of Cs ion, linear var. of adsorption energy with work function of Ni 4=29196
adsorption of CO and its interaction with O₂ 4=20820
adsorption of CO, meas. using radioactive tracer 0=14152
adsorption of foreign atoms, rel. to surface reconstruction 2=21558
adsorption of H, catalytic, var. with pressure 4=2128
adsorption of H on (110) surface, formation of (2 × 1) structure 2=23922
adsorption of O₂, O-Ni structures on (110) face 2=23921
adsorption of oxygen, contact potential variation 0=2303
adsorption of TiCl₄ 2=19120
adsorption of Xe and H₂, effect on sintering 2=10946
alloys, vaporization, 760°-980°C, 5×10^{-7} to 10^{-9} torr 4=18500
amorphous films, elastic constants 1=5078
annealing, in moist H₂, removal of anomalous mech. props. 3=20722
annealing, X-ray and stored energy investigation 0=21124
atomic mag. moment and elec. resistance, effect of press. 0=11831
atomic scattering factor, in metallic state and in NiO 3=25704
atoms, by cathode sputtering with Hg ions, energy distrib. 4=14770
atoms, electron radial distrib. 3=19934
atoms, isotope shift in arc spectrum 1=5974
atoms, mesic, μ^- decay anomaly 3=15312
atoms, neutral, oscillator strengths 0=20590
atoms, Ni II spectrum, relative osc. strengths 3=10460
in austenite, diffusion, effect on internal friction 3=20695
band structure, effect of spin-orbit coupling 4=28412
band structure, versus Fe. mag. props. effect 4=30543
Barkhausen discontinuities for thermal idealization 4=26292
Barkhausen effect, temp. depend. meas. 4=20537
Barkhausen noise, power spectrum 4=4347
Barkhausen pulses duration in wire 4=13198
bicrystal growth, seed orientation technique 4=23301
bicrystal, in liq. Ni-S, grain boundary grooving 4=15483
Bloch wall energies 0=4491
Bloch wall motion, in mag. and ultrasonic fields 0=16136
Bloch wall stability, effect of divacancies 2=16908
bombard. with Cs⁺ and Rb⁺, ang. distrib. of scattered secondary ions 4=8856
bombarded by A⁺, 10-110 keV, secondary electron emission 2=1494
bombarded with Na⁺, K⁺, Rb⁺, Cs⁺, backscatter rel. to temp. 4=8854
catalysts, oxidation, electron diffraction study 0=4764
cathode Ni, Mg diffusion, heated in reducing atmos. 1=3686
cathode, sintered, Ba evaporation and diffusion rates 0=7132
cathodes, crystal phases, relation to adhesion and emission 3=19131
cathodes, matrix, sintered, elec. and surface props. 0=19715
chemical treatment and boiling, on wire nucleation and heat transfer 4=11422
chemisorption of CO and CO₂, mechanism 2=10980
chemisorption of gases 1=5110
chemisorption of H₂ 1=1480
chemisorption of H₂ and CO, work function, bond 0=18452
chemisorption of N 1=6563
chemisorption of O₂, mechanism 1=20687
coercive force and magnetoresist., cold-rolled strips 0=1786
coercive force, temp. variation after heat treatment 2=737
coercivity, influence of plastic deformation 0=6224
cold-deformed, stacking faults 1=6106
cold welding, structural changes 2=8734
cold-worked and electron irradiated, electrical resistivity recovery 0=15883

Nickel—contd

- cold working and annealing, rel. to elastic limit, hardness, and elec. resistivity 4=13431
cold working, effect on hardness and conductivity, electrical 3=13373
conductivity change in mag. field, elec. and thermal 1=9034
creep, effect of polygonization, 550°, 700° and 900°C 3=20715
creep, effect of substructure 2=21433
creep and fracture 2=10760
creep and fracture at 500°C, prestrain effects 3=13361
creep and fracture, 500°-600°C, impurity effects 3=25631
creep and fracture, role of voids 1=20357
creep, at high temp. 2=18999
creep kinetics, high-temp. of single crystals 4=7440
creep mechanism, structural changes 1=14895
creep, part not revealed structurally, mech. 3=18194
creep resistance after low temp. deformation 2=16959, 21432
creep, rupture, effect of prior strain and polygonization 4=7441
creep, 700°C, effect of previous deformation at 4.2° and 300°K 4=13429
creep in single crystals, meas. 3=20716
creep, temp. and stress effects on deformation components 4=23182
creep tested after deformations at 4.2°, 300°K 2=16960
creep, and time to rupture under load, high temps. 4=7439
cross-section in Ge 1=8942
crystal anisotropy rel. to magnetostriction 2=16917
crystal dislocations, deformed Ni, structure changes on heating 3=17747
crystal electron Fermi surface, from magnetoelec., high field 4=12694
crystal Fermi surface, exchange splittings, one-electron band model 4=9908
crystal Fermi surface, from de Haas-van Alphen effect 4=9907
crystal field splittings of ions 2=3812
crystal growth 4=7537
crystal growth, grain, with boundaries saturated with Ni-S liquid 4=10564
crystal interstitials in films, ion beam prod. at low energies 4=6833
crystallites, in silica gel. Curie temp. reduction 0=10107
crystallization, on Si, hexagonal 3=25666-7
crystallographic substructure of undercooled Ni 4=13652
crystals, coercive force rel. to temp. 2=10653
crystals, deformed, neutron irradiated, mag. props. 2=10652
crystals grown from melt, substructures 3=1271
crystals, mag. stray fields above 71° walls, meas. 3=6707
Curie pt. thermodynamics 3=13244
Curie point of thin films by electrical method of meas. 1=2477
damping capacity, mag. field effects 2=23740
defects distrib., under deformation, thermo-e.m.f. study 1=14247-8
defects, due to cold rolling and quenching investigation 2=12421
deformation ageing, effect on compressive yield stress 1=10216
deformation ageing, theory 3=5072
deformation degree, rel. to cell size of polycrystalline Ni 4=26522
deformation, latent energy, with slight Sn impurities 4=13436
deformation, macroscopic strength inhomogeneity 0=6307
deformation, oriented, mechanism 2=21424
deformation, tensile, crystal geometry 4=26521
deformed, vacancies and dislocations, thermo e.m.f. study 1=14254
degassing props. 2=5088
demagnetization under stress-induced uniaxial anisotropy, wall shift field strength theory 4=30713
dendrite growth velocity in undercooled melts 2=23816
density, liquid and solid 4=18184
deposited layer, epitaxy 1=15012
desorption energy of Ag 3=23521
detection in low-alloy steels 2=10923
diffusion, in Ag 2=3942, 23209
diffusion in Ag 3=22814
diffusion in Ag, poss. surface effects 4=12800-1

Nickel—contd

diffusion in Ag, rel. to solubility 3=13006
 diffusion of Ag, surface 3=20232
 diffusion of CO 970-1320°C 4=22622
 diffusion of Ce vapour, surface ionization 4=30576
 diffusion in Co-Ni alloys, mag. effects, near Curie temp. 3=15514
 diffusion in Cr, 600-900°C 4=15492
 diffusion in Cu and Fe, X-ray det. using thin double layers 2=21053
 diffusion into Cu bicrystal grain boundaries 1=11224
 diffusion in Cu in Cu-Ni powder compact 3=2823
 diffusion of Fe, influence of pores, impurities 2=12462
 diffusion of H, mag. saturation obs. 4=22623
 diffusion of H₂, effect of plastic deformation 0=15869
 diffusion of H₂, meas. from elec. cond. 2=21067
 diffusion of H₂ 970-1320°C 4=22622
 diffusion in liquid Cu, rel. to rate of soln., expt. 4=8194
 diffusion in liquid tin 1=141
 diffusion in MgO, grain boundary, 1350°C 4=20299
 diffusion and mobility of Sb¹²⁴ 3=15511
 diffusion in Ni-Cr alloys rel. to Cr content 4=20302
 diffusion in Ni-Mo alloy 2=6372
 diffusion of Ni⁶³, grain-boundary, meas. 4=20301
 diffusion in NiO, meas. and theory 3=2828
 diffusion in pure Au, meas. 3=8449
 diffusion reaction with S vapour, mechanism 3=1387
 dislocation density, after deformation 1=11206
 dislocation density, in strain, from microhardness data 1=11209
 dislocation distribution after fatigue 2=6335
 dislocation prod. by low-energy ions 3=17723
 dislocation structure, effect of alloying 3=10658
 dislocations, edge, fast moving 2=12433
 dislocations, rel. to stacking-fault energy 3=17744
 distribution in Ge-Pb system and interaction with structural defects 1=17517
 domain magnetization, intrinsic, anisotropy, calc. 0=16133
 domain structure 0=13798
 domain structure in epitaxial films 3=15830
 domain structure, from magnetoelec. data 4=26317
 doping in Ge, generation-recombination noise (350°-100°K) 1=8942
 drawn, texture conditioned surface effect 1=9089
 e.m. wave propagation, in sheets 0=17102
 e.s.r. of Ni²⁺ in irradi. LiF; Ni and NaF; Ni, and complexes 4=28885
 e.s.r. of Ni³⁺ in Al₂O₃, SrTiO₃, Jahn-Teller splitting 4=28879
 effect type II distortions in strengthening 0=18262
 effective charge, in NiAl 2=8839
 elastic modulus variation with mag. field strength 0=11872
 elasticity modules, anomalous, domain structure 2=4309
 elasticity modulus, anomalous, and domain structure 1=20304
 elec. props., rel. to density of states 3=6488
 elec. resistance at low temp., effect of domain structure 4=28529
 elec. resistivity, temp. var. 1=17601
 electric and mag. props., rel. to adsorbed H 4=6929
 electric conductivity, spin-wave scatt. process 4=1553
 electrical breakdown between Ni surfaces in vacuum 4=24724
 electrical resistance of wire, effect of N₂ gas press. 2=10433
 electrode, adsorption of thiourea 2=4499
 electrodeposited, effect of annealing on microstructure and hardness 4=30870
 electrodeposited, growth habits 4=23346
 electrodeposited, mag. props. 2=16916
 electrodeposited, surface texture study 2=17063
 electrodeposition on Au, electron microscope study 1=2554
 electrolytic, crystallite size calc. from X-ray diffraction data 1=12636
 electrolytic films, structure 4=30879
 electron band theory, ferromag. 4=12682
 electron beams, energy rel. to atomic displacements 2=12476
 electron density in 3d-shell 1=20116
 electron density in 3d-shell 2=3866
 electron diff. rings, intensities rel. to wavelength 2=2378
 electron emission charac. in gases 3=418
 electron emission due to Ar⁺ bombardment 3=9843
 electron emission by H⁺ ions at 1-30 keV 3=24347
 electron emission, secondary 2=15948

Nickel—contd

electron emission, secondary, due to Hg ions 4=8625
 electron emission, secondary, from (100) faces, ang. distrib. 0=12633
 electron emission, secondary, on ion bomb., var. mass number 4=24736
 electron emission, secondary, by relativ. primaries 3=16979
 electron range, kilovolt, meas. interpretation 2=12409
 electron secondary emission 2=3077
 electron specific heat and energy bands 0=4267
 electron spin resonance, use in masers 0=2436
 electron states, 3d, two-centre integrals 2=3862
 electronic structure of impurity atom 3=12964
 emissive power, thermal 3=286
 energy band structure, 3d-electrons 3=25234
 epitaxial growth on NaCl cleaved in vac. 4=29070
 equations of state at high pressure 0=11549
 evaporated films, electron diff. study 2=4508
 evolution and diffusion of various gases at 800-900°C 0=12120
 exo- and photoemission of electrons 1=16374
 experimental g' and g values 1=6332
 (100) face, interaction with O₂, struct. 4=23556
 faces, Auger-type interaction with low energy ion beam 4=19093
 fatigue fracture, crack propagation 2=23789
 fatigue, low-temp., and cross-slip 2=6756
 Fermi surface, multiple connectivity 3=4842
 ferromag. band structure, Fermi surface, Green's fn. calc. 4=28417
 ferromag. and Curie temp., crystal lattice size effects 4=26322
 ferromag. domain structure 3=20591
 ferromag. props. rel. to band structure 3=8665
 ferromag. scattering 0=13803
 ferromagnetic anisotropy, 1-electron model 0=4478
 ferromagnetic anisotropy, second const. 3=13246
 ferromagnetic drag bands, on neutron irradi., 28°K 4=13196
 ferromagnetic, Fermi surface evaluation 4=9905
 ferromagnetic initial suscept., var. deformation, temp. 4=22996
 ferromagnetic permeability, stress angle effects 4=13185
 ferromagnetic relax. in films, phonon generation at 9 kMc/s 4°K 4=23035
 ferromagnetic, remanence/saturation mag. ratio, wire, -180 to +100°C 3=23160
 ferromagnetic reson., effect of surface condition and defects 3=1172
 ferromagnetic resonance 3=23203
 ferromagnetic resonance of cold worked Ni sheet 2=12811
 ferromagnetic resonance, effect of H₂ sorption 1=12551
 ferromagnetic resonance absorption of thin films 1=14770
 ferromagnetic resonance, exchange integral 2=4241
 ferromagnetic saturation in deformed f.c.c. crystals 1=20079
 ferromagnetic saturation moment, pressure effect temp. var. 4=7257
 ferromagnetic viscosity, neutron irradi., relaxation time 0=18185
 ferromagnetism, rel. to atomic electron correl. 4=1839
 ferromagnetism, theory 1=3890
 field emission, surface migration processes 3=7629
 filings, structure rel. to deform. stacking faults 2=17014
 film, abnormal optical absorpt. 4=22866
 film on amorphous support, microstructure examination 2=10951
 film, charged with hydrogen, saturation magnetization meas. 2=6670
 films from chemical plating, mag. props. 2=18910
 film, coercive force 0=16139
 film on Cu substrate, electron interference study 1=10263
 film, f.c.c. metals deposited, structure of layer 1=20671
 film on monocryst. Cu layers, dislocation struct. and lattice const. assimilation 4=23589
 film, O₂ chemisorpt. effect on work function 4=23657
 film orientation on Cu substrate, orientation 1=10282
 film on oriented Ag, Pd, Ni, structure 3=1371
 film, structure, evaporated in inert gas, rel. to catalysis 3=20929
 films, absorption, light, oxidation and wavelength effects 3=17991

Nickel—contd

films, adsorption, of CO, var. thickness, temp., from elec. cond. 4=17847
 films, aggregate structure obs. 3=1373
 films, anisotropic shape effects 3=15815
 films, annealing and oxidation, X-ray reflection studies 0=14089
 films, brightness and structure 0=4393
 films, charging with H in presence of catalytic poisons 0=8311
 films, chem. precipitated, structure and mag. props. 3=5013
 films, chemically prepared, mag. structure 2=14791
 films, CO₂ adsorption, -80° to 100°C 2=15103
 films, coercive force during evaporation 2=2286
 films, coercivity, frequency dependence 0=4496
 films, columnar structure, internal microstresses 4=26696
 films, crystal structure 1=7864
 films on Cu substrate, diffusion 2=6373
 films on Cu substrate, mag. props. at low temp. 0=13811
 films, Curie temp. 2=21289
 films, Curie temp. from elec. resist. 4=26320
 films, Curie temp. and Hall effect 0=673
 films, current noise, 77°-400°K 4=439
 films, domain boundary electron optical observation 1=10154
 films, domain structure and imperfections 3=8676
 films, effect of deformation on elec. resistance 2=14494
 films, effect of neutron irradiation on structure and mag. props. 1=19822
 films, elec. cond., chemisorption depend. 0=4313
 films, elec. conductivity 2=6415
 films, elec. resist., effect of O₂ and BaO adsorption 3=20271
 films, electrodeposited, structure 2=10939
 films, electron scatt. at <10 keV, transmission, ang. distrib. and energy spectrum 1=1922
 films, epitaxially grown, mag. props. 1=1231
 films, evap., mag. and structure props., effect of substrate temp. 0=21046
 films, evaporated, bridging phenomenon 4=20743
 films, evaporated, elec. resistance rel. to thickness 4=17477
 films, evaporated on Mo, rotatable anisotropy 2=12676
 films, evaporated, optical absorpt. and polariz. 2=23514
 films, evaporated, single-crystal, internal stresses, effect on mag. props. 3=13344
 films, external structure rel. to annealing 4=10612-13
 films, ferromag. resonance 3=23205
 films, ferromag. resonance and stresses in films 2=12678
 films formed in magnetic field, mag. anisotropy 1=2480
 films, H-loaded, saturation mag. 2=14785
 films, H₂ absorption, temp. depend. 0=6426
 films, H₂ adsorption rel. to electrical resistance 1=11599
 films, ~ 100A, conductivity, electrical up to 300°C, and activation energy 3=15538
 films, induced magnetic anisotropy 4=7273
 films, longitudinal Kerr magneto-optical effect 3=13157
 films, mag. analysis by electron diffraction 3=5014
 films, mag. anisotropy 1=6319
 films, mag. anisotropy 2=12780
 films, mag. domain orientation, thickness depend. 1=10155
 films, mag. domain structure, magneto-resist. data 2=12777
 films, mag. domains, evaporated on cleaved NaCl 3=20931
 films, mag. props., effect of deposited H 2=14787
 films, mag. props., thermal fluctuations 1=7757
 films, mag. structures, electron microscope obs. 2=12784
 films, magnetic anisotropy, rel. to annealing and thickness 4=7272
 films, magnetic coercive force 4=7277-8
 films, magnetic properties rel. to thickness and structure 3=15823
 films, magnetization 0=6235
 films, magnetization measurement 3=17020
 films, magnetization, saturation, effect of electrolytic H 3=20606
 films, magnetization rel. to temperature 3=15821
 films, magnetized, electron diffraction study 0=1799, 4493
 films, magnetoelastic energy 4=22971
 films, magnetoresistance 3=17825
 films, magnetoresistance and coercive force 1=7619
 films, magnetoresistance, Hall effect, room and liquid N temps 4=12862

Nickel—contd

films, magnetoresistance, perpendicular effect 0=15889
 films, monocrystal, growth and mag. props. 1=6318
 films, monocrystal, superlattice structure 3=8835
 films, monocrystalline, mag. anisotropy 1=12530
 films, neutron irradiation effects 3=22869
 films, optical absorpt. 2=11488
 films, optical consts. rel. to wavelength 3=10902
 films, optical Faraday effect 4=22879
 films, orientation and ordering 0=11861
 films, porosity, effects of heating and load 1=20670
 films, preparation and structure 1=12664
 films, resistor thermometer element 0=7005
 films, saturation magnetization, at 3-200 A thickness 0=3062
 films, separated isotopes, by vacuum evaporation 4=10606
 films, single-crystal, Bitter patterns 2=12657
 films, single-crystal, Faraday rotation 2=8489
 films, single-crystal, mag. anisotropy 0=10115
 films, single crystal, stress effects on mag. props. 2=12673
 films, single and polycrystalline, domain structure obs. 3=18089
 films, spin-wave resonance, 15-300°K 4=7306
 films, spin-wave resonance, using microwave phonons 2=18913
 films, sputtered, mag. coercivity and anisotropy, and nitride presence 4=1836
 films, stress, mag. anisotropy 2=10660
 films, stressed, magnetization curves 0=3025
 films, structr. by electron diffraction 3=1369
 films, structure, temp. and environmental effects 4=23585
 films, temp. depend. of saturation magnetization 0=10159
 films, at 10⁻⁵ mm Hg, superparamag. below 20 A 2=8602
 films, thickness, composition, uniformity, by X-ray microanalysis 4=2122
 films, thin, electrical resistivity, rel. to thickness 3=17823
 films, thin, formation 0=8283
 films 20-150A thick, Curie temperatures 1=10160
 films, ultrathin, saturation magnetization and anisotropy 3=15822
 films, uniaxial anisotropy, temp. depend. 2=4227
 films, uniaxial mag. anisotropy 1=3895
 films, uniaxial magnetic anisotropy, time depend. 0=6234
 films, vacuum-deposited, electrical and magnetic properties rel. to annealing 1=10027
 films, vapour deposited, strength rel. to thickness 4=13435
 films, work function 2=9612
 fluctuations, electrical 4=438
 foil, recrystallization, X-ray scattering study 1=5107
 foil, secondary electron emission, energy distrib. 0=5342
 foils prep. as isotope targets 2=17978
 fracture and creep comparison with Ni-Au and Ni-Ag at 500° and 600°C 4=23184
 Frenkel defects annealing after α and d-irrad. 4=22564
 in friction with Ni, Cu and Ag, effect of chemical affinity on adhesion 4=10369
 as Geiger-Müller cathode, work function 0=5438
 gettering effect on Si p-n junctions 0=18032
 "ghost" grain boundaries, use as markers 4=7675
 glowing surfaces, optical pyrometer meas. 0=12537
 grain boundary cracking 0=18278
 grain boundary cracking in creep failure 3=18195
 grain boundary diffusion in impure metal, ridge formation 0=21224
 grain growth kinetics 3=20904
 grain structure, strength, effect of thermomechanical treatment 2=23777
 grain structure, strength, effect of thermomechanical treatment 3=3234
 Grüneisen constant by X-ray methods 4=25866
 gyromagnetic ratio, weakly magnetized sample 0=11924
 Hall coeff., temp. depend. 2=21103
 Hall effect 1=1265
 Hall effect anisotropy, crystal symmetry 3=841
 Hall effect in films 1=7618
 Hall effect and magnetoresistance, anomalous, localized d-electron model 3=827
 Hall effect in single cryst. and polycryst. 3=2853
 Hall effect, temp. dependence to 4.2°K 0=6075
 Hall resistivity, residual 4=20324
 hardening curve, deduction from mag. props. 3=3231
 hardness, effect of crystal props. and grain substructure 2=23791
 hardness, effect of electrolytic H 3=3245

Nickel—contd

- heat fatigue, and grain struct. and dislocations 4=23179
 heat treatment of laminations, variation of anisotropic coercive force 1=6315
 heat treatment, tempering, temp. between cylinder centre and surface 3=9641
 i.r. resonance absorption 0=10046
 initial magnetization, effect of tension and pressure 1=20106
 interdiffusion with Cu and Co, meas. analysis 4=12789
 internal field, rel. to Ni^{61} mag. moment. 2=13970
 internal friction, in alternating magn. field 0=13814
 internal friction, cold-worked metal 2=21407
 internal friction, crystal interstitial rot. effects on peak 4=28968
 internal friction, heat treatment effects 4=23178
 internal friction peaks in stage III recovery 4=26523
 internal friction, sintered and plastically deformed spec., temp. depend. 1=9084-5
 internal friction, temp. depend. 1=3962
 interstitial atoms, rel. to internal friction and mag. susceptibility 1=3659
 interstitial in Si distrib. rel. to elec. cond. var. 4=28453
 intrinsic magnetization under high pressures 2=14771
 ion beam, energy loss in metal foils 0=3814
 ion bombardment at oblique incidence, etch effects 1=4672
 ions, Ni^{17} , confirmation of existence 0=2320
 ions, Ni^{2+} , e.s.r. in $\alpha-Al_2O_3$ 2=4263
 ions, Ni^{2+} , e.s.r. in MgO , pressure effects 1=7786
 ions, Ni^{17} , e.s.r. in NaF 0=21076
 ions, Ni^{2+} and Ni^{3+} , e.s.r. in TiO_2 2=8672
 ions, Ni^{2+} , spin polarized, electron densities and mag. form factors, unrestricted Hartree-Fock method 0=20769-70
 ions, Ni^{3+} , in corundum, spectra 2=14677
 ions, paramagnetic resonance in double-nitrate crystals 3=6749
 ions $Z = 2$ to 13, range 2=7674
 irradiation damage by Kossel line studies 2=10429
 irradiation effects, study using mag. props. 2=21084
 irradiation hardening 1=1004
 isotopes, pairing correlations, wave functions, simplified, and moments of inertia 4=21987
 K-absorption spectrum of irradiated Ni 0=13471
 K-edge position, X-ray meas. 2=17030
 K-shell fluorescent yield 0=15652
 "Kanigen" phase, atomic structure, X-ray study 4=7674
 laminated, intense sound generation by magnetostriction 1=9444
 lattice distortion and particle size, X-ray diffr. data 0=6354
 lattice dynamics, neutron diffn. by phonons 4=28359
 lattice extension meas. by X-ray method, anisotropy effects 1=10256
 lattice isotopic effect, temp. dependence 2=16612
 lattice isotopic effects, temp. dependence 3=6482
 layer, separated from Al, tunnelling current 3=6489
 layers, electrodeposited, gauging method 1=12839
 layers, electrolytically-deposited, orientation and morphology 3=18234
 layers of Se on Ni, phase transformations $20^\circ - 400^\circ C$ 2=12879, 19027
 light emission on H^+ bombardment 2=3970
 liquid dilute solutions in Pb, density measurement 1=18388
 liquid, pure, solubility of H_2 4=5157
 liquid, viscosity 3=14115
 liquid, X-ray investig., intensity curve 4=21096
 low-temp. pyromagnetic measurements 1=6275
 mag. anisotropy and losses of thin layers 1=6276
 mag. Curie pt. lowering by added Ge 2=734
 mag. domains, made visible by magneto-optical Kerr effect 1=1224
 mag. films, anisotropy, temp. var. 4=7275
 mag. props., at low temp., effect of chemisorbed H_2 0=3070
 mag. props. rel. to plastic deformation 3=3231
 mag. resonance, temp. depend, wires, annealed 3=15793
 magnetic anisotropy constant, temp. and magnetization depend. 4=28821
 magnetic anisotropy, temp. variation 0=13838
 magnetic anisotropy of wires under small torsion 3=20577
 magnetic coercive force, rel. to temp., orient. and plastic deform. 2=18904
 magnetic coercivity of films, frequ. and temp. depend. 4=7280

Nickel—contd

- magnetic coercivity, plastically deformed 1=2471
 magnetic contrib. to elastic constants 0=3065
 magnetic domain wall thickness 2=13648
 magnetic domains, temp. var. magneto-optical obs. 3=23165
 magnetic field, local, at impurity Fe^{57} nuclei, using Mössbauer effect 0=11826
 magnetic film anisotropy, domain rotation obs 4=26321
 magnetic films, intensity temp. var., depending on deposition 4=22997
 magnetic internal field, Au^{197} Mössbauer data 3=6458
 magnetic moment distrib. 3=1110
 magnetic props., effect of absorbed H 1=14720
 magnetic properties 1=14692
 magnetic saturation, high pulsed fields 4=19154
 magnetic saturation moment decrease by H chemisorption 4=22949
 magnetic scattering, of polarized neutrons 0=4492
 magnetic sp. ht., effect of elastic modulus relaxation 4=25856
 magnetic stray field over (110) faces 4=1835
 magnetic, stray fields above Bloch walls, meas. method 3=19402
 magnetic susceptibility, electronic sp. ht. 3=23143
 magnetic susceptibility at γ/d and melting point 3=8654
 magnetic susceptibility, recovery after cold working 1=11442
 magnetic susceptibility, var. with adsorption of H, catalytic 4=2128
 magnetism, electronic model 1=20039
 magnetism of small particle, electron beam meas. 1=10755
 magnetism of thin film 2=6662
 magnetization curves, calc. 1=10145
 magnetization, deviations from $T^{3/2}$ law, meas. and spin-wave theory 4=7274
 magnetization distribution, domain boundary layers 3=25530
 magnetization, effect of chemisorbed H 1=11432
 magnetization, effect of quenched-in vacancies 2=2274
 magnetization, exchange parameters, $4.2-70^\circ K$ 4=20545
 magnetization of films, effect of uniaxial anisotropy 4=26319
 magnetization, influence of electrolytic charging of H 2=738
 magnetization, intrinsic, press. depend. 3=6700
 magnetization at low temp. 1=1208
 magnetization reversal on cold rolling of tapes 4=13208
 magnetization, spontaneous, action of conduction electrons 2=10647
 magnetization spontaneous moment, rel. to temp., 1.4° to $5^\circ K$ 3=15792
 magnetization, spontaneous, pyromag. test of spin wave theory 2=12684
 magnetization rel. to stress & temp. compared with Permalloy (94%Ni) 3=1142
 magnetization, temp. hysteresis 3=3101
 magnetization of wire and effect of torsion 1=6282
 magneto-acoustic props., u.s. 2=12379
 magnetocrystalline anisotropy rel. to field strength 3=20581
 magnetoelastic consts., calc. 1=17969
 magnetoelastic coupling, static, analysis 3=6701
 magnetolectric effects, high-field meas. 3=25330
 magneto-optical const., u.v., i.r. and visible regions 0=6171-3
 magneto-optical effects rel. to optical consts. 3=10918
 magneto-optical and optical props., i.r. 3=10919
 magneto-optical reflectivity change on magnetization reversal 4=22871
 magnetomechanical effects, heat treatment effects 4=23180
 magneto-optical resonance, in u.v. 2=23533
 magnetoresistance, dynamic loops, cold worked, low temp. 4=12861
 magnetoresistance, high-field, in single crystals 3=15553
 magnetoresistance of plastically deformed Ni 4=28533
 magnetostriction, anisotropy of ΔE effect 2=4230
 magnetostriction constant, influence of plastic deformation 1=14727
 magnetostriction, effect of elastic deform. 2=16915
 magnetostriction and magnetization jumps 3=8664
 magnetostriction meas. up to 10^4 atm 3=1150
 magnetostriction, -196 to $365^\circ C$ 1=1225
 magnetostriction, plastic deformation 0=1800

Nickel—contd

magnetostriction, saturation, after low-temp.
anneal 2=23671
magnetostriction, temp. hysteresis 3=3101
magnetostriction of thin films 4=30714
magnetostriction, var. with plastic deformation 4=1837
magnetostrictor, resonance under compression 2=2847
mass stopping power to α -rays 0=19039
mech. props. below 4.2°K, effect of preliminary plastic deformation 0=21122
mechanical props., effect of H₂ 4=13430
mechanical props., 1.6-4.2°K 0=18241
mechanical props. of single crystals rel. to neutron irradi. 3=8467
metal-insulator-metal, press. transformation, due to electronic level shifts 4=6928
microstresses due to plastic deformation 0=10263
molten, viscosity 0=14580
monatomic adsorbed layer, detection 2=6852
Mössbauer effect in embedded Au¹⁹⁷ 1=11147
Mössbauer effect with Ni⁶¹ 1=5830
Mössbauer effect, velo. var., mag. field effects, Ni⁶¹ 4=12582
n.m. relax. rate theory and internal mag. field 4=23062
n.m.r. and Bloch wall thermal movements 2=10716
n.m.r., longitudinal, model and expt. 3=3197
n.m.r. of Ni⁶¹, saturation behaviour 3=25592
negative ΔG effect and magnetic damping capacity 4=4476
neutron bombarded, strengthening 4=23165
neutron critical scattering 3=1117
neutron form factors, spin density distrib., Hartree-Fock calc. 3=1103
neutron irradi. effects on films, phase change and mag. props. variations 0=10338
neutron irradi. effects on physical properties 1=10021
neutron irradi., structure 0=1917
neutron radiation damage effect on mag. props. 1=14730
neutron scatt., inelastic, critical 3=3120
neutron scatt., polarized, spin wave theory 3=6717
nickel tube diffusion leak for hydrogen purification 1=12405
99.95% pure, enthalpy 1120°-1919°C 3=8359
nodules, superparamagnetic, particle size determ. with Guinier high-resolution camera 4=4651
nuclear mag. resonance of Ni⁶¹, internal field meas. 1=1281
nuclear polarization of Mn⁵⁴, temp. var. 4=3967
nuclear Zeeman effect of Au¹⁹⁷ rel. to mag. field 4=9811
nucleation of whiskers 0=16274
(100) faces, bombard. by Ar⁺, Ne⁺ 3=13020
optical constants meas. 2=16802
optical props. and Fermi surface model 3=25331
outer electrons, in crystalline field, X-ray and neutron scatt. on 0=12028
oxidation by ion bombardment 0=10988
oxidation mechanism 4=13710
oxidation and reduction, using gas reactor for transmission electron microscopy 4=29220
oxidation, study by secondary electron emission 2=11700
paramag. resonance of Ni²⁺ in MgO, Ni⁶¹ nuclear moment det. 0=15513
paramagnetic props. up to 1500°K in polycryst. 4=1804
paramagnetic resonance linewidth above Curie pt., theory 2=4259
paramagnetic, super, spontaneous mag., grains, temp. var., 77-600°K 4=4332
paramagnetic susceptibility, effects of s-d exchange 1=14674
peak electron density, curvature 1=15064
permeation, diffusion and solubility of H and D 1=6114
permeation, diffusion and solubility of H and D 1=11227
permeation of H₂, 400° to 900°C 2=12457
phase transform., neutron effects 4=23282
phonon spectrum, from cold neutron scatt. data 3=25185
photoelec. emission, effect of oxygen 0=19720
photoelec. emission in extreme u.v. 4=3032
photoelectric emission, temp. var., anomalous near Curie point 4=3031
photoelectric yield, 3000-250 Å 3=21865
photoelectron yield from soft X-rays 1=2990
plastic deform. and annealing, intercrystal slip 4=13432
plastic deform. of tubes, anisotropy due to earlier loading 1=20331

Nickel—contd

plastic deformation, effect on diffusion rate in Ni-S system 1=983
plastic deformation and slip-line studies 4=4478
plastic deformation, mag. and electron micr. studies 4=4477
plastic yield stress, effect of strain rate 4=4481
plastically deformed, abrasive wear 4=7438
plastically deformed at low temp., crystal lattice distortions, kinetics of relief 4=6847
plastically deformed, neutron irradi. effect, ferromag. meas. 4=10394
plastically deformed, substructure, expt. 4=10587
plated deposits, structure 3=13450
point defect clustering 3=22721
polycrystalline characteristic temperature, 20°-600°C 3=17661
polycrystalline, magnetization meas. near saturation 0=13807
polycrystalline specimens, plastic deformation 2=12853, 14881
polycrystalline wires, var. of remanence with stress 0=6238
polycrystals, Cottrell-Stokes flow stress law validity 4=23203
porous, dynamic compression 2=14876
porous, dynamic compression 3=6787
Portevin-Le Chatelier effect in H₂ charged Ni 4=15711
positron annihilation with electrons in plastically deformed and annealed Ni 4=28434
powder, adsorption isotherms of H⁺ and OH⁻ aqueous ions 4=4674
powder, annealed, and block, cold-worked, X-ray line broadening, rel. to variance 4=23382
powder, X-ray line broadening 1=7889
powdered, Bloch wall suppression, n.m.r. study 3=15805
precipitation from Ge 2=19099
precipitation in Si 3=6537
radiation effects on mag. props. 0=2994
Raney, diaphragm resistance of porous layers 4=26758
range-energy rel. for heavy ions in foil 0=17051
reaction with Cl₂ at high temp. 4=13723
recovery from cold working, elec. resist. study 2=23774
recovery after irradi., plastic deformation or quenching 2=14898
recovery and recryst. after deformation 2=10765
recrystallization centres, growth kinetics 3=20794
recrystallization, electron-microscope study 0=21258
recrystallization, grain growth and self-diffusion activ. energy 1=9108
recrystallization of ground powder, X-ray meas. 4=10575
recrystallization after plastic deform., time var., microscopic obs. 4=26604
recrystallization temp. lowering, by zone refining 3=18263
reflectivity, time var. 0=7998
removal from Ge 0=12231
removal from Ge by Pb "gettering" action 0=12231
resistance to deformation, time-dependence 1=1337
resistance, elec., effect of ambient gas pressure 1=7613
resistance, electrical, and work function, effect of adsorption of electropositive atoms 3=13040
resolidified drops, voids 1=20631
rotational hysteresis, rel. to cold rolling and recrystallization 3=18076
in sapphire, paramagnetic resonance absorption 0=11948
secondary electron emission, due to Xe⁺, Ar⁺, Ne⁺ and He⁺, theory 0=1152
secondary electron yield, due to Xe⁺, Ar⁺, Ne⁺, He⁺ 0=1153
secondary emission, Zn and Cd ion bombard. 0=12632
self diffusion 0=2826-7
self-diffusion in NiS, expt. and theory 4=12798-9
self-diffusion, 929-1303°C 4=12797
self-diffusion, on surface 1=19804
shear modulus and damping, effect of a magnetic field 4=4476
shear modulus, rel. to deform. amplitude 3=6779
shear modulus and internal friction, temp. var. 3=3209
shock compression up to 9×10^6 atm. 2=6728
shock compression up to 9×10^6 atm. 3=6786
single crystal magnetic moment meas. 0=2985
single crystals, Bragg reflection of neutrons 2=19069

Nickel—contd

- single crystals, reversible susceptibility, rel. to magnetizing field and crystal orientation 3=20572
 single crystals, sputtering by 27eV A ions 1=10745
 single crystals, sputtering by 27eV A ions 1=11985
 single crystals, sub-structure 2=6859
 sintered, U.T.S., temp. depend. 0=1866
 sintering of Ni-Cu mixtures, effect of grain surfaces 4=10593
 skin effect, i.r. data 0=6078
 in solar corona, relative abundance 4=29458
 solid solubility in Si 4=4497
 solubility in Be, X-ray diffract. study 3=20908
 solubility in liquid Na, Ni⁶³ tracer technique 2=5008
 sound effects in pulse magnetization 4=10264
 specific heat, magnetic, const. coupling approx. 4=30522
 specific heat, 180-1160°C 0=9853
 specific heats, normal and supercond. 2=19817
 spectrochemical anal. 2=19177
 spherical crystals, growth nickel oxide 0=1894
 spin-lattice relaxation time, calc. 0=13865
 spin-spin relaxation time 1=12553
 spin-wave resonances in films 1=14771
 sputtered by Hg⁺, ang. distrib. 0=1174
 sputtered magnetic films, props. 1=6325
 sputtering, under Cs ion bombard., cathode sputtering ratio 4=24753
 sputtering, ejected atom distrib. 2=13608
 sputtering by inert gas ions 1=18950
 sputtering by inert gas ions rel. to mass ratio 4=19124
 sputtering, by Ne⁺, Ar⁺, Kr⁺, Xe⁺ ions, 100-1000 eV 3=4216
 stacking faults, prod. by plastic deform. 3=20206
 stored energy after cold working at liquid N₂ temp. 1=14906
 strain-ageing meas. on stress-strain curves 4=13433
 strain ageing, rel. to temperature 3=13350
 strain relaxation by irradiation 2=23768
 strength, long-term, effect of thermomech. treatment 3=8778
 stress/strain discontinuities, temp. rate, var. 4=20675
 stress/strain at 1.4-77°K 1=12594
 stresses, residual, in electrodeposited coatings, X-ray determ. 4=23181
 stresses, residual, rel. to surface flow stress 2=8730
 structural changes during deformation at high temp. and strain rates 2=2320
 structural changes on heating cold-worked metal 1=978
 structure, influence of N impurity 1=19770
 sub-microstructure, effect of plastic deformation 0=16253
 substrate, for electrodeposition of Permalloy films 4=7283
 substructure formation, during high temp. high strain rate deformation 4=26492
 supercond. films, crit. current, var. temp., mag. field 4=21422
 superconducting energy gap, tunnelling meas. 4=16374
 superconductive two-component diffusion films containing Sn 4=5527
 superconductivity and ferromagnetization 0=14932
 superparamagnetic, temp. depend. of spontaneous magnetization 1=6307
 surface atoms vibr. and electron diffr. 2=19127
 surface, catalytic action in atomic beam recombination 2=4522
 surface diffusion of Sn 2=21068
 surface diffusion of Sn 3=6539
 surface energy and self-diffusion activation energy 1=15171
 surface exam., groove walls—poorly defined (100) facets, by optical-goniometer meas. 4=30813
 surface interaction of O₂ with (111) face 4=7702
 surface, (110), clean and slightly contaminated, study 1=20658
 surface oxidation temp. effects on water boiling on wire 4=11423
 surface tension, rel. to crystallographic orientation 2=4485
 surface tension, effect of Ti and TiC 4=8190
 surface texture, effect on emissivity, thermal, and accommodation 4=2126
 surfaces, catalysis of H₂-D₂ exchange 2=6871
 surfaces, contact potential, treated with electrolyte solutions 4=26008
 surfaces, interaction with N 2=8894

Nickel—contd

- temp. change at boundary with superfluid He 3=5570
 temperature change at boundary with superfluid He 2=15838
 temperature dependence of elastic constants 1=10202
 tensile strength of whiskers 2=23778
 thermal conductivity, impurity concentration effect 1=9987
 thermal diffusivity, capacity and conductivity, meas. by flash method 1=13006
 thermal and elec. cond. in mag. field, low temp. 3=8489
 thermal expansion 3=4825
 thermal expansion, effect of annealing 2=20938
 thermal expansion, lattice const. changes, from Bradburn-Fürth eqn. of state 4=20219
 thermal expansion, 20-500°C 3=2735
 thermionic emission, in CCl₄ and Freon 0=10936
 thermionic emission of ions, effect of ambient gas 3=14663
 thermionic emission of positive mol. ions 3=3086
 thermionic emission, in vacuo 0=10972
 thermoelectricity meas. below 1°K 0=18076
 thermo-magnetic analysis, electron diffraction method 1=18973
 thick films, mag. props. of layers electrodeposited in magnetic field 0=21043
 thin film saturation induction meas. 0=3061
 thin film, slow magnetization process 1=1230
 thin films, anisotropy rel. to magnetic annealing 2=8641
 thin films, elec. resist. rel. to temps. and Hall e.m. force, 2° to 300°K 3=832
 thin films, electrical props. at 300°K 2=3985
 thin films, electrical props. at 300°K 3=4905
 thin films, lattice const. 1=20669
 thin films, mag. props. 0=13813
 thin films, mag. props. rel. to cathodic hydrogen 3=1075
 thin films, mag. props. rel. to pressure during evaporation 3=1072
 thin films, spin-wave res. 3=1169
 thin layers in alternating mag. field, inner attenuation 0=4495
 thin layers, ferromag. Curie point 3=1077
 transducers, magnetostrictive-stack, radiation resistance 0=19289
 triton range, 0.2-2.7 MeV 3=10180
 tubes, deviations from plasticity laws 1=5082
 tubes, deviations from plasticity laws 1=10211
 tubes, strength under various loads 1=6467
 twinned cubes, by high temp. reduction by NiCl₂ in KC1 3=5078
 twinning, mechanical 3=25621
 two magnon spin-spin relax., model 3=1193
 u.s. damping meas. 2=13418
 u.s. propag., at high mag. field 4=20202
 u.v. and visible radiation, by H ion bombardment, 200 keV 3=7657
 valence band emission spectra, M_{2,3} band shape 1=1173
 vaporization, heat of, at 298°K 3=1876
 vapour, interdiffusivity with Ar at high temp. 4=24266
 vapour pressure and evap. coeff. meas. 2=19784
 vibration, normal modes, freq. distrib., meas. using neutron scattering 4=28360
 wall motions, reversible, distrib. functions of activation fields 0=6230
 whiskers, field emission, elec. meas. 2=8799
 whiskers, tensile rupture tests 3=6801
 whiskers, by vapour deposition 2=8798
 wire, anomalous magnetic susceptibility 1=20077
 wire, elastic moduli, effect of 60 c/s mag. field 3=15970
 wire, time decrease of reversible permeability 4=26318
 wires, hydrogen supersat., elec. cond. 2=23236
 wires, stressed, magnetization in a.c. fields 0=679
 wires, thermal relax., rel. to current and surrounding gas pressures 2=14398
 wires, thin, magnetization process and domain struct. 3=1087
 work function ψ , ferromagnetic anomaly 1=14693
 work function, photoelectric, cathode fall, in Ar, Ne 4=568
 work function, 720-1025°K 0=19709
 work function, temp. depend. 1=8340
 work function temp. dependence 0=9063
 work function, temperature coefficient 0=19708
 work function, var. O press. and temp. 4=19076

Nickel—contd

- work hardening meas. by torsion to large strains 4=7389
 work-hardening of polycryst. Ni, meas. 4=28969
 X-ray absorption edge 2=6587
 X-ray emission spectrum, $M_{ii,iii}$ intensity distrib. 1=3514
 X-ray K-absorption edge, proton irradiation effect 2=14698
 X-ray K-absorption spectrum meas. 4=17562
 X-ray M bands from Cu-Ni system 3=23087
 X-ray scatt. factor, and electronic charge distrib. 4=25506
 X-ray, soft, emission, critical potentials 1=20001
 X-ray spectrum, emission, K edge Kronig struct., H diffusion effects 4=17577
 X-ray spectrum structure at short wavelength limit 1=6217
 yield point, rel. to ageing 2=4325
 yield point, temp. dependence rel. to purity 3=5066
 Young's mod. and internal friction 0=11971
 Young's modulus, ultimate strength, meas. 2=18975
 Young's modulus, variation during heat treatment 0=6292
 Young's modulus data, rel. to temp. 4=30788
 zone structure, rel. to mag. and thermoelec. props. 1=19914
 zone structure, rel. to mag. and thermoelec. props. 2=6506
 Ba-coated, reversed thermionic emission 3=21860
 Ba-coated, thermionic emission, theory and expt. 3=21859
 Br surface reaction, press. and temp. var. 4=10636
 Cu-Ni powder compacts, interdiffusion, X-ray diffraction study 1=11225
 Ni on NiO, magnetic exchange anisotropy interactions 4=13209
 Ni^{81} in Al_2O_3 , electron nuclear double resonance 4=7334
 Ni^{63} , diffusion in PbS 3=17785
 Ni^{+} e. s. r. in CaO, Jahn-Teller effect 4=13327
 Ni II, d^8 p config. 1=806
 Ni^{2+} , in AgBr, AgCl, paramag. reson. and relax., liquid H temps. 3=13307
 Ni^{2+} , in aqueous solutions, proton spin-lattice relaxation 1=15908
 Ni^{2+} , e. s. r. in CaO 3=3181
 Ni^{2+} , e. s. r. in $NiSiF_6$, temp. depend. 4=13328
 Ni^{2+} , grain-boundary diffusion in MgO 4=20300
 Ni^{2+} ions in methanol, proton relaxation and methanol exchange rate of solvation sphere 4=18219
 Ni^{2+} , line broadening of P^{31} n.m.r. absorpt. in H_2PO_4 3=13316
 Ni^{2+} , mag. suscept. in ZnO and CdS 4=17616
 Ni^{2+} in MgO, u.s. pulse interaction with spin resonance 4=26415
 Ni^{2+} n.m.r. in methanol and methanol-water mixtures 4=14190
 Ni^{2+} in organic solvents, NaCl and KCl, optical props. 3=10923
 Ni^{2+} , spectrum in $KNiF_3$, and $KMgF_3$ analysis 4=12574
 Ni^{2+} , spin level splitting, Jahn-Teller effect 3=10452
 Ni^{3+} , e. s. r. in $SrTiO_3$ 4=26417
 Ni_2 vapour dissociation energy, and heat of sublimation for $2Ni(solid) = Ni_2(gas)$ 4=28272
 O and H absorption on (110) face, elec. diffraction study 3=1378

Nickel compounds

- alloys, binary, with Al, Cu, Co, grain shift and boundary migration 3=2815
 alloys, high, elastic consts., from u.s. velo., wedge method 3=23277
 alloys, internal field rel. to Ni^{61} mag. moment 2=13970
 alloys, magnetism, electronic model 1=20039
 alloys, superconductivity 3=16873
 Alumei, magnetic hysteresis loops, eddy-current broadening 3=15790
 arsenide type, mag. anisotropy energy 2=2278
 boride and carbide, anomalous thermionic emission, theory 0=2377
 carbides, ternary, with Sn, Zn, structure 0=16324
 chelate, e. s. r., Ni^{2+} splitting in crystal field 0=3135
 constantan, torsional elastic modulus 2=8698
 dihalides, linear symmetrical, mean amplitudes of vibr. and Bastiansen-Morino shrinkage effect of $T = 1000^\circ K$, $1250^\circ K$ and $1500^\circ K$ 4=30441
 EI-437A alloy, precipitation 3=8913
 EI-437A, precipitation by anodic dissoc. 3=8913
 EI-437A, thermal expansion, $20-500^\circ C$ 3=2735
 EI-437B, effect of liq. Na adsorpt. on deform. 4=23185
 Evanohm, cond., elec., $10-380^\circ K$, wires 4=12849

Nickel compounds—contd

- ferrite aluminate, ferromagnetic resonance 0=10197
 ferrite, anisotropy prod. by rotary field tempering 3=15892
 ferrite, atomic displacement due to thermal agitation and local distortions 2=3913
 ferrite-chromites, ferrimagnetic resonance 0=6254
 ferrite, Co-substit., field-induced anisotropy 2=12791
 ferrite, effective anisotropy constant 2=8653
 ferrite, elec. resistivity 0=7945
 ferrite, polycryst., ferrimag. resonance 2=10690
 ferrite, res. curve width rel. to Co and Cu ions 2=760
 ferrites, induced magnetic anisotropy, rel. to composition 4=13243
 ferrites, mixed, permittivity, a.c. fields rel. to temp. 1=10081
 ferrites, mixed, permittivity in a.c. fields rel. to temp. 1=11329
 fluoride, molten, absorption spectra 0=19155
 fluorosilicate, paramag. resonance line shape, temp. depend. 0=16156
 fluosilicate, paramag. relaxation, $4.2-1.8^\circ K$ 0=10234
 gersdorffite, $NiAsS$, mag. susceptibility and elec. cond. 4=7220
 halides, vaporization, dimer formation 0=3566
 hexamine halides, low-temp. magnetic transitions 1=7775
 Hipersil cores, permeability, loss meas. 2=14795
 hydride, structure 2=15028
 Inconel, oxidized, emissivity, $1.5-15\mu$ 0=16917
 Inconel, oxidized, heated to $1000^\circ C$, spectral emittance 4=14443
 Inconel, total hemispherical emittance 3=289
 Inconel-X, electron microscope obs. 3=20872
 Invar, internal friction, temp., C-content and magnetization depend. 3=3217
 Invar, isothermal holding, internal friction, magneto-diffusion effect 3=3216
 Invar, mag. anisotropy energy, temp. and field depend. 2=23648
 ions, Ni^{2+} in oxides, paramag. suscept. 2=18892
 mag. form factor of Ni^{2+} , orbital contrib., neutron scatt. cross-section 1=14667
 Monel, Curie point, by simple balance method 3=8636
 Mumetal, heated in air, surface structural irregularities 0=18394
 Mumetal, ferromagnetic after-effect 0=8042
 Nicaloi, ferromagnetic permeability, stress angle effects 4=13185
 Nichrome, cold-deformed, stacking faults 1=6106
 nichrome, deformed, crystal dislocations, structure changes on heating 3=17747
 Nichrome films, vacuum dep., strain sensitivity 3=23514
 Nichrome (Kh20 N80), plastic deformation, "relay race" transmission 2=23759
 Nichrome, phase transform. volume changes 3=20885
 Nichrome, recrystallization nuclei formation process 4=13474
 Nichrome, tensile strength, in K-state 1=12584
 nichrome, thermal expansion meas. 4=17367
 Nichrome thin films, electrical props. rel. to crystal structure 4=10030
 nichrome wire, in centre of glass pipe, water cooled, burnout 3=9661
 nickel oxide layers on nickel, structure 1=1458
 Nimonic 80A, creep cracking 1=141
 Nimonic 80A, relaxation creep 4=23190
 Nimonic-type alloys, ageing, rel. to structure changes 3=16113
 nitrate hexahydrate, optical props and unit cell parameters 0=7991
 nitrides, mag. and crystallographic props. 0=11830
 nitrides, phase transformation by N insertion 3=1322
 oxidation mechanism 4=13710
 oxide, photoelec. emission, effect of hydrogen 0=19720
 permalloy, anisotropic, torque, angular dependence 1=14723
 permalloy with Au, for high-speed magnetic switching 1=10166
 Permalloy C, Barkhausen noise, power spectrum 4=4347
 Permalloy, electron interference in domains 2=15962
 Permalloy, ferromag. films, comments 4=23564
 permalloy, ferromagnetic anisotropy, uniaxial 1=17962
 Permalloy film, longitudinal Kerr effect 4=4265
 Permalloy films 3=15819
 Permalloy films, ang. dispersion of easy mag. axis 2=12654

Nickel compounds—contd

- Permalloy films, anisotropy 0=3054-8
 Permalloy films, anisotropy 4=17658
 Permalloy films, anisotropy and inversion 0=11869
 Permalloy films, annealing behaviour, temp. dependence of mag. props. 1=6320
 Permalloy films, annealing, effect on mag. props. 1=7755
 Permalloy films, Barkhausen pulses duration 4=13198
 Permalloy films, cathode-sputtered, props. 1=6324
 Permalloy films, by cathode sputtering, micromag. structure 2=15094
 Permalloy, films, coercivity and conductivity, electrical 3=13041
 Permalloy films, computer elements 0=7190
 Permalloy, films, conductivity, electrical, and coercivity 3=13041
 Permalloy films, domain structure and preferred-axis dispersion 3=15812
 Permalloy films, domain structure changes 3=18088
 Permalloy films, domain study 0=3049-50
 Permalloy films, domain-wall storage and logic 2=13636
 permalloy films, domain walls, observation by Faraday effect 1=10151
 Permalloy films, domains, reversed, nucleation and growth, study using partial switching 4=23003
 Permalloy films, e. m. wave absorpt. by spin interaction with stripe domains 4=28697
 Permalloy films, effective magnetization, anisotropy 3=20596
 Permalloy films, electrodeposited, anisotropy sources 2=12655
 Permalloy films, evap. at oblique incidence, mag. anisotropy 0=18183
 Permalloy films, evap., roughness 2=12658
 Permalloy films, evaporation, microbalance meas. 4=5263
 Permalloy films, ferromag. reson. at 36 kMc/s 4=7307
 Permalloy films, ferromag. resonance 2=10685
 Permalloy films, ferromag. resonance 3=20633
 Permalloy films, ferromag. resonance 3=20633
 Permalloy films, ferromag. resonances 2=12672
 Permalloy films, ferromagnetic relaxation, u.h.f. absorpt. in l.f. field 4=1827
 Permalloy films, ferromagnetic reson., standing modes, k^2 field spacing var. 4=13280
 Permalloy, films, ferromagnetic resonance 3=15917
 Permalloy films, flux reversal by Néel wall motion 3=15845
 Permalloy films, free oscillation of magnetization 1=6323
 Permalloy films, hard-direction hysteresis loops, constriction 2=12656
 Permalloy films, impulsive magnetization 3=15848
 Permalloy films, initial susceptibility spectra 0=10160
 Permalloy films, isotropic, mag. props. 3=23169
 Permalloy films, isotropic stress meas. 2=12679
 Permalloy films, longitudinal Kerr magneto-optical effect 3=13157
 Permalloy films, mag. anisotropy 1=20101
 Permalloy films, mag. anisotropy 3=11057
 Permalloy, films, mag. anisotropy dispersion 4=26326
 Permalloy, films, mag. anisotropy and hysteresis 3=15837
 Permalloy films, mag. anisotropy meas. 2=12775
 Permalloy films, mag. annealing 4=20549
 Permalloy films, mag. and crystallite structure rel. to contrast of electron microscope image 4=30715
 Permalloy films, mag. domain structure, dense-banded 4=7281
 Permalloy films, mag. domains, evaporated on cleaved NaCl 3=20931
 Permalloy films, mag. domains, fine structure 0=21045
 Permalloy films, mag. fluctuation props., theory 4=7284
 Permalloy films, mag. props., effect of substrate cleanliness 2=12651
 Permalloy films, mag. props., Kerr effect study 0=18195
 Permalloy films, mag. props. and substrate surface 1=20672
 Permalloy films, mag. ripple calc. 4=23000
 Permalloy films, magnetic anisotropy 1=7756
 Permalloy films, magnetic anisotropy dispersion and error function 3=20601
 Permalloy films, magnetic properties rel. to added Cu and Co 3=15816

Nickel compounds—contd

- Permalloy, films, magnetic props., effect of surface roughness 3=15840
 Permalloy films, magnetization 2=12652
 Permalloy films, magnetization, cross-tie walls, theory 0=18191
 Permalloy films, magnetization, free and forced oscillations 0=18194
 Permalloy films, magnetization, incoherent rotation, switching signals and domain pictures 4=28799
 Permalloy films, magnetization process, rel. to dispersed anisotropy 3=15811
 Permalloy films, magnetization reversal and partial rotation 1=14721
 Permalloy films, magnetization reversal process 4=23002
 Permalloy films, magnetoelastic sensitivity 3=15842
 Permalloy films, magnetoelastic effect in magnetization reversal 1=14722
 Permalloy films, magnetoelasticity and magnetic switching 1=6329
 Permalloy films, meas. of anisotropy dispersion 4=1817
 Permalloy films, microwave resonance 0=13860
 Permalloy, films, monocrystal, growth and mag. props. 1=6318
 Permalloy films, nanosecond switching 0=10157
 Permalloy films, Néel walls 0=8053
 Permalloy films, on Ni mag. props. 4=7283
 Permalloy films, partial switching 0=3051
 Permalloy, films, quasistatic magnetization 2=23666
 Permalloy films, regional variation of anisotropy in ferromagnetic resonance 3=25556
 Permalloy films, reverse magnetization 2=8637
 Permalloy films with rot. initial susceptibility, mag. props. 4=23006
 Permalloy films, rotatable anisotropy 1=6321-2
 Permalloy films, spin pinning at surface 3=15839
 Permalloy films, spin-wave resonance 1=6397
 Permalloy films, spin-wave resonance 3=15920
 Permalloy films, spin-wave resonance 3=15922
 Permalloy films, spin-wave resonance, dynamic pinning 2=23695
 Permalloy films, spin-wave spectra 4=7304
 Permalloy films, sputtered, coercive force variations 2=12660
 Permalloy films, standing spin-wave excitation by inhomogeneous a.c. field 2=21300
 Permalloy films, stratification 2=12674
 Permalloy films, structure, effect of growth conditions 3=16047
 Permalloy films, use in transmission delay line 3=14732
 Permalloy films transverse magnetization 3=18087
 Permalloy films, twinning 2=10783
 Permalloy films, uniaxial anisotropy 2=6669
 permalloy, films, uniaxial mag. anisotropy 1=3895
 Permalloy films, uniaxial, mag. ripple domain splitting and dispersion of easy axis 4=20550
 Permalloy films, uniaxial magnetic anisotropy, time depend. 0=6234
 Permalloy films, unidirectional hysteresis 2=12677
 permalloy, films, vacuum-deposited in mag. field, mag. anisotropy, field orientation depend. 4=26325
 Permalloy, with 5% Mo, mag. props., effects of proton bomb. 3=15863
 Permalloy, 5-79 Mo, magnetic props., proton irradiation effects, recovery 4=17643
 Permalloy, 4-79 Mo, initial permeability, cooling rate effects 2=12708
 Permalloy, gold additions, age hardened 2=12734
 Permalloy, heat treatment in mag. field 0=10330
 permalloy, inhomogeneous internal structure, theory 1=15119
 Permalloy, initial permeability, γ -ray effects 2=8617
 Permalloy layers, electrolytically prepared, mag. props. 2=14790
 Permalloy, longit. permeability of films 3=15831
 Permalloy, mag. domain wall thickness 2=13648
 permalloy, mag. easy axis, max. dispersion 3=15808
 Permalloy, mag. initial susceptibility and elec. cond., stress and heat treatment effects 4=7282
 78-Permalloy, mag. ordering and elec. props. 1=6533
 permalloy, mag. permeability, rel. to demag. method 1=6283
 Permalloy, mag. props. of very thin films 3=15832

Nickel compounds—contd

- Permalloy magnetic film flux reversal at low temps. 4=13218
 Permalloy, magnetic films, aging and stabilization 4=13212
 Permalloy magnetic films, hysteresis, anisotropy, n, He³ effects 4=13216
 Permalloy magnetic films, stress effects 4=13211
 Permalloy, magnetization, 4. 2-100°K, and spin wave theory 4=13210
 Permalloy (94%Ni), magnetization rel. to stress & temp. compared with pure Ni 3=1142
 Permalloy, magnetostriction, effect of prep. 2=14793
 Permalloy, magnetostriction, var. with plastic deformation 4=1837
 Permalloy—Mo, 81. 3-6, hysteresis, square loop 4=13214
 Permalloy—Mo magnetic film props. 4=13213
 Permalloy—Mo, 79-5, hysteresis squareness increase on electron irradi. 4=13217
 Permalloy—Mo, 79-4, hysteresis squareness, and crystal struct. 4=13215
 Permalloy, neutron irradi., elec. and mag. props. 2=23233
 Permalloy, neutron irradiation, hysteresis changes 0=3007
 Permalloy (95% Ni), mag. stripe domain obs. 4=23005
 Permalloy (78,83) films, mag. anisotropy, 1 Mc/s 3=15828
 Permalloy 78, sheets, coercive force, thickness depend. 1=5066
 Permalloy-sheet transfluxor-array memory 2=13635
 Permalloy 66, internal friction, due to ordering 3=11137
 Permalloy, spin-wave pinning, expt. rel. to theory 4=17638
 Permalloy, spin wave res. obs. in films 0=3115
 Permalloy, stacking faults 4=25952
 Permalloy strained wires as logic elements 2=13639
 Permalloy, structure and mag. props. 0=3052
 Permalloy, study evap. films 0=3277
 Permalloy, switching, effect of pulsed mag. fields rise time 4=23004
 Permalloy tape, rolled, anisotropy 2=12702
 Permalloy, thermomagnetic treatment, influencing factors 0=18187
 permalloy thin films, chain wall 1=15175
 Permalloy thin films, ferromag. resonance 2=14817
 permalloy, thin films, ferromagnetic resonance 1=7777
 Permalloy, thin films, homogeneity, by ferromagnetic resonance 3=18393
 Permalloy thin films, mag. props., temp. dependence 1=10162
 Permalloy, thin films, magnetic hysteresis 2=10662
 Permalloy thin films, nucleation processes 1=6330
 Permalloy thin films, spiral domain walls 1=6326
 Permalloy, various types of mag. film, props. 3=15836
 Permalloys, long-range ordering, diffractometer study 3=18337
 Permendur, in a. c. solenoid, dynamic mag. props. 0=21050
 Permendur, e. m. wave propagation, in sheets 0=17102
 Permendur 2V, mag. annealing method 2=12704
 Permendur 2V, magnetostrictive resonance under compression 2=2847
 Perminvar, domain-wall energy, meas. 0=4488
 Perminvar, ferromag. domains 0=13799
 Perminvar, mag. domain patterns, in thin films 1=10156
 Perminvar, mag. ordering and elec. props. 1=6533
 Perminvar, magnetization mechanism 0=13782
 phosphates, substituted, spectra, 6-30μ 3=15686
 solutions, aq., Ni²⁺ ion hydration 0=14123
 Supermalloy, Einstein-de Hass effect, gyromag. ratio 0=18198
 Supermalloy, mag. props. at 375-448°C 0=8074
 Supermendur cores, permeability, loss meas. 2=14795
 Supermendur, mag. props. at 500°C 0=10109
 Udimet 700 Ni base alloy, solute distrib. near grain boundaries 4=13464
 Udimet 700, solute distrib. near grain boundaries and mechanical props. 4=13464
 ullmannite, NiSbS, mag. susceptibility and elec. cond. 4=7220
 Mn₂Mn, antiferromagnetism and atomic ordering 2=16926, 18925
 Ni acetate, hydrated, mag. susceptibility at liq. He temp. 1=6258
 Ni alloy Ei -437B, thermal cycling effects 2=21447
 Ni alloy laminations, coercivity variation with thickness 1=6316

Nickel compounds—contd

- Ni alloys, with Ce, Pr and Cd, coercive force, deformation and annealing effects 3=23159
 Ni alloys with Cu, Zn, Al, Si and Sb, low-temp. specific heat 4=9852
 Ni alloys, dilute, mag. moment distrib., neutron scatt. study 3=15858
 Ni alloys, effect of alloying element on thermal conductivity 1=9987
 Ni alloys, impure, d-band structure 3=10622
 Ni alloys, magnetoresistance and Hall effect, rel. to ferromagnetism 3=15551
 Ni-ammine complexes, NH₃ exchange with NH₄OH 2=4525
 Ni ammonium salts, thermal recovery after n-irrad. 3=8472
 Ni arsenides, atomic moments and magnetic coupling 3=15738
 Ni austenite, damping capacity 4=23183
 Ni-base alloys, K state and binding forces 3=5114
 Ni-base alloys, neutron mag. scatt. theory 3=12964
 Ni-based, for acoustic transducers 1=10564
 Ni, binary, mag. moments and electron transfer 0=21037
 Ni binary, residual resistance, short-range order effects 1=15128
 Ni carbides, films, preparation and lattice structure 4=13600
 Ni chromite, mag. props. and crystal chemistry 3=1011
 Ni dimethylglyoxime, structure of K-absorption edge 2=18851
 Ni, dislocation density, after deformation 1=12386
 Ni ferrite, as acoustic pickup 1=2487
 Ni ferrite, elastic modulus and internal damping rel. to mag. fld. and frequency 4=23186
 Ni ferrite, elec. cond., effect of Mn content 4=6982
 Ni ferrite-Fe₃O₄, mag. cryst. anisotropy 2=18920
 Ni ferrite, ferromag. resonance 2=10686
 Ni ferrite, ferrimag. resonance, rel. to ionic rearrangement 4=1861
 Ni ferrite, ferromag. resonance linewidths 4=7305
 Ni ferrite, fine-grained, prep. and props. 1=6356
 Ni ferrite, growth orientation 1=6494
 Ni ferrite, growth and props. of single crystals 3=3270
 Ni ferrite, Hall effect 1=11265
 Ni ferrite, initial permeability, effect of wall dimensions 3=3123
 Ni ferrite, mag. anisotropy prod. by thermomechanical treatment 1=20140
 Ni-ferrite, mag. moment and anisotropy consts. rel. to temp. 4=15655
 Ni ferrite-magnetite, mag. cryst. anisotropy 2=12789
 Ni ferrite-magnetite system, mag. anisotropy 1=20141
 Ni ferrite, magnetostrictive displacement of O ions 4=13246
 Ni ferrite, memory core, switching properties 3=15874
 Ni ferrite, n. m. r. of Fe⁵⁷, pulsed method meas. 4=4426
 Ni ferrite, permeability peaks due to vacancy diffusion 1=20137
 Ni ferrite, reaction kinetics of Ni formation 1=7902
 Ni ferrite, resistivity, change on mag., anisotropy 3=17927
 Ni ferrite, single crystals prep., mag. props. 3=13274
 Ni ferrite, wall effect in ferrimag. resonance 1=1254
 Ni ferrites for acoustic transducers, props. 1=5323
 Ni ferrites, ferri- and paramagnetic resonances 1=20189
 Ni ferrites, polycryst., spin waves 3=3126
 Ni ferromag. alloys, spin-orbit effect on transport processes 4=22679
 Ni, halide complexes, tetrahedral, spectra 3=15354
 Ni, Hall effect 1=11265
 Ni hydride, f. c. c. lattice, H atom positions 3=25709
 Ni hydride, neutron scattering meas. 4=29124
 Ni-lanthanide cpds., magnetic and structural props. 4=28776
 Ni-lanthanone compounds, mag. moments in ferromag. phase 4=1795
 Ni-liquid Pb system, interfacial tensions, effect of temp. and press. 4=15724
 Ni, magnetoresistance 0=9943, 13583
 Ni nitrides, rel. to Ni deposit structure 1=19770
 Ni-nonferromagnetic, Curie temp. 0=13761
 Ni orthosilicates, mag. props. 77°-300°K 3=23142
 Ni oxide, interstitial defect meas. by emanation method 5=22568
 Ni phthalocyanine, structure of K-absorption edge 2=18851

Nickel compounds—contd

- Ni porous ferrites, effect of CoO at v.h.f. 1=6370
 Ni(II) pyridine complexes, i.r. spectrum of thiocyanate group 3=22581
 Ni-rich solid solutions with Sn, Ge and Si, prep. 2=23890
 6 Ni salts, proton resonance, low-temp. anomalies 0=535
 Ni-span C-type alloys, mechanical Q-factor rel. to heat treatment 2=12844
 Ni telluride, Hall effect measurement 1=12418
 Ni, twinning and fatigue due to plastic deform. 0=6302
 Ni zinc fluosilicate, alignment of nuclei of divalent ions 0=8963
 Ni²⁺ complexes, ionic radii, spin-orbit coupling and geometrical stability 1=3554
 Ni²⁺, e.s.r. in ZnF₂ 0=10233
 Ni-Ag alloy, undercooled, crystallographic sub-structure 4=13652
 Ni-Ag, fracture and creep comparison with Ni and Ni-Au at 500° and 600°C 4=23184
 Ni-Al alloys, β -phase, Al²⁷ n.m.r. Knight shift 4=7343
 Ni-Al alloys, elastic consts., rel. to temp., comp., heat treatment 2=23735
 Ni-Al alloys, time-to-rupture tests 4=28933
 Ni-Al bronze, β - α reaction, segregation 3=18352
 Ni-(Al, Co), mechanism of plastic deformation 3=23332
 Ni-Al, contrast phenomena at dislocation pairs 4=12765
 NiAl, electron distrib., X-ray meas. 3=16092
 NiAl, n.m.r. of Al²⁷, Knight shift and line intensity 3=23270
 NiAl, ordering rel. to composition 3=16104
 NiAl, "pest" degradation 4=29169
 Ni-Al, principal K absorpt. edge of Ni 2=21259
 Ni-Al solid soln., quenching defects 2=18574
 NiAl₃, hot-hardness 2=2337
 Ni₃Al, crystal structure, influence of Cr, Ti, Mo and W additions 4=23459
 Ni₃Al, paramag. susceptibility rel. to temp. 4=17626
 Ni₃Al, thermal expansion, effect of Cr, Ti, Mn, V, Zr and Ta additions, 300°, 600° and 900°C 4=25864
 Ni₂Al₃, hot-hardness 2=2337
 NiAlGa spinels, microwave power handling capacity improvements 4=13245
 NiAs, magnetic spin coupling in NiAs type compounds 4=4326
 NiAs-type crystals, exchange-inversion magnetization, theory 0=18206
 NiAs₂, electrical conductivity and magnetism 0=7934
 Ni₅As₂ vapour grown single crystals, space group, lattice constants 4=10543
 Ni-0.1% Au alloy, effect of cold work on creep and fracture 2=16962
 Ni-Au, fracture and creep comparison with Ni and Ni-Ag at 500° and 600°C 4=23184
 Ni-Au, internal friction, meas. rel. to temp. 3=1217
 NiB, crystal structure, rel. to similar types 3=18338
 NiB, paramag. props. 1=20063
 NiB, paramag. props. (150-800°K) and thermo-electricity 3=1124
 Ni-B system, crystal structure, two new Ni₄B₃ phases 0=18346
 Ni-B system, struct. 300-550°C 4=15742
 Ni₃(BO₃)₂, crystal structure, atomic, space group, unit cell 4=2083
 Ni-Be, aged, orientations of new phases 3=16099
 Ni-Be, ageing, crystal structure changes 3=13507
 Ni-Be alloy, "hot" ageing and recovery 4=2112
 Ni in Bi soln., 800°C, density, var. conc., and interstitial occupation 4=14137
 NiBr, emission spectrum, band heads, 4000 to 4500 Å 3=10512
 NiBr, visible molec. emission spectrum 0=5944
 NiBr₂, growth spirals on platelets 4=26615
 NiBr₂ magnetic susceptibility rel. to temp. 1=20169
 NiBr₂, nuclear fission product track enlargement by moisture 4=22650
 NiBr₂ platelets, deformation 2=10746
 NiBr₂. 6H₂O, antiferromagnetic space group, from p.m.r. 4=13262
 Ni-C, C diffusion rel. to temp. 4=20285
 Ni-C, crystallization, effect of Bi, Ca, Li impurities 3=18115
 Ni-C, effect of sulphur on surface props. and structure 1=5265
 Ni₃C, cryst. struct., by electron diffraction 3=1324

Nickel compounds—contd

- Ni-C-Fe crystals, martensite formation on surface 4=15805
 NiCl, five new band systems in photographic i.r. 2=6160
 NiCl, visible molec. emission spectrum 0=5944
 NiCl₂, adsorption on NH₄Cl, rel. to crystal habit change of NH₄Cl 4=29027
 NiCl₂, antiferromagnetic ordering 3=20625
 NiCl₂, antiferromagnetic properties 3=20626
 NiCl₂, crystal structure 4=4616
 NiCl₂ film on Ni, elec. props. 2=23913
 NiCl₂ in LiCl-KCl, e.s.r. 4=10315
 NiCl₂, mag. meas. 0=13759
 NiCl₂, mag. props., theory 0=13848
 NiCl₂ magnetic susceptibility (1.5°-20.4°K) 1=14765
 NiCl₂, nuclear fission product track enlargement by moisture 4=22650
 NiCl₂, paramag. susceptibility in 0.5 MOe fields 2=23632
 NiCl₂. 6H₂O, antiferromagnetic space group, from p.m.r. 4=13262
 NiCl₂. 6H₂O antiferromagnetic state, proton resonance 1=3951
 NiCl₂. 6H₂O, crystal structure 1=20564
 NiCl₂. 6H₂O, mag. susceptibility, at low temp. 0=11921, 21028
 NiCl₂. 6H₂O, specific heat, 1.4-20°K 0=4266
 NiCl₂. 6NH₃ crystals, e.s.r. meas., co-operative proton tunnelling 4=28880
 NiCl₂, spin waves, semicontinuum model 3=13288
 NiCO₃, antiferromagnetism, observation 3=1115
 NiCO₃, specific heat, 1.6° to 70°K, rel. to antiferromag. transition 3=17659
 Ni(CO)₄, bond length shortening, theory 3=10497
 Ni(CO)₄, i.r. spectrum 2=16530
 Ni(CO)₄, isotope exchange with CO 3=3380
 Ni(CO)₄, liquid and solutions, Raman spectra 0=19156
 Ni(CO)₄, π electron interaction potl. 0=17766
 Ni(CO)₄, Raman spectrum 2=1999
 Ni(CO)₄, vapour, Raman spectrum 0=19218
 NiCd ferrite, ferromagnetic resonance 1=14775
 Ni-Cd system, liquidus curve, crystal struct., atomic 4=16291
 Ni_{1-x}Cd_xFe₂O₄, ferromagnetic resonance at 9.7-24 kMc/s 1=3923
 Ni-Co alloys, dislocations, rel. to stacking-fault energy 3=17744
 Ni-Co alloys, ferromagnetic relaxation and related phenomena 3=8681
 Ni-Co alloys, stacking faults 1=19797
 Ni-Co alloys, stacking faults, prod. by plastic deform. 3=20206
 Ni-Co, anneal-induced mag. anisotropy 1=17951-2
 Ni-Co, cold rolled, mag. anisotropy 2=23651
 Ni-Co, crystal imperfections, stacking, electron microscope obs. 4=6861
 Ni-Co crystals, work hardening 4=4479
 Ni-Co, electronic spec. heat and energy bands 0=4267
 Ni-Co f.c.c. solid soln., induced magnetic anisotropy 3=1041
 NiCo ferrite, as acoustic pickup 1=2487
 Ni and Co ferrite-chromite series, anomalous mag. moment 3=25544
 Ni-Co ferrites, Fe-deficient, induced anisotropy at low temp. 4=20558
 Ni-Co, ferromag. anisotropy, ordering theory 3=18073
 Ni-Co, ferromag. domain patterns 3=18079
 Ni-Co, ferromagnetic saturation in deformed f.c.c. crystals 1=20079
 Ni-Co, internal fields, by n.m.r. 2=12649
 Ni-Co, plastic deformation, mechanism 2=2327
 Ni-Co, rolling texture 2=15054
 Ni-Co single crystals, plastic props. 2=16958
 Ni₃Co, Debye characteristic temp., ordering effects 4=1982
 Ni₃Co, ordering at 773°C 0=16355
 Ni-Co-Cr, magnetostriction, temp. depend. 4=4366
 Ni_{1-x}Co_xFe₂O₄, microwave props., high power 4=13244
 Ni_{1-x}Co_xFe₂O₄, vol. dependence of ferrimag. resonance 0=10207
 Ni_{1-x}Co_xFe₂O₄-BeO.Fe₂O₃, constricted hysteresis loop 3=1085
 Ni_{1-x}Co_xFe₂O₄-Fe₂O₃, constricted hysteresis loop 3=1085
 Ni_{1-x}Co_xFe₂O₄, mag. anisotropy 3=1033
 Ni-Co-Mn ferrite, (E1), magnetomechanical coupling, rel. to polarizing field 4=7289

Nickel compounds — contd

- Ni-Co-Mn ferrite, magnetomechanical properties in magnetostrictive type E1 ferrite 4=4369
 Ni²⁺Co₂O₄, spinel, superexchange 4=13274
 Ni-Co-P films, ferromag. shape anisotropy 3=20602
 Ni-Cr alloy, irregular deformation, regular features 4=7379
 Ni-Cr alloy, short-range order, room temp.-600°C 4=1998
 Ni-Cr alloys, antiferromagnetism 4=23032
 Ni-Cr alloys, elastic consts. rel. to temp., comp., heat treatment 2=23735
 Ni-Cr alloys, formation of K-state 2=10909, 15058
 Ni-Cr alloys, ion diffusion in elec. fields 2=10407
 Ni-Cr alloys, Ni and Cr diffusion rel. to Cr content 4=20302
 Ni-Cr alloys, tensile strength increase, by low-temp. annealing 3=25637
 Ni-Cr, anomalous ageing, internal friction peaks 0=1933
 Ni-Cr, Barkhausen pulses duration in wire 4=13198
 Ni-Cr base alloy, fine structure and mech. props., heat effects 3=18351
 Ni-Cr base alloys, grain-boundary precipitation 4=2111
 Ni-Cr basis polycrystalline alloy, Fe diffusion, 1050°-1250°C 3=20231
 Ni-Cr, creep fracture 3=3239
 Ni-Cr, effects of high-temp. absorption of C 3=3347
 Ni-Cr, enthalpy and specific heat at high temps. 2=4445
 Ni-Cr, films, prep. of resistors 0=8287
 Ni-Cr films, vacuum deposited on glass, thickness and composition 4=20809
 Ni-Cr films, vacuum deposited, structure changes rel. to annealing temp. 4=26562
 Ni-Cr, irradi., structural transformation 4=1996
 Ni-Cr, K_α lines, X-ray intensity curves 2=5379
 Ni-Cr (18.3%), K-state, deformation resistance, rate and temp. dep. 2=23751
 Ni-Cr, mag. moments, neutron diffr. study 3=20608
 Ni-Cr, magnetization up to 15 kOe, 0°-300°K 3=5010
 Ni-Cr, magnetostriction and crystal anisotropy 1=12535
 Ni-Cr ordering, by neutron diffr. 4=2000
 Ni-Cr, precipitation on dislocations 1=20606
 Ni-Cr system, partial and total mass transfer 4=12788
 Ni-Cr with Ti, specific resistance 2=18634
 Ni-Cr thin film resistances 1=6441
 Ni-Cr (13%), plastic deform. and annealing, intercrystal. slip 4=13432
 Ni-Cr (21.4 wt%), phase transform., K, neutron effects 4=23282
 Ni-21% Cr, X-ray thermal scattering, anomalies 0=16317
 Ni₃Cr, anomalous elec. resist. 1=7612
 Ni₃Cr, neutron irradi., elec. and mag. props. 2=23233
 Ni-Cr-Al alloys, elastic consts. rel. to temp., comp., heat treatment 2=23735
 Ni-Cr-Al, structure 2=21531
 Ni-Cr-Fe alloys, thermophysical props. 4=15424
 Ni-Cr-Fe, Cr diffusion, 1294°C 3=20231
 Ni-Cr-Fe, effects of high-temp. absorpt. of C 3=3347
 Ni-Cr-Mo steel with epoxy-resin layers, photoelasticity 4=8125
 NiCr₂O₄, crystal structure 1=6519
 Ni-Cr-Ti alloys, elastic consts. rel. to temp., comp., heat treatment 2=23735
 Ni-Cr-Ti, precipitation obs. 4=7504
 Ni-Cr-Ti-Al, ageing, fine crystalline structure change 2=8854
 Ni-Cr-Ti-Al, structure 2=21531
 Ni-Cr-Ti-W-Al, structure 2=21531
 Ni-Cr-Ti-W-Mo-Al, structure 2=21531
 Ni-Cr-Ti-W-Mo-Nb-Al, structure 2=21531
 Ni-Cu alloy, elastic constants, meas., 1-5 Mc/s 4=29676
 Ni-Cu alloys 1=7740
 Ni-Cu alloys, creep and fracture 2=10760
 Ni-Cu alloys, creep kinetics high-temp., of single crystals 4=7440
 Ni-Cu alloys, shear and diffusion plastic deformation 2=23760
 Ni-Cu alloys, stacking faults, prod. by plastic deform. 3=20206
 Ni-Cu alloys, thermoelectric power variation in magnetic fields 3=20427
 Ni-Cu, anomalous Righi-Leduc effect 1=9020
 Ni-Cu (30%), domain wall velo., effect of plastic deformation and irradiation 3=11068
 Ni-Cu, effect of magnetic clusters on specific heat 1=7536

Nickel compounds—contd

- Ni-Cu, effect of press. on atomic mag. moment and elec. resistance 0=11831
 Ni-Cu, elec. resistance and magnetization 0=6074
 Ni-Cu, ferromag. resonance, exchange integral 2=4241
 Ni-Cu, forced magnetoresistance 3=13042
 Ni-Cu, interatomic bond strength, elasticity data 0=728
 Ni-Cu, mag. susceptibility, electronic sp. ht. 3=23143
 Ni-Cu, magnetization up to 15 kOe, 0°-300°K 3=5010
 Ni-Cu, molten, viscosity 0=14580
 Ni-Cu multiple layers, magnetic coercive force 2=736
 Ni-Cu, Righi-Leduc effect, rel. to two-band theory 2=6416
 Ni-Cu thin films, spin-wave res. 3=1169
 Ni_{1-x-y}Cu_xCo_yFe₂O₄, line width and anisotropy constant 1=20075
 Ni-Cu-Fe alloys, Hall effects and magnetoresist. 4=10031
 Ni-Cu-Fe, Hall effect and number of cond. electrons 1=14363
 Ni_{0.2}Cu_{0.8}Fe_{1.9}Mn_{0.2}O₄ d.c. resistivity and Seebeck voltage 4=26055
 Ni₂Er, mag. structure, neutron diffr. meas. 4=28822
 NiF₂, antiferromagnetic reson., far i.r., var. field temp. 4=13302
 NiF₂, antiferromagnetic resonance in far i.r. 3=15930
 NiF₂, antiferromagnetism 0=13852
 NiF₂ crystals, i.r. spectra of lattice vibrs. 4=26208
 NiF₂ crystals, spectrum 2=16583
 NiF₂, ferromag. resonance lineshape calc. 4=13283
 NiF₂, geometry and bonding, from deflection in elec. field 4=22378
 NiF₂ in LiF-NaF-KF liquid eutectic, spectrum and struct. 4=14170
 NiF₂, mag. ordering, n.m.r. study, 4.2-258°K 1=1282
 NiF₂, mag. props., theory 0=4502
 NiF₂, n.m.r. in domain walls 1=6435
 NiF₂, optical absorpt. spectrum for paramag. and antiferromag. states 4=17578
 NiF₂ parasitic ferromagnetism 1=20037
 NiF₂, magnetic domains, optical absorption 4=7269
 NiF₂, spin waves and n.m.r. in domain walls 3=18114
 NiF_{2-t}Cr_tO₄ (t>1), atomic magnetic moments, screw arrangements 1=20037
 Ni cyanide-NH₃ complexes, X-ray powder patterns 3=1406
 NiF₂O₄, ferrimagnetic resonance, narrow line 4=7311
 Ni-Fe alloy, cubically aligned, rolling textures 4=26698
 Ni-Fe alloy, domain obs. 2=14780
 Ni-Fe alloy, elastic consts., 1-5 Mc/s 4=20676
 Ni-Fe alloy films, mag. props. 2=8639
 Ni-50% Fe alloy, irradiation effects, magnetic study 2=21084
 Ni-Fe alloy, partial dislocations in b.c.c. lattice and transition f.c.c.→b.c.c. 4=9954
 Ni-Fe alloy, plastically deformed, heat treatment effects 4=26524
 Ni-Fe alloy, thin films, torque, angular dependence 3=1071
 Ni-Fe alloy, transformation by N atom insertion 3=1323
 Ni-Fe alloys, ferromag. spin-wave energies, neutron diffr. meas. 4=13199
 Ni-Fe alloys ferromagnetic resonance 3=23203
 Ni-Fe alloys, plastic deformation and work hardening 4=20669
 Ni-Fe alloys, plastically deformed and annealed, positron annihilation with electrons 4=28434
 Ni-Fe alloys, resistivity, rel. to deformation and tempering 4=7437
 Ni-Fe, anneal-induced mag. anisotropy 1=17951-2
 Ni-Fe, austenite decomp. in 50-50 tape 0=3274
 Ni-Fe in chondrites 3=9186
 Ni-Fe, coercive force during evaporation 2=2286
 Ni-Fe crystal, reversible magnetic susceptibility 1=12532
 48% Ni-Fe cubic face-centred, mag. props., -130°C, and diffusion, H 3=15853
 Ni-Fe, d.c. and a.c. props. 0=8037
 Ni-Fe dilute alloys, Hall effect at low temp. 2=6420
 Ni-Fe, domain structures and strain 2=8634
 Ni-Fe f.c.c. solid soln., induced anisotropy 3=1041
 NiFe ferrite, mag. anisotropy, influence of empty cation sites, 200-300°C 3=6726
 Ni-Fe ferrite, mag. anisotropy rel. to vacant cation sites 2=10673
 NiFe ferrite, magnetocrystalline anisotropy, 4.2-300°K 4=13247
 Ni-Fe ferrite, natural ferromag. res. 3=3156

Nickel compounds—contd

- Ni-Fe ferrite, relaxation loss 3=8691
 Ni-Fe ferrite, structure and mag. anisotropy 2=749
 Ni-Fe ferrites, mag. fld. induced anisotropy rel. to Ni conc. 4=13250
 Ni-Fe ferrites, with small Co-substitution, induced anisotropy 3=1035
 Ni-Fe, ferromag. alloy, elastic consts. meas. 4=7442
 Ni-Fe ferromag. anisotropy, ordering theory 3=18073
 Ni-Fe, ferromag. Barkhausen noise freq. spectrum 4=22999
 Ni-Fe ferromag. exchange const. 2=14794
 Ni-Fe, ferromag. resonance in colloidal state 1=1252
 Ni-Fe, 50%, permeability 20°-400°C 2=10649
 Ni-Fe, 50-50%, effect of tension on mag. domains 1=6297
 Ni-Fe films, anisotropic, susceptibility meas. 4=7279
 Ni-Fe films, anomalous, mag. props. 2=23663
 Ni-Fe films, deposition and mag. domain walls 1=14715
 Ni-Fe films, domain behaviour rel. to anisotropy 3=15818
 Ni-Fe films, domain rotation and wall development 1=6328
 Ni-Fe films, domain structure 2=21317
 Ni-Fe films, domain wall creeping 2=14781
 Ni-Fe films, domain wall generation and migration 2=16910
 Ni-Fe films, domain walls 3=15629
 Ni-Fe films, dynamic behaviour rel. to frequ. 4=10266
 Ni-Fe films, electrodeposited, mag. props. 3=25537
 Ni-Fe films, evap., induced mag. anisotropy 2=12653
 Ni-Fe films, ferromagnetic resonance 4=20546
 Ni-Fe films, field induced and incidence angle anisotropy 1=10158
 Ni-Fe films, Hall effect and spontaneous mag. 3=22907
 Ni-Fe, films, induced magnetic anisotropy 1=11438
 Ni-Fe, films, internal stresses rel. to domain structure 3=20595
 Ni-Fe, films, mag. anisotropy 0=11838
 Ni-Fe films, mag. anisotropy, positive and negative 3=1067
 Ni-Fe films, mag. props. rel. to anisotropy dispersion 3=18083
 Ni-Fe films, mag. process 2=16913
 Ni-Fe films, mag. regions 2=8640
 Ni-Fe films, magnetic hysteresis 4=26323
 Ni-Fe films, magnetic and optical anisotropies 1=6317
 Ni(80%)-Fe(20%) films, magnetization reversal 3=1082
 Ni-Fe, films, magnetization reversal, static 3=13236
 Ni-Fe films, magnetoelasticity rel. to composition 2=12681
 Ni-Fe films, magnetoresistance, Hall effect, room and liquid N temps. 4=12862
 Ni-Fe films, magnetoresistance meas. 3=14470
 Ni-Fe films as memory systems, props. 2=13630
 Ni-Fe, films, microtwinning 0=21170
 Ni-Fe films, negative magnetic anisotropy 3=15807
 Ni(80%)-Fe(20%), films, noncoherent switching 2=10661
 Ni-Fe films, preparation and structure 1=12664
 Ni-Fe films, rotatable mag. anisotropy, rel. to magnetostriction 3=15843
 Ni-Fe films, shape-sensitive mag. domains 2=16914
 Ni-Fe films, spiral and concentric domain walls 3=15846
 Ni-Fe films, stress, mag. anisotropy 2=10660
 Ni-Fe films, stripe magnetic domains 4=28824
 Ni-Fe, films and strips, magnetoresistance meas. 4=28534
 Ni-Fe films, switching behaviour 4=4367
 Ni-Fe (80/20%) films, u.s. switching of magnetization vector 3=15826
 Ni(40-100%)-Fe films, uniaxial anisotropy, torque meas. 3=15814
 Ni-Fe films of very low coercivity 2=21326
 Ni-Fe films, use in weak mag. field meas. 3=14722
 Ni-Fe films, wall movement, field strength 3=18090
 Ni-Fe, forced magnetoresistance 3=13042
 NiFe garnet, fine grain, ferrimagnetic reson., dielectric loss, microwave meas. 4=13299
 NiFe garnet, initial permeability, var. only with wall dimensions, and not density or porosity 4=4386
 NiFe garnet, magnetostrictive displacement of O ions 4=13246
 Ni-Fe, grain oriented, mag. anisotropy meas. 4=10282
 Ni-Fe, high resistivity with rect. hysteresis loops 0=6227
 Ni-Fe, K-absorption edge, proton irradiation effect 2=14698

Nickel compounds—contd

- Ni-Fe layers, domain wall interactions 2=12768
 Ni-Fe layers, evaporated, composition 3=18377
 Ni(40-100%)-Fe, mag. anisotropy 3=1069
 Ni-Fe mag. films, effects of thickness, composition and electrodeposition conditions 4=7271
 NiFe, mag. memory devices, SiO undercoating 2=14784
 Ni-Fe, mag. props., effects of Cu, Si, Cr and Mo 4=13197
 Ni-Fe, mag. props. rel. to prep. method 3=1073
 Ni-Fe, mag. small-signal behaviour, domain wall model 3=25528
 Ni-Fe (5%), mag. stripe domain obs. 4=23005
 Ni-Fe, magnetic anisotropy, heat treatment effects, ordering 4=13205
 Ni-Fe (50/50), magnetic anisotropy, and ordering, due to neutron irradiation 4=13207
 Ni-Fe magnetic cores, flux reversal model 1=7751
 Ni-Fe magnetic films, anisotropy inhomogeneity 4=13200
 Ni-Fe, magnetic films, anisotropy, negative, var. with composition and deposition temp. 4=13202
 Ni-Fe magnetic films, anisotropy with double evap. source 4=7270
 Ni-Fe magnetic films, domain wall creep, temp. var. 4=13201
 Ni-Fe magnetic films, ferromag. reson. line width and anisotropy dispersion 4=13288
 NiFe magnetic films, field var. effects 4=22973
 Ni-Fe magnetic films, narrow, domains 4=13203
 Ni-Fe mag. films, new domain type 4=22998
 Ni-Fe, magnetic sheets, eddy-current losses meas. 4=13164
 Ni-Fe magnetic tape, domain wall area-mobility product 1=6302
 Ni-Fe, magnetoelastic, anisotropy, single crystals, temp. depend. 3=18075
 Ni-Fe, magneto-optical Kerr effect in films 1=11357-8
 Ni₃Fe, magneto-optical res. rel. to d-electron Stark transits 3=6645
 Ni-Fe, magnetostriction, anisotropy of ΔE effect 2=4230
 Ni-Fe, motion of magnetic Bloch walls 1=14712
 Ni-Fe, neutron irradiation, elec. and mag. props. 2=23233
 Ni-Fe nitrides, mag. and crystallographic props. 0=11830
 Ni-Fe, ordering, magnetic anisotropy 0=1781
 Ni-Fe, ordering, strain ageing 3=8775
 Ni-Fe, origin and growth of annealing twins 3=25756
 Ni-Fe, residual Hall resistivity 4=20324
 Ni-Fe, sintered, U.T.S., temp. depend. 0=1866
 Ni-Fe (64%), crystal stacking fault prob., plastic deformation temp. var. 4=20286
 Ni-Fe(66:34), internal friction, effect of heat treatment with mag. fields 4=23187
 Ni-Fe spinels, structure, props., under high oxygen pressures 2=12698
 Ni-Fe, switching by non-coherent rotation 3=1081
 Ni-Fe, tape-wound cores, hysteresis loop meas. 0=10130
 Ni₃Fe, tensile characteristics, rel. to order 3=23352
 Ni-Fe thin films, domain struct. and magnetization reversible rotation by Faraday effect 3=1079
 Ni-Fe, thin films, magnetic anisotropy 1=11439
 Ni-Fe thin films, magnetic anisotropy 3=1068
 Ni-Fe thin films, magnetization, electron microscope study 1=10163-4
 Ni-Fe thin films, thickness, composition meas. 2=7162
 Ni (80%)-Fe (20%) thin films, oxide layer surf. spin pinning 3=1168
 Ni-Fe, thin films structure and anisotropy rel. to minor constituents 3=1074
 Ni-Fe, volume magnetostriction 3=6713
 Ni-Fe wires at 400 cycles, grain size effects 2=12706
 Ni-Fe wires, motion of Bloch walls 1=14708
 NiFe₂ films, optical Faraday effect 4=22879
 Ni₃Fe, antiferromag. props. in relation to ordered state 0=21062
 Ni₃Fe, coercive force, effect of plastic deformation 2=23657
 Ni₃Fe, creep, anomaly, explanation 3=23336
 Ni₃Fe, Debye characteristic temp., ordering effects 4=1982
 Ni₃Fe dislocation pairs electron microscope photographs 4=25944
 Ni₃Fe, effect of impurity atoms on mag. props. and neutron irradiation resist. 4=7276
 Ni₃Fe, ferromag. anisotropy, rel. to directional order 2=8850
 Ni₃Fe, ferromag. anisotropy, rel. to ordering 3=18072

Nickel compounds—contd

- Ni₃Fe, ferromagnetic anisotropy, ordering, on annealing 3=23155
 Ni₃Fe, long-range order, entropy 0=16346
 Ni₃Fe, mag. ordering in mag. annealing process 2=16909
 Ni₃Fe, magneto-optical res. rel. to d-electron Stark transitions 2=16807
 Ni₃Fe, neutron irradi., elec. and mag. props. 2=23233
 Ni₃Fe, paramag. susceptibility rel. to temp. 4=17626
 Ni₃Fe, short-range order, rel. to heat treatment and plastic deformation 4=23285
 Ni₃Fe, work function rel. to temp. 2=17860
 Ni₃Fe, work hardening rel. to plastic deformation and dislocations 4=4448
 Ni80Fe17Co3 alloy, films, varn. of dispersion angle with thickness 3=8675
 Ni-Fe-Co alloys, mag. wall-wall interaction between films 3=15833
 Ni-Fe-Co film memory devices, effect of skew 3=14734
 Ni-Fe-Co films, mag. reversal behaviour 3=23171
 Ni80Fe17Co3, films, varn. of dispersion angle with thickness 3=8675
 Ni-Fe-Cr ferrite, Faraday effect rel. to permittivity 3=1050
 NiFe₂₋₄Cr₂O₄, high-field magnetization study 1=20146
 Ni-Fe-Cr magnetic film props. 4=13204
 Ni_{0.75}Fe_{0.25}Fe₃O₄, energy anisotropy, temp. and mag. field depend 4=26338
 (Ni, Fe)₂Mn, exchange anisotropy 1=7742
 NiFe-Mn-NiFeCo, NiFe-Mn films, mag. coupling types 4=20547
 Ni-Fe-Mo alloys, domain struct. by Kerr magneto-optical effects 2=21321
 Ni-Fe-Mo alloys, domain walls, magnetization vectors 2=21319
 Ni-Fe-Mo, domain structure, coercivity 2=16912
 Ni-Fe-Mo films, mag. anisotropy 2=12781
 Ni-Fe-Mo films, mag. process 2=16913
 Ni₃Fe-(3%)Mo, rel. to K-state formation, rel. to excess vacancies 3=13531
 Ni(79%)-Fe(17%)-Mo(4%), ferromagnetic permeability, stress angle effects 4=13185
 (80%)Ni-(17%)Fe-(3%)Mo films, mag. props. rel. to u.s. vibrations 4=22978
 50 or 79% Ni-Fe, 4-5% Mo, tapes, 3-30μ in thick, mag. reversal, h.f. and impulse 3=15794
 Ni-Fe and Ni-Fe-Co layers separated by cond. layers, mag. coupling 4=17657
 NiFe₂O₄, Fe⁵⁷ Mössbauer effect, internal fields 1=9037
 (Ni_{0.98}Fe_{0.02})Fe₂O₄, ferrimag. line width 3=1160
 NiFe₂O₄-Fe₃O₄, ferromagnetic crystalline anisotropy 1=14696
 NiFeO₄-Fe₂O₃ lattice dimensions and α-Fe₂O₃ precipitation 1=12641
 NiFe₂O₄ ferrite films, structure 4=23586
 NiFe₂O₄ films, optical Faraday effect 4=22879
 (NiFe₂O₄)_{1-y}(Fe₃O₄)_y, electrical conductivity 1=12425
 NiFe₂O₄-ZnFe₂O₄ system, mag. structure meas. 4=7291
 Ni₂Fe₂O₄ films, Faraday rotation and mag. hysteresis 3=15655
 NiFe₂O₄, flux growth by Czochralski method 3=16043
 Ni_{1-x}Fe_{2-x}O₄, elec. cond. rel. to temp. 2=10445
 NiFe₂O₄, ferrite, elec. conductivity meas. 2=14506
 Ni_xFe_{3-x}O₄, ferromag. cryst. anisotropy 2=2277
 Ni_xFe_{3-x}O₄, ferromag. resonance, anisotropy and g-value 2=18933
 NiFe₂O₄ specific heat, 1.8-20°K 2=571
 NiFe₂O₄, Ni²⁺ contrib. to lattice distortion 3=1012
 Ni_{1-x}Fe_{3-x}O₄, magnetic after-effect 3=1036
 NiFe_{2-x}V_xO₄ spinel, sat. magnetization and susceptibility rel. to temp. 3=1008
 NiGa, grain boundary hardening, O₂-induced 4=17740
 Ni-Ga phases, mag. props., temp. var. 4=4327
 NiGa₂O₄ spinel structure 1=15093
 Ni₂GeO₄, i.r. spectrum 2=12603
 NiH chemical desorption enthalpy of H 4=23649
 NiH, conductivity, elec., 78-273°K 4=17466
 NiHf, crystal structure 2=10879
 NiH₂, crystal structure 2=10879
 Ni₁₀Hf, crystal structure of intermediate phases 2=21528
 Ni(H₂O)₆SO₃, crystal structure 3=1339
 Ni²⁺.6H₂O complex, orthorhombic crystalline field theory 3=20053

Nickel compounds—contd

- Ni²⁺.6H₂O, optical absorption spectra, e.s.r., mag. anisotropy in cryst. salts 4=25830
 [Ni(H₂O)₆]²⁺ complex, cryst. field, symmetry 4=6683
 Ni(H₂O)₆SiF₆, n.m.r., 0.15°-4.2°K 4=23072
 Ni(IO₃)₂.2H₂O, sp. ht. at low temps., meas. 4=28371
 Ni(IO₃)₂.2H₂O, susceptibility meas. and mag. props. 4=28823
 Ni-In phases, mag. props., temp. var. 4=4327
 Ni-In type, covalent bond and spin schemes 2=6833
 NiI₂.6NH₃, paramag. resonance anomalies at low temp. 1=10178
 Ni(IO₃)₂.2H₂O, antiferromagnetism, nucl. quadrupole resonance study 1=7807
 NiK Tutton salt, mag. susceptibility, 1.4-20.4°K 0=21028
 Ni_(1-x)Li_xO, resistance, room temp. to 700°C 4=12907
 NiMg ferrite, susceptibility, anomalous, near Suhl threshold 4=28844
 NiMg Fe₂O₄ ferrite, prep. from oxalates 2=14798
 Ni-Mn alloys, Mn⁵⁵ n.m.r. and moment 4=7353
 Ni-Mn alloys, paramag. susceptibility rel. to temp. 4=17626
 Ni-(6.0-27 wt %) Mn alloys, density meas. 4=1968
 Ni-Mn alloys, saturation magnetization, rel. to volumetric compression 3=8668
 Ni-Mn, antiferromag. structure 0=11922
 Ni-Mn, disordered, exchange anisotropy 0=11841
 Ni-Mn, effect of elastic deform. on magnetostriction 1=3906
 NiMn ferrite, thermoelec., 100-500°C 4=30670
 Ni-Mn magnetostriction 3=23177
 Ni-Mn, magnetostriction rel. to comp. and ordering 2=14792
 Ni-Mn, ordering, effect of plastic deform. 3=5133
 Ni-Mn(25, 30 at.%), specific heat, 13-1300°K 4=22493
 Ni-Mn, X-ray emission spectra 2=705, 8540
 Ni₃Mn alloy, saturation magnetization, effect of ordering 4=28825
 Ni₃Mn, anisotropy of magnetization at low temp. 0=13774
 Ni₃Mn atomic ordering temp. and mag. moment 3=20623
 Ni₃Mn, coercive force, effect of plastic deformation 2=23657
 Ni₃Mn, Debye characteristic temp., ordering effects 4=1982
 Ni₃Mn, dislocations, rel. to ordering 1=17538
 Ni₃Mn, disorder to order transformation 1=6535
 Ni₃Mn, disordered, exchange anisotropy 0=2996
 Ni₃Mn, disordered, mag. props. below 110°K 0=3017
 Ni₃Mn, disordered, specific heat, temp. dependence 0=17890
 Ni₃Mn, electron pair annihilation radiation ang. distrib. 3=17694
 Ni₃Mn, Hall consts., effect of order 2=6422
 Ni₃Mn, Hall effect, temperature dependence 0=18393
 Ni₃Mn mag. moment and atomic ordering temp. 3=20623
 Ni₃Mn mag. structure rel. to order 3=18080
 Ni-Mn, magnetization up to 15 kOe, 0°-300°K 3=5010
 Ni₃Mn, magnetization, temp. depend., antiferromag. exchange interaction 3=20583
 Ni₃Mn, magneto-optical res. rel. to d-electron Stark transits 3=6645
 Ni₃Mn, magneto-optical res. rel. to d-electron Stark transitions 2=16807
 Ni₃Mn, neutron irradi., elec. and mag. props. 2=23233
 Ni₃Mn, ordering kinetics 4=1997
 Ni₃Mn, ordering kinetics, elec. and mag. props. 3=3329
 Ni₃Mn, residual elec. resistance 1=12653
 Ni₃Mn, slip 0=21112
 Ni₃Mn, transformation, order-disorder, from Mössbauer effect 3=13528
 Ni₃Mn, volume changes during ordering 1=10271
 Ni_{0.253}Mn_{0.022}Co_{0.027}Fe₂O₄, mechanical resonance frequency rel. to mag. polarization and temp. 4=7290
 Ni₂MnGa, structure, mag. props. 0=12048
 Ni₂MnIn, structure, mag. props. 0=12048
 NiMnO₃ ferrimag. and antiferromag. props., 1.3-300°K 0=13839
 Ni_{1-x}Mn_{2+x}O₄, prep., semicond. and ferrimag. props 3=13078
 Ni-Mo alloy, grain growth kinetics 3=20904
 Ni-Mo alloys, effect of atomic defects on K-state formation 4=23283
 Ni-Mo alloys, elastic consts., rel. to temp., comp., heat treatment 2=23735
 Ni-10 at % Mo, close-range order (K-state) formation 4=23284

Nickel compounds—contd

- Ni—Mo solid solutions, X-ray spectra fine struct. rel. to binding forces 3=5141
 Ni—Mo, superconductivity below 1°K 2=1338
 Ni—Mo—Fe permalloys, magnetic properties rel. to annealing 1=11447
 NiMoO₄, crystal structure 3=5110
 Ni₃N, tetragonal form 1=7869
 Ni(NH₃)₆-halides, thermal props. below 1°K 4=22494
 Ni(NH₃)₆Br₂, specific heat below 4°K 2=3841
 Ni(NH₃)₆Cl₂, anomalous, paramagnetic res. 2=774
 Ni(NH₃)₆Cl₂, magnetic susceptibility (1.5°-20.4°K) 1=14765
 Ni(NH₃)₆Cl₂, magnetic susceptibility (1.5°-20.4°K) 1=14765
 Ni(NH₃)₆Cl₂, magnetic susceptibility (1.5°-20.4°K) 1=14765
 Ni(NH₃)₆Cl₂, proton resonance 1=9073
 Ni(NH₃)₆Cl₂, specific heat below 4°K 2=3841
 Ni(NH₃)₆(ClO₄)₂, magnetic susceptibility (1.5°-20.4°K) 1=14765
 Ni(NH₃)₆(ClO₄)₂, proton resonance 1=9073
 Ni(NH₃)₆(NCS)₂, polarized crystal spectrum 4=13051
 Ni(NH₃)₆(NO₃)₂, elastic and thermoelastic props. 3=18161
 Ni(NH₃)₆(NO₃)₂, polarized crystal spectrum 4=13051
 [Ni(NH₃)₆]²⁺, [Ni(NH₃)₆]²⁺, radiation effects on formation and stability in water, polarographic obs. 4=4713
 Ni(NH₃)₆(SO₄)₂·6H₂O, absorption spectra, 1.7° to 290°K 3=13180
 Ni(NO₃)₂·4H₂O, crystals unit cell and space group, by X-ray diffr. 3=16084
 Ni(NO₃)₂ hydrates, magnetic suscept. low temp. 4=30703
 Ni—Nb, lattice parameters and paramag. suscept. 4=7221
 Ni—NiO, magnetic props. 1=6271
 NiO, absorption spectrum, 200-1000 mμ 0=20977
 NiO, adsorption of H₂ and CO 3=25781
 NiO, adsorption of O₂, neutron effects 3=13567
 NiO, annealed, dislocation etch pits 2=21046
 NiO, antiferromag. domain walls 3=15912
 NiO, antiferromag., elec. cond., theory 1=3732
 NiO, antiferromag., electron diffraction exam. 3=3135
 NiO, antiferromag., magnetostriction 0=11918
 NiO, antiferromag. magnetostriction 1=14758
 NiO, antiferromag. structure 3=1157
 NiO, antiferromag. structure and domains 0=11917
 NiO, antiferromag. superexchange effect 0=13851
 NiO, antiferromag. twin structure 2=21467
 NiO, antiferromagnetic, anisotropic magnetostriction 2=759
 NiO, antiferromagnetic, biaxial birefringence 4=4264
 NiO, antiferromagnetic magnetostriction 3=1016
 NiO, antiferromagnetic resonance in far-infrared 1=12557
 NiO, antiferromagnetic T-domain walls 3=20622
 NiO, antiferromagnetism and crystal lattice distortion 4=13271
 NiO, atomic scatt. factor of Ni 3=25704
 NiO, birefringence pattern rel. to antiferromag. domains 3=18109
 NiO, chemisorption of O₂ and H₂ after neutron irradi. 3=3366
 NiO, conduction mechanism by internal friction meas. 3=10836
 NiO, conductivity electrical, var. with Li impurity 3=20337
 NiO crystal lattice structure 1=10259
 NiO, crystal structure, antiferromag. 3=18111
 NiO, crystal structure, atomic, temp. factors 3=23444
 NiO, crystallography and domain walls 0=16147
 NiO, dielec. props., 100 c/s-1Mc/s 3=13107
 NiO, diffusion of Ni, meas. and theory 3=2828
 NiO, diffusion of O¹⁸ 2=2100
 NiO, domains, neutron and optical studies 0=21063
 NiO effect on BaTiO₃ ferroelectric props. 2=6525
 NiO, effect on Bi₂O₃ polymorphism 4=23253
 NiO, elec. cond. and thermodynamic equilibrium 1=14474
 NiO, elect. resistance, high-pressure effects 1=1024
 NiO, electronic structure 3=25235
 NiO, epitaxial growth on Ni 1=15015
 NiO, far i.r. antiferromag. reson. 3=8703
 NiO fine grains, mag. susceptibility rel. to diam., 20 to 400 Å 3=1094
 NiO fine grains, superparamag. and superantiferromag. props. 3=1093
 NiO, fine particles, antiferromagnetic properties 3=8697
 NiO, fine particles, weak ferromagnetism 2=12668
 NiO, Hall effect measurement 1=12418
 NiO, Hall effect, var. with Li impurity 3=20337
 NiO, Li-doped, internal friction 2=21415

Nickel compounds—contd

- NiO, mag. anisotropy 2=23653
 NiO, mag. meas. 0=13759
 γ-NiO, mag. props. rel. to n-irradiation 2=21340
 NiO, mag. structure, neutron diffrn. study 3=3289
 NiO, mag. structure, neutron diffraction study 0=11919
 NiO magnetic anisotropy 0=8071
 NiO, multiple twin domains and domain walls 3=1146
 NiO, neutron irradiated, sorption of O₂, H₂, N₂O 3=13604
 NiO, neutron magnetic form factor 3=1104
 NiO with Ni film, magnetic exchange anisotropy interactions 4=13209
 NiO, Ni²⁺ form factor 3=978
 NiO, 0.24 eV absorption band, change due to added MnO and CoO 0=653
 NiO, p-conducting, effect of added oxides 2=4039
 NiO, particles 20-400 Å diam., mag. props. 3=3137
 NiO, photoelec. emission 2=5370, 11694
 NiO powder, elec. cond., freq. depend. 4=30625
 NiO, proton diffusion, electrochem. meas. 2=14462
 NiO, re-orientation rel. to abrasion 2=19033
 NiO, reproducible ferromagnetism 0=4476
 NiO, semiconducting properties 1=17755
 NiO, semiconductor carrier mobilities, var. with Li impurity 3=20337
 NiO single crystals, twin walls meas. 4=20783
 NiO, sorption of H₂, 20-400°C 3=13603
 NiO, sorption of O₂, 20-400°C 3=13603
 NiO, spin-dependent i. r. absorption band model 4=10182
 NiO, superexchange interaction, spin-dependent energy 0=11920
 NiO, thermal cond., rel. to phonon-spin interactions 2=23082
 NiO, thermal etch pits 2=21471
 NiO, thermoelectricity, var. with Li impurity 3=20337
 NiO-type semiconductors, carrier mobility, low, polaron theory 3=8526
 NiO ultra fine particles, antiferromag., susceptibility meas. 3=1095
 NiO, vaporization 1=11864
 NiO, visible radiation emitted by electron bombard., spectral distrib., intensity distrib., polarization 4=13080
 NiO, work function, effect of oxide additions 0=11710
 NiO₂ crystal lattice structure 1=10259
 NiO—CoO system, magnetothermal props. 1=20045
 NiO—CoO—O₂ semiconducting mixtures, elec. props. 0=15950
 NiO₂Cu preparation and crystal structure 3=8856
 NiO—CuO—Li₂O system, semicond. props. 2=6465
 NiO, Fe₂O₃, gyromagnetic ratio 1=11461
 NiO—α-Fe₂O₃ mixtures, spinel formation investig. by differential thermal analysis 4=1971
 NiO(Fe₂O₃)_{0.98}, semiconducting props. 1=1082
 NiO.(1-x)Fe₂O₃.xAl₂O₃, ferrimag. compensation pts. 3=13268
 NiO₂Na preparation and crystal structure 3=8856
 Ni_{1-x}O, powdered, electrical resistivity rel. to temp. and Ni content 3=13077
 Ni₂O₃ crystal lattice structure 1=10259
 Ni₂O₃ crystal formation on Ni surfaces 3=18264
 Ni₂O₃·H₂O, paramagnetism 4=4333
 Ni₂O₃·H₂O, semiconducting, thermoelectricity 4=4333
 NiO—Mn₂O₃, crystal structure 0=14019
 NiO—Al₂O₃ system, structure 4=23242
 NiO, Ni²⁺ aspherical 3d electron distrib. 1=6103
 NiO—O system, antiferromag. behaviour 2=10681
 Ni—P films, prep., elec. cond. props. 2=14497
 NiP₃, crystal structure 0=18347
 Ni₂P, crystal structure 0=18360
 Ni₂P₂, space gp., lattice parameters, relationship to Pd₂As₂ 4=26664
 Ni₁₂P₅, crystal structure 0=18347
 Ni—P solid solutions, acid deposited, atomic structure 3=20875
 Ni—P solid solutions, acid deposited, on heating, X-ray diffr. obs. 3=20876
 Ni—Pd with adsorbed H, magnetized, single transmission effect with slow neutrons 2=6672
 Ni—Pd alloys, heat capacity meas. at liq. He temp. for band structure determ. 4=15428
 Ni—Pd, elec. and mag. props., effect of H 3=20269
 Ni—Pd, 4-300°K, Hall effect and resistivity 0=20869
 Ni—Pd, ferromag. resonance, exchange integral 2=4241
 Ni—Pd, inter-diffusion at large temperature gradients 1=7599

Nickel compounds—contd

- Ni—Pd, mag. neutron scatt., rel. to H content 3=5020
 Ni—Pd, magneto-optical rotation 0=4400
 Ni—Pd thin films, spin-wave res. 3=1169
 Ni—Pt alloys, short-range order, effect of plastic deformation 4=13499
 Ni—Pt group metal alloys, mechanical props. 4=23188
 Ni₃Pt, effect of short-range order and annealing on micro hardness and charact. temp. 3=8906
 Ni₃Pt, paramag. susceptibility rel. to temp. 4=17626
 Ni₃Pt, short-range order, characteristic X-ray diffraction temp. 1=4066
 Ni₃Pt, short-range order, effect of preliminary treatment 4=1999
 NiRh₂O₄, antiferromagnetism, crystal transformation 3=23196
 NiRh₂O₄, crystal struct., atomic, tetragonal distortion, phase transformation 4=23460
 Ni²⁺Rh₂O₄, spinel, superexchange 4=13274
 NiS, formation at Ni surface, diffusion process 3=1387
 NiS, K X-ray spectra rel. to structure 2=21258
 NiS layers on Ni, Ni—S diffusion, effect of plastic deformation 1=983
 NiS, mag. structure, neutron diffn. meas. 4=28762
 NiS, para—antiferromag. transition, neutron diffn. study 3=15748
 Ni—S, phase diagrams and electrical conductivity 3=25734
 NiS, self-diffusion of Ni in polycrystals 3=20221
 NiS, self diffusion of S³⁻, 820-885° C, Ni³⁺, 750-880°C 3=8451
 NiS₂, electrical conductivity and magnetism 0=7934
 Ni—S liquid, immersed Ni bicrystal grain boundary grooving 4=15483
 NiS, Ni and S self-diffusion, expt. and theory 4=12798-9
 NiS₂, S—S distance 0=16322
 NiSO₄, antiferromag. structure 2=6679
 NiSO₄·H₂O, crystal structure 3=18327
 NiSO₄, irradi. by Au¹⁹⁸, catalytic H-currents by radiolysis 4=7775
 NiSO₄·6H₂O, double refraction 3=20446
 α-NiSO₄·6H₂O, heat capacity, 1 to 20°K 4=12648
 NiSO₄·6H₂O, use in filter for u. v. spectrometry 4=27304
 NiSO₄·6H₂O and NiSO₄·7H₂O, absorption spectra, down to 1.7°K 1=3835
 NiSO₄·6H₂O, NiSO₄·7H₂O, absorption spectrum, 2400-9100 Å, at -205 and 18°C 0=20985
 α-NiSO₄·6H₂O, NiSO₄·7H₂O, low temp. mag. props. 3=8644
 NiSO₄·6H₂O, NiSO₄·7H₂O, Raman spectra 0=2947
 NiSO₄·7H₂O, ionic susceptibilities, principal, meas. method 4=26268
 NiSO₄·7H₂[D₂]O, i.r. absorption spectra, 350-4000 cm⁻¹ 4=22880
 NiSO₄·7H₂O, SO₄²⁻ i.r. absorption bands 2=4155
 NiSO₄·7H₂O, u.s. velocities, elastic consts., and structure 3=20690
 NiSO₄, solid and molten spectra 2=17463
 NiSb, diamag. susceptibility 1=6271
 Ni—Se, heated to 600°C, electron diffn. study 3=25788
 Ni—Se layers, phase formation and transformations 4=7505
 Ni—Se, phase diagrams and electrical conductivity 3=25734
 Ni—Si alloys, oxidation, 1000°-1200°C 4=23642
 Ni₅Si₂, space gp., lattice parameters, relationship to Pd₅As₂ 4=26664
 Ni₅Si₂B, crystal structure 0=18360
 NiSiF₆, e. s. r. of Ni²⁺, temp. depend. 4=13328
 NiSiF₆·6H₂O, mag. sp. ht. 0=10214
 Ni₂SiO₄, i.r. spectrum 2=12603
 Ni₂SiO₄, phase transform., high press. 4=30798
 Ni—Sn phases, mag. props., temp. var. 4=4327
 Ni_{1-x}Sn, mag. moment rel. to sublattice metallic and covalent nature 3=1005
 Ni—Sn, tertiary creep, rel. to stress conc. 2=12857
 Ni—Ta alloy, grain growth kinetics 3=20904
 Ni—Ta alloys, paramagnetism, elec. resist., lattice parameters 4=26273
 Ni—Ta base cathode, emission currents 1=10729
 Ni—ThO₂ (2%), structure stability at 2000°F 4=13648
 Ni—Ti, ageing, phase growth and coagulation, kinetics 2=8855
 Ni—Ti alloys, elastic consts., rel. to temp., comp., heat treatment 2=23735
 Ni—Ti, elastic props., effect of temp. and composition 1=20305

Nickel compounds—contd

- Ni—Ti, plastic deformation, magnetic study 4=23189
 Ni—10.1 at. % Ti, precipitation of Ti, rel. to ferromagnetic Curie temp. 3=25755
 NiTiO₃, antiferromag., crystal structure 0=21200
 NiTiO₃, antiferromagnetism 3=15906
 Ni₂TiX, CsCl-type structure 3=1344
 Ni—U, Ni diffusion 2=14455
 Ni—V, magnetostriction and crystal anisotropy 1=12535
 Ni—8% V, X-ray thermal scattering, anomalies 0=16317
 Ni—W, sintered, U.T.S., temp. depend. 0=1866
 Ni—W, sintering 0=12070
 Ni—X (X = Rh, Ir, Os), magnetic props. 1=1207
 NiX₂NH₃ (X = Cl, Br, I) f.c.c., e.s.r. linewidths 3=1188
 Ni—Zn alloys, α-f.c.c., thermodynamic properties 3=25746
 Ni—Zn, disaccommodation mech. rel. to Fe²⁺ ion 2=16921
 NiZn ferrite, as acoustic pickup 1=2487
 Ni—Zn ferrite, with Co, temp. depend. 2=12790
 Ni—Zn ferrite with CoO inclusions, magnetic spectrum, temp.-dep. 2=12793
 Ni—Zn ferrite, complex permeability 2=8629
 NiZn ferrite, ferromagnetic reson., 4.2 and 293°K, 3.2cm 3=6740
 Ni—Zn ferrite, growth, rel. to porosity 3=3269
 NiZn ferrite, Hall effect and semicond. props. 0=7935
 Ni—Zn ferrite, hollow cylinders, magnetization, effect of twisting moment 4=13249
 Ni—Zn ferrite, hysteresis loops meas. 2=15981
 Ni—Zn ferrite, initial permeability, γ-ray effects 2=8617
 NiZn ferrite, irreversible magnetic stress effects in Raleigh region 3=8690
 Ni—Zn ferrite, n.m.r. of Fe⁵⁷, pulsed method meas. 4=4426
 NiZn ferrite, permeability and domain walls 1=20139
 Ni—Zn ferrite, polycryst., crystal growth 2=23821
 NiZn ferrite, production and applications 4=28846
 NiZn ferrite, specific heat, 20-350°C 0=7853
 Ni—Zn ferrite, thermal dilatation 2=12391
 Ni—Zn ferrite, u.s. wave propag. vel. and elastic const. 3=17652
 NiZn ferrite, Young's mod. and internal friction 0=11971
 Ni—Zn ferrites, Barkhausen effect 4=1841
 Ni—Zn ferrites for communications techniques 2=16922
 Ni—Zn ferrites, Co-substituted, diffusion after-effect 4=4377
 Ni—Zn ferrites, Co-substituted magnetic props. 4=13248
 NiZn ferrites, cooling after sintering 1=6549
 Ni—Zn ferrites, diffusion aftereffect below 90°K 3=5022
 Ni—Zn ferrites, disaccommodation by small amplitude signals 4=28845
 Ni—Zn ferrites, elec. cond. rel. to porosity 3=4939
 Ni—Zn ferrites, elec. resist., pressure depend. 3=4940
 Ni—Zn ferrites, electric rel. to magnetic properties 3=8684
 Ni—Zn ferrites, electrical props. 3=20336
 NiZn ferrites, Fe-rich, "perminvar" effect 0=10175
 NiZn ferrites, ferromagnetic relaxation 1=17973
 Ni—Zn ferrites, hysteresis loops, effect of Co additions 2=21337
 Ni—Zn ferrites, mag. permeability spectra, temp. depend. 2=23677
 NiZn ferrites, magnetization, meas. using ferromag. resonance 1=1240
 Ni—Zn ferrites, permeability in polarizing fields 4=26341
 Ni—Zn ferrites, polycrystalline, crystals growth 3=6822
 Ni—Zn ferrites, props. at 10 kMc/s 1=14737
 NiZn ferrites, solubility of ferric oxide 0=21232
 Ni—Zn ferrites, thermal cond. meas., 20°-400°C 3=25214
 NiZn ferrites, thermal conductivity 3=17669
 Ni—Zn—Co Fe garnet, complex permeability, freq. var., heat treatment effects 4=4385
 Ni—Zn—Cr ferrite, with CoO, mag. anisotropy, -196° to 300°C 4=30722
 NiZnCo ferrite films, and mag. props. 3=16140
 NiZnCo ferrite, mag. dispersion rel. to sintering temp. and composition 3=18100
 Ni—Zn—Co ferrite, mag. props. and annealing 3=3130
 Ni—Zn—Cr ferrites, magnetic props. rel. to thermal and thermomagnetic treatment 4=10293
 Ni—Zn—Co ferrites, magnetocryst. anisotropy 3=23190
 NiZnCo ferrites, magnetoelastic effect 3=20614
 Ni_{1-x}Zn_xFe₂O₄, prep., mag. and microwave props. 2=12696

Nickel compounds — contd

- 0.2Ni-0.8ZnFe₂O₄, specific heat, 1.8-20°K 2=571
 Ni_{1-x}Zn_xFe₂O₄ thermal conductivity 3=4831
 NiZr, crystal structure 2=10879
 Ni—Zr supercond. solenoid, 10 kG, design 4=8897
 Ni₂ZrAl, Cs Cl-type structure 3=1344
 NiZrH₃, NiZrD₃, space group, atom pos., comp. with X-ray results 4=29125
 NiZr₂, crystal structure 2=10879
 Ni₁₀Zr₇, crystal structure of intermediate phases 2=21528
 XNi₂ (X = yttrium or lanthanide), magnetic props. of Laves phases 3=15746

Night sky

See Airglow.

Nightglow

See Airglow.

Niobium

- absorption, acoustic, peaks at var. temps., and dislocation relax. 4=15417
 alloys, superconductivity 3=16873
 anodic film, structure 3=23507
 anodization, radio tracer study by Cl³⁶ and S³⁵ 3=25830
 atomic and electronic heats, 10-273°K 0=20752
 band structure from X-ray spectra 3=4979
 brittle fracture, transition temp. rel. to grain size 1=11506
 brittleness in H₂ atmosphere, rel. to O₂ in solid solution 4=1958
 catalytic reaction with propylene 3=13605
 chemical analysis, in Ta foil, using Nb⁹³(p,n)Mo^{93m} 3=8992
 cleavage fracture 1=20384
 cold worked, dislocation relaxation spectrum 1=7821
 conductivity, thermal and elec., 0°-1000°K 4=25869
 contact potential to tungsten 4=6931
 creep, compressive, 800°-1200°K 3=13362
 creep at low temps. 4=28972
 crystal growth using induction plasma torch 2=2365
 crystal lattice dynamics anomalies 4=3979
 crystal twinning, mechanical, interstitial effects 4=13518
 crystallization from vapour 4=2031
 crystals, glide systems 1400°-2300°K 4=4483
 deformed by cold working, imperfections study, hardness and X-ray diffract. data 0=13529
 de Haas—van Alphen effect 1=17931
 diffusion in bimetal couples at 1100°K 2=3954
 diffusion of Co⁶⁰, Fe⁵⁵ and self-diffusion 2=14463
 diffusion with Cr, Fe, Ni, Mo, stainless steel 2=3943
 diffusion of H₂, degassing, above 1000°K 4=22620
 diffusion, in liquid cast Fe, by electrolysis 3=5431
 diffusion of O₂ 2145-2350°K, degassing 4=22620
 diffusion in Ta, obs. by submicron sectioning technique 4=12804
 diffusion in Zr of Nb⁹⁵ 4=6881
 domain patterns, electron diffraction obs. 4=10578
 ductility at He temps. 4=23191
 elastic constants, for single crystals, 27°K 1=3954
 elastic limit, lower, var. with grain size, heat treatment effects 4=4482
 elastic moduli 4=28977
 elastic moduli, normal to supercond. transition 2=7508
 electrical resistance, high pressures 2=616
 electron scattering, energy loss 3=2040
 embrittlement by surface gas contamination 3=20755
 emissivities, 500-1100°K meas. 2=11533
 emissivity, blackness, 1200-2500°K 4=30687
 emissivity, 0.65 μ 4=16285
 energy band structure by isochromat meas. 3=15468
 evaporated films, prep. and use 0=14086
 Fermi levels, from X-ray emission bands 3=4838
 field emission in normal and supercond. states 1=18910
 field emission patterns 4=21557
 film, hard superconductor, prep. and props. 4=24501
 films, supercond., prod. 2=19816
 films, supercond., prod. by protected sputtering 2=17720
 films, superconducting, from exploding wires 4=8570
 films, superconducting, size effects 4=14538
 films, vapour-deposited, superconductive, use as getter 4=11481
 flow stress rel. to temp., mechanisms 3=13352
 fluorescent L-spectra 2=14694
 fluorescent yield of L-shell 4=3774

Niobium—contd

- internal friction, anelasticity produced by plastic deformation, 4.2-300°K 0=10258
 internal friction, dislocation relaxation 2=21412
 internal friction, effect of Zr impurities 2=23738
 internal friction peaks, deform.-induced 3=23303
 internal friction and dislocations 1=6446
 internal friction, low-temp. peak 1=11504
 interstitial—dislocation interaction 3=23309
 magnetic susceptibilities and electronic specific heat temp. variations 4=7356
 magnetic susceptibility, liq. He to room temp. 0=13736
 magnetization curves, rel. to superconductivity 3=11066
 magnetoresistance, in high-field limit 2=3992
 mechanical props., of irradiated specimens 0=16232
 microstraining in polycrystalline Nb 4=23192
 n.m.r., supercond., Knight shift component separation 4=20625
 neutron effects, recovery at 150°K, vacancy migration 4=12729
 neutron induced lattice defects rel. to resistivity 3=22769
 neutron resonance absorption meas. 3=17484
 optical properties, 1-15 μ, plasma and relax. freq. 4=26209
 oxidation, surface temp. increase 4=23641
 permeability of H₂ 2=10411
 persistent currents, mag. effects 3=3951-2
 phase transformations involving interstitials 4=17766
 physical properties 1=5952
 plastic deformation of single crystals, rel. to orientation 4=20677
 plastic flow and yielding 3=23314
 point defects, recovery meas. 2=23151
 polycrystalline, stress effect on Lüders band velocity 4=23193
 polycrystalline, yield and fracture 0=16231
 recrystallization—centre growth 2=19100
 resolidified drops, voids 1=20631
 single crystals, dislocations 3=22780
 single crystals, supercond., mag., thermal props. 3=5589
 sorption of N₂, ~10⁻¹⁰ torr. temp. var. 4=26718
 spec. heat, lattice, in supercond. and normal state, difference 0=19565
 specific heat, 0.4°-4.2°K, Debye temp. 4=20215
 specific heat, 1200°-2400°K 3=10596
 specific heat, supercond. and normal, meas. 4=18593
 spin-lattice relaxation 2=18957
 sputtering, under Cs ion bombard., cathode sputtering ratio 4=24753
 stacking faults, by electron micrograph observation 2=598
 stress, shear, under pressure, annular specimens 3=6784
 substructure after filing, rel. to plastic and elastic props. 4=23194
 supercond. magnet, use in nuclear orientation studies 0=11299
 supercond. transition temp., effect of Fe in dilute solutions 1=3882
 superconducting, absorption, u.s., shear, 75-225 Mc/s, and 2ε₀ 4=16355
 superconducting, circulating current, shot noise 4=21416
 superconducting, containing dissolved gases, resist. transitions and current density 4=18592
 superconducting, effect of dissolved gases 4=408
 superconducting, effects of dislocation config. 4=27426
 superconducting, electronic sp. ht. 0=8948
 superconducting energy gap, by electron tunnelling 3=333
 superconducting, energy gap, ultrasonic determ. 4=14526
 superconducting, far-i.r. absorption 0=14933
 superconducting films, critical fields, transition temps., meas. deposition method effect 4=29838
 superconducting films, critical mag. fields 4=16354
 superconducting films, energy gaps 4=14530
 superconducting films, getter sputtering for prep. 4=14231
 superconducting films prep. by "protected sputtering" 4=18587
 superconducting, H_{c3}/H_{c2} ratio, Saint-James—de Gennes calc. 4=29839
 superconducting, high field transition 3=19114
 superconducting, mag. behaviour, study by heat pulse ballistic technique 4=16353
 superconducting magnetization curve, crit. field 4=18589

Niobium—contd

- superconducting, negative surface free-energy effects 3=3961
 superconducting, props., effect of plastic deformation and annealing temp. 2=2960
 superconducting, surface electrical losses, in l.f. fields 3=12033
 superconducting, thermal cond., effect of plastic deformation 0=8938
 superconducting transition temp. 3=22662
 superconducting, transverse u. s. atten. for $ql < 1$ 4=6729
 superconducting tunnelling in Nb-NbO-Pb sandwich 1=9514
 superconducting, upper critical field 4=27425
 superconducting, at upper crit. field, discrepancy 4=18573
 superconducting wires, critical current var. with polarity 4=14527
 superconducting wires, quantum interference effects 4=24499
 superconducting wires and ribbons, Nb₃Sn covered, critical currents 4=27431
 superconductive critical current, a.c., freq. var., in wires 4=11478
 superconductive temp. controller, below 1°K 3=1880
 superconductivity, anomalous resistive transitions 2=1337
 superconductivity critical current-critical field values 2=7513
 superconductivity, electron tunnelling study 1=16199
 superconductivity, energy gap, u. s. meas. 4=18588
 superconductivity of films, crit. temp. variation 4=5523
 superconductivity of films, temp.-thickness and aging effects 4=5522
 superconductivity of Nb₃Sn-coated wire 2=13516
 superconductivity, periodic struct., neutron diffr. obs. 4=18591
 superconductivity, surface losses at low freq. 4=2914
 superconductivity, upper crit. field, var. temp., cond. 4=18590
 superconductor, a.c. losses 4=11485
 tensile props. at low temps. 2=10767
 tensile strength, 0°-2300°C 1=20378
 tensile yield stress, effect of strain-rate 3=1237
 thermal cond. meas., 1.6-15°K 3=25215
 thermal cond., normal and supercond. 0=10843
 u. s. attenuation in normal and supercond. Nb 4=11480
 thermal cond., normal, supercond. states 2=6292
 thermal cond., 0.2-4.2°K 2=8183
 thermal expansion, low temps. 2=7439
 vacancy formation 4=1463
 vacuum-arc evaporation 1=6688
 variation of elastic moduli at superconducting transition 1=11884
 wires, supercond., mag. and thermal effects 4=27423
 work hardening, dislocation mechanisms and rate theory 4=7444
 work function 4=6931
 X-ray diffr. from layer faults 2=23840
 X-ray emission spectra 0=15327
 X-ray L_β emission spectrum 2=12608, 16841
 X-ray M-emission spectrum 1=14618
 X-ray spectrum, absorpt. edges, L_{III} L_{II} 3=23095
 yield and flow stress meas., 4.2-373°K, and thermally activated flow mechanism 4=28970
 yield stress at low temps. 1=6454
 yield stress, temp. depend. 4=4480
 Young's modulus, temp. variation 1=2504
 L_β emission band, correction 3=4978
 Nb⁴⁺ ions in ethanol glass, e. s. r. 3=15946
 Nb^m, isomeric state 2=18262

Niobium compounds

- borides and carbides, thermoelec. power with Cu 1=12465
 fluorescent, L-series, with N, Si, H 2=14695
 niobates of Mn, Co or Ni, solid solns., based on BaTiO₃ 0=7979
 oxide films, photovoltage 0=9998
 oxides, structure and transformation, from X-ray and electron diffr. 3=13458
 superconducting Nb-Ta mixed crystals, trapped magnetic flux in 0=7027
 (Fe,Mn)(Nb,Ta)₂O₆, crystal structure 1=11571
 M²⁺ niobates, photoluminescence, self-activated 4=26244

Niobium compounds—contd

- N₂O₆ films, on Nb, mechanical, optical and elec. props. 0=14085
 Nb alloys, physical properties 1=5952
 Nb arsenides and monophosphides, crystal structure 4=4617
 Nb-base binary alloys, lattice parameter, hardness, and elec. resistivity 4=17813
 Nb borides, carbides and nitrides, elec. props. 1=3707
 Nb carbide, supercond. transition, rel. to composition 2=2962
 Nb halides, thermal expansion at low temp., expt. 4=17369
 Nb oxide anodic films, i. r. spectrum 4=23566
 Nb pentoxide, semicond. props. 2=14564
 Nb₂Al, structure, density 0=3221
 Nb₃Al, supercond., critical temp. 2=22120
 Nb₃Al, supercond., evidence for negative surface energy models 3=5591
 NbAl, superconductivity and mag. props. 3=14455
 NbAs, structure, z-parameter and shortest interatomic distances 4=29126
 Nb₃Au-V₃Au, superconducting transition temp., diff. for two crystal struct. 4=14528
 NbB, crystal structure, rel. to similar types 3=18338
 NbB_{1.963}, heat capacity and thermodynamic props. 4=6746
 NbB₂, NbC, NbN, fluorescent L-spectra 2=14694
 Nb_xB_{1-x} (B = Re, Ru, Os, Rh, Ir, Pd, Pt), superconductivity and paramagnetic susceptibility 2=2961
 Nb₃Be₂, crystal structure 0=8211
 NbC, crystallographic data 1=1397
 NbC, heat content, 1289°-2778°K meas. 4=1397
 NbC, lattice const. rel. to Nb/C ratio 1=6515
 Nb-C, phase equil. to 63.5 at. % C 3=18342
 NbC, plastic deformation, effect of temp., strain rate, surface and composition 4=15718
 NbC, thermal decomposition 0=10349
 NbC, thermionic emission 2=22249
 NbC, thermoemissive props. 4=3027
 NbCl₃, mol. potential consts., calc. 4=9724
 NbCl₃, potential field and force constants 0=1501
 NbCl₃, visible and u. v. spectra 2=2002
 Nb₂C, anisotropic thermal vibrations 0=13488
 Nb₂C, supercond. invest. down to 1.98°K 3=7406
 NbC, vaporization 2=19782
 NbC-UC, thermionic emission 2=22249
 Nb₂Co₄O₉, exchange interactions 4=10300
 NbCr₄, polymorphous transformations 3=5119
 Nb-Fe, low temp. resistivity 3=13035
 Nb(Ga, In, Sb)_xSn_{1-x}, supercond., zero field transition curves 3=3960
 Nb-H, n. m. r. of H and Nb, meas. 4=17695
 α-NbI₄, crystal structure 2=21518
 Nb₃In, superconductivity and structure 2=17729
 Nb-Mo alloys, paramagnetic susceptibility 2=4209
 Nb₂M₄O₉ (M = Mg, Mn, Fe, Co or Ni), crystal and magnetic structure 1=2535
 Nb₂Mn₄O₉, exchange interactions 4=10300
 Nb_{0.30}Mo_{0.70} alloy, superconducting, 0.016°K zero field transition 3=21665
 Nb-Mo alloys, mag. susceptibility and electronic specific heat temp. variations 4=7356
 Nb-Mo alloys, superconductive, low T_c and min. in electronic specific heat 4=16356
 Nb-Mo, b. c. c., mag. suscept., and H-affinity 3=3084
 Nb-Mo, Nb⁹³ Knight shift meas. 3=8737
 Nb-Mo, paramag. susceptibility rel. to temp. 3=999
 Nb-Mo, O₂ solubility rel. to magnetic susceptibility 1=20040
 Nb-Mo, superconductivity, T₀ B-C-S var. 4=18594
 Nb-N cpds., L_β emission band, correction 3=4978
 Nb-N, elec. cond., hardness and lattice const. 4=10032
 NbN films, critical fields, transition temps., meas. deposition method effect 4=29838
 NbN, thermoemissive props. 4=3027
 Nb-Ni, Ni-rich, elec. cond., liq. He to 1000°K 1=3711
 Nb-Ni, structure of W₂Fe₂ type 3=16093
 Nb-O interstitial, superconducting, H_{c2}/H_{c1} ratio, Saint-James-de Gennes calc. 4=29839
 Nb-O solid soln., phase transformation, electron microscopic investigation 4=30805
 NbO photocell, sandwich, small 4=17534
 NbO, vacancy interaction energy 3=2785
 NbO₂, crystal structure 2=23894

Niobium compounds—contd

Nb_2O_5 , absorption spectrum 1=12498
 Nb_2O_5 , α -phase, vacuum reduction technique 2=10493
 Nb_2O_5 , anodic oxide films, absorption spectra 0=18411
 Nb_2O_5 , band system 0=2766-7
 α - Nb_2O_5 , defect struct., gravimetric study 2=8205
 Nb_2O_5 , effect on Bi_2O_3 polymorphism 4=23253
 α - Nb_2O_5 , elec. cond. of nonstoichiometric 3=6602
 α - Nb_2O_5 , elec. cond. 900° to 1400°C 3=8527
 α - Nb_2O_5 , elec. conductivity 1=6163
 Nb_2O_5 , elec. props. rel. to O_2 pressure 3=2923
 α - Nb_2O_5 , electronic mobility, temp. var. at high temps. 4=28403
 Nb_2O_5 , films, evaporation and optical props. 2=2421
 Nb_2O_5 , non-stoichiometric, spectrum, reflectance and bandgap 4=10197
 Nb_2O_5 , polymorphism, X-ray diffr. study 1=1558
 α - Nb_2O_5 , reduced, nonstoichiometric, elec. cond. 2=18709
 $\text{Nb}_{0.903}\text{O}_{0.007}$, supercond., image surface barrier 4=18595
 α - Nb_2O_5 , thermoelec. power 3=23026
 Nb_2O_5 , W-doped, elec. props. 2=16729
 Nb_2O_5 - Bi_2O_3 systems, phase equil, relns. 3=6813
 Nb_2O_5 - Cu_2O , structure and elec. props. 2=8359
 NbO_2 - Nb_2O_5 , crystal formula, errors in using $\text{Nb}_{3.0}\text{O}_{8.3}$ 4=26659
 NbO_2 - Nb_2O_5 , phase relationships, micro method 4=7507
 $2\text{Nb}_2\text{O}_5$ · Ta_2O_5 , phase diagram 4=13500
 $2\text{Nb}_2\text{O}_5$ · Ta_2O_5 , unit cell and space group 3=5111
 Nb_2O_5 · 3WO_3 , cell and space-group study 4=26660
 Nb - Rb , O_2 solubility rel. to magnetic susceptibility 1=20040
 Nb - Re alloy, χ phase, crystal structure 4=10542
 Nb - Re , b.c.c., mag. suscept. and H-affinity 3=3084
 Nb - Rh [Ir, Pd, Pt], intermediate phases, structure 4=23280
 Nb - Ru , O_2 solubility rel. to magnetic susceptibility 1=20040
 Nb - Ru , structure and electronic props. 3=22662
 Nb - Ru , superconducting T_c and electronic specific heat, var. composition 4=16357
 Nb_3S superconductivity press. var. 4=18619
 $\text{NbSe}_{1.90-2.15}$, supercond., with layer struct. 4=27429
 Nb_3Si , structure 3=13514
 Nb - Sn alloys, for high field electromagnets 2=5231
 Nb - Sn , β -W phase, crystal microhardness struct. 4=26661
 Nb - Sn , constitution diagram 4=13498
 Nb - Sn , critical field for superconductivity 0=19564
 Nb - Sn diffusion specimens, superconducting, microregion investigations 4=27430
 Nb - Sn films, diffusion, supercond., prep. and props. 3=19118
 Nb - Sn films, hard supercond., prep. and props 4=24501
 Nb - Sn , phases, 800-1000°C 3=8893
 Nb - Sn , supercond., intermediate phases 2=21536
 Nb - Sn 101000 G supercond. solenoid 4=3092
 NbSn_2 , supercond., structure, props. 3=5592
 Nb - Sn superconducting critical current, var. with mag. field and composition 4=11484
 Nb - Sn superconducting type II samples, prep. and props. 4=5525
 Nb - Sn , superconducting, var. of crit. temp. with composition, and lattice disorder 4=16359
 Nb - Sn superconductive films, crit. currents, var. with diffusion conditions 4=8571
 Nb - Sn , superconductivity 1=6999
 Nb - Sn , superconductivity, mag. field, heat treatment effect 4=27438
 Nb - Sn wires, prep. for microscopy 2=23924
 NbSn_2 , crystal structure 4=13599
 Nb_2Sn_3 , Nb_2Sn_3 + α - Nb , superconducting, crit. currents, 2°-6°K 4=406
 Nb_3Sn , conductivity, elec., temp. var. anomalies 4=30624
 Nb_3Sn , ferrimagnetic and superconducting props. 0=6358
 Nb_3Sn films, superconducting critical current, temp. and mag. field var. 3=19120
 Nb_3Sn films, superconductivity and metallurgical struct. obs. 4=16358
 Nb_3Sn , prep. and superconductivity 1=18720-1
 Nb_3Sn solenoids, superconducting 2=5240
 Nb_3Sn solenoids, superconducting 3=3968
 Nb_3Sn strip, superconducting 3=21664
 Nb_3Sn , supercond. 3=14458
 Nb_3Sn , supercond. crit. current, neutron irradiation effects 4=11475

Niobium compounds—contd

Nb_3Sn supercond., effect of neutron-induced defects 4=18597
 Nb_3Sn supercond. energy gap anomalies, tunnelling obs. 4=21424
 Nb_3Sn , supercond., evidence for negative energy models 3=5591
 Nb_3Sn , supercond. flux compression with tube and piston 4=27424
 Nb_3Sn , supercond., high mag. field generation 2=13628
 Nb_3Sn , supercond., quantized flux meas. 2=11564
 Nb_3Sn , supercond., thermal cond., temp. var. 4=21423
 Nb_3Sn , supercond. transition, isotope effect, using Sn^{116} and Sn^{114} 1=259
 Nb_3Sn , supercond. transition temp., pressure effect 4=5526
 Nb_3Sn , superconducting, crit. current density 3=5575
 Nb_3Sn , superconducting, critical currents rel. to field and ang. 4=407
 Nb_3Sn , superconducting, effect of adding Ag on crit. parameters 3=19117
 Nb_3Sn , superconducting, energy gap, tunnelling meas. 4=16360
 Nb_3Sn superconducting film, mag. field penetration, 4.2-18.2°K 4=16360
 Nb_3Sn , superconducting, films, critical current, mag. field var. 4=412
 Nb_3Sn , superconducting, frozen-in fields 2=5239
 Nb_3Sn superconducting hollow cylinder in pulsed mag. fields, up to 8.2 kG 3=19116
 Nb_3Sn superconducting magnet techniques 4=11747
 Nb_3Sn , superconducting, magnetization 2=13507
 Nb_3Sn superconducting magnets, short wire tests 3=19408
 Nb_3Sn , superconducting, as permanent magnet 3=338
 Nb_3Sn , superconducting, prep. 2=7514
 Nb_3Sn , superconducting, prep. 3=5590
 Nb_3Sn , superconducting transition temp., compression and isotope effects 3=16874
 Nb_3Sn , superconductive critical current, a.c., freq. var., in wires 4=11478
 Nb_3Sn , superconductivity, crit. current, field and ang. var. 4=18596
 Nb_3Sn , superconductivity, high current density in field of 88 kG 1=5399
 Nb_3Sn , superconductivity and mag. props. 3=14455
 Nb_3Sn , superconductivity in pulsed mag. fields to 185 kG 1=9513
 Nb_3Sn , superconductivity rel. to sintering temp. 2=9486
 Nb_3Sn , superconducting, transition temp., high pressure effect, meas. 4=27432
 Nb_3Sn superconductor, a.c. expts. 4=16362
 Nb_3Sn superconductor, critical mag. fld., upper limit 3=337
 Nb_3Sn , thermal expansion, 80° to 1290°K 4=30524
 Nb_3Sn , thermal expansion, jump at supercond. transition 3=16875
 Nb_3Sn , thin surf. layers, supercond. rel. to mech. stress effects 3=1903
 Nb_3Sn mixed systems, superconductivity 4=8572
 $\text{Nb}_3\text{Sn}_{1-x}\text{M}_x$, superconductivity 4=5524
 $\text{Nb}_3\text{Sn}_{1-x}\text{M}_x$, M-various elements, superconductivity 4=18598
 Nb_3Sn on Ni superconducting transition temps. stress effects 4=11476
 Nb_3Sn - Ta_3Sn , superconductivity 1=6999
 Nb_3Sn_2 , Nb_2Sn_3 , supercond. props., synthesis 2=19815
 Nb - Ta alloy, paramagnetic susceptibility 2=4209
 Nb - Ta alloys, superconducting, upper crit. field, temp. depend. 3=19119
 Nb - Ta , paramag. susceptibility, rel. to temp. 3=999
 $\text{Nb}_{0.33}\text{Ta}_{0.67}$, supercond., image surface barrier 4=18595
 Nb - Tc alloys, magnetic susceptibility and n.m.r. 4=7356
 NbTc_3 , supercond. transition temp. 1=11881
 Nb - Th alloy, as high-field high-current superconductor 3=14457
 Nb - Ti alloys, superconducting, upper crit. field, temp. depend. 3=19119
 Nb - Ti films, hard supercond., prep. and props 4=24501
 Nb - Ti (66 at. %), superconducting, with high critical values, layered filamentary struct. 4=13649
 Nb - Ti superconducting critical current, var. with mag. field and composition 4=11484
 Nb - Ti , superconducting crit. field calc., from elec. cond. and specific heat 4=5521

Niobium compounds—contd

- Nb—Ti, superconductive critical current, a.c., freq. var., in wires 4=11478
 Nb—U alloy as high-temp. reactor fuel 2=6062
 Nb—U alloys, for nuclear reactors, radiation effects 4=9613
 Nb—U, elec. and mag. props., 90–1200°K 1=17609
 Nb—U, γ -phase, Hall effect, supercond. and resistivity 0=4320
 Nb—UC cathode, thermionic const. 1=13102
 Nb—V, Nb—Zr alloys, mechanical props. 2=4330
 Nb—W—Mo—Zr, sintered, homogenization kinetics 4=15810
 Nb—25%Zn, superconducting, in mag. field and transverse current, paramag. effect, calc. 4=29843
 Nb—Zn, superconducting, u.s. absorption 4=411
 16% Nb—Zr alloy, $\beta \rightarrow \alpha$ transformation, reversibility 4=23281
 Nb—25 at.% Zr alloy, supercond. critical current 2=15851
 Nb—Zr, b.c.c., high field supercond. 2=7519
 Nb—Zr alloys, supercond., a. c. power losses 4=27427
 Nb—Zr alloys, supercond. transition temp., pressure effect 4=5526
 Nb—Zr alloys, superconductivity, hardness 3=19115
 Nb—Zr, cold worked, magnetization, 4.2°K, transport current effect 4=409
 Nb—Zr (2, 0.2 at.%), conductivity, thermal 1.6–12°K, normal and superconducting 4=4006
 Nb—Zr, field emission patterns 4=21557
 Nb—Zr films, hard supercond., prep and props 4=24501
 Nb—Zr (25%) films, superconducting, from exploding wires 4=8570
 Nb—Zr, heat-treated, supercond. 2=11563
 Nb—25% Zr, I_c degradation due to temp. cycling 4=29840
 Nb—Zr, Nb—Ti superconducting solenoids, "training" and flux jumping 4=24509
 Nb—Zr persistent currents, mag. effects 3=3951-2
 Nb—Zr, phase equilibria 2=21535
 Nb—Zr, properties 0=8274
 Nb—Zr ribbons, critical current in external mag. field, anisotropy 4=16364
 Nb—Zr solenoid, supercond., current-carrying capacity 3=3969
 Nb—Zr solenoid, supercond., in 400 MeV proton flux 3=3970
 Nb—Zr solenoid, supercond., persistent current obs. 3=9685
 Nb—Zr, supercond. anisotropy in mag. field 3=14452
 NbZr, supercond. crit. current, neutron irradiation effects 4=11475
 Nb—Zr, supercond. crit. currents in mag field 3=21667
 Nb—Zr, supercond., critical current-critical field values 2=7513
 NbZr, supercond. energy gap, tunnelling meas. 4=21425
 Nb—Zr, supercond., high mag. field generation 2=13628
 Nb—Zr (25%), supercond. magnet 4=27612
 Nb—Zr, supercond. and normal, Hall coeff. 3=13043
 Nb—Zr supercond. solenoid, before and after breakdown 4=11489
 Nb—Zr supercond. solenoids, remanent mag. fields 3=14459
 Nb—Zr, supercond. solenoids, transition to normal state 3=21670
 Nb—Zr (25%) supercond. wires, trained, axial torque 4=18600
 Nb—Zr(25%) superconducting, a.c. losses, d.c. field effect 4=11482
 Nb—Zr superconducting alloy, abs of h. f. energy 4=27428
 Nb—Zr superconducting alloy, magnetization rel. to mag. field of solenoid of this alloy 4=11748
 Nb—Zr superconducting alloys, critical current density 4=16363
 Nb—Zr (25%), superconducting crit. current decrease by pulsed fields 4=14529
 3Nb—Zr, superconducting, crit. current density 3=5575
 Nb—Zr, superconducting crit. current, effect of annealing temp. 3=14460
 Nb—Zr, superconducting crit. field calc., from elec. cond. and specific heat 4=5521
 Nb—Zr(25%), superconducting, critical current degradation 4=405
 NbZr superconducting electromagnet, field collapse 3=19409
 Nb—Zr(25%), superconducting, flux jumping, wire 4=11477

Niobium compounds—contd

- Nb—Zr(25%), superconducting, with high critical values, layered filamentary struct. 4=13649
 Nb—Zr—Ta, superconductivity 2=17728
 Nb—Zr, superconductivity, anomalous transition 2=1337
 Nb—Zr, superconductivity high-field solenoid 3=3971
 Nb—Zr, superconducting, mag. behaviour 4=16365
 Nb—Zr, superconducting, at 9250 Mc/s 3=21666
 Nb—Zr(25%) superconducting, transients and losses on going normal without protective circuitry 4=11483
 Nb—Zr, superconducting wire magnet, fed by flux pump, improved 4=8898
 Nb—Zr, superconducting solenoids, performance 4=27611
 Nb—Zr(25%), superconductive critical current, a.c., freq. var., in wires 4=11478
 Nb—Zr(25%) superconductive, magnetization, cold work effects 4=11479
 Nb—Zr, superconductivity 1=11878
 Nb—Zr superconductor, a.c. losses 4=11485
 NbZr wire, magnetization and transport current 4=410
 Nb—25% Zr wire, supercond., normal region propag., effect of Cu plating 3=14456
 Nb—Zr wires, supercond., critical currents 3=14454
 Nb—Zr, Young's modulus 0=8105
 Ni oxides, layers on Ni at 900°C in air, X-ray diffraction. 3=16129
 PbNb₂O₆-type compounds, ferroelectric props. 0=13652
- Nitrogen**
 with admixtures, thermal relaxation 4=5244
 adsorbed with CO on polycryst. W, interactions 4=23607
 adsorbed layer on pyrex at 77°K 0=753
 adsorbed by W, effect on surface potential 3=12225-6
 absorption coeffs. at high temp. 0=7120
 adsorption on activated C 4=23553
 absorption on graphitized carbon blacks 2=10944-5
 abundance in atmosphere of planet Venus 2=19284
 activation by a.c. and d.c. discharges 2=1403
 active, double probe meas. of ionization 2=1389
 active, flame spectra with organic cpds. 1=13942-3
 active, at high press., spectra and decay 2=6099
 active N, reaction with O and NO 1=20730
 active N, reactions with HBr, Br, and ethylene 1=4093
 active, pressure dependence of i.r. and u.v. bands 0=20621
 active, r.f. excited, free electron density 3=1935
 active, reaction with dissociation products of NH₃ 2=10250
 adsorption on alumina 2=17076
 adsorption by Fe, Ni films, effect on conductivity and work function 4=7727
 adsorption from H₂, 76°K, partial press. and effective ads. press. 4=13687
 adsorption on Hg surface 2=1126
 adsorption isotherms, rapid flow method 3=11325
 adsorption by Mo, films, 10⁻⁶–10⁻⁸ mm, -195–+22°C 3=16146
 adsorption in molten Fe and effect on surf. tension 4=21111
 adsorption, multilayer, on hexagonal BN 3=6894
 adsorption observed on atomic scale 1=1456
 adsorption on Pyrex glass at low press. 1=12666
 adsorption on tungsten 1=20742
 adsorption on W, direct observation 2=17072
 adsorption on W in high vacuum 0=18448
 adsorption on W, sticking coeff., effect of surface coverage and temp. 4=17849
 afterglow due to excit. in electron avalanches, effect of methane addition 4=24614
 afterglow, late, spectrum 0=4189
 afterglow, Lewis-Rayleigh, decay rate 3=24244
 afterglow, light collection and calibration 0=10747
 afterglow, mechanism 0=7758
 afterglow occurring 5 msec after discharge, spectrum 0=1522
 afterglow, pink 2=14287
 afterglow of pulsed d.c. discharge, recombination 3=21717
 afterglow of short duration 1=6022
 anelasticity in α -iron 0=6296
 arc discharge, thermal cond., temp. depend. 0=10893
 arc discharges, fundamental characteristics 0=9013
 arc, electric, effect as atmos., on emission 4=488
 arc, temp. with current at 92A 1=2872
 arcs, cylind. symm., temp. distrib. and charact. 3=14557

Nitrogen—contd

- atmosphere content, rel. to positive ion variations 2=8989
 in atmosphere at 100 km, atom concn., from airglow
 NO spectra 3=3508
 atmospheric distribution up to 430 km 4=26807
 atom, $A^3\Sigma_u^+$ state, half-life 3=19940
 atom concentration, e.s.r. meas. 2=3792
 atom, h.f.s., meas. by optical pumping 2=14202
 atom, metastable sextet, estimated energy 4=3795
 atom, metastable sextet, lifetime 4=3796
 atom, $1s^2 2s^m 2p^n$ states, self-consist. field func-
 tions 3=19942
 atom, oscillator strength, Hartree-Fock calcs. 4=4708
 atom, photoionization of lower excited states 3=25048
 atom, radiative recombination coeffs., into low-lying
 excited states 4=19942
 atom, recombination rate constants, three-body 4=17852
 atom recombination, surface catalyzed 0=18428
 atom, $2p^3 4f$ config., vector coupling schemes 4=1181
 atom, $(2p)^3 \text{ } ^4S_{3/2}$ state, h.f.s., pressure shifts 3=8188
 atom, 2P state, lifetime 2=14203
 atomic adsorption on W 2=8917
 atomic, catalytic efficiency of Ag and Cu oxide surfaces
 for removal 1=7913
 atomic, catalytic efficiency of surfaces for
 removal 1=7912
 atomic, chemiluminescence, in O and N reactions 3=25819
 atomic, in crystals, zero-field splitting 4=25828
 atomic, reaction with O_3 2=8909
 atomic recomb. to N_2 , e.s.r. study 2=16494
 atomic recombination, by e.s.r. 3=25068-9
 atomic reaction with O_3 1=7905
 atomic system, continuous absorption coeff., rel. to
 stellar atmospheres 3=3599
 atomic, $3s-2p$ transitions, oscillator strengths 2=22909
 atomic wave-functions 2=8059
 atoms, active, in flames, CN emission spectra 1=14045
 atoms, aspherical scatt. factors in sp^3 , sp^2 and sp valence
 state 4=26626
 atoms, discharge and afterglow spectra 1=13939
 atoms, electron capture by protons 3=75363
 atoms, electron-impact ionization 2=22174
 atoms, electron scatt. bremsstrahlung-elastic cross.
 vel. 4=15299
 atoms, electron scatt., low-energy, cross-sect. abs.
 meas. 4=25568
 atoms, exchange polarization effects in h.f.s. 1=12239
 atoms, hyperfine splitting, effect of matrix interactions
 and buffer gases 2=18420
 atoms and ions, charge exchange with H_2 4=8628
 atoms, metastable, and auroral afterglow 3=2570
 atoms and molecules, 1.6-10 eV electron scattering 3=8207
 atoms, N I lines in meteor wakes 4=29432
 atoms, N^{14} , h.f.s., calc. 0=20550
 atoms, $N^{14,15}$, h.f.s., by continuous optical
 orientation 1=12256
 atoms, N^{14} , mag. hyperfine const., calc. 2=522
 atoms, photoionization 1=1888
 atoms, polarizability, dipole, calc. 0=9736
 atoms, reaction with NO 2=17086
 atoms, resonance absorption in afterglows 4=24611
 atoms, scattering of 615 keV electrons 0=7714
 atoms, surface recombination upon quartz 3=5151
 atoms trapped in X-irradiated NaN_3 1=8921
 aurora and twilight, N^+ production 3=13787
 auroral afterglow and spectrum 1=17310
 auroral N_2 bands, excitation 1=21055
 auroral spectra, lines excited by particles 2=2513
 band systems 0=7769
 band systems, near i.r. 0=1530
 boiling, bubble frequency rel. to diameter 2=15814
 boiling, heat transfer from Cu and Pt 0=1050
 boiling, in reactor, elect. resistance 2=6051
 breakdown coaxial electrodes, in columns,
 low press. 4=11555
 breakdown, microwave, meas. 3=5648
 breakdown, microwave, meas. 3=14560
 buffer gas, alkali atoms hyperfine transitions of ground
 state, dependence 0=17701
 charge-changing collisions with Li^+ ions,
 10-475 keV 0=19625
 charge transfer cross-sections 3=14530
 chemi-ionization in atomic mixtures with O 3=25820

Nitrogen—contd

- chemical reactions, in upper atmosphere, bimolecular,
 rates 4=13719
 chemisorbed on tungsten, work function 2=15942
 chemisorption on clean Ni surface 1=6563
 chemisorption in ionization gauge 2=21957
 chemisorption on Mo 4=13694
 chemisorption on Ni 1=1480
 chemisorption on W 4=4702
 chemisorption on W, study with field emission
 microscope 4=13695
 collisions with light element ($Z=2$ to 18) ions, electron
 loss 2=9535
 collisions with light element ($Z=2$ to 18) ions, electron
 loss 3=7448
 compressibility coefficients, law 1=9417
 compressibility, theory rel. to expt. 2=19605
 condensates containing N atoms at 4.2°K, evapora-
 tion 0=3291
 condensation coeff., -146° to 400° 0=6834
 condensed film at low temp., optical props. 0=740
 cooling of adiabatic He liquefier 0=14918
 critical opalescence, X-ray scatt. obs. and
 compressibility 4=29676
 crystal structure of β -N 3=6839
 dielectric const. of gas up to 1000 atm 0=19204
 dielectric constants, audio frequency meas. 4=27227
 diffusion of Ag 2=18608
 diffusion of atomic N in molecular N 1=7913
 diffusion of CO_2 in He- N_2 mixture 0=10688
 diffusion in Cr, anelastic meas. 2=21061
 diffusion and drift of electrons in 0=14973
 diffusion in Fe 2=21074
 diffusion, in He and CO_2 , and intermol. potentials 2=2764
 diffusion of Kr^{85} in dense gas 3=1720
 diffusion, in liq. O_2 , meas. 2=9266
 diffusion in liq. oxygen, gas phase method 4=5168
 diffusion of methane and ethylene, meas. 4=11238
 diffusion, in N_2-SO_2 , 300-480°K 1=15946
 diffusion processes in plasma column 0=15023
 diffusion, solubility and permeability in Vycor glass 0=5051
 diffusion, thermal, in Zr 1=14326
 diffusion in UO_2 , kinetics 4=28493
 discharge, afterglow, pink, not due to $N^+(S)$ atoms 4=14596
 discharge, electric, h.f., afterglow, electron density
 var. with time, and aurora 4=532
 discharge, electric, h.f. torch, electrode erosion,
 lack of for Al 4=8667
 discharge, pinch, linear collapse stage streamers 2=22196
 dispersion, acoustic, light diff. meas., and vibr. relax.,
 press., temp. var. 4=18249
 dispersion, sound, up to 500 atmospheres, 500°C 3=7242
 dissociation energy 0=2760
 dissociating gas, high temp. transport props. 2=13372
 dissociation, by inert gas ion impact 4=29875
 dissociation by neutron bombardment 4=3918
 dissolved in V, mobility, effect of pressure 1=2396
 effect on Al_2O_3 fracture strength 4=28935
 effect on fatigue and creep in Fe and Fe
 alloys 4=28957
 effect on Ta solid films 4=13685
 elec. discharge, spatial expansion 2=3013
 elec. discharge, Townsend type, and in N_2-CH_4 0=12595
 electric discharge, condensed in high vac.,
 appls. 4=27497
 elec. breakdown data 0=2340
 elec. breakdown lag at $pd=1000$ mm Hg cm 0=2356
 elec. breakdown, u.h.f., time-lags 3=7491
 elec. discharge, gas-ionizing radiation 2=17795
 electric discharges, h.f., active N prod. 4=3865
 electric sparks in, channel expansion 1=18790
 electrical breakdown, Paschen curve 4=5579
 electrodeless discharge, electron mobility meas. 0=7094
 electron avalanche development 4=21467
 electron avalanche transition into streamers 3=24237
 electron avalanche transition to streamers 4=24617
 electron avalanches, carrier amplification 3=9761
 electron avalanches, mean energy and drift
 velocities 4=11546
 electron avalanches, in uniform elec. fields, electron
 component 1=272
 electron beam energy losses passing through N_2 0=19764
 electron capture in, by ions with $Z=(2-18)$ 1=18779

Nitrogen—contd

- electron capture in, by multicharged ions of light elements 2=163, 22168
 electron collision frequencies 0=3350
 electron diffusion—mobility coeffs. ratio 3=4023
 electron diffusion, slow, meas. 2=13381
 electron drift speed—diffusion coeff. ratio meas. 4=11254
 electron drift velocity 0=7074-5
 electron drift velocity, avalanche meas. 4=11253
 electron drift velocities meas. 3=12077
 electron drift velocity 3=9729
 electron drift velocity, 77-373°K 1=2300
 electron excitation of second positive system bands 0=1521
 electron irradi., free electron loss 3=14598
 electron mobility in N_2 2=7562
 electron momentum transfer and inelastic collision cross-sections 4=27228
 electron and positron multiple scatt. 3=17248
 electron scatt., elastic and inelast., from electron transport 4=11509
 electron stopping power 0=352
 electron trapping by impurity in liquid argon 3=19175
 emission bands of forbidden systems 0=5955
 energy loss per ion pair for p and He^+ 3=10281
 equilibrium props. behind shock waves 3=21493
 excitation by metastable Ar atoms 4=6572
 excitation of molecule by electron impact, using trapped-electron method 0=2755
 field desorption and corrosion of W and Ir 3=18396
 field emission, emitting area 2=13581
 flame propagation in solid 0=3681
 flame propagation in solid N 1=20737
 flash desorption 1=4100
 flow, two-phase, idealized solutions 4=11152
 forbidden band systems 0=7788
 free—free continuum 1=11069
 fugacity and function $F = H - TS$ 0=14910
 gamma ray absorpt., H Lyman, and atmospheric N content 4=26787
 γ -ray absorption 2=5599
 gas, acoustic isotherms 3=16659
 gas, Aston bands, rel. to ionization 3=4020
 gas, discharge detector 3=8993
 gas, discharge, l.p., "electron" and "vibrational" temps. 3=9763
 gas discharge, positive column, electron energy distrib. 3=4058
 gas, dry, prodn. 4=4996
 gas, electron back diffusion in 3=5693
 gas flow, free-molecular, momentum transfer to metal surfaces 3=5456
 gas, fluorescence and pre-ionization 3=14220
 gas, ionization by H atoms and protons, 10-180 keV 3=5620
 gas, sound velocity and absorption 3=9509
 gas, thermal cond. rel. to viscosity 2=11423
 gas, velocity of sound 3=5497
 gas, viscosity, - 78.5° to 100°C, below 200 atm 3=7223
 gas, Z-pinch discharge, rel. to pressure 3=9762
 gaseous, nucleation temp. 3=303
 gettering, electrical in low-pres. discharge in steel vessel 3=7461
 glow discharge, energy distrib. to electrodes 2=17800
 glow discharges, electron energy distrib. in plasma 1=16317
 heat of adsorption on W 0=3328
 heat-transfer, ionization effects 3=18853
 i.r. absorption, collision-induced 2=2775
 impurity centres in diamonds 1=14258
 impurity in Fe, ageing 1=8905
 influence on Hg atom excited states 2=6090
 infrared continuum, 2-8 μ , at high temp. 4=2732
 interaction with Mo ribbon 1=11600
 intermolecular, Morse potential force consts. from viscosity 4=9787
 intermolecular potential functions, 2nd virial coeff. 1=7503
 interstitial in Fe, effect on recovery and recrystallization 4=22565
 ion-atom interchange in upper atmosphere 0=14200
 ion collision data by ion cyclotron reson. 3=21697
 ion drift velocities in glow discharge 3=24221
 ion drift velocities meas. of $N^+_{1,2,3,4}$ 4=11535
 ion-electron recombination in after glow 2=3008

Nitrogen—contd

- ion emission, field 3=19371
 ion mobilities meas. for N^+ , N_2^+ , N_3^+ and N_4^+ 4=11536
 ion mobility and electron attachment probabilities rel. to O_2 and water vapour 3=5624
 ion, N^{14} , charge distrib. at high velocities 3=7447
 ionization afterglow meas. with 20-30 MeV electrons 4=14579
 ionization ahead of cylindrical shock waves 3=1759
 ionization by α -rays, energy depend. of W 1=8310
 ionization cross-sections near threshold, electron impact 1=16257
 ionization, by electrons and protons, Born approx. 2=9529
 ionization, He atoms and ions, 15-180 keV 4=2944
 ionization by N_2 molecular beam, cross-section 2=1390
 ionization, photo, up to 28.6 eV, on excitation 4=16434
 ionization by Po α -particles 0=19613
 ionization in pulsed discharge 2=1387
 ionization rate, theory 1=18755
 ionization by 10-50 keV H and O $^+$ ions 0=12579
 ionization, by 30-1000 eV He atoms, meas. 4=27482
 ionospheric, rel. to height and latitude 2=8987
 ions, atomic, recombination, thermal and radiative props 3=7443
 ions, bombard. of Cu, sputtering ratios 0=9110
 ions, bombard. of Cu-Be, electron emission 0=267
 ions, bombard. of Mo, Zr, graphite, secondary emission 2=220, 22273
 ions, bombard. of W-Ge and W-Si contacts, V-I curves 1=17771
 ions, charge transfer with atomic O 3=14531
 ions in glow discharges, mass spectra 3=5643
 ions, kinetic energy meas., line shape analysis in mass spectrometer 4=16565
 ions, N^+ and N^{2+} , electron affinity and stability calc. 4=9643
 ions, N, range in solids and gases 2=7674
 ions, N_2^+ , absorption coeff., 580-1000 Å 3=25101
 ions, N_2^+ , in aurora, height variations rotational temps. 2=4674
 ions, N_2^+ , charge transfer cross-section with O atoms at low-energy 2=22173
 ions, N_2^+ , $2\pi^2$ - $A^2\pi$ system, Frank-Condon factors and r-centroids 2=12322
 ions, N_2^{2+} electronic transition identification 2=3734
 ions, N_2^+ , N_2^+ in glow, drift velocity studies 4=24576
 ions, N_2^{2+} , potential curves eval. 2=20816
 ions, N_2^+ , potential and wave functions calc. 2=18430
 ions, N_2^+ , spectrum in aurora, use in temp. meas. 3=9104
 ions, N^{14} , accel. to 100 MeV in ORIC 3=5734
 ions, N^{14} , energy loss and range in solids 2=1931
 ions, N^+ , 3P state, dielectronic recomb. 2=15889
 ions and neutral gas, effects of H_2^+ beam 2=13532
 ions, range in air 0=2327
 ions, range in gold, 0.4-6.4 MeV 3=4211
 ions, range and ionization in emulsions 0=12772
 isotope fractionation in NO- NO_2 systems 2=4527
 isotope separation between nitrogen oxides and nitrosium salt solns. 1=5985
 isotopes, solid, lattice parameters, unit cell volume 4=2085
 isotopic anal., mass spectra 1=19633
 isotopic analysis 2=20061
 in Jovian atmosphere 4=4885
 K atom beam scattering on, Massey-Mohr cross-section 0=11499
 K-L-L spectrum, fine structure 0=17715
 laser action in atoms from mol. dissociation 4=11828
 laser, u.v. 4=19294
 light source, fast 4=24359
 liquefaction, new refrigeration cycle 2=5214
 liquefied, positive ion mobility meas. 4=27194
 liquid, automatic device for supply 2=17707
 liquid, automatic level controller 3=24125
 liquid, automatic pumping system for particle accelerators 4=8880
 liquid, boiling point, absolute meas. 0=1086
 liquid, breakdown, electric, mechanism, impurity effects 4=5200
 liquid, constant-level system 1=2582
 liquid, construction of hydrostatic gauge 4=11438
 liquid, cool-down conditions, in contact with various materials 4=11436

Nitrogen—contd

- liquid, critical consts., calc. from quasi-f.c.c. lattice model with vacancies 1=1739
 liquid, density as function of pressure and temp. 1=8107
 liquid, density rel. to pressure 2=7190
 liquid, elec. strength, electrode surface effects 0=12423
 liquid, evaporation of ions 0=8901
 liquid, film boiling 0=3696
 liquid, level controller 1=5373
 liquid, level meas. and maintenance 2=19790
 liquid, and mixtures with O₂, X-ray diff. meas. 4=24170
 liquid N₂ and N₂-O₂ mixtures, velocity of sound 0=124
 liquid, nonlinear acoustic parameters meas. 4=14161
 liquid, shock compressibility 2=7192, 13320
 liquid, sorption on Vycor porous glass 2=9472
 liquid sound vel., u.s., at high press. 0=19132
 liquid, structure 2=21894
 liquid systems, binary, with A, O and CO 3=132
 liquid, ultrasonic velocity 2=21908
 liquid, viscosity 4=5161
 Lorentz-Lorenz functions 0=8713
 lubricating full journal bearings 0=5046
 Lyman-Birge-Hopfield, bands in Martian atmosphere 4=10880
 magnetic driving and ohmic heating 0=14984
 maser, optical, band spectrum stimulation in pulsed discharge 3=19499
 metal halide flames, with active N, metal spectra 3=22605
 in metals, chromatographic gas analysis 2=21603
 metastable atoms and mols. from elec. discharge 3=2571
 meteors, i.r. spectra 2=4757
 microwave absorption in compresses gas 2=13380
 mixtures, with H₂, thermal and ordinary diffusion, u.s. velocity meas. 0=5049
 mixtures with H₂, vapour-liquid equilibrium 2=1311
 molecular beam apparatus, high intensity 3=8316
 molecular beams, clustered, prodn. 3=2678
 molecular excitation, vibr., by e, anharmonicity effects at higher levels 4=12463
 molecular ion, N₃⁻, ground-state wave-function 1=9939
 molecular ions 0=2323
 molecular orbitals for small internuclear separations 2=18443
 molecular, photosensitized reaction with H atom 2=17096
 molecular pot. energy, in clathrates 2=8076
 molecular rotation 2=8075
 molecular spectrum, excited by 0.5-1 MeV protons 0=5942
 molecular spectrum, far i.r., rot., collision induced dipole moments 3=17580
 molecular, in upper atmosphere to 400 km 3=9067
 molecule, A²Σ_u⁺ and B¹Σ_u⁺ terms, splittings 3=6388
 molecule, absorpt. bands, 720-830 Å, vibr. isotope shifts 4=22362
 molecule, absorpt. spectrum and electron structure 3=4754
 molecule, diamag. suscept. calc. 3=8259
 molecule, elec. polarizability tensor calc. 4=1256
 molecule, excit. by N₂⁺, emission cross-sections for N₂⁺ and NII 4=12464
 molecule, first negative system, in He 3=2622
 molecule, Goldstein-Kaplan bands 3=8262
 molecule, i.r. Y bands, structure 0=15724
 molecule, mag. antishielding const. of N, meas. 4=12519
 molecule, neutron scatt., quantum states transition 3=25074
 molecule, new predissociation 0=13435
 molecule, reactions with H and D atoms in ²P state 4=13724
 molecule, recomb., three-body reaction kinetics 4=1319
 molecule, rotational transitions due to He 3=6431
 molecule, second positive spectral system 3=2620
 molecule, second positive system, effect of He 3=2621
 molecule, spectral lines excited by 5-130 keV protons 4=9716
 molecule, vacuum u.v. absorpt. spectrum 3=7329
 molecule, vibr. excitation by electron impact, meas. 4=28196
 molecule, wave-function calc. by analogue computer 2=6204
 molecule, wave-function, LCAO calc. rel. to internuclear distance 1=8854
 molecules, A³Σ_g⁺ state, by microwave discharge, diffusion, lifetime 3=17579

Nitrogen—contd

- molecules, absorption coeff., 580-1000 Å 3=25101
 molecules, band excitation in aurora, near u.v. 4=23789
 molecules, collisions, 10 → 01 transition calc. errors 4=22443
 molecules, dissociative charge transfer from He⁺ 3=24224
 molecules, excitation, by electrons, vibr., life-time 4=22361
 molecules, lifetime of lowest excited level 2=16516
 molecules, long-lined metastable state at ~ 8 eV 3=2618-19
 molecules, quadrupole moment, from induced i.r. absorpt. 4=6573-4
 molecules, rotational excitation in ionospheric D-region, electron cooling 3=3499
 molecules, second positive system, intensity ratios 2=20812
 molecules, u.v. absorption spectrum 2=14285
 molecules, vibrational excitation by electron impact 2=3729
 n. m. r. of N¹⁵ in liquids (0.36%), chemical shifts, elec. quadrupole contrib. by intermolecular rot. hindrance 4=24247
 n. q. r., in FCN¹⁴ 4=9735
 nuclear quadrupole resonance of N¹⁴ in solid N₂ 2=8692
 nuclear quadrupole resonance in organic cpds. 1=12574
 occlusion by faujasite crystals 0=8333-4
 omegatron, removal, rel. to chemical effects 4=21595
 optico-acoustic effect 0=8715
 oscillator strengths of N I multiplets 1=12252
 peak electron density, curvature 1=15064
 phosphorescence of films deposited at low temp. 0=6200
 photoionization and absorption spectra, 600-1000 Å meas. 4=12460
 pinch discharge, delayed implosion of Z-pinch 4=540
 pink afterglow, excitation mechanism 3=22486
 plasma, arc heated, spectral continuum meas. 4=14652
 plasma arc, high density, mag. probe meas. 4=5606
 plasma, conductivity, thermal and electrical 3=7589
 plasma, electron-ion recomb. study 2=22229
 plasma, 5.4 kJ linear Z-pinch, collapse stage meas. 4=8737
 plasma flows, high speed, microwave diagnostics 4=18903
 plasma gun, two-stage, repetitively fired, coaxial, characteristics 4=19068
 plasma, heavy-particle temps., spectral meas. 4=14676
 plasma, high density, magnetic probe meas. 3=7583
 plasma jet, anode spot movements 3=14539
 plasma, N IV collective motion, spectr. meas. 3=24304
 plasma, ohmic heating by condenser discharge 3=7600
 plasma, optically thick in red, i.r. 3=16924
 plasma properties, 1000-30 000°K, 1-30 atm. 1=10700
 plasma, spectral line intensities 2=17845
 plasma wrapped round Cu vapour, contraction and emission 3=7557
 plasmajet i.r. emission spectra 1=11070
 positron annihil. in liq. and solid 3=17254
 positron annihil. mean life in liq. and solid 4=4031
 positron range and positronium effects 4=6028
 positronium formation and quenching meas. 4=19495
 positronium formation and quenching meas. 4=19496
 potential energy curves 0=17734
 pre-breakdown current pulses, rise-time 2=7587
 proton beam, fast, discrete energy losses 4=11517
 pumping by Bayard-Alpert ionization pump 1=15971
 radiation from shock-heated gas, 6000°-7000°K 2=9319
 radiation spectrum, shock wave heated 3=11835
 Raman spectra 0=17746
 Raman spectrum of liquid, laser stimulated 4=8210
 Raman spectrum, temp. and press. depend., impact broadening 0=11527
 reactions with inert gases at high pressures 3=3387
 recombination column of ions and electrons 0=14983
 Redhead vacuum gauge sensitivity pumping rate 2=21954
 refractive dispersion in u.v. 0=16821
 refractive index, vac. u.v., using Cherenkov radiation 3=14214
 refractivity, second virial coeff. 3=3835
 relaxation time, temp. depend. 3=8313
 rotation excit. by electrons, energy loss 3=17578
 saturated vapour pressure, exper. data, anal. and correl. 4=29803
 scattering by C foils 0=7590
 in scintillation counters, mixed with A, Xe, for neutron detection 1=3077

Nitrogen—contd

secondary electron emission, inert gas ion bombardment, up to 50 keV 4=8824
 shock-front structure and reflectivity 1=167
 shock fronts, non-equil. region, radiation 2=2757
 shock fronts structure, optical refl. meas. 4=5282
 shock heated, nonequilibrium radiation 2=7566
 shock wave temp. 0=14732
 shock waves, attenuating, temp. variation, theory and expt. 4=18344
 shock waves, rate of dissociation 2=19597
 solid, α -phase, crystal structure 2=15012
 solid, containing O_2 , spectrum under electron bombard. 1=6221
 solid, luminescence 0=6195
 solid, luminescence, 4.2°K 0=13711
 solid, molecular rotation, calc. 0=15804
 solid, N^{14}/N^{15} isotope exchange under electron bombardment 0=6400
 solid, nuclear quadrupole resonance 3=8742
 solid, phosphorescence 0=4456
 solid, solubility meas. in 27°-33°K liq. H 2=11365
 solid, thermoluminescence after electron bombardment at 4.2°K 2=12637
 solubility in Be, X-ray diffrac. study 3=20908
 solubility and diffusivity in polyethylene 0=12066
 solubility in distilled water 4=11184
 solubility in H_2O , heats and entropies 4=159
 solubility in H_2O , isotope effect 3=9450
 solubility in liquid H_2 , 20-33°K, 35 atm 0=75
 solubility in steel, cold-rolled transformer 4=26541
 in solution with CH_4 , condensed state, density 1=12873
 sorption coeff., Ti droplet getter-ion pump 0=16742
 sorption speed during electron impact activation 4=18295
 sorption, on Nb, Mo, $\sim 10^{-10}$ torr 4=26718
 sound absorption and dispersion 0=19287
 sound absorption, freq./press. depend. 1=8186
 sound absorption, pressure depend. 0=16737
 sound absorption, water vapour effects 3=18860
 sound velocity at b.p. as temp. meas. 0=216
 sound wavelength meas. in tube 3=5502
 spark channel brightness 1=5428
 spark channel brightness 1=10681
 spark discharge channel props. 2=22185
 spark discharge, emission spectrum, 5000-10 000 Å 1=19593
 spark discharges, high-temp. prod. 0=7105
 spark discharges, I, V and spectral line intensity, time depend. 1=283
 sparks, formative time lag meas. 4=8657
 spectra, emission, excited by protons and H atoms 3=15338
 spectra excitation by reaction with active He 4=11533
 spectra of glow discharges 0=1520
 spectra in highly ionized state, meas. 3=10448
 spectra, N^{14} , h.f.s., pressure shift, 7-87 torr 3=19941
 spectral bands, Lyman-Birge-Hopfield, in upper atmosphere 4=10739
 spectral composition in lab. or aurorae, rel. to average electron energy 2=6149
 spectral obs., r.f. excited jet 3=22545
 spectrum, first positive system, in perseid meteor spectra 1=4195
 spectrum, i. r. continuum, high temp., polarization inclusion in calc. 4=27222
 spectrum, N VI, N V, 8000-480 Å 4=15286
 spectrum, N_2^+ , D²Tg-A²Tu band origin wave-numbers 3=22547
 spectrum, N_2^{15} , u.v., isotopic shifts, anomalous 3=25102
 spectrum, plasma Stark effect of local fields 4=9645
 spectrum, vac. u.v. absorption, "pink" afterglow 4=12431
 spectrum, from Van de Graaff beam passed through C foil and imaged on Raman spectrograph 3=19918
 sun, i.r. spectrum, forbidden NI lines 2=4768
 surface migration on W 0=7838
 surface potential, on W crystal faces 4=29199
 with suspended graphite in $\frac{1}{2}$ in. tube, flow, heat transfer 4=27219
 temperature of flowing gas, emission spectra study 2=1205
 test for Lennard-Jones potential 1=15847
 thermal conductivity, effect of mag. field 4=14211
 thermal conductivity, line-source technique 2=7253

Nitrogen—contd

thermal conductivity, for negligible convection 2=5201
 Townsend ionization coeffs. 3=21708
 transition probability for 1st-positive band system 2=13377
 transport properties in terms of Morse potential 4=8241
 transport props. meas., rotational relax. 4=5241
 trapping sites for excited N atoms in solid N 1=5983
 triboluminescence on bubbling through Hg 0=14698
 triton range, 0.2-2.7 MeV 3=10180
 u.s. absorpt., relaxation time 3=18857
 u.s. absorption 0=14739
 u.s. velocity and absorption, press. depend. to 5000 kg/cm² 1=6904
 u.v. radiation excited by electron swarm 3=10515
 u.v. spectra, in pink afterglow 3=22485
 ultrasonic absorption, relaxation time 4=5245
 vacuum pumping, ion, mechanism 3=23946
 vacuum rotary feed through for liquid N 4=27238
 vapour pressure of isotopic liquid 0=2168
 vapour pressures, 21.2-26.4°K 0=16738
 viscosity, calc., Enskog's dense gas theory and Kirkwood's radial distrib. function 4=14208
 viscosity when compressed to 5000 bars 3=14190
 viscosity meas. 0=16723
 viscosity meas., oscillating disk method 3=14189
 viscosity, at 127 atm. and low temps. 3=14191
 viscosity of pure gas and He-mixture, meas. to 1000°C and 600 kg/cm² 4=24265
 Z-pinch discharge 2=19966
 in Cr, effect on brittle-ductile transition 4=23134
 in Cr, effect on ductile-brittle fracture temp. 4=30770
 H_2 diffusion in 1=12919
 and H_2 mixture, convection and thermal diffusion 3=19047
 He ions in, electron capture and loss, 200-1500 keV 2=162, 22169
 N atom conc., quantitative meas. by e.s.r. 4=23687
 H_2^+ dissociation in, 200-1200 keV 1=16266
 N ions in N_2 , low-energy, drift velocity 4=24591
 N oxides trapped in doped X-ray irradi. K halides, e.s.r. 1=14350
 α -N, solid, crystal structure 1=20529
 N, transition probabilities, from Hartree-Fock-Slater wave-functions 4=12370
 N⁻ formation, by N⁺ bombard., in gas targets 0=10877
 N, N_2 ionization by electron impact, with fast crossed-beam 4=24589
 N and N_2 ions, bombard. metals, secondary electron emission 4=8822
 N and N_2 spectra, excited by 200 keV protons 1=13944
 N and N⁺ in lightning stroke near peak temp. 4=23765
 N V spectrum from SCEPTRE III plasma machine 1=13945
 N⁻ spectrum, shock excited 4=21455
 N⁺, atm. distrib., 130-430 km 4=26839
 N⁺-N collisions, charge-exchange and diffusion cross-sections, and interaction energies 4=22438
 N⁺, N_2^+ , incident on Cu and Al, momentum accommodation above sputtering threshold 4=19123
 N⁺ and N_2^+ ions, 5-25 keV, sputtering of Cu 1=8363
 N⁺ and N⁺, structure, effect on electron emission production 1=16391
 N^{+,2+,3+}, spectral presence from multiply-charged source 4=27584
 N III lines in planetary nebulae 0=18843
 N VII, h.f.s. transition in ground state 4=2462
 N_2 , absorption band systems, forbidden, in vac.-u.v. region 4=22364
 N_2 , acoustic wave propag., by localized r.f. break-down 4=19019
 N_2 , active, reaction with H_2S , NS radical obs. 2=20818
 N_2 , active, reaction with methylene chloride, quenching by CH_2Cl_2 3=11344
 N_2 adsorbed in mass spectrometers, ionization by charge transfer 3=24212
 N_2 afterglow in vacuum region 1=6021
 N_2 arc, free-burning, voltage gradient 3=4072
 N_2 band spectra 3=10503
 N_2 band spectra, intensity measurements 1=14010
 N_2 band spectrum in N-hydrocarbon reactions 2=12961
 N_2 bands in glow discharge, effect of CO 0=5994
 N_2 boiling point, detm. 3=9659

Nitrogen—contd

- N_2 breakdown formative time lags in pressurized spark gap 4=18759
 N_2 , catalysed dissociation in microwave discharge 4=11553
 N_2 charge transfer in Ar, at thermal energies, meas. 4=24555
 N_2 -chlorinated hydrocarbon reaction, light emission by product 1=20731
 N_2 , chemisorption on W ribbon 1=1479
 N_2 , collision cross-sections for two transitions 4=12462
 N_2 collisional detachment cross-sect. of O^- and O_2^- 4=27492
 N_2 , collision with Hg, rel. to Hg reson. fluoresc. quenching 4=22304
 N_2 condensation on cooled surf., rel. to vacuum production 4=8259
 N_2 , Corona, positive burst charge formation, theory 3=372
 α - and β - N_2 , crystal lattice structure 4=26662
 N_2 crystals, librational motion 3=745
 N_2 , diamagnetism calc. 1=4944
 N_2 diffusion in CCl_4 4=18189
 N_2 , diffusion in other gases, in elec. field 1=15949
 N_2 discharge rel. to air corona 3=4046
 N_2 dissociation, catalyzed, in microwave discharges 4=27496
 N_2 , double- ζ SCF-MO calc. 1=19655
 N_2 , elec. arc., temp. distrib. 2=7586
 N_2 , electroluminescence of Al_2O_3 : Cr after firing 2=4191
 N_2 electron avalanche components, temporal growth meas. 3=4086
 N_2 electron avalanche pulses, pd=100 to 2200 mm Hg 3=4085
 N_2 electron interchange with H atom beam 2=14182
 N_2 electron interchange with H atom beam 3=6342
 N_2 electron photoemission, retarding potential meas. 4=16435
 N_2 electron scatt. energy loss 2=22950
 N_2 , electronic structure 4=22363
 N_2 , electronic transition moment, variations 2=20811
 N_2 electrons, low-energy, drift velocity 4=27479
 N_2 emission spectrum, 900-1130 Å 4=17287
 N_2 , excitation by Ar, metastable, in plasma stream 3=8263
 N_2 , excitation, from electron swarm energy distrib. 3=6391
 N_2 , excitation function, slow-electron collisions 2=18424
 N_2 , excited states, lifetime meas. 4=28197
 N_2 far u.v. spectrum, high-dispersion absorption 3=10513
 N_2 , first positive band spectrum 2=3703
 N_2 , flash discharge, 1250-1340 Å, radiative intensity 2=11629
 N_2 gas, e.s.r. and after glow at $\lambda = 10$ cm 2=1211
 N_2 gas ionization by H atoms and protons, 10-180 keV 2=13540
 N_2 gas, ionization by H^- and O^- ions 1=4558
 N_2 gas, Joule-Thompson zero press. coeff., exptl. and theoret. 4=27208
 N_2 gas, second virial coeff. estimation 2=11414
 N_2 gas, u.s. vel. meas., 3.5 Mc/s at 3500 atm 3=1728
 N_2 gas, u.s. velocity meas., 3.5 Mc/s at 3500 atm., rel. to compressibility and specific heats 2=21946
 N_2 glow discharge, positive column electron and gas temp. 1=16284
 N_2 glow discharge, presence of N atoms 4=14595
 N_2 high-temp., kinetic and transport parameters 1=18466
 N_2 , intensity in upper atmosphere 2=6930
 N_2 , interaction potential with CO_2 2=6235
 N_2 , ionization by electrons 2=22175
 N_2 , ionization and excitation in clean-up of vacuum systems 1=15984
 N_2 , ionization and excitation by H^+ , H_3^+ and H_3^+ ions 1=2311
 N_2 ionization by fast He atoms and He^+ ions 4=24566
 N_2 , ionization by 5.3 MeV α -particles 1=18760
 N_2 , ionization by ions of 200-1200 keV energies 4=27488
 N_2 , ionization by protons and He nuclei 2=5304
 N_2 , ionization by protons, 0.15-1.1 MeV 3=4006
 N_2 , ion-pair formation, by 100-300 kV X-rays 2=7560
 N_2 magnetoplasma, microwave gyro-interaction 4=18879
 N_2 liquid, reaction with dissolved O_3 , rel. to u.v. photolysis 3=3408
 N_2 metastable molecule collisions in weak discharge afterglows 4=24613
 N_2 -methane mixture discharge current rise due to single electron 4=5578

Nitrogen—contd

- N_2 in methanol; u.v. absorption spectra 2=5020
 N_2 on Mo, chemisorption electron microscope study, calc. 4=29195
 N_2 mol., excitation function due to electrons 2=16515
 N_2 mol., resonance scatt. of electrons 2=22948
 N_2 , molec. bond length by neutron diffraction 2=22960
 N_2 molecular fast beam, apparatus, 5-1000 eV 1=17383
 N_2 , molecular interaction with SO_2 2=14340
 N_2 molecule, diamagnetic susceptibility, theory 3=8240-1
 N_2 molecule, electron potential energy curves 4=9720
 N_2 molecule, electron scattering resonances 4=25566
 N_2 molecules, electronic transition moments, 4000° to 9000°K 4=9700
 N_2 molecule, quadrupole moment, from pressure-induced rotat. spectrum 4=9717
 N_2 molecules, vibrationally excited, calorimeter study 3=12824
 N_2 , N_2^+ band excitation, by electrons, secondary effects 4=25655
 N_2 and NH excitation in discharge 2=20815
 N_2 and N_2^+ molecules, far-u.v. spectra 2=14284
 N_2 (or $N_2 + H_2$) mixtures with organic substs., luminescence 1=15961
 N_2 (1+) band system excitation mechanism in shock-heated N_2 4=25656
 N_2 , photoionization and absorption at 600-1000 Å 4=25662
 N_2 , photo-ionization study of energy structure 2=3730
 N_2 , point-to-plane discharges 2=9545
 N_2 positive ion production, by energetic He^+ impact 4=24569
 N_2 , possible occurrence in atmosphere 0=10400, 16422-4
 N_2 plasma, vortex stabilized arc, spectral emission, narrow-band distrib. 4=18843
 N_2 , predissociation, inverse 4=20119
 N_2 , r.f. discharge, afterglow intensity 2=15898
 N_2 with rare gases, binary mixtures, conductivity and Eucken type correction 1=248
 N_2 , refractivity, dispersion, rotativity 2=13342
 N_2 , relaxation time temp. dependence 2=3726
 N_2 , rotational excitation and momentum transfer cross-sections 2=20885
 N_2 , $^5\Sigma_g^+$ state 2=20813
 N_2 shocks, Kramer's and line radiation 4=19943
 N_2 , sorption by Ba films 2=846
 N_2 spectra, afterglow, rel. to atmos. spectra 2=15252
 N_2 , spectrum, weaker systems 4=28195
 N_2 , supersonic, nozzle flows, vibrational nonequil., spectroscopic studies 4=18232
 N_2 , thermal conductivity, theory and expt. 4=21182
 N_2 -thermal electron collision cross-sections 3=22462
 N_2 , thermodynamic and partition functions 4=28177
 N_2 , in upper atmosphere at 400 km 2=19246
 N_2 , vapour pressure above boiling point 2=13490
 N_2 , vibrational energy exchange with CO 3=20031
 N_2 , vibrational relaxation 2=8079
 N_2 , vibrational relaxation times 4=28181
 N_2 , viscosities, kinematic and diagrammatic, 0 to -183°C up to 150 atm. 2=5031
 N_2^+ auroral band spectra, temperature determination 1=15313
 N_2^+ efficiency curves by electron impact 1=18761
 N_2^+ , negative band system, pressure depend. 1=14046
 N_2^+ , $^2\Pi_g - A^2\Pi_u$, new emission bands 1=17320
 N_2^+ , u.v. excited, fluorescence 3=4753
 N_2^+ + water vapour, chemical reactions due to d.c. electric discharges 4=18758
 N_2 , $X^1\Sigma_g^+ - A^3\Sigma_g^+$ excitation energy 4=28196
 N_2^+ auroral emission, dawn enhancement 0=6473
 N_2^+ bands in sunlit auroral rays 0=6472
 N_2^+ , $D^2\Pi_g - A^2\Pi_u$ bands, vibr. assignment 4=3864
 N_2^+ + He, charge exchange cross-section, matrix calc. 4=29871
 N_2^+ ion bombardment of Cu single crystal 4=27565
 N_2 Morse wave function 0=15686
 $N_2^{0,+}$, 2nd positive system, Einstein A coeff., oscillator and abs. band strengths 3=22546
 N_2^+ , N_2 charge transfer cross-sect. measurements, rel. to ion beam excitation 4=24590
ions, $N_2^+ \rightarrow N^+ + N$ in neutral N_2 2=22176
ions, N_2^+ , N^+ , N_2^{2+} ions, prod. in atmosphere 2=19241
 N_2^+ + N_2O reaction at -196°C 2=10972
 N_2^+ band spectra 3=10503

Nitrogen—contd

- N_2^+ , first negative band intensity behind shock waves rel. to pres. 3=4756
 N_2^+ , formation in presence of He 3=10514
 N_2^+ , negative-band emission, excit. functions 0=15703
 N_2^+ negative-band system, excitation functions 0=15725
 N_2 + 1% Ti in elec. arc, diffusion processes 2=5319
 N_2^+ , oscillator strengths from arc spectrosc. meas. 4=20054
 N^+ photodissociation cross-sect. 4=25751
 N_2^+ , potential curve of $B^2\Sigma_u^+$ state 0=489
 N_2^+ , spectra 3=4755
 N_2^+ gas, single-charge-transfer reactions, cross-sects. 4=8627
 N_3^- , absorption spectrum in solution 3=21377
 N_3^- , SCF wave-functions 3=25110
 N_2^+ and N_3^+ ions, drift velocity 4=14578
 N_2^+ , formation and stability 3=4004
 N^{14} in betaine hydrochloride, e. s. r. 4=13308
 N^{14} , hyperfine structure by electron paramagnetic resonance 3=6353
 N^{14} ions, energy loss in Ni, O_2 and nuclear emulsions 0=17051
 $(N^{14} N^{15})^{2+}$, ionization potential 4=2945
 N_2^{14} and N_2^{15} , caloric props. compared 0=1562
 N_2^{14} quadrupole resonance in β quinol clathrates 0=11961
 N^{15} enrichment by exchange of NO with N_2O_3 0=11497
 N^{15} n. m. r. in N cpds, rel. to molec. structure 4=30479
 N^{18-21} , predicted new isotopes 0=13396
N-A, condensed phase diagram 0=8845
 N_2 -A discharge, second kind collisions 0=1523
 N_2 -A gas mixtures, behaviour of low-energy electrons 1=11911
 N_2 -A mixtures, columnar recombination luminescence 2=9320
 N_2 -A and N_2 - CH_4 liq. solns., surface tension 2=1125
 N_2 -A, N_2 -Xe, N_2 -He mutual diffusion 2=5051
 N_2 - C_2H_4 , unlike molecular interactions 0=15786
 N_2 - CH_2Cl_2 reaction 2=4537
N-CO and N-acetylene mixtures condensed from elec. discharge prods., emission spectra 2=10251
 N_2 - CO_2 mixture, thermal diffusion 2=19612
 N_2 - CO_2 mixture, viscosity, pressure depend. 0=8676
 N_2 - CO_2 mixtures, thermal cond., line-source technique 2=7253
 N_2 - CO_2 mixtures, viscosity rel. to thermal conductivity 1=10525
 N_2 - CO_2 phase equilibria 0=8709
N-Cs atomic system, excitation transfer and maser use 2=22901
 NH_4 uranyl sulphate, fluorescence spectra 1=14638
 N_2 + H_2 , elec. discharge, spectr. study 3=4762
 N_2 - H_2 gaseous mixtures, n.m.r. rel. to pressure 3=21451
 N_2 -H mixtures, compressibility and 2nd virial coeff. 3=14192
 NI , i.r. spectrum new lines 2=3703
 N_2 -N, existence in solid state, discharge product 0=4419
 N_2 - N_2 ionization collisions meas. 3=4015
N-N and N-O interactions, Morse potl. parameters 1=7447
 $N + N + Cs \rightarrow N_2 + Cs^+ + e^-$ reaction 2=151
 N_2 - H_2 binary mixtures, thermal cond., expt. and theoretical 2=11425
 N_2 -methane system, solid-liquid equil. 2=9461
 N_2 and N_2 - O_2 mixtures, breakdown in wire-plane and point-plane gaps 4=18748
 N_2 - NH_3 - H_2 , gas-liquid phase equil. 0=14639
 N_2 - O_2 gas mixture, exo-electron emission by liquid Al 0=15049
 N_2 - O_2 mixed discharge, gas-ionizing radiation 2=7570
 N_2 - O_2 mixture, electron irradiation effects 0=4729
 N_2 - O_2 mixtures, pulsed discharges 2=5301
 N_2 - O_2 at 77°K, liquid, excess thermodynamic properties 1=8109
 N_2 - O_2 - CO_2 phase equilibria 0=8709
 N_2 + O_2 + H_2 flames, ionization 0=19616
 N^{14} in pyridine, electronic environment 2=3687
on Ni surfaces 2=8894
O + N atomic mixtures, chemiluminescence 4=29217
in UO_2 fuel elements, release at high temp. 4=12323

Nitrogen compounds

- ADP (ammonium dihydrogen phosphate), photoelectric consts. 1=12483
ADP, birefringence 4=17549

Nitrogen compounds—contd

- ADP, double refraction axis meas. using a. c. field 4=17552
ADP, refractive index, 2000Å to 1.5 μ , meas. 4=30676
ammonium dihydrogen phosphate elastic props. 2=16949, 18987
ammonium dihydrogen phosphate, electro-optical effect 1=9516
ammonium dihydrogen phosphate, i.r. band spectra 1=11377
ammonium dihydrogen phosphate, neutron irradiated, annealing by compression 4=6893
ammonium dihydrogen arsenate and phosphate, u.v. transmission 0=13686
ammonium fluoborillate, dielec. domain structure detect. 3=25401
ammonium halides, sublimation rates 3=1874
ammonium ion, weak-field n.m.r. study 1=12567
ammonium metal, in planets Uranus and Neptune 1=9255
ammonium, metallic, density, 20×10^6 atmospheres 3=21100
ammonium molybdophosphate, fission waste ion exchanger 0=4719
ammonium perchlorate—copper chromite—carbon pellets, deflagration wave at surface, initiation 4=23656
ammonium perchlorate, granular, columns, sound velocity 3=20091
ammonium salts, ferroelectric, H^1 and F^{19} spin-lattice relax. 3=23251
ammonium salts as moderators for cold neutron sources 3=6010
ammonium salts, phase coexistence and strains 0=220
ammonium salts, polymorphism, low temp. transitions 4=13477
ammonium titanil sulphite, study 0=8158
azide, aqueous solns., radiolysis 3=16181
azide soln., decomposition by γ -irrad. 2=17098
azides, photolysis of aqueous solns. 3=6922
chemical reaction $O + NO_2 = NO + O_2$, via NO_3 , isotope exchange 3=18436
clathrate, β -quinol, N_2 motion, 15°-100°K, from heat capacity 3=8284
difluorodiazine, heats of formation of isomers 3=8960
double arsenate of ammonium and thallium, dipolar absorption 1=14535
halides, rotational freedom of NH_4 ions 2=18460
heteronuclear molecules, N electro-negativity parameter, LCAO calc. 0=20682
hexamine complex salts, proton resonance 1=9073
hydrazine in H_2SO_4 , $N_2H_4^+$ e. s. r. 4=2712
hydrazine mol., internal motion 3=10509
hydrazine, N^{14} nuc. quadrupole resonance, 77° to 244°K 4=13354
hydrazine, thermal decomp. obs. by shock tubes 4=4692
hydrazoic acid, luminescence 3=12876
isotope exchange equilb. const. from i.r. spectra 1=11610
metal nitrides, surface energy, calc., NaCl type 4=13669
metalammonia solutions, electron spin relaxation and diffusion 3=21414
metallic nitrides, lattice energies, calc. 0=13483
molecular refractivities 3=15332
nitrate crystals, chemical radiation damage 2=17099
nitrate ions in solid alkali halides, i.r. absorption 1=7714
nitrate solutions, aq., radiolysis 2=4560
nitrates, binary mixtures, liquidus curves 3=21618-20
nitrates, double, electron spin resonance 0=3124
nitrates, fused, conductivity, d. c. meas. 4=24231
nitrates, fused, electrolysis, diffusion and viscosity 1=15199
nitrates, inorg., lattice frequ. and rotational barriers 3=746
nitrates, metallic, aq. soln., u.s. vels., compressibilities 4=175
nitrates of metals, Raman spectral study of ionic interactions in aq. solns. 4=2687
nitrates of metals, solns., u.s. parameters 4=176
nitrates, nitrites, melting, atomic structure changes, from u. v. spectrum 4=5451
nitrates, nitrites, phase transformations, crystal, from u. v. spectrum 4=7509
nitric acid, molar sound velocity 0=19133
nitric oxide, absorption spectrum, visible and u.v. 0=1533

Nitrogen compounds—contd

- nitric oxide, plasma properties, 1000-30 000°K,
1-30 atm 1=10700
nitrites, double and complex, i.r. vibr. spectra, NO₂
structure 4=15351
nitro group, mag. anisotropy study 3=12856
nitromide, microwave spectra 4=1278
oxides, reaction with Xe fluorides, rates 4=23630
partition function ratios for molecules containing N
isotopes 0=20712
peroxide, in planetary atmospheres 2=13111
quaternary ammonium salts 0=3255
spectra of glow discharges in nitrogen mixtures and
ammonia 0=1520
thiocyanate complexes, vibn. spectrum, structure 3=3012
Tutton's salts, water of cryst., proton-proton
vector orientations 4=10450
NH₄ alum, reagent grade, purification 3=1265
NH₄ bifluoride, NH₄ electron distribution 1=20547
NH₄ chrome alum, paramag. resonance, elec. field
effects, 4-300°K 1=5071
NH₄ dihydrogen phosphate (ADP), electro-optical effect,
applications 0=20973
NH₄ dihydrogen phosphate, relaxation in extreme
i.r. 3=17942
NH₄ fluoroberyllate, birefringence, temp. depend. 3=17981
NH₄ halide phosphors, crystal structure and
luminescence 3=23100
NH₄ halide phosphors, Tl⁺, Sn²⁺ activated 3=946
NH₄ halides bonded with ammonia, structure 1=20555
NH₄ halides, lattice vibrations by neutron scatt. 3=750
NH₄ halides, phase transitions 1=9099
NH₄ halides, proton motion study, by slow-neutron
cross-sections 1=2308
NH₄ radical, stability 4=9785
NH₄ nickel cyanide clathrates, proton resonance 2=23003
NH₄ oxamate, electron density in C-C bonds 4=4595
NH₄ salts, diamagnetic polar; additivity
relationships 1=20047
NH₄ salts, molecular rotation 2=8075
NH₄ salts, proton motion, neutron scatt. study 2=6249
NH₄ tartrate, optical rotation, effect of irradiation by
2 MeV electrons 1=11355
NH₄ thiocyanate, isomerization, entropy prod. 0=14098
N₂H₄, spectrum meas. 3=4762
NH₄⁺, mol. polarizability, orbital calc. 4=3870
NH₄⁺, double resonance of N¹⁴ and N¹⁵ 2=2022
NH₄⁺, electronic structure, Hartree-Fock approx. 3=10534
NH₄⁺ ions in NH₄ halide crystals, i.r. spectra 2=8095
NH₄⁺, molecule, SCF MO one-centre basis set 4=20047
NH₄⁺ reaction in aq. acid, proton transfer study by
n.m.r. 0=14117
NH₄BF₄, aq. soln., X-ray analysis 4=21100
NH₄B₃O₆·4H₂O, heat capacity meas. from 15° to 370°K,
thermodynamic functions calc. 4=30517
NH₄BeF₃, crystal structure, atomic 3=20847
(NH₄)₂BeF₄, F¹⁹ magnetic resonance 2=4284
(NH₄)₂BeF₄, F¹⁹ magnetic resonance 3=3194
(NH₄)₂BeF₄, ferroelec. phase transition 3=17941
(NH₄)₂BeF₄, ferroelectric phase transition and other
props. 2=14916-17
(NH₄)₂BeF₄, ferroelectric phase transition,
thermodynamics 3=15621
(NH₄)₂BeF₄, lattice superlattice structure 3=16082
(NH₄)₂BeF₄, n.m.r. and i.r. study 0=11957
(NH₄)₂BeF₄, nuclear spin-lattice relax. and ferroelec.
transition 2=10711
(NH₄)₂(BeF₄)_x(SO₄)_{1-x}, ferroelectric, n.m.r. temp.
depend. 1=11496
NH₄Br, antiferroelectricity 2=6526
NH₄Br, Br n.m.r. 2=10720
NH₄Br, crystal structure and thermal expansion 1=19724
NH₄Br, modifications II and III, X-ray meas. 4=23419
NH₄Br, H atom positions, electron diffraction
determ. 4=30845
NH₄Br, I ⇌ II transition, dilatometric investigation 0=16335
NH₄Br, proton mag. res. 2=10719
NH₄Br, re-orientation rel. to unidimensional
abrasion 2=19034
NH₄Br transition energy at 137.2°C, differential calori-
metric meas. 0=16334
NH₄Br-TeBr system, crystal growth, reflection and
luminescent spectra 0=13714

Nitrogen compounds—contd

- NH₄Br:Ti, luminescence decay, u.v. excited 2=23598
NH₄CN, in-plane vibrations 3=22570
(NH₄)₂Cd₂(SO₄)₃ Mn²⁺ e.s.r. 2=12813
(NH₄)₃(Cd)₂(SO₄)₃: Mn²⁺, e.s.r., temp. depend. 3=5043
(NH₄)₂Cd₂(SO₄)₃, thermal props. 2=16604
NH₃ lines in Jupiter's atmos., anomalous
inclination 3=11515
NH₃, liq., slow neutron scatt. 3=14140
NH₃ liq., structure, X-ray diffraction determ. 4=24168
NH₃, liquid, dilute Na sol., photocond. 2=2731
NH₃, liquid, eqn. of state and thermodynamic
props. 2=2707
NH₃, liquid, heat of solution of alkali metals 2=2715
NH₃ liquid, molar volumes of salt and metals in
solution 2=2714
NH₃ (liquid), proton spin-lattice relaxation, temp.
depend. 1=9409
NH₃ liquid, reaction with alkali metals, kinetics 2=2447
NH₃ liquid, self-diffusion 1=15855
NH₃ liquid, self diffusion 4=14155
NH₃ liquid, slow neutron scattering 0=15360
NH₃ liquid and vapour, density, temp. var. 1=15836
NH₃ liquid, viscosity meas. 4=14147
NH₃ liquid, thermal neutron diffusion
coefft. 4=21865
NH₃, magnetic h.f.s. of r.f. spectrum 1=14020
NH₃ maser, cascaded-cavity type 0=19923
NH₃ maser, design and operation 1=16554
NH₃ maser, mag. coupling const. and inversion
state 2=1586
NH₃ maser, magnetic perturbation of oscillator
line 2=1585
NH₃ maser oscillator, as far i.r. stimulated emission
detector 4=19253
NH₃ maser, Zeeman effect obs. 3=12354
NH₃, mean vibration amplitudes 1=14000
NH₃-metal solutions, electron spin relaxation and
electron diffusion 2=17488
NH₃-metal solutions salt effect 2=1142
NH₃, microwave line breadths 1=6006
NH₃ mol. beam, resonance radiation 3=6443
NH₃ mol. beams, directivity pattern 3=22615
NH₃, molec. orbital estimate of indirect p-p spin
coupling 0=7804
NH₃, molecular beam focusing 0=7826
NH₃, molecular-beam maser 0=5396
NH₃ molecular beam, resonance radiation 2=16571
NH₃ molecular beam, scattering cross-section with
H₂O 2=23018
NH₃, molecular force constants, crystalline, gaseous,
liquid 3=22566
NH₃, molecular nuclear coupling 1=17356
NH₃, molecular rotation in solid A and N 1=6010
NH₃ molecule, electron radial distrib. 2=12307
NH₃ molecule, far-u.v. spectrum 2=14284
NH₃ molecule, polarization, calc. 2=8074
NH₃, molecule, SCF MO one-centre basis set 4=20047
NH₃ molecule, X-ray and electron diffraction 3=8220
NH₃, molecules, electronic structure, by diffr., electrons,
X-rays 4=1271
NH₃ molecules, electron-density distributions 3=17587
NH₃ mols., scattered X-rays and electrons, intensities
calc. using two methods 4=6522
NH₃ mols, Urey-Bradley force field 3=12799
NH₃, ND₃ molecules, inversion, potential function 2=12308
NH₃, ND₃, structure, simple and hydrated 1=20555
NH₃, ND₃, molecular props. 0=4187
NH₃, NH₃D, ND₂H and NT₂, ν_2 and inversion energy
levels 1=17327
NH₃, n.m.d.r. 4=22423
NH₃, n.m.r., J coupling theory 3=14790
NH₃, in organic exchange reaction, rates 2=4525
NH₃, 1600 Å band system 1=8845
NH₃, photoionization, continuous absorpt., and
fluorescence 4=25690
NH₃, photolysis, primary, at 1470 Å 4=23676
NH₃, photolysis in solid matrix 0=14128
NH₃, proton irradi., rel. to conc. and decomp. 4=15848
NH₃, quadratic potential function 2=1986
NH₃, quantum-mech. theory, semiempirical 3=25112
NH₃, reaction with BF₃ 1=6568
NH₃, reaction with H atoms 2=23952
NH₃, reaction rates with mixtures of (O + O₂) 4=4693

Nitrogen compounds—contd

- NH_3 , refractivity, press. depend. 0=6839
 NH_3 , SCF wave-functions, population analyses 2=14317
 NH_3 , scattering of neutrons 1=5730
 NH_3 , shock waves rel. to thermal decomp. 4=23651
 NH_3 , slow-electron drift velocity, 77°-443°K 2=19900
 NH_3 , solid, absorption spectrum, vac. u.v. 0=13696
 NH_3 , solid, density, 77°-174°K, and vol. expansion coeff. 4=26497
 NH_3 , solid, isothermal PV curves, to 20000 kg/cm² 0=14042
 NH_3 , solubility of some salts and vapour press. of solutions 2=15576
 NH_3 solution, in water, Raman spectrum, var. with conc. 4=14169
 NH_3 , spectra, emission, excited by protons and H atoms 3=15338
 NH_3 , spectral J = 3, K = 3 line shape, rel. to pres. and microwave power, 23.86 Gc/s 3=3837
 NH_3 , spectrum meas. 3=4762
 NH_3 stream, electronic excitation 2=8138
 NH_3 , suspended in solid N_2 , i.r. spectrum 2=4151
 NH_3 , theory intensities of i.r. spectra 0=4203
 NH_3 , u.v. absorption spectrum 2=3749
 NH_3 , Urey-Bradley force field 3=22552
 NH_3 , vacuum u.v. photolysis 2=4550
 NH_3 , vibr. relax., by u.s. velocity dispersion 3=22567
 NH_3 , vibration-rotation bands 0=4201
 NH_3^+ radical, h.f.s., mol. orbital calc. 3=15343
 NH_3 -A gas-liquid phase equilibrium 1=18673
 NH_3 -Ar mixtures, viscosity 4=18242
 NH_3 and ND_3 , crystal structure at low temps. 0=4634
 NH_3 - N_2 - H_2 and NH_3 -Kr, equil. gas-liquid phase 0=14639
 NH_3 -NO flames, excitation, ionization 0=212
 NH_3 -Ni cyanide complexes, X-ray powder patterns 3=1406
 NH_3OH salts, i.r. spectra rel. to structure 2=540
 NH_3OHCl , irradiat., Cl_2^- e.s.r. 4=28869
 NH_3OHCl , Raman spectrum 4=26199
NH band spectrum in N-hydrocarbon reaction 2=12961
NH, electronic structure 0=7774-5
NH-metal solutions, paramagnetic resonance 2=1167
NH, NH_2 radicals, lower electron states theory 2=12336
NH radical, emission spectrum, rel. to shock wave in N_2 - H_2 systems 4=17320
NH radical, low-temp. i.r. study of chemistry 4=25757
NH, spectra in solid A, Kr, Xe 0=20661
NH, spectrum, (1, 0) band, rotational anal. 0=15699
 NH_2^- , charge transfer to SO_2 and CS_2 2=11616
 NH_2 free radical, hyperfine e.s.r. spectrum 4=6658
 NH_2 free radical, in Mrkos comet spectrum 2=13116
 NH_2 radical, electronic absorption spectra 0=4214
 NH_2 radical, H¹ and N¹⁴ coupling, orbital theory 2=3767
 NH_2 radical, spin polarization effects 3=22568
 NH_3 recombination in decomposition of NH_3 3=8308
 $[(\text{NH}_4)_2\text{CS}]_n\text{NiCl}_2$, crystal spectrum and magnetism 4=13064
 NH_2D , microwave spectrum, hyperfine structure 4=28206
 NH_2D molec. orbital estimate of indirect p-d spin coupling 0=7804
 NH_2D and ND_2H , spectroscopy in mm region 4=12479
 NH_2 - $\text{NH}_3^+\text{BF}_4^-$, crystal struct. by Weissenberg camera 4=29113
 NH_2NH_2 : N_2 system, i.r. spectrum, matrix isolation 3=15346
 NH_2OH and $\text{NH}_2\text{OH-d}_3$, freqs., from force consts. 3=4760
 $\text{NH}_2\text{SO}_3\text{H}$ (sulphamic acid), crystal structure 0=8228
 NH_3 , absorbate on glass, dielectric properties 1=20678
 NH_3 , activation energies of synthesis 2=15138
 NH_3 , adsorpt. on Vycor glass, i.r. study 4=20817
 NH_3 , adsorption on glass, i.r. studies 2=6858
 NH_3 , absorption spectra, 1440-1840 cm⁻¹ and 510-1280 cm⁻¹ 0=5934
 NH_3 , absorption spectra, 1850 to 4000 Å 4=11249
 NH_3 , adsorbed on porous Vycor glass, dielectric absorpt., 23.5 Mc/s 4=17293
 NH_3 , adsorption on carbon, enhancement of nuclear polarization 0=16717
 NH_3 , in atmosphere. 3=25870
 NH_3 , band in Jovian spectrum 4=23894
 NH_3 beam maser, characteristics 3=12352
 NH_3 beam maser as freq. standard 2=20141
 NH_3 beam maser, oscill. freq. meas. 3=12353

Nitrogen compounds—contd

- NH_3 -containing atmosphere, corrosion of Cu-Zn alloys 3=8953
 NH_3 , decomposition kinetics in shock tube 3=20026
 NH_3 , density of potassium solutions 1=4332
 NH_3 , diamag. susceptibility 1=8870
 NH_3 , diamagnetism, calc. 0=17795
 NH_3 , dielec. const., elec. moment and atomic polariz. 3=3838
 NH_3 , diffusion in diethyl ether 3=9492
 NH_3 , diffusion in He, Ne and Xe, force consts. 2=19608
 NH_3 , discharge, elec., glow, ion-molecule clusters 4=21481
 NH_3 , dissociation products in discharge, N_2 reaction 2=10250
 NH_3 , e.m. wave propag. meas. 4=3145
 NH_3 , electronic calc., harmonic force consts; i.r. and u.v. spectra 3=2632
 NH_3 , electronic structure 3=22565
 NH_3 , electronically excited states 4=6583
 NH_3 , equations of state, high temps., calc. 4=5232
 NH_3 , equil. between vapour and liq. aqueous phases 3=21336
 NH_3 , excited, molecular Jahn-Teller distortions 2=22983
 NH_3 , flash photolysis in vacuum u.v. 4=7769
 NH_3 , fluorescence of NH in photodissociation 4=4711
 NH_3 , force constants and interaction constants 0=20600
 NH_3 , force consts. and internuc. distances, one-centre calc. 3=22564
 NH_3 gas, ion-molecule reactions 4=2141
 NH_3 gas, mutual diffusion with A and Kr, -20° to 60°C 2=13365
 NH_3 gas, virial coeff. and light scattering 1=11788
 NH_3 , use of Gaussian functions in wavefunction calc. 3=19965
 NH_3 generator, continuous flow 2=18500
 NH_3 , high ligand field 2=6216
 NH_3 , i.r. spectra 2=8095
 NH_3 , interferometric spectra in far i.r. 1=841
 NH_3 , ion formation, negative, by electron resonance capture 2=7559
 NH_3 , ion mobility in argon 1=2945
 NH_3 , inversion frequency, pressure shift 0=13442
 NH_3 , inversion interactions 2=6142
 NH_3 , inversion vibration, influence of solid adsorbent 4=6582
 NH_3 , ionization potential calc. 0=17828
 NH_3 ions, dissociation due to collisions with mols., 3.5-100 keV 4=9783
 CINF_2 , i.r. spectrum 3=17585
 HN_3^+ ions, excited, molecular Jahn-Teller distortions 2=22983
 HN_2 , photolysis 0=3320, 4727
 HN_3 , gaseous, propagation of detonation waves 3=3850
 HN_3 , photolysis in solid CO_2 , i.r. spectra 3=3402
 HNO_2 , i.r. photochem. isomerization 3=16159
 HNO_2 , dissociation in soln. 0=3547
 HNO_3 , dynamic level monitoring in rocket tanks 0=14606
 HNO_3 γ -radiolysis 1=20763
 HNO_3 solutions, p.m.r., var. conc., mechanisms 4=206
 $\text{HNO}_3 \leftrightarrow \text{NO} + \text{NO}_2 + \text{H}_2\text{O}$, vapour-phase equilibrium 3=25813
 HONO , cis-trans isomerization in photolysis of hydrazoic acid 0=21288
 $\text{M}(\text{NH}_3)_6$ (M=metal), symmetry groups, character tables, computation 4=28180
N-inert gas molecular ion formation 2=9534
N oxides-H₂O system, absorption spectrum at 357 m μ 4=14168
N oxides, trace gases in atmosphere. 3=25870
 N_2 + carbonized + halogens products, luminescence, post, microwave excitation 4=9732
NBr radical, low-temp. i.r. study of chemistry 4=25757
NBr radical, i.r. spectrum 4=20122
 $[\text{N}(\text{CH}_3)_4] \text{HgBr}_2$, $[\text{N}(\text{CH}_3)_4] \text{HgI}_2$, ferroelec. props. 2=4093
 $(\text{NC}_5\text{H}_2)_2$, e.s.r. splittings 2=10278
NCl radical, i.r. spectrum 4=20122
NCl radical, low-temp. i.r. study of chemistry 4=25757
NBr, spectra in excited N_2 1=17311
NCN, structure, spectrum meas. 4=28280
 ND_3 , crystal structure det. by neutron diffraction 1=20541
 ND_3 , mean vibration amplitudes 1=14000
 ND_3 , mol. beam maser 2=9708
 ND_3 , molecular nuclear coupling 1=17356

Nitrogen compounds—contd

- ND₃, mols., Urey-Bradley force field, and thermodynamic props. 3=12799
 ND₄ salts, deuteron magnetic resonance 2=6708
 ND₃, vibr. relax., by u.s. velocity dispersion 3=22567
 N₂D₄, Raman spectrum and normal coord. treatment 4=1277
 N₂D₄, spectrum, i.r., and vibr. freqs. 4=12486
 N¹⁴D₃, inversion line J = 6, K = 6, hyperfine structure 3=2633
 ND₂CN, in-plane vibrations 3=22570
 NF radical, i.r. spectrum 4=20122
 NF radical, low-temp. i.r. study of chemistry 4=25757
 NF₂ radical, electronic absorption spectrum 4=28281
 NF₂, absorpt. spectrum 4=22380
 NF₂ radical, i.r. spectrum 1=17319
 cis - N₂F₂, microwave spectrum, structure and dipole moment 3=25111
 NF₃, dipole moment and ionic character, calc. 1=14119
 N₂F₂, isomerism and spectra 1=12326-7
 N₂F₂ isomers, n.m.r. and double resonance, structure determ. 2=16559
 N₂F₄, dissociation, appearance potential study 0=13427
 N₂F₄, Raman spectrum, vibr., and two molecular forms 3=22569
 N₂F₄ - NF₂, e.s.r. obs. of dissociation and free radicals 4=6654
 N₂F₄, r.f. spectrum and molecular structure 0=2752
 N₂F₄, strength of N-N bond 1=6054
 N₂F₄, thermal dissociation, mass spectra 1=17361
 NF₂H, (difluoramine), i.r. spectrum 3=8275
 NF₂H, (difluoramine), microwave spectrum and structure 3=8274
 NF₂H (difluoroamine), potential constants and thermodynamic functions 4=6591
 NF₃ and N₂F₄, bond strengths 1=19656
 NH₄Cl, aq. solns., with CaCO₃, 350-500°C, 100-1800 atm 1=15863
 NH₄Cl aerosol, optical scatt. data 3=19024
 NH₄Cl; Cl n.m.r. 2=10720
 NH₄Cl, crystal habit change caused by NiCl₂ 4=29027
 NH₄Cl, dendrites, parallel arrays 2=2354
 NH₄Cl drop, crystallization centre formation 2=4387
 NH₄Cl, elastic constants near λ-point 4=7410
 N₂H₄Cl₂, elastic and thermoelastic props. 3=18161
 NH₄Cl, electron-deficiency centres, e.s.r. meas. 4=10006
 NH₄Cl, H positions, electron diffraction study 0=21189
 NH₄Cl, I = II transitions, X-ray study 3=6810
 NH₄Cl, lattice energy and compressibility, ordering effect 4=28303
 NH₄Cl, monocrystal growing, effect of pectin 0=16262
 NH₄Cl, nucleation from HCl and NH₃ in air, surface energy 0=12096
 NH₄Cl, I = II transition, dilatometric investigation 0=16335
 NH₄Cl, polymorphism, on adding NiCl₂, simulation of cast iron 4=23273
 NH₄Cl, proton mag. res. 10719
 NH₄ClO₄, proton resonance 2=4291
 NH₄Cl, re-orientation rel. to unidimensional abrasion 2=19034
 NH₄Cl, solid, pure and doped, elec. cond. rel. to other NH₄ salts 4=30603
 NH₄Cl, texture after compression 2=14928
 NH₄Cl, thermoelasticity rel. to polycryst. state 2=12841
 NH₄Cl thin plates, phase-contrast studies 0=16826
 NH₄Cl transition energy at 183.1°C, differential calorimetric meas. 0=16334
 NH₄Cl - MnCl₂ - H₂O solid solns., e.s.r. of Mn²⁺ 4=28875
 NH₄ClO₄, conductivity, elec., temp. and ambient atmosphere effects 4=4200
 NH₄ClO₄, crystal structure at -35°C and decomposition 0=4635
 NH₄ClO₄, nuclear magnetic resonance 0=11958
 NH₄ClO₄, crystal structure 3=8852
 NH₄ClO₄, crystal structure, NH₄ ion orientation 3=8857
 NH₄ClO₄, sublimation and dissociation 1=8261
 (NH₄)₂Cd₂(SO₄)₃, ferroelectric, n.m.r. temp. depend. 1=11496
 (NH₄)₂Co(SO₄)₂ · 6H₂O, crystal struct., atomic 4=23435
 (NH₄)₂CrO₄, crystal structure meas. 4=23420
 (NH₄)₂Cr₂O₇, electronic absorpt. spectrum 3=15871
 (NH₄)₂CrO₄, proton resonance 2=4291
 (NH₄)₂Cr₂O₇, neutron irradi., chemical effects 2=21592
 (NH₄)₂Cr₂O₇, proton resonance 2=4291

Nitrogen compounds—contd

- (NH₄)₂Cr₂O₇ solution, magnetic susceptibility 3=146
 NH₄CuCl₃, crystal structure 3=18314
 (NH₄)₂ Cu Cl₄ · 2H₂O, e.s.r. absorption 3=1185
 (NH₄)₂CuCl₄ · 2H₂O, proton mag. res. rel. to electron distrib. 3=1208
 NH₄D, interferometric spectra in far i.r. 1=841
 NH₄F phase transition 1=7833
 NH₄F solns., n.m.r. of F, var. conc. 4=23067
 NH₄F solid state phase transformations, rel. to temp. and pressure 4=13478
 (NH₄)₂Fe₂Al_{1-x}(SO₄)₂, proton resonance 1=14828
 NH₄Fe₂Al_{1-x}(SO₄)₂, proton mag. resonance 1=14826
 NH₄FeAl(SO₄)₂ · 12H₂O, crystal field, e.s.r. study 2=4262, 23033
 (NH₄)₄Fe(CN)₆ · 3H₂O ferroelectric properties 1=14558
 NH₄Fe(SO₄)₂, adiabatic demagnetization, cooling effect 4=5485
 NH₄HF₂, electron density distrib. 0=8205
 (NH₄)₂H₂IO₆, dielec. permittivity, +20° to -70°C 0=18084
 (NH₄)₂H₂IO₆, nuclear spin-lattice relax. and ferroelec. transition 2=10711
 NH₃ · H₂O, crystal structure at -95 and -160°C 0=4633
 (NH₄)₂ + (H₂PO₄)₂, e.s.r. and chem. structure 2=14822
 NH₄H₂PO₄ (ADP), elastic const., from acoustic shear-wave vel., rel. to Laval theory 1=6444
 NH₄H₂PO₄ (ADP), elastic constants 1=20291
 NH₄H₂PO₄ (ADP), high-speed shutter 2=22007
 NH₄H₂PO₄ (ADP), thermal expansion 24° - 134°C 3=25202
 NH₄H₂PO₄ crystals as monochromator prisms 0=16863
 NH₄H₂PO₄, dielec. const. 20-80°C, for various cuts 0=11742
 NH₄H₂PO₄, dielec. props., rel. to temp. 2=18766
 NH₄H₂PO₄, dielectric props. at Gc/s freqs. 1=17823
 NH₄H₂PO₄, elec. cond. rel. to temp. 4=28609
 NH₄H₂PO₄, flexural vibrations of plates 2=13394
 NH₄H₂PO₄, nucleation rel. to mechanical agitation 2=21489
 NH₄H₂PO₄, optical second harmonic generation, by laser beams 4=28666
 NH₄HSO₄, ferroelec. props. near phase, transition 2=16784, 23499
 NH₄HSO₄, ferroelectric, n.m.r. temp. depend. 1=11496
 NH₄HSO₄, i.r. absorption at ferroelec. Curie point 2=16833, 18841
 (NH₄)₂H₂P₂O₇, γ-irrad., e.s.r. of defects 3=13022
 (NH₄)₂HPO₄, irradi., paramag. fragment 3=11117
 NH₄H₂PO₄, optical harmonic generation 3=20453
 NH₄H₂PO₄, optical harmonic generation, continuous using gas, laser 3=21506
 (NH₄)₂H₂PO₄, thermally dehydrated, Raman spectra and structure 3=15695
 (NH₄)₂HSO₄, polarization reversal characts., -20° to -100°C 4=30649
 NH₄HSO₄, nuclear spin-lattice relax. and ferroelec. transition 2=10711
 NH₄HSO₄, vibrational spectra by Raman scattering method 4=1717
 NH₄I, antiferroelectricity 2=6526
 NH₄I, n.m.r. 2=10720
 NH₄I, I-II transition energy and temp., direct meas. 4=26545
 NH₄I, permittivity, effect of high press. 2=23494
 NH₄I, proton resonance 2=4291
 NH₄IO₃, proton resonance 2=4291
 (NH₄)₂IrCl₆, crystalline, Szilard-Chalmers reactions, Ir¹⁹² recoil species 0=12109
 (NH₄)₂(IrCl₆), exchange interactions 0=13876
 NH₄K_xI_{1-x}, rotation of NH₄⁺ meas. 3=15418
 NH₄-K solutions, paramag. relax. times 4=8222
 (NH₄)_x K_{1-x} NO₃, mixed crystal, ferroelectricity, and KNO₃ phase III 4=1659
 (NH₄)₂M(SO₄)₂ · 6H₂O [M = Mg, Zn, Ni, Co], Raman spectra 2=6585
 NH₄MnF₃, mag. structure, neutron diffn. meas. 4=28859
 (NH₄)₂Mn₂(SeO₄)₃, Fe K_α radiation study 4=30843
 NH₄⁺ and ND₄⁺, force consts. 0=17724
 NH₄NO₃, anomalous thermal expansion 0=17899
 NH₄NO₃, catalytic thermal decomposition 3=3398
 NH₄NO₃, crystalline, i.r. spectra, showing phase transformations 4=10419
 NH₄NO₃, cubic, molecular rotation, x-ray study 1=1401
 NH₄NO₃, decomposition by γ-rays from Co⁶⁰ 1=20764
 NH₄NO₃, decomposition, thermal, isotopic tracer study 3=20988

Nitrogen compounds—contd

- NH_4NO_3 , dielectric anomaly in low frequency region 4=4199
 NH_4NO_3 , drop growth in humid air stream 1=11746
 NH_4NO_3 , phase transitions -100° to 130°C , dielectric observations 1=1356
 NH_4NO_3 , proton resonance, 20°K - room temp. 2=4291
 NH_4NO_3 , tetragonal, hindered rotation of NO_3 groups, X-ray study 0=21190
 NH_4NO_3 , thermal transformations mechanism, 2=6762
 NH_4OH , acoustic velocity u.s. 0=5012
 NH_4OH , NH_3 , exchange with metal-ammine complexes 2=4525
 $(\text{NH}_4)_2\text{OsBr}_6$, thermal annealing of chem. radiation damage 4=12822
 NH_4PF_6 , PF_6 e.s.r., rel. to γ -irrad. 3=20652
 NH_4PF_6 , rotation of NH_4^+ meas. 3=15418
 NH_4PF_6 , specific heat and phase transitions 3=12927
 $(\text{NH}_4)_4\text{P}_2\text{O}_{12}$, crystal structure 4=23418
 NH_4SCN , proton resonance 2=4291
 $(\text{NH}_4)_2\text{SO}_4$, absorption spectrum, 55 to 170 cm^{-1} 4=28668
 $(\text{NH}_4)_2\text{SO}_4$, birefringence, temp. depend. 3=17981
 $(\text{NH}_4)_2\text{SO}_4$, elec. cond. and transition, -72° to 200°C 3=20382
 $(\text{NH}_4)_2\text{SO}_4$, ferroelectric phase transitions and other props. 2=14916-17
 $(\text{NH}_4)_2\text{SO}_4$, i.r. absorption at ferroelec. Curie pt. 2=16833, 18841
 $(\text{NH}_4)_2\text{SO}_4$, n irr., N_2H_4 prod., by u.s. 4=4089
 $(\text{NH}_4)_2\text{SO}_4$, n.m.r. and i.r. study 0=11957
 $(\text{NH}_4)_2\text{SO}_4$, nuclear spin-lattice relax. and ferroelec. transition 2=10711
 $(\text{NH}_4)_2\text{SO}_4$, in para- and ferroelectric states, Raman spectra 4=7107
 $(\text{NH}_4)_2\text{SO}_4$, proton resonance 2=4291
 $(\text{NH}_4)_2\text{SO}_4$, Raman spectrum 2=6584
 $(\text{NH}_4)_2\text{S}_2\text{O}_8$, rotation of NH_4^+ meas. 3=15418
 $(\text{NH}_4)_2\text{SO}_4$, vibrational spectra by Raman scattering method 4=1717
 $\text{NH}_4\text{SO}_3\text{F}$, rotation of NH_4^+ 3=15418
 $(\text{NH}_4)_2\text{SeO}_4$, crystal structure meas. 4=23420
 $(\text{NH}_4)_2\text{SiF}_6$, cubic and hexagonal, heat capacity, 25° to 300°K 4=12645
 $(\text{NH}_4)_2\text{SnBr}_6$, heat capacity study, ammonium ion motion 0=11582
 $(\text{NH}_4)_2\text{SnBr}_6$, proton resonance 2=4291
 $(\text{NH}_4)_2\text{SnCl}_6$, heat capacity study, ammonium ion motion 0=11582
 $(\text{NH}_4)_4\text{Ti}_3(\text{H}_2\text{AsO}_4)_7$, "Atlas", ferroelectric properties 4=1660
 $(\text{NH}_4)_2\text{TeO}_4$, proton resonance 2=4291
 $(\text{NH}_4)_2\text{UO}_2(\text{SO}_4)_2 \cdot 2\text{H}_2\text{O}$, fluorescence with alkali halides 0=4432
 NH_4VO_3 , proton resonance 2=4291
 $(\text{NH}_4)_2\text{VO}(\text{NCS})_4 \cdot 5\text{H}_2\text{O}$, crystal struct., atomic, anomalous X-ray scatt. obs. 4=29109
 N_2H_2 , i.r. spectrum 1=7715
 N_2H_2 , i.r. spectrum and structure 4=28214
 N_2H_4 , reaction with H atoms 2=23952
 N_2H_4 , shock waves rel. to thermal decomp. 4=23650
 N_2H_4 , Raman spectrum and normal coord. treatment 4=1277
 N^{14} , refractive index, microwave 2=1200
 N^{14}H_3 , high-resolution maser 2=16019
 N^{14}H_3 maser, 3, 2 line, as freqn. standard 3=519
 N^{14}H_3 , refractive index in microwave region 3=21362
 $\text{N}^{14}\text{H}_3^+$, INDOR spectra, spin decoupling 2=23004
 N^{15}H_3 and deuterio derivs., n.m.r., p-d coupling, isotope shifts 4=25741
 N^{15}H_3 , double-beam maser, as frequency standard 2=3161
 N^{15}H_3 maser, comparison with N^{14}H_3 1=14103
 N^{15}H_3 , maser, double-beam, as primary frequency standard 2=5466
 N^{15}H_3 maser, freq. var. and use as standard 4=770
 NHR and NH radicals, bonds with B, magneto-optic meas. 4=15343
 NH_4HSO_4 , specific heat, and ferroelec. transform., -2.55°C 3=20101
 N-He mixtures, viscosity, up to 680°C and 200 kg/cm^2 4=29669
 NO-A , vibrational relaxation, shock-tube study 2=15135
 NO , absolute intensity of 5μ fundamental 3=15339
 NO , absorption spectra, 1850 to 4000 A 4=11249

Nitrogen compounds—contd

- NO , absorption spectra, Rydberg series 2=3735
 NO , absorption spectrum 4=20055
 NO , afterglow, intensity and decay rate 3=24245
 NO , in atmosphere, spectral data 2=8951
 NO , atomic exchange 0=13454
 NO band emission in shock heated air 3=3836
 NO , band transition probabilities 0=15753
 NO , β and γ band system, Franck-Condon factors 4=9719
 NO , β and γ bands, Franck-Condon factors calc. 4=15337
 NO , β and γ systems, band and oscillator strengths, rel. to electronic transition moments 4=9718
 NO in β quinol clathrate, mag. susceptibility 0=10097
 NO , charge transfer cross-sections 3=14530
 NO , chemical reaction with F_2 , dilute diffusion flame study 0=16374
 NO , in clathrates, low-temp. susceptibility 2=2268-9
 NO decomposition rate between 3000 and 4300°K 1=7904
 NO , β , γ , δ and Ogawa band excitation 3=8264
 NO , δ -bands, oscillator strength 1=2334
 NO , dissociation and vibr. rates meas. 3=7274
 NO , electronic structure and h.f.s. consts. 0=17800
 NO , electronic transition dipole moment, matrix element meas. 4=22365
 NO , emission spectrum in solid Ar and Kr 4=25657
 NO , energy transfer in fluorescence 3=8265
 NO , excited states, lifetime meas. 4=28197
 NO , fluorescence, lifetime of $\text{A}^2\Sigma^+$ state 3=23936
 NO , fluorescence, vibr. energy transfer between $\text{NOA}^2\Sigma^+(v=3,2,1)$ and $\text{N}_2\text{X}^1\Sigma_g^+(v=0)$ 3=23937
 NO , fluorescence and vibrational relaxation 1=14007
 NO , Franck-Condon factors 4=27480
 NO , Franck-Condon factors and oscillator strengths 4=9715
 NO , γ -bands, rotational anal., $\text{A}^2\Sigma^+$ electronic const. 0=15704
 NO , γ -bands at 2000°K , absorpt. 3=2606
 NO , γ_{00} absorption band, use in temp. meas. 3=10516
 NO , H passage through, electron loss and capture 4=463
 NO , $\text{H}^2\Sigma^+$ and $\text{H}^{12}\Pi$ states, doublet splittings theory 4=6575
 NO -hydrocarbon flames, excitation, ionization 0=212
 NO , i.r. emissivity on anharmonic model 2=12327
 NO , i.r. $\text{X}^2\Pi_{3/2} \rightarrow \text{X}^2\Pi_{1/2}$ bands, intensity 4=12465
 NO , isotope separation factors 1=12268
 NO , kinetics, shock-tube study, 3000° - 8000°K 2=15134
 NO in Kr and methanol solns., charge-transfer absorption spectra 4=21136
 NO , mm radiowave absorption 2=7261
 NO , mag. h.f.s. coupling consts., calc. 0=9828
 NO , magnetic rotation spectra, near i.r. 0=20623
 NO , microwave spectra, h.f.s. 0=13443
 NO , mol., absorpt. spectrum below 1600 A , analysis 2=10263
 NO , molecular bond length by neutron diffraction 2=22960
 NO , molecular orbital study 0=9827
 NO molecule, Franck-Condon factors, calc. 2=16521
 NO , molecules vibrations, relax. time and quantum no. 1=12274
 NO , NO^+ , far-u.v. spectra 2=14284
 NO , near i.r. emission spectrum 4=28199
 NO , photoionization 2=5299
 NO , photoionization 3=5622
 NO , photo-ionization efficiency curves, 9-14 eV 3=24211
 NO , photolysis with ozone 0=8315
 NO plasma, electron removal by recombination, attachment, and ambipolar diffusion 2=3030
 NO , potential energy curves 0=17734
 NO radicals, e.s.r. spectra, solvent effects 4=11218
 NO , reaction with atomic N 2=17086
 NO , reaction with O atoms 4=29215
 NO , reaction with O_3 in supersonic nozzle 4=7752
 NO , recomb., three-body reaction kinetics 4=1319
 NO , reactivities 0=8777
 NO , rotational transitions, absorption coeff. 2=20791
 NO , shock tube study of vibrational relaxation 1=5997
 NO , solid, e.s. energy calc. from quad.-quad. interaction 4=30494
 NO spark-produced in air, rel. to breakdown voltage 3=4100
 NO spectra, afterglow, rel. to atmos. spectra 2=15252
 NO , spectra, visible and i.r., Rydberg series 3=10518

Nitrogen compounds—contd

NO, spectral and total i.r. emissivities, high-temp. 2=10256
 NO, spectrum, β -bands, upper vibration state ($V' = 7$) 0=7790
 NO spectrum and energy levels 3=10517
 NO, spectrum, γ, ϵ, β bands 0=5943
 NO, spectrum 1.2-3 μ 3=24023
 NO, spin-forbidden transition in soln. spectra 2=1148
 NO, transition probabilities 0=11518
 NO, transition probabilities in far-u.v. 2=8108
 NO unimolecular decomp. 0=8302
 NO in upper atmosphere, absorption spectroscopy data 1=6586
 NO, vapour pressure, temp. var. 2=132
 NO vapour, saturated, thermal capacity 3=11833
 NO, in various solvents, near-u.v. absorption, HONO formation 2=19561
 NO, vibration-rotation spectrum 4=25658
 NO, vibrational relax., meas. and theory 3=6394
 NO, vibrational relaxation 0=17735
 NO, vibrational relaxation in NO-CO-N₂, spectral study 2=20817
 NO, vibrational relaxation after shock heating, study 2=2769
 N¹⁵O₂¹⁶, dipole moment from Stark effect meas. 4=17294
 NO₂ ion, u.v. bands and electronic transitions 2=20837
 NO₂ radical, trapped, structure and spectra 3=6418
 NO₂⁺, in ionic melts, u.v. spectrum rel. to positive ions 2=15593
 NO₂, paramagnetic res. in doped alkali halides 2=773
 NO₂ radical, planar and pyramidal, orbital calcs. 4=20602
 NO₂, structure 3=13598
 NO₂⁺ in solution, absorption spectra 2=5024
 NO₂⁺ spectrum, in molten salt, charge transfer 4=15338
 N₂O, absorpt. band, test of theoretical model approx. 4=9743
 N₂O, absorption radio waves, 100-117 Gc/s 1=4380
 N₂O, absorption spectra, 1850 to 4000 Å 4=11249
 N₂O, abundance in ground level air 3=13664
 N₂O, atmospheric abundance, spectral data 2=8951, 17126
 N₂O, compressibility rel. to intermol. forces 2=15644
 N₂O, decomposition, shock-tube meas. 4=29216
 N₂O, diffusion in H₂-N₂O, 300-480°K 1=15946
 N₂O, dissociation, by inert gas ion impact 4=29875
 N₂O, dissociation rate, Monte Carlo calc. 2=18488
 N₂O, use in dosimetry 1=3094
 N₂O, far-u.v. spectrum 2=14284
 N₂O, 4.5 μ band, band model appl. 4=25602
 N₂O gas, large ions mobility, effect of light 1=16273
 N₂O gas, pressure-modulated, i.r. emission 2=11429
 N₂O, i.r. absorpt. spectrum, 1830 cm⁻¹-2270 cm⁻¹ 4=15350
 N₂O, i.r. absorption intensities meas. 2=3744
 N₂O, i.r. absorption line broadening 2=14272
 N₂O, ionization by electron beams 1=8308
 N₂O, ionization by electron impact 1=8307
 N₂O, ionization, by Li positive ions 1=4565
 N₂O, ionization potential 0=7780
 N₂O, isotopic, i.r. spectra 4=20069
 N₂O, mm radiowave absorption 2=7261
 N₂O, mass spectrum from ion source 4=21589
 N₂O molec. crystals, far i.r. spectra 4=20446
 N₂O molecule, potential const., determ. from vibr-rot. interaction const. 4=15352
 N₂O, photoionization by solar Lyman- α radiation 1=11649
 N₂O, photolysis 1=9174
 N₂O, photolysis 2=8926
 N₂O, photolysis in far ultraviolet 1=6575
 N₂O, precise i.r. spectral wavelengths 1=12985
 N₂O, pressure-modulated i.r. emission 2=11430
 N₂O prodn. in liquid N₂-O₂, u.v. photolysis 3=3408
 N₂O, pure rotational absorption lines 3=24019
 N₂O, quenching of Hg(6³P₁) atoms, isotope effect 0=15650
 N₂O, reaction with H atoms 2=23952
 N₂O, relaxation time meas. by infrared method 1=19630
 NO + N rate of reaction 2=2443
 NO-NO₂ systems, N isotope fractionation 2=4527
 NO + NO₂ + H₂O = 2HNO₂, vapour phase equilibrium 4=15835
 NO-N₂O mixtures, viscosity, 200-500°C 2=21936
 N-O discharge afterglow, chemical ionization reaction 4=23648
 NO + O, chemiluminescence 4=13720

Nitrogen compounds—contd

NO⁺, atm. distrib., 130-430 km 4=26839
 NO⁺, charge transfer with atomic O 3=14531
 NO⁺, excitation function, slow-electron collisions 2=18424
 NO⁺, formation in atmosphere 1=20890
 NO⁺, formation in ion-molecule reactions 3=23539
 NO⁺ ion, in upper atmosphere, formation 2=8985
 NO⁺, in ionosphere, E region, radar detection, gyro 4=2281
 NO⁺, ionospheric, rel. to height and latitude 2=8987
 NO⁺ ions, effect on elec. cond. of air in shock wave 0=5055
 NO⁺, produced in N + O atom collisions 4=30397
 NO + O → NO₂ + $\kappa\nu$, chemiluminescent reaction at low press. 4=26744
 NO₂, absolute i.r. intensity, meas. rel. to temp. 2=12328
 NO₂, absorption radio waves, 100-117 Gc/s 1=4380
 NO₂, absorption spectrum, 1650-1350 Å 2=12334
 NO₂ content in atmos. in Sahara, presence everywhere inferred 1=20809
 NO₂, Coriolis coupling coeffs. calc. 4=3840
 NO₂, dipole moment from Stark effect meas. 4=9744
 NO₂, electronic structure 2=8110
 NO₂, electronic structure, LCAO MO calc. 1=2339
 NO₂, emission and dissociation in shock waves 4=3919
 NO₂ flash photolysis, conc. of vibrationally excited O₂ 4=23675
 NO₂, force const. determination by isotopic molecular freqs. 2=18431
 NO₂, ionization potential meas. from ethyl nitrate 3=4014
 NO₂ ionization potential by photoelectron energy spectra 3=7434
 NO₂, ionization potentials, spectral meas. 2=13535
 NO₂, microwave fine structure, theory 0=2761
 NO₂, microwave spectrum, fine structure and mag. coupling 4=22379
 NO₂, mol. structure det. from moments of inertia 3=2597
 NO₂ mol., thermal emission and electronic levels 3=726
 NO₂, molecular electronic structure 1=19645
 NO₂ mols., electronically excited, dissociation 3=12872
 NO₂ mols., upper electronic level, oscillator strength 3=19994
 NO₂, negative ion formation by electron attachment 0=3739
 NO₂, optico-acoustic effect 0=19215
 NO₂, photo- and electron impact ionization 2=15882
 NO₂, photolysis 3=18456
 NO₂, in planet Mars, atmosphere, and blue haze 3=18598
 NO₂, reaction with atomic H 2=23953
 NO₂, reaction with O atoms 2=20891
 NO₂, reaction with O atoms 4=29215
 NO₂, rotational analysis of 2491 Å band 2=6147
 NO₂⁺, SCF wave-functions 3=25110
 NO₂, visible light absorption 0=1524
 NO₂, Zeeman effect, far i.r., microwave interferometric obs. 4=17295
 (NO₂)₂, molecular struct., from dipole moments with NO₂ in var. solvents 4=28222
 NO₂⁻ ion, formation by charge transfer at low energies 2=3009
 NO₂⁻ ions, spectrum, solvent band shifts and electronic transition assignments 4=3878
 NO₂⁺, ground-state wave-function 1=9939
 NO₂²⁺ ions, potential curves evaluation 2=20816
 N₂O, shock-front structure and reflectivity 1=167
 N₂O, slow-electron drift velocity, 77°-443°K 2=19900
 N₂O, solid, disorder confirmed by neutron diffraction 2=4358
 N₂O, sorption on NiO, MgO, neutron irradiated 3=13604
 N₂O, spectrum, i.r. band excited by active N 3=25108
 N₂O, spectrum, 02°0'-01°0' band 4=28221
 N₂O, spectrum 1.2-3 μ 3=24023
 N₂O, thermal decomposition 2=4529
 N₂O thermal decomposition in shock waves 1=11617
 N₂O, 3 ν_2 vibr.-rot. band, and constants 2=18463
 N₂O, total absorptance near 4.5 μ 3=14217
 N₂O, transfer of vibrational energy 0=7817
 N₂O, u.s. dispersion meas. by optical diffr. 4=11246
 N₂O, u.s. velocity, freq. depend. 1=8160
 N₂O, ultrasonic relaxation 1=8162
 N₂O, vapour pressure, structural and isotope effects 1=16171
 N₂O, vibration-rotation spontaneous emission probability 4=20070

Nitrogen compounds—contd

- $N_2^{14,15}O_{16}$, $N^{15}N^{14}O_{16}$, spectrum absorpt., rot., Fermi diodes 4=25676
 N_2O^+ , collision-induced dissociation $\rightarrow NO^+$ 2=9525
 N_2O^+ , emission spectrum meas. 4=12474
 N_2O^+ , radiative lifetime of $B^2\Sigma^+$ state 0=15754
 $N_2O + O^-$ reactions, mass spectrometer obs. 4=29218
 N_2O_3 , i.r. absorption in solid, unstable isomer 0=17750
 N_2O_4 , absolute i.r. intensity, meas. rel. to temp. 2=12328
 N_2O_4 , aqueous solution, u.s. absorption 1=11760
 N_2O_4 , crystal structure of unstable monoclinic form 4=4618
 N_2O_4 , dissociating, sound propagation 1=8159
 N_2O_4 , dissociation, heat transfer calc. 2=2763
 N_2O_4 , gas, u.s. studies 1=4376
 N_2O_4 , gas-phase dissociation 3=2666
 N_2O_4 , heat of dissociation 2=2027
 N_2O_4 , i.r. absorption in solid, unstable isomers 0=17750
 N_2O_4 , isotope exchange reactions 0=16373
 N_2O_4 , mol. SCF, bonds, calc. 4=15373
 N_2O_4 , molecular electronic structure 1=19645
 N_2O_4 , rate of dissociation meas. by u.s. absorption 3=4784
 N_2-O_2-Ar discharges, forbidden auroral radiation 4=18708
 N_2O_4 , N—N bond, energy levels LCAO MO calc. 1=2338
 N_2O , and N_2O-N_2 mixtures, total i.r. absorbance rel. to conc. and press. 2=19619
 N_2O_4 , nonplanar isomer 0=2751
 N_2O_4 , thermal conductivity of dissociating gas 2=13374
 N_2O_4 , u.s. dispersion 2=4530
 N_2O-H_2 gas mixtures, spark discharge behaviour 0=3746
 $N_2O_4 \rightleftharpoons 2NO_2$ system, thermal conductivity 0=2185
 N_2O_4 and N_2O_3 , acoustic study of dissociation 0=20598
 N_2O_5 , molecular structure 2=22951
 N_2O_5 unimolec. cpds. 0=8302
 $N_2^{14,15}O_4$, i.r. and Raman spectra, in 3 phases 0=13436
 NO_2Cl , dissociation rate 4=22427
 NO_2Cl molecule, inertia defect meas. 4=6533
 NO_2Cl molecule, thermodyn. props. 3=12797
 NO_2Cl , photodecomposition 1=20756
 NO_2Cl , potential consts. and thermodynamic props., calc. 1=13981
 NO_2Cl , thermal decomposition in shock waves in A and O_2 2=15133
 NO_2F molecule, thermodyn. props. 3=12797
 NO_2F , potential consts. and thermodynamic props., calc. 1=13981
 NO_2F , NO_2Cl , force constants 2=6134
 NO_2F and NO_2Cl , potential energy consts., rotational distortion consts. and thermodynamical consts. 2=10240
 N_2O_3-NO , N isotope exchanges 3=13592
 $N_2O \rightleftharpoons 2NO_2$, equilibrium and thermal conductivity 1=10549
 $N_2O_4 \rightleftharpoons 2NO_2$, thermal conductivity 1=12673
 $NO-NO_3$ system, fractionation of N^{15} 1=7900
 $(NO_2)_2 \cdot S_3O_{10}^{2-}$, crystal structure 4=26663
 $NO(SO_3)_2^-$ in dil. and conc. solutions, nuclear double resonance rel. to appd. fld. 4=28890
 $[NO(SO_3)_2]^-$ electrolytic ion, e. p. v., N^{15} , S^{33} lines 4=3904
 $NO(SO_3)_2$ in solution, proton resonance and e.s.r. 1=14819
 $NS, B^2\pi-X^2\pi$ system, vibr. analysis 3=12825
 NS molecule, new $2\pi-X^2\pi$ band system 4=25659
 NS radical, band system observation 2=20818
 NS , spectrum, new $2\pi-X^2\pi$ band system 3=12826
 NSF , microwave spectrum and structure 3=22563
 NSF_3 , molecular constants 2=20838
 NSe , crystal structure 2=17018
 NT_3 , mean vibration amplitudes 1=14000
 NT_3 , ν_3 and ν_1 bands meas. 4=6576
 NT_3 , ν_2 and ν_4 , band spectra 2=6163
 NT_3 , spectrum, pure rotational 2=22980
 NT_3 , wave-numbers, rotational distortion const. thermodynam. props. 0=17741
 NYZ_2 (Y, Z = H, D, T), wave numbers, rot. distortion const., thermodynamic props. 1=6000

Nobelium

No entries

Noise

- aerodynamic 1=12956
 ambient, in ocean, i.f., periodic variations 1=2832
 effect on visual functions 1=21139

Noise—contd

- in equilibrium systems 0=6692
 ferromagnet, Barkhausen noise intensity rel. to stress heat treatment and structure 3=3104
 impulsive random, amplitude distribution, theory 1=10782
 laser, transmission line matrix formalism 4=14926
 likelihood detection of signal obscured by Markovian noise 4=27077
 luminance, effect on contrast thresholds 4=20982
 maser, reflection cavity, optimum perform. 4=11816
 meter reading of levels, observer variability 4=2795
 modulation of oscillations and resultant energy spectrum 0=14522
 nuclear reactor, Dounreay, measurements 4=19882
 nuclear reactor neutron flux and core flow, GE VVBR 4=19881
 nuclear reactor noise anal. technique, University of Florida 4=19873
 nuclear reactor, Saxton, measurement 4=19880
 in nuclear reactor, use for shutdown reactivity meas. 4=19864
 nuclear reactors, noise sources 4=19878
 nuclear reactors, pressurized-water analysis for instability 4=19879
 in nuclear reactors, spectrum and variance, Rice formulation 1=17201
 in nuclear reactors, theory 4=19861
 in nuclear reactors, use for transfer function meas. 4=19871
 optical, modulation, coherent and thermal light 4=14328
 optimum optical density for "shot" noise limited spectrophotometers 0=1034
 photon, in photographs, and informational assessment 3=14389
 power spectra, Fourier analysis 1=7970
 random, intensity fluctuations, in N-dim. space 3=11706
 random systems, stability 0=18580-1
 in reactors and reactor-like systems, theory 4=19860
 signal-to-noise ratio in spectra from Fourier spectroscopy 4=24365
 stationary, small-signal detection in, probability 1=2721
 statistical properties 3=11871
 time or space distributions, visualization method 1=18537
 turbulent airflow 1=8147
 vibration materials, dynamic characts. 4=28912
 white, excitation, response to two-degree-of-freedom systems 1=6925
 white, in non-linear first-order system, analysis 1=17981
 He—Ne laser amplifier, noise meas. 4=16698
- acoustic
 aerodynamic, use of pressure quadrupole 3=9570
 aerodynamic, from use of pressure quadrupoles 3=18946
 aerodynamic noise of rigid flat plate moving at zero incidence 0=1011
 aerodynamic, and plane boundary 0=14768
 aerodynamic sound in tube banks 2=2816
 aircraft in flight, judgement by observers 4=4973
 aircraft, human reactions 0=813
 aircraft, turbojet and turbofan-powdered 4=283
 ambient, in coastal lagoon. 3=25863
 ambient noise in deep inland lake 1=9457
 ambient, under arctic-sea ice 4=23715
 ambient sea noise directivity, 14 500 ft depth 4=29264
 ambient sea noise model 4=29265
 analysis by automatic commutation of frequency bands 2=2842
 analysis, bandpass filter error 3=227
 in Arctic Ocean, ambient noise 4=23719
 atmospheric, small listening group, reliability anal. 0=19328
 audio analgesia and auditory fatigue 2=11215
 audiometric study, precision and reproducibility 2=7063
 auditory detection 0=2057
 auditory detection, effect of background noise 2=24203
 automobiles, instruments and techniques 3=14292
 background-noise levels in suburban communities 4=14313
 band-limited, propagation meas. 0=6894
 bathyscaph meas. in deep water; depth and sea state depend. 0=14755
 blower, dimensional analysis 4=2801

Noise—contd

acoustic—contd

from boundary layer turbulence $S=14290$
 cavitation bursts invest. 3=5421
 cocktail parties 0=2217
 common noises, loudness 0=6892
 complex, loudness level det. from weighted sound level 2=78
 control by metal sandwiches 4=14316
 control, by multireson. volume absorbers 0=6896
 covariance, in attenuating media 4=21257
 critical band concept 4=5342
 cross-correl., effect on signal detection 3=9556
 d.c. electric arc, hissing 3=16918
 delay lines, randomization 0=14738
 design of directional arrays for low noise 0=1006
 detection of acoustic signal in turbulent airflow 0=12463
 directivity of ambient noise, meas. 2=9351
 discrimination factor for array of hydrophones 4=18359
 in ebulliometry 0=10811
 effect on auditory signal detection 4=20972
 effect of backward masking of a signal 0=2054
 on endocrine system, lethal effects, guinea-pig data 0=6501
 evaluation, D.I.N. 5045 meter 0=10740
 in factory, from rectangular array of incoherent sources 2=15712
 farfield-noise prediction from nearfield-spectrum meas. 4=14314
 fields, signal detection by arrays 4=27268
 flame, turbulent, gasoline, Primus 3=11872
 flames, open and turbulent 3=14289
 flow, water, in plastic tubes 3=5505
 frequency analysis of random short-duration noise 3=14285
 frequency evaluation, noise grouping 1=216
 generation by siren, wide-band noise 3=9569
 generators, high-intensity, survey of basic types 4=5301
 helicopter rotors at tip speeds up to 900 ft/s 0=16806
 helicopters, air-to-ground oblique propag., over buildings 0=14769
 hydrodynamic cavitation, spectra 4=291
 impact noise isolation rel. to transmission loss for floors 4=2803
 impact-noise meas., tapping machine standard 3=23989
 impact noise, origin and reduction 0=19335
 impact-, recommendations for U.S.A. housing 4=18365
 impact, reverberation effect on subject reaction 4=14315
 impact sound under concrete-floating-on-wood-joint floor 4=24330
 impairment of hearing on exposure to steady-state noise 4=4975
 instrument to display loudness of interference noise 4=5332
 instruments for measurement 4=18361
 insulators for various parts of freq. range 4=295
 interaural correlation in hearing 3=3677
 interaural, correlations 0=2052, 14337
 intermittent, heard by observer while searching for visual display 4=20984
 jet of air impinging on plate 1=11823
 jet aircraft, automatic processing system 1=2828
 jet aircraft, spectra and directivity 3=11873
 jet, energy flux from source in moving fluid element 0=16782
 jet-noise, sound transmission through flow velocity discontinuity 0=16781
 jet and rocket, scale models 1=12955
 jets, turbulent 1=1801
 jets, underwater, cavitation noise 1=16045
 judgement tests, piston, turbojet, turbofan aircraft 2=13210
 Knudsen spectra in ocean, origin 3=16201
 loudness calculation, Mark VI 1=18535
 loudness, estimation 1=7961
 loudness, review 4=289
 loudness of simple short pulses 4=2483
 loudness summation under masking 1=7960
 low noise-level stimulation 0=2047
 machinery, sound-power output versus sound pressure level 3=7298
 machines, choice of parameter 2=2844
 marked thresholds for octave band noise 0=3365
 masker level and noise-signal detection 4=15980

Noise—contd

acoustic—contd

masking of octave bands in normal and impaired ears 0=4826
 masking of pulsed tones 1=21121
 masking of tones, for cat's hearing 3=9301
 meas., work at National Physical Lab. 2=1037
 measurement research 1=4422
 microphone meas., effect of vibration response 3=14282
 missiles, effect of motion on rocket noise 0=10741
 motor vehicles, sound pressure analysis 4=292
 moving noise fields, response of strings 1=18539
 "near field" noise from turbulent jets 1=11822
 neuro-muscular excitability guinea-pig data 0=6502
 non-linear devices driven by noise 0=16757
 noy tables, rel. to band sound-pressure levels 4=10971
 in ocean, models, spatial-correl. functions 3=3445
 octave bandpass, curves of equal loudness 0=2050
 in ocean, spectra and sources 3=6951
 octave-bands, loudness 4=11315
 one critical band wide, use in masking a tone 4=13990
 perceived noise level, meaning and meas., term "noys" proposed 1=4421
 pressure fields, response, delta function 1=18538
 protection of ear, middle ear muscles reflex response 2=13211
 pulsed sinusoid detection as a function of frequency 0=814
 pulses, loudness perception and meas. 4=2484
 radiation pattern, farfield, from nearfield meas. 4=27273
 random, response of cochlear models 0=18543
 random, space-time correl. above refl. plane 4=18362
 random systems, stability 0=18580-1
 rapid survey method, with sound level meter, hazard estimation 4=29722
 reciprocating engines, subjective and objective evaluation 4=14312
 reduction circuit to extract speech intelligence 3=9289
 reverberation room, pulsating, loudness 4=21256
 reverberation, statistical model 4=8359
 ring sources with linear phase variation 2=13403
 rockets, large, launching 3=16438
 rooms, subjective single-number criteria 4=10968
 Scout rocket, aerodynamic noise meas. 4=221
 semi-anechoic sound test chamber 2=15711
 ship propellers, rotation noise, nature 2=21984
 in ships, speech-interference 3=25996
 silencers, perforated metal sheets 0=16805
 sonic boom (supersonic bang) from aircraft, review. 3=221
 sound power data, noise evaluation, nomogram 4=5341
 speech interference, rating methods 3=25997
 in speech, spectrum, from multi-channel anal. 0=6495
 standards and meas. methods 2=5124
 in stereophony, three-channel, effect on localization and understanding 4=7997
 stress in laboratory rodents 0=806-7
 subjective meas., recent advances 4=10955
 subjective scale 0=14763
 super-directivity arrays, signal/noise performance 0=14736
 from supersonic flight, near a caustic 3=14245
 surface and groove noise in disk recording media 0=143
 symposium (March 1959) 0=6891
 talker-listener pairs, ambient noise effects 2=17320
 temporary threshold shift, from noise bands 1=21123
 thermal noise in water, meas. 2=13420
 threshold shift reduction for intermittent noise 2=7065
 tone pulse of various durations, in noise of various bandwidths, detection 4=23975
 train noises, use of adjacent land 2=15710
 transport vehicles, subjective loudness meas. 1=215
 from turbulence convected at high speed 3=11861
 turbulent flow round rotating cylinder generation 0=19330
 turbulent flows and boundary layers, diffraction theory 4=5299
 underwater, produced by bullet entry 4=21130
 underwater, reviews 4=15861
 underwater, systematic error in direction-finding 0=14779
 unpleasantness of sounds, scaling 2=7070
 in water, due to acoustic cavitation 2=11454
 water, falling 3=21503
 water, flowing in tubes 1=16012

Noise—contd

acoustic—contd

- white Gaussian, detection of exactly specified signal 0=14341
- white Gaussian noise background, speech stimuli transmission 0=2056
- white noise, onset discrimination 3=13956
- white, prod. by clappers, optimum type 4=5343
- wind, in trees 3=21503
- windows, response to random noise 3=16721

electrical

See Cosmic radiations, radiofrequency; Fluctuations, electrical; Sun, radiation, radiofrequency.

Noise abatement

See also Absorption, acoustic waves.

- absorbent materials (book) 1=12957
- acoustic filters for liquid piping systems 2=13408
- acoustic hoods, design for low freq. 2=19664
- acoustic shields, operation in interiors 2=5125
- automobiles, instruments and techniques 3=14292
- of centrifugal blowers 3=14288
- cooling towers 4=294
- damping of elastically mounted building structures 0=19336
- damping materials, viscoelastic, applied to metal sheets 4=5344
- diesel engine, design of resonant silencers 4=5313
- ear defenders, value of 0=12221
- ear-protecting devices 3=16453
- exhaust silencer design 0=1012
- expt. building for study 4=14306
- fibrous materials, flow resistance 1=6931
- frame walls, sound insulation 0=19348
- in housing, lack of 4=18366
- impact noise, origin and reduction 0=19335
- impact-, recommendations for U.S.A. housing 4=18366
- industrial plant 3=14291
- insulation curve, rel. to flat dwellers 4=18364
- layered flooring, shock-type noise insulation 2=5128
- materials of extremely high damping 0=19290
- porous layers, acoustic impedance 1=18541
- porous materials for sound absorpt. 3=23983
- reducing enclosure for four-die swager 4=2800
- requirements in Europe 4=18363
- rectangular enclosures with one flexible wall 4=2802
- Sandwiches, metal, appl. 4=14316
- silencers, for high-pressure gas blowoffs 2=13419
- sound bridge insulation of floating floors 0=19339
- sound deadeners, testing 0=16804
- sound insulating materials, dynamic parameters 1=18540
- structure-borne noise reduction 0=19329
- thin walls in acoustic insulation 0=1014
- by trees, deciduous and evergreen 3=18926
- in turbulent boundary layer 0=2216
- vibration control by resilient mounts 3=14231
- wind tunnels, silencing 2=19654

Nomenclature and symbols

See also Units.

- clouds, relation to mechanisms 3=21039
- colour centres, V, ion signs in proper site 3=20249
- crystal dislocations, double tetrahedron, for interaction analysis, Cph structures 4=9961
- "dex" suggested for "order of magnitude" 0=18898
- "dynamation" for "time rate of change of momentum" 3=3775
- earth, magnetic field, micropulsations 3=25953
- geomag. micropulsations, notation and classification 4=2325
- geomagnetic micropulsations 4=17959
- German-English dictionary 4=5002
- gravitational and inertial mass 0=6641
- "helion" for α -particle 4=15111
- "linear" and "nonlinear", uses and misuses in the literature 4=8002
- magnetic field, earth 3=16294
- molecular vibration theory compliance matrix, C or H? 4=3836
- neutron terminology, discussion 1=13424-5
- optical image functions, ICO recommendations 2=5147
- optical 'spread' functions, international nomenclature 2=92
- optical systems, diaphragm nomenclature 2=21997
- photometry and radiometry, terminology 4=5361
- physical equations, units, dimensions, philosophical aspects 3=13985

Nomenclature and symbols—contd

- pressure unit, for vacuum range 0=19222
- radioactivity, nomenclature for standards 1=13665
- semiconducting devices, IEEE standard letter symbols 4=30632
- sun, flocculi, restriction to bright granulation zones 4=7985
- vacuum physics 4=18253
- He³ and He⁴ crystal allotropes 4=13487

Nomograms

See also Graphs.

- acoustic absorption, of perforated walls 0=14774
- astronautic chart 0=12264
- emission-line profile parameters, determin. 0=2231
- noise evaluation of sound power data 4=5341
- nuclear reaction kinematics for 2-particle emission 4=22089
- nuclear reaction products, emission angle dependence 4=1062
- nuclear reactors, conduction heat-flow transients 0=12509
- for nuclear track calc., photographic emulsions 4=16783
- optical films, absorpt. and refl. coeff. 2=17583
- particle diameters from turbidity 0=16390
- particle size anal., from scattered light data 0=12496
- particle size by light scattering 1=2892
- Prandtl number, liquids 0=6740
- radiative interchange factors 0=19491
- radioactive specific activity 1=13666
- radioactivity induced by neutrons, activity for 70 nuclides 4=6250
- semiconductor crystal growth, doping meas. 2=10477
- semiconductors, bulk lifetime and surface recomb. rate calc. 1=6144
- shock-wave velocity, in magnetohydrodynamics 0=11033
- for structure factor amplitudes calc. 3=8830
- vacuum technique 1=15967
- water shielding design for (α , n) sources 4=6086
- X- and γ -ray absorption 0=5535

Novae

See also Stars.

- conference, Haute Provence (Sept. 1963) 4=29394
- coronal lines 4=29395
- coronal lines and microwave emission 1=18120
- as cosmic-ray source 2=20472
- cosmic rays, radiation acceleration in supernova 4=13871
- detection, using photoelec. scanner and computer 2=13140
- envelope dynamics 2=24148
- explosions, Eddington's model, shock-wave propagation in gravitating gases 1=2780
- explosions due to He nuclear reactions 2=2549
- forty, coordinates meas. 3=9230
- Galaxy, rel. to radio emission energy 2=2567
- Galaxy, supernovae, rel. to radio emission from halo 2=2568
- gasdynamical theory and supernovae 2=17288
- interior explosion, energy transfer by shock waves 4=13895
- models, spherically symmetric 3=9229
- moving envelopes, emission line profiles 2=993
- Nova explosions and pycnonuclear reactions 0=11396
- nucleosynthesis in supernovae 1=2638
- oscillation phase 4=29397
- outburst, causes 3=3586
- outburst, central exciting star, temp. and radius, observations of elements 0=14452
- outburst, H α intensity 0=14451
- outbursts, cause 2=24147
- population assignment 4=2365
- RR Telescopic, light maximum observations 0=14459
- radio emission 2=2565
- relative to spontaneous nuclear fission 2=8012
- spectra, absorption line profiles 1=18113
- spectra, and supernovae, < 3000 Å, by orbiting telescopes 4=29396
- spectrum, laboratory excitation ion of multiply ionized atoms 4=15922
- spectrum, neon absorption lines 0=14460
- super, photoneutrino prevention 4=26899
- supernova, enhancement of light output 4=20901
- supernova envelope, rel. to intense shell sources 2=24185
- supernova envelope, nuclear synthesis in A = 20-40 3=21123
- supernova explosion, dynamics 2=13145
- supernova in NGC 7331 1=8005

Novae—contd

- Supernova remnant, IC 443, radio obs. at 8000 Mc/s 4=4954
 supernova remnant IC443, self-absorption of 21 cm radio emission 1=4219
 supernova remnants, interstellar matter interaction 2=21720
 supernova remnants, 13, sources, radio spectrum at 960c/s 2=13183
 supernova search, Polamar (1960) 1=18132
 supernova type I, possibility of Cf^{254} fission chain reaction in 0=12331
 supernova, type II shell X-ray emission 4=29399
 supernovae 1=15522
 supernovae, abundances of rare-earth nuclei produced by rapid neutron capture 0=844
 supernovae, Cf spectral lines 2=12288
 supernovae chains as star and galaxy launchers 2=17232
 supernovae, correl. with galaxy types 2=7020
 supernovae, cosmic-ray production by shock-wave excitations 0=17437
 supernovae as cosmic-ray sources 2=3427
 supernovae, cosmic-ray spectrum, emission model 4=10838
 supernovae, evolution of heavy elements 1=15412
 supernovae explosions, effect on interstellar medium. 2=24149
 supernovae, explosions as radio sources, chain reactions 1=15563
 supernovae explosions, rapid thermonuclear reactions 1=18122
 supernovae, Fe-group elements synthesis 3=24941
 supernovae, formation, rel. to radio emission 2=24140
 supernovae frequ., mass loss effect, rel. to neutrino emission 4=10837
 supernovae, fusion of fission fragments 3=6318
 supernovae, gravitational lens effect for galaxy mass and Hubbles const. meas. 4=30966
 supernovae, historical review 2=21721
 supernovae, iron group formation and abundance 1=15516
 supernovae, luminosity curves, means of testing universe expansion 1=15405
 supernovae, multiple formation of nucleon pairs 2=19331, 15375
 supernovae, nature 1=18204
 supernovae, neutrino emission processes 2=2541
 supernovae, nonstationary evolution, role of fusion chain reactions 0=845
 supernovae as origin of cosmic rays. 0=17436
 supernovae as origin of Cygnus type nebulae 0=10524
 supernovae as origin of heavy primary cosmic rays 1=13548
 supernovae, outburst prediction from neutrino flux 1=2636
 supernovae outbursts, origin of cosmic rays 2=5757
 supernovae outbursts rel. to plasma phenomena 4=2367
 supernovae, radio wave emission 3=11587
 supernovae, review 4=29398
 supernovae, shells and filaments rel. to cosmic rays 2=1022
 supernovae, stellar evolution, neutrino emission processes 1=15495
 supernovae theory, from shock wave theory 3=11559
 supernovae, 3C392 radio-source as remnant 1=2663
 supernovae, type II, remnants, association with H α emission stars 3=9242
 supernovae, type II, shock propag. 4=2366
 theoretical model 0=14448-50
 13 new shell sources, of radioemission 4=4955

Nuclear bombardment targets

- (Heading introduced in 1964)
 calorimetric, for fast-particle beams 4=8853
 chamber for precision ang. distrib. meas. 4=30100
 gas, pressure measurement and regulation 4=14192
 high m. p. materials, electron bombardment evaporator 4=27712
 low evaporation, for liq. H $_2$, D $_2$, He 4=30101
 metallic foils, 0.1-10 μ , preparation 4=16715
 for n prod., by D(d, n) or T(d, n), use of rare earth cpds. at high temps. 4=21855
 neutron yield, proton bombardment of U, Pb, Al, D $_2$ O targets 4=15061
 particle accelerators, cooling device 4=30102
 polarization meas., dynamic, by n. m. r. 4=19323
 polarized, for resonance spins and parities meas. 4=21813

Nuclear bombardment targets—contd

- preparation by electrolytic deposition 4=17865
 production, cryogenic system 4=19322
 thickness measurement 4=16718
 vapour jet 4=3232
 CIF as mol. crystal thin film, for p scatt. and F 19 2nd excited state elec. moment meas. 4=25297
 Cr, preparation from Cr $_2$ O $_3$ 4=16716
 Cu foils, isotopic, preparation 4=24933
 D or T for neutron production, construction 4=16714
 D-Ti, cooling system 4=9004
 D $_2$, liquid 4=9003
 H $_2$ and N $_2$ liquid, level indicator 4=14474
 Li, thickness, meas., from Li 17 (p, n)Be 7 flight-time 4=27713
 Li 6,7 fragment production, p bombard. 4=17130
 O 17 preparation, improved technique 4=30099
 T-Ti, cooling system 4=9004
 T-gas, use as neutron source by T(p, n)He 3 reaction 4=24934
 Ti-T, used in neutron accelerators, efficiency 4=19523
 V, deuteron bombardment, O, C and Hg impurity interactions, 8-10.5 MeV 4=22167
 Zr-D on Cu substrates, preparation 4=16717
- Nuclear decay schemes**
 See Radioactivity, decay schemes.
- Nuclear decay theory**
 See also Beta decay theory; Nucleus, theory.
 α -clusters in even-even nuclei 1=8562
 α -decay, barrier penetrabilities, with exponential nuclear potl., for odd-mass nuclei 0=1383
 α -decay, barrier penetrability with nonlocal potential 0=20375
 α -decay, decay const., formulae 0=13182
 α -decay from deformed nuclei 4=3593
 α -decay, electron ejection, review 3=15156
 α -decay, electron shell excitation process 3=4607
 α -decay energies for medium-heavy elements 4=3591
 alpha-decay of even-even nuclei 4=15181
 α -decay of even-even nuclei, excitation of rotational states 0=15542
 α -decay of even-even nuclei, excitation of vibrational levels 0=7503
 α -decay, favoured transitions 1=13695
 α -decay and fission from aligned nuclei 0=2690
 α -decay, half-life and energy-release formula 2=5837
 α -decay, for heavy nuclei, rel. to nuclear surface 2=10037
 α -decay of heavy nuclei, vibration effects 1=19385
 α -decay of heavy nuclei, vibration effects 2=22575
 α -decay hindrance factors, theory 2=1832
 α -decay intensities, Landau's eqn. 2=14019
 α -decay, meson field theory development 2=3498
 α -decay, model consistent with α -reactions 1=13696
 α -decay of nonaxial nuclei, Davydov-Filippov model 2=18279
 α -decay, nonspherical nuclei, fine structure intensity, decay const. 0=20373
 α -decay, Pb 208 neighbourhood, shell model 2=5839
 α -decay, penetrability rel. to nonlocal potential 3=17424
 α -decay, penetration factor 1=13637
 α -decay in rare-earth region 0=11343
 α -decay rate, shell model calcs. near Pb 208 , from Po 212 3=19806
 α -decay rates, pairing correls. effect 2=18281
 α -decay, reduced widths calc. 4=3592
 alpha-decay, rigorous treatment of approximations 3=24889
 α -decay to rot. levels of non-axial nuclei 1=19384
 α -decay to rot. levels of non-axial nuclei 3=4587
 α -decay, spheroidal by deformed even-even nuclei 3=12617
 α -decay of strongly-deformed odd-A nuclei 0=419
 α -decay, supercond. model of nucleus 2=22755
 α -decay, supercond. model of nucleus 3=2398
 α -decay, transition probability calc., appl. to Po and At isotopes 0=13185
 α , deformation effects 4=22060
 α -disintegration energies, eqns. 1=19383
 α - γ ang. correl. for favoured α -transitions 2=12155
 α -particle emission, surface-well model 2=14017
 α reduced widths in heavy nuclei 2=3499
 angular asymmetry of decay products 1=10868
 angular correl., effect of mag. and elec. interact. 3=8025

Nuclear decay theory—contd

- angular correlation of products, Jacob-Wick method 1=17009
- band mixing in deformed nuclei 4=6267
- β -decay, relativistic matrix elements, vel. depend. of nuclear potentials 1=19392
- β - γ circular-polarization ang. corr. 1=19405
- β - γ circular polarization correlation and first forbidden β transitions 1=13726
- β -rel. to γ -nuclear matrix elements 4=9439
- classical models of radioactive decay 2=5560
- conference, Varenna (1960) 4=25244
- conversion electron directional correl., interference particle parameter, sign 4=0434
- conversion electron directional correl., interference particle parameter, sign 4=9434
- decay chains, disintegration laws 0=13167
- decoupling of a time-dependent perturbation caused by after-effects of hole formation 1=3421
- deformation of daughter nuclei surfaces, from α -particle data 0=13186
- deformed nuclei, electromag. transitions 2=18295
- deuteron emission, calc. of reduced widths from shell model 1=5851
- double quantum emission from nuclei 1=5853
- e.m. transition discrepancy with Alagas rules due to Coriolis forces 4=19662
- e.m. transitions, effect of nucleon pair correl., deformed nuclei 0=20400
- E0 and E2 transitions in collective nuclei 1=17043
- E0 transitions of spheroidal nuclei 0=20405
- E1 transition probabilities compared with expt. 2=1843
- E2 transition probability, enhancement 0=4022
- E2 transitions from 2nd 2^+ level of even-even nuclei 0=5722
- E2 + M1 mixed transitions 0=9580
- electric dipole anomalous internal conversion 2=1849
- electric dipole transitions, study, rare earth region 0=11302
- electric monopole transitions in non-axial nuclei 1=3416
- electric multipole transitions, probability, effect of pair correlations 1=8666
- electric-octupole transitions 0=11374
- electric perturbation effects rel. to mag. moments 1=13624
- electromagnetic transitions, effects of parity nonconserving internucleon potentials 0=17461
- electron pair emission, internal, from aligned nuclei 4=12130
- even-A nuclei, excited by spinless projectiles, γ -correlation function, adiabatic approx. 1=4848
- even-even nuclei, electric quadrupole γ transitions 0=9582
- even-even nuclei, first 2^+ states, elec. quadrupole transition probabilities 2=20503
- even-even nuclei, γ -ray transition probabilities predicted 1=8605
- even-mass nuclei, β - and γ -ray transitions between intrinsic states 0=11367
- even-even nuclei, two-particle states analysis 2=12112
- Fermi transitions, $\Delta T = 0$ selection rule 2=1834
- γ -decay, 7 MeV, single-particle model 2=10082
- γ - γ ang. correl., mag. and inhomogeneous elec. fields 3=15132
- γ - γ ang. correl., mag. and inhomogeneous elec. fields, interaction operator 3=15133
- γ - γ angular correlation by combined mag. and elec. fld. 4=6216
- γ , internal pair formation, nuclear structure effects 4=17016
- γ -ray branching ratios, rel. to single-particle model 2=3530
- gamma-ray internal conversion, K-shell 3=22318
- γ -ray spectra from (n, γ), effect of level density 0=13285-6
- γ -rays, mag. quadrupole transitions rel. to shell model 2=10069
- gamma-rays, pair conversion coeff., screening effect 4=6269
- γ -rays, projection operator formalism 3=22362
- γ -transition probab. in even nuclei 1=9812
- γ -transitions of E2 type in deformed nuclei 0=15555
- γ -transitions, rel. to nuclear models 2=5856
- γ -transitions and static moments of odd-odd nuclei 0=7522
- heavy nuclei, α -decay probab., effect of shape zero-vibrations 2=22757
- heavy nuclei, α -transitions, by energy surface intersection 3=10235

Nuclear decay theory—contd

- heavy nuclei, effect of superfluidity 1=4845
- "hidden variables," in large-time exponential decay 2=12148
- initial state, decay probability 0=2140
- internal conversion, elec. dipole, penetration effect 2=14055
- internal conversion, mixed multipole, electron correl. parameters 4=15142
- K-L Auger spectrum, test of theory 2=1846
- leptonic decays, rel. to lepton currents 2=20254
- light nuclei, delayed protons, obs. possibility 4=3629
- light odd-odd nuclei, nuclear multiplets, γ -transitions 0=7483
- M3 and β -transitions on Nilsson model calc. 2=7949
- many-body (3 or more) decay and density-of-states function 1=3402
- multipole mixing in odd-mass spheroidal nuclei 0=11375
- multipole mixture parameter meas., from ang. distrib. of γ and internal pairs 4=17085
- neutron-deficient isotopes, 1- and 2-proton radioactivity, stability limit 1=2180
- "neutronization" kinetics at super-high densities 2=13976
- "neutronization" kinetics at super-high densities 3=6149
- non-axial nuclei, γ -transitions 0=20315
- non-axial odd nuclei, rotational transitions 0=13208
- non-spherical nuclei, α -decay probability 0=11337
- nuclei with neutrons and protons in $1f_{7/2}$ shell 2=346
- nucleon emission by rotating nuclei 0=13168
- odd-A nuclei, neutron-deficient 0=15538
- odd-odd deformed nuclei, γ -transition probab. 2=18297
- $1f_{7/2}$ nuclei, mag. dipole transitions, seniority selection rules 4=3596
- oriented nuclei, angular correlations 1=8646
- pair-conversion transitions, theory 1=3422
- proton decay, possible nuclei 1=19379
- quadrupole enhancement in O^{17} and F^{17} 0=4021
- rare-earth activities analysis 2=5844
- rare-earth alpha-emitter, proton system, BCS theory 4=21982
- rare earths, K-conversion coeffs. of E2 transitions 4=6212
- reactions, heavy ion, n evaporation 3=17499
- rotational-state transitions of odd-mass nuclei ($153 \leq A \leq 187$) 0=17482
- S matrix description of decays 2=1830
- shell-model calc. of compound nucleus decay 0=9545
- spherical even-even nuclei, elec. quadrupole transitions 2=20502
- spherical nuclei, E2 transition probability, from 1st 2^+ level 1=19357
- stability of matter, super-weak interactions 0=20035
- structural energy change, rel. to α and β decay energies 4=3590
- 2γ de-excitation, inclusion of pair correls. 4=3553
- two-photon decay; lifetime of giant resonance states 2=3478
- two-proton decay, review 3=10281
- two-quantum transitions 2=14041
- two-quantum transitions, in isomeric nuclei 0=1366
- $2^+ \rightarrow 2^+$ transitions, M1 and E2 relative phase 2=10005
- unstable states, exponential decay 1=3403
- Ac^{227} , M_2 γ -transition probab. 1=12178
- $Be^8 \rightarrow \alpha + \alpha$, reduced widths, shell model calc. 4=9445
- Be^{9*} (2.43 MeV state) 0=9548
- C^{12} first excited to ground state transition 0=4022
- $C^{12} + C^{12} \rightarrow 6\alpha$, ang. momenta, statist. model 4=6380
- Cd^{114} , γ -decay probability 4=9405
- Cs^{133} , internal conversion, nuclear structure effects, calc. 0=17541
- $Eu^{147, 149, 151}$, M1 transitions, I -forbidden 2=22765
- F^{18} , γ -transitions, cluster model 0=20354
- 4He , ratio of nonmesic/mesic decay 0=416
- Hf^{177} , γ -transitions, comp. with expt. 0=13209
- K^{41} , double γ -ray emission 2=12175
- L forbidden transitions near deformed region 3=22316
- Li^{7*} (0.478 MeV) $\rightarrow Li^7$, anisotropy for parity nonconservation, calc. 2=418
- Li^8 1=2182
- Lu^{175} , γ -transitions, comp. with expt. 0=13209
- M_2 γ -transition probab. in heavy nuclei 1=12178
- Np^{237} , M_2 γ -transition probab. 1=12178
- O^{14} , rel. to weak interaction theory 2=3268
- O^{16} α -decay, parity non-conservation 1=12166

Nuclear decay theory—contd

- P^{31} , e.m. transitions, collective-vibrational model 0=20319
 Pa^{231} , M_2 γ -transition probab. 1=12178
 Pb^{210} , probability for α -decay, possible detection 1=8684
Po isotopes, reduced derivative width δ_L^2 3=10317
 $Po^{212,214}$, α barrier penetrabilities, calc. 1=4843
 Ra^{223} , M_2 γ -transition probab. 1=12178
 Rb^{86} , double γ -ray emission 2=12175
 Th^{227} (RdAc), α -decay 0=11344
 Tl^{203} , M1 and E2 probabilities, calc. 0=15540
 Tu^{190} , forbidden transitions 0=9586
 U^{233} , α -decay, numerical integration study 0=1384
 U^{238} , γ widths, anomalously small fluct., statistics 4=3585
 V^{51} , M1-transition probability, calc., using configuration mixing 1=10988

Nuclear emulsions

See Nuclear track emulsions.

Nuclear excitation

See also Mössbauer effect; Nucleus, energy levels.

- (α , α') processes, nuclear alignment 2=20674
by α -particles, optical model analysis 0=1419
by antineutrinos, low-energy, from reactor, possibilities 3=17244
appearance of definite excitation energies 0=7471
 β and γ vibrational levels, excitation energies 2=13977
black nucleus, collective levels excitn. 3=2424
Born expansions, distorted-wave, approx. calc. 4=19432
bound highly-excited levels meas. with neutron-capture γ -rays 4=9386
bremsstrahlung resonance scatt. 2=16305
centre-of-mass invariance and energy shift in dipole state 1=16978
charged particles, slow, theory including nuclear forces 3=22288
collected papers, Herceg-Noví (1962) 4=27930
collective dipole wave function generating procedure 4=19659
collective E3, E4 transitions, spherical nuclei 2=16306
collective excitation, even axial nuclei 2=7926
collective excitation of spherical nuclei, theory 2=3473
collective excitations, effect on single particle spectra 2=16289
collective excitations, spurious state calculations 2=20507
collective excitations in superfluid nuclear matter 2=13964
collective levels, in (d, p) stripping 2=14128
collective levels in even-even nuclei 4=19680
collective model, extension to higher states 2=18235
collective, nonaxial even-even nuclei 0=20334
collective, in nuclear matter 4=19654
collective nuclear states, by neutron inelastic scatt. 3=2465
collective quadrupole effects in light nuclei 0=17552
collective quadrupole-type, even nuclei, mag. dipole transitions 3=7981
collective states, by charged particles, diffr. approx. 3=22290
collective states excit. using extended optical model 4=6303
collective states, by He^3 and α -particle inelast. scatt. 4=17013
collective states, by nucleon scattering 0=9616
collective states, by proton scatt. 3=8100
collective states, in scattering on black nonspherical nuclei 0=11310
complex nuclei reactions, conference 4=22192
conference, Orsay (1963) 4=11841
Coulomb, in α -decay of even-even nuclei 0=7503
Coulomb, with α -particles, of nuclei in rare-earth region 1=4833
Coulomb, ang. distrib. of inelastically scatt. particles 2=20580
Coulomb, rel. to cpd. nucleus formation 3=12572
Coulomb, deformed nuclei, rotational band excitation 4=17010
Coulomb, effect of finite life of upper level 1=2201
Coulomb, by 8-15 MeV Ne^{30} ions 3=6297
Coulomb excitation by N^{14} and Ne^{30} ions 3=10237
Coulomb excitation and nuclear resonance effects 2=12130
Coulomb excitation of vibrational nuclei 1=13645
Coulomb functions, exponential integrals, asymptotic expansions 3=12573
Coulomb, by heavy ions, third order reorientation 4=21099

Nuclear excitation—contd

- Coulomb, multiple, with heavy ions 0=17487
Coulomb, by N ions, 30-45 MeV, 7 nuclides 4=1002
Coulomb, of odd-A nuclei by heavy ions 0=7587
Coulomb, reson. effects, corrections 4=9375
Coulomb, second-order, via giant dipole resonance 4=12129
Coulomb, second order, via giant dipole reson. 4=25283
Coulomb, survey of recent work 2=5794
Coulomb, symmetrization 4=22002
Coulomb, of 2nd 2^+ level of even-even nuclei 0=5722
Coulomb, theory compared with Sm^{152} inelastic scatt. data 1=2208
Coulomb, of vibrational levels of heavy deformed nuclei 1=8594
de-excitation by internal-pair prod., Born approx. 4=3560
deformed even nuclei, coupling of K = 2 and rotational bands 2=1787
deformed nuclei, electromag. transitions 2=18295
deformed nuclei, multiple Coulomb excit. 4=22000
deformed nuclei, multiple Coulomb excitation 3=12574
deformed, $0 \rightarrow 2$, by α scatt., γ ang. distrib. reverse rot. to α 4=25432
by deuterons, at 20 MeV 2=483
dipole absorpt. of γ -quanta, giant resonances 2=10003
dipole, collective and shell model descriptrs. 3=6137
dipole, collective and shell model descriptions 2=7964
dipole excitations, collective 3=7979
dipole giant resonance, by inelastic electron scatt. 3=15181
dipole-quadrupole coupled oscillations 4=25279
double Coulomb, in even nuclei 3=12577
double-excitation by inelastic scatt., distorted-waves theory 3=661
e scatt., E0 transitions, cross-sections 3=17454
by e scatt., elec. dipole, orientation effects 4=25290
e.m. transitions multipolarity, mag. pair spectrometer meas. 4=9384
E0, by scattering of particles 2=5876
E1 overtones and quasi-deuteron effects 2=20506
E1 peak energies, rel. to shell-model spacings 1=608
E1 transitions, odd nuclei, rare-earth region 4=30308
E2, coupling between elast. and inelast. scattered waves 1=19426
effect of nuclear γ -radiation on unexcited nuclei of same type 1=3392
elec. and mag. dipole transitions, in positron scatt. theory 2=5895
electric dipole transitions, retarded, review 2=14043
electric multipole, by electrons, systematics 4=19757
by electric quadrupole movement of projectile 0=4083
electro-, effect of nucl. orientation and electron polarization, theory 4=15200
electron inelastic scatt., nucleon-nucleon correlations 2=3555
electron scatt., high-energy, radiative corrections 4=15201
by electron scatt., inelastic, partial-wave analysis, quadrupole excitations 3=665
electron scatt., inelastic, single-particle excit. 3=24858
electron scatt., relativistic kinematics, accuracy 4=15199
electron scatt., test of quantum electrodynamics 4=22120
by electrons, collective transitions, hydrodynamic model 0=5761
electroproduction of pions, model 4=12208
energy gap in excitation spectra, theory 1=610
even-A nuclei, by spinless projectiles, γ -correlation function, adiabatic approx. 1=4848
even-even medium-weight nuclei, Coulomb excitation of second 2^+ states 1=609
even-even nuclei, axially symmetric, collective excitations 0=15521
even-even nuclei, branching ratio regularities from higher excited states 1=13641
even-even nuclei, electric quadrupole γ -transitions 0=9582
even-even nuclei, by neutron capture, γ -ray spectra 0=9674
even-even nuclei, $152 \leq A \leq 186$ rotational levels, multiple Coulomb 4=22003
even-even nuclei, quadrupole collective excitations, dipole transitions 1=19408
even-even nuclei, quadrupole collective excitations, dipole transitions 3=4585
even-even, rotational levels, multiple Coulomb excit. meas. 4=19661

Nuclear excitation—contd

even—even, second 2^+ levels 2=13979
 even—even, second 2^+ levels 3=6160
 even—even, spherical, 2^+ states, Coulomb, and models 4=1003
 even-mass, deformed, octupole vibrations 4=9381
 even-mass, first rotational level, γ -ray correl. function 4=9383
 even, $2^+ \rightarrow 2^+$ transitions, M1 and E2 relative phase 2=10005
 extranuclear direct capture, γ -ray transitions 1=8682
 fission, deform. at saddle point, pairing effects 4=3718
 fission fragments, influence of shell effects 0=13295
 g-factor meas. for short-lived states 3=634
 γ -ray resonance fluorescence 0=9655
 γ -ray resonant scatt. from nuclear levels 2=1861
 γ -rays, Compton scattered, possible use 3=24857
 γ -rays emitted coincident with neutrons, analysis 2=9874
 γ -rays, giant dipole resonance, theory 2=3547
 by γ -rays from neutron capture, resonant scatt., 11 examples 3=6218
 γ -rays, 10-30 MeV, absorption in C, O and Al 0=17618
 giant dipole resonance, classical and independent-particle models 0=13127
 giant dipole resonance, complete spectrum theory 4=9389
 giant dipole resonance, e.m. structure 4=12128
 giant dipole resonance, effect of quadrupole collective motions 4=27935
 giant dipole resonance, by inelastic electron scatt. 0=7593
 giant dipole resonance, light nuclei p-capture study 4=15143
 giant dipole state, theory 2=3473
 giant resonance states, lifetime 2=3478
 giant resonances, influence of pair forces 2=5884
 heated nucleus, moments of inertia 3=15084
 heavy ion interactions, elastic, inelastic cross-sections 2=8010
 heavy nuclei, optical potential 3=4611
 heavier nuclei, unlike pair states, collective excit. 4=19657
 heavy-ion Coulomb excitation with γ -ray emission 0=20471
 heavy nuclei, competition between fission and neutron emission, calc. 0=15607
 heavy nuclei excitation by fast nucleons 1=685
 heavy nuclei, M_2 γ -transition probab. 1=12178
 heavy odd nuclei, e.m. transitions, projection method application 4=9373
 highly deformed nuclei, β -decay 1=17017
 highly excited nuclei, collective motion 2=1786
 individual-particle states, by inelastic electron scatt. 3=10240
 inelastic diffraction scatt., mechanism 0=432
 inelastic scatt. by deformed nuclei, theory 2=7959
 inelastic scatt., phases of partial matrix elements and parity rule 4=22085
 by inelastic scattering, collective effects 1=8676
 inelastic scattering of deuterons 0=13242
 inelastic scattering of particles 0=12877
 intrashell-interaction levels, by ion bomb. 0=5666
 intrinsic, even—even nuclei 3=10246
 isobaric states, p,n reactions, 30, 50 MeV, in spectra obs. 4=3653
 isomer prod. by X-rays, irradi. conditions 3=8067
 isomer shifts, effect of nuclear polarizability 2=20496
 level densities rel. to nuclear temp. for $Z = 50$ and $N = 82$ 4=12126
 light nuclei, γ -rays from giant resonance levels, by proton inelastic scatt. at 150 MeV 1=8723
 light nuclei, levels, "packing" near threshold 3=22289
 light nuclei, by nucleons, with N-N interaction 1=13780
 low-energy levels, sub-nanosecond lifetime meas. 2=5817
 M1 transitions, l -forbidden, quadrupole vibr. effect 4=6211
 M1 transitions, strong, in light nuclei 3=12578
 M4 transitions, effect of config. mixing 4=30309
 many-nucleon system in shell-model potential, spherical-deformed transit. 4=21977
 mass 40 nuclei, unitary shell model calc. 4=27965
 mechanism, amplitudes of different mag. sub-states 2=20675
 medium A nuclei, isobaric states 2=18249
 medium-weight nuclei, by inelastic α -ray scattering 0=17606
 medium-weight odd nuclei, low-lying states 2=14038
 in mesic atoms, by μ -mesons 2=363, 22722

Nuclear excitation—contd

monopole, by relativistic electrons scatt. 3=12657
 Mössbauer effect, aether drift expt. proposed 0=18918
 Mössbauer effect, applications 0=9523
 Mössbauer effect, applications to magnetism 1=6249
 Mössbauer effect, applied spectroscopy conference June 1960 1=385
 Mössbauer effect, conference 1=600
 Mössbauer effect, in crystal props. study 1=8876
 Mössbauer effect, det. of anisotropy of inertia, upper limit 0=7470
 Mössbauer effect, effect of ultrasonic excitation 0=20335
 Mössbauer effect expts. proposed for parity and time-reversal studies 1=8635
 Mössbauer effect, γ -anisotropy, in mag. field 2=350, 22712
 Mössbauer effect, impurity nuclei, temp. Green functions 3=25173
 Mössbauer effect, intensity curve shape, unshifted-line spectrum 1=3389
 Mössbauer effect in perfect crystals, no line-broadening due to thermal excitation 0=17882
 Mössbauer effect, press. depend., theory 1=19694
 Mössbauer effect, in pyrites and marcasite 0=15517
 Mössbauer effect, resonance interaction of γ -quanta with crystals 0=15520
 Mössbauer effect, review 1=599
 Mössbauer effect, review 1=5828
 Mössbauer effect, review 1=10960
 Mössbauer effect, study of atomic oscill. in solids 0=20789
 Mössbauer effect, study of Zeeman splitting of $\text{Sn}^{119\text{m}}$ transition 0=15519
 Mössbauer effect, survey 0=13130
 Mössbauer effect, temp. depend. of γ -ray energy 0=11314
 Mössbauer interference expts., Debye-Waller factor 1=11146
 Mössbauer transmission, quantum mechanical calc. 2=349
 μ capture, γ -ray spectra 2=16422
 by μ in heavy mesic atoms, theory 2=1908
 in μ -mesic atoms, during $2p-1s$ transition 2=362, 22721
 by μ -mesons, with e emission 0=15383
 by μ -mesons in mesic atoms 0=4128
 multiparticle, and scatt. irregularities 4=19762
 multiple Coulomb, with heavy ions, theory 4=21998
 mutual or double transfer, semi-classical 3=22355
 by n, spherical nuclei surface, collective interaction 3=24943
 19 nuclei, inelastic proton scatt., 40 MeV 4=25384
 neutron capture cross-sections, calc., using statistical theory 0=2681
 neutron capture, cross-sections, at 0.15-6.2 MeV, for $A = 51-197$ 0=2680
 neutron-capture excitation of Al^{28} , Mn^{56} , Cu^{64} , Rh^{104} and I^{128} 1=10994
 neutron excitation, rel. to level structure 0=15522
 neutron resonance capture, $J = 1$ levels study 1=16999
 neutron strength function, by shell model 3=22259
 neutron widths calc. 3=19760
 nonaxial nuclei, rotational states, α -particle scattering 0=9643
 non-spherical nuclei, collective 3=10238
 nonspherical nuclei, deuteron diffr. scatt. 2=14124
 nuclear acoustic resonance 0=13125
 as nuclear force probe 0=406
 nuclear matter, $N \neq Z$, collective excitations 4=15125
 by nuclear reactions, γ -ray spectra, statistical theory 1=7364
 nuclear reactions, intermediate energy, resonance model 2=5880
 nuclear recoil, effect of chemical binding 0=13131
 nuclear two-particle excitations, spectrum 2=1788
 nucleon collisions, interaction cross-section and energy conserved 4=28021
 nucleon inelastic scatt., high-energy, γ ang. distrib., theory 1=19445
 nucleon scatt., inelastic, cpd., γ -N ang. correl. calc. 4=9485
 by nucleon scatt., small angle 4=6302
 by nucleons, energy-cross section var., meas. 4=27941
 by nucleons, inelastically scattered 0=7544
 nucleons, medium energies, semi-classical model 2=7977
 odd-A nuclei, Coulomb, excited-state lifetime 1=4841
 odd-mass nuclei, sequence of spins and energy ratios 2=20504

Nuclear excitation—contd

odd-odd nuclei, deformed, γ -transition probab., theory 2=18297

1-p shell nuclei, by proton scattering 1=19449

optical model, by protons and neutrons, transmission coeffs. 4=30337

(p, γ) curves, level density analysis 2=12129

(p, p') and (α , α') direct reactions, effect of nuclear correl. 4=30332

p-shell, dipole, rel. to supermultiplet and unitary quantum numbers 4=25280

particle scatt., elastic, strong absorption model 4=6300

phenomenological theory 4=15121

photoabsorption, nucleon interact. effects 2=20491

photoactivation of isomers by Co^{60} irradiat. 4=9372

photoactivation, photoneutron activation analysis 2=5891

by photons, oscillator model 0=15588

by photons, single-particle and core excitation modes 0=17617

photonuclear reaction, new short-lived isomer production 1=19439

photoresonance in deformed nuclei 0=5766

by proton scatt., 3^- octupoles 3=19764

quadrupole, by electron inelastic scatt., partial-wave analysis 3=665

quadrupole oscillations, collective model, anharmonicity 2=18236

quadrupole resonances, collective states 4=3549

radiative transitions, theory, resonance and multiple scattering 0=15515

relative to electron bremsstrahlung theory 2=3307

relative to moment of inertia theory 2=5784

resonance absorption, γ -rays and neutrons, in liquids 1=18437

resonance fluorescence, recoilless, time modulation 4=19651

resonance fluorescence, at 7 MeV, for 31 elements, energy level parameters 0=9526

resonance scatt., Regge represent. analysis 4=21807

resonant absorption of neutron or γ -rays, effect of chemical binding on nuclear recoil 0=13131

resonant, by Mössbauer effect, long lifetimes 0=7462

resonant states in nuclear reactions, theory 1=17065

rotational levels, adiabatic approx. 0=9522

rotational levels, by high-energy nucleon scattering 4=15138

rotational, nonspherical odd nuclei 4=996

rotational spectra theory 4=3551

rotational states of even-even nuclei, in α -decay 0=15542

by scattering, inelastic, charged particles, collective, review 3=22287

single-particle, nonspherical odd nuclei 4=996

single particle transition probability, effect of dipole polarization 4=3554

single and two-phonon states 2=18356

in solids, of impurity nuclei, γ reson. scatt. 2=23040

spectra, collective, of deformed even nuclei 2=9978

spectra, statistical properties 0=17696

spherical nuclei, collective excitations 4=19665

spherical nuclei, excited states, energies 0=11308

stable isotopes, Sc^{45} to Ni^{58} , from various reactions 4=15155

stable nuclides excited by bremsstrahlung 3=24856

states with large spins, use of (d, p) reaction 0=9634

statistical theory of energy variations 4=25363

in stripping reactions, collective nuclear levels 1=8757

thermal neutron capture, M1 transition probabilities 2=3476

2^+ levels of even nuclei ($58 \leq A \leq 82$), by α -particles 2=13994

two-phonon states, by α inelastic scatt., calc. 2=18357

two-phonon surface vibrations, Born approx. 2=357

three-nuclei-system, n.m.r. 1=1276

3-phonon vib. states by inelastic α -particle scatt. 3=22286

transuranic elements, superfluid model 1=16953

two-phonon levels, by protons 4=1001

two-phonon states, by inelastic diff. scatt. 4=6214

2^+ rotational states, lifetime meas. by pulsed proton beam 0=1369

vibr. and rot. states, by heavy charged particles 0=11394

vibrational, of even-even nuclei, survey 1=13640

vibrational levels, by charged particles 0=9614

vibrations and single particle 4=25282

$Z < 20$, electron scatt., generalized model 4=9482

Nuclear excitation—contd

A^{40} , by inelastic scattering of 28.5 MeV He^3 0=20463

A^{40} , by 7-9 MeV proton scatt. 1=19361

Ag isomers, with bremsstrahlung up to 0.8 MeV 4=3631

Ag, resonant excitation, by Mössbauer effect 0=7462

$\text{Ag}^{107}(\gamma, \gamma')\text{Ag}^{107m}$, 30 MeV meas. 4=6315

Ag^{107} , 93.5 keV isomer, resonance excit. 4=6228

Al, dipole giant resonance, by inelastic electron scatt. 3=15181

Al^{25} , 450 keV level, by $\text{Mg}^{24}(\text{p}, \gamma)$ 825 keV reson. 3=22296

Al^{26} , 418 keV level, by $\text{Mg}^{25}(\text{p}, \gamma)$ 1 MeV 3=22296

Al^{27} , core excitation 4=17183

Al^{27} , giant dipole res. 2=13999

Al^{27} , 2.21 MeV level, by bremsstrahlung of 2.85 MeV electrons 3=22297

Al^{27} , by 2.76 MeV neutrons 3=15207

Al^{27} by N^{14} and O^{16} ion bomb., γ -ray emission 0=2622

As^{75} , Coulomb, by protons, α -particles 2=1007

As^{75} , multipole order of process 2=10008

Au, student experiments 2=14129

Au^{197} core, rel. to M1 and E2 transitions 2=18257

Au^{197} , Coulomb, by 11 MeV α -particles 0=3821

Au^{197} , Coulomb, internal conversion electrons 1=3425

Au^{197} , inelastic neutron scatt., Hauer-Fleshback theory 4=28039

Au^{197} Mössbauer absorption, chemical shifts, theory 1=17391

Au^{197} , Mössbauer effect, velocity half-width and lifetime of 77 keV state 0=11312

Au^{197} , by 6.7-12.6 MeV protons 1=5905

B^{10} by protons, deuterons 2=16312

B^{10} , 7.48 MeV, by e, 51, 102 MeV, orientation effects calc. 4=25290

$\text{B}^{10,11}$, by electron scattering 3=4625

B^{11} from $\text{C}^{12}(\text{p}, 2\text{p})$ and $\text{C}^{12}(\pi, \text{n})$ reactions 2=14121

B^{11} from $\text{C}^{12}(\text{p}, 2\text{p})$ and $\text{C}^{12}(\pi, \text{n})$ reacts. 3=6277

B^{11} , γ -ray resonant scatt. 2=1861

B^{12} , first excited level, ang. momentum 2=484

Be, by 40 MeV electrons, electron spectra 1=681

Be^7 , by He^3 - He^4 scatt. meas. 3=12522

Be^8 , α -emitting states ~ 20 MeV 3=678

Be^8 in $\text{Be}^7(\text{d}, \text{p})\text{Be}^8$ reactions 0=20456

Be^8 , giant dipole resonance 4=15143

Be^8 , intermed. nucleus in $\text{C}^{12}(\alpha, 4\alpha)$ reaction 3=2495

$\text{Be}^{8,9,10}$, in Li^7 reactions with α -rays 4=3703

Be^9 , by α -rays, collective rotational deform. parameter 4=12274

Be^9 (d, d'), at 27.7 MeV 2=14125

Be^9 , by electron scatt. 0=13255

Be^9 , by electron scatt., E1, E2 transitions 3=12580

Be^9 , by electron scattering 3=4625

Be^9 , by 14.1 MeV neutrons 1=17118

$\text{Be}^9(\text{p}, \text{p}')$, 5-15 MeV, cross sections and ang. distrib. 4=25386

Be^9 , by 17-49 MeV electrons 3=4628

Bi^{209} , by α inelastic scattering, 27.25 MeV 4=3584

Bi^{209} , by α -rays, γ -rays meas. 2=8009

Bi^{209} , giant dipole res. 2=13999

Bi^{209} , inelastic neutron scatt., Hauer-Fleshback theory 4=28039

Bi^{209} , by 183 MeV electrons 1=10965

Bi^{209} , by 183-600 MeV electrons 3=10333

$\text{Br}^{79,81}$, 10-24 MeV α -induced, excitation functions 4=25436

C, absorption of γ -rays 0=11431

C, by C^{12} , excitation curve, possible formation of Mg^{24} high-spin states 0=9648

C, by deuterons 1=3455

C, dipole giant resonance, by inelastic electron scatt. 3=15181

C, by electron scatt., inelastic, at 42.6 MeV 0=449

C, by 14 MeV neutron scatt. 1=13806

C, by 14 MeV neutrons, $\text{n}^1-\gamma$ ang. correl. 3=24944

C, by 40 MeV electrons, electron spectra 1=681

C, "molecular" states formed by two C nuclei 0=13251-3

C, by 200 MeV inelastically scattered electrons 4=17120

C, strong M1 transitions, for m factors 4=19760

C^{11} , selective excitation of states by $\text{C}^{12}(\text{p}, \text{d})$ 2=3571

C^{12} , by α -particles at 18 MeV 0=2668

C^{12} , by α -particles, 22-24 MeV 3=2495

C^{12} , deformed, giant E1 resonance, calc. 2=1798

Nuclear excitation—contd

- C^{12} , dipole, by proton inelastic scatt. at 156 MeV, impulse approx. 1=8721
 C^{12} , double E1 de-excitation 1=2187
 C^{12} , by 18-30 MeV proton scatt. 4=6330
 C^{12} , by electron scatt. 0=13255
 C^{12} , by electron scatt., particle-hole correl. 4=12209
 C^{12} , by electron scattering 3=4625
 C^{12} , by electrons, 15.1, 16.1 MeV levels 2=431
 C^{12} , by electrons, meas. 4=15199
 C^{12} , 7.6 MeV level, by 14 MeV neutrons 2=12133
 C^{12} , 4.43 MeV level, by protons of about 100 MeV 0=9353
 C^{12} , 15.1 MeV level, by photons 3=24919
 C^{12} , 15.1 MeV level, by proton scatt. at 150 MeV 2=438
 C^{12} , 15.1 MeV level in p, p' γ reaction 2=439
 C^{12} , 15.11 MeV level, by e scatt., var. inelastic momentum transfer 4=25381
 C^{12} , by 5-6 MeV proton scatt. 4=6331
 C^{12} , 4.43, 7.66, 9.6 and 10.1 MeV levels 4=17145
 C^{12} , γ -ray, resonance at ~ 20 MeV 0=11433
 C^{12} , γ -ray resonant scatt. 2=1861
 C^{12} , giant dipole res. 2=13999
 C^{12} , giant dipole resonance, exptl. determ. rel. to shell model calc. 4=15143
 C^{12} , giant double resonance, e.m. structure 4=12128
 C^{12} , giant resonance, by 40-70 MeV electrons 4=19672
 C^{12} , by inelastic electron scatt., calc. 3=24858
 C^{12} , by inelastic scattering of deuterons 0=7572
 C^{12} , by inelastic scattering of 28.5 MeV He^3 0=20463
 C^{12} , magnetic-dipole form factors for electron scatt. 4=19759
 C^{12} , by N^{14} inelastic scatt. at 27.3 MeV 1=732
 C^{12} , by neutron scattering 3=12685
 C^{12} , 9.64 MeV, by p, with subsequent α decay 4=22134
 C^{12} , by 127 MeV C^{12} scattering 2=16438
 C^{12} , by 180 MeV protons, calc. 2=16402
 C^{12} , by 182 MeV protons, impulse approx. 3=15184
 $C^{12}(p, p'\gamma)C^{12}$ 1=5906
 C^{12} , particle-hole model, two-body forces 4=15145
 C^{12} , by proton inelastic scatt. at 150 MeV, high-energy γ -rays 1=8723
 C^{12} , by proton scatt., diff. cross-section, calc. 1=3442
 C^{12} , by protons, at 185 MeV, 4.4 MeV level as collective state 0=11409
 C^{12} , by 6 - 19 MeV α -rays, γ -rays analysis 4=12279
 C^{12} , 7.6 MeV level, by 14 MeV neutrons 2=12133
 C^{12} , 7.65 MeV level, by 14 MeV neutrons 3=15206
 C^{12} , 7.656 MeV level, by $Be^9 + \alpha$, nuclear pair emission 0=405, 9573
 C^{12} , 7.66 MeV state, decay 0=17609
 C^{12} , by 660 MeV protons 3=4630
 C^{12} , by 20-23 MeV α -rays, energy depend. 4=25435
 C^{12} , 2^+ level, in p scatt., effect on polarization, calc. 4=17131
 $C^{12}-C^{12}$ inelastic scatt., meas. and theory 2=5972
 $C^{12}-C^{12}$ inelastic scatt., 128 MeV 3=15101
 C^{12} to U^{238} , even-even nuclei, octupole states, systematics 2=1789
 $C^{12,13}$, by He^3 , rel. to cross-section 4=17200
 C^{13} , by deuterons, first three levels 2=486
 C^{13} , dipole state, theory 2=16318
 Ca , giant dipole res. 2=13999
 Ca^{40} , by electron scatt., particle-hole correl. 4=12209
 Ca^{40} , by electrons, giant resonance 2=433
 Ca^{40} , by 44 MeV α -rays 1=7402
 Ca^{40} , γ resonant absorption at 10.3 MeV 2=352
 Ca^{40} , giant dipole resonance 2=1864
 Ca^{40} , by inelastic α -ray scattering 2=22851
 $Ca^{40}(p, p'\gamma)$, at 150 MeV 3=10342
 Cd^{111} , excitation functions for inelastic scatt. reactions 1=688
 Cd^{111m} , by γ -rays 3=15111
 Cd^{111m} , photoexcitation cross-section 2=13984
 $Cd^{112,114}$, Coulomb, by oxygen ions 2=1819
 $Cd^{112,114}$, Coulomb excit. by 45 MeV oxygen ions 2=22740
 Cd^{114} , Coulomb excitation of 4^+ state 1=609
 Cd^{114} , neutron strength functions 4=3678
 Cd^{114} by (p, p') reaction 4=15161
 Cd^{114} , by p's, coupled channel analysis 4=22126
 Ce^{140} , by La^{140} γ -rays, resonance fluorescence 2=14072
 Ce^{140} , nuclear resonance fluorescence 0=413
 Ce^{140} , in $Pr^{140} \rightarrow Ce^{140}$ decay 0=11355

Nuclear excitation—contd

- Co, by electron scatt., 300 keV-1.5 MeV 4=22148
 Co^{59} , by 183 MeV electrons 1=10965
 Co^{60} , nuclear orientation and h.f.s. coupling in Co metal 0=20786
 Cr, even-even nuclei, Coulomb excitation 2=13982
 $Cr^{50,52,54}$, by 6.9 MeV protons 3=22373
 Cr^{51} , levels up to 3 MeV 2=452
 $Cr^{51,53,54}$, γ -ray de-excitation 2=10119
 Cr^{62} , by n scatt., inelastic, 1-4 MeV, and optical model 4=17042
 Cr^{52} , nuclear resonance fluorescence 0=413
 Cr^{62} , by 17.45 MeV protons 4=15204
 Cr^{54} , Coulomb excitation with N, O, Ne ions 1=2243
 Cu, by deuterons 1=3455
 Cu, by electron scatt., 300 keV-1.5 MeV 4=22148
 Cu^{59} , total radiation widths, distrib. 0=437
 Cu^{63} , α -particle excitation 1=7403
 Cu^{63} , by 183-600 MeV electrons 3=10333
 Cu^{63} , resonance fluorescence, sources in Cu metal and aq. soln., lifetimes of excited states 1=611
 $Cu^{63,65}$, Coulomb, by 4-8 MeV α -rays 4=17055
 $Cu^{63,65}$, single-phonon quadruplet, by inelastic d-scatt. 4=25422
 Cu^{65} , α -particle excitation 1=7403
 Cu^{65} , 1.114 MeV level, nuclear resonance fluorescence 4=25309
 $Dy^{166,168}$, deformation parameters 3=15282
 $Dy^{160,162,164}$, deformed, Coulomb excit. of vibrational states 4=22040
 $Dy^{161,163}$, Coulomb, conversion electrons 0=15551
 Dy^{162} , by O ions, double Coulomb effect 3=8134
 $Dy^{164,166,168,170}$, deformed, Coulomb excit. of vibrational states 4=22040
 Er^{166} , first excited state, transition probs. 2=13986
 Er^{167} , Coulomb 4=1025
 Er^{170} , by O ions, double Coulomb effect 3=8134
 $Eu^{147,149,151}$, I -forbiddenness rel. to collective motion 2=13989
 $Eu^{147,149,151}$, I -forbiddenness rel. to collective motion 3=6175
 Eu^{153} , Coulomb, conversion electrons 0=15551
 F^{15} , by 9-11 MeV Ne^{20} ions 0=11428
 F^{18} , by $O^{16}(He^3, p)$, de-excitation of low levels 1=7323
 F^{18} , Coulomb, by $Li^{6,7}$, γ -ray yields 0=4107
 F^{19} , Coulomb, large second-order effects 4=12140
 F^{19} , E3 Coulomb 4=12139
 F^{19} , 1.35 and 1.46 MeV levels 4=12138
 $F^{19}(p, p')$, 140 MeV, mechanisms 4=25388
 F^{19} , resonance, from first excited states 3=6164
 Fe, with α -particles 0=20469
 Fe cpds., Fe^{57} Mössbauer effect, systematic study 2=10303
 Fe, by deuterons 1=3455
 Fe, by neutron inelastic scattering 1=9865
 Fe^{54} , by 17.45 MeV protons 4=15204
 Fe^{56} , first excited state, by neutron scatt., direct-interaction contrib. 1=8735
 Fe^{56} irradiated with 4.3 MeV protons 2=5902
 $Fe^{56}(n, n'\gamma)_{0.845}$ at 2.0 MeV, $n'\gamma$ ang. correl. 4=6347
 $Fe^{56,58}$, collective "2-phonon" levels, by α scatt., 44 MeV 3=24864
 Fe^{57} , α -particle excitation 1=7403
 Fe^{57} , Coulomb excitation of 136 keV level 0=17561
 Fe^{57} , Coulomb, excited-state lifetime 1=4841
 Fe^{57} , Coulomb, gamma emission without recoil 2=351
 Fe^{57} , filtered resonance radiation, time spectra 0=7464
 Fe^{57} , γ -ray resonant absorption, polarization in hyperfine spectrum 0=7463
 Fe^{57} , Mössbauer effect, effect of source-absorber temp. difference 0=17489
 Fe^{57} , Mössbauer effect in Fe cpds. and d-group metals, "isomer" shift interpretation 1=6262
 Fe^{57} , Mössbauer effect in Fe cpds., elec. quadrupole splitting and nuclear volume effect 1=6261
 Fe^{57} , Mössbauer effect, frequency distrib. of resonance line versus delay time 1=603
 Fe^{57} , Mössbauer effect, gravitational red shift meas. 0=7468-9, 10570
 Fe^{57} , Mössbauer effect, line width and intensity 0=15518
 Fe^{57} , Mössbauer effect, rel. to source velocity 0=5663
 Fe^{57} , Mössbauer effect, search for anisotropy of inertia 0=10569

Nuclear excitation—contd

Fe⁵⁷, Mössbauer effect, temp. depend. or recoil-free
 γ -ray energy 0=11313
 Fe⁵⁷, Mössbauer effect, tests of clock paradox, assessment 0=18917
 Fe⁵⁷, recoilless resonance scatt. of 14.4 keV rays, parity conservation 1=602
 Fe⁵⁷, resonance absorption and Zeeman effect 0=7465
 Fe⁵⁷, resonance radiation, polarization 0=7466
 Fe⁵⁷, resonant scatt. of 14.4 keV ray, interference with Rayleigh scatt. 1=601
 Fe⁵⁷, time dependence of γ -rays from 14.4 keV state, by delayed coincidence with 123 keV ray 0=17488
 Fe⁵⁸, Coulomb excitation with N,O,Ne ions 1=2243
 Fe⁵⁸, 2⁺ collective state, by 64.3 MeV α -rays 4=15237
 Gd^{154,156,160}, deformed, Coulomb excit. of vibrational states 4=22040
 Gd¹⁵⁶, by 17.5 MeV protons 4=6332
 Gd¹⁶⁰, by O ions, double Coulomb effect 3=8134
 Ge⁷³, Coulomb, excited-state lifetime 1=4841
 Ge⁷⁴, Coulomb, by deuteron and proton scatt. 1=4874
 Ge⁷⁴, polarization of nuclear resonance fluorescence 0=5773
 Ge^{74,76}, second 2⁺ state, by α particles 2=10141
 Ge⁷⁶, Coulomb, by deuteron and proton scatt. 1=4874
 H², photo-effect 4=9321
 He⁴, giant dipole resonance, no structure 4=15143
 He⁴, by p at 55 MeV 4=16981
 He⁵, by Li⁶(γ ,p)He⁵ 1=4856
 Hf, by proton and deuteron scatt. 1=13787
 Hf, by thermal neutrons 2=14114
 Hf¹⁷⁷, decay of 250 keV level 2=14071
 Hf¹⁸⁰, by O ions, double Coulomb effect 3=8134
 Hg¹⁹⁶, excitation functions 2=1882
 Hg^{197,197m}, relative, in nuclear reactions 4=9422
 Hg¹⁹⁶, 412 keV level, nuc. reson. fluoresc. 3=19796
 Hg¹⁹⁸, internal conversion coeff. 0=424
 Ho¹⁶⁵, Coulomb, conversion electrons 0=15551
 Ho¹⁶⁵, polarized, by 1 MeV neutrons, calc. 4=12234
 Ho¹⁶⁵, by 17.5 MeV protons 4=6332
 Ho¹⁶⁵, by 60 MeV O¹⁶ ions 3=15120
 Ho¹⁶⁶, de-excitation to 1st excited state of Er¹⁶⁶ 2=5859
 Ho¹⁶⁶, transitions between low-lying excited states 1=8648
 In¹¹⁵, excitation functions for inelastic scatt. reactions 1=688
 In¹¹⁵, by 183-600 MeV electrons 3=10333
 In^{115m}, by γ -rays 3=15111
 In^{115m}, photoexcitation cross-section 2=13984
 In¹¹⁶, activation ratios in In¹¹⁵ neutron capture 1=11026
 In¹¹⁶, by neutron capture in In¹¹⁵, depend. of activation ratio on neutron energy 0=13287
 Ir¹⁹¹, γ -ray resonance absorption 0=1368
 K⁴⁰, 52 levels, from d stripping on K³⁹ 0=441
 K⁴¹, by A⁴⁰(p, γ), 70 levels 3=7991
 Kr, dipole giant resonance, by inelastic electron scatt. 3=15181
 Li, by 28.1 MeV deuterons, meas. 4=22164
 Li⁶, by Li⁶(γ ,n)Li⁵ 1=4856
 Li⁶(d,n)Be⁷, ground and 1st excited state 3=15225
 Li⁶, by e scatt. 3=22368
 Li⁶, by 40 MeV electrons, electron spectra 1=681
 Li⁶, γ -ray resonant scatt. 2=1861
 Li⁶, M1 transitions by inelastic electron scatt. 4=12134
 Li⁶, magnetic-dipole form factors for electron scatt. 4=19759
 Li⁶, strong M1 transitions, form factors 4=19760
 Li⁶, 2.18 MeV level by neutron scatt. 2=16414
 Li^{6,7}, by electron inelastic scattering, from factors 4=17113
 Li⁷, alpha-particle scatt. 4=3703
 Li⁷, by antineutrinos, low-energy, calc. 3=17244
 Li⁷, by electron scatt. 3=19766
 Li⁷, first excited state 2=501
 Li⁷, by 9-11 MeV Ne²⁰ ions 0=11428
 Li⁷, by resonance scattering of γ -rays 1=3434
 Li^{7*}, de-excitation from Bi¹⁰(n, α)Li^{7*} 2=16207
 Lu¹⁷⁵, Coulomb, conversion electrons 0=15551
 Mg, by deuterons 1=3455
 Mg, γ -ray resonant scatt. 2=1861
 Mg, giant dipole res. 2=13999
 Li⁷, inelastic electron scatt. 3=10240
 Mg, by n scatt., inelastic, 1-4 MeV, and optical model 4=17042

Nuclear excitation—contd

Mg, by neutron inelastic scattering 1=9865
 Mg, proton-capture resonances at 490-1390 keV 0=5744
 Mg, strong M1 transitions, form factors 4=19760
 Mg, 10.15 MeV level, by photons, level width 0=17621
 Mg²⁴, Coulomb exc. of first excited stage 0=2567
 Mg²⁴, Coulomb excitation with N,O,Ne ions 1=2243
 Mg²⁴, deformed, giant El resonance calc. 2=1798
 Mg²⁴, first excited level, by 14 MeV neutrons 4=6346
 Mg²⁴, γ -ray study of levels 1=5842
 Mg²⁴, by inelastic deuteron scatt. at 19.6 MeV 1=712
 Mg²⁴, by Na²³ + p 2=3573
 Mg²⁴, 1.37 MeV level in d-scatt. 4=19812
 Mg²⁴, 1.37 MeV level, by p and d scattering 0=13235
 Mg²⁴, 1.37 MeV level, by proton scatt. 0=5745
 Mg²⁴, resonance scattering of γ -rays 0=413, 7534, 9661
 Mg²⁴, unnatural parity in α scatt. 4=28063
 Mg²⁴, unnatural parity state, by α 's, 22.5 MeV 3=15229
 Mg²⁵, γ -ray study of levels 1=5842
 Mg²⁶, γ -ray study of levels 1=5842
 Mn, by neutron inelastic scattering 1=9865
 Mn⁵⁵, Coulomb, excited-state lifetime 1=4841
 Mn⁵⁵, Coulomb, by Li^{6,7}, γ -ray yields 0=4107
 Mn⁵⁵, Coulomb, by Ne²⁰ ions 2=18267
 Mn⁵⁵, resonance, from first excited states 3=6164
 Mn⁵⁶, transitions between low-lying excited states 1=8648
 Mo⁹⁵, Coulomb, excited-state lifetime 1=4841
 N¹³, resonance in C¹²(p,p' γ) 1=2210
 N¹⁴, by electron scattering 3=4625
 N¹⁴ excited states 1=8768
 N¹⁴, γ -ray resonant scatt., lifetime of first excited state 1=664
 N¹⁴, by inelastic scatt. on C¹² at 27.3 MeV 1=732
 N¹⁴, M1 transitions by inelastic electron scatt. 4=12134
 N¹⁴, by tritons, 1-2 MeV, differential cross-sections 4=17191
 N¹⁶, giant dipole reson., by μ capture in O¹⁶ 4=17034
 Na²³, γ -ray resonant absorption 0=11311
 Na²³, by n via compound nucleus, up to 4 MeV, calc. 4=25300
 Na²³, by 9-11 MeV Ne²⁰ ions 0=11428
 Na²³, by proton bombard. 0=13206
 Na²³, proton scatt., 873 keV, interference with Coulomb excitation 4=25389
 Nb⁹² low lying levels by Nb⁹³(p,d)Nb⁹² 4=12151
 Nb⁹³, by n scatt., inelastic, 1-4 MeV, and optical model 4=17042
 Nd even-even nuclei, Coulomb excit. 2=13982
 Nd, total neutron cross-section, 3.3-5 MeV meas. 4=22158
 Nd¹⁵⁰, deformed, Coulomb excit. of vibrational states 4=22040
 Ne²⁰, Coulomb excitation with N,O,Ne ions 1=2243
 Ne²⁰, giant resonance region, by F¹⁹ + p 1=8722
 Ne²⁰, by inelastic scatt. of protons 1=19457
 Ne²⁰, by inelastic scatt. of protons 3=4632
 Ne²⁰, by inelastic scattering of 28.5 MeV He³ 0=20463
 Ne²⁰, by Na²³(p, α) and Ne + b 0=13206
 Ne²⁰(p,p' γ), 4.97 MeV level 3=10255
 Ne²⁰, unnatural parity in α scatt. 4=28063
 Ne²¹, Coulomb 2=13993
 Ne²¹, by inelastic scatt. of protons 1=19457
 Ne²¹, by inelastic scatt. of protons 3=4632
 Ne²³, Coulomb excitation with N,O,Ne ions 1=2243
 Ni, by α -particles 0=20469
 Ni, by deuterons 1=3455
 Ni⁵⁸, Coulomb excitation with N,O,Ne ions 1=2243
 Ni⁵⁸, by 183 MeV electrons 1=10965
 Ni⁵⁸, 2⁺ collective state, by 64.3 MeV α -rays 4=15237
 Ni^{58,60}, by n scatt., inelastic, 1-4 MeV, and optical model 4=17042
 Ni^{58,60}, quadrupole, form factors 3=8081
 Ni^{58,60,62}, collective, by α -particles 3=15106
 Ni^{58,60,64}, by alpha-particles, Blair model 1=13853
 Ni⁶⁰, α -particle scatt., theory rel. to expt. 2=18356
 Ni⁶⁰, Coulomb excitation with N,O,Ne ions 1=2243
 Ni⁶⁰, γ -ray resonance scatt., effect of recoil nuclei collisions 0=20338
 Ni⁶⁰, by 183 MeV electrons 1=10965
 Ni⁶⁰, two-phonon state, by 43 MeV α -particles 4=6214
 Ni⁶¹, Mössbauer effect 1=5830
 Ni⁶², Coulomb excitation with N,O,Ne ions 1=2243
 Ni⁶², neutron strength functions 4=3678

Nuclear excitation—contd

- Ni^{62,64}, collective "2-phonon" levels, by α scatt.,
44 MeV 3=24864
- Ni⁶⁴, Coulomb excitation with N,O,Ne ions 1=2243
- Ni⁶⁴, by 9.6-11.7 MeV protons 3=10259
- O, by O¹⁶, excitation curve 0=9648
- O⁺ states of even-even nuclei by β decay 3=22322
- O¹⁵*(5.20, 5.25, 6.15 MeV), by N¹⁴(d, n), n ang.
distrib. 4=6372
- O¹⁶, by α -particles at 18 MeV 0=2668
- O¹⁶, in (C¹², O¹⁶), (O¹⁶, O¹⁶) interactions 2=8010
- O¹⁶, in C¹³(α , n)O¹⁶ 2=12220
- O¹⁶, dipole states, by SU3 coupling scheme 4=12136
- O¹⁶, by electron inelastic scatt. 4=19675
- O¹⁶, by electron scatt., particle-hole correl. 4=12209
- O¹⁶, by electron scattering 3=4625
- O¹⁶, by electrons 3=19836
- O¹⁶, by electrons, giant resonance 2=432
- O¹⁶, by electrons, possible E1 overtones 3=4627
- O¹⁶, 11-14 MeV, by electron inelastic
scatt. 4=17028
- O¹⁶, energies up to 15 MeV, meas. 4=15146
- O¹⁶, (γ , n), shell model extension 4=25292
- O¹⁶, γ -ray resonance scatt. 2=1861
- O¹⁶, γ -ray, resonance at \sim 20 MeV 0=11433
- O¹⁶, giant dipole resonance 2=1865
- O¹⁶, giant dipole resonance, exptl. determ. rel. to shell
model calc. 4=15143
- O¹⁶, giant dipole state, theory 2=3473
- O¹⁶, giant resonance excitation by inelastic electron
scattering 0=20474
- O¹⁶, giant resonance, by 40-70 MeV electrons 4=19672
- O¹⁶, giant dipole resonance 4=15144
- O¹⁶, giant resonance, e.m. structure 4=17033
- O¹⁶, inelastic proton scatt. 3=2451
- O¹⁶, no formation of bound state of two nuclei 0=13251-3
- O¹⁶, particle-hole model, two-body forces 4=15145
- O¹⁶, particle-hole states, by electron scattering 4=3563
- O¹⁶, by proton inelastic scatt. at 150 MeV, high-energy
 γ -rays 1=8723
- O¹⁶, by proton scatt., diff. cross-section, calc. 1=3442
- O¹⁶, 6.06 MeV monopole transition, double γ
emission 1=17062
- O¹⁶, 3⁻ collective state, by neutrons, calc. 2=18264
- O¹⁶, two-particle excitation of low states 3=15104
- O¹⁶, 2⁺ states, by C¹²(α , γ)O¹⁶ 0=5730
- O¹⁶, unnatural parity, in α scatt. 4=28063
- O¹⁶, up to 15.0 MeV, total cross-section 4=9532
- O¹⁸(γ , n) O¹⁷, single-particle modes obs. 4=9479
- O¹⁸, inelastic electron scatt. 3=10240
- O¹⁸, 3.92 and 4.45 MeV states de-excit. 4=22014
- O¹⁸, transition probability 3=10331
- O¹⁶-C¹² scattering, elastic and inelastic, 168 MeV 4=25439
- Os, Coulomb, second 2⁺ state 1=8725
- Os^{186,188}, first excited states, lifetimes 2=16325
- Os^{186,188,189,190,192}, Coulomb, internal conversion
electrons 1=3425
- P²⁹, by proton scatt. on Si²⁸ 1=7327
- P³¹, α -ray scatt., 18.2 MeV meas. analysis 4=22182
- P³¹, Coulomb, by Ne²⁰ ions 2=18267
- P³¹, giant dipole res. 2=13999
- P³¹, by inelastic scatt. of fast electrons 4=17121
- P³¹, by protons 2=3567
- Pa^{227,228,230}, by protons 2=10098
- Pb, Coulomb, by 11 MeV α -particles 0=3821
- Pb, by 40 MeV electrons, electron spectra 1=681
- Pb²⁰⁴(n, n')Pb^{204m}, for different energy distrib. 4=28047
- Pb^{204,206,207}, by α -rays meas. 2=8009
- Pb²⁰⁵, isomeric transitions 1=5864
- Pb²⁰⁸, first excited state, by neutron scatt., direct-
interaction contrib. 1=8735
- Pb²⁰⁸⁻⁴, by protons, configuration mixing 3=8020
- Pb²⁰⁸, inelastic neutron scatt., Hauer-Fleshback
theory 4=28039
- Pb²⁰⁸, by 183 MeV electrons 1=10965
- Pb²⁰⁸, by 183-600 MeV electrons 3=10333
- Pb²⁰⁸, 3⁻ collective state, by neutrons, calc. 2=18264
- Pd¹⁰⁴, second 2⁺ level, 1.34 MeV, Coulomb,
N ions 4=1021
- Pd¹⁰⁶, Coulomb excit. by 45 MeV oxygen ions 2=22740
- Pd¹⁰⁶, Coulomb, by oxygen ions 2=1819
- Pd^{106,110} 2=1818
- Pd^{108,110}, Coulomb excitation by oxygen-16 ions 2=12140

Nuclear excitation—contd

- Pr¹⁴¹, Coulomb, by Ne²⁰ ions 2=18267
- Pt, Coulomb, by 11 MeV α -particles 0=3821
- Pt, Coulomb, second 2⁺ state 1=8725
- Pt isotopes, collective excitation 1=7321
- Pt¹⁹², rotational band 2=5804
- Pt¹⁹⁴⁻⁵, Coulomb 0=13145
- Pt¹⁹⁶, Coulomb, by 3-5.5 MeV protons and
 α -particles 0=1407
- Pt¹⁹⁶, multipole order of process 2=10008
- Pt¹⁹⁶, radiative capture of neutrons, γ -intensity 1=17111
- Pt¹⁹⁶, resonance neutron capture, J = 1 levels
study 1=16999
- Pt¹⁹⁶, 333 keV 2⁺ \rightarrow 2⁺ transition 2=10060
- Pu²⁴⁰ fission, deform. at saddle point, pairing effect 4=3718
- Re¹⁸⁷, resonant γ -absorption, in crystal lattice 0=9525
- Rh¹⁰¹ proton excitation 1=667
- Ru^{102,106}, Coulomb excitation by oxygen-16
ions 2=1819, 12140
- S³², by α -particles at 18 MeV 0=2668
- S³², 2.24 and 4-5 MeV levels, ang. distrib. of exciting
14.5 MeV neutrons 4=17164
- S³², Coulomb, by Ne²⁰ ions 2=18267
- Sc^{44,44m}, relative, in nuclear reactions 4=9422
- Sc⁴⁶, polarized, in Fe alloy, γ -ray asymmetry, effective
mag. field 0=20787
- Se, even-even nuclei, Coulomb excit. 2=13982
- Se⁷⁶, Coulomb excitation with N,O,Ne ions 1=2243
- Se^{76,78}, Coulomb excitation by O¹⁶-ions 4=19689
- Se^{76,78}, Coulomb, by heavy ions, second-order
effects 4=22029
- Se^{76,78,80}, second 2⁺ state, by α particles 2=10141
- Se⁷⁷, Coulomb, excited-state lifetime 1=4841
- Se⁷⁷, by protons and deuterons 1=5907
- Se⁷⁸, Coulomb excitation with N,O,Ne ions 1=2243
- Se⁸⁰, Coulomb excitation with N,O,Ne ions 1=2243
- Se⁸², Coulomb excitation with N,O,Ne ions 1=2243
- Si, 11.40 MeV level, by photons, level width 0=17621
- Si, by 40 MeV electrons, electron spectra 1=681
- Si, γ -ray resonant scatt. 2=1861
- Si, giant dipole res. 2=13999
- Si, natural, by protons at 0.3-1.84 MeV, γ -ray yields,
55 resonances 0=17594
- Si, strong M1 transitions, form factors 4=19760
- Si²⁸, Coulomb excitation with N,O,Ne ions 1=2243
- Si²⁸, by electron scattering 3=4625
- Si²⁸, photo, electric dipole states, calc. 4=17045
- Si²⁸, by proton scatt., resonance in P³¹ 1=4868
- Si²⁸, resonance fluorescence 0=413
- Si²⁸, unnatural parity in α scatt. 4=28063
- Si²⁸, unnatural parity state, by α 's, 22.5 MeV 3=15229
- Sm¹⁴⁷, Coulomb, gamma-ray spectra 3=19782
- Sm^{148,150}, by 12 MeV protons 4=9412
- Sm¹⁴⁹, 22 keV transition 2=14357
- Sm¹⁴⁹, 22 keV transition 3=6459
- Sm¹⁵², Coulomb excit. by p and d bomb. 0=11415
- Sm¹⁵², Coulomb, excitation functions, precision
meas. 4=22042
- Sm¹⁵³, deformed, Coulomb excit. of vibrational
states 4=22040
- Sm^{152,154}, low-lying collective states, by proton
scatt. 4=27976
- Sm^{152,154}, by O ions, double Coulomb effect 3=8134
- Sm¹⁶², by O¹⁶ ions, and band mixing 4=6267
- Sn, even isotopes, 2⁺ level, by d scatt., 13.6 MeV 4=22127
- Sn¹¹⁶, 1.27 MeV level 3=639
- Sn¹¹⁸, neutron strength functions 4=3678
- Sn^{118,20}, by d, p reactions, 13.6 MeV 4=22127
- Sn¹¹⁹, γ -ray resonance absorption spectra,
23.8 keV 2=2368
- Sn¹¹⁹, γ -ray resonant absorptions 0=5661
- Sn¹¹⁹, γ resonance absorption, Zeeman effect 1=2164
- Sn¹¹⁹, resonance γ -ray absorption in Mn-Sn ferromag.
alloys, nuclear Zeeman effect 1=621
- Sn¹¹⁹, resonant γ -ray absorption in Mn-Sn alloys 1=9023
- Sn¹¹⁹, 24 keV transition, h.f.s., by Mössbauer effect 1=10861
- Sn^{119m}, recoilless γ -emission at 24 keV, thermal red
shift 1=5831
- Sr, by α -particles 0=20469
- Sr⁸⁸, quadrupole, form factors 3=8081
- Sr⁸⁸, resonance fluorescence 0=413
- Ta, Coulomb, by 11 MeV α -particles 0=3821

Nuclear excitation—contd

- Ta¹⁸¹, Coulomb, conversion electrons 0=15551
 Ta¹⁸¹, Coulomb, γ ang. correl. 0=9606
 Ta¹⁸¹, by 5.5 and 6.5 MeV protons 1=7328
 Ta¹⁸¹, giant dipole res. 2=13999
 Ta¹⁸¹, inelastic neutron scatt., Hauer—Fleshback theory 4=28039
 Ta¹⁸¹, by 183-600 MeV electrons 3=10333
 Tb¹⁴⁹, from complex nuclei reactions 3=15119
 Tb¹⁵⁹, by 60 MeV O¹⁶ ions 3=15120
 Tc⁹⁹, Coulomb, gamma-ray spectra 3=19782
 Te¹²⁴, γ -ray resonance scatt. 1=16974
 Te¹²⁵, Mössbauer effect for 35.5 keV transition 2=22713
 Th^{230,232}, Coulomb, internal conversion electrons 1=3425
 Th²³², Coulomb excitation by 4-6 MeV protons 1=624
 Th²³², by fast neutrons 2=10113
 Th²³², inelastic neutron scatt., Hauer—Fleshback theory 4=28039
 Th²³², multiple Coulomb excitation by A⁴⁰ ions 0=448
 Th²³², neutron average transmission and p-wave strength functions 4=6344
 Th²³², p wave neutron resonances 4=12162
 Th²³², by protons and deuterons 1=5908
 Ti, by deuterons 1=3455
 Ti⁴⁶, Coulomb excitation with N,O,Ne ions 1=2243
 Ti⁴⁷, Coulomb, excited-state lifetime 1=4841
 Ti⁴⁷, Coulomb, by Li^{6,7}, γ -ray yields 0=4107
 Ti⁴⁸, by α -particles 0=20469
 Ti⁴⁸, Coulomb excitation with N,O,Ne ions 1=2243
 Tl²⁰³, resonance γ -ray scatt. from 279 keV level, ultracentrifuge method 1=7357
 Tm¹⁶⁵, conversion electrons, no. per decay, half life, meas. 4=30327
 Tm¹⁶⁹, Coulomb, conversion electrons 0=15551
 Tm¹⁶⁹, by 60 MeV O¹⁶ ions 3=15120
 U, natural, by 0.3-1.5 MeV neutrons 4=3667
 U²³², by Pa²³² β -decay 3=12604
 U²³⁴ fission, deform. at saddle point, pairing effect 4=3718
 U^{234,236,238}, Coulomb, internal conversion electrons 1=3425
 U^{234,238}, decay to first excited state 0=11348
 U²³⁸, Coulomb excitation by 4-6 MeV protons 1=624
 U²³⁸, inelastic neutron scatt., Hauer—Fleshback theory 4=28039
 U²³⁸, multiple Coulomb excitation by A⁴⁰ ions 0=448
 U²³⁸, neutron average transmission and p-wave strength functions 4=6344
 U²³⁸, neutron excitation cross-sections, level < 1 MeV 2=5927
 U²³⁸ by protons and deuterons 1=5908
 U²³⁸, rotational levels, in μ -mesic atom transitions 2=385
 U²³⁹, partial radiation widths, fluctuations 4=19705
 V⁵¹, by electron inelastic scatt., calc. and meas. 3=664
 V⁵¹, by 17.45 MeV protons 4=15204
 W, Coulomb, second 2⁺ state 1=8725
 W, by proton and deuteron scatt. 1=13787
 W^{182,184,186}, Coulomb, gyromagnetic ratio of 2⁺ states 2=18244
 W¹⁸⁴, inelastic neutron scatt., Hauer—Fleshback theory 4=28039
 W¹⁸⁴, by O ions, double Coulomb effect 3=8134
 W¹⁸⁴, residual levels, by neutron scatt. 3=22399
 W¹⁸⁴, resonance neutron capture, J = 1 levels study 1=16999
 W¹⁸⁶, by 6.7-12.6 MeV protons 1=5905
 Y^{87,87m}, relative, in nuclear reactions 4=9422
 Y^{88(n,n')} 3=10363
 Y^{90e,90m}, ratios from Rb⁸⁹(α ,n) and Y⁸⁹(d,p) 4=17197
 Yb¹⁷⁸, by O ions, double Coulomb effect 3=8134
 Zn, by electron scatt., 300 keV-1.5 MeV 4=22148
 Zn, by deuterons 1=3455
 Zn⁶⁴, α -induced reactions, excitation functions 0=444
 Zn⁶⁴, by 9.6-11.7 MeV protons 3=10259
 Zn^{64,66,68}, by α -particles, second level 2=494
 Zn^{64,66,68}, collective, by α -particles 3=15106
 Zn^{64,66,68} Coulomb excitation with N,O,Ne ions 1=2243
 Zn^{64,66,68}(p,p'), 5.8 MeV, p- γ ang. correl. 4=17125
 Zn⁶⁷, Coulomb, excited-state lifetime 1=4841
 Zn⁶⁷, Mossbauer effect, ultra-high resolution 0=13126
 Zn⁶⁷, 93 keV γ -ray, no resonant absorption 0=11315
 Zn⁶⁷, recoilless reson. γ -absorption, 92 keV 1=13633
 Zn and Zn⁶⁴, with α -particles 0=20469

Nuclear excitation—contd

- Zr⁹⁰, by α , and 4⁻ =2.75 MeV level from γ - α coincidences 4=22031
 Zr^{90(n,n')}Zr^{90m}, to 5 MeV 3=15208
 Zr⁹⁰, two-phonon de-excitation of 0⁺ level 1=13732
 Zr^{92,94}, Coulomb excitation with N,O,Ne ions 1=2243

Nuclear field theory

See field theory, quantum

Nuclear fission

- See also Nuclear reactors, fission.
 actinide nuclei, α -particle and fission anisotropies 0=11341
 aligned nuclei 0=2690
 analogue, using coloured lights 1=3470
 Argus expt., fission device detonated beyond atmosphere 0=10427-9
 Argus expt., optical, electromagnetic and satellite observations 0=10431-2
 Argus expt., theory of trapped electrons 0=10430
 asymmetric fission of heavy nuclei 0=7631
 asymmetric, model rel. to Z = N = 50 shells 3=2510
 asymmetric, spontaneous and induced, theory 4=12284
 asymmetry, rel. to energy minimum 1=17158
 asymmetry of external nucleons 2=8013
 asymmetry of external nucleons 3=6305
 asymmetry w.r.t. nuclear charge and neutron contents 4=19836
 BCS supercond. model appl. and odd-even effects 4=6386
 Bohr and Wheeler statistical theory, rel. to fission asymmetry 4=15244
 catalysis by μ -mesons, at low temp., energies of bound states 0=15611
 cathode fissile, in plasma diode 2=22161
 chain reactions, mousetrap model 3=5316
 chamber, design and performance 4=21823
 charged-drop model, deformation energy 3=19899
 charged drop model, discontinuity 2=20683
 charged-particle-induced, energy considerations 3=10396
 cluster model, mass distrib. calc. 3=687
 collected data 1=9888
 compound nuclei, surface coupling mechanism for approaching statistical equilibrium 0=1395
 counter, for fission by thermal neutrons 3=4289
 critical parameters, arbitrarily shaped bodies 2=3659
 criticality, interacting arrays of fissile materials 3=12705
 criticality of unreflected air-spaced arrays of spheres 3=12706
 delay neutrons, observation and props. 1=8793
 delayed neutron phenomena, interpretation 0=7638
 delayed-neutrons, mean decay constant for reactor kinetics equation 4=25462
 discovery by Hahn and Strassmann (1939) 4=6384-5
 drop model, threshold and fragment energies rel. to Wigner symmetry energy 2=16441
 drop model, threshold and fragment energies rel. to Wigner symmetry energy 3=6306
 energy balance and fragment symmetry 2=3633
 energy of fission neutrons, and number rel. to fissioning nucleus props. 2=506
 exchange forces between fragments 1=4878
 explosion in space, e.m. radiation rel. to detection 2=14158
 fast fission factors, meas., k(t) correction factor det. 2=20684
 fast fission factors, uranium rod lattices, light water 2=3639
 fission and capture cross-sections for hardened Maxwellian neutron spectra 1=17173
 fission neutron energy and number rel. to fissioning nucleus props. 3=686
 use of fission-energy for Ce-plasma diodes emitter heating 4=27464
 fissionable units interact. safety calc. 3=8142
 fissionability parameter rel. to Z²/A, constant 4=19848
 fissionability by high-energy protons 1=19548
 fissionable assembly, with weak neutron source, neutron population growth 1=17222
 4 π fission counter 1=1990
 fragment anisotropy and pairing effects on struct. 2=510
 fragment meas. k.e. rel. to mass of fissioning nucleus 4=9582
 fragment track observation in molybdenite 1=19549

Nuclear fission—contd

and fragmentation, at high energy, "cascade evaporation" model 1=3468
 fragments, excitation energies, rel. to Z and A 1=17175
 fuel swelling resistance, U-Mo alloy studied 2=4443
 in gases, pressure wave generation by neutron irradiation 4=18332
 heavy compound nuclei, ternary 4=22244
 heavy ion induced, rotating charged drop, equilib. shapes 4=22211
 heavy-ion induced, use of silicon p-n junction detectors 0=20508
 heavy ion reactions, rel. to compound nucleus angular momentum 4=22212
 by heavy ions, liquid-drop model 1=3383
 heavy, medium and light nuclei, comparison with fragmentation 4=19826
 heavy nuclei, fragment kinetic energy dispersion 3=15245
 heavy nuclei (Z > 100), spontaneous fission half-lives, calc. 1=4880
 high energy, by protons 4=28072
 individual states at fission threshold, dumb-bell pot. quantization 0=17630
 instantaneous neutron emission rel. to nuclear shells 3=6308
 ionization chamber, small, U coated W wire in Ar at 15 atm. 3=17098
 isotopic and isotonic yields, theory 3=8141
 kinetic energy fine structure rel. to semiempirical mass surface 4=12288
 kinetic energy and prompt neutron distribution 4=3709
 liquid-drop model, electrostatic self-energy calc. 0=5646
 liquid drop model, rotating, fission barrier 3=10211
 by low-energy neutrons, fragment ang. distrib., calc. 1=8792
 "magic numbers", influence 1=13867
 mechanism, rel. to octupole deformation of nuclei 1=5825
 metallic fuel, irradiation behaviour 2=20723
 mica, U-concentration meas. by fission tracks 3=21020
 μ catalysis, internal conversion of μ -mesic He³ 1=19615
 μ -induced in mesic atoms, probability 2=511
 neutron angular and energy distrib. 0=7640
 neutron cross-sections, low-energy, of fissionable nuclei, analysis 0=9706
 neutron emission, instantaneous, rel. to nuclear shells 2=8014
 neutron energy spectrum by matrix iteration method 1=17186
 neutron, flux meas., thermocouple system 2=3364
 neutron, net loss due to reactions 2=8025
 neutron prod. rel. to nuclear pot. rate change 2=10151
 neutron resonance integral calculation, flat source approx. correction 4=25452
 neutron resonance integrals, fission cross-sections, Fortran program 4=25463
 neutron source, pulsed, meas. of subcriticality 4=1126
 neutron studies, Soviet progress, conference 4=9002
 neutrons, Fermi age in light water, calc. 1=16804
 neutrons prompt in heavy nuclear fission, emission moment 4=25441
 nuclear explosions, artificial geomag. and ionospheric storms 0=10411
 nuclear explosions, generation of magnetic storms 0=12143
 nuclear explosions, high-altitude, geomag. effects 0=12142
 nuclear explosions, high altitude, "Teak", photographic anal. 0=14198
 nuclear explosions, Johnston Island (1958), artificial aurora 0=12195
 nuclei, fissionability by high-energy protons 2=22861
 $p + d \rightarrow \text{He}^3 + \gamma$, catalysis by muons, γ -rays study 4=6675
 pairing effects at barrier, Pu²⁴⁰ 4=3718
 parity nonconservation, effect 2=22856
 photofission, in fission chambers 0=17633
 prompt neutron periods of metal critical assemblies 0=13307
 by protons, at 480 MeV 0=7633
 quasistatic model, equilib. shapes of nuclei 2=18364
 quasistatic model, equilib. shapes of nuclei 3=6304
 reactor lattice system, first flight collision probability 1=17227
 recoil and its effects, review 0=20509
 reference manual 1=11043

Nuclear fission—contd

research, status, review article, covering European work 1=13874
 resonance fission, ang. distrib. 0=17631
 review, rel. to nucl. structure 1=8787
 review of spontaneous fission 4=3707
 review, of spontaneous fission in particular 2=8012
 rotating nucleus, energy surface, in liquid-drop model 3=15239
 secondary neutron spectra, due to 14 MeV neutrons 0=9663
 semiconductor fission probe 0=11462
 spectrum, prompt fission neutrons 1=17170
 spin-dependent fission anisotropy 2=14147
 spontaneous, far transuranium elements prod. 4=22239
 spontaneous fission, after reaction of U²³⁸ with B¹¹, O¹⁶, Ne^{20,22} 3=24984
 spontaneous, in heavy nuclei, rel. to "excess" neutrons 2=20685
 spontaneous, hindrance by odd nucleon, pairing energy effect 1=8797
 spontaneous, by isomer due to bombarding U²³⁸ with O¹⁶, Ne²⁰ and Ne²² 4=6391
 spontaneous, by isomer formed in Pu- α and Am- α reactions 4=6392
 spontaneous, of nuclei far from stability curves 2=10153
 spontaneous, with simultaneous emission of several neutrons 4=1111
 spontaneous, in subcritical assemblies 0=13334
 spontaneous, systematics, rel. to far-transuranium isotope formation 4=3708
 spontaneous, theory, half-lives of even-even nuclei, calc. 0=11466
 spontaneous, rel. to transuranic element stability 2=8012
 statistical theory, consistency with prompt neutron distrib. 1=8796
 statistical theory justifications 4=28071
 supernova envelope, proton capture process for A = 20-40 3=21123
 survey of work done 1=3466
 symmetric and asymmetric, fission yield calc. 1=8794
 ternary, with α -emission, review 1=8798
 ternary, U²³⁵, by slow n, 3-21 eV 3=15241
 theory, review; log T versus Z²/A discrepancies 1=19539
 transuranic nuclides, by neutrons, T production 0=461
 triple fission of U²³³, U²³⁵ and Pu²³⁹, probabilities 0=20515
 two-mode-of-fission hypothesis, analysis 0=11453
 two types, rel. to nuclear charge distrib. 3=22432
 two types: symmetric and antisymmetric 3=2503
 underground detonations 0=10383-5
 Vladimirovskii mechanism for heavy nuclei, criticism 1=8795
 volume increases in fissile materials 0=9721
 yield curve, rel. to magic number 50=Z 2=12229
 Ag, by 300-1000 MeV photons, meas. 4=19844
 Ag and Br in emulsions, by 1-3 BeV protons 1=11015
 Ag, by protons, 1.0-3.0 BeV, in emulsion 2=10158
 Al, by protons, 660 MeV, Be⁷ yield 2=20689
 Al and Al alloys, swelling after α -ray irradiation 3=4896
 Am²⁴¹, ang. distrib. of products 0=1451
 Am²⁴¹, spontaneous 0=11465
 Am²⁴¹, spontaneous fission half-life 1=19540
 Am²⁴¹, spontaneous fission half-life 3=4675
 Am²⁴³, by neutrons, 0.3-1.7 MeV, cross-sections 2=507
 At^{209,210,212} cpd. nuclei, spallation competition 2=14141
 At²¹³, by He ions, threshold calc. 2=10156
 Au, by C¹² ions at 68-124 MeV, cross-sections, fragment ang. distrib. and energy spectra 0=20516
 Au, by C¹² and O¹⁶ ions, ang. distrib. of fragments 0=9712
 Au, by He ions, 30-43 MeV 2=10156-7
 Au, by O nuclei, ang. distrib. of products 0=17636
 Au, by 156 MeV protons, ang. distrib. and cross-sections 4=17213
 Au, by 660 MeV protons 0=13298
 Au, by 2.9 GeV protons, nuclear charge distrib. 3=8149
 Au-Si, surface barrier detectors 2=3634
 Au¹⁹⁷, by C ions, at 93 and 123 MeV, fragment ang. distrib. 0=13306
 Au¹⁹⁷, by C¹² and O¹⁶, fragment energies and ang. distrib., total cross-sections 1=746
 Au¹⁹⁷, by C¹² and O¹⁶, kinetic energy release 3=15250

Nuclear fission—contd

- Au¹⁹⁷, by He ions, mass-yield curves 3=10398
 Au¹⁹⁷, by He³, 25 MeV 2=14152
 Au¹⁹⁷, by heavy ions, ang. distrib. of fragments 3=10399
 Au¹⁹⁷, by heavy ions, Cd¹¹⁵, ^{115m} formation 0=9711
 Au¹⁹⁷, induced by various ions, momentum transfer 4=22243
 Au—Si, surface barrier detector for fragments 4=27721
 Au—Si, surface barrier detector for fragments, pulse height meas. 4=28080
 Be⁹, in Coulomb field of heavy nuclei 3=24977
 Bi, by C, N and O ions, 60–100 MeV 0=7588
 Bi chamber, for neutron detection 1=13450
 Bi, by 480 MeV protons 0=7633
 Bi, by 450 MeV protons, fragment ang. distrib. 0=9699
 Bi, by 156 MeV protons, ang. distrib. and cross-sections 4=17213
 Bi, by He ions, 30–43 MeV 2=10156-7
 Bi, photofission between 300 and 1000 MeV 1=8800
 Bi, by protons, 156 MeV, ang. correl. 3=10400
 Bi, by protons, 660 MeV 2=14151
 Bi, by protons, 660 MeV, F¹⁸, Na²⁴, Mg²⁸, P³² yields 2=20689
 Bi, by protons, 660 MeV; F¹⁸, Na²⁴, Mg²⁸, P³² yields 3=8150
 Bi, by protons, 20–22 GeV 3=8146
 Bi, by 680 MeV protons 0=5805
 Bi, by 300–1000 MeV photons, meas. 4=19844
 Bi²⁰⁹, by C¹² and O¹⁶, fragment energies and ang. distrib., total cross-sections 1=746
 Bi²⁰⁹, by C¹² and O¹⁶, kinetic energy release 3=15250
 Bi²⁰⁹, by He³, 25 MeV 2=14152
 Bi²⁰⁹, by heavy ions, ang. distrib. of fragments 3=10399
 Bi²⁰⁹, helium-ion induced, binary studies 4=15246
 Bi²⁰⁹, by 135 MeV protons, calc. 3=4638
 Bi²⁰⁹, by protons at 36 and 58 MeV, asymmetric mode 1=3471
 Bi²⁰⁹, by protons, 600 MeV 2=20688
 Br, by protons, 1.0–3.0 BeV, in emulsion 2=10158
 C¹² + C¹² → 6α, ang. momenta, statist. model 4=6380
 Cf²⁵², fission neutron spectrum 1=17170
 Cf²⁵², frequent meas. by double energy and double vol., comparison 3=24987
 Cf²⁵², prompt neutrons, statistical model study 4=19838
 Cf²⁵², spont. fission, prompt neutrons 3=10393
 Cf²⁵², spontaneous 1=13867
 Cf²⁵², spontaneous, α-spectrum, tripartition 1=747
 Cf²⁵², spontaneous, α and t energy spectra 1=748
 Cf²⁵², spontaneous, 50 000 events 0=20517
 Cf²⁵², spontaneous, fractional yields 2=12236
 Cf²⁵², spontaneous, γ ray peaks, prompt 4=17208
 Cf²⁵², spontaneous, kinetic energy meas. and fine structure 4=6389
 Cf²⁵², spontaneous, from long-range particles meas. 2=12230
 Cf²⁵⁴, spontaneous, mass and energy distrib. 3=24990
 Cf^{252, 254}, spontaneous, neutrons per fission 4=6390
 Cf²⁵², spontaneous, neutron production rate 3=24988
 Cf²⁵², spontaneous, neutron yields from individual fragments 2=18269
 Cf²⁵², spontaneous, prompt neutrons 2=3640, 14145
 Cf²⁵², spontaneous, tritium produced 4=22240
 Cf²⁵², spontaneous, yield curve, radiochemical study 0=15609
 Cf²⁵², ternary 4=22244
 Cf²⁵⁴, spontaneous, in supernova type I, possibility 0=12331
 Cf²⁵⁴, in supernovae 2=5757
 Cm^{242, 244}, spontaneous, from long-range particles meas. 2=12230
 Cm²⁴⁴, spontaneous, binary, ternary, high energy α's 4=19837
 Cm²⁴⁴, spontaneous fragment energy distrib. 4=6388
 Cm²⁴⁴, triple spontaneous, α-particle spectrum, energy meas. 4=28073
 Cm²⁴⁸, spontaneous, mass and energy distrib. 3=24990
 Cu, by protons, 660 MeV, Be⁷, F¹⁸, Na²⁴, P³² yields 2=20689
 Cu, by protons, 660 MeV; Be⁷, F¹⁸, Na²⁴, P³² yields 3=8150
 Es²⁵⁸, spontaneous, mass and energy distrib. 3=24990
 Fm²⁵⁴, cpd. nucleus, mass-energy relns. 3=24989
 Fm²⁵⁴, prod. by Pu²⁴¹ + C¹³ and U²³⁸ + O¹⁶ 0=9649
 Fm²⁵⁴, spontaneous, mass and energy distrib. 3=24990
 He induced, saddle deformation, rel. to fragment ang. distrib. 2=10157
 Ho¹⁶⁵, by C¹² and O¹⁶, kinetic energy release 3=15250

Nuclear fission—contd

- Ho¹⁶⁵, induced by various ions, momentum transfer 4=22243
 Ho¹⁶⁵, by O¹⁶ and Ne²⁰, effect of ang. momentum 3=6312
 In, by 2.9 GeV protons, nuclear charge distrib. 3=8149
 Li⁶ photofission, low-energy t and d prodn. 4=25444
 Li⁷, by 5.7 MeV electrons, into t + α 4=12211
 Lu¹⁷⁵, by C¹² and O¹⁶, kinetic energy release 3=15250
 Mg²⁴, into 2C¹², by 70 MeV bremsstrahlung 3=15247
 Ne²⁰, α-induced, ground-state transition 3=2507
 Ne²⁰, by α-particles, excited states of Mg²⁴ and ang. distrib. of C nuclei 2=14153, 16444
 Np²³⁷, ang. distrib. of products 0=1451
 Np²³⁷, by 5–37 MeV neutrons, meas. 4=22241
 Np²³⁷, by 4–12 MeV protons, meas. 4=12269
 Np²³⁷, by 14 MeV neutrons, fore-aft yields 1=2250
 Np²³⁷, by n, 5–37 MeV 4=3711
 Np²³⁷, by neutrons, cross-section 0=1452
 Np²³⁷, by neutrons at 14 MeV 0=11459
 Np²³⁷, by neutrons at 0.5–9 MeV, fragment ang. distrib. 0=17635
 Np²³⁷, by neutrons at 0.9–8 MeV, cross-section 0=4131
 Np²³⁷, by n, var. with energy 4=12290
 Np²³⁷, by neutrons, 10–22 MeV, cross-section 3=10395
 Np²³⁷, photofission cross-sections, 7.0 MeV 2=14150
 Np²³⁷, prompt neutrons 0=11457
 Np²³⁷, spontaneous fission half-life 1=19541
 Np²³⁷, spontaneous fission half-life 3=4676
 Np²³⁷/U²³⁸ cross-section ratio 1=17166
 Pa, by protons, competition with neutron emission 2=10098
 Pb, by protons, 660 MeV 2=14151
 Pb, by 3 BeV protons, cross-sections for prod. of Cl, K, Ca and Sc 0=5747
 Pb^{204, 206}, by He ions, mass-yield curves 3=10398
 Pb²⁰⁶, by He ions, 30–43 MeV 2=10156-7
 Pb²⁰⁸, by Ar⁴⁰ bombardment, ternary 4=22244
 Po²¹⁰, by He ions, threshold calc. 2=10156
 Pr¹⁴¹, by C¹² and O¹⁶, kinetic energy release 3=15250
 Pu, delayed neutrons 0=7649
 Pu, relative rates in U-water enriched lattices 2=8018
 Pu²³⁹, neutron capture to fission ratios 2=8016
 Pu^{238, 239}, by thermal neutrons, cross-sections 0=1455
 Pu^{238, 240}, spontaneous, α-spectra 4=1115
 Pu²³⁹, with α emission, energy distrib. 1=19483
 Pu²³⁹ containing Pu²⁴⁰, η meas. 0=4135
 Pu²³⁹, cross-section temperature dependence 1=741
 Pu²³⁹(d, pf), cross-section energy depend. 4=1116
 Pu²³⁹, delayed neutrons 0=5811
 Pu²³⁹, emission of prompt neutrons 1=13869
 Pu²³⁹, emitted neutron spectra, structure phenom. 4=1112
 Pu²³⁹, and excitation functions 3=6184
 Pu²³⁹, fission neutron spectrum 1=17170
 Pu²³⁹, η for epithermal neutrons 0=4133
 Pu²³⁹, η for 30–900 keV neutrons 0=4134
 Pu²³⁹, η value in sub-cadmium energy range 0=13302
 Pu²³⁹, η for vel. of 2200 m/sec 3=2504
 Pu²³⁹, by fast neutrons, delayed γ-rays meas. 4=19842
 Pu²³⁹, by fast neutrons, ν_{eff} and σ_t + σ_a values 0=11456
 Pu²³⁹, by fast and thermal neutrons, neutron spectra, effective temp. 0=20514
 Pu²³⁹, by 15 MeV neutrons, delayed neutron curve 4=6400
 Pu²³⁹, by 4–12 MeV protons, meas. 4=12269
 Pu²³⁹, by 14 MeV n's, n's prod. by fission and interaction 4=9578
 Pu²³⁹(γ, f), cross-section energy depend. 4=1116
 Pu²³⁹, γ-radiation from fragments 1=17174
 Pu²³⁹, ν factor, thermal to fission neutrons 0=7645
 Pu²³⁹, low-energy neutron cross-sections, analysis 0=9706
 Pu²³⁹, low energy neutron fission widths 2=7992
 Pu²³⁹, by μ-mesons, probab. 2=511
 Pu²³⁹, by n, cross-section, 0.3–2.5 MeV 3=6309
 Pu²³⁹, by n, 5–100 eV 4=17140
 Pu²³⁹, n-induced, α-spectra 4=1115
 Pu²³⁹, by n time-of-flight, correction 3=17503
 Pu²³⁹, neutron fission threshold, from (d, p) reaction 0=1415
 Pu²³⁹, neutron numbers 0=2693
 Pu²³⁹, neutron yields, 0.006–0.36 eV 0=7636
 Pu²³⁹, by neutrons, ang. distrib. of fragments 0=1456
 Pu²³⁹, by neutrons, neutron yields from individual fragments 2=18369
 Pu²³⁹, by neutrons at 0.5–9 MeV, fragment ang. distrib. 0=17635
 Pu²³⁹, neutrons per fission, energy depend. 4=22242

Nuclear fission—contd

Pu²³⁹, by pile neutrons, yields of Sr⁹⁰ and Sr⁸⁸ 1=7408
 Pu²³⁹, by neutrons at 7-30 eV, meas. of η 0=7635
 Pu²³⁹, by neutrons, 12.6-20 MeV 2=3636
 Pu²³⁹, prompt neutron yield 0=11458
 Pu²³⁹, ratio of 0.0011 eV absorption to fission cross-sections 0=7639
 Pu²³⁹, reactivity change on high irradiation 1=19566
 Pu²³⁹, resonance absorption 2=3638
 Pu²³⁹, slow cross-section correl. 0=7480
 Pu²³⁹, by slow n, level interference calc. 4=19841
 Pu²³⁹, thermal neutron fission cross-sections 4=17209
 Pu²³⁹, by thermal neutrons, ang. correl. of fragments and prompt γ -rays 4=9585
 Pu²³⁹, by thermal neutrons, fractional yields 2=12236
 Pu²³⁹, by thermal neutrons, time-of-flight studies 3=4677
 Pu²³⁹, by thermal neutrons, "world-average" cross-sections 0=5806
 Pu²³⁹, total effective cross-section in resonance region 0=7647
 Pu²³⁹, triple fission, by neutrons, 0.05 to 0.7 eV 3=17505
 Pu^{239,240}, ang. distrib. of products 0=1451
 Pu^{239,240}, neutron cross-sections 30 keV-5 MeV 0=7643
 Pu^{239,241}, fission rates rel. to U²³⁵, in U-fueled lattices 1=17164
 Pu^{239,241}, by neutrons, asymmetric/symmetric yield ratios, energy depend. 0=17634
 Pu^{239,241}, ternary 4=9579
 Pu^{239,241}, by thermal neutrons, fragment mass distrib. 4=12286
 Pu²³⁹-U²³⁵, rel. conversion factors in U, and water lattices 0=2702
 Pu²³⁹ and U²³⁵, 14 MeV, average neutron production 4=9578
 Pu²³⁹-U²³⁵, ratio of effective cross-sections for various lattices 0=2692
 Pu²³⁹/U²³⁵ ratio meas. 4=28075
 Pu²³⁹/U²³⁸ cross-section ratio 1=17166
 Pu²⁴⁰, by C¹² and O¹⁶, kinetic energy release 3=15250
 Pu²⁴⁰ (d, pf), and pairing at barrier 4=3718
 Pu²⁴⁰, neutrons emitted in symmetrical fission region 3=10401
 Pu²⁴⁰, by neutrons, 0.04-4.0 MeV 2=12232
 Pu²⁴⁰, spontaneous, half-life meas. 2=10152
 Pu²⁴⁰, spontaneous, neutrons per fission 4=6390
 Pu²⁴⁰, spontaneous, prompt neutron number 2=3640
 Pu²⁴⁰, symmetric, neutron emission numbers 3=17502
 Pu^{240,242}, periods of spontaneous fission 4=6387
 Pu^{240,242}, spontaneous and by neutrons 2=12230
 Pu²⁴¹, η value in sub-cadmium energy range 0=13302
 Pu²⁴¹, by heavy ions, competition with neutron evap. 0=11463
 Pu²⁴¹, by neutrons below 11 eV, meas. 4=9584
 Pu²⁴¹, by neutrons, 0.02-1.80 MeV, cross-sections 2=507
 Pu²⁴¹, neutrons per fission at thermal energies 0=20513
 Pu²⁴¹, by neutrons, 2-100 eV, meas. analysis 4=28074
 Pu²⁴¹, by 0.-12 eV neutrons 1=11027
 Pu²⁴¹, by thermal neutrons, delayed-neutron activity 1=12226
 Pu²⁴², by neutrons, 0.1-1.7 MeV, cross-section 0=7637
 Ra²²⁶, by deuterons, 14 and 21 MeV, and He ions, 23-43 MeV 0=9710
 Ra²²⁶, by deuterons, 10.8 and 13.6 MeV 2=14152
 Ra²²⁶, helium-ion induced, binary studies 4=15246
 Ra²²⁶, by protons at 11-22 MeV, ranges and yields of Sr⁹¹ and Pd¹¹² 0=17632
 Re¹⁸⁵, by C¹² and O¹⁶, effect of ang. momentum 3=6312
 Sb, by protons, 660 MeV, Be⁷, F¹⁸, Na²⁴, Mg²⁸, Si³¹, P³ yields 2=20689
 Sb, by 660 MeV protons 1=17176
 Si²⁸, α -induced, search for 3=2508
 Sn, by protons, 660 MeV, F¹⁸, Na²⁴ yields 2=20689
 Sn, by protons, 660 MeV, F¹⁸, Na²⁴ yields 3=8150
 Ta¹⁸¹, by O¹⁶ and Ne³⁰, effect of ang. momentum 3=6312
 Th¹⁸⁸, by C¹² and O¹⁶, kinetic energy release 3=15250
 Th, delayed neutrons 0=7649
 Th, in emulsions, by 600 MeV protons 1=2249
 Th, fission chamber meas. of fast neutron fluxes 1=13449
 Th, by 480 MeV protons 0=7633
 Th, photofission between 300 and 1000 MeV 1=8800
 Th, by protons, 20-22 GeV 3=8146
 Th, spontaneous, even-even isotopes 2=20685
 Th, by 680 MeV protons 0=5805
 Th, by 340 MeV protons, calc. 0=15607

Nuclear fission—contd

Th²²⁹, effective cross-section for 6-1200 keV neutrons 0=4132
 Th²³⁰, by α -particles, two distinct modes det. 4=9587
 Th²³⁰, by deuterons, fragment velocities meas. 4=9588
 Th²³⁰, by n, var. with energy 3=12290
 Th²³⁰, by neutrons 0=1452
 Th²³⁰, by neutrons at 0.5-9 MeV, fragment ang. distrib. 0=17635
 Th^{230,232}, by α -particles, fragment velocities meas. 4=9588
 Th²³², by α -particles, two distinct modes det. 4=9587
 Th²³², ang. distrib. of products 0=1451
 Th²³², by C¹² and O¹⁶, kinetic energy release 3=15250
 Th²³² cross-section, 14.6 MeV neutrons 1=19547
 Th²³², by d and α , Kr isotope yield 2=1938
 Th²³², delayed neutrons 0=5811
 Th²³², deuteron induced, cross-sections 3=24993
 Th²³², emission of prompt neutrons 1=13869
 Th²³², by fast neutrons, delayed γ -rays meas. 4=19842
 Th²³², by 5-37 MeV neutrons, meas. 4=22241
 Th²³², by 14 MeV neutrons 0=11459
 Th²³², by 14.9 MeV neutrons, fragment masses 0=9702
 Th²³², fragments, total energy rel. to mass ratio 4=9580
 Th²³², by γ -rays, monochrom., 6.61 MeV 2=18367
 Th²³², by He⁴, at 15-46 MeV, spallation-fission competition 0=1450
 Th²³², by He⁴, product relative yields 3=688
 Th²³², by He⁴, 20-43, fragment anisotropy 2=510
 Th²³², by He, 27.8 MeV, symmetrical peak in energy contour diagram 4=15247
 Th²³², by heavy ions, competition with neutron evap. 0=11463
 Th²³², by n, 5-37 MeV 4=3711
 Th²³², by neutrons, 10-22 MeV, cross-section 3=10395
 Th²³², neutron fissionability 0=13300
 Th²³², by 1-2 BeV protons 1=11016
 Th²³², by 1.4 MeV neutrons, no. of prompt. neutrons, rel. to U²³⁸ 0=1454
 Th²³², photofission cross-sections, 7.0 MeV 2=14150
 Th²³², photofission at 70 MeV, fragment kinetic energy 1=8789
 Th²³², photofission at 6.61 MeV 3=24991
 Th²³², by photons, delayed neutron yield 2=12233
 Th²³² products, independent photofission yield, charge distrib. 3=19895
 Th²³², prompt neutrons 0=11457
 Th²³², by protons and deuterons, 3-12 MeV 3=24992
 Th²³², by protons and He ions, long-range particle emission 4=9589
 Th²³², by protons, mass yields, rel. to two-mode-of-fission hypothesis 0=11453
 Th²³², by protons, 600 MeV, noncollinear events 2=20688
 Th²³², resonance fission, 1.6 MeV neutrons, ang. distrib. 0=17631
 Th²³², by 6.61 MeV γ -rays, ang. distrib. 3=24991
 Th²³², by thermal neutrons 0=9701
 Th²³², by transitions bet. μ -mesic atomic states 3=8145
 Th²³², by 20 MeV X-rays, delayed γ -rays 4=19845
 Th²³², by 2.95 and 14.8 MeV neutrons, fine structure 4=12287
 Th²³², rel. yield of delayed neutrons 0=2694
 Tl²⁰¹, barrier, from Au¹⁹⁷-He collisions 4=19848
 Tl, by He ions, 30-43 MeV 2=10156-7
 Tl to Pu, deuteron induced, fragment ang. distrib. 3=19898
 Tm¹⁶⁹, by C¹² and O¹⁶, effect of ang. momentum 3=6312
 Tm¹⁶⁹, by C¹² and O¹⁶, kinetic energy release 3=15250
 U, α -phase, by neutrons, crystal growth effect 2=12880
 U, delayed neutrons 0=7649
 U, by deuterons, mass yields, rel. to two-mode-of-fission hypothesis 0=11453
 U, by fast protons, momentum and excit. energy of U nucleus 0=2689
 U, by 460 MeV protons 0=13296
 U, by 480 MeV protons 0=7633
 U, irradi., density changes 2=20724
 U, irradiated, swelling under mech. restraint 3=12712
 U, irradiation growth rate eval. 3=6310
 U, natural and enriched, by neutrons, T production 0=461
 U, natural, spontaneous fission, neutron emission rate 1=3469
 U, natural, spontaneous, neutron yield 0=20518
 U, by neutrons, 2.5 MeV, compound fission 2=8015
 U, by 9 BeV protons, yields, ranges and ang. distrib. of fragments 0=13297

Nuclear fission—contd

- U, by 0.1-6.2 GeV protons, excitation functions and charge distrib. 3=8147
 U, by 156 MeV protons, ang. distrib. and cross-sections 4=17213
 U, by 185 MeV protons, product ang. distrib. 0=5804
 U, by p, d, and α , at medium energy, direct-interaction effects 0=1449
 U, photofission between 300 and 1000 MeV 1=8800
 U, by protons, 20-22 GeV 3=8146
 U, by protons, 156 MeV, ang. correl. 3=10400
 U, by protons, 660 MeV 2=14151
 U, by 660 MeV protons 0=13296, 13298
 U, by 680 MeV protons 0=5805
 U, by 680 MeV protons 4=6401
 U, by slow μ^- -mesons, 2 mechanisms 0=9709
 U, swelling, effect of thermal cycling 2=23884
 U, temp. coeff. of reactivity, meas. 0=13330
 U, by thermal neutrons, fragment ranges 1=4883
 U, by 2.9 GeV protons, nuclear charge distrib. 3=8149
 U, by 3 BeV protons, cross-sections for prod. of Cl, K, Ca and Sc 0=5747
 U, by 340 MeV protons, calc. 0=15607
 U^{232} , by neutrons, 4-400 eV, cross-section 4=25443
 U^{233} , absolute yields 0=7641
 U^{233} , age of neutrons in water 1=17205
 U^{233} , by α , 18-43 MeV, cross-section 2=1937
 U^{233} , by α -particles, fragment velocities meas. 4=9588
 U^{233} , by α -particles, two distinct modes det. 4=9587
 U^{233} , breeder core, heavy isotope buildup 0=4147
 U^{233} , cross-section and fission parameters, low energy 1=17162
 U^{233} , cross-section temperature dependence 1=741
 U^{233} , cross-sections for 3 to 800 keV neutrons 1=17171
 U^{233} , by d, at 9-24 MeV, spallation-fission competition 0=1450
 U^{233} , delayed neutrons 4=9581
 U^{233} , η value in sub-cadmium energy range 0=13302
 U^{233} , and excitation functions 3=6184
 U^{233} , fission cross-section 1=7406
 U^{233} , fission cross-section versus neutron energy 0=7644
 U^{233} , fission neutron age in water 0=15628
 U^{233} , fission neutron spectrum 1=17170
 U^{233} , by 14 MeV n's, n's prod. by fission and interaction 4=9578
 U^{233} , by 14.8 MeV neutrons, neutron yield 1=742
 U^{233} , fragment kinetic energy, channel effect 4=6394
 U^{233} , fragments, total energy rel. to mass ratio 4=9580
 U^{233} , He^4 induced, frequent meas. by double energy and double vel., comparison 3=24987
 U^{233} , by He^4 , 20-43 MeV, fragment anisotropy 2=510
 U^{233} , heavy-fragment yields 0=11455
 U^{233} , by n, epithermal, capture to fission ratios 3=22434
 U^{233} , neutron yield factor, energy dependence 0=7642
 U^{233} , by neutrons, ang. distrib. of fragments 0=1456
 U^{233} , by neutrons, cross-section, 0.02-200 eV, multilevel analysis 0=9703-4
 U^{233} , by neutrons, $Sr^{88,90}$ yields 0=11363
 U^{233} , 1.7 to 57 eV neutrons, cross-sections 3=19892
 U^{233} , prompt neutron yield 0=11458
 U^{233} , ratio neutron capture to fission 2=14148
 U^{233} , resonance energy cross-section, to 25eV 1=8790
 U^{233} , thermal neutron fission yield 1=7405
 U^{233} , by thermal neutrons, yields 2=3635, 12236
 U^{233} , total neutron cross-section, 0.000818-0.0818 eV 0=9705
 U^{233} , triple fission probab. by resonance neutrons 3=2506
 $U^{233, 235}$, channel effects, neutron energy depend. 4=17211
 $U^{233, 235}$ (d, pf), cross-section energy depend. 4=1116
 $U^{233, 235}$, η for epithermal neutrons 0=4133
 $U^{233, 235}$, η for 30-900 keV neutrons 0=4134
 $U^{233, 235}$, in critical aqueous soln., η det. 2=10155
 $U^{233, 235}$ (γ , f), cross-section energy depend. 4=1116
 $U^{233, 235}$, low-energy neutron cross-sections, analysis 0=9706
 $U^{233, 235}$, by n, cross-section, 0.3-2.5 MeV 3=6309
 $U^{233, 235}$, by n time-of-flight, correction 3=17503
 $U^{233, 235}$, neutron capture to fission ratios 2=8016
 $U^{233, 235}$, neutron cross-sections 30 keV-5 MeV 0=7643
 $U^{233, 235}$, by neutrons, neutron yields from individual fragments 2=18369

Nuclear fission—contd

- $U^{233, 235}$, by neutrons, in resonance region 2=20686
 $U^{233, 235}$, ν factor, thermal to fission neutrons 0=7645
 $U^{233, 235}$, oriented, thermal-neutron fission, fragment ang. distrib. 1=8791
 $U^{233, 235}$ and Pu^{239} , cross-section ratios in NRX type U-metal rod 4=1129
 $U^{233, 235}$, Pu^{239} triple fission, comparative characteristics 4=3716
 $U^{233, 235}$, $Pu^{239, 241}$, comparison of prompt neutron yields 0=13303
 $U^{233, 235}$, ratios of 0.0011 eV absorption to fission cross-sections 0=7639
 $U^{233, 235}$, regeneration factor, abs. thermal value 1=17163
 $U^{233, 235}$, ternary 4=9579
 $U^{233, 235}$, by thermal neutrons, ang. correl. of fragments and prompt γ -rays 4=9585
 $U^{233, 235}$, by thermal neutrons, time-of-flight studies 3=4677
 $U^{233, 235}$, by thermal neutrons, "world-average" cross-sections 0=5806
 $U^{233, 235}$, total effective cross-sections in resonance region 0=7647
 $U^{233, 235, 238}$, by fast neutrons, delayed γ -rays meas. 4=19842
 $U^{233-6, 238}$, ang. distrib. of products 0=1451
 $U^{233-6, 238}$, by MeV neutrons, fragment ang. distrib. 0=17635
 $U^{233, 235, 238}$, by n, 5-37 MeV 4=3711
 $U^{233, 235, 238}$, delayed neutrons 0=5811
 $U^{233, 235, 238}$, deuteron induced, cross-sections 3=24993
 $U^{233, 235, 238}$, by 5-37 MeV neutrons, meas. 4=22241
 $U^{233-6, 238}$, by 4-12 MeV protons, meas. 4=12289
 $U^{233-6, 238}$, photofission cross-sections, 7.0 MeV 2=14150
 $U^{233, 235, 238}$, by He^4 at 20-40 MeV, product charge distrib. 1=3473
 $U^{233, 235, 238}$, neutron fission thresholds, from (d, p) reaction 0=1415
 $U^{233, 235, 238}$, neutrons per fission, energy depend. 4=22242
 $U^{233, 235, 238}$, by protons at 22.8 MeV, cross-sections 0=1412
 $U^{233, 238}$, by He^4 , total fission cross-sections, rel. to nuclear radii 1=3474
 U^{234} (d, pf), and pairing at barrier 4=3718
 U^{234} , by fast neutrons, cross-section, fragment ang. distrib. 3=2505
 U^{234} , by μ keV-15 MeV, recommended data 4=28048
 U^{234} , neutrons emitted in symmetrical fission region 3=10401
 U^{234} , symmetric, neutron emission numbers 3=17502
 $U^{234, 235, 238}$, by neutrons, meas. 2=12230
 U^{235} , with α emission, energy distrib. 1=19483
 U^{235} , Cd ratio 3=22435
 U^{235} , chamber, B^{10} shielded, energy response 3=690
 U^{235} , cross-section between 0.03 and 60 eV 3=12709
 U^{235} , cross-section rel. to U^{234} 1=19547
 U^{235} , cross-section temperature dependence 1=741
 U^{235} , cross-sections for 3 to 800 keV neutrons 1=17171
 U^{235} , decay products, energy release 0=13301
 U^{235} , emitted neutron spectra, structure phenom. 4=1112
 U^{235} , emulsion tracks, photographic study 1=8409
 U^{235} , and excitation functions 3=6184
 U^{235} , exponential interaction between fragments, theory 1=3467
 U^{235} , by fast neutrons, ν_{eff} and $\sigma_f + \alpha$ values 0=11456
 U^{235} , by fast and thermal neutrons, neutron spectra, effective temp. 0=20514
 U^{235} , fission cross-section in resonance region 0=7647
 U^{235} , fission cross-section shape analysed 2=463
 U^{235} , fission neutron spectrum 1=17170
 U^{235} , fission neutron spectrum 2=8017
 U^{235} , fission neutron yield, 0.006-0.3 eV 0=7636
 U^{235} , fission parameters, best values for reactor calculations 0=5809
 U^{235} , by 14 MeV neutrons 1=17168
 U^{235} , by 14 MeV neutrons, fore-aft yields 1=2250
 U^{235} , fragment mass distrib., use of pulse dividing circuit 4=14980
 U^{235} , fragment total energy rel. to neutron energy 4=3710
 U^{235} , fragments, β and delayed γ -rays calc. 4=19835
 U^{235} , γ -radiation from fragments 1=17174
 U^{235} , γ -ray emission, time distrib. meas. 3=6307
 U^{235} , by He^4 , 20-40 MeV, absolute fission yields of 25 nuclides 0=1448
 U^{235} , I^{135} and Te^{135} yields 2=22862

Nuclear fission—contd

- U^{235} , investigation by product cathode sputtering in metals 3=8152
 U^{235} layer in Al foil, fragment tracks 1=2246
 U^{235} , light fragment emission 1=19542
 U^{235} , mass-99 product chain analysis 3=12708
 U^{235} , by n, low energy, prompt n number and fragment k.e. 4=6397
 U^{235} , by n, 0.03-20 eV 4=17140
 U^{235} , neutron fissionability 0=13300
 U^{235} , neutron-induced fission component 0=2696
 U^{235} , neutron spectrum, threshold reactions meas. 4=28041
 U^{235} , by neutrons, effect of fragments structure 3=22436
 U^{235} , by neutrons up to 8 MeV, average number of prompt. neutrons 4=12285
 U^{235} , by neutrons, emitted neutron spectra 2=14149
 U^{235} , by neutrons, emitted neutron spectra 3=6311
 U^{235} , by neutrons at 14 MeV, product relative yields 3=688
 U^{235} , by neutrons at individual resonances, 10-60 eV, symmetry 1=8799
 U^{235} , by neutrons below 0.5 eV, mass yields 3=22437
 U^{235} , by neutrons, product yields 0=13299
 U^{235} , by neutrons, prompt neutrons per fission study 2=10162
 U^{235} , by neutrons, resonance fission widths for levels from 6 to 50 eV 0=4138
 U^{235} , by neutrons, review of fission parameter values 0=5809
 U^{235} , neutrons, slowing down in uranium-water media 0=3974
 U^{235} neutrons, slowing down in water 0=3972
 U^{235} , by neutrons, symm. at resonances 3=15243
 U^{235} , by neutrons, 10-22 MeV, cross-section 3=10395
 U^{235} , by neutrons, triple fission, two events in emulsion 0=5808
 U^{235} , by 0.065-14 MeV neutrons, mass-yield symmetry 1=17169
 U^{235} , oxide, neutron flux meas., thermocouple system 2=3364
 U^{235} , by photons, cross-section meas. 4=9481
 U^{235} , poisoning by products 0=4148
 U^{235} , prompt neutron yield 0=11457-8, 11461
 U^{235} , purely proton moderated spect., collision density 1=17159
 U^{235} , radiative capture, 0.03-20 eV 4=17140
 U^{235} , rare earth region yields 0=7648
 U^{235} , relative fission rates, energy depend., in $U-H_2O$ lattices 1=17165
 U^{235} , resonance integral calc. 2=22857
 U^{235} , slow cross-section correl. 0=7480
 U^{235} , by slow n, γ ang. distrib. 3=12711
 U^{235} , by slow n, level interferences calc. 4=19841
 U^{235} slow neutron fission, prompt neutron energy and ang. distrib. 3=19893
 U^{235} as source of electricity, converters, review 4=29861
 U^{235} , symmetric, nuclear charge distribution 3=19894
 U^{235} ternary 1=7407
 U^{235} , ternary 4=17210
 U^{235} , ternary, with α -particle emission 0=9700
 U^{235} , ternary fission, fission fragment energy distrib. 0=4136
 U^{235} , ternary fission, no. of fission neutrons produced 0=4137
 U^{235} , ternary, by n, 0.06-10eV, and ordinary fission widths 4=15245
 U^{235} , ternary, neutron energy variation 1=13906
 U^{235} , ternary, neutron-induced 4=3712
 U^{235} , by thermal neutrons, α -ray ang. distrib. 0=15608
 U^{235} , by thermal neutrons, ang. correl. of prompt neutrons and fission fragments 1=9889
 U^{235} , by thermal neutrons, cluster model 3=687
 U^{235} , by thermal neutrons, d and α , Kr isotope yield 2=1938
 U^{235} , by thermal neutrons, fine structure effects 4=1114
 U^{235} , by thermal neutrons, fractional yields 2=12336
 U^{235} , by thermal neutrons, fragment mass distrib. analysis 4=17212
 U^{235} , by thermal neutrons, mass distrib., kinetic energy effects 1=12227
 U^{235} , by thermal neutrons, mass-yield h.f.s. 2=18365
 U^{235} , by thermal neutrons, product range and rate of energy loss in Al and Au 0=20512
 U^{235} , by thermal neutrons, prompt γ -rays meas. 4=9583

Nuclear fission—contd

- U^{235} , by thermal neutrons, prompt neutron emission 3=17504
 U^{235} , by thermal neutrons, statistical model 4=3713
 U^{235} , thermal, X-ray spectra 3=10394
 U^{235} , time-of-flight measurement and resonance analysis 1=13868
 U^{235} , triple events 1=19543
 U^{235} , variation of ratio of radiative capture to fission cross-sections 0=5807
 $U^{235, 238}$, fission products, γ activities, decay rates 0=13350
 $U^{235, 238}$, by 14 MeV neutrons, Mo^{99} fission yields and total fragment energies 0=4139
 $U^{235, 238}$, by n, ternary, var. n energy 4=19839
 $U^{235, 238}$ neutron spectra by 14 MeV neutrons, and yields 0=13305
 $U^{235, 238}$, by neutrons, 14 MeV 2=3637
 $U^{235, 238}$, by neutrons, fragment kinetic energies 0=13304
 $U^{235, 238}$, by neutrons, prompt neutron number 2=3640
 $U^{235, 238}$, by neutrons, radiochem. study, rel. to two-mode fission theory 1=17167
 $U^{235, 238}$, by neutrons, 12.6-20 MeV 2=3636
 $U^{235, 238}$, by 1-2 BeV protons 1=11016
 $U^{235, 238}$ relative yields of delayed neutrons 0=2694
 $U^{235, 238}$, ternary, rel. to mass no. 4=6395
 $U^{235, 238}$, by transitions bet. μ -mesic atomic states 3=8145
 U^{238} total cross-section, 1 keV to 15 MeV 4=25415
 U^{238} , product relative yields 3=688
 U^{238} , by α , 18-43 MeV, cross-section 2=1937
 U^{238} , by α and γ -rays, mass yields, rel. to two-mode-of-fission hypothesis 0=11453
 U^{238} , by Ar^{40} bombardment, ternary 4=22244
 U^{238} by C^{12} ions, ang. distrib. of fragments 0=9712
 U^{238} , by C^{12} and O^{16} , kinetic energy release 3=15250
 U^{238} by continuous spectrum photons ($E_{\gamma max} = 35$ MeV) and 14 MeV neutrons 3=8143
 U^{238} , by d and α , Kr isotope yield 2=1938
 U^{238} , delayed n, contribution of I, Br, upper limit calc. 4=19847
 U^{238} , emission of prompt neutrons 1=13869
 U^{238} , energy anisotropy of products 0=11454
 U^{238} , fission cross-section 0=2695
 U^{238} , 14 MeV neutron induced fission, anisotropy 1=744
 U^{238} by 14 MeV neutrons 1=17168
 U^{238} , by 14 MeV neutrons, α -particle emission 3=8144
 U^{238} , by 14 MeV neutrons, angular distrib. of products 0=11460
 U^{238} by 14 MeV neutrons, average neutron number formed 1=19545
 U^{238} , 14.6 MeV, fission cross-section 1=19546
 U^{238} , by 14 MeV neutrons, excitation curve 3=15244
 U^{238} , 14 MeV neutrons, mean neutron no. emitted 3=22433
 U^{238} , by 14.7 MeV neutrons, nuclear temp. det. 3=8104
 $U^{238}(\gamma, f)$, photofission, fragments energy spectrum 1=12229
 U^{238} , by γ -rays, monochrom, 6.61 MeV 2=18367
 U^{238} , by He^4 and heavy ions, total cross-sections 3=689
 U^{238} , by He^4 , 20-43 MeV, fragment anisotropy 2=510
 U^{238} , by heavy ions, competition with neutron evap. 0=11463
 U^{238} , helium-ion induced, binary studies 4=15246
 U^{238} induced by various ions, momentum transfer 4=22243
 U^{238} lattices, resonance integral calc. 4=1127
 U^{238} by μ^- -meson 1=12228
 U^{238} , by μ^- -mesons 0=11464
 U^{238} with μ^- mesons 1=745
 U^{238} , by μ -mesons, probab. 2=511
 U^{238} , by n, 1 keV - 15 MeV cross-sections, secondary n energies and ang. distrib. 4=12251
 U^{238} neutron emission meas. 0=9708
 U^{238} , neutron-induced fission component, abundance in minerals 0=2696
 U^{238} , neutron induced and spontaneous, value of ν 1=17172
 U^{238} , by neutrons, 14 MeV, triple fission 2=508, 22858
 U^{238} , by neutrons at 14.5 MeV, kinetic energy of fragments 3=6317
 U^{238} , by neutrons, 14.7 MeV, product data 2=12231
 U^{238} , by neutrons, 1.2-1.7 MeV, fragment mass-angle correl. 2=14146
 U^{238} , by neutrons, 10-22 MeV, cross-section 3=10395
 U^{238} , by neutrons, 3 MeV, anisotropy 2=509, 22859
 U^{238} , by 0.5-6.2 GeV protons 3=8148

Nuclear fission—contd

- U^{238} , photofission products, energy distrib. 0=20510
 U^{238} , photofission at 6.61 MeV 3=24991
 U^{238} , photofission at 70 MeV, fragment kinetic energy 1=8789
 U^{238} , by photons, delayed neutron yield 2=12233
 U^{238} photofission, delayed neutrons 4=6402
 U^{238} products, independent photofission yields, charge distrib. 3=19895
 U^{238} , prompt neutrons 0=11457
 U^{238} , by protons and deuterons, 3-12 MeV 3=24992
 U^{238} , by protons and He ions, long-range particle emission 4=9589
 U^{238} , by protons, 600 MeV, noncollinear events 2=20688
 U^{238} , resonance integral 2=10150
 U^{238} , resonance integral, cross-sections 2=18379
 U^{238} , by 6.61 MeV γ -rays, ang. distrib. 3=24991
 U^{238} by 63-124 MeV C^{12} ions 1=13870
 U^{238} , spontaneous, decay const. meas. 4=9576
 U^{238} , spontaneous fission fragments, abundance in minerals 0=2696
 U^{238} , spontaneous, prompt neutron no. 3=12707
 U^{238} , spontaneous, var. neutron props. 0=9713
 U^{238} , by 23 MeV deuterons, kinetic energy release 3=10397
 U^{238} , Xe and Kr absolute yields 0=2696
 $U^{238,235}$, by 20 MeV X-rays, delayed γ -rays 4=19845
 U^{238} , neutron fissionability 0=13300
 in UAl_4 , fragment damage, electron microscope examination 3=13015
 U-Cr alloy, dimensional stability during turn-up 0=14070
 U-Fe, neutron irradiation, deformation 2=20729
 UO_2 films, energy spectrum of fragments 3=4678
 UO_2 , fission fragment distrib. 4=1120
 UO_2 , neutron irradiation, effects 4=22653
 UO_2 particles in graphite, stored energy 1=12235
 UO_2 rod clusters, fission ratio rel. to configuration 2=20699
 UO_2 thin films, fragment tracks, electron microscope examination 1=2003
 UO_2 -BeO, UO_2 -ThO₂-BeO, rare-gas emission 2=20727
 $U^{238}O_2F_2$, slab volume aqueous solutions, critical parameters 0=13323
 U^{235} / Pu^{239} initial conversion ratio meas. 3=12710
 U^{235} - Pu^{239} relative conversion factors in U and water lattices 0=2702
 U and Th cpds, ZnS(Ag) scintillation detection 1=2247
 U^{235}/U^{238} cross-section ratio 1=17166
 U^{238} to U^{235} fission ratio in D_2O moderated assembly 0=13350
 U^{238}/U^{235} ratio, from product β -activities 2=20684
 W, by 300-1000 MeV photons, meas. 4=19844
 W^{184} , by protons, 600 MeV 2=20688
 Xe^{137} , 3.9 min, decay 4=3609
 $Z > 90$ nuclei, by C^{12} , O^{16} and Ne^{22} , excitation functions 4=25445

products

- absorption cross-sections at high energies, statistical evaluation 0=13270
 absorption of humic acids 3=22439
 α -particles, long-range, emission 4=25448
 α -particles from U fission by 14 MeV neutrons 1=5945
 ang. correl., for U, Bi, Au, by protons, 156 MeV 3=10400
 ang. distrib. in fission by low-energy neutrons, calc. 1=8792
 ang. distrib. of fragments, target spin depend. 1=19552
 ang. distrib. of radiation, calc. 4=19840
 ang. distrib. from thermal-neutron fission of oriented $U^{233,235}$ 1=8791
 angular anisotropy, rel. to heated nucleus moments of inertia 3=15084
 angular anisotropy and nuclear data 4=22246
 angular distrib., calc. by exact power series 2=18370
 angular distrib., dependence on target spin 1=19551
 angular distrib. in fission due to low-energy neutrons 1=3476
 angular distrib. of fragments, statistical theory 0=7632
 anisotropy, energy depend. 0=1456-7
 anisotropy, thermodyn. theory 0=15606
 in atmosphere, detection of products due to Sahara test 0=11330
 atmospheric contamination, for 1961 explosions 2=11041
 atmospheric, particle activities rel. to size 2=12237

Nuclear fission—contd**products—contd**

- atom ejection from uranium by fission fragments 2=20691
 automatic time-of-flight measurements 0=17629
 β - and γ -activity, contributions to total activity 4=25446
 beta-decays and delayed γ -rays, theory 4=19835
 bremsstrahlung, emission 0=12898
 burnable, in power reactor kinetics 2=6026
 capture cross-sections, reactor poisoning 2=5988
 chromatographical separation of isotopes and corrosion elements 0=21301
 counter, corona 3=24546
 counter, miniature, fast fission probe 2=5990
 counting method for U isotope analysis 2=5989
 damage to Au films 3=22864
 damage effects in mica, from U fission, track visualization by electron microscope 0=19979
 damage to heat-sensitive crystal lattices 3=22857
 damage prod. in molecular crystal 1=19817
 damage of Pt foils 2=612
 damage of steel 2=613
 deformation energies, rel. to neutron number 1=19550
 detection with Cherenkov counter 3=12738
 detection by corona type spark chambers against α -background 4=9030
 detection, CsI:TI evap. layer detector 2=9735
 detection by semiconductor counters 3=24556
 detector using high-energy β -discrimination 3=10098
 detectors, semiconductor 2=20199
 detectors, semiconductor, effect of radiation damage on response to fragments 4=22249
 detectors, semiconductor, multiplication phenomena, gold surface barrier 3=19509
 diffusion and coalescence of gas bubbles 4=6441
 diffusion in granular structure, theory 2=12446
 discrimination of tracks in emulsion 1=13259
 distribution and elution on ThO_2 - UO_2 slurries 0=13373
 distribution in irradiation UO_2 4=1120
 effect on counters, semiconductor 4=14971
 effective delayed neutron fraction, meas. methods 4=22270
 emulsions, by 2-9 GeV protons, short range products 4=9502
 energy deposition rate, U_3O_8 in air and water, various geometries 4=6403
 energy distribution 0=20509
 energy of excitation 4=19849
 energy meas., with Au-Si detector 2=16094
 excitation energy of fragments, shell model calc., shell effects 1=8788
 even fragments, meas. 4=1118
 excitation and mass distrib. of fragments 0=13295
 fallout, fractionation phenomena, analysis and activity of Swedish air samples 0=7650
 fission debris, radiochemical analysis 0=14322
 fission gas behaviour in U-Al system 0=13371
 fission gas re-solution 2=12270
 fragment damage to metal films 2=10426
 fragment damage to polycryst. metal films, model 4=22639
 fragment kinetic energy and neutron yields rel. to nuc. structure 3=22436
 fragment meas., comparison of double-energy and double velocity techniques 3=24987
 fragment nuclear charge, rules 1=9892
 fragment track registration in micaceous minerals, Makrofol and glass 4=19344
 fragment trapping by ThO_2 slurry particles 1=785
 fragments, energy and time-of-flight meas. system 4=28077
 fragments, excited states and ang. correl. by ionization chamber 2=3196
 fragments, kinetic energy rel. to shell struc. depend. deformation 2=8019
 fragments, semiconductor detectors, pulse-height defects 4=25447
 fusion, giving elements near Pt, in explosions 3=6318
 γ , prompt, from $U^{235} + n$, thermal 4=1113
 γ -ray angular anisotropy 0=9698
 γ -rays from U^{238} and Pu^{239} fission fragments 0=4081
 gas bubble growth in irradiated fissile material 0=9903
 gas emission during temp. changes in a reactor 2=20692
 gaseous fragments, dosimetry method 4=28076
 in graphite, for U fission, thermal cond. effects 0=1578

Nuclear fission—contd
products—contd

half-lives and yields, meas. 1=8793
 handbook of props 3=2146
 heavy-ion accel. in Van de Graaff 3=21907
 inert-gas activity in fission product mixture 2=14006
 inert-gas emission from UO_2 -BeO and UO_2 -ThO₂-BeO 2=20727
 interactions with materials 2=19131
 ion diffusion in UO_2 2=6377
 ionization yields for fission fragments, rel. to α -particles, in A and He 0=2322
 kinetic energies, effect of nuclear shells in U^{235} ,²³⁸ neutron fission 0=13304
 kinetic energy of α -particles and fragments in double and triple fission of U^{235} 4=6396
 kinetic energy of fragments from photofission of Th^{232} and U^{238} 1=8789
 kinetic energy on liquid drop model 4=22245
 kinetic energy rel. to nuclear excitation energy 2=20690
 kinetic energy in thermal-neutron fission, theory 1=4881
 kinetic energy, total, rel. to energy of fissioning neutrons 4=3710
 loss from uranium-graphite fuel 3=12737
 mass and charge distrib. in high-energy induced fission 1=5946
 mass distrib., and theory of random flights 4=25449
 mass separation, apparatus 2=12238
 meas., semiconductor, U^{235} 4=3252
 metal evaporation by fragment passage 0=5812
 mica, effects on, track study 2=2107
 in mica, from U, and radioactive dating, and annealing 4=23708
 mica, phase transformation nucleation 2=16977
 mixtures, γ -ray scintillation spectra interpretation 0=15610
 n multiplication in BeO by (n, Zn), (n, α) 4=15222
 n spectra, computer programme 4=30359
 neutron average no. per fission, empirical formula 4=6393
 neutron induced fission yields 1=11049
 neutron multiplication in Be⁹, using U^{235} converter 4=9594
 neutron poison, by gaseous products 0=7665
 neutron spectra at 0, 45 and 90° to fission flight 4=1117
 neutron yields from individual fragments 2=18369
 neutrons, average no. prod. in fission of Am^{241} and U^{235} by thermal neutrons 1=3477
 neutrons, calc. of spectra 0=2691
 neutrons, delayed, systematics 1=4882
 neutrons, prompt, angular distrib. and spectra 1=4879
 neutrons, prompt, from Pu^{241} fission 1=13872
 nuclear charge distrib. for low energies 2=12236
 nuclear explosions, γ -ray dosages 1=16727
 nuclear reactor, spectrum, conversion from n spectrum, by U 4=1167
 organic scintillators, interaction with 4=1119
 particle track visualization in crystals, electron microscope obs. 4=12817
 poisoning, "stable" fission products, irradi. UO_2 data 1=17179
 primary, likeliest nuclear charge prediction 3=24994
 product spectra of discharged reactor fuel 0=13239
 prompt neutron yield, sawtooth var. with fragment mass. 4=9590
 prompt neutrons per fission for several nuclides 4=6390
 radioactive decay energy, influence on automatic control of power plants 0=17643
 radioactivity meas., gaseous with solid daughters 4=9424
 range in U of fragments from thermal-neutron fission 1=4883
 rare-earths, isotropic composition 0=5805
 rare-earths, yield from Pu^{239} 0=7634
 rare-earths, yield from U^{235} 0=7648
 reactivity losses due to neutron absorpt., in high-flux reactor 4=28083
 reactors, poisoning by fission products 2=16455
 recoil-labelling with high-energy fragments, ruthenocene- Ru^{103} synthesis 1=20736
 release from fuel elements, safety parameters 4=9608
 retention by humus by cation exchange 2=6074

Nuclear fission—contd
products—contd

secondary neutrons per fission, from mass distrib. curves 3=12714
 semiconductor detector response to f fragments 3=12376
 separation by ion exchangers 0=4719
 separator, ionization chamber, double 4=1121
 short lived, γ -ray spectra 2=5874
 short-lived gases, radiochemical det. 2=4577
 stopping, inner electron ionization 2=5307
 sub-barrier fission, kinetic energy 3=15246
 survey of properties 1=3466
 swelling of fissile material, kinetics 4=9609
 track delineation in large AgCl crystals 3=7754
 track visualization in plastic films by electron microscope 4=12819
 tracks in AgCl crystals 3=821
 tracks in metal films, thermal processes 2=12484
 tracks in PbI_2 3=25306
 tracks, in UO_2 films 3=822
 2.0 wt. % U^{235} enriched uranium, H-moderated 2=14156
 unknown, $Z \leq 100$, from U^{238} -Ne²², O¹⁶, react. 2=16442-3
 unknown, $Z \leq 100$, from U^{238} -Ne²², O¹⁶ 3=6315-16
 yields, equal charge displacement rule 2=5986
 A = 121, most probable charge 3=19894
 A = 127, most probable charge rel. to yield 4=18843
 Ag disintegration by 9 BeV protons, with Z=3 to 9 products 1=17177
 Ag, disintegration by 9 BeV protons, with Z = 3-9, products 2=22860
 Ag₂CN₂, decomposition 2=854
 Au fission, fragment energy distrib. 2=16445
 Au, by 112 MeV C¹², yield-mass curve and charge distrib. 1=12230
 Au, by protons, 156 MeV, ang. correl. 3=10400
 Ba¹³⁹, from fission of Np^{237} and U^{235} 1=2250
 Ba¹⁴⁰, yield from U^{235} thermal neutron fission 0=9707
 Ba¹⁴¹⁻², decay props. 2=18291
 Be⁷, from Al, Cu, Sb reacts with protons, 660 MeV 2=20689
 Be⁷, from Al, Cu, Sb react. with protons, 660 MeV 3=8150
 Be⁷, in atmosphere 0=14321
 Be⁷, by slow neutron fission of U^{235} 1=3472
 Bi fission, fragment energy distrib. 2=16445
 Bi, by 660 MeV protons, ang. distrib. 1=19553
 Bi, by 660 MeV protons, ang. distrib. 3=4679
 Br disintegration by 9 BeV protons, with Z=3 to 9 products 1=17177
 Br, disintegration by 9 BeV protons, with Z = 3-9, products 2=22860
 Br^{87,88}, delayed n emission, from U^{238} , Th²³², by n 4=22248
 Cd^{115m,115g}, from $\text{U}(\alpha, f)\text{X}$ 2=10143
 Cd^{115,115m}, formation from Au¹⁹⁷ fission 0=9711
 Cd^{115m,g}, Ag^{115g}, from U + p, 8-60 MeV 3=22438
 Cf^{246,248,254}, fragment kinetic energies 3=19896
 Cf²⁵², fragment deformation 2=10159
 Cf²⁵², fragment kinetic energy calc. 2=8019
 Cf²⁵², fragment stopping in emulsion 2=10160
 Cf²⁵⁰, fragment velocities, time-of-flight meas. 3=19897
 Cf²⁵², spontaneous, fission neutron spectrum 1=5947
 Cm²⁴⁸, spontaneous, α -particle emission frequency 1=5944
 Cm²⁴⁸, spontaneous, α -particle emission frequency 1=11042
 Cs, sorption by activated charcoal 2=6857
 Cs¹³⁴ from U, isomeric state independent formation cross-section ratios 3=24995
 Cs¹³⁶ kinetic energy, from U^{235} fission 1=9890
 F¹⁸, from Cu, Sb, Sn, Bi reacts. with protons, 660 MeV 2=20689
 F¹⁸, from Cu, Sb, Sn, Bi reacts. with protons, 660 MeV 3=8150
 HF solution, electrodialytical separation of radioactive components 1=20751
 He induced, ang. distrib., rel. to saddle deformation 2=10157
 I^{127,129}, total cross-section meas. by Oak Ridge chopper 4=17173
 I^{137,138}, delayed n emission, from U^{238} , Th²³², by n 4=22248
 Kr, evolution from U 1=19570
 Kr, from irradiated U_3O_8 , diffusion phenomena 0=15620

Nuclear fission — contd
products — contd

Kr isotope yield, by d and α fission of Th and U 2=1938
 Kr⁸⁵, separation, γ -ray quantum yield 1=19418
 Kr⁸⁵, from UO₂ irradiated and annealed 2=12234
 Kr⁸⁸, dosimetry method 4=28076
 Kr⁹⁰, 33 sec. decay 4=22067
 Kr and Xe isotopes from U fission by 680 MeV protons 4=6401
 LiF surface fission-fragment tracks and directional effects 4=28511
 Mg²⁸, from Sb, Bi, reacts. with protons, 660 MeV 2=20689
 Mg²⁸, from Sb, Bi, reacts. with protons, 660 MeV 3=8150
 Mg²⁸, by slow neutron fission of U²³⁵ 1=3472
 Mo⁹⁹, yields from U^{235,238} fission by 14 MeV neutrons 0=4139
 MoS₂, crystal imperfections prod. by collimated beam in crystal plane 4=12820
 Na²⁴, from Cu, Sb, Sn, Bi reacts. with protons, 660 MeV 2=20689
 Na²⁴, from Cu, Sb, Sn, Bi reacts. with protons, 660 MeV 3=8150
 Na²⁴, from proton fission of U and Au 0=13298
 Ni⁶⁶, by slow neutron fission of U²³⁵ 1=3472
 in NiBr₂, track enlargement by moisture 4=22650
 in NiCl₂, track enlargement by moisture 4=22650
 Np²³⁷, anisotropy, var. with incident n energy 4=12290
 P³², in atmosphere 0=14321
 P³², from Cu, Sb, Bi reacts. with protons, 660 MeV 2=20689
 P³², from Cu, Sb, Bi reacts. with protons, 660 MeV 3=8150
 Pb fission, fragment energy distrib. 2=16445
 Pd¹¹², from Ra²²⁶ + p, range and yield 0=17632
 Pu²³⁹, eta det., reactivity coeff. meas. 2=10154
 Pu²³⁹, fission fragments, mass distribution 1=743
 Pu²³⁹, fission, yields of Ru^{103,106} 2=1939
 Pu²³⁹, in irradiated U, in BR1 at Mol 2=6069
 Pu²³⁹, neutron-induced, fission neutron spectra 1=5947
 Pu²³⁹, in spectra, thermal in fission 4=3715
 Pu²³⁹, thermal fission, Xe¹³⁵ yield 1=17178
 Pu²³⁹, yields and kinetic energies 1=12232
 Pu²⁴⁰, prompt n no., 3.6, 15 MeV incident n 4=12295
 Pu²⁴⁰, spontaneous, fission neutron spectrum 1=5947
 Rb^{82,83}, identification and half lives 1=666
 Rh¹⁰² in air, 1952-8, rel. to explosions 3=9058
 Rh^{107,108}, from U 2=20539
 Ru^{107,108}, from U 2=20539
 S³⁵, in atmosphere 0=14321
 Sb, neutron-rich isotopes, from U 2=5873
 from Sb, by 660 MeV protons 1=17176
 Sb¹²⁷, fractional independent yield meas. 4=19843
 Si³¹, from Sb react. with protons, 660 MeV 2=20689
 Si³¹, from Sb react. with protons, 660 MeV 3=8150
 Sm¹⁵¹, total cross-section meas. by Oak Ridge chopper 4=17173
 Sn, neutron-rich isotopes, from U 2=5873
 Sr⁹¹, from proton fission of U and Au 0=13298
 Sr⁹¹, from Ra²²⁶ + p, range and yield 0=17632
 T production from U 0=20511
 Tc accumulation in reactor 4=1163
 Th, by 14 MeV neutrons, ang. distrib. of products 2=14155
 Th, by 600 MeV protons, ang. distrib. 1=2249
 Th²³⁰, anisotropy, var. with incident energy 4=12290
 Th²³² by α , mass, k. e. distrib. rel. to excitation energy 4=3717
 Th²³² fission products, nuclear charge distribution 1=9891
 Th²³², by 14.3 MeV n 4=12293
 Th²³², fragments, ang. anisotropy 2=8021
 Th²³² fragments, ang. anisotropy 3=6314
 Th²³², by n, ang. distrib. of radiation, calc. 4=19840
 Th²³², by n(14 MeV) or γ (\leq 90 MeV), ang. var. 4=9577
 Tl fission, fragment energy distrib. 2=16445
 U, ang. distrib. of photofission fragments 1=8801
 U-fission alloys containing Tc, phase relns. 3=5130
 U fission, by protons, mass and charge distrib. 1=5946
 U fission by protons, product nuclear charge and formation cross-sections 3=15249
 U, by 14 MeV neutrons, ang. distrib. of products 2=14155
 U, neutron-fissioned, product-neutron spectrum 1=17160-1

Nuclear fission—contd
products—contd

U oxides, neutron irradiated, stored energy release 2=6393
 U, by p, ang. correls. bet. α 's, p's and heavy fragments, recoil effect 4=19850
 U, particle tracks in mica, fossil 3=6948
 U photofission, ang. distrib. of products 1=2248
 U, recoil-labelling of ruthenocene-Ru¹⁰³ by fragments 1=20736
 U salts, nonirradiated, natural and depleted, det. of products 2=5987
 U, by 660 MeV protons, ang. distrib. 1=19553
 U, by 660 MeV protons, ang. distrib. 3=4679
 U ternary fission by neutrons, kin. energy of fragments 3=15240
 U²³³ by α , mass, k. e. distrib. rel. to excitation energy 4=3717
 U²³³, eta det., reactivity coeff. meas. 2=10154
 U²³³ fragments, range and kinetic energy distributions 1=5948
 U²³³, neutron-induced, fission neutron spectra 1=5947
 U²³³, by neutrons, directional anisotropy 1=19544
 U²³³, by neutrons, directional anisotropy 2=8020
 U²³³, yields and kinetic energies 1=12232
 U²³⁵, β -decay of products, chain length 3=2510
 U²³⁵, Cm²⁴⁴ ionization along track 4=24955
 U²³⁵, energies 2=16094
 U²³⁵, excitation energy and deformation of fragments 1=7409
 U²³⁵ film, by n, mass spectrometer obs. 4=28078-9
 U²³⁵, fission fragments, mass distribution 1=743
 U²³⁵, fission neutrons spectra 3=12715
 U²³⁵ fission, yields of Ra^{103,106} 2=1939
 U²³⁵, fragment kinetic energy 2=1940, 8019
 from U²³⁵, fragment kinetic energy 4=3714
 U²³⁵ fragments, neutron emission 3=12713
 U²³⁵, γ -energy production by thermal neutrons, calc. 1=19572
 U²³⁵, gas yield, rel. to neutron flux 4=3719
 U²³⁵, interact. with materials, electron micr. study 2=19131
 U²³⁵, light fragments, energy spectrum 1=19554
 U²³⁵, mass-distribution and kinetics, thermal-neutron induced 3=6313
 U²³⁵, mean primary charge determ. 4=22247
 U²³⁵, negative ion prod. in gases 2=22862
 U²³⁵, neutron age in hydrogenous substs. 2=18127
 U²³⁵, neutron emission, mean number 2=1941
 U²³⁵, neutron-induced, fission neutron spectra 1=5947
 U²³⁵, neutron-induced γ -quanta 3=15242
 U²³⁵, by neutrons, light fragments 2=18366
 U²³⁵, number of neutrons emitted 4=25442
 U²³⁵, by thermal or 15 MeV neutrons, comparison 2=20687
 U²³⁵, by thermal n, n spectra and ang. distrib. 4=19851
 U²³⁵, by thermal neutrons, cumulative yields of heavy fragments 2=14157
 U²³⁵, by thermal neutrons, kinetic energies of products 1=12231
 U²³⁵, by thermal neutrons, number of neutrons emitted 4=19853
 U²³⁵, by thermal neutrons, search for H⁵ 4=19852
 U²³⁵ triple fission, energy distribution 1=3475
 U²³⁵, yields and kinetic energies 1=12232
 U^{235,238}, by 14.5 MeV n, mass distrib. 4=12292
 U^{235,238}, Pu²³⁹, by fission n, mass distrib. 4=12291
 U²³⁶, β -disintegr. per fission rel. to time 2=10161
 U²³⁶, neutron no. emitted in symmetric fission region 3=2509
 U²³⁶, neutron yield for symmetrical fission 2=20693
 U²³⁶, neutron yield for symmetrical fission 3=8151
 U²³⁸, activation measurements, background detm., in γ -coincidence technique 3=1397
 U²³⁸, fission fragments, mass distribution 1=743
 U²³⁸, fission by neutrons, fragment kinetic energies 2=14154, 16446
 U²³⁸, by γ , rare earth yield 4=9586
 U²³⁸, induced by 3 MeV neutrons, anisotropy 2=22859
 U²³⁸, by n and γ , independence of k. e. and ang. distrib. 4=6398
 U²³⁸, by 1.5 MeV n, independence of mass distrib. and saddle point characts. of nucleus 4=6399
 U²³⁸, photofission fragments, for E γ (max) = 17.5, 30, 50 MeV 3=15248
 U²³⁸, prompt n, var. with incident n energy 4=12294

Nuclear fission—contd**products—contd**

- U²³⁸, in spectra, thermal in fission 4=3715
- U²³⁸ by C¹² ions, ang. distrib. and kinetic-energy spectra 1=13870
- UO₂, condensation on C collectors 3=3935
- UO₂, escape, structure changes caused, review 4=6439
- UO₂ films, emerging fragments, electron emission 2=11703
- UO₂ fuel, distrib. of fission products and plutonium 2=12235
- UO₂, inert gas release, abnormal kinetics 3=22441
- UO₂ particles in graphite, stored energy 1=12235
- UO₂, sintered, fragment track meas. 2=18368
- UO₂, volatile product emission meas. 3=22440
- UO₂, Xe diffusion, on annealing at 1400°C 4=12805
- U₃O₈ + Cr(CO)₆ → Mo⁹⁹(CO)₆, by neutrons 2=1942
- U²³⁵ O₂SO₄, aq., H bubble nucleation 2=10990
- U on U₃O₈ electrode, electron prod. 4=22655
- W¹⁸¹ in air, 1952-8, rel. to explosions 3=9058
- Xe, from irradiated U₃O₈, diffusion phenomena 0=15620
- Xe¹³², fission source in earth history 0=14323
- Xe¹³³, diffusion in UO₂ 2=6362
- Xe¹³³, diffusion from graphite 3=10427
- Xe^{133,5} from U in meteorites 0=4883
- Zr⁹⁷, from fission of Np²³⁷ and U²³⁵ 1=2250
- Zr⁹⁷, from U, exchange of hot ions, with ZrCl₄ 3=21006

Nuclear fission reactors

See Nuclear reactors, fission.

Nuclear forces

See also Field theory, quantum, meson field.

- A = 14 triplet, charge dependence 4=19630
- α-particle-nucleus, complex potential at nuclear surface 0=1419
- average binding energy, states of SU3 group 3=10200
- axially asymmetric nuclei 0=13132
- axiomatic quantum field theory 4=15122
- Bethe-Salpeter two-body eqn., approx. soln. 0=17265
- binding energy in nucleus of n, p and α, tables 1=9804
- binding energy, semi-empirical mass formula 2=5787
- bound states, dispersion relations 0=15291
- bound states by pure repulsive forces 3=19562
- boundary condition model 1=19329
- boundary-condition model, reference spectrum method 4=9338
- Brueckner-Gammel potential, appl. to triton binding energy, discrepancy from expt. 1=5793
- charge dependence 2=7919
- charge dependence, A=14 isobaric spin triplet 4=6175
- charge dependence, calc. for Li⁶ 0=9497
- charged dependence, from D and T breakup expts. 4=12098
- charge dependence, rel. to ΔT = ±1 fermi transitions 4=12178
- charge dependence, Fermi matrix element 2=16284
- charge-dependent effects on decay of O¹⁴ 4=3522
- charge independence 2=18076
- charge independence, isobaric triplets in 2p-shell 1=8617
- charge independence, p + d interactions at 591 MeV 0=15419
- charge independence, test of, in p-d interaction at 970 MeV 0=9356
- charge-symmetry in H³ and He³ 1=2105
- conference, London (1959) 0=3926
- construction, low-energy, rel to nucleon-nucleon problem 3=2348
- controlled review of recent work, Conference, Salzburg, Sept, 1961 3=384
- core radius, rel. to Bethe-Salpeter eqn. 2=16150
- Coulomb barrier in highly excited nucleus 1=10948
- Coulomb and nuclear fields, Z ~ 50 nuclei 4=6191
- covariant method of construction 1=12065
- definition from double dispersion relns. 2=13942
- deuteron photodisintegration study 0=15458, 15501
- deuteron splitting 2=22847
- diffuseness, rel. to energy level densities 3=24834
- distortion, present in Cr⁵⁴, Fe⁵⁶⁻⁵⁸, Mn⁵⁵, absent in Co⁵⁹, Fe⁵⁴, theory 2=1756
- effective potential in shell model, Brueckner theory 0=5642
- effective range theory, vel. depend. pots. 3=623
- elastic scatt., optical model, independence 4=25431
- energy gap mechanism, finite versus infinite nuclei 4=30294

Nuclear forces—contd

- exchange of electron-neutrino pair 3=15068
- exchange forces between fission fragments 1=4878
- excited state masses and charges in Fermi-Yang model 3=17224
- field theoretical definition of nuclear potential 0=12858
- field theoretical potential, phase-shift interpretation 2=1662
- fixed nucleon model, isobaric states 3=17191
- Gammel-Thaler singlet even potential 0=15502
- Gamow-Teller-to-Fermi, coupling ratio 1=13468
- general prop., review 2=20177
- generalization by use of pseudoscalar parameters 4=30223
- Green's method calc. 4=25265
- hard core in N-N interaction, Heitler-Arnous nonlocal theory 1=13598
- hard-core potentials, rel. to scattering 1=5811
- high nuclear excitation as nuclear force probe 0=406
- hole-hole interactions in nuclear matter 0=20308
- hypernuclei from ΔH³ to ΔC¹³, binding energy from π-emission decay 2=3472
- information from different nuclear models 0=13099
- interaction in nuclei producing superfluid state 0=2616
- interactions and coupling schemes 3=6123
- Japanese work, method of Taketani et al. developed 1=10863
- Λ⁰-nucleon interaction in light hypernuclei 1=13635
- light nuclei proton-state binding-energies 2=1774
- long-range correlations, rel. to photoeffect 1=8691
- Mandelstam representation and Regge poles with absorptive energy-dependent potentials 3=2215
- many-body problem, solution using perturbation theory 1=2155
- many-body theory, 2-nucleon interaction separation 0=20083
- matrix elements of n-p interaction, odd-group model for heavy nucleus 2=16286
- meson theoretical potential and nuclear props. 1=3377
- modulus of real and imaginary potentials 3=6253
- n-p interaction between states of same l in shell model 2=18234
- neutron gas, binding energy 0=9286
- neutron-proton pairing interaction in odd-odd nuclei 1=2154
- neutron strength functions, spin dependence 1=8558
- Nilsson deformed potential well 0=4013
- non-central, in nuclear structure 0=396
- nonlocal theory, biphon and tripion contrib. 4=9095
- non-locality in second-order two-nucleon interaction 1=9733
- nonstatic one-boson exchange potentials, list 2=3287
- nuclear matter, Λ-particle binding energy 2=1782
- nuclear matter, Overhauser model, extension 1=8557
- nuclear potential, field theoretic definition 1=445
- rel. to nuclear structure, review 1=8532
- nucleon interaction with electron-neutrino field in β-decay, obs. by molec. dissociation 4=12530
- nucleon motion in anisotropic oscillator potential 1=4821
- nucleon motion in anisotropic oscillator potential, including spin-orbital interaction 1=8555
- nucleon-nucleon interactions, tests of charge independence 0=11157
- nucleon-nucleon, meson field, Chew-Low formalism 2=7852
- nucleon-nucleon phase shifts, energy depend., calc. 0=15340
- nucleon-nucleon potential with full recoil 1=10864
- nucleon-nucleon potential with one-pion-exchange tail, appl. to p-p scatt. at <100 MeV 1=3172
- nucleon-nucleon, potl. of Green, velocity-dependent 2=22698
- nucleon-nucleon, potl, review 2=3290
- nucleon-nucleon scatt. amplitude in nuclear matter 1=12143
- nucleon-nucleon scatt., dispersion relations 0=12920
- nucleon-nucleon, scatt. and pion exchange, theory 2=1757
- nucleon-nucleon spin-orbit interaction and the repulsive core 0=17320
- nucleon-nucleon spin-orbit potential 0=11284
- nucleon-nucleus vertex part cluster singularities, closed-shell effects 4=12097

Nuclear forces—contd

nucleon scatt., elastic, on nuclei, high-energy, reduction factor from two-body interaction 1=3437
 nucleon scatt., high-energy optical potential, target-momentum and nonlocal effects 4=9484
 nucleon separation energies, linear A relationship 0=4017
 nucleon spatial correlation, for light nuclei 4=3523
 nucleon spin-orbit interaction, electromagnetic effects 1=19180
 nucleon strength functions and gross structure 1=8611
 nucleon systems, antisymmetrization of wave functions 4=3316
 nucleus—nucleon long-range potential in elastic scatt. 4=19830
 OBEC model, rel. to p-p scatt. below 300 MeV 4=25094
 odd-odd nuclei, neutron-proton interaction energy 3=2359
 one-pion exchange potential, phase shifts 2=3329
 one-pion exchange potential, test, absence of large deviations 1=7217
 optical model, at high energies 1=5814
 optical model, nonlocal, plausibility 0=1344
 optical-model potential, cluster expansion 1=5815
 optical, nucleon-nucleus, local, depth 4=12095
 optical potential, rel. to closely-coupled-states scatt. 2=11286
 optical potential, isobaric spin const. 4=12269
 optical potential, isospin, meas., by p, n scatt., same nucleus 4=976
 optical potential for nuclear matter, approx. theories 4=12099
 optical potential, from nucleon-nucleus phase shifts 2=13941
 optical potl., radial distrib. of imaginary part 3=12543
 optical potential, radial variation of absorbing part 2=22701
 optical potential, use for rearrangement collisions 2=11287
 optical potential, simple model 1=3380
 optical potential, symmetry term, Zr data 4=25391
 p small-angle elastic scatt. at 3 BeV, Coulomb-nuclear interference 0=9628
 pair correlations of deformed nuclei, effect on moment of inertia and gyromagnetic ratio 1=7313
 pair nuclei, interaction for same shell of each pair 4=21981
 pairing correlation theory reformulation 4=24487
 pairing energy of deformed nuclei 0=20323
 pairing energy effect in interacting fermion system 2=1081
 pairing energy in even-even nuclei 0=11285
 pairing force between two nucleons 4=12096
 pairing forces in fermion systems, perturbative treatment 1=9348
 pairing forces, near closed shells 2=1753
 pairing forces, new approx. 2=5779
 pairing forces and nuclear collective motion 1=7310
 pairing forces, 0^+ state, approx. 2=1761
 pairing forces, and pair correlations in nuclei 2=1759
 pairing forces, superconductivity approx., accuracy 1=16954
 pairing Hamiltonian, separability approx. 4=16996
 pairing interaction, superconduct. approx. 4=16995
 pairing, Lipkin's method 4=975
 pairing, superfluid model, appl. in Weizsäcker's formula 4=977
 pairing, wave function correlations 4=15129
 parity nonconserving internucleon potentials, effects in electromagnetic transitions 0=17461
 parity nonconserving potential, effects 1=19288
 phenomenological, different, rel. to nuclear matter props. 3=6127
 phenomenological potl., interaction consts. 2=3288
 photonuclear cross-sections, effects of nucl. forces, quasi-deuteron model 0=1427
 π -nucleon scatt., rel. to nuclear forces at large distances 0=3985
 π - π interaction effects 2=1664, 20273
 pion-nucleon coupling in meson field theory 1=16706
 pion theory, including nucleon recoil 0=5511
 potential bet. two nucleons, using Low eqn. 3=15069
 potential, effect on collisions, neutron transfer 3=17448

Nuclear forces—contd

potential, effect of isobaric spin purity, heavy nuclei 3=10223
 potential energy, oscillator shell model 3=10200
 potential in excited nucleus and barrier transmission coeff. 0=11286
 potential, long-range 3=15070
 potential in nucleon gas 1=10866
 potential specification 0=17460
 potential well parameters, effect on polarization of elastically scattered protons 1=686
 potentials arising from π - π resonance in I=J=1 state 1=12068
 pseudoscalar internucleon potl., derivation of general form 4=3315
 quantum potential approach 1=13360-1
 quasi-particles in nuclear matter, energy gap 1=19339
 radial shape, two-body, rel. to low-lying states 4=27957
 range, nucleon-nucleon scatt. matrix 2=436
 ratio, long to short range forces 2=9979
 reaction matrix calc., separation method 2=3545
 relation to nuclear deformation 1=10951-2
 relativistic effects rel. to muon capture 2=5948
 repulsive core, n-p system 4=892
 repulsive core potentials in vibrational calcs. 0=20309
 residual interaction and deformation 1=8556
 residual pairing forces, correlations 1=13597
 review 0=12718
 review 3=2
 role of ω and ϕ , effect of ϕ - ω mixing 4=12063
 saturation in many-particle systems 0=12884
 scattering in matter, review 2=13947
 separable non-local interactions, Li⁶ states calc. 2=18225
 in shell model 1=8546
 single closed-shell nuclei, pairing and long-range forces 0=17458-9
 in six-dimensional manifold, geometrical interpretation 0=5475
 soft core model with one-pion-exchange tail 4=30292
 spin- $\frac{1}{2}$ particles scatt., elastic, strong absorpt. model, polarization 4=19741
 spin-orbit coupling in heavy nuclei, rel. to strong tensor nucleon interaction 0=20312-13
 spin-orbit force in bound state and in scattering 0=4015
 spin-orbit force, neutral vector meson theory 0=15275
 spin-orbit force, rel. to tensor force of pion-theoretical potential 0=20311
 spin-orbit interact., N-N scatt. 3=581
 spin-orbit interaction, quadratic 2=3453
 spin-orbit interaction, spherical nuclei 3=15095
 spin-orbit potential with π -meson scatt. correction 0=15296
 square-mound-potential gas, neutron scatt. 3=7864
 static π -meson potential, applicability to nucleon-nucleon cross-section and polarization 0=12872
 strong-coupling method, two approaches compared 1=16703
 strong interactions, parity conservation 0=2684
 symmetry props. of Nogami's modified pairing Hamiltonian 4=24488
 symplectic invariance and pairing property of interactions 0=11086
 tensor force of pion-theoretical potential, rel. to doublet splitting in n-He⁴ scatt. 0=20311
 tensor force, spin-orbit coupling, in Hartree-Fock theory 3=22254
 three-body force between fixed nucleons 4=3521
 three-body, with interchange of three pions 2=5776
 three-body nuclei, one and two-meson exchange, mag. moment 4=15050
 three-body problem with repulsive core forces 1=2104
 three-nucleon system, bound state 2=22700
 threshold effects in nuclear reactions 0=7542
 two-body bound state, and scatt. with noncentral forces 4=16974
 two-body force parameters, from direct interaction studies 1=19463
 two-body interactn., Heisenberg compts. 3=621
 two-body potential, field-theoretical derivation 1=9734
 two-body potential in nuclear matter 2=344
 two-body potential with repulsive core, rel. to statistical nuclei calc. 0=17462

Nuclear forces—contd

- two-body potentials, effective, nuclear collective motion 0=20310
 two-body potentials, excited states of nuclei 1=13637
 two-body potentials for medium-weight nuclei 1=13638
 two-body problem, exactly soluble, with non-central forces 3=24664
 two-nucleon interaction 1=4820
 two-nucleon interaction from doublet splittings 1=7308
 two-nucleon L.S. potential in pseudoscalar meson theory 0=17263
 two-nucleon potential with one-spin exchange tail 0=20072
 two-nucleon system in momentum space, nonstatic treatment 1=10865
 two-nucleon system, relativistic Schrödinger eqn. 2=280
 two-nucleon system, Serber-Pais charged-scalar strong-coupling theory 1=7236
 two-nucleon T=0 potential, appl. to n-p at <300 MeV 1=12085
 two π -meson exchange nuclear potential, derivation 0=12864
 two-pion exchange potential, spin-orbit interaction 1=9735
 vector mesons and 2-nucleon potls. 2=5632
 velocity depend. N-N force 3=17382
 velocity dependent forces 2=3450
 velocity-dependent and hard-core potentials, relationship 3=2216
 velocity dependent, in nuclear matter 2=1755, 13966, 16283
 velocity-dependent potentials, analytical solns. 2=3451
 velocity-dependent potentials, for singlet-even states 2=3452
 velocity dependant, repulsive core 2=18226
 velocity-dependent singlet potentials, appl. to p-p scatt. phase-shifts 1=8539
 wave eqns. invariant under discontinuous groups 1=7219
 weak-coupling shell model theory of Pb²⁰⁸ 1=9797
 weak interactions, nonlocal effects 0=12823
 Wigner coeffs. for SU₃ group, p-shell fractional parentage coeffs. 3=6124
 Yukawa potential, energy levels 3=3746
 Yukawa potentials superposition, bound state 2=13948
 Yukawa potentials superposition, bound state 3=6125
 zero-strangeness-boson exchange model 2=16151
 A = 13 nuclei, nucleon + C¹³ model 1=5836
 Bi²¹⁰, pairing forces and pair correl. 1=19326
 Bi²¹⁰, pairing forces and pair correlation 2=1760
 Bi²¹⁰, tensor force effects 3=24875
 Bi²¹⁰, tensor forces 3=24874
 C¹², two-body forces for particle-hole models 4=15145
 Ci²⁵², fragments, Vk potls. 2=10159
 Co⁵⁹, nuclear distortion, absence, theory 2=1756
 Cr⁵⁴, nuclear distortion, theory 2=1756
 Fe region, nuclear distortion, evidence 2=1756
 F¹⁸, residual pair forces 3=22257
 F¹⁸, tensor force, effect on energy spectrum 4=25291
 Fe^{56, 58}, potential well depth, real, symm. depend. 4=9493
 H³, binding, three-body force effects 3=22213
 He³, binding, three-body force effects 3=22213
 He³, effect of n-p tensor forces 1=13634
 He³ versus H³, binding and Coulomb energy indication of charge asymmetry 4=30293
 p-He⁴, and scatt., 40 MeV 3=22256
 He³-He³ elast. scatt. at 20-29 MeV, calc. 1=3249
 n-He³, rel. to scatt. phase shifts calc. 4=3498
 K-meson exchange and nucleon-nucleon potential 3=14974
 K⁺-p, repulsive nature 0=9431
 Li⁶, internuclear attractive potential calc. 2=5775
 Li⁶, neutron-proton interactions 2=1754
 Li^{6,7} 0=9497, 9499
 Li^{6,7}, binding energies 2=1895
 Mn⁵⁵, nuclear distortion, theory 2=1756
 N¹⁴, tensor force, effect on energy spectrum 4=25291
 N-N, effect of many-body forces in heavy nuclei, theory 4=9339
 N-N potl. from shell-model doublet splittings 3=22258
 N-N triplet-even potls., singular type, phase shifts 3=22255
 Nb⁹¹, pairing forces 4=12096
 Ni isomers, nuclear distortion, absence, theory 2=1756
 Ni⁵⁸, potential well depth, real, symm. depend. 4=9493

Nuclear forces—contd

- O⁺, pairing forces 4=12096
 O¹, binding energy and radius, for different internucleon potentials 0=9511-12
 O¹⁶, rel. to energy levels 2=13995
 O¹⁶, rel. to O¹⁶-O¹⁶ scatt. 2=5973
 and O¹⁶(p,t), (p,He³) comparison at 37.3 MeV 4=25396
 O¹⁶, two-body forces for particle-hole models 4=15145
 O¹⁶, vel.-depend., rel. to binding energy calc. 4=25262
 O¹⁸, residual pair forces 3=22257
 P₂, in Elliott model, rel. to rot. spectra 2=12110
 Pb²⁰⁶, residual pairing forces, correlations 1=13597
 Pb^{206,210}, pairing forces and pair correlations 2=1759
 Po²¹⁰, pairing forces and pair correlations 2=1759
 Tl²⁰⁶, pairing forces and pair correl. 1=19326
 Tl²⁰⁶, pairing forces and pair correlation 2=1760
 V⁵¹, pairing and spin-orbit forces 1=5812
 Y⁸⁸, pairing forces 4=12096
 Zr⁹⁰, pairing forces 4=12096
 Zr^{90,91,92,94,96}, optical potential, from proton scatt. 4=25391

Nuclear fusion

- See also Nuclear reactors, fusion; Thermonuclear reactions.
 bibliography, annotated, for 1958-62 3=9766
 conference, Salzburg, (1961) 3=7494
 conference, Salzburg (1961) 4=5588
 controlled, high energy ion injection 3=15270
 controlled plasmas, microwave diagnostics 2=19978
 d + d \rightarrow He³ + n, negative μ catalysis 4=25205
 energy balance, T-Nt diagram 0=4157
 fission explosions, giving elements near Pt 3=6318
 heavy particle detection, thermonuclear formation 0=17639
 hot plasma, gas insulation, theory and expt. 3=12198
 mirror machine, self-sustaining reactions, critical conditions 3=14601
 molecules, muonic, reaction rates calc. 3=12888
 plasma physics role, elementary review 2=5327
 power generation 0=1461
 pycnonuclear and cryonuclear, classification 4=25450
 review, Salzburg conference papers 3=15251-2
 self-sustaining systems, T-Nt diagram 1=9893
 stabilized pinch, direct energy conversion 0=7678
 in stars, buildup from C 0=3424
 in supernovae, chain reactions, depend. on He³ conc. 0=845
 temperature generation by impact shock waves of small solid particles 4=18328
 weapon explosions (1954) 0=4769
 D beam injection 0=20709
 D(d, p) T, low-energy cross-sections, 4-15 keV 1=19555
 D plasma expts. 0=17645
 D-D, in hot plasma 2=7629
 D-D, in Sceptre III, D vel. spectrum 0=11476
 D-D, in θ -pinch, reaction rates comparison 4=24679
 H and D μ -mesic atoms in liquid H₂ 0=11467
 H₂, HD, D₂, spontaneous fusion, probab. 0=1459
 3He⁴ \rightarrow C¹², in stars 2=4792
 N¹⁴-p, effect of electron screening 2=5838
 T beam injection 0=20709

Nuclear induction

See Nuclear magnetic resonance and relaxation.

Nuclear interactions

See Collision processes; Field theory, quantum, interactions; Fundamental particles; Nuclear reactions; Scattering, particles.

Nuclear isomerism

See also Nucleus, energy levels.

- core isomerism, empirical approach based on transition probabilities 4=21995
 due to transitions between intrashell-interaction levels 0=5666
 effect on atomic spectra 0=2733
 evidence for new states, from (n, γ) reactions 0=5783
 excitation by X-rays, irradi. conditions 3=8067
 five msec isomers produced by 19.2 MeV protons 1=19353
 formation by photoactivation 2=5889
 isomer interactions with slow neutrons, rel. to level structure 0=15522
 isomer prod., thermal neutron activation cross-sections 3=10361
 isomeric cross-section ratios in (n, γ) reactions 3=675
 isomeric nuclei, electromagnetic transitions 1=633

Nuclear isomerism—contd

isomeric pair production, cross-section ratios for (n, γ) and (γ , n) reactions 0=20423
 model, statistical, "rotational" states of heavy particle capture process 4=27953
 Mössbauer effect shift and nuclear distortion 4=19667
 neutron activation prod., isomeric yield ratio 3=6271
 neutron prod., short lived, meas., chopping system 4=9371
 neutron-scattering induced states, determ. of d-wave strength functions 4=6345
 nine elements, msec half-life, after neutron irradiation 0=11376
 odd-odd nuclei, collective model 1=13649
 in (p, n) reactions, from threshold to 20 MeV 4=1072
 photoactivation by Co^{60} irradiation 4=9372
 photonuclear reaction, new short-lived isomer production 1=19439
 pneumatic transfer tube for study 2=10002
 probability, for statistical model of nucleus 3=24835
 production of isomers by (n, γ) reactions 1=3453
 production from stable nuclides with bremsstrahlung 3=24856
 production, thermal neutron activation cross-sections 2=20647
 rare-earth region, and some double isomeric nuclei 1=8600
 review 2=7927
 review, selected problems 2=7928
 sepn. and enrichment method 3=2369
 shifts, and potential diffuseness 4=19650
 short-lived isomers, prod. by thermal-neutron capture 0=17523
 transitions in uneven-uneven spherical nuclei 4=6213
 Ag^{103m} 2=16331
 Ag^{104} , half-lives and decay schemes 1=631
 Ag^{104m} , mag. moment 1=12148
 Ag^{108m} 0=9568
 Ag^{110} 2=14062
 Al^{30} transition 4=17044
 Am^{242} , 152 yr activity as upper isomer 0=20372
 As^{75m} , formation 0=1382
 As^{75m} , half-life 1=9825
 As^{75m} , prod. by 19 MeV protons 1=13690
 Au^{198m} , prod. by (γ , n) and (n, 2n) reactions, γ -spectrum and half-life 0=17521
 $\text{Au}^{198m, g}$, from Au proton bombard. 8-60 MeV 4=3661
 Au^{199} , 475 keV state 4=15169
 Ba^{129} 1=5870
 Ba^{137m} , props. 0=11336
 Bi^{208m} , formation from (n, 2n) reaction 1=19496
 Br^{80m} , dissociation of methyl bromide by isomeric transition 0=16388
 Cd^{111m} , excitation functions for inelastic scatt. reactions 1=688
 Cd^{115m} , β -decay 0=2636
 Cd^{119m} , decay 2=1800
 $\text{Ce}^{137m/137}$ yield ratio in $\text{La}^{139}(d, n)$ reaction 1=13847
 Ce^{138m} , by $\text{La} + p$ 1=19353
 Ce^{139m} , props. 0=11336
 Cl^{34m} , decay, energy levels 1=8653
 Cs^{131} 1=632
 Cs^{135} , 53 min 2=18276
 Cs^{135m} , spin-parity 4=17067
 Eu^{147} 1=5852
 $\text{Eu}^{147, 149, 151}$ 1=2181
 $\text{Eu}^{147, 149, 151}$ 1=3405
 Eu^{149} 1=5852
 Eu^{151} 1=5852
 Eu^{152} , decay 4=9413
 Eu^{152m} , directional and polarization correl. of γ - γ cascades following decay 0=4069
 Fe^{57} shift calibration improvement 4=20163
 Fe^{57m} , nucl. quadrupole moment 1=16971
 Ga^{70m} , formation 0=1382
 Ga^{72} decay schemes 2=18275
 Gd^{157} , 0.46 μsec isomer 4=15164
 Ge^{71} , millisecond decay 3=15134
 Ge^{71m} , prod. by 19 MeV protons 1=13690
 Hf^{178} , decay schemes 2=18275
 $\text{Hf}^{178, 180}$, spin 1=8549
 Hf^{179} 0=414
 Hf^{180} , from $\text{Ta}^{181}(\gamma, p)\text{Hf}^{180}$ 1=677
 Hf^{180m} , decay scheme 1=4849

Nuclear isomerism—contd

$\text{Hg}^{195m, g}$ and $\text{Hg}^{197m, g}$, from Au proton bombard. 8-60 MeV 4=3661
 Hg^{197} , isomeric shift 1=13691
 $\text{Hg}^{197, 197m}$, formation in nuclear reactions, cross-section ratios 0=20424
 $\text{Hg}^{197, 197m}$, produced by He-bombardments 4=9422
 Hg^{201m} , 100 μsec , tentative assignment 2=22734
 Ho^{169} , decay 4=9454
 Ho^{169} , genetic relation between isomeric states, from Er γ -spectra 4=12156
 I^{129} , 26.8 keV, shift from Mössbauer effect 3=19786
 In^{110} 2=14062
 In^{110m} , decay scheme, K-L conversion electron energy diff. 1=17055
 In^{110m} , search for decay to In^{110} 4=3571
 In^{113m} , spin and hyperfine interaction 0=15511
 In^{114m} , by $\text{In} + p$ 1=19353
 $\text{In}^{114, 116}$, double isomerism 1=8600
 In^{115} III, isomeric shift 1=13691
 In^{115m} , excitation functions for inelastic scatt. reactions 1=688
 In^{116} 0=13287
 In^{116} 1=13692
 In^{116} , activation ratios in In^{115} neutron capture 1=11026
 In^{116} , decay schemes 2=18275
 In^{116} , 2.16 sec, thermal neutron activation 3=15112
 In^{116m} , decay to high-lying Sn^{116} states 2=5807
 In^{116m2} 2=16331
 In^{116m} , 4.5 min, identification 1=7344
 In^{119m} decay 2=1800
 $\text{Ir}^{192, 194}$ 0=13169
 $\text{Ir}^{192, 194}$, double isomerism 1=8600
 Ir^{144} , decay schemes 2=18275
 Ir^{194} , triple isomerism 1=8631
 Ir^{194m} , possible existence 0=7510
 Mn^{54} , existence of 2 min. isomer 1=13693
 Mo^{93} , core isomerism, empirical approach based on transition probabilities 4=21995
 Mo^{93m} , in $\text{Se}^{80}(\text{O}^{16}, 3n)$ 0=11335
 Mo^{93m} , total conversion coeff. of 0.265 MeV transition 4=3569
 Na^{24} , decay schemes 2=18275
 Na^{24m} , half-life 1=9825
 Nb^{92} , 191 min 0=17563
 Nb^{92} , 13hr half-life state 2=18262
 Nb^{92g} , formation from (n, 2n) reaction 1=19496
 Nb^{93} , 30 keV transition 4=17093
 Nb^{98} , millisecond decay 3=15134
 Nd^{141m} , prod. and props. 0=11336
 Nd^{141m} , 63.7 sec 0=5728
 $\text{Np}^{240, 241}$ 0=9603
 $\text{Os}^{187, 188}$, existence 4=12160
 Pb^{205} , $i_{13/2}$ state, decay 0=9583-4
 Pb^{205} , M4 isomerism 4=30316
 Pb^{205m} , from Bi^{205} decay 0=9571
 Pb^{205m} isomer production by different nuclear reactions 1=17133
 Pb^{207m} , formation from (n, 2n) reaction 1=19496
 Pd^{111} , β and γ spectra of two isomers 0=11354
 Pm^{141} , millisecond decay 3=15134
 Pm^{145m} 2=7946, 16369
 $\text{Po}^{211, 212}$, shell model calc. 4=25325
 Po^{212m} , 45 sec, discovery 2=18268
 Po^{212m} , shell-model calc. 2=18269
 Rh^{102} isomeric state 1=13755
 Ru^{99} , with 227 keV γ , from $\text{Mo} + \alpha$, 22MeV 4=12153
 Sb^{118m2} 2=16331
 Sb^{122} 3=10263-4
 Sb^{122m} , isomeric transit. 2=5861
 Sb^{122m} , isomeric transitions 4=3572
 Sb^{126m} , prod. by $\text{Sn}^{124} + \alpha$ 2=1930
 $\text{Sc}^{44, 44m}$, produced by He-bombardments 4=9422
 Se^{50} 0=456
 Se^{73} , isomeric pair, scintillation spectrometry study 1=8642
 Sm^{143m} , prod. and props. 0=11336
 Sm^{143m} , 137 sec 0=5728
 Sn^{113m} 0=15534
 Sn^{113} , M3 isomeric transit. 3=383
 Sn^{119} , excited in $\text{In}^{119}(p, n)$ reaction 4=22035
 Sn^{119} , isomer shift 2=5790

Nuclear isomerism—contd

- Sn¹¹⁹ in metallic rigid soln., γ -transition, 23.8 keV isomer shifts rel. to matrix dynamic props. 4=25811
- Sn¹¹⁹, shift, and deformation 4=19693
- Sn^{123m, 125m}, prod. by Sn¹²⁴ + α 2=1930
- Sr^{87m}, decay, 0.65% K-capture branch 0=20392
- Sr⁸⁹, search for 10 day isomer 2=20538
- Ta^{182m}, 16 min, decay scheme 1=3404
- Tc^{94m}, 4.5 hr, decay 2=1840
- Tc^{95, 97}, decay schemes 0=1377
- Tc^{99m}, decay rate, effect of compression in Tc metal, calc. 0=5718
- Te¹¹⁵ or ¹¹⁹, with 284 keV γ , from Su + α , 22 MeV 4=12153
- Te¹¹⁹ 0=20389
- Te¹¹⁹ 2=14001, 14066
- Te^{127, 129, 121}, chemical separation 4=7780
- Te^{127, 129}, separation in different chemical media 4=30915
- Te^{127m}, prod. by Sn¹²⁴ + α 2=1930
- Te^{133m}, props. 0=11336
- Th²³⁴, 24 day, decay 3=15158
- Ti^{45m}, by Sc + p 1=19353
- Tl^{194, 195, 198} 0=7514
- W^{180m}, by Ta + p 1=19353
- W¹⁸³ 5.3 sec isomer 1=8632
- Y^{88, 90}, new isomers, decay schemes and periods 1=10973
- Y⁸⁸, millisecond decay 3=15134
- Y^{88m}, formation from (n, 2n) reaction 1=19496
- Y⁹⁰ 1=19375
- Y⁹⁰ isomeric state 1=12184
- Y⁹⁰, 3.14 hr isomer 1=10974
- Y^{90m} 1=19374
- Y^{90m}, 3.1 hr, by neutron capture in Y⁸⁹ 1=12185
- Yb¹⁷⁴, by n irradi. of Yb metal 3=4579
- Xe^{131m}, search for double-quantum emission 0=11373
- Xe^{135m}, props. 0=11336
- Y^{87, 87m}, produced by He-bombardment 4=9422
- Y^{90g, 90m}, ratios from Rb⁸⁹(α , n) and Y⁸⁹(d, p) 4=17197
- Yb^{169, 175, 177}, Nilsson level-schemes 1=8600
- Yb^{169, 175, 177}, decay schemes 2=18275
- Yb^{169m, 175m, 177m} 0=17524
- Zn⁶⁵ 1=648
- Zn⁷¹, decay schemes 2=391

Nuclear magnetic resonance and relaxation

- See also Molecules, nuclear coupling.
- (ABC) system, spin= $\frac{1}{2}$, spectral intensities, calc. 1=19667
- ABC systems, unique parameters calc. using C¹³-H satellites 4=3910
- absorption apparatus 1=10794
- absorption computer programme 4=14012
- absorption, line width calc. 0=8082
- absorption line-width meas., mag. field gradient 1=4741
- acetaldehyde, J coupling theory 3=14790
- acetaldehyde-water mixtures 0=6819
- acetic acid and chloro derivatives, in solid form 1=8856
- aceto-acetic ester, long-range chemical shifts 1=12309
- acetone in HF solution at -75°C 1=11767
- acetonitrile, N¹⁴ pure quadrupole resonance at 77°K, variation with cooling rate 0=6283
- acetylacetonates, sign of electron spin density on methyl protons 0=2743
- acetylacetone, long-range chemical shifts 1=12309
- acetylene cpds., H bonds 4=29648
- acetylene, mag. screening const. calc., chemical shift 2=23002
- acetylene, solid, nuclear spin state 2=14847
- acetylenes from 1-butyne to 1-nonyne, chemical shifts 1=9953
- acoustic, classical theory 2=18973
- acoustic, in ferromag. materials 2=18949, 23716
- acoustic techniques 2=17973
- acrylic acid, spectra analysis 1=20254
- acrylonitrile, isotopically substituted 4=22424
- acrylonitrile, unique parameters calc. 4=3910
- adamantane, resonance lines, second moments 1=17352
- adamantane, solid, proton resonance, rotational transition at -130°C 0=16192
- adiabatic passage and transient effects by rotating coordinates 1=11492
- adiabatic passages, rotating coordinate method 0=1182
- adsorbed gases 0=14150

Nuclear magnetic resonance and relaxation—contd

- adsorbed layers, review 4=2127
- adsorbed liquids on carbon, double resonance 0=4736
- alcohols, OH proton reson. shifts, H bonding 1=14081
- alcohols in solution, study of intermolecular H bonds 1=11113
- aldehydic protons in aromatic cpds., long-range coupling 2=20873
- alkali and alkali earth fluoride solids and solns., F shifts 4=23067
- alkali borate glasses, structure 0=8256
- alkali fluorides, mag. screening of F¹⁹ nucleons 2=20903
- alkali halide solid solns., nuclear quadrupole interactions 2=19025
- alkali halide solns., proton resonance shifts 1=8143
- alkali halide solns., proton spin-lattice relax. times 4=18217
- alkali halides, anisotropy of spin-lattice relaxation time 3=25584
- alkali halides with impurities, quadrupolar broadening of lines 4=26446
- alkali metals, Knight shift, ion potential thermal vibr. effect 4=20607
- alkali metals, Knight shifts, temp. effect 2=23718
- alkali halides, lattice vibrations 0=9842
- alkali halides, neutron irradi., radiation damage study 0=3137
- alkali halides, nucl. quadrupole spin-lattice relaxation, comparison with theory 0=10253
- alkali halides, quadrupole relaxation time, overlap model 0=3142
- alkali halides, spin-lattice relaxation rel. to temp. and lattice vibrational spectrum 3=23249
- alkali metal vapour in argon at high pressure 0=17694
- alkali metal vapours, spin relaxation and line-width, calc. 0=10701
- alkyl ammonium salts in solution, unusual spin-spin couplings 3=21410
- alkyl derivatives, proton chemical shifts 1=6049
- alloys, dilute, theory 0=13891
- alloys, ferromag., internal field meas. 2=12644
- alloys, intensities, nuclear elec. quadrupole effects 1=20260
- alloys, Knight shift, theory 1=3949
- alums, quadrupole coupling constants of Al²⁷ 0=11959
- alums, temp. depend., rel. to ferroelectric props. 1=11496
- amides, secondary and tertiary 1=12308
- aminotroponeimine chelates of Ni 0=15762
- ammonia-nickel cyanide clathrates, proton resonance 2=23003
- ammonia, p-p and p-d spin coupling 0=7804
- ammonium ion, double resonance of N¹⁴ and N¹⁵ 2=2022
- ammonium ion solns., second-order effects 1=8142
- Ampere Colloquium, Eindhoven (1962) 3=20629
- Ampere Colloquium, Leipzig (1961) 3=23198
- amplitude modulation of exciting field, parasite rays 4=27671
- analogue computer for moments calculation 3=12334
- analysis of complex molecular spectra 1=14094-5
- analysis of complex spectra, iterative method 2=16553
- analysis of high-resolution spectra by iterative methods 1=875-6
- aniline, C¹³ resonance, steric inhibition of conjugation 3=10544
- within antiferromag. Bloch wall, theory 2=16937
- in antiferromagnetic, effect of nuclear spins on antiferromag. reson. freq. 4=13331
- antiferromagnetic insulators, acoustic, theory 4=4422
- antiferromagnetics, spin-lattice 3=16137
- apparatus 1=380
- apparatus, absorption circuit 0=3867
- apparatus, absorption detector 1=382
- apparatus, amplifier noise 1=2928
- apparatus, field discriminator for field stabilization 2=1615
- apparatus, high resolution 0=3866
- apparatus at Louvain Laboratory 1=19050
- apparatus, for mag. field meas. 0=15104
- apparatus, oscillator stabilized by mag. field 0=5432
- apparatus for proton relaxation time meas. in polymers 1=1977
- apparatus, pulse generation, digital circuit 2=5496

Nuclear magnetic resonance and relaxation—contd

- apparatus, self-quenched, superregenerative receiver 1=14833
- apparatus, sensitivity and fidelity of autodyne oscillators 0=19954
- apparatus for spin decoupling in high resolution spectrometer 1=16606
- apparatus, spin-echo 0=6275
- apparatus, for spin-echo obs. 2=17975
- applications, mag. field meas. and stabilization 2=5432
- apparatus, spin-lattice and spin-spin relax. times 0=5430
- apparatus, use of synchronized autodyne 1=16605
- apparatus, transistorized autodyne detector 0=17126
- apparatus, two oscillator technique 1=14822
- application, for magnetostatic field meas. 1=16475
- applications of weak-field n.m.r. spectrometry 1=12567
- aqueous solns. of 1-1 electrolytes 2=7230
- aromatic carbonium ions, proton magnetic shielding 1=11119
- aromatic free-radical solutions, nuclear-electron spin relax. and Overhauser polarization 3=23909
- aromatic and heterocyclic compounds, study of intermolecular π effect 1=11118
- aromatic molecules, sign of electron spin density on methyl protons 0=2743
- aromatic, proton splitting const. and hybridization 4=17322
- aromatic trapped radical, proton resonance line shape 1=11129
- asphalt deuterated solutions proton relax. 4=5213
- asphalt solns., double resonance and proton relax. 2=19582
- associated liquids, relaxation 4=27202
- atomic beam, double resonance 0=17682
- atomic beam mag. resonance, radioactive atoms 0=472
- atomic beams, study of Cd and Zn excited states 0=17683
- atomic ensemble, radiation, enlargement and displacement 1=13964
- atomic level structure studies, review 2=6081
- autodyne detectors with automatic amplitude control, analysis 4=749
- automatic magnetic field calibration using proton resonance 1=12000
- pp'-azoxyanisole, liq. crystals, proton resonance rel. to order 2=49
- azoxyphenol-di-p-n-amyl ether, proton mag. resonance 1=5076
- azurite, proton reson., liq. H and He temp. range 1=1285
- b.c.c. lattice with 2 nuclear species, relax., random walk model 4=23061
- 1,2-benzanthracene, high-resolution 3=17614
- benzene, adsorbed on chars, enhancement due to e.s.r. irradiation 4=1308
- benzene-AgClO₄ complex, mol. motion 4=1901
- benzene, C¹³ n.m.r. 3=22601
- benzene, chemical proton shifts, solvent effects 1=8140
- benzene derivs., in nematic solvents, p.m.r. meas. 4=18180
- benzene, in nematic solvents, p.m.r. meas. 4=18180
- benzene soln. in CS₂ and CCl₄, proton spin-lattice relaxation 0=14664
- benzene, spin-lattice relax. meas. 3=23912
- benzene substituents, abnormal saturation behaviour 0=19170
- benzene 2,4,6-trideuterated monoderivatives, meta proton chemical shifts 4=3908
- benzenes, methyl-substituted, proton exchange of carbonium ions 1=11126
- benzenes, polysubstituted, proton chem. shifts 4=1316
- benzosemiquinone soln. in alcohol in 78 G fields 1=18432
- benzyl glutamate, transitions, rigid lattice values 2=12838
- N-benzylthieno [3, 2-b] pyrrole, electron coupling of proton spins 1=14104
- bis (cyclopentadienyl) Fe II and III ions, electron transfer 3=12866
- bis-(cyclopentadienylmolybdenum tricarbonyl) proton resonance 0=5911
- 1, 3-bisdiphenylene 2-phenyl allyl, proton resonance 1=19668
- 1-3-bis-diphenylene-2-phenyl, n.m.r. Overhauser effect 1=17358

Nuclear magnetic resonance and relaxation—contd

- bis-(triarylphosphene) complexes of Co(II) and Ni(II) dihalides isotropic shifts 4=30477
- Bloch-Siegert effect in weak mag. fields 0=12672
- in a Bloch wall, relaxation times, calc. 1=17958
- Bloch wall, thermal motion effect 2=10716
- Bloch wall, thermal motion effect, theory 2=6698
- and Bloch walls, effect of non-linear rot. of local mag. 4=7340
- Bloch's equation thermodynamic derivation 1=15712
- bonds, H, effect in organic cpds. containing π -electrons 3=15383
- borax, proton reson. rel. to H₂O mol. oscill. 2=14855
- borazole 0=7807
- β -brass, Cu^{63,65} lines 2=16938
- β -brass, Cu^{63,65} lines 3=6765
- β -brass, resonance at room temp. 0=21082
- borazole derivatives, proton resonances 1=6046
- broadening measurement, Lorentz line-shape calc. 0=1225
- o-bromoaniline, proton resonance, effect of added acetone 0=20669
- p-bromo-fluorobenzene, proton resonance spectrum 1=1757
- butyl alcohol, soln. in water, proton relax., conc. depend. 4=21159
- butyl alcohols, proton spin-lattice relaxation 1=4562
- calculation, with paramagnetic impurities, diffusion barrier importance 4=23060
- d-camphor, -138° to +18° C 3=20679
- camphor solid solutions, molecular tumbling study 4=30741
- carbon groups, spin-spin coupling rel. to electro-negativity 3=4783
- carbon tetrachloride molecular films, rot. transits. 2=8765
- cerium ethylsulphate, below 1°K 0=10245
- cetyl alcohol crystals, mol. rotation 3=15958
- chabazite, proton resonance 0=4535
- chemical exchange reactions, double resonance study 4=7750
- chemical exchange, spin-echo studies 4=30475
- chemical shifts in Cs and Rb halides, pressure dependence 3=8731
- chemical shift, solvent effects, rel. to i.r. band width 4=29630
- chemical shifts, calc. 2=6223
- chemical shifts, from susceptibility data 1=877
- chemical shifts, temp. depend. in gases 2=18484
- chloranil and its hexamethylbenzene complex, quadrupole resonance 0=16193
- chlorite ion, quadrupole coupling 0=4541
- chlorobenzene in carbon tetrachloride, Debye correl. time rel. to conc. 4=8263
- chlorobenzene soln. in CS₂ and CCl₄, proton spin-lattice relaxation 0=14664
- 4-chlorobenzoic acid, in nematic solvents, p.m.r. meas. 4=18180
- chloroethylenes 1=11124
- chloroform, self-association const. 2=2703
- chloroform solutions, study of intermolecular H bonds 1=11113
- chrysene, spectrum giving ring current assumption 4=6644
- cis-4-cyclohexene-1, 2-dicarboxylic anhydride, multiple reson. analysis 4=9774
- cis and trans 1, 2-difluoroethylene, gas phase 3=15385
- clays, water between layers, rel. to temperature 3=23261
- coemanite 0=8089
- coemanite, ferroelec., proton spin-lattice relax. 2=21379
- collagen, hydration study 2=16573
- computer analysis of spectra, mag. equivalence factoring 4=30073
- computer technique for analysis 2=14325
- conference on applied spectroscopy 4=5378
- conference, Kharkov (July, 1960) 2=5223
- conference, 10th Ampere Colloque, Leipzig (1961) 2=1608
- conjugated fluorine cpds., chemical shifts, theory 3=8299
- conjugated ligands of paramag. chelates 2=18466
- cooperative phenomena, at $\sim 10^{-7}$ °K 0=16182
- Coppinger's free radical, double, electron, nuclear, in n-heptane 4=22434
- corundum, electron-nucl. double reson. of Cu²⁺ 3=13300
- coumarine, nuclear spin-spin coupling of protons 1=2499
- coupling to e.s.r. with inhomog. broadening 2=10714

Nuclear magnetic resonance and relaxation—contd

- cross-relaxation in dilute paramag. systems 0=18223
 cross-relaxation, general theory ^h=20579
 cross-relaxation, general theory, higher-order processes 4=20580-1
 cross-relaxation in spin systems, entropy calc. 0=13884
 cross-relaxation in spin systems, quantum statistical theory 2=13267
 cross-relaxation in spin systems, quantum statistical theory 3=5372
 cross-relaxation, theory 0=16639
 cross-relaxation time 2=10707
 crystal field splitting, calc. 1=20252
 for crystal space group identification, by p.m.r. 4=23414
 crystal structure investigation, review 3=13314
 crystals, double resonance, dispersion and absorption signal changes 3=20663
 crystals, electron-nuclear dipolar coupling, dynamic polarization of nuclei 1=10185
 crystals, errata to previous paper 4=4416
 crystals, line signal effect of tunnel transition 1=1279
 in crystals, line signal, tunnel transition effects 1=6427
 crystals, line width, proton mobility depend. 0=16189
 crystals, rel. to mag. anisotropy fields 3=3093
 crystals, noncubic or imperfect cubic, spin-lattice relax. 3=8721
 crystals, proton resonance, H-bonded water mol. 2=15038
 crystals with rare-earth ions, spin-spin interactions 1=20243
 crystals, with rare-earth ions, spin-spin interactions 2=4272
 crystals, relaxation time dependence on nuclear spin and field orientation to axes 4=13336
 crystals, saturation, from quantum eqn. density matrix 2=4281
 crystals, saturation, from quantum eqn. density matrix 3=3191
 crystals, structure study, expt. and theory, review 4=10336
 cubic crystals, acoustic excitation of nuclear induction 1=6428
 cubic crystals, signal intensity, rel. to dislocations 4=4418
 cyclic peroxides, proton resonance, intramolecular hindering potential 1=17359
 cyclobutane, solid, p.m.r. meas. 4=20611
 cyclobutanes proton spin-spin coupling const., relative sign 3=8296
 cyclohexane soln. in CS₂ and CCl₄, proton spin-lattice relaxation 0=14664
 cyclohexyl derivatives 3=8297
 cyclohexyl fluoride, rotational barrier and conformational preferences, n.m.r. study 4=20103
 cyclooctatetraenyl radical, h.f.s. of electron-spin resonance 0=15734
 cyclopentadiene, high resolution 0=1505
 cyclopentadienyl-metal cpds., high resolution 0=1506
 in demagnetized state in solids, expt. and theory 3=8760
 demagnetized state, spectra and relaxation 4=26444
 density effect on chemical shift in n.m.r. spectra 1=8141
 detection technique, rapid field modulation 2=5500
 detector for n.m.r. spectrometer 1=16609
 deuteron resonance of crystals with O—D...O bonds 4=28894
 deuterons in heavy water, 2-quanta transitions 3=20668
 deuterons in paramagnetic solutions, relaxation 0=2179
 diamag. anisotropy effects, calc. 2=13698
 diamag. salts, aq. solutions, proton relax. rel. to concentration 4=27199
 diamagnetic anisotropy effects of C—C and C-halogen bonds 3=17615
 diamagnetic anisotropy effects of C ≡ C and C ≡ N bonds 4=6648
 diamagnetic solutions, spin lattice quadrupole relaxation 0=8669
 diammoniate of diborane 0=7808
 diazomethane, -50°C and scarcity of izodiazomethane 4=28260
 dibenzenechromium cations, hyperfine interaction 4=15383
 dibenzo-, ditoluene-chromium iodides, and transition, low temp. 4=17669
 diborane, proton shielding 2=18461
 p-dibromobenzene, quadrupole res., Zeeman study 0=8094

Nuclear magnetic resonance and relaxation—contd

- 2, 3-dibromopropionic acid, proton resonance spectrum 60 Mc/s 3=736
 dichloroacetaldehyde molecules, proton resonance 2=10284
 2:4- and 2:5-dichloroaniline, vinyl-group resonance, field depend., calc. 0=1507
 o-dichlorobenzene, analysis 2=14325
 p-dichlorobenzene, Cl³⁵ quadrupole resonance, solvent shifts, use as probe 0=4539
 p-dichlorobenzene, Cl³⁵ resonance, T₁ temp. depend. 1=10195
 p-dichlorobenzene, Cl spin-lattice relaxation 0=4532
 p-dichlorobenzene, dynamic proton polarization 1=20273
 n-dichlorobenzene, effect of electron bombard. 0=21088
 2, 5-diethoxyquinone, n.m.r. spectrum, electron transfer effects 4=17313
 different nuclei study by high resolution 1=12027
 for diffusion in solid meas., appl. to ultraslow diffusion 4=20292
 1, 1-difluorethylene 3=8298
 2, 7-dihydrodibenz [c,e] oxepin and thiepin, temp. var. and inversion 4=22422
 diketene, proton mag. res. spectrum 1=11121
 dimethyl siloxane polymers 0=10252
 dimethylbutanes, solid, proton resonance, methyl group reorientation 1=10197
 dimethylcyclohexanes, anomalous chem. shift in proton resonance 2=23001
 2,2'-dimethyldiphenyl ether; methyl and ring protons spin-spin interaction 3=2645
 2,2'-dimethyldiphenylether, proton resonance, molec. structure 1=12325
 m-dinitrobenzene, signs of coupling consts. 4=3909
 diphenyl picryl hydrazyl 1=878
 diphenyl picoyl hydrazyl, double, solid and in benzene solutions 4=1904
 diphenyl picryl hydrazyl, dynamic polarization of protons 1=10196
 diphenyl picryl hydrazyl, proton resonance 2=4288
 diphenylethers, proton resonance, molec. structure 1=12325
 diphenylpicrylhydrazyl, double resonance 0=4534, 15773
 diphosphine 1=12570
 disilane, liq. spectrum rel. to parameters 4=16129
 dispersion interaction effect on n.m.r. shifts 2=3780
 dispersion signals with prepolarized liquid 2=3183
 disubstituted benzenes, high-resolution, analysis 3=8301
 disubstituted benzenes, proton resonance 3=4779
 ditoluenechromium cations, hyperfine interaction 4=15383
 double irradiation exper., impulse method 0=16187
 double-irradiation expts., theory 2=16555
 double proton resonance by side band method 1=1978
 double quantum signals, enhancement with r.f. sidebands 4=20112
 double resonance, density matrix techniques 0=16167
 double resonance, density matrix description 4=9772
 double resonance, description by spin inversion operators 2=16554
 double resonance in different applied fields 4=28890
 double resonance diffusion phenomena 1=14813
 double resonance, exptl. extension of methods 4=3200
 double resonance, higher-order transitions, theory 1=1275
 double resonance, macroscopic equations, to compute polarization 1=7796
 double resonance maser 0=17096
 double resonance, method 2=13697
 double resonance, at paramag. defects, frequency spectra 2=21382
 double resonance, pulsed technique for detecting weak resonance interactions 0=9226
 double resonance, removal of residual splitting 3=21999
 double resonance in the rotating frame 3=8761
 double resonance in solids, mechanisms, distant-ENDOR effect 1=9067
 double resonance, in solids, theory 2=23715
 double resonance, spin inversion operator, new definition 1=9954
 double resonance, rel. to spin-spin coupling const. relative signs 3=21995
 double resonance, spin temperature 3=20664
 double resonance, spin temperature, theory 4=10339

Nuclear magnetic resonance and relaxation—contd

double resonance, theory 0=13883
 double resonance of three-spin systems 3=2662
 double resonance at 12500 gauss 4=24244
 double resonance, use of weak perturbing r.f. fields 3=2658
 DPPH (diphenylpicrylhydrazyl), proton reson. line splitting 1=14093
 DPPH, double mag. resonance 1=12312
 DPPH, double resonance, rel. to appd. fld. 4=28890
 DPPH, proton reson., 2°K 1=14829
 DPPH radical, proton resonance, spin densities 0=17778
 DPPH, relaxation in molecular liquids 3=21411
 DTBN, relaxation in molecular liquids 3=21411
 Duralumin, ageing study 1=6540
 dynamic nuclear polarization 2=22711
 dynamic nuclear polarization in solids 1=20248
 dynamic polarization by thermal contact of spin systems 1=7797
 dynamic polarization by thermal mixing between 2 systems of spins 3=25581
 dynamic proton polarization, in n-irradiated polyethylenes 4=1899
 effect of electrons of neighbouring molecules on resonance 0=7455
 effect of molecular shape on solvent shifts 1=15909
 effects of strong elec. field on molecules 3=6419
 8-eicosanol, proton resonance, rel. to dielec. relaxation 0=13894
 electric field effects, in crystals 3=20666
 electric model representation of effects 1=16604
 electrolyte solutions, spin-lattice relaxation, theory 1=18435
 electrolyte solutions, spin-lattice relaxation, theory 3=149
 electrolytes in 50% dioxane-water mixtures 4=203
 electron coupling of nuclear spins 0=17784
 electron coupling of nuclear spins 3=8385
 electron-nuclear double res., for F-centre electrons 2=14474-5
 electron nuclear double resonance 0=10242
 emission and absorption lines due to damping by coherent radiation 1=8396
 enhancement in 4-level system 3=22490
 epichlorohydrin, spin-spin coupling 1=19662
 epoxides 0=11539
 epoxides, substituted, n. m. r. spectra 4=28262
 estimation of small splittings from wiggle-beat patterns 1=14099
 ethane, C¹³-H and H-H nuclear spin coupling 1=17346
 ethane, liquid, proton relax. and self-diffusion 2=21924
 ethane, liquid, proton spin-lattice relaxation 3=18835
 ethane, pure and with O₂, proton spin-lattice relax. 1=18476
 ethanes, substituted, conformational equilibria 2=16562
 ethanes, substituted, proton-proton coupling const. in H-C-C'-H' groups, temp. depend. 0=17784
 ethyl acetylene, proton resonance, proton-proton coupling consts. 0=17783
 ethyl acrylate, spectra analysis 1=20254
 ethyl alcohol in HF solution at -75°C 1=11767
 ethyl alcohol, proton spin-spin coupling constants 0=4226
 ethyl ammonium ion, double resonance 3=12864
 ethyl benzene, spin-lattice relax. meas. 3=23912
 ethyl malonate, CH₃ proton line-width, effect of adding piperidine and its benzoate 4=208
 ethyl mercaptan, proton resonance, proton-proton coupling consts. 0=17783
 ethyl phosphate, in earth's field 3=20021
 ethylene, C¹³ or D substituted, proton reson. 2=16561
 ethylene, C¹³-H and H-H nuclear spin coupling 1=17346
 ethylene, pure and with O₂, proton spin-lattice relax. 1=18476
 ethylenes, monosubstituted, spin-spin coupling constants 1=17347
 ethylenes, substituted, proton n.m.r. shifts 1=7489
 ethylvinylketone, proton mag. res. 3=2657
 exchange interacting nuclear spins 2=20865-6
 excitation by e.s.r., review 4=1896
 F-centre in alkali halides, elec. field gradient 4=26448
 F-centre in alkali halides, ENDOR spectrum 4=26447
 fast adiabatic passage, meth. 2=3182
 ferro- and antiferromag. materials, relaxation, review 3=1198

Nuclear magnetic resonance and relaxation—contd

ferroelectric cpds., temp. depend. 1=11496
 ferroelectric K₄Fe(CN)₆·3H₂O, proton resonance 1=20274
 ferromag. alloys 3=8729
 ferromag. subs., spin-lattice relax. 3=6754
 ferromagnetic alloys, d-band structure 3=10622
 ferromagnetic alloys, n.m.r. satellite lines 2=14843
 ferromagnetic and antiferromagnetic crystals, spin interactions 0=13888
 ferromagnetic materials, rel. to external magnetic field 3=23257
 ferromagnetic metals, transient nuclear excitation 1=6421
 ferromagnetic powders, rel. to domain characterizations 3=8672
 ferromagnetic substances 4=28889
 ferromagnetics, deformed, rel. to domain structure stress changes 4=10338
 ferromagnetics, domain-wall enhanced, absence 4=22457
 ferromagnetics, domain wall forbidden transitions 4=10337
 ferromagnetics, effect of conduction electrons 4=13331
 ferromagnetics, enhancement of n.m.r. 2=14844
 ferromagnetics, without external field 4=1893
 in ferromagnetics, meas. by frequency modulated spectrograph 1=16603
 ferromagnetics, origin of line width 1=3945
 ferromagnetics, spin-lattice 3=18137
 ferromagnetics, spin-lattice relax. 2=10712
 ferromagnetics, spin-lattice relax. in Bloch walls, mech. 2=4270
 ferromagnetism, nuclear, in rotating plane of reference 2=11815
 ferromagnets, nuclear acoustic paramagnetic resonance 3=20592
 ferro- or ferrimagnets, anisotropy of hyperfine interaction 2=12642
 flowing liquid apparatus, with weak fields 1=12904
 flowing-liquid proton-reson. arrangement, stimulated emission 1=4358
 flowing liquids 0=16674
 in flowing fluids 1=12907
 flowing liquids, absorption line amp., flow-rate depend. 0=5036
 in flowmetering 0=929
 fluctuating field effects and ortho-para conversion 3=15379
 fluctuations, mag., as noise generator 4=754
 fluids, effect of molec. orientation in elec. field 3=14188
 fluids flowing in cylindrical tube 1=18431
 fluids, spin relaxation, momentum dependent interaction 4=8256
 fluorides, iron-series, hyperfine effects 3=15955
 fluorine nuclei, anisotropy of chemical shift 3=25590
 fluorinated olefins, cis and trans CF₃ groups 4=17316
 1-fluoro, 2, 4-dinitrobenzene, H¹ and F¹⁹ spectra 1=17357
 fluorobenzene, Earth's field proton free-precession signal 2=14331
 fluorobenzene, J coupling theory 3=14790
 fluorobenzene, spin-lattice relax. meas. 3=23912
 fluorobenzene, spin-rotation, resonance temp. var. 3=6421
 fluorocarbons, relative signs of F coupling consts. 3=15377
 fluoropropenes, chem. shifts and spin-spin coupling const. temp. dependence 4=20107
 2-fluoro-3-chloropropene-2, cis and trans, spin-spin coupling consts. 2=20874
 fluxmeter for mag. field meas., using n.m.r. 4=14849
 foreign mag. nuclei, effects, theory 1=10189
 formamide, proton relaxation times in r.f. field 0=5035
 formation of complexes by H-bonds, study 2=20867
 formyl cpds., C¹³ splittings 2=3786
 free, in inhomogeneous mag. fields 3=21994
 free radical in benzene soln., triple resonance 2=23011
 free radical solution, Overhauser effect and mol. motion 4=24245
 free radical solutions, Overhauser effect and relaxation in weak fields 3=23910
 free radicals, rel. to negative spin densities 4=9763
 free radicals in soln. det. by inverted Overhauser effect 4=25733
 free radicals in solution, dynamic polarization of nuclei 1=12311
 frequency-pulling in n. m. r. absorpt. expts. 4=5835

Nuclear magnetic resonance and relaxation—contd

- furan, high-resolution, analysis 3=8301
 gas compressibility meas. 1=8146
 gas molecules spin relaxation, theory, strong-collision limit 4=25740
 gases, diamagnetic susceptibility 2=1209
 gases and liquids, electric field effect 4=18252
 gases and liquids, nuclear spin relaxation 1=9410
 gases at moderate pressures, collision-narrowing technique 4=3198
 gases, nucl. spin relaxation rate, proposed detection of nucl. elec. dipole moments 0=5659
 gases, press. effects on proton resonance 2=16556
 gases, relax., rel. to intermol. forces 3=14222
 gases, temp.-dependent chem. shifts 1=17354
 gaussmeter, in magnetic field time change measurement 1=10760
 glasses, water content determ. 1=6436
 glycerides, melting and freezing behaviour 2=22098
 glycerol, glassy and crystalline, proton mag. spin relaxation 3=23250
 glycerol, proton resonance, use in molec. motion studies 0=6779
 glycidaldehyde 1=6045
 glycine, 77°-239°K 2=10721
 guanidinium Al sulphate hexahydrate, H positions 1=4059
 gypsum, double pulse transients 2=23723
 gypsum, narrowing by rot. r.f. field 4=4420
 gypsum plaster, stiffening, n.m.r. study 1=10225
 gyroscope, sensitive to continuous mag. fields 4=30074
 halogenated propenes 1=11123
 1-halonaphthalenes, external spin-orbit coupling in soln. 3=2608
 halo-perfluorobenzenes, F¹⁹ shielding with π -electron distrib. 4=30480
 head, crossed-coil, r.f., u-mode balancing method 3=9960
 14-heptacosanol, proton resonance, rel. to dielec. relaxation 0=13894
 heptane, spin-lattice relaxation time 1=8136
 heterocyclic cpds., solvent effects on proton resonance 0=7806
 hexachlorobenzene quadrupole reorientational motion 0=18234
 hexamethylbenzene, proton resonance at low temps. 2=8684
 hexamethylenetetramine, proton resonance 2=14856
 hexamine complex salts, proton resonance 1=9073
 hexane, spin-lattice relaxation time 1=8136
 high level oscillator 1=5605
 high polymers 1=15165-7
 high polymers, T₁ temp. dependence 1=14830
 high-resolution, analysis 2=14326
 high resolution, by second r.f. appln. 3=20016
 high-resolution spectroscopy, side-band method 2=22350
 high-resolution studies, frequency-stabilized Pound-Watkins spectrometer 1=3073
 high resolution, temperature-controlled permanent magnet 0=15108
 hydrate crystals, H₂O flip motion, first and second moments effect 3=23268
 hydrate crystals, line splitting, effect of vibrational motion of H₂O mol., theory 4=23059
 hydrate crystals, structural information 3=8728
 hydrated Na tetraborate minerals 3=15963
 hydrates, proton resonance study by spinning crystal technique 0=16191
 hydration of cations 0=3546
 hydrocarbons, ring, condensed, ring current shifts 2=14328
 hydrocarbons, saturated gaseous, screening constants 4=1311
 hydrogen, bonding and n.m.r. 2=10283
 hydroxyl and hydromium ions, chemical shift 2=1169
 hydroxy-benzenes, proton chem. shifts 3=4781
 hyperfine interaction due to electrons with large g-factors 2=2306
 hyperfine interaction Hamiltonian 0=17698
 hyperfine interaction and Knight shift 0=16185
 ice, crystal nucleation, proton resonance study 2=6784
 ice, nuclear spin state 2=14847
 ice, proton reson., rel. to lattice defects 3=10644
 ice, pure and doped, proton resonance 1=11498
 ice single crystal 1=12572
 indene, by proton-proton decoupling 2=14327

Nuclear magnetic resonance and relaxation—contd

- indophenol, apparent molecular asymmetry 3=20003
 INDOR expts. using two frequency synthesizers 2=23004
 inertial mass anisotropy detection 1=4245
 intensity sum rule 2=14324
 intermolecular dipole-dipole interact., contrib. 3=17616
 internal mag. field in iron and Fe alloys, meas. 1=17949
 intra and intermolecular interactions, H₂ bonds, π effect 0=505
 iodobenzene, C¹³ resonance 3=10543
 ionic crystals, overlap model calc. 1=14817
 ionic crystals with paramag. atoms, relax., rel. to diffusion barrier 2=14846
 ionic crystals with paramag. atoms, relaxation, rel. to diffusion barrier 3=0764
 ionic crystals, spin-lattice relax. 2=23710
 ionic crystals, spin-lattice relaxation 3=8758
 ionic crystals, spin-lattice relaxation, applic. cubic lattices 0=10244
 isobutane, proton-resonance 4=30073
 iso-butyl bromide, liquid, proton resonance 0=5039
 iso-butyl bromide, proton resonance in crystals and super-cooled liquid 0=3139
 isopropyl cpds., types A⁰B, A⁰BX 3=10542
 isopropylquinone, n.m.r. spectrum, electron transfer effects 4=17313
 isotope effects in high-resolution n.m.r. 0=7800
 isotropic proton hyperfine interaction and props. of CH bond 4=6647
 Knight shift, in alloys, theory 0=4526
 Knight shift, anisotropic, crystal symmetry dependence 4=26445
 Knight shift, of impurities in metals 0=4525
 Knight shift in metallic systems 3=8729
 Knight shift, oscillations 2=18958
 Knight shift oscillations 3=20675
 Knight shifts in intermetallic cpds., large anisotropic shifts 1=9069
 lead tetraethyl 1=6047
 ligand nuclei in transition ion complexes, hyperfine interactions 4=25718
 line broadening and shifting by optical pumping 1=7442
 line shape analysis by lattice harmonics 3=5047
 line shape correction for instrumental broadening 2=16081
 line-shape functions 1=12247
 line shapes, modulation broadened, moments correction 4=8964
 line shapes, theory 2=4279
 lineshape rel. to coupled nuclear spin, theory 4=9775
 liquid crystals, proton resonance rel. to order 2=49
 liquid with molecules having four spin- $\frac{1}{2}$ nuclei, calc. 3=147
 liquid crystals and their solns., theory 4=18179
 liquids, anisotropic, with axial symmetry 3=5452
 liquids, diamag., mobile, spin-one-half relax. 3=23912
 liquids, dipolar broadening 0=19169
 liquids, dipolar h.f.s. with strong correlation-time narrowing, elec. field effects 2=19583
 liquids, dynamic polarization in high mag. fields 4=24243
 liquids, effect of electrostatic interactions on dipolar hyperfine structure 4=24246
 liquids with exchanging nuclei, transient signals 4=29647
 liquids, flowing, relax. times, large meas. 2=17485
 liquids, molecular, multiple proton resonance relaxation 1=15910
 liquids, nuclear spin echoes and molecular self-diffusion 1=12906
 liquids, principle, applications 3=14184
 liquids (pure), proton spin-lattice relaxation, temp. depend. 1=9409
 liquids, relax. of longitud. and transverse components 3=23914
 liquids, relax., molecular shape effect 3=21405
 liquids, relax., by spin-rotational interact. 3=18833
 liquids, review 1=11769
 liquids and solids, spin interaction with the environment 3=25583
 Liquids, spin-lattice relax. with quasicryst. models 4=2713
 in liquids, spin-spin and spin-lattice relaxation 1=10522
 liquids, at v.l.f. 1=12905
 liquids, weak field, spectrometer 2=1612
 liquids in weak flds, rel. to earth's fld. 3=21420
 long-range mag. shielding in molecules 1=17353

Nuclear magnetic resonance and relaxation—contd

long range proton spin coupling sign determination by triple resonance 4=5838
 long spin-lattice relaxation times meas. 1=16607
 ludlamite, p. P, low temp. var., and mag. transition 4=17698
 mag. field control of α -ray spectrograph 0=13183
 mag. field stabilization using proton resonance 0=19871
 mag. moment meas. using 3 r.f. loops along atomic beam 0=17684
 magnet construction for high resolution 0=7236
 magnet for high-resolution n.m.r. 2=15987
 magnet, stabilized power supply 4=8962
 magnet, water cooled for 1 to 100 MW power levels 2=9681
 magnetic crystals, electron-nuclei interact. 3=15732
 magnetic field contour measurement by proton resonance 1=11999
 magnetic field meas., modification for non-uniform fields 0=19864
 magnetic field meas., resonance absorption magnetometer 2=1547
 magnetic field stabilization by n.m.r. maser 1=18974-5
 magnetic field stabilizer 1=7160
 in magnetic materials 0=2429
 magnetic materials, dynamic effects 3=23246
 magnetic materials, rel. to local fields 3=3187
 magnetic materials near Curie temp., theory 3=23267
 magnetic materials, theory for large nuclei conc. 3=8726
 magnetic moment, macroscopic eqns., for interacting spins 1=14821
 magnetic screening consts., intrinsic eqns. 1=14097
 magnetic suscept. meas. technique 3=4241
 magnetometer, based on n.m.r. 2=7703
 magnetometer, for earth's field 2=4689
 magnetometer, improved probe 2=17926
 magnets, electrical current correcting shims 1=8369
 maser, flow effect, at high field strength 1=16553
 maser, for very weak fields 0=11067
 for meas. of restricted diffusion in liquids 4=5165
 meas. of T_1 by spin echoes 0=19955
 medium effects 3=12865
 medium effects on proton resonances 2=16556
 (2.2) metacyclophane, electron coupling of spins, relative signs of J^{HFI} 2=16563
 meta-dioxanes, substituted, geminal and vicinal coupling consts. 4=28261
 metal powders at low temp., method 3=17066
 metal single crystals, obs. method 2=14845
 metals, acoustic spin resonance 1=5074
 metals and alloys, rel. to electronic structure 3=23245
 metals, anomalous skin effect conditions 3=20673
 metals, rel. to atomic site elec. field inhomogeneity meas. 4=25810
 metals, diamag. shielding, on Bloch model 3=2750
 metals, diamag. shielding by cond. electrons 2=10718
 metals, effect of anomalous skin effect 1=14820
 and metals, electron struct., review 4=12669
 metals, Knight shift, effect of electron diamagnetism 4=17686
 metals, liquid and solid 0=4530
 metals, localized mag. moments meas. 3=12908
 metals, monovalent, appl. to band structure study 4=13333
 metals, non-cubic, relax. rel. to anisotropic paramag. impurities 4=10340
 metals, nuclear acoustic resonance absorpt. 3=20088
 metals, nuclear spin temp., Overhauser effect 2=18956
 metals, Overhauser effect, quantum-statistic theory 4=10341
 metals, review 2=8681
 metals, single crystals 3=21997
 metals, spin-lattice, relax., electron-electron interact. effect 3=23266
 metals, spin-lattice relax., quasiparticle picture failure 4=7341
 metals, spin-lattice relaxation, theory 0=3140
 methane, deuterated forms, solid and liq., proton spin-lattice relax. 2=10709
 methane, deuterated forms, studies using pulse techniques 2=14852
 methane, liquid, impurity-controlled proton relaxation 3=7202
 methane, proton resonance, mag. screening const. 2=6222
 methane, proton spin-lattice and spin-spin relax. 4=6651

Nuclear magnetic resonance and relaxation—contd

methane, pure and with O_2 , proton spin-lattice relax. 1=18476
 methanes, substituted, C^{13} splittings in proton resonance spectra, bond study 0=4224
 methanes, substituted, chem. shift, rel. to C^{13} -H, spin-spin coupling 3=20022
 methanethiol, p. m. r., spin-lattice relax. and chem. shift 4=18220
 methanol, p. m. r., spin-lattice relax. and chem. shift 4=18220
 1-methoxyvinyl esters, proton resonance, effect of substituent R.COO- groups 0=6276
 methyl alcohol, J coupling theory 3=14790
 methyl alcohol, transient n.m.r. signals 4=29647
 methyl anilines, C^{13} resonance, steric inhibition of conjugation 3=10544
 methyl benzoate, spin-lattice relax. meas. 3=23912
 methyl formamides, J coupling theory 3=14790
 methyl-N,N-dimethylaniline, C^{13} resonance steric inhibition of conjugation 3=10544
 methyl nitrite, barrier to rotation 0=17785
 methyl salicylate 3=8302
 methyl-substituted mols., rel. to hyperconjugation 3=739
 methylacetylenes, normal and deuterated 0=4223
 1-methyl-cis-4-cyclohexene-1,2-dicarboxylic anhydride, multiple reson. analysis 4=9774
 methylene and hydroxyl protons in 2-methyl-2-nitropropanediol-1,3 4=24249
 methylidobenzene, C^{13} resonance 3=10543
 methylnitrobenzenes, C^{13} resonance, steric inhibition of conjugation 3=10545
 methylvinylketone, proton mag. res. 3=2657
 microsystems, permanently polarized, relaxation in strong external field 1=1711
 minerals, crystal structure 4=10522
 mobile liquids where $T_2 < T_1$ 0=8672
 models, gyroscope and elec. reson. circuit 4=751
 modulation broadening of unsaturated Lorentzian lines 2=1613
 moisture meas., moving coal feed 2=7089
 molec. solids containing methyl groups, proton resonance 1=10197
 molecular beam, resonances in successive oscillatory fields 0=17861
 molecular crystals, line-widths, rel. to thermal transitions 2=783
 molecular crystals, spin-lattice relaxation 4=23063
 molecular motion in crystalline state, study of 3=13313
 molecular rotation in liquids, n.m.r. study 3=14143
 molecular structure 2=14323
 in molecular wave-function anal., valence-bond formulation 1=3564
 molecule, intensity from n equiv. protons 3=15382
 molecule in liquid, three-spin asym., relax 2=12344
 molecules, complex formation and dissociation phenomena 1=7490
 molecules, diatomic, spin-rotation and spin-spin coupling 4=3826
 molecules, direct analysis of spectrum 3=15380
 molecules, fast-exchange width 3=22596
 molecules, interpretation of high-resolution spectra 0=508
 molecules, long-range shielding 2=20869
 molecules, shielding, gauge-variation calc. method 4=20113
 molecules in solid, isotropic rotation, second moment 4=1894
 molecules, spectra calc., "direct" method 3=15381
 molecules, structure determination 3=15376
 molecules, theory of chemical shifts 3=15375
 molecules, three-spin, spin-lattice relax. 4=15380
 molecules, three spin $\frac{1}{2}$, dipole-dipole relax. 4=25738
 moment analysis of resonance signals 1=4737
 moments of resonance line-shapes, modulation-effect corrections 0=13866
 monocarboxylic acids, proton resonance 1=20276
 monocarboxylic acids, structure investigations 0=18231
 monofluorobenzene, six-spin system 0=15759
 monogermene, digermene, and derivatives, proton resonance spectra 4=17315
 monophosphine 1=12570
 multiple reson. analysis, AA'BB'MM'XX', ABCDMXY systems 4=9774
 multiple resonance, for study of exchange rates 4=13702

Nuclear magnetic resonance and relaxation—contd

- multispin systems, spectrum calc. 2=11818
 n.m.r., analytical applications 1=13193
 n.m.r. studies of intra- and inter-molecular interactions 1=12903
 narrowing by rot. r.f. field 4=4419
 Ninth Ampere Colloquium 1=4734
 nitriles, proton resonance, long-range N^{14} - H^1 coupling 1=19669
 nitroaromatic amines in soln. 4=28247
 nitrobenzene 3=738
 nitrobenzene, C^{13} resonance, steric inhibition of conjugation 3=10545
 non-adiabatic passage, in flowing liquids 0=5037
 non-equilibrium spin states, statistical mech. treatment 2=14834
 non-magnetic impurity in metal, effect of 3=8729
 non-metallic crystal, double resonance, nr. surface 3=18145
 nucl. elec. dipole moments, proposed test of existence, using nucl. spin relaxation 0=5659
 nuclear acoustic resonance, line profile 0=13125
 nuclear free-precession in very low mag. fields 4=20111
 nuclear induction head, spin generator use 2=22351
 nuclear mag. moment det., comparison with h.f.s. valves 0=5657
 nuclear magnetic acoustic resonance in cubic crystals 2=21383
 nuclear magnetic shielding in H_2 2=6221
 nuclear magnetic shielding of interacting H atoms 1=14102
 nuclear magnetization precession modes 2=12829
 nuclear polarization, "double effect" 3=3185
 nuclear quadrupole and anisotropic shift interaction effects 4=7339
 nuclear quadrupole line-splitting, energy moment method 2=16936
 nuclear quadrupole radiospectrometer 1=3072
 nuclear spin diffusion, interruption by strains 3=3186
 nuclear spin-lattice relaxation caused by paramag. impurities 0=11953
 nuclear spin-lattice relaxation, theory 2=18954
 nuclear spin-lattice relaxation time in polar liquids 0=6816
 nuclear spin relaxation by diffusion or hindered rotations, model 3=23248
 nuclear spin relaxation in paramag. crystals at low temps. 1=1278
 nuclear transfer effects in pulse expts. 1=10798
 nucleons in equilateral triangle, absorption curve 1=5833
 nylon, proton resonance 1=20265
 octahedral complexes, nuclear spin-lattice relaxation 1=3943
 n-octyl bromide, proton resonance, motion of C-Br bond 0=14667
 oils, 6 types studied 3=23913
 olefinic cpds. 1=15911
 olefins, proton resonance 1=14105
 operator techniques in phenomenological treatment 3=11120
 one-electron transfer reactions, proton linewidths 4=4690
 1,2-disubstituted ethanes, A_2B_2 spectra, analysis 4=17314
 1,2-disubstituted propanes 4=28266
 in organic chemistry, techniques, survey 3=17065
 organic cpds. containing halogens, induction studies by Cl^{35} , Br^{79} , 81 pure quadrupole resonance 0=15761
 organic cpds., long-range spin-spin interactions, rel. to hyperconjugation 0=504
 organic cpds., unsaturated and aromatic, proton resonance, effects of electron delocalization 1=2351
 organic cpds., various solvents, ionization, proton exchange study 2=1168
 organic fluorophosphates, fluorophosphonates, two radical contribs. 4=25742
 organic liquids, degassed, proton spin-lattice relaxation, press. depend. 0=16720
 organic liquids and gases, proton spectra, medium effects 0=16712
 organic liqs., relax., study using spin-echo spectrometer 4=16127
 organic phosphorous compounds, interpretation of indirect spin-spin consts. 4=15381
 organo-phosphorus cpds in earth's field 4=3915
 organo-phosphorus cpds. with n and iso- C_4A_7 groups 3=20669

Nuclear magnetic resonance and relaxation—contd

- oscillations due to r.f. field parallel to static 4=11815
 oscillator frequency control 0=3868
 oscillator, simple transistor, marginal 0=17127
 Overhauser—Abragam effect in liquids, n.m.r. study 1=11770
 Overhauser effect, apparatus 2=17974
 Overhauser effect for dipole-coupled delocalised electron proton system 4=1897
 Overhauser effect in ferro- and antiferromagnets, theory 4=17691
 Overhauser effect, influence of magnetic field modulation 1=7794
 Overhauser effect in metallic Li 0=1836
 Overhauser effect in metals with paramagnetic impurities 1=6424
 Overhauser effect, review 1=3944
 Overhauser effect in saturation of forbidden resonance 0=13886
 Overhauser effect, theory 0=13883
 Overhauser effect, transient, magnitude of nuclear polarization, calc. 1=6425
 Overhauser effects, review 4=1896
 p, in liquid CH_4 -Ar, diffusion effects 3=21412
 p, in liquid CH_4 , diffusion effects 3=21412
 PTFE, irradiated, F^{19} dynamic polarization 1=12571
 paradichlorobenzene, dynamic proton polarization 1=11497
 paradichlorobenzene, effect of mechanical treatment 4=15680
 paradichlorobenzol crystals, n.q.r. signals 3=6769
 paraffin, liquid and solid, proton reson. 4=24250
 paraffin molecules dissolved in CCl_4 , Brownian rotation investig. 4=11160
 n-paraffins in soln., proton spin-lattice relaxation 4=24251
 paramag. crystals, n.m.r. shifts, theory 0=1837
 paramag. solns. 3=21413
 paramagnetic complexes in soln., proton reson. 3=14186
 paramagnetic media, spin-lattice relax. 2=10708
 in paramagnetic media, spin-lattice relax. 3=6763
 paramagnetic media, theory 2=4280
 in paramagnetic media, theory 3=3190
 paramagnetic molecules, spin-spin coupling consts. 4=6649
 paramagnetic salts, dilute cross-relaxation effects 1=11491
 para-substituted fluorobenzenes, π -electron distrib. and F^{19} n.m.r. shielding 3=8300
 pentane, spin-lattice relaxation time 1=8136
 perfluorohexane, 25° to -130°C, rel. to rot. transition 4=30743
 perylene-iodine complex, nuclear polariz. 2=18965
 phenol in carbon tetrachloride, Debye correl. time rel. to conc. 4=28263
 phenols, effect of hydrogen bond energy 1=9411
 phenols, solvent effects 0=91
 phenoxy radicals in soln., nuclear-electron double resonance 4=24244
 phenyl acetate, spin-lattice relax. meas. 3=23912
 phosphate esters, H^1 - P^{31} spin coupling 0=17782
 phosphomolybdic acids, var. H_2O and crystal struct., atomic 4=23461
 phosphorous triethyl 1=6047
 picryl amino carbazyl, n.m.r. Overhauser effect 1=17358
 plasma, gaseous, diamag. moment meas. 0=19693
 polar fluids in elec. fields, high resolution spectra, calc. 4=6650
 polarization enhancement in liquids and gases adsorbed on carbon 0=16717
 polarization of nuclear spins, dynamic diffusion 2=10713
 polarization of nuclei, by paramag. and nuclear resonance 0=13116
 polarization of protons and fluorine nuclei in polymers 3=25580
 polycaprolactam, and stress effects on mol. mobility 4=23617
 polycrystals, line shapes, rel. to anisot. Knight shifts and quadrupole interactions 4=15678
 poly-4,4'-dioxidyphenyl-2,2-propan carbonate 4=23075
 poly-DL-alanine, 250°K, rel. to side-chain reaction 4=3913
 poly (normal α -olefins), spin-lattice relax. 4=6672

Nuclear magnetic resonance and relaxation—contd

- polyethylene 4=23064
 polyethylene, effect of irradiation on internal motion 3=13546
 polyethylene, γ -irradiated, proton resonance 2=12837
 polyethylene, linear, spin-lattice relaxation time and line-shape 4=4430
 polyethylene, p.m.r., and crystal struct. 4=17700
 polyethylene, proton resonance, defect regions 1=20640
 polyethylene terephthalate, films, resonance study 3=11124
 polyethylene terephthalate, PET, crystallinity meas. 1=1444
 polyethylene, solid, nuclear signal shape 4=4431
 polyethylene terephthalate, and stress effects on mol. mobility 4=23617
 polyethylenes, irradiated, proton spin diffusion and relaxation 4=10349
 polyisobutylene 0=7810
 polymer solns, segmental motion study 0=19166
 polymers, effect of correlation time distrib. on T_1 and T_2 1=7806
 polymers, proton relax., rel. to tacticity 2=4290
 polymers, proton relaxation times, apparatus 1=1977
 polymers, proton spin decoupling in structure studies 3=25158
 polymers, relaxation times 3=22592
 polymers, transition study 0=6375
 polyoxymethylene 4=23064
 polypropylene, proton mag. resonance 1=9154
 polypropylene, second moments rel. to structure 3=3200
 polypropylene, spin-lattice relax. time 2=11814
 polystyrenes, in solns., p.m.r. 3=11812
 polytetrafluoroethylene, electron-nucleon double resonance 1=14814
 polytetrafluoroethylene 1=12563
 porphyrins, effects of "ring currents" 0=4222
 potassium trisoxalatorhodum hydrate, proton resonance 1=3952
 powders, line broadening by field inhomogeneities 3=5048
 principles and practice, use in study of solids, review 3=3189
 probe for alignment of electromagnets 1=16478
 propane, proton resonance 0=4227
 propane, proton resonance 4=30073
 propionaldehyde, high resolution 1=16606
 n-propyl compounds of Cd, Sn, Hg, Pb, 25 Mc/s, satellite line analysis 3=22598
 propyl derivatives 1=6048
 propylene sulphide 2=18486
 protein complexes of paramag. ions, proton relaxation 0=5970
 protolysis kinetics in amino acids 2=17083
 proton, in benzene, liquid, -1.3-80°C, spin lattice time, 28Mc/s 3=11809
 proton dynamic polarization of 51% 2=23722
 proton exchange in aqueous alcohol solutions 1=8144
 proton inertia anisotropy due to mass of Galaxy 1=12795
 proton mag. res. study of hydrogen bonded systems 1=12902
 proton magnetometer, for vector field meas. 0=14161
 proton in molecular association 4=3912
 proton polarization by "effect solide" method 1=20247
 proton precession, proton vector magnetometer 0=15103
 proton-proton spin coupling consts., relative sign detm. 3=21996
 proton relaxation, in chloroform 1=6872
 proton relaxation in paramagnetic solns. 1=5285
 proton relaxation for study of ion binding and biological systems 4=25790
 proton resonance, A_2B_2 type, analysis 2=6220
 proton resonance, automatic control of mag. field 2=20169
 proton resonance, C^{13} -proton long-range coupling 2=18969
 proton resonance in $CaSO_4 \cdot H_2O$ 1=14822
 proton resonance in ferroelec. $(CH_3NH_3)AlSO_4 \cdot 12H_2O$ 1=20271
 proton resonance in H bonded dimers in solids 1=9074
 proton resonance, line profile 1=14828
 proton resonance, low-field detection, with flowing liquid, applic. amplifier 0=5433
 proton resonance, in meas. of mag. fields 2=1548

Nuclear magnetic resonance and relaxation—contd

- proton resonance, in meas. and stabilization of mag. fields 2=1549
 proton resonance spectra, C^{13} splittings 0=4224
 proton resonance, study of induced polymerization of ethyl acrylate 0=1516
 proton resonance, in triglycine sulphate 2=6710
 proton shielding in propane 0=2745
 proton spectra of molecules, effect of second r.f. field 2=10284
 proton spin coupling in aromatic cpds. 0=7809
 proton spin coupling consts., relative signs det. 1=19665
 in proton synchrotron measurements 1=5519
 proton transfer reactions, rate-const. det. 0=14117-18
 protons, dynamic polarization, spin-lattice relaxation, in polystyrene 3=20672
 protons, in H_2O , in zeolites 3=5452
 protons in liquid, absorption growth effects 0=6817-18
 protons, methyl, in diphenylethers, and mol. struct., correction 3=10546
 protons, multiple quanta transitions in low fields 0=5040
 protons, in paramag. C in benzene, diffusion effects 3=21406
 pulse apparatus, descript. 2=11814
 pulse expt., "boxcar" integrator 1=13058
 pulsed resonance spectroscopy, detection of weak resonance interactions in solids 0=9226
 pulsed spin-echo technique, Carr-Purcell improved technique 0=9224
 pyrene mononegative ion, proton resonance shifts 1=880
 2-pyridenes, proton n.m.r., strong coupled AA'KL system 3=4780
 3-pyridenes, proton resonance 2=2023
 pyridine-type bases complexed with paramag. Ni(II) and Co(II) acetylacetonates 3=25144
 Q-multiplication of signals 1=383
 quadrupole anti-shielding in strained copper 0=3143
 quadrupole, in chlorates, use in lattice vibr. and rot. studies 0=1839
 quadrupole, use of impurity molecules as probes 0=4539
 quadrupole interactions in crystals, volume effect 0=6285
 quadrupole line-widths in irradiated solids 0=6282
 quadrupole relaxation in double resonance 1=6044
 quadrupole relaxation in liquids and solutions 0=12427
 quadrupole, selective spin excitation and relaxation 0=18233
 quantum statistical mechanical effects in gases, n.m.r. techniques 0=8719
 quadrupole, temp. dependence 0=3141
 quadrupole, Zeeman components, relative intensities calc. 0=21090
 quinonemethide, apparent molecular asymmetry 3=20003
 r.f. fields, rotating reference frame model 3=3188
 r.f. spectrometer oscillator 1=10800
 radiation instability, in sample-resonant cct. system 1=4740
 radical oscillating in a periodic potential, second moment 1=9959
 radical rotating in a periodic potential, n.m.r. second moment 1=881
 radical, second moment under restricted rotation 1=2349
 radiospectroscopy 2=7775
 rare earth alloys, 3 relax. mechanisms 3=18155
 rare earth intermetallic cpds rel. to cond. electron polarization 3=1202
 rare earth ions in crystals, Bloch equations for effective spin 3=20667
 rare earth ions, trivalent, transferred hyperfine reaction, direct magnetic contrib. 4=26454
 rare-earth metals, hyperfine interactions 3=15954
 rare-earth XAl_2 cpds., Knight shifts, conduction electron polarization 1=1277
 recording equipment, signal/noise ratio 0=19953
 reference cpds., effect of molecular interactions 0=15763
 relative intensities in presence of mag. and quad. interactions 2=10717
 relative signs of nuclear spin coupling consts. 3=10548
 relaxation in colloidal solutions 1=6580
 relaxation, in crystals, hindered rotations theory 3=23269
 relaxation, depend. on spin-spin coupling const., absolute sign, theory 4=22421
 relaxation, rel. to electronic spin correlation 3=5046
 relaxation in gases, methane-oxygen mixtures 2=1210
 relaxation, in hydrated crystals 2=16934

Nuclear magnetic resonance and relaxation—contd

- relaxation, localized electron centres effect 2=782
- relaxation in low-temp. liquids 0=5033
- relaxation, mechanisms 2=3184
- relaxation of model spin system, oscillo. and correls. 4=30740
- relaxation in molecular liquids containing free radicals 3=21411
- relaxation, molecular shape effect 2=20872
- relaxation, of nonequivalent two-spin system 2=20870
- relaxation, in organic solvents in weak fields, T_2 meas. method 2=17484
- relaxation, in presence of paramag. ions 2=8679, 21384
- relaxation processes of two-spin system 1=8855
- relaxation, rel. to Bloch wall deformation modes 1=20249
- relaxation in strongly associated liquid (phenyl isothiocyanate-diethylamine mixture) 0=16711
- relaxation, styrene polymerization invest. 2=4544
- relaxation in systems with long correlation times 0=5034
- relaxation theory, density operator 1=12815
- relaxation time rel. to adsorption, mol. assoc. and polymerization 4=28263
- relaxation time meas., Carr-Purcell method 2=3185
- relaxation time measurement method 1=3071
- relaxation times of H_2O and solns., effect of C particles 2=5030
- relaxation times in liquids 0=16718
- relaxation via quadrupole coupling 0=6286
- resonance absorption by rotating solid 1=11493
- resonance line asymmetry rel. to structural parameters, paramagnetic samples 4=13332
- resonance line shape in paramagnetic solids 1=14826
- resonance in liquids, J coupling meas. 1=5287
- resonance, use in meas. of mag. fields 1=4688
- resonance, parasitic lines due to steady field modulation 1=19049
- resonance spectrometer for broad lines in solids and liquids 1=19051
- review 1=380
- review and bibliography 4=3201
- review, comparable Zeeman and quadrupole interaction energies 4=20605
- review of principles and use in phys. chem. 3=25139
- Rochelle salt 0=4537
- Rochelle salt, double resonance 3=25593
- rock salt, plastically deformed Na^{23} intensity variation 0=21086
- rotary saturation linewidth 3=20674
- rotating crystal, dipolar broadening removal 1=10187
- rotating crystals, dipolar broadening, stochastic theory 1=10188
- rotating pair of nuclei, spin relaxation 3=15951
- rotating solids, lines, stochastic theory 2=8682
- rotating solids, rel. to spin diffusion 3=6762
- rotation of specimen, effect on spectrum 3=25584
- rubber, resonance study of molec. motion 3=11125
- ruby, Al^{27} anomalous structure 2=6700
- ruby, Al^{27} polarization and relaxation time, concn. depend. 0=6277
- ruby, electron-nuclear double res., h.f.s. 2=14842
- ruby, electron-nuclear double resonance 0=8092
- ruby, polarization of Al^{27} nuclei 0=1838
- saccharose chars, carbon free radical study 2=11813
- sapphire, dilute paramag., nuclear spin-lattice relax. 2=18954
- saturation effects, calculation 1=6043
- saturation, theory 0=11534, 13887
- 2nd-harmonic generation in low-field nuc. induction 3=24500
- second moment of absorption curve and fine structure 0=6266
- 2nd moment, apparent temp. dependence 1=7795
- second moment, rotating group of mol. 1=20250
- second moment, rotating group of mol. 2=8677
- second moments in crystals, vibrational corrections 3=25587
- second r.f. field effect on high-resolution spectra 2=16555
- self-diffusion meas., spin-echo techniques 3=24499
- self-oscillator of flowing liquid maser type 0=11065
- semiconductors, combined resonance in strong magnetic fields, theory 1=19842

Nuclear magnetic resonance and relaxation—contd

- semiconductors, combined resonance in strong magnetic fields, theory 2=4003
- semiquinone solutions, dynamic polarization 3=23908
- semiconductors, review 2=16928
- 7th Ampere conference 0=19950
- shielding data, units 2=11817
- side-band technique for wide-line n.m.r. spectra 2=11816
- signal increase by dynamic polarization 0=16183-4
- signal-to-noise ratio 0=11068
- silicones, proton resonance 0=5998
- solids, conference 2=4238
- solids, containing small molecules 2=8678
- solids, correl. effect of Suhl-Nakamura interact. 3=20670
- solids, diamagnetic, structural and relax. effects 3=25585
- solids, dynamic polarization by thermal mixing of two spin systems 4=1344
- solids, effect of ESR structure on nuclear polarization 1=1272
- solids, fine structure due to quadrupole effect 3=25586
- solids, hindered molec. rotation determination 3=15417
- solids, line shape prediction for all mag. fields 2=12830
- solids, narrowing by mol. rot. 2=21385
- solids, near m.p., effect of self-diffusion on resonance 2=8683
- solids, one phonon—two spins process 3=23254
- solids, relax. dipolar, by translational diffusion 4=1895
- solids, review and applications 0=4523
- solids, second order moment, data systematization 4=4417
- in solids, spectrometer for pulsed nuclear resonance 4=17688
- solids, spin—lattice relaxation, saturation effects for $I = \frac{1}{2}$ and $\frac{3}{2}$ 4=17690
- solids, u.s. absorption saturation effects 3=25588
- solutions in H_2O and D_2O , p and d relaxation times, mag. interactions compared 0=14666
- solution, paramag. ions, p spin—lattice relax., theory 4=204
- solutions of paramagnetic ions, proton relaxation 1=18430
- solutions, spin—lattice relaxation, concentration dependence 1=4359
- solvent effects 0=7801
- spectra of A_nB_n type, complex direct analysis 2=3781
- spectra analysis, use of Overhauser effect 4=3909
- spectral analysis using double-quantum transitions 4=1315
- spectra, fast exchange width, erratum 4=20110
- spectra, large Z nuclei, nuclear shielding effects on line-width 4=17270
- spectrograph, wide line, carbon free radicals study 2=11813
- spectrometer 0=5431
- spectrometer, bridge and pre-amplifier system 1=381
- spectrometer field homogenization with soft-iron plates 1=1979
- spectrometer, high resolution 0=3865, 15178
- spectrometer, high resolution 2=7774
- spectrometer, multipurpose, res. pwr. 4×10^7 with liquids 2=7773
- spectrometer, 100-300 Mc/s 2=1610
- spectrometer, for org. cpd. structures 2=20171
- spectrometer, resonance conditions stability 2=5495
- spectrometer, for resonance in solids 1=14826
- spectrometer for shape and width of narrow lines 1=12024
- spectrometer, simple r.f. phase detector 2=9726
- spectrometer, simple 0=7235
- spectrometer spin-echo proton resonance 0=14150
- spectrometer, superregenerative, side-band suppression 0=5429
- spectrometer, transistor, with frequency mod. 0=11064
- spectrometer, Varian, temperature effects 0=2453
- spectroscopy, review 1=4743
- spin absorption in solids, theory 1=20251
- spin coupling const., relative signs from double irradiation expts. 1=19666
- spin decoupling of high resolution spectra of type AKX_2 2=20864
- spin-echo experiments, effects of diffusion 1=10524
- spin echo, fine structure, charac. parameter meas. 1=20193
- spin-echo measurement of coupling and chemical shift 1=13192

Nuclear magnetic resonance and relaxation—contd

- spin-echo technique for liquid self-diffusion meas. 0=19109
 spin-echo technique, review 2=7776
 spin-echo technique, theory 2=784, 23717
 spin-echoes, general theory for any pulse number 0=15512
 spin-echoes in liquids, diffusion study 0=19110
 spin $\frac{1}{2}$ particles, coupled, magnetometer appl. 2=3785
 spin $\frac{1}{2}$ system, relaxation, density operator theory 1=12815
 spin Hamiltonian for half-integral I 1=19573
 spin interactions between magnetic ions or nuclei in metals 3=8652
 spin inversion operator, new definition for double resonance studies 1=9954
 spin—lattice, due to local centres 3=20661
 spin—lattice relaxation in cubic and other crystals 1=12565
 spin—lattice relaxation in liquids, spheroidal molecules 3=16638
 spin—lattice relaxation and molecular structure 0=17779
 spin—lattice relaxation for spin 1 and $\frac{1}{2}$ 1=12564
 spin—lattice relaxation by spin—rotational interactions 1=8138
 spin—lattice relaxation time, particle size effect 0=10243
 spin—lattice relaxation, ultrasonic investigation 0=3136
 spin polarization time, effect of electron resonances 4=23065
 spin pumping and relax., for low concn. of e.s.r. centres 2=20174
 spin relax., in ellipsoids with rot. Brownian mot. 2=20871
 spin relax. in two-proton system with anisotropic reorientation 2=3202
 spin relaxation time variations 0=18224
 spin resonance saturation, statistical theory 3=5378
 spin—spin coupling const., geminal, hyperconjugation effect 3=22520
 spin—spin diffusion to paramag. impurities in solids, low temp. 4=10342
 spin—spin interactions, contact contribution 1=3570
 spin—spin interactions, relative signs 0=15760
 spin—spin relax., longitudinal, theory 4=13335
 spin—spin relaxation in maser materials 1=14807
 spin—spin relax. by translational diffusion 3=20662
 spin system with different Zeeman and dipole—dipole spin temperatures 3=23247
 spin systems, entropy 0=12670
 spin systems, new mathematical methods 4=3200
 spin temp. concept., validity in high r.f. field 1=7801
 spin temp. and nuclear polarization 0=8090
 spin temperature adiabatic variation by local field modulation 3=21998
 splittings due to molecular asymmetry 3=2660
 stilbenequinone, apparent molecular asymmetry 3=20003
 strong acids, proton resonance 0=3547
 strong coupling, analysis of three-spin spectra 1=4738
 strong coupling, analysis of three-spin spectra 2=3186
 strong coupling, systems containing many equivalent spins 0=7802
 strongly coupling, spin systems 2=14326
 structural interpretation of fine-structure lines 3=8727-8
 styrene, vinyl-group resonance, field depend., calc. 0=1507
 substituted benzenes, solvent effects on proton resonance 0=7805
 succinonitrile, polycryst., rotational transitions meas. 4=1898
 Suhl—Nakamura interactions, dynamic effects 3=15956
 superconductivity, Knight shift theory 4=18536
 and superconductors, electron struct., review 4=12669
 superconductors, Knight shift 1=18709
 superconductors, Knight shift 3=328
 superconductors, Knight shift, theory 0=1075
 superconductors, with $l \neq 0$ pairing, Knight shift 4=8560
 superconductors, near 2nd critical field, signal shape 4=17687
 superconductors, small dimensions, Knight shift 0=19552
 superconductors, spin relaxation, theory, and calc. of R_s/R_n 0=1078
 superconductors, theory of Knight shift 2=13508
 symmetric multiplet line, effect of modulation, analysis 2=4239
 symmetrization of spin functions by use of point group C_s 4=9767

Nuclear magnetic resonance and relaxation—contd

- TPPAP radical, proton resonance, spin densities 0=17778
 t-butanol organic solutions, p shift and H bond 4=1251
 technique, spinning crystal method for proton resonance study of hydrates 0=16191
 technique for studying diamagnetism of gaseous plasma 1=7074
 teflon, deuteron irradiation effects 1=9072
 Teflon fibres 0=21225
 use for testing of materials 1=10199
 tetrafluoroethene, F—F spin-decoupling 2=18482
 3, 3, 6, 6-tetramethyl-1, 2-dioxo-cyclohexane, intramolecular hindering potential 1=17359
 1,1,4,4-tetramethylcyclohexyl-cis trans- 2,6-diacetate 1=4951
 1, 1, 4, 4-tetramethylcyclohexyl-cis-2, 6 diacetate, relative signs of geminal and vicinal coupling consts. 3=2663
 tetravinylsilane, unique parameters calc. 4=3910
 tetravinylsilicon, proton mag. res. 3=2657
 theory 1=20253
 thiophene, high-resolution, analysis 3=8301
 three-nuclei-system 1=1276
 three-spin- $\frac{1}{2}$ systems with hindered rotations 4=17312
 three-spin spectra, exact analysis 2=3186
 three-spin spectra, unambiguous analysis with field-sweep double resonance 4=12515
 three-spin system, role of multiple quantum transitions 4=12522
 three-spin systems, exact analysis 4=5837
 tin tetraethyl 1=6047
 toluene, D-substituted, proton chemical shift 1=12317
 toluene, methyl and ring protons, relax. 3=4282
 toluene, proton relaxation, rel. to molecular motion 1=9408
 toluene, spin—lattice relax. meas. 3=23912
 trans-cinnamic aldehyde, nuclear spin—spin coupling of protons 1=2499
 transient effects, rotating coordinates method 1=9068
 transition-element fluorides, F^{19} h.f.s., contrib. of unpairing of 1s electrons 1=9071
 transition-element ions in crystals, charge transfer expts., review 0=21067
 transition-metal binding in DNA soln., proton relax. 2=11393
 transition-metal cpds., Knight shift, theory 2=3869
 transition-metal diborides 3=10541
 transition metal and rare earth ions, rel. to effective mag. flds. 3=977
 transition metals, nuc. mag. relaxation 3=25595
 transition metals, relax. due to core polarization, theory 4=13334
 transitions induced by r.f. field parallel to static field 3=17067
 transverse relaxation time meas. 0=1226
 triarylborons, chemical shift data, rel. to stable geometry prediction 4=12511
 trichloroacetic acid, solid, proton res. 0=8093
 3, 3, 3-trichloropropene 2=6224
 1, 2, 3-trichlorobenzene, quadrupole reorientational motion 0=18234
 trifluorethylene derivs., relative signs of F spin-coupling const. 2=11392
 trifluorobromoethylene, F—F spin-decoupling 2=18482
 triglycine fluoberyllate, proton resonance, linewidth transitions 1=17833
 triglycine selenate, proton resonance, linewidth transitions 1=17833
 triglycine sulphate, proton resonance, linewidth transitions 1=17833
 trimethoxyboroxine, B^{11} quadrupole coupling constants 1=17348
 trimethylacetic acid 3=13313
 trimethylammonium ion in aq. soln., proton-transfer study, number of H_2O mols. involved 3=25812
 trimethylbenzenes, solid, proton resonance, methyl group reorientation 1=10197
 N-trimethylborazole, B^{11} quadrupole coupling constants 1=17348
 tripalmitrin, proton resonance, rel. to crystal structure 2=2308
 triphenyl derivatives of group IV elements, ring proton shifts 3=16637

Nuclear magnetic resonance and relaxation—contd

- triphenylcarbonium ion, proton spin-spin coupling const. 1=12313
 triple, for long range proton spin coupling sign determination 4=5838
 tris (1,10-phenanthroline) Fe II and III ions, electron transfer 3=12866
 tris (2,2'-dipyridyl)Os II and III ions, electron transfer 3=12866
 trisilane, liq., spectrum rel. to parameters 4=16129
 tristearin, proton resonance, rel. to crystal structure 2=2308
 trivinylphosphate, analysis with double-quantum transitions 4=1315
 tungsten bronzes ($M_xW_6O_{19}$) 2=4287
 Tutton salts, $K_2Zn(SO_4)_2 \cdot 6H_2O$ and $K_2Mg(SO_4)_2 \cdot 6H_2O$ 3=8740
 twin-T bridge, signal-to-noise ratio 3=517
 two-quanta transitions, linewidths 3=20668
 ultraslow atomic motions study by low-field relax. 4=28888
 ultrasonic stimulation, review 3=20665
 unequivocal problem 4=8963
 unstable fields, undistorted spectra prodn. 2=20170
 unsymmetrical three-spin spectra, field depend., calc. 0=1507
 vinyl chloride 1=11124
 vinyl cpds, proton relaxation, rel. to polymerization 3=23545
 vinyl group, analysis of spectra 2=3186
 vinyl polymerization, proton relax. study 2=23960
 vinylmethylsilanes, proton resonance 2=3782
 vinyl-type polymer chain, intramolecular second moment 1=8866
 volume magnetic susceptibility meas. 4=8888
 water, absorbed on CuO powder, ice nucleation study 2=14947
 water adsorbed on sucrose chars, proton spin polarization, 1=3953
 water freezing on ice-forming nuclei 4=13539
 water, freezing, sorbed on Si gel, phase transformations, to $-100^\circ C$ 3=19069
 water-gelatin, relaxation rel. to adsorption 4=28263
 water in HF solutions at $-75^\circ C$ 1=11767
 water interlayers in layer silicates 4=10347
 water layer adsorbed on silica gel, proton state spin-relaxation study 193° to $374^\circ K$ 4=7731
 water in organic solvents, proton exchange rates 3=9449
 water, proton resonance, elec. field effects, calc. 2=19583
 water, proton transfer 1=4360
 water, signal depend. on liquid velocity 2=13354
 water-silica gel, relaxation rel. to adsorption 4=28263
 water in silica gels 4=4720
 water sorbed on Ca hydrosilicate 3=11127
 water sorbed on cellulose, study 1=11602
 water, spin-lattice relax., quasicryst. models 4=2713
 water in synthetic substances 3=6768
 water, T_2 meas. by spin-echo technique 1=1756
 water, in zeolite, calc. 3=11126
 water in zeolites, linewidth 4=30481
 wax, liquid and solid, proton reson. 4=24250
 weakly coupled spectra, analysis 3=8302
 Wurster's blue perchlorate, n.m.r. Overhauser effect 1=17358
 Wurster's blue perchlorate, proton mag. reson. 4=28906
 p-xylene, D-substituted, proton chemical shift 1=12317
 zeolites 3=23263
 zeolitic water, spin-lattice relaxation time 3=21415
 zero splitting cone on Zeeman effect for spin 9/2 1=14831
 $A_3^*A_3^*X_2$ and A_4X_2 systems 4=3914
 A_2B_4 high-resolution, analysis 3=8301
 A_2B_2 proton n.m.r. spectra, effect of magnetic nonequivalence 1=7488
 A_3B_2 type proton resonance, spin Hamiltonian 2=2024
 A_3B_2C molecules, proton resonance, proton-proton coupling const. 0=17783
 ABX, type, field dependence and signs of coupling const. 1=3567
 AB_2X , spin coupling constants, relative sign determination 1=11122
 $A_2B_2X_2$ -type groups, analysis of n.m.r. spectra 1=3569
 Ag alloys, Knight shift 0=16186
 Ag, metallic, at $1.5^\circ K$ and room temp. 4=13351

Nuclear magnetic resonance and relaxation—contd

- Ag solid solns., Knight shifts 2=4286
 AgBr, S doped 2=16940
 Ag-Cd alloys, shifts and line width 0=21084
 $AgClO_4 \cdot 3C_4H_8O_2$, p.m.r., -66 to $+25^\circ C$, dioxane rot. 4=1900
 $Ag^{109}F$, line shape in rigid lattice 0=4528
 Al, anisotropic Knight shift in mag. field, liquid He temp. 4=28905
 Al-base alloys, solute Knight shifts 4=17692
 Al chemical shifts 0=7803
 Al, cold rolling effect 2=6349
 Al, effect of Zn, Ge impurities 4=4424
 Al, electronic structure 0=4530
 Al, Fermi surf. investig. by high-freq. surf. resistance quantum oscills. 4=12698
 Al film, Knight shift, relax., normal and supercond. 4=20608
 Al, nonresonant spin absorption 0=684
 Al, nuclear spin relax., rel. to impurity content 2=23712
 Al salt solns., and ion pair structure 4=2714
 Al, single crystals 2=14845
 Al, spin-lattice relaxation time, $1.1-4.2^\circ K$ 0=3140
 Al, superconducting, nuclear spin relax., size effect 4=8565
 Al, superconducting, spin-lattice relax. 2=2957
 Al, superconducting, spin-lattice relaxation time 0=8950
 Al thick foils, He temp. 3=20673
 Al^{27} in alumina, rel. to conc. of adsorbed oxides of Cr, Ni and Co 4=7342
 Al^{27} , diffusion narrowing ($<1300^\circ K$) 1=10190
 Al^{27} in feldspar 3=23263
 Al^{27} , in NiAl, Knight shift and line intensity 3=23270
 Al^{27} , in Ni-Al alloys, β phase, Knight shift 4=7343
 Al^{27} , polarization time in ruby 2=4268
 Al^{27} , in $PrAl_2$, mag. shift parameters meas. 4=7339
 Al^{27} , quadrupole interaction, in $MgAl_2O_4$, Mg^{2+} and Al^{3+} distrib. 1=1286
 Al^{27} , relax. in spodumene and euclase crystals 0=11956
 Al^{27} resonance in Al metal 1=14822
 Al^{27} in ruby, elec. induced 3=15962
 Al^{27} , in UAl_2 , $4-300^\circ K$, Knight shift 3=3192
 Al^{27} in UAl_2 , Knight shift 3=8730
 Al-Ag, field gradients 2=14848
 Al^{27} in Al, analysis by lattice harmonics 3=5047
 Al-Ge alloys, supercond., spin-lattice relax. 2=12827
 Al^{27} in $LaAlO_3$ 4=23074
 Al-Mg alloy, Al^{27} Knight shift and quadrupole effects 2=4282
 AlO_4 in water 1=11768
 Al_2O_3 dipole coupling, from Al^{27} resolved structure 2=6700
 $Al_2O_3 \cdot 3CaO \cdot 6H_2O$, H atom posn. meas. 4=29093
 Al-Zn, Al^{27} intensity, nuclear elec. quadrupole effects 1=20260
 Al-Zn alloy, Al^{27} Knight shift and quadrupole effects 2=4282
 Al-Zn alloy, supercond., spin-lattice relax. 2=12827
 Al-Zn alloys, ageing, crystal structure study 3=11295
 As^{75} , in AsI_3 and $AsI_3 \cdot 3S_8$, Zeeman effect of quadrupole reson. 0=686
 As^{75} atomic beams, spin and h.f.s. det. 1=8566
 AsF_5 , liquid, As^{75} res. 2=11391
 B, in alkali borate glasses, var. composition 3=18147
 B, amorphous, α and β rhombohedral 3=20678
 B compounds, solid 0=3138
 B mixed halides 0=17780
 B oxide glasses, structure 0=8256
 B^{11} in borax 3=15963
 B^{11} in crystalline borates 1=12568
 B^{11} , in lesserite 2=14851
 B^{11} , in metal hexaborides 3=20677
 B^{11} , relax. in borax crystals 0=11956
 B^{11} resonance in rare-earth intermetallic cpds 3=1197
 B^{11} in tincalconite 3=15963
 B^{11} in $CaB_2Si_2O_8$, spectrum 4=20609
 B^{11} in Na tetraborate hydrates 3=8739
 B_4H_{10} , absence of B^{10} - B^{11} coupling 2=2020
 B_2O_3 - H_2O glasses and boric acids 0=8253
 Ba bromate monohydrate, proton resonance 1=3931
 Ba halogen cpds, hydrates, proton m.r. 0=21089
 $BaBr_2 \cdot H_2O$, proton resonance 0=16190
 $BaBr_2 \cdot 2H_2O$, proton resonance 2=6709
 $BaBr_2 \cdot 2H_2O$, proton spin-lattice relax. 2=18970

Nuclear magnetic resonance and relaxation — contd

- BaCl₂·2H₂O, proton resonance 0=6281
 Ba(ClO₃)₂ hydrate, zero-field proton resonance 2=8687
 Ba(ClO₃)₂·H₂O, line splitting, effect of H₂O mol. vibrations, theory and expf. 4=23059
 Ba(ClO₃)₂·H₂O, proton spin—lattice relax. rel. to orientation and temp. 4=23071
 Ba(ClO₃)₂·H₂O, rel. to H₂O molecular motion 4=6692
 BaF₂, Na²³ and F¹⁹ relax., mech. 2=8680
 Be, Knight shift 2=14404
 Be, Knight-shift, discrepancy between calc. and expt. 4=10343
 Be, nuclear quadrupole interaction, theory 0=11960
 BeO, Be⁹ splitting, quadrupole coupling const. 1=20278
 BeO, and preferred orientation 2=23719
 Bi, electronic structure 0=4530
 Bi, liq. and supercooled 0=5038
 BiPb liquid n.m.r. 3=21419
 Br^{79,81} in NaBr, CaBr, CsBr solns. 3=14185
 Bi²⁰⁹, Knight shift and quadrupole coupling consts. 4=17693
 Br, in solutions of bromides, study of ions 1=18398-9
 Br^{79,81}, in BBr₃, quadrupole spectra 0=685
 Br^{79,81}, in ferromag. CrBr₃, meas. 4=28891
 Br⁸¹ in alkali bromides, chemical shift and spin—lattice relaxation times 4=13339
 Br^{79,81}, in AgBr, effect of lattice defects 1=3947
 Br in CrBr₃, quadrupole resonance 0=687
 Br and I in HgBr₂ and K₂HgI₄, quadrupole 0=4538
 Br⁷⁹ in NaBrO₃, double irr. effect 4=10344
 C, activated, proton resonance 1=20270
 C chemical shifts for organic mols., theory 4=12518
 C¹², giant dipole resonance 1=13785
 C¹³, chem. shifts in conjugated molecules, theory 3=17557
 C¹³ chemical shifts in CO and CO₂ 1=2350
 C¹³, intensity increase by flowing sample method 1=7181
 C¹³, isotope effect, F shielding, in C—F systems 1=12316
 C¹³, Overhauser effect 0=16716
 C¹³, satellites in oxalyl fluoride and oxalyl chloride/fluoride 3=15374
 C¹³ splittings in F¹⁹ spectra of organofluorine compounds 3=12867
 C¹³, 1,1,2,2 tetrabromoethane 3=22594
 C¹³, weak or masked signal, indirect detection 3=22594
 CF₂BrCFBrCl, time-weighted averaged approx. 4=5214
 CF₃CF₂CFICl, spin-coupling constant 1=879
 C¹³F₃COOH and CF₃C¹³OOH, INDO R spectra 2=23004
 CF₃Cl₂, liq., spin—lattice relax. of F 3=21409
 CFCIBr—CFClBr, potential energy det. 2=18483
 CH, in halogenated hydrocarbons, molec. interacts. by n.m.r. 2=14339
 CH₄, chemical proton shifts, solvent effects 1=8139
 C¹³—H coupling, non-additivity of electroneg. substituents 4=20108
 C¹³ and H¹ chemical shifts in CH₃X and CH₃CH₂X 1=12314
 C¹³ and H¹ chemical shifts in substituted benzenes 1=12315
 CHBr₃ (liquid), proton spin—lattice relaxation, temp. depend. 1=9409
 CH₃CH₂CH₂Br, analysis of n.m.r. spectra 1=3569
 (CH₃CH₂CH₂)₂O, analysis of n.m.r. spectra 1=3569
 CH₃CHF₂, n.m.r. and double resonance in gas phase 3=6420
 CH₃CN, chemical proton shifts, solvent effects 1=8139
 CHCl₃ (liquid), proton spin—lattice relaxation, temp. depend. 1=9409
 CH₂Cl₂ (liquid), proton spin—lattice relaxation, temp. depend. 1=9409
 CH₂Cl (liquid), proton spin—lattice relaxation, temp. depend. 1=9409
 CHDO, |J_{HD}| value 4=9773
 CH₃F, n.m.r. and double resonance in gas phase 3=6420
 CHF₃, liq., spin—lattice relaxation by spin—rotational interactions 1=8138
 CHF₃, nuclear relaxation mechanism 1=17349
 CHF₃, proton resonance, medium effects 3=9517
 CHFCl₂, liq., spin—lattice relaxation by spin—rotational interactions 1=8138
 CHFCl₂, nuclear spin relaxation in liquids 3=7220
 CHF₂Cl, liq., spin—lattice relaxation by spin—rotational interactions 1=8138
 CH₂FCl, liq., spin—lattice relaxation by spin—rotational interactions 1=8138

Nuclear magnetic resonance and relaxation—contd

- CH₃NH₃⁺ + OH₂ + NH₂CH₃ reaction in aq. acid, proton transfer study 0=14118
 (CH₃)₃NP group 3=4782
 (C₂H₅)₂NP group 3=4782
 CH₂O, |J_{HD}| value 4=9773
 (CH₃)₃PbH, protons, chem. shifts and spin—spin coupling 3=22602
 (CH₃)₂Si²⁹, INDO R spectra 2=23004
 (CH₃)_nSnH_{4-n}, protons, chem. shifts and spin—spin coupling 3=22602
 (CH₃)₃Sn—Li⁺, protons, chem. shifts and spin—spin coupling 3=22602
 [C(NH₂)₃]⁺ in guanidine alum. sulphate hexahydrate, n.m.r. study 3=4941
 [C(NH₂)₃]⁺ in guanidine aluminium sulphate hexahydrate, n.m.r. study 1=19923
 Ca halogen cpds. hydrates, proton m.r. 0=21089
 Ca hydrosilicates, rel. to crystal structure 3=6767
 Ca hydroxide, rel. to crystal structure 3=6767
 Ca⁴¹, in Ca(NO₃)₂ soln. 2=22709
 Ca(Al²⁷), large anisotropic Knight shift 1=9069
 CaF₂, F¹⁹ in r.f. field, rotating frame model 3=3188
 CaF₂, narrowing by rot. r.f. field 4=4420
 CaF₂, resonance saturation, rel. to spin temp. concept 1=7801
 CaSO₄·2H₂O 3=8728
 CaSO₄·2H₂O, interpair relax. 2=16934
 Cd diethyl and Cd dimethyl, rel. to electronegativity 2=2024
 Cd, double, 5¹p, level, light modulation at r.f. 4=9639
 Cd, Knight shift in alloys with GP IB and IIB metals 1=11494
 Cd single crystal, Knight shift temp. depend. in 4.2°K to 300°K range 4=28893
 Cd, supercond., spin—lattice relax. 2=7509
 Cd¹¹³ in metallic Cd, line shift, 77°-615°K 4=23066
 Cd^{111,113} in n- and p-type CdTe, chemical shift 3=3202
 Cd¹¹¹—Cd¹¹³, mag. moment ratio meas. by double resonance 0=2621
 (Ce, La)₂Mg₃(NO₃)₁₂·24H₂O, spin—lattice relax., depend on temp. 1.5-1.7°K, Ce 0.2-1% 3=20065
 (Ce, La)₂Mg₃(NO₃)₁₂·24H₂O, dynamic polarization of protons 1=10185
 Ce—Mg double nitrate crystals, proton polarization 4=13340
 Cl in molecular crystals, quadrupole 0=4540
 Cl, quadrupole Zeeman spectra, recording, r.f. spectrometer 0=17123
 Cl³⁵, in alkali chlorides, chemical shift 0=20670
 Cl³⁵, in alkali chlorides, chemical shift and spin—lattice relaxation times 4=13339
 Cl³⁵ contact shifts in CoCl₂ solutions 0=19168
 Cl³⁵, in paramag. FeCl₂, mag. field depend. 3=5049
 Cl³⁵, Zeeman transition freq., det. of upper limit for anisotropy of inertial mass 0=10561
 Cl^{35,37}, in BCl₃, quadrupole spectra 0=685
 Cl in CuCl₂·2H₂O, 1.3-4.24°K 3=20680
 ClF₃ and ClF gas-phase, F¹⁹ n. m. r. rel. to gas—liquid shifts 4=30476
 Cl³⁵ and K³⁹ or ⁴¹ in KClO₃, double resonance 3=23265
 Cl³⁷ in NaClO₃, spin—lattice relaxation 4=7344
 Cl in TiCl₂, TiCl₃, VCl₃, CrCl₂, CrCl₃ quadrupole resonance 0=687
 Co 3=23259
 Co alloys, Co⁵⁹ resonance, shifts, line-widths and intensities 1=10194
 Co, dispersed in polystyrene resonance 2=14850
 Co, ferromagnetic 0=10246
 Co, longitudinal, model and expt. 3=3197
 Co metal, f.c.c., Co⁵⁹ T₁ value at 77° and 300°K 1=20258
 Co powder, due to nuclei in Bloch walls 3=3193
 Co, powdered, external mag. field effect 2=12831
 Co, powdered, nuclei in Bloch walls 2=18959
 Co powders, Co⁵⁹ resonance, additional lines 1=1280
 Co, powders and films, various phases 1=6434
 Co powders, non-detection of Co⁵⁹ n.m.r. 1=12569
 Co, relax. rate theory 4=23062
 Co, whiskers, rel. to phase and imperfections 2=8685
 Co²⁺ ions in methanol, proton relaxation 4=18219
 Co²⁺ in methanol and methanol—water mixtures, rel. to solvation 4=14189
 Co⁵⁰ chemical shift, temp. and press. effects 4=6646
 Co⁵⁹ chemical shifts and ligand field theory 0=4229

Nuclear magnetic resonance and relaxation—contd

- Co⁵⁹, in Co—Pd alloys, dilute ferromag., giant moment meas. and calc. 4=28892
 Co⁵⁹, effect of Fe and Ni in dilute solid soln. 1=7800
 Co⁵⁹ in f.c.c. Co metal 3=1198
 Co⁵⁹, in Fe—Co alloy (4-17% Co) 2=10722
 Co⁵⁹ in ferromag. Co alloy 1=20257
 Co⁵⁹ in ferromagnetic hexagonal metal 1=20256
 Co⁵⁹, ferromagnetic, in stacking faults and twins 4=1860
 Co⁵⁹, in hexagonal crystal, use in identification of stacking faults 4=12770
 Co⁵⁹ in hexagonal and cubic Co, to 956° and 1157°K respect. 3=1199
 Co⁵⁹, teaching demonstration, by grid dip meter 3=6766
 Co⁵⁹, temp. depend. 25°-600°C 3=18150
 CoBr₂·6H₂O, proton and antiferromag. space group 4=13262
 CoBr₂·6H₂O, proton resonance at low temp., Néel temp. det. 0=3099
 Co—Cl complex formation study in methanol, -80° to +80°C 4=27201
 CoCl₂·2H₂O, proton structure 3=20853
 CoCl₂·6H₂O 2=21292
 CoCl₂·6H₂O, antiferromagnetic state, proton resonance 1=3951
 CoCl₂·6H₂O; rel. to H₂O molec. orientation 3=1201
 CoCl₂·6H₂O, 0-07° to 2-28°K 3=1207
 CoCl₂·6H₂O, proton and antiferromag. space group 4=13262
 CoCl₂·6H₂O, use of proton resonance for transition temp. determ. 4=20610
 Co and Co alloys rel. to ferromag. props. 3=1200
 Co in Co—Fe alloys, Heff distrib. 4=30742
 Co⁵⁹ in CoO, theory 1=9070
 CoF₂, Co⁵⁹ frequency shift 0=6278
 CoF₂—ZnF₂, rel. to Néel temp. 3=1055
 [Co(MeOH)₅Cl]⁺ in methanol, complex formation study, -60° to -80°C 4=27200
 Co²⁺ in MgO, double resonance 2=4278
 [Co(NH₃)₅Cl]⁺, Co⁵⁹ resonance, quadrupole effect, charge distrib. distortion 1=1287
 Co—Pd alloys, Co⁵⁹ reson. at 4.2°K 2=18960
 Cr³⁺ in corundum, cross-relax. time 2=10707
 Cr³⁺, hyperfine sublevels, relaxational transition probability 1=3946
 Cr³⁺ ions in aqueous solutions, proton and deuteron relax. times 4=21160
 Cr³⁺ spin—lattice relax. in Al₂O₃, effect of V³⁺ 3=15953
 Cr⁵³, in CrCl₃ 2=4283
 Cr⁵³, paramg. impurity in ruby, double resonance 2=13697
 Cr⁵³, in pure Cr and in Cr—V alloys 2=12832
 Cr⁵³ in Al₂O₃, electron—nuclear resonance 1=11490
 CrB, and quadrupole binding const. 3=20678
 CrBr₃, magnetizations in domains and walls 2=12685
 CrBr₃, use of spin-wave renormalization 4=15645
 CrCl₃, proton relaxation times, temp. dependence 1=4361
 Cr⁵³ in CrO₃, below 240°K 3=18149
 Cr⁵³ in CrCl₃, var. temp., mag. field, and antiferromag. 4=13341
 Cs, electronic structure 0=4530
 CsBr, interaction energy 1=14817
 CsClO₃, Cs quadrupole coupling interactions 0=9226
 Cs₂ZrCl₆, double resonance of tetravalent Pa²³¹ 1=6420
 Cu alloys, electron distrib. around solute atoms 0=13890-1
 Cu—base alloys, solute Knight shifts 4=17692
 Cu chloride dihydrate, proton resonance 0=10251
 Cu, in CuSO₄·5H₂O, 0.3-4.2°K 4=22948
 Cu dilute alloys at low temps. 0=18225
 Cu, effect of lattice deformation 0=4527
 Cu, line broadening, due to strain 0=21083
 Cu, nucl. spin absorption spectra 2=6699
 Cu sheets, anisotropy, meas. and theory 4=7345
 Cu, single crystals 2=14845
 Cu, spin—lattice relaxation time, 1.1-4.2°K 0=3140
 Cu, work hardening study 2=12860, 14897
 Cu⁶³, diffusion narrowing (<1300°K) 1=10190
 Cu⁶³, spin—lattice relaxation 0=6275
 Cu^{63,65}, ultrasonic excitation, attenuation due to nuclear spin level transitions 4=17694
 Cu—Au, Cu⁶³ intensity, nuclear elec. quadrupole effects 1=20260
 CuCl₂·2H₂O, relax., 0.5° to 1.25°K 4=13342
 CuCs(SO₄)₂·6H₂O, spin—spin relax. 2=4273
 Cu in Cu—Ni alloys, Knight shift and T₂ 4=7346

Nuclear magnetic resonance and relaxation—contd

- Cu in Cu—Pd alloys, Knight shift rel. to susceptibility, meas. 4=7347
 CuF₂·2H₂O single crystals, hydrogen and fluorine nuclei 1=20255
 Cu—Mn alloys, dependence on Mn impurity 0=10247
 Cu—Mn alloys, dilute 0=6280
 Cu(NH₄)₂(SO₄)₂·6H₂O, spin—spin relax. 2=4273
 Cu—Ni alloys, 1.4°K 3=15859
 Cu—Ni, Cu⁶³ intensity, nuclear elec. quadrupole effects 1=20260
 Cu—Ni, electronic magnetism study 1=20259
 Cu₂O, Zeeman splitting of nucl. quadrupole levels 0=6284
 Cu₃(OH)₂(CO₃)₂, azurite, proton resonance near Neel temp. 2=6711
 D, in Ba(ClO₃)₂·D₂O, quadrupole splitting 3=25589
 D in Edingtonite water of crystallization, double quanta 4=1903
 D in organic liqs., quadrupole relaxation 4=24248
 D₂, solid (33 and 55% para) 0=6279
 DF, molec. beam study, nucl. interactions 1=7492
 D₂ and H₂, solid 0=8091
 Dy, atomic beams 1=9900
 Er, atomic beams 1=9900
 Eu²⁺, in CaF₂, electron—nuclear double resonance 2=10715
 Eu²⁺, in CaF₂, electron—nuclear double resonance 4=26449
 Eu^{151,153}, in EuS, magnetization data 4=10269
 F in acidic fluoride solns., HF, HF₂ - shifts 4=23067
 F, in alkali and alkali earth fluorides solids and solns., shifts 4=23067
 F, in (CFCl)₂, C¹³ satellites and F—F coupling consts. 4=1314
 F, in CaF₂, ENDOR rel. to interact. with Eu²⁺ 4=4425
 F, in CaF₂, n.m.r. 2=14849
 F, chemical shift in fluoride crystals 1=7798
 F, chemical shift in fluoride crystals 1=10191
 F, in liquid CF₄—Ar, diffusion effects 3=21412
 F, in liquid CF₄, diffusion effects 3=21412
 F, in polytetrafluorethylene 4=23064
 F resonances in gases 3=12865
 F, solids and solns. in alkali and alkali earth fluorides, shifts 4=23067
 F spin—spin relax. in CaF₂, longitudinal, meas. 4=13335
 F¹⁹, in adducts of BF₃ 4=3916
 F¹⁹ in alkali hexafluorophosphates, dynamic structure 4=2067
 F¹⁹, C¹³ satellite spectra analysis 3=15386
 F¹⁹, in CaF₂: Sm³⁺, diffusion narrowing 2=23271
 F¹⁹, chemical shift in KHF₂—H₂O and KHF₂—KF—H₂O 1=6874
 F¹⁹, chemical shift in KHF₂—H₂O and KHF₂—KF—H₂O 1=10523
 F¹⁹ in fluorinated aromatic cpds. 1=11127
 F¹⁹ in neutron-irradiated teflon 0=4529
 F¹⁹ nuclei in Ag₂F, spin—lattice relaxation 1=9063
 F¹⁹ in powdered MnF₂, h.f. structure sensitivity 0=3107
 F¹⁹, resonance in fluorocarbon metallic cpds. 2=2021
 F¹⁹, in SF₆, isotope effects of S^{33,34} 4=3911
 F¹⁹ shift in CoF₂ 0=18226
 F¹⁹, in SiF₄, isotope effect of Si²⁹ 4=3911
 F¹⁹ spectra of phosphorus (V) fluorides 0=17781
 F¹⁹ spin echo in field of paramag. Gd³⁺ (0.01%) in CaF₂ 4=4421
 F²⁰, by polarized neutron capture and β-decay anisotropy 4=3541
 F¹⁹ in BF₃, ClO₃F, interpretation 4=9768
 F in Ca₂F(PO₄)₂, line shape 4=28895
 F¹⁹ in CeF₃, absorpt. line, mag. shielding transition 4=23068
 F¹⁹ in (glycine)₂BeF₄, and BeF₄ ion hindered rot. 4=10115
 F¹⁹, in KCoF₃, isotropic hyperfine interact. 4=13343
 F¹⁹ in KMnF₃, u.s. modulation 4=20614
 F¹⁹ in KrF₄ 4=20612
 F¹⁹ in LiF, frequency dependence of relaxation time 0=4524
 F¹⁹, in MgF₂, polycrystalline, by spin echo 3=8732
 F¹⁹ in MnF₂ 0=13893
 F¹⁹ in MnF₂, elec. shift of hyperfine interaction 4=26450
 F¹⁹ in MnF₂ near Néel pt. 3=3195
 F in NH₄F solns., var. conc. 4=23067
 F¹⁹ in NiF₂, n.m.r. in domain walls 1=6435
 F¹⁹ in ONF, chemical shift 3=10540
 F¹⁹ in UF₆ 3=23256
 F¹⁹ in XeF₄ 4=20613
 F¹⁹ in XeF₄, anisotropy of shift tensor, -110°C 4=7348

Nuclear magnetic resonance and relaxation—contd

- F^{19} in XeF_4 , chemical shift 3=12868
 F^{19} in XeF_4 -HF, liquid, width independence of field 4=21157
 F^{19} in CaF_2 , analysis by lattice harmonics 3=5047
 F-F coupling constants 4=20106
 F-F coupling constns. in saturated organic cpds. 1=17355
 F-F coupling in sat. organic cpds. 2=10281
 Fe, dispersed in polystyrene, resonance 2=14850
 Fe group ionic crystals, with paramag. ions 1=3946
 Fe ions, in aqueous solutions, proton relax. time 0=12428
 Fe, longitudinal, model and expt. 3=3197
 Fe methyl-substituted tris (1,10-phenanthroline) 4=30478
 Fe powder, effect of external mag. field 3=1203
 Fe, powdered, Bloch wall suppression, study 3=15805
 Fe, powdered, Fe^{57} res., rel. to internal strain 2=2307
 Fe, relax. rate theory 4=23062
 Fe, resonance up to 65 000 atm 3=11123
 Fe^{57} 2=785
 Fe^{57} , absorption and Zeeman effect 0=7465
 Fe^{57} , in α - Fe_2O_3 , spin-lattice relax. 2=21387
 Fe^{57} , in DyFe garnet 2=4285
 Fe^{57} , in Fe_3O_4 , temp. dependence 3=8734
 Fe^{57} , in ferrimag. oxides, enhanced 2=16939
 Fe^{57} , in garnets of iron, rare-earths 2=6703
 Fe^{57} in hexagonal ferrites hyperfine structure 4=26335
 Fe^{57} in iron, n.m.r. pressure and temp. dependence 1=6432
 Fe^{57} , in Li ferrite and magnetite, temp. depend. 3=8733
 Fe^{57} in local field of metallic Fe 1=11495
 Fe^{57} in natural iron, in absence of external field 0=13892
 Fe^{57} , in Ni- and Ni-Fe-ferrites, pulsed meas. 4=4426
 Fe^{57} , in ordered Fe_3LiO_8 3=1204
 Fe^{57} , polarization of radiation 0=7466
 Fe^{57} , in pure Fe, fast-passage effect analysis 4=28898
 Fe^{57} in rare earth Fe garnet 3=23260
 Fe^{57} in rare-earth iron garnets 3=3196
 Fe^{57} relaxation in YFe garnet 3=23252
 Fe^{57} in unenriched Fe 1=6433
 Fe^{57} , in YFe garnet 1=7804
 FeCl_3 , aq. soln. proton spin resonance freq. 3=2140
 Fe^{57} , in YFe garnet 1=7805
 $\text{FeCl}_2 \cdot 4\text{H}_2\text{O}$, antiferromagnetic, proton resonance study 4=28899
 Fe^{57} in Co 3=23258
 FeF_2 , F^{19} resonance 0=10248
 Fe^{57}N , two sites 4=23073
 α - Fe_2O_3 , Fe^{57} nuclei 2=10723
 Fe_3O_4 , anisotropy of hyperfine interaction 2=12642
 $\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$ (vivianite) line splitting, 1° - 77°K 3=1206
 $\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$ (vivianite), resonance h.f.s. 1=20269
 Ga, electronic structure 0=4530
 Ga, liquid, quadrupole relaxation 3=23915
 Ga, quadrupole resonance, superconducting and normal states 0=19562
 GaAs, quadrupole splitting, rel. to electric field 3=23199
 GaAs, spin transits, due to r.f. field 2=18961
 $\text{Ga}^{69,71}$ and As^{75} in GaAs, linear Stark effect 3=8735
 Ga^{69} and Ga^{71} , in Ga-substituted YFe garnet 4=28897
 Ga^{69} and Ga^{71} n.m.r., in Ga-substituted YFe garnet 4=28897
 Ga^{71} in α - Ga_2O_3 powder, Sternheimer antishielding factor calc. 4=7349
 GaP, line-widths for $\text{Ga}^{69,71}$ and P^{31} 2=6702
 GaSb, effect of n- and p-type impurities 0=11954
 Gd^{3+} perchlorate solutions, hydration geometry 3=18832
 $\text{Gd}^{155,157}$ in GdN 4=13344
 GdAl_2 , negative Knight shift, Gd^{3+} exchange polarization 1=7524
 GdF_3 , hyperfine interaction anomalies, Gd^{3+} exchange polarization 1=7524
 Ge, rel. to cyclotron resonance saturation 3=17850
 Ge, effect of saturation of cyclotron resonance in degenerate zone 4=28430
 Ge, at low temps. 0=10227
 Ge, spin-lattice relax., meas. 2=12826
 $\text{Ge}^{73}(\text{C}^{13}\text{H}_2)_4$, and nuclear coupling 4=22425
 GeH_3PH_2 and GeH_3AsH_2 , proton resonance 3=12863
 H adsorbed in Pd, Knight shift 4=26451
 H, in adducts of BF_3 4=3916
 H, in $\text{Al}_2\text{O}_3 \cdot 3\text{CaO} \cdot 6\text{H}_2\text{O}$, H atoms position 4=4594
 H-bond studies, association shift 3=25140
 H gas, self-diffusion meas. 2=7246
 H interstitial atoms in CaF_2 , double resonance 4=28402

Nuclear magnetic resonance and relaxation—contd

- H, liquid, spin, relaxation 1=8137
 H, solid and liquid 2=780
 H, solid, nuc. mag. relax. 2=21386
 H, spin-spin resonance 2=11431
 H_2 , adsorbed, spin echo study 2=18485
 H_2 , chemical shift and localized orbitals 2=10272
 H_2 , chemical shift, 20 kg cm^{-2} , room temp., 60 Mc/s 3=10539
 H_2 , crystalline, spin-lattice relaxation 0=11586
 H_2 , gas and liquid, nuc. spin relaxation 4=2734
 H_2 gas, spin-lattice relax. meas. 3=20023
 H_2 , gaseous, rel. to pressure 3=21451
 H_2 , HD 4=6642
 H_2 , HD, and D_2 , isotope shifts due to zero-point vibration 1=14101
 H_2 -inert gas mixture, proton spin-lattice relax. 3=21450
 H_2 , liq. 0=8671
 H_2 , liquid and solid, spin-lattice relaxation 3=23253
 H_2 , mixed with other gases, proton spin-lattice relax. 2=14332
 H_2 , nuclear magnetic shielding 0=15757
 H_2 , nuclear spin relaxation 1=9424
 H_2 , proton spin-lattice relaxation time 1=15965
 H_2 , solid (67-86% ortho) 0=6279
 H_2 , solid, structural study 0=12038
 H^- ion, shielding constant 2=1970
 H^+ in urea, analysis by lattice harmonics 3=5047
 HBr, liquid, proton spin relaxation 3=21408
 $\text{H}-\text{C}^{13}$ spin-spin couplings, nonbonded, in subst. ethylenes 3=10547
 $\text{H}-\text{C}-\text{H}'$ and $\text{H}-\text{C}-\text{O}-\text{H}'$ coupling const. signs in 2-methyl-2 nitropropanediol-1,3 solutions 4=24249
 HCN, N^{14} pure quadrupole resonance, phase transition between 77-195°K 0=6283
 H_2CO , mag. hyperfine spectrum 0=20668
 HCl, liq. and gas, proton spin-lattice relax. 3=11808
 HCl, liquid and gas, proton spin-lattice relax. 3=21416
 HCl, liquid, proton spin relaxation 3=21408
 HCl polar mol., proton chemical shifts due to added gases, meas. 4=28265
 HCl solutions, p.m.r., var. conc. 4=206
 $\text{HCo}(\text{CO})_4$, proton chemical shift 2=18462
 HCrO_2 , polycrystalline, proton resonance 1=5075
 H_2 - D_2 , 3-16.4°K, and isotope separation? 4=13488
 HDO, proton resonance, spin-spin coupling const. 2=16558
 HF, molecular beam, mag. interactions 1=2347
 HF, relaxation 3=22600
 H^+ and F^{19} spin-lattice relax. in ferroelectric ammonium salts 3=23251
 H_2 and H_2 -rare gas mixtures, and ortho-ortho to ortho-para reorientation ratio 4=9706
 H_2 -He mixtures, proton spin-lattice relax. 2=17514
 H_2 - N_2 gas mixture, proton spin-lattice relax. 3=21450
 H_2 - N_2 gaseous mixtures, rel. to pressure 3=21451
 H_2 - N_2 mixtures, proton spin-lattice relax. 2=17514
 HNO_3 solutions, p.m.r., var. conc., mechanisms 4=206
 H and Nb^{93} in Nb-H system, meas. 4=17695
 H_2 -Ne mixtures, proton spin-lattice relax. 2=17514
 H_2O adsorbed on charcoal, relaxation 4=29193
 H_2O molecule in solid hydrated compounds 1=4055
 H_2O , temp. var. 4=8224
 H_2O in various organic substances 0=16719
 H_3O^+ , proton mag. shielding, orbital calc. 2=3783
 $\text{H}_2\text{O}-\text{D}_2\text{O}$, proton, relax. temp. var., mechanisms 4=21158
 $\text{H}_2\text{O}-\text{D}_2\text{O}$, relax. temp. var., mechanisms 4=21158
 HOH, second moment, calc. by averaging over fundamental oscillations 3=10538
 H_3O^+ and OH^- , proton shifts in strong acid or alkali metal hydroxide solns. 4=5212
 H_3PO_3 , aqueous, H and P nuclei 2=3785
 H_3PO_4 , splitting and widths of p reson., ~ 1G 4=1307
 H_2S , liquid, p.m.r., temp. decrease mechanism 4=205
 H_2SO_4 (liquid), proton spin-lattice relaxation, temp. depend. 1=9409
 H in ZrH, diffusion study 2=6367
 He atom, shielding const. 2=1970
 He³, adsorbed, low temps. 3=12020
 He³, adsorbed, spin echo study 2=18485
 He³, adsorbed, 2°-4.2°K, extension 3=19091
 He³ gas, nuclear polarization by optical pumping and dipolar exchange 1=1772

Nuclear magnetic resonance and relaxation—contd

- He³, gaseous, spin-lattice relaxation, 1.7-4.2°K. 3=178
 He³, liq. self and mutual diffusion 0=8882
 He³, liquid and gas, spin relaxation times 0=1068, 7022
 He³ liquid, and longit. relax. time, solid He effects 4=16316
 He³, liquid, nucl. spin relaxation, rel. to temp. and mag. field 0=19541
 He³, liquid, pulsed, spin-lattice relax., temp. var. 4=16317
 He³, liquid and solid, adsorbed, spin-lattice relaxation time 4=14492
 He³, liquid and solid, spin relaxation times 0=1069
 He³, liquid and solid state, theory 0=3699
 He³, liquid, spin-lattice relax. meas. 3=19085
 He³ liquid, spin-lattice relaxation time 0=16935
 He³, n.m. susceptibility, 4.2 Mc/s, 1°-3°K 4=14480
 He³, nuc. mag. relax. process 2=22896
 He³, 1.7-4.2°K, pulsed, and self-diffusion, density var. 4=16152
 He³, relaxation on Pyrex surface 4=7350
 He³, solid, α and β phases 3=5574
 He³, solid, β -phase, below 1°K 4=14505
 He³, solid, exchange-bath analysis 4=11453
 He³, in solid He³, spin-lattice relax. calc. 4=8551
 He³, solid, longit., bottleneck in energy transfer 4=18522
 He³, solid, nuclear spin relaxation 0=12554
 He³, solid, relaxation meas. in α -phase 4=2911
 He³, study of atomic h.f.s. 1=7431
 Hg atom, excited, effect of N₂ pressures 2=14220
 Hg diethyl, Hg-proton spin-spin coupling 0=4228
 Hg, electronic structure 0=4530
 Hg isotopes, in orienting radiation 0=1472
 Hg¹⁹⁹, chemical shifts in molecules 3=15378
 Hg¹⁹⁹, line displacement by optical pumping 1=7443
 Hg¹⁹⁹, line shift by real transitions of optical resonance 2=20739
 Hg¹⁹⁹ relax. on walls of molten SiO₂, transverse thermal relax., u. v. irrad. effects 4=24272
 Hg²⁰¹, opt. detection 0=17660
 Hg, 6³P₁ level, displacement by multiple coherent scattering 4=15282
 Hg 6³P₁ state, line width 0=17659
 Ho, atomic beams 1=9900
 Ho¹⁶⁶ atomic beam 1=7314
 I-aromatic complexes, chemical shifts 2=17487
 I, in solutions of iodides, study of ions 1=18398-9
 I¹²⁷ in alkali iodides, chemical shift and spin-lattice relaxation times 4=13339
 I¹²⁷, in AsI₃ and AsI₃. 3S₈, Zeeman effect of quadrupole reson. 0=686
 I¹²⁷, quadrupole relaxation in NaI and KI solutions 0=12427
 I¹²⁷ in Hg(II) aq. soln., exchange rate meas. 4=2142
 IF₇, liquid, spectrum explained 0=15775
 I¹²⁷ in NaI powder, axially stressed double-coil apparatus 3=7726
 In, electronic structure 0=4530
 In, liquid, Knight shift rel. to In sulphate soln. 1=4357
 In, solid, Knight shift 2=23720
 In¹¹⁵, in metal, Knight shift 1=7799
 In¹¹⁵ in noncubic environment, absence of quad. effects 4=20615
 InSb, cond. electron density at nuclei, meas. 4=22535
 InSn liquid 3=21419
 InTl liquid 3=21419
 InTl liquid n.m.r. 3=21419
 Ir, in Ir-Fe alloys, from nuclear sp. ht. data 4=3994
 K acetate, -175° to 296°C 1=20275
 K metal, K³⁹ Knight shift 1=2498
 K metal, Knight shift rel. to KCl 1=20264
 K³⁹, in metal, Knight shift 1=7799
 KBr, F-centres, double spin reson. 2=6388
 KBr, F-centres, electron-nuclear double reson. 2=12471
 KBr, nuclear spin-lattice relaxation time 1=3942
 KBr, resonance absorption of ultrasound, theory and expt. compared 1=3597
 KBr, spin-lattice relax., temp. depend. 3=11118
 KBr, with 0.1% impurity-substituted, [100] field gradients 3=18152

Nuclear magnetic resonance and relaxation—contd

- K₂C₂O₄.H₂O 3=8728
 KCl, F-centres, double spin reson. 2=6388
 KCl, F-centres, electron-nucleus double resonances 0=6273
 KClO₃, Cl³⁵ pure quadrupole resonance, 15-77°K, Cl³⁵-Cl³⁷ coupling const. 0=18232
 KClO₃, Cl³⁵ quadrupole resonance, selective spin excitation and relaxation 0=18233
 KClO₃, K quadrupole coupling interactions 0=9226
 K₂Co(CN)₆, aq. soln., K³⁹ Knight shift 1=2498
 K₂[Co(CN)₆], Co⁵⁹ resonance, quadrupole effect, charge distrib. distortion 1=1287
 K₂CuCl₄.2H₂O, electron distrib. by proton res. line distrib. 3=1208
 KD₂PO₄, deuterons, reson. rel. to H-bond jumping 2=12365
 KF, F-centres, double spin reson. 2=6388
 K³⁹F, line shape in rigid lattice 0=4528
 K₄Fe(CN)₆.3H₂O, rel. to crystal structure 4=20622
 KH₂PO₄-type crystals, absence of linewidth transition for protons 2=18971
 KI, F-centres, double spin reson. 2=6388
 KI, low mag. fields 2=18966
 KI with 0.1% impurity-substituted, [100] field gradients 3=18152
 KI, relaxation at liq. He temp. 0=4533
 KI, resonance absorption of ultrasound, theory and expt. compared 1=3597
 KI, spin-lattice relax., temp. depend. 3=11118
 KI, study of recovery from plastic deformation 2=21427
 KI, u.s. excitation 2=14853
 KMF₃ (M = Cu²⁺, Ni²⁺, Co²⁺, Fe²⁺ and Mn²⁺) F¹⁹ shift, unpaired electron, temp. dependence 4=28896
 KMnF₃, F¹⁹ h.f.s., contrib. of unpairing of 1s electrons 1=9071
 KMnF₃, F¹⁹ resonance 0=11955
 KMnF₃, interaction with antiferromag. reson. 2=2305
 KNO₃, aq. soln., K³⁹ Knight shift 1=2498
 K₂NaCrF₆, interaction of P₀ and P_π orbitals 0=18227
 KNiF₃, covalent orbitals study 3=12891
 KNiF₃, interaction of P₀ and P_π orbitals 0=18227
 KTaO₃, nucl. mag. moment of Ta¹⁸¹ 1=597
 La meta, Knight shift, 1.8 and 300°K 0=18228
 La¹³⁹, low temp. var., Knight shift 4=20624
 LaAlO₃, of La¹³⁹, Al²⁷ 4=23074
 LaB₆, and quadrupole binding const. 3=20678
 La-H system, La and H nuclei 3=20671
 La₂Mg₃(NO₃)₁₂.24H₂O, Nd-doped, nuclear polarization 4=28900
 La₂Mg₃(NO₃)₁₂.24H₂O, proton dynamic polarization 2=23722
 La₂Mg₃(NO₃)₁₂.24H₂O: Ce(0.8% of La), p polarization, 0.5-1.7°K 4=6685
 Li A-centres in KCl and KBr, ENDOR study 3=25299
 Li, anomalous linewidth 4=20618
 Li, colloidal, in LiH, double reson., nucl. polariz. 2=3815
 Li, electronic structure 0=4530
 Li ferrite, Fe⁵⁷ reson. and hyperfine field 2=18962
 Li, in LiF, rel. to antiferromagnetism 4=4410
 Li, nonresonant spin absorption 0=684
 Li, nucl. spin absorption spectra 2=6699
 Li, Overhauser effect meas. at 1.5°K 4=4427
 Li, Overhauser effect, electron density at Fermi level, calc. 4=28874
 Li, relaxation times, 1.5-4.2°K 0=16170
 Li, resonance signal enhancement by e.s.r. saturation 1=6429
 Li, saturation at 10.7 Mc/s 3=8736
 Li, spin-lattice relaxation time, 1.1-4.2°K 0=3140
 Li⁺ ion, shielding const. 2=1970
 Li⁶ in Li, using double resonance with Li⁷ 4=10339
 Li^{6,7}, Knight shift diff. calc., due to lattice vibr. 4=7351
 Li⁷ and Al²⁷ in LiAlO₃, electrostatic field gradient parameters and structural distortion determ. 4=17696
 Li⁷, in aq. soln. with paramag. ions, chem. shifts 4=16128
 Li⁷, det. of upper limit for anisotropy of inertial mass 0=10561
 Li⁷ in LiF:Mn, motional narrowing 4=17697
 Li⁷, relax. in spodumene crystals 0=11956
 Li⁷, spin-lattice relaxation in LiCl solutions 4=3917
 Li⁷ in Li and Li-Mg alloys 0=21085
 LiAl, rel. to crystal structure 3=11122
 LiAlH₄, p, Li, Al, and catalytic active centres 4=2156

Nuclear magnetic resonance and relaxation—contd

- LiBr, spin-lattice relax., temp. depend. 3=11118
 LiBr, spin-lattice relaxation due to translational diffusion 3=18143
 LiCuCl₃·2H₂O, antiferromag. 2=4289
 LiCuCl₃·2H₂O, below 4·46°K rel. to antiferromagnetism 3=1205
 LiCuCl₃·2H₂O, n.m.r. and antiferromagnetism 1=20165
 LiF cross-relaxation effects 1=11491
 LiF, cross-relaxation, theory 0=16639
 LiF crystals, double resonance 0=16188
 LiF, Na²³ and F¹⁹ relax. mech. 2=8680
 LiF, nuclear spin-lattice relaxation time 1=3942
 LiF, spin-lattice relax., effect of colour centres 2=10710
 LiF, spin-lattice and spin-spin relax. for Li⁷ and F¹⁹ 4=1905
 LiF, with electron, of V_x centre 4=26452
 LiGa, rel. to crystal structure 3=11122
 LiH₃(SeO₃)₂, ferroelec., p.m.r. study 1=19924
 LiIn, rel. to crystal structure 3=11122
 Li-Mg, Li⁷ intensity, nuclear elec. quadrupole effects 1=20260
 Li-Mg, nucl. spin absorption spectra 2=6699
 Li(NaH₂SO₄), proton and Li⁷ n.m.r. 4=1902
 Li₂SO₄·H₂O 3=8728
 LiSO₄·H₂O, interpair relax. 2=16934
 Li₂SO₄·H₂O, proton resonance 0=4536
 Li₂V₂O₅, Li⁷ reson. 2=18963
 LuB₂, Lu¹⁷⁵ reson. 2=12834
 LuSb, Lu¹⁷⁵ reson. 2=12834
 Mg halogen cpds. hydrates, proton m.r. 0=21089
 Mg²⁺ solvation number in methanol, meas. 3=1685
 MgAl₂O₄, nuclear quadrupole effects 1=14835
 Mg₂B₆O₁₁·15H₂O (inderite), B¹¹ quadrupole splitting 0=13889
 Mg(Cu⁶³)₂, large anisotropic Knight shift 1=9069
 MgF₂, polycrystalline, F¹⁹ n.m.r. line shape 1=20261
 MgSO₄ solutions, p relax., dissociation mechanism 4=209
 MgS₂O₃·6H₂O 3=25721
 Mn cpds., ferromag., liquid nitrogen temp. 3=3198
 Mn ion aq. solns., proton relax. and hydration 2=15620
 Mn metal, α and β forms, Knight shift 0=18229
 Mn⁺⁺ ions in aqueous soln., proton relaxation and hydration 1=12901
 Mn²⁺, in aqueous solutions, spin-lattice relax. time 1=15908
 Mn²⁺ ion solns., p and d relax., 0.1 molar in $\frac{1}{2}$ H₂C + $\frac{1}{2}$ D₂O, temp. var. and activation energies 4=8223
 Mn²⁺ ions in methanol soln., proton relaxation 1=157
 Mn⁵⁵, in α - and β -Mn, rel. to relax. mechs. 4=20619
 Mn⁵⁵ in α Mn, 1.5° to 4·2°K 3=15960
 Mn⁵⁵, in KMnF₃, rel. to antiferromag. resonance 3=15966
 Mn⁵⁵, in KMnF₃, mixing with electronic resonance, meas. 4=28903
 Mn⁵⁵, in MnFe₂O₄ 3=15965
 Mn⁵⁵, in MnFe₂O₄, slow and fast relax. theory 4=15667
 Mn⁵⁶, atomic beams, nuclear spin 1=7315
 MnCO₃, pulling in e. s. r. 4=30737
 MnCl₂ aqueous solutions, Overhauser effect, rel. to temp. 4=11219
 MnCl₂ solns., relaxation 3=4282
 MnCl₂·4H₂O 0=10250
 Mn⁵⁵Cr₂O₄, field var., and ferrimag., cone angle 4=23019
 MnF₂, antiferromag., F¹⁹ resonance under pressure, 4·2-35·7°K 0=10249
 MnF₂, antiferromagnetic susceptibility det. 4=26353
 MnF₂, F¹⁹ electrically induced shift, rel. to domain walls 2=758
 MnF₂, F¹⁹ frequency, shift under elec. field 1=20262
 MnF₂, F¹⁹ resonance, comparison with F¹⁹ super-h.f.s. in Mn²⁺ e.s.r. in ZnF₂ 0=6272
 MnF₂, F¹⁹ resonance shifts, theory 0=1837
 MnF₂, F¹⁹ and Mn⁵⁵ line-widths, at low temp., theory 0=11952
 MnF₂, hyperfine interaction, applied field effect 1=14823
 Mn⁵⁵F₂, low temp., zero field 4=28902
 MnF₂, spin-lattice, calc. 3=18137
 MnHPO₄·3H₂O, proton resonance, no anomaly at mag. transition 1=14179
 Mn⁵⁵ in KMnF₃, antiferromag. 4=13345
 Mn⁵⁵ in KMnF₃, nuclear-antiferromag. double resonance 3=25582
 Mn⁵⁵ in Mn ferrite, spin echo obs. 4=7354

Nuclear magnetic resonance and relaxation—contd

- Mn in MnCO₃, double, antiferromag. 4=13347
 Mn⁵⁵ in MnFe₂O₄ 4=28901
 Mn⁵⁵ in MnFe₂O₄, ferrimag., meas. 4=26453
 Mn⁵⁵ in MnFe₂O₄, temp. var. 4=13290
 Mn⁵⁵ in MnFe₂O₄, temp. var., and sublattice mag. 4=13240
 Mn⁵⁵ in Mn₄N and Mn₃Ge₃ 3=15961
 MnF₂-ZnF₂, rel. to Néel temp. 3=1055
 Mn⁵⁵N, two sites 4=23073
 Mn²⁺ in Ni-Mn alloys, and Mn⁵⁵ moment 4=7353
 Mn⁵⁵ in RbMnF₃, antiferromag., low temps., freq. pulling 4=13346
 MnSO₄·4H₂O, proton resonance, no anomaly at mag. transition 1=14179
 MnSb, Sb^{121,123} and Mn⁵⁵ reson. 2=18964
 Mn₂Ge₃, mag. field effects, liquid He temps. 4=1906
 MnSO₄·4H₂O, proton resonance study of crystal structure 4=23456
 Mo^{95,97}, Knight shift 0=2180
 N,N-dimethylaniline, C¹³ resonance, steric inhibition of conjugation 3=10544
 N₂⁴ in β quinol clathrate, quadrupole resonance 0=11961
 N¹⁴, in Na azide, chemical shifts 4=7355
 N¹⁴, quadrupole spectra, in amino and amido cpds, coupling and asymmetry const. 0=21087
 N¹⁴ relaxation by quadrupole interactions in molecular liquids 3=9482
 N¹⁴, in urea crystals, quadrupole reson. spectrum, temp. depend. 0=6271
 N¹⁵ in liquids (0.36%), chemical shifts, elec. quadrupole contrib. by intermolecular rot. hindrance 4=24247
 NCl³⁵, proton r.f. spectrum, spin rotational const. 1=19661
 N₂F₂ isomers, n.m.r. and double reson. structure det. 2=16559
 NH₃, J coupling theory 3=14790
 NH₃ (liquid), proton spin-lattice relaxation, temp. depend. 1=9409
 NH₃, n.m.d.r. 4=22423
 NH₃, N¹⁴ resonance in organic exchange reaction 2=4525
 NH₄ salts, proton reson., motional narrowing and line shapes 2=4291
 NH₄⁺ reaction in aq. acid, proton transfer study 0=14117
 N¹⁴H₄⁺, INDOR spectra 2=23004
 N¹⁵H₃ and deuterio derivs., p-d coupling, isotope shifts 4=25741
 (NH₄)₂BeF₄ 0=11957
 (NH₄)₂BeF₄, F¹⁹ reson. 2=4284
 (NH₄)₂BeF₄, F¹⁹ resonance 3=3194
 (NH₄)₂BeF₄ H¹ and F¹⁹ spin-lattice relax. 2=10711
 (NH₄)₂(BeF₄)_x(SO₄)_{1-x}, temp. depend., rel. to ferroelectric props. 1=11496
 NH₄Br, Br chem. shift, spin-lattice relax. time and line intensity 2=10720
 NH₄Br, proton mag. reson. 2=10719
 (NH₄)₂Cd(SO₄)₂, temp. depend., rel. to ferroelectric props. 1=11496
 NH₄Cl, Cl chem. shift, spin-lattice relax. time and line intensity 2=10720
 NH₄Cl, proton mag. reson. 2=10719
 NH₄ClO₄ 0=11958
 (NH₄)₂CuCl₂H₂O, electron distrib. by proton res. line distrib. 3=1208
 NH₄F solns., of F, var. conc. 4=23067
 NH₄F_xAl_{1-x}(SO₄)₂, proton mag. resonance 1=14826
 (NH₄)₂Fe_xAl_{1-x}(SO₄)₂, proton resonance 1=14828
 (NH₄)₂H₂IO₆, H¹ and F¹⁹ spin-lattice relax. 2=10711
 NH₄HSO₄, H¹ and F¹⁹ spin-lattice relax. 2=10711
 NH₄HSO₄, temp. depend., rel. to ferroelectric props. 1=11496
 NH₄I, I chem. shift, spin-lattice relax. time and line intensity 2=10720
 NH₄ + NH₃ = NH₃ + NH₄⁺ exchange reaction, correlation time 3=13589
 NH₄NO₃, double resonance of N nuclei 0=11066
 NH₄NO₃, thermal transformations data 2=6762
 (NH₄)₂SO₄ 0=11957
 (NH₄)₂SO₄, H¹ and F¹⁹ spin-lattice relax. 2=10711
 N¹⁴ in MeCN, EtCN, PrCN and Me₂NCHO, quadrupole relax. 4=20104
 NN' dimethyl piperazine 1=9955
 N¹⁴ and N¹⁵, resonance in liquid nitrogen 1=13622
 N¹⁵ in N cpds, rel. molec. structure 4=30479

Nuclear magnetic resonance and relaxation—contd

- NO(SO₃)₂⁻ in dil. and conc. solutions, double resonance rel. to appd. fld. 4=28890
 NO(SO₃)₂⁻ in solution, proton resonance and e.s.r. 1=14819
 Na, electronic structure 0=4530
 Na glutamate, transitions, rigid lattice values 2=12838
 Na hypophosphite soln. 1=12904
 Na liquid alloys, Knight shift 0=16693
 Na, nonresonant spin absorption 0=684
 Na, Overhauser effect meas. at 1.5°K 4=4427
 Na, spin-lattice relaxation time, 1.1-4.2°K 0=3140
 Na²³, in aq. soln. with paramag. ions, chem. shifts 4=16128
 Na²³, in borax and tincalconite, sites meas. 3=25591
 Na²³, dynamic polarization of nucl. spins by Overhauser effect at liq. He temp. 4=15679
 Na²³ in feldspar 3=23263
 Na²³, 4²P_{3/2} excited state double resonance experiments 0=20552
 Na²³, linewidth, temp. freq. var., solid and liquid 4=1907
 Na²³ in mixed Na halides, relaxation 3=8738
 Na²³, in NaBr solns. 3=14185
 Na²³, in NaCl, effect of elastic deform. 2=786
 Na²³, in Na halides, mag. screening 3=23272
 Na²³, in NaNO₃, 2nd order quadrupole effects 0=21092
 Na²³ in Na tetraborate hydrates 3=8739
 Na²³, relax. in Na nitrate, chlorate and thiosulphate crystals 0=11956
 Na²³ in rochelle salt, quadrupole shifts, second order 3=25594
 Na₂CO₃·NaHCO₃·2H₂O, rel. to proton positions 3=8859
 NaCl, dipolar line broadening, surface effects 1=20266
 NaCl, F-centres, double spin reson. 2=6388
 NaCl, F-centres, electron-nuclear double reson. 2=12471
 NaCl, Na resonance, adiabatic demagnetization in a rotating reference system 1=9060
 NaCl, Na²³ and F¹⁹ relax, mech. 2=8680
 NaCl, Na²³ in r.f. field, rotating frame model 3=3188
 NaCl, nuclear spin-lattice relaxation time 1=3942
 NaCl rel. to phonon scattering by impurities 3=10584
 NaCl, resonance saturation, rel. to spin temp. concept 1=7801
 Na²³Cl, u.s. absorpt. effects 4=12623
 NaCl: Ca, T₁ temp. depend. 1=20267
 Na²³ and Cl³⁵ in NaCl, spin-lattice and spin-spin relax. 4=10345
 NaClO₃, Cl spin-lattice relaxation 0=4532
 Na²³ClO₃, electrically induced population inversion 4=23077
 Na²³ClO₃, quadrupole splitting, second order corr. meas. 4=23078
 NaF, Na²³ and F¹⁹ relax, mech. 2=8680
 NaF, spin-lattice relax., temp. depend. 3=11118
 NaH, F-centres, electron-nuclear double reson. 2=12471
 NaH₃(SeO₃)₂, ferroelec., p.m.r. study 1=19924
 NaI, spin-lattice relax., temp. depend. 3=11118
 NaK and NaRb, liquid and solid 0=14665
 Na-NH₃ soln., Overhauser effect, p spin lattice relax. time 4=14187
 Na-NH₃ solns., proton resonance 3=7222
 NaNO₃, Na²³ reson. 2=10724
 NaNO₃-AgNO₃, quadrupole effect, satellites intensity, AgNO₃ depend. 0=21091
 Na in NaCl, relaxation, rel. to divalent impurity ions 3=23273
 Na²³ in NaCl crystals 1=2497
 Na²³ in NaCl, rel. to γ-irrad. 4=4432
 Na²³ in NaCl with impurities, quadrupolar broadening of lines 4=28446
 Na²³ in NaClO₃, 2nd order correction of quadrupole splitting 4=20623
 Na²³ in NaNO₃ 4=1663
 Na²³ in NaNO₃ single crystals 0=13895
 Na²³ and Pb²⁰⁷ in Na_{1-x}Pb_x 3=20676
 NaSH, phase transformations 4=7511
 Na₂S₂O₈·2H₂O, p. m. r., rel. to H atom arrangement 4=7643
 Na₂S₂O₈·2H₂O, proton resonance, rel. to crystal structure 3=8848
 NaTi, rel. to crystal structure 3=11122
 Na₂WO₄, zero Na²³ Knight shift explained 0=13518
 Na₂Zn(SO₄)₂·4H₂O, use for structure calc. 4=10550
 Nb, spin-lattice relax. 2=18957
 Nb, supercond., Knight shift component separation 4=20625
 Nb⁹³⁺ in CaWO₄, model for W site substitution 4=20620

Nuclear magnetic resonance and relaxation—contd

- Nb⁹³ in Nb-Mo alloys, Knight shifts 4=7356
 Nb⁹³ in Nb-Mo alloys, Knight shift 3=8737
 Nb⁹³ in Nb-Tc alloys, Knight shifts 4=7356
 Nb-Zr solenoid, supercond., persistent current obs. 3=9685
 Nd^{143,145}, in LaCl₃, double reson. 2=23714
 Nd³⁺ in CaWO₄, Na compensated or uncompensated 4=13348
 Nd³⁺, in ethyl sulphate, cross-relax. time 2=10707
 Nd³⁺ in LaCl₃, double resonance 0=16173
 Ni, longitudinal, model and expt. 3=3197
 Ni metal, Ni⁶¹ resonance, internal field meas. 1=1281
 Ni, powdered, Bloch wall suppression, study 3=15805
 Ni, relax. rate theory 4=23062
 6 Ni salts, proton resonance, low-temp. anomalies 0=535
 Ni²⁺, in aqueous solutions, spin-lattice relax. time 1=15908
 Ni²⁺ ions in methanol, proton relaxation 4=18219
 Ni²⁺ in methanol and methanol-water mixtures 4=14190
 Ni⁶¹, in dilute Co-Ni alloys meas. 3=3199
 Ni⁶¹ in dilute Fe-Ni and Fe-Co alloys 4=20621
 Ni⁶¹, in Fe-Ni alloys, rel. to hyperfine field 3=15967
 Ni⁶¹, powder, 77°K, room temp., and moment 3=17393
 Ni⁶¹ in Al₂O₃, electron nuclear double resonance 4=7334
 NiBr₂·6H₂O, proton and antiferromag. space group 4=13262
 NiCl₂·6H₂O, antiferromagnetic state, proton resonance 1=3951
 NiCl₂·6H₂O, proton and antiferromag. space group 4=13262
 Ni-Co, internal fields 2=12649
 Ni in Cu-Ni alloys 4=7346
 NiF₂, enhancement in domain walls 3=18114
 NiF₂, F¹⁹ resonance, 4.2-298°K, mag. ordering 1=1282
 Ni(H₂O)₆·SiF₆, 0.15-4.2°K 4=23072
 Ni⁶¹ in Ni powder, saturation behaviour 3=25592
 NiSO₄·7H₂O, proton resonance and spin quenching 1=20272
 No²³, absorption line intensity rel. to impurity concentration 3=2791
 O⁶⁺ ion, shielding const. 2=1970
 O¹⁷, enriched water 2=1170
 O¹⁷ n.m.r. linewidths in org. molecules, rel. to quadrupole coupling consts. 3=22599
 O¹⁷, in paramag. MnO and CoO, meas. 4=13349
 O¹⁷, relaxation in aq. solns. of paramag. cations 2=19581
 O¹⁷, shifts in aq. solns. of rare-earth ions 2=5029
 O¹⁷ shifts caused by Cr³⁺ in aq. solns. 3=9481
 O¹⁷ in solutions, Be, Al ion coordination numbers 4=207
 O¹⁷, solvent effects and spin couplings 3=11810
 O¹⁷, in various liquids & solutions 3=148
 O¹⁷ in MgO 3=20682
 P, solid white, relaxation times 3=5050
 P³¹, in P-N compounds, chemical shifts rel. to structure 4=9771
 P³¹ in solid PCl₅, chemical shift 1=6430
 P³¹ in H₃PO₄, line broadening by paramag. ions 3=13316
 P³¹ and Li⁷, in LiMnPO₄, paramag. and antiferromag. 3=18151
 PCl₅, rotating crystal, P³¹ resonance, chemical shifts due to (PCl₄)⁺ and (PCl₆)⁻ 1=10187
 PCl₅, spin-lattice relax., rotat. sample 3=20683
 PCl₅ONPCl₅, its thio analog, P₂Cl₂ONPyCl₂NP₂Cl₃, double and P³¹-P³¹ homonuclear decoupling 4=9770
 PO₂H₂⁻, ~ 1 G 4=1309
 Pb, broadening in fine particles 3=20681
 Pb, spin-lattice relax. 2=18957
 Pb²⁰⁷, chem. shift in polar semicond. 2=8686
 Pb²⁰⁷, chemical shifts in molecules 3=15378
 Pb²⁰⁷ in compounds, chemical shifts 4=20616
 Pb²⁰⁷ in Pb alloys, Knight shift meas. 4=20617
 Pb²⁰⁷, in Pb-In alloys, Knight shifts and linewidths 4=4428
 Pb²⁰⁷, in Pb telluride, Knight shift 2=12833
 PbO₃, n.m.r. meas. of Knight shift 1=3950
 PbO-B₂O₃ glasses, structure 3=18148
 PbTe, p-type, Knight shift and large g factors of majority carriers 4=4429
 Pd₂H, feasibility of nuclear cooling 1=11866
 Pm, atomic beams 1=9900
 Pt, Knight shift, rel. to orbital and spin mag. theory 4=17699
 Pt¹⁹⁵ in powder, n.m. relax. and Knight shift, 20°-290°K 3=3201

Nuclear magnetic resonance and relaxation—contd

- Pt¹⁹⁵ in Pt 3=23255
 Pt¹⁹⁵ in Pt, rel. to spin-spin interact. 2=18967
 Pt¹⁹⁵ in Pt, 24°-299°K meas. 3=13315
 Pt¹⁹⁵ in Pt-Au, Ir solid solns., decay osc., and coupling meas. 4=13350
 Pt¹⁹⁵, in PtSn₄, Knight shift 3=5051
 PtSn₂, Knight shift, d-electron band filling 2=6706
 Rb, electronic structure 0=4530
 Rb spin relaxation induced by H₂ and rare gases 3=4723
 Rb^{85,87}, Knight shift, isotope effect 1=14824
 Rb⁸⁷, in aq. soln. with paramag. ions, chem. shifts 4=16128
 RbBr 0=4531
 RbBr, F-centres, ENDOR 3=15520
 RbCl, F-centres, ENDOR 3=15520
 RbClO₃, Rb quadrupole coupling interactions 0=9226
 Re, in Ir-Fe alloys, from nuclear sp. ht. data 4=3994
 SF₆, 2 centre-symmetrical triplets, at -60° and -90°C 3=17613
 SF₆, liquid, rel. to spin-rotational interact. 4=2715
 (SO₃)₂NO⁻ free radical, double resonance exper. 0=17777
 SbCl₅, liquid, Sb^{121,123} reson. 2=11391
 Sc metal, Knight shift, 1.8 and 300°K 0=18228
 Sc⁴⁵ in ScN 4=23076
 Sc⁴⁵, low temp. var., Knight shift 4=20624
 Se diethyl and Se dimethyl, rel. to electronegativity 2=2024
 Si, double resonance of Fe⁵⁷ and Au¹⁹⁷ atoms in, mag. moments det. 0=7458-9
 Si hydrides and deriv., rel. to coupling const. 2=14330
 Si, Overhauser effect and spin relax., and cond. electron density at nucleus 4=20244
 Si, P-doped, nuc. dynamic polarization suppression by r.f. radiation 4=28904
 Si, Raman spin-lattice relax. for shallow donors 3=11119
 Si²⁹ h.f. interaction of donor electron, double resonance technique 0=16174
 Si²⁹ in silicon, dynamic polarization at low temp. 0=21081
 SiC, n-type, ENDOR meas. 4=1888
 SiH derivs., proton and F¹⁹ chem. shifts 3=22603
 SiH₃D, estimation of small splittings 1=14099
 SiH₃PH₂ and SiH₃AsH₂, proton resonance 3=12863
 SiO₂ in water 1=11768
 Sm¹⁴³, nuclear spin det. 0=9514
 SmAl₃, Knight shift sign reversal, 77-300°K, theory 1=10192
 Sn, anisotropic Knight shift in mag. field, liquid He temp. 4=28905
 Sn, electronic structure 0=4530
 Sn(grey), Knight shift, charge carrier effective mass 1=1283
 Sn, spin-lattice relax. 2=18957
 Sn, superconducting, 1.5-4.2°K 1=2922
 Sn tetraethyl, paramagnetic proton resonance spectra 1=12310
 Sn tetraethyl and Sn tetramethyl, rel. to electro-negativity 2=2024
 Sn¹¹⁹, anisotropy, Knight shift 2=14854
 Sn¹¹⁹ in metallic tin, n.m.r. 1=20268
 Sn¹¹⁹ in metallic tin, n.m.r. 3=5052
 Sn^{117,119} in Mn₃Sn(1.5 ≤ x ≤ 1.9) 4=17701
 SnH₄, protons, chem. shifts and spin-spin coupling 3=22602
 Sr halogen, cpds, hydrates, proton m.r. 0=21089
 SrTiO₃, phase transition study 3=8791
 Ta¹⁸¹ in tantalum metal 1=7802
 Tb¹⁵⁹, in Tb powder 1=7803
 TbN, N¹⁴ reson. shift 2=12835
 Tc, Knight shift and quadrupole interaction 2=6707
 Tc, Tc⁹⁹ reson. and Knight shift 2=12836
 Tc⁹⁹ in Nb-Tc alloys, Knight shifts 4=7356
 Tc-V, Tc⁹⁹ and V⁵¹ reson. 2=12836
 Te, atomic beams, g-value 2=3461
 Te¹²⁵ in n- and p-type CdTe, chemical shift 3=3202
 Te, spin-lattice relax., n.m.r. study 2=6694
 ThAl-H and -D, p.m.r. 3=20849
 ThO₂, adsorption meas. 4=26728
 Ti hydride, nonstoichiometric, proton resonance 0=18230
 TiH, proton resonance study of structure, diffusion 1=6437

Nuclear magnetic resonance and relaxation—contd

- Tl, metallic, at liq. He temps. 2=787, 23721
 Tl salts, molten and crystalline, chemical shift 4=18218
 Tl salts, solids and aq. solns., chemical shifts in Tl resonance 1=155
 Tl salts (thallous), in soln., chemical shifts in Tl resonance 1=154
 Tl salts (thallous), Tl resonance, effects of ferricyanide and citrate ions, ion-pair formation 1=156
 Tl²⁰⁵, chemical shifts in molecules 3=15378
 TlF, double resonance 0=13883
 T₂O, T mag. moment and proton and triton relaxation time 0=387
 Tm(Al²⁷)₃, large anisotropic Knight shift 1=9069
 TmN, N¹⁴ reson. shift 2=12835
 UAl₂, Knight shift, conduction electron polarization 1=1277
 UF₆, polycrystalline 3=18153
 UO₃ crystalline hydrates, proton reson. 2=10725
 UO₄·2H₂O, proton resonance 3=3203
 V alloys with Ti, Cr, Tc, Knight shifts 3=3204
 V alloys, V⁵¹ resonance, shifts, line-widths and intensities 1=10194
 V metal, spin-lattice relaxation, departure from Korringa relation 1=1284
 V, normal and superconducting 4=29627
 V, spin-spin and spin-lattice relaxation, 20.4-292°K 1=10193
 V, supercond., Knight shift component separation 4=20625
 V⁵¹, hyperfine sublevels, relaxational transition probability 1=3946
 V⁵¹ dispersion in V₂O₅, and elec. moment 4=25264
 V⁵¹, in V, temp. depend. 25°-330°K 4=20626
 V⁵¹ and Al²⁷ in V-Al alloys 4=26455
 V(CO)₆, relaxation times 4=2709
 V-Cr alloys 4=10346
 V⁵¹ in Cr-V alloys, Knight shift, linewidth 3=8741
 V₃ (Ga, Si, Ge, As, etc.), supercond., Knight shift component separation 4=20625
 V and Mu in corundum, ENDOR 4=3959
 V₂O₃, shift and splitting of central component of V⁵¹ resonance 1=14825
 VO⁺⁺ ions, n.m.r. in aqueous solutions 3=14187
 V_{0.6-0.8}-x Tc_x Al_{0.4-0.2} (x up to 0.60), Knight shift 4=7357
 V⁵¹, in V-Fe alloys, Knight shifts 3=23141
 V⁵¹ in VN 4=23076
 V₃X intermetallic cpds., Knight shifts and susceptibilities, theory 1=5062
 V₃X (X = As, Au, Co, Ga, Ge, Ir, Pt, Sb, Si), β-W structure, n.m.r. properties 0=19561
 in XAl₂ cpds 3=8730
 XAl₂ (X = rare earth metal) n.m.r. study for conduction electron polarization 1=6431
 X (C₂H₂), proton resonances 1=6047
 Xe¹²⁹, in liquid and gaseous natural Xe 1=1758
 Xe¹²⁹ in natural Xe, liq. and gas 3=16666
 Xe¹²⁹, in solid and liq. Xe, meas. 3=18154
 Xe^{129,131}, relax. time rel. to xenon-gas density 3=23944
 Xe^{129,131} relaxation times in gas 3=1734
 XeF_n (n = 2, 4, 6) chemical shift calc. 4=9769
 XeF₂, liquid, chemical shifts 3=17617
 XeF₄, anisotropy of shielding tensor 4=23069
 XeF₄, chemical shifts and spin-spin coupling 3=17617
 XeF₄, F¹⁹ spectrum 3=15387
 XeF₄, polycrystalline, F¹⁹ mag. shielding anisotropy, sign 4=23070
 XeF₆, liquid, chemical shifts 3=17617
 XeF₆-HF, liquid, width independence of field 4=21157
 XeOF₄, chemical shifts and spin-spin coupling 3=17617
 Xe¹²⁹ in Xe gas, chemical shift 3=16667
 Xe¹²⁹ in XeOF₄, by second r.f. appln. 3=20016
 Y garnet, impure, Fe⁵⁷ relaxation invest 2=6705
 Y⁸⁹, in metal, Knight shift 1=7799
 YFe garnet, anisotropy 3=3205
 YFe garnet, containing impurities, Fe⁵⁷ relax. 2=6704
 YFe garnet, Fe⁵⁷ resonance, influence of dipolar field 1=20263
 YFe garnet, relax., rare earth impurities effect, theory 4=7315
 YFe²⁺ garnet, effect of rare earth doping 4=7312
 Yb¹⁷¹, in Yb metal and cpds., Knight shift 4=10348
 Yb(Al²⁷)₃, large anisotropic Knight shift 1=9069

Nuclear magnetic resonance and relaxation—contd measurement

- (subheading introduced in 1963)
 use of amplitude modulated r.f. field, verification 3=9962
 amplitude modulation prodn. of sidebands 3=19474
 analogue—to—digital convertor for pulsed expts. 3=24501
 apparatus for nuclear-electron double resonance at 12 500 gauss 4=24872
 autodyne detectors with crystal freqn. stabilization, analysis 4=758
 autodyne method for NMR spectroscopy 3=24495
 balanced coil for greater sensitivity for solids 3=19470
 circuit, frequency-swept n.m.r. absorption 4=21664
 control system for mag. field 4=757
 cryostat, He³ 4=24860
 cryostat and sample coil for spin-echo spectrometer 3=14793
 crystals, high-resoln., rotation technique 3=14791
 crystals, spectrometer 4=17689
 detector, autodyne, noise, white, flicker 4=755
 detector, for many-quantum transitions 4=30072
 double coil system of Fibreglass for axial stress 3=7726
 double, periodic pulsing of second freq., for relax. times meas. 4=24870
 double resonance techniques, applied to C study 4=3195
 dual-purpose spectrometer 3=24494
 g-value det. by molecular orbital theory 4=24868
 high resolution, by Overhauser or transitory selective irradi. methods 4=24869
 instrumentation, review of recent advances 3=14789
 imaginary solns. to 3-spin spectra 4=14917
 J coupling, spin echo technique 3=14790
 line width, extended samples, inhomogeneous mag. field 4=750
 liquids, diamagnetic, relaxation meas. 3=23912
 liquids, proton relaxation in weak mag. flds., recording apparatus 4=760
 magnetic field inhomogeneities reduction 3=7727
 magnetic field meas. 3=5808
 microsecond pulse, for broad lines in solids 3=14792
 modulation broadening of line shapes 4=3194
 molecules, oriented, in nematic liquid solvent 4=9776
 non-recurrent var. mag. field 4=16677
 oscillator, frequency without amplitude modulated 4=5836
 by oscillator, low frequency supergenerative 4=14918
 phase-selective X-Y recorder using electrodynamic wattmeter 4=5834
 probes and furnaces, for obs. to 1000°C 4=19248
 proton generator, earth's field, tank synchronizer 4=3202
 pulse receiver system, stagger-tuned, rel. to relaxation time meas. 4=27443
 pulsed u.h.f. apparatus 4=28901
 r.f. bridge for pulsed n.m.r. expts. 3=9961
 resonance techniques with susceptibility balances, signal-to-noise ratio 3=24497
 screening of coils, improving signal/noise ratio 4=30018
 signal enhancement, Varian A-60 spectrometer 4=30075
 signal-to-noise ratio, enhancement by continuous averaging 4=24859
 sources of error, analysis 3=17068
 spectrometer for all nuclei, frequency-swept, proton-stabilized 3=12332
 spectrometer, high-resolution 4=24873
 spectrometer, self-stabilizing using sample reference line 4=752
 spectrometer stabilized by nuclear-spin oscillator 3=14794
 spectrometer, using gated beam tube, for dispersion meas. 4=27672
 spectrometers, high-resoln., design 3=24498
 spectrometers, use of modulation techniques 3=4281
 spectrometers, resolution detm. with methyldichlorosilane 3=19471
 spin decoupler, homonuclear 4=27674
 spin-echo, Hahn-Carr-Purcell methods 4=756
 spin-echo spectrometers, for polymers 4=23064
 spin system levels, by pulse selective saturation 4=3199
 stabilization, double a.f. modulation of mag. field 4=3196

Nuclear magnetic resonance and relaxation—contd measurement—contd

- stabilized oscillator, Pound-Freeman, operation 4=753
 transients in solids, zero time resolution 3=19472
 two-phase systems, relax., spin echo method 3=4282
 two-synthesizer nuclear spin decoupling 3=12333
 vacuum and pressure valve system 4=3197
 vapour phase, simple method of study 4=759
 Varian HR60 spectrometer, spin echo attachment 3=9958
 weaker reson. det. using strong resonance, technique 4=10339

Nuclear matter

See Nucleus, theory; Quantum theory, many-particle systems.

Nuclear orientation

(Heading introduced in 1961)

- Varian V-4331A probe, var. temp. wide line insert 4=27673
 angular momentum operators, component product trace calc. 4=16672
 bombardment target dynamic polarization meas., by n.m.r. 4=19323
 in crystals, rel. to ang. distrib. of emitted γ -rays 2=23036
 in crystals, 1-phonon transitions, freq. spectrum 1=14169
 detection and production 1=8565
 "double effect" in diffusing liquid 1=16972
 double electron-nuclear resonance, nuclear transitions 4=25268
 dynamic nuclear polarization in solids 1=20248
 dynamic polarization in crystals, by electron-nuclear dipolar coupling 1=10185
 dynamic, solid-state aspects 1=14154
 free nuclear induction apparatus 4=30499
 free radical frozen solutions, dynamic nuclear polarization 4=12533
 in frozen solns., utility 1=20206
 Gorter-Rose technique, extension to all paramag. ions 1=7518
 liquids, in high mag. field 4=24243
 at low temp., review 2=1617
 methods, review 1=4827
 Mössbauer effect, conference 1=600
 Mössbauer effect, in crystal props. study 1=8876
 Mössbauer effect, intensity curve shape, unshifted-line spectrum 1=3389
 from Mössbauer effect, parity non-conservation test 4=15136
 optical pumping prod., theory 4=15296
 by Overhauser effect 1=3944
 p, in $\text{La}_2\text{Mg}_3(\text{NO}_3)_{12} \cdot 24\text{H}_2\text{O}$: Ce(0.8% of La), dynamic, from mag. resonances, 0.5-1.7°K 4=6685
 paramag. ions, by incorporation as impurities in CeMg nitrate 1=7518
 paramagnetic substances 1=14153
 polarization in β -decay, Mössbauer expts. proposed for parity and time-reversal studies 1=8635
 polarization, computation by macroscopic magnetic resonance equations 1=7796
 polarization by hot electrons 4=30498
 polarization of protons and fluorine nuclei in polymers 3=25580
 polyethylenes, n. irradi., protons polariz. 3=20064
 proton dynamic polarization of 51% 2=23722
 proton polarization in p-dichlorobenzene 1=20273
 protons in $(\text{Ce}, \text{La})_2\text{Mg}_3(\text{NO}_3)_{12} \cdot 24\text{H}_2\text{O}$, by electron-nuclear dipolar coupling 1=10185
 protons in magnetized Pd-Ni, single transmission effect for slow neutrons 2=6672
 relaxation, statistical time, random space, interactions 3=22273
 slow-neutron capture by bound nuclei, analogue of Mössbauer effect 1=5927
 solids, dynamic polarization by thermal mixing of two spin systems 4=1344
 spin diffusion and polarization at forbidden paramag. resonance 4=26372
 spin = 1 nuclei 4=17004
 Au¹⁹⁸ in Fe rel. to temp. 2=20911
 Au¹⁹⁹, alloyed with Fe, polarization 1=14155
 Au¹⁹⁸ in Fe-Ni, rel. to sign of local mag. field 4=20542
 Cd¹¹¹, γ -ray ang. correl. in Ag dilute alloys, elec. field gradient det. 1=3588
 Cd^{111,113}, optical pumping prod., theory 4=15296

Nuclear orientation—contd

- Ce^{137, 137m}, in Nd ethyl sulphate, mag. moment of
Ce^{137m} 1=2162
- Ce¹⁴¹, β -energy and ang. distrib., matrix elements in
forbidden decay 1=5859
- Ce¹⁴¹, in Ce double nitrate, intermediate-state
reorientation 3=25172
- (Ce, La), Mg₃(NO₃)₁₂·24H₂O, protons, 170 lines increase
in 3700 Oe at 1.6°K 3=20065
- Ce Mg nitrate, ordered spin T → O°K, int. mag. field
calc. 4=28317
- Co⁵⁵ 1=13684
- Co⁵⁷, in Ce double nitrate, intermediate-state
reorientation 3=25172
- Co⁵⁷ polarization in Fe metal at low-temp.,
Mössbauer effect 1=8877
- Co⁵⁸, K-capture, effects on nuc. alignment 3=17433
- Co⁵⁹ in X site of La₂Zn₃(NO₃)₁₂·24H₂O 3=8723
- Co⁶⁰ in antiferromagnetic single crystals 1=3585
- Co⁶⁰, in CeZn nitrate, effect of ionic spin-spin
interaction 1=3586
- Cr⁵¹, CeMg nitrate 1=7518
- D, μ -mesic atom, energy shift 1=13628
- Dy^{155, 157}, in Nd ethylsulphate, γ -ray ang. distrib. 1=10958
- F¹⁹, in polytetrafluorethylene, dynamic
polarization 1=14814
- Fe⁵⁷, in FeF₃, h.f.s. in paramag. and antiferromag. states,
from Mössbauer effect 1=1187
- He³, adsorbed on zeolite, from specific heat.
0.1-1.4°K 4=14506
- He³ gas, polarization by optical pumping and dipolar
exchange 1=1772
- He³, measurement, cryostat 4=11442
- Hg^{199, 201}, by optical pumping, mag. moments 2=3708
- Ho, from γ -ray anisotropy 4=17332
- Ho-In alloy, neutron transmission study 2=18511
- I¹³¹, by electric h.f.s. alignment at 0.03°K in Cu
p-iodobenzenesulphonate 1=616
- InSb, In¹¹⁵, Sb^{121, 123} polarization by d.c. 4=22462
- Ir^{192, 191m}, alloyed with Fe, polarization 1=14155
- Li, resonance study in metal 1=6429
- Li, polarization in u.v.-irrad. LiH 2=3815
- Li⁶ in (p,n) reaction 4=22109
- Mn⁵⁴ in antiferromagnetic single crystals 1=3585
- Mn⁵⁴ in CoCl₂·H₂O, γ -ray ang. distrib. 2=23687
- Mn⁵⁴ in MnSiF₆·6H₂O 2=23037
- Mu⁵⁴ in Ni, polarization, temp. var. 4=3967
- Nd¹⁴⁷, in Nd ethylsulphate, spin assignments 1=12147
- Ne¹⁸, β -decay asymmetry and mag. moment 3=17427
- Ni⁶¹, Mössbauer effect in Ni⁶⁴ host lattice 1=5830
- Np²³⁷, in cooled NpO₃Rb(NO₃)₃, α ang. distrib. 2=393
- Pm isotopes 1=8633
- Pm¹⁴⁴, in Nd ethyl sulphate, γ -ray anisotropy,
crystal fields 1=3587
- Pm¹⁴³ in Nd ethylsulphate 1=10959
- Re¹⁸⁶, alloyed with Fe, polarization 1=14155
- Sb¹²², in Si, β -decay matrix elements 1=12173
- Sm¹⁴⁹, by mag. cooling, spin assignments of low-energy
neutron resonances 3=2468
- Ta¹⁸¹, in Hf, from decay anisotropy, temp. var. 3=20069
- Tb¹⁶⁰, in Nd ethyl sulphate, γ -ray anisotropy 1=623
- Tb¹⁶⁰, in Tb, γ -anisotropy 4=17070
- V⁴⁸, alloyed with Fe, polarization 1=14155

Nuclear photoeffect

See Nuclear reactions, photons.

Nuclear physics

- activities of C.E.L.E., the electronics division of C.N.R.N.,
Italy 0=3870
- activities of the C.R.R.N., Sicily 0=3871
- analogue to digital conversion for use in
apparatus 4=11014
- atomic constants, résumé 0=311
- basic concepts, review 2=20177
- basic principles for reactor processes, review 2=20695
- book, elementary 1=7162
- book, experimental treatment 1=4744
- books 0=19956-7
- CERN symposium 1956, review and proceedings 0=19811-14
- colloquium, Strasbourg (1961) low and medium
energies 2=241
- conference, April 1961 (Birmingham, England) 1=13194
- counting and irradiation expts. with cylinders, formula
for subtended solid angle 1=4171

Nuclear physics—contd

- critical energies, for various substances 4=6012
- and cryogenics, review 2=1617
- data analysis systems, review 4=21691
- data and nuclear models 2=3457
- digital computer applications, "on-line" operation 4=19321
- digital data processing 3=5325
- digital magnetic recording 1=15391
- electrons, conference 2=7534
- encyclopaedia of nucl. energy 3=4285
- flux and flux density, meaning 1=9696
- foil for, prod. of Ge and Hf samples 3=19501
- French progress in instrumentation, review 0=5466
- gas target for multiple-gap spectrograph 2=1632
- glossary, in English, French, German and Russian 0=15179
- handbook 3=2146
- high energy, book 1=12095
- high-energy, conference (Kiev, 1959) 0=19959
- high-energy and high-voltage scale, (p, γ) resonant
energies as fixed points 1=690
- high-energy instrumentation, conference,
Geneva, July 1962 3=527
- high-energy techniques, review 1=384
- Hughes (D.J.) contributions 0=19961
- instrumentation, conference, Geneva (1961) 3=12363
- instrumentation, limitations and needs, survey 2=1618
- instrumentation, review 4=3231
- instruments symposium, Harwell, Sept. 1961 3=12364
- Italian nuclear programme 0=3872
- Kurchatov's (I.V.) work 0=19960
- laboratory, basic eqpt. 2=1616
- laboratory course 0=17129
- low-energy, conference (Paris, 1958) 0=9227
- low-energy, IP-PS conference, Harwell (1962) 2=22352
- low-energy, review 0=12718
- low energy, reviews 4=16712
- low and mean energies, Grenoble conference 1=12029
- low and medium energy, conference, Manchester
(1963) 4=5882
- low-temperature aspect, conference, Kiev,
Oct. 1961 3=24124
- magnetic storage device 1=7176
- masses of light nuclei, review of measurements 0=20321
- matter and point set theory 0=6643
- Mössbauer effect appl. 1=17394
- Mössbauer effect appl., review 2=18512
- use of multiparameter analysers, conference
(1962) 4=11842
- multiparameter analysers, use 3=24187
- nanosecond techniques, review 2=5816
- neutron physics, Soviet progress, conference 4=9002
- normal coordinates, use 2=3449
- nuclear explosions, scientific applications 1=12030
- nuclear instrumentation, symposium 2=3187
- nuclear spectroscopy conference, Kiev (1963) 3=15090
- nuclear spectroscopy, conference, Moscow
(19-27 Jan. 1960) 2=11820
- nuclear spectroscopy conference, Riga,
Jan.-Feb. 1961 3=4286
- nucleonic instrumentation, CERN meeting 0=19962
- origin of elements, theory, neutron-capture
process 1=17109
- photographic data recording for nuclear spectro-
metry 0=17182
- progress book of review articles 0=19958
- radiochemical, manual 2=13699
- review article, covering European work 1=13874
- review for non-specialist 1=5696
- Rochester conference (1960) 1=8397
- Rutherford Jubilee Conference 1=16610
- Rutherford Jubilee Conference 3=12362
- Rutherford Jubilee International Conference 1=19052
- Rutherford's contrib., lecture by N. Bohr 2=5502
- shell model techniques, lectures 4=9340
- statistical problems 1=13195
- storage rings, review 4=14772
- targets, low-temp., liquid hydrogen or deuterium 3=24531
- theoretical physics conference, Charlottesville
(1962) 4=21719
- treatment of data at Saclay 4=16720
- unstable systems, exponential decay law 1=16611
- Varennia school course (1961) 3=22027

Nuclear physics—contd

Winfrith nuclear data library, July 1963, system developed for prep., storing and handling data 4=17214
Z det. for light nuclei using δ rays in emulsion 0=19989

Nuclear quadrupole resonance

(Heading introduced in 1961)

alkali iodates 1=14833
alkali iodides, quadrupole coupling 1=19702
Ampere Colloquium, Eindhoven (1962) 3=20629
Ampere Colloquium, Leipzig (1961) 3=23198
anthracene, solid solution in p-chlorobenzene 1=20277
antiferromagnets, first observation 1=7807
apparatus for freq. ~ 1 Mc/s 1=9695
 δ -benzene hexachloride, bond angles, nucl. quadrupole resonance study 3=8872
butyronitrile, N^{14} reson. 2=14861
chloral hydrate, orientational melting process 2=791, 8688
chloranil, temp. dependence of Zeeman effect 3=8743
chlorine compounds 1=7808
p-chlorobenzoic acid, Zeeman effect 1=8857
2-chloropropane, quadrupole coupling consts 4=12499
 β -chloropropionic acid 1=7808
chlorotoluenes, Cl^{35} reson. and Hammett's σ values 2=10279
coaxial bridge, high-sensitivity 3=7724
coupling constant of Cl isotopes and dipole moment of BrCl 3=25141
coupling consts. det., polycrystalline solids 4=13352
coupling consts., effects of intramolecular elec. fields in molecules 3=2659
coupling consts., solid-state perturbations 2=4293
covalent-bond asymmetries from Zeeman-split NQR 3=8744
crystals, rel. to elec. fields and elastic strains 3=3206
in crystals, magnetically dilute, rel. to symmetry and electric field 1=11471
cubic crystals, acoustic excitation of nuclear induction 1=6428
cuprous oxides, spin-lattice, local field fluctuation contribs. 2=789, 8689
cyanuryl chloride, N^{14} resonance, coupling const. and asymmetry parameter 1=10198
cyclopropanes, chlorinated 3=25142
cyclopropyl chloride, quadrupole coupling consts. 4=12500
detection, by crossing technique 3=12336
deuteron resonance of crystals with O—D...O bonds 4=28894
p-dichlorobenzene, Cl resonance, shift with applied field 1=17350
p-dichlorobenzene, orientational melting process 2=791, 8688
p-dichlorobenzene, relax. time meas. using impurities 4=13356
p-dichlorobenzene, 6 solid solns. of 1=20281
p-dichlorobenzene, spin-lattice relax. 2=788
p-dichlorobenzene, Zeeman effect 1=8857
1, 2-dichloroethane- d_4 3=8745
1,2-dichloroethane, solid, Cl^{35} spin-lattice relaxation 4=22477
1, 1-dichloro-2-propanone, Cl^{35} reson. 2=3787
1, 4-dimethylnaphthalene, solid solution in p-chlorobenzene 1=20277
effects in dilute alloys 1=9075
ethylendiamine, N^{14} reson. 2=18487
ferrites, quadrupole relax. 2=14857
halides, rel. to orbital energy matching 2=6226
hexadecapole moments induced in ionic closed shells, calc., antishielding effects 1=7424
hexamethylene tetramine, N^{14} reson. mass 2=9724
hexanediamine, coupling meas. 3=2656
impurity shift 1=14832
inertial mass anisotropy detection 1=4245
interaction in covalent bonds, variation with applied field 1=17350
ionic crystals, rel. to phonon spectrum 4=17702
ionic crystals, spin-lattice relax. time 1=3948
line shape, correction for instrumental broadening 2=16081
line shape, mag. field, const., effect 2=23726
linear effect of applied elec. field 1=14837
liquids, relax., rotational correl. times 4=210
liquids, relax. theory rel. to elec. field gradient 4=8225
meas. at low temp., cryostat 3=24503
measurement cryostat, allowing cold specimen charging 4=14919

Nuclear quadrupole resonance—contd

metal halides, solid layer type, bonding 2=4294
metals, field gradient, sign of conduction electron contrib. 4=20155
metals, review 2=8681
monochloroacetonitrile, coupling meas. 3=2656
monochloroacetonitrile, N^{14} reson. 2=14861
naphthalene, solid solution in p-chlorobenzene 1=20277
natrolite ($Na_2Al_2Si_2O_{10}$), Na^{23} and Al^{27} reson. 2=8691
Ninth Ampere Colloquium 1=4734
nitriles, N^{14} quadrupole coupling consts. and field gradient asymmetry parameters 1=4950
nitrogen in organic cpds. at $-196^\circ C$ and $74^\circ C$ 1=12574
organic crystals, Cl reson., ionizing radiations effect 2=14863
paradichlorobenzene, Cl^{35-37} lines meas. 2=9724
parametric spectrograph 1=12025
perdeuterobenzene, liquid, relax. rel. to molec. reorientation 4=18221
perturbation due to strains in alkali halide crystals, gradient-elastic tensor 4=15396
4-picoline, coupling meas. 3=2656
4-picoline, N^{14} reson. 2=14861
4-picoline, transitions 1=12575
pyridine, N^{14} reson. 2=14861
n-propyl chloride, gauche, quadrupole coupling constants 3=25130
pyridine, coupling meas. 3=2656
relaxation, effect of molecule shape, theory 4=12516
relaxation time meas. apparatus, 20-150 Mc/s 4=762
resonance energy levels, for arbitrary asymm. of elec. field grad. 2=2309
review 3=5031
review, recent work 4=761
review, systematization, USSR work 1=4742
ruby, temp. dependence of Al quadrupole interaction 3=13317
shift of freq. by elec. field 1=14836
solids, chemical bond study 2=14349
solids, spin-lattice relax., pulsed nuclear induction techniques 2=788
solids, Stark effect up to 50 kV/cm 4=7358
solids, temp. dependence of nuclear pure quadrupole relaxation 3=25598
spectrometer, automatic 3=19469
spectrometer, single tube, for Cl and N meas. 2=9724
spectrometer, with square-wave freq. modulation 2=1609
spectrometer, superregenerative, feed back coherence control 4=19249
spin-echo effect, u.s. stimulation 2=4292
spin 5/2 nuclei, 2nd moment 4=1908
spin Hamiltonian for half-integral I 1=19573
spin $\frac{3}{2}$, n.m.r. broadening of coupled nucleus 4=9768
technique improvements 1=10797
use for temp. meas., apparatus 3=14401
temp. and pres. depend., asymmetric crystals 3=25596
temp., press. and impurities, effects 2=14862
1, 2, 4, 5-tetramethyl benzene, solid solution in p-chlorobenzene 1=20277
theory and applications to research, review 2=9723
theory, expt. and appl., review 2=14859
thiorea, N^{14} reson. 2=14861
3d transition-metal bromates and iodates, antiferromagnetic interactions 1=7807
III-V cpds., relax. times 2=8696
trans-1,2-dichloroethane, effect of hindered rotation 4=26457
1,3,5-trichlorobenzene, Zeeman effect 1=9076
N-trimethylborazole, B^{11} quadrupole coupling constants 1=17348
trimethoxyboroxine, B^{11} quadrupole coupling constants 1=17348
urea, N^{14} reson. 2=14861
urea, single crystals 2=2309
Zeeman effect in crystalline powders 1=20279
Zeeman modulator, circuit modification 2=20176
Zeeman splitting parameters, table 1=5823
 $AgBr$, spin-lattice relax. time 1=3948
 Al^{27} , in Al_2O_3 , linear elec. shifts meas. 4=28907
 Al^{27} , in $AlPO_4$ 2=4298
 $AlCl_3 \cdot 6H_2O$, temp. depend. 2=23725
 As^{75} in orpiment, 77° and $300^\circ K$ 4=23079

Nuclear quadrupole resonance—contd

- As⁷⁵ in As₂O₃, rel. to high pressure 1=12576
 As⁷⁵, in Na₂NaSO₄·7H₂O 2=8690
 B¹¹, in lesserite 2=14851
 B¹¹ in trialkylboranes, rel. to α C—H bonds 4=6645
 B—I cpds. 2=14860
 Ba¹³⁵,¹³⁷ in Ba(ClO₃)₂·H₂O 3=12336
 Ba¹³⁷ and Ba¹³⁵, in Ba bromide hydrate 2=16302
 Ba¹³⁷, in BaBr₂·2H₂O 2=8693
 Ba(ClO₃)₂ hydrate, chlorine pure quad. echo 2=8687
 BeO, Be⁹ quadrupole coupling const. 1=20278
 Be⁹ and O¹⁷ in BeO, quadrupole interactions 4=12568
 Bi¹¹ in danburite, coupling and atomic struct. 4=20628
 Br⁷⁹ in SbBr₃ complexes with benzene and derivs., and naphthalene, and mol. struct. 4=23081
 Br⁷⁹,⁸¹ in halogenated benzene and nitrobenzene rel. to electric field 4=1312
 Br⁷⁹,⁸¹ in KBr, quadrupolar relaxation 1=3942
 Br⁷⁹,⁸¹ in Menshutkin [SbBr₃] complexes, rel. to structure 4=26456
 Br⁷⁹,⁸¹ in NaBrO₃, spin-lattice relax. and temp. depend. 4=4434
 Br⁸¹, nuclear quadrupole interactions in polycrystalline cpds., elec. induced perturbations, expt., microscopic and phenomenological theory 4=28909-10
 Br⁸¹ in KBrO₃, rel. to high pressure 1=12576
 Br⁸¹ in KBrO₃ and NaBrO₃, impurity shift 1=6438
 BrCl 1=11125
 CCl₄, liquid, rotational correl. times 4=210
 CCl₄, solid, multiplet structure, temp. var. 2=790, 4295
 CHF Cl, liquid, spin-lattice relaxation by spin-rotational interactions 1=8138
 CH₃I and CD₃I, I resonance., temp. depend. 2=10727
 C(NH₂)₃Al(SO₄)₂·6H₂O and isomorphous cpds. 1=12573
 Cl, in CuCl₂·2H₂O, g factors, meas. and calc. 4=3958
 Cl in monochloroacetic acid crystals, 3 polymorphous phases 4=13353
 Cl, in 6-chloro-2-nitrotoluene, n.q.r. Zeeman spectrum 4=17704
 Cl, temp. dependence 4=1313
 Cl₂, solid, Zeeman broadening 3=15411
 Cl³⁵ in α-ω-(CH₂)₂ Cl₂ 1=7808
 Cl³⁵ in aromatic cpd., effect of elec. field due to nitro-, amino- substituted 4=20105
 Cl³⁵ in cpds., Zeeman effect 4=25739
 Cl³⁵, nuclear quadrupole interactions in polycrystalline cpds., elec. induced perturbations, expt., microscopic and phenomenological theory 4=28909-10
 Cl³⁵ in ortho-dichlorobenzene, Zeeman effect 4=13355
 Cl³⁵, in paradichlorobenzene, effect of ±1, 2 transitions on relaxation time 3=25597
 Cl³⁵, in para-dichlorobenzene and Na chlorate, rel. to temp. 2=8695
 Cl³⁵ relaxation in para-dichlorobenzene under const. press., temp. dependence 4=28908
 Cl³⁵ in Ba(ClO₃)₂·H₂O, Zeeman splitting 3=12336
 Cl³⁵ in SbCl₃ complexes with benzene and derivs., and naphthalene, and mol. struct. 4=23081
 Cl³⁵, in various cpds., 4.2-300°K 4=26458
 Cl³⁵,³⁷ in FeCl₃, large linewidth 4=17703
 Cl³⁵,³⁷, in polycryst. trichloroacetic acid, isotope effects 4=10350
 Cl³⁵ in CCl₃C(OH)C₂H₅ multiplet structure 3=15964
 Cl³⁵ in KClO₃ and NaClO₃, impurity shift 1=6438
 Cl³⁵, in Na and K chloraurates, + 18° to -196°C 4=12520
 Cl³⁵ in NaClO₃, temp. var. extrapolation to 0°K 4=4435
 Cl³⁵ in NaClO₃, temp. var., for temp. meas. 4=21340
 Cl³⁵ in (PNCI₃)₃, Zeeman effect 3=23264
 Cl³⁵ and TeCl₄, liquid air temp. 4=1310
 Co⁵⁹, in f.c.c. Co metal, temp. and press. depend. 1=11464
 Cu, effect of cold work 1=14834
 Cu⁶³, in various cpds., 4.2-300°K 4=26458
 Cu, Cu nuclei near Ag and Zn impurities 3=13318
 Cu⁶³, in Cu₂O, resonance quenching by Ag 2=14858
 CuZn, rel. to quadrupole coupling with conduction electrons 1=1416
 D, in D₂O liq., theory and expt. 4=8225
 D in organic liqs., spin-lattice relax. 4=24248
 D₂O, liquid, relax. rel. to molec. reorientation 4=18221
 Fe⁵⁷ in BaO·6Fe₂O₃, quadrupole splittings and isomer shifts 4=12591

Nuclear quadrupole resonance — contd

- Fe⁵⁷ in ZnS, and luminescence centres 4=7351
 Ga, liquid, relaxation process 3=23915
 GaAs, quadrupole spin transitions 3=8747
 Ge, relax. time 2=8696
 Hg²⁰¹, relaxation on quartz walls 4=6493
 I in iodic acid, rel. to temp. 4=22426
 I¹²⁷ in halogenated benzene and nitrobenzene rel. to electric field 4=1312
 I¹²⁷ in mercuric iodide, at high pressure 3=25596
 I¹²⁷, nuclear quadrupole interactions in polycrystalline cpds., elec. induced perturbations, expt., microscopic and phenomenological theory 4=28909-10
 I¹²⁷ in SnI₄, rel. to high pressure 1=12576
 In, 4-225°K 1=5077
 In, 4.2-390°K, elec. field gradient 2=4296
 In, press. var. and thermal expansion, and elec. field 4=28313
 In¹¹⁵ in InI, 4=26453
 KClO₃, Cl³⁵ nuclei, shape of signals 2=23726
 KClO₃, Cl³⁵ second movement, linear effect of applied ele. field 1=14837
 KClO₃, γ-irradiation effect 2=8694
 KClO₃, spin-lattice relax. 2=788
 KNbO₃, ferroelectric, Nb⁹³ spectrum, temp. depend. 1=1288
 Li, in ferroelectric cpds., temp. depend. 2=18972
 Li₂SO₄·D₂O, Li⁷ resonance 2=4297
 Li⁷ coupling in LiNO₃ 1=20280
 MgAl₂O₄ spinel 1=14835
 N¹⁴ in ethylenediamine, temp. depend. from 77-280°K 4=7359
 N¹⁴ in hydrazine, 77° to 244°K 4=13354
 N¹⁴, in N₂ solid 2=8692
 N¹⁴, in organic cpds. 2=14861
 N¹⁴, in pyridine 2=3687
 N¹⁴ relaxation by quadrupole interactions in molecular liquids 3=9482
 N¹⁴ in solid N₂, effects of N¹⁵ 3=8742
 N¹⁴ in FCN 4=9735
 N¹⁴ in MeCN, EtCN, PrCN and Me₂NCHO, relax. 4=20104
 ND₄ salts 2=6708
 ND₄ salts, deuteron reson. 2=6708
 Na theosulphate, single crystals 2=2309
 Na²³, in NaCl, quadrupolar relaxation 1=3942
 Na²³, in NaNO₃, coupling constant 1=14838
 NaBrO₃, Br⁸¹ freq. shift by elec. field 1=14836
 NaCl, of rare Na, Cl nuclei at non-cubic sites 4=20606
 NaCl, Cl³⁵ coupling, Stark effects 4=23080
 NaClO₃, spin-lattice relax. 2=788
 NaClO₃, Cl³⁵ second movement, linear effect of applied elec. field 1=14837
 Na²³ and I¹²⁷ in NaI, rel. to temp., calc. 4=17702
 Ni(IO₃)₂·2H₂O, antiferromagnetic interactions 1=7807
 NaNO₃, Na²³ elec. quad. coupling const. 2=10724
 Na₂WO₄, W¹⁸³ reson., conduction-band states 2=18968
 Sb¹²¹,¹²³, in polycryst. SbI 2=21388, 23724
 Sb¹²¹,¹²³ in stibnite 3=11128
 Sb¹²¹,¹²³ in Sb metal at 4.2°K 3=8746
 Sb¹²¹ Cl₃ crystal compounds, temp. var. 4=4433
 SbCl₃, Sb¹²¹ resonance 3=15968
 SbCl₃, SbBr₃ complexes with benzene and derivs., and naphthalene, and mol. struct. 4=23081
 Sb¹²¹,¹²³ in SbBr₃ (Menshutkin) complexes rel. to pyramid structure 4=26456
 Sb¹²¹,¹²³ in SbCl₃, SbBr₃ complexes with benzene and derivs., and naphthalene, and mol. struct. 4=23081
 TiCl₄, ThCl₄, NbCl₅, TaCl₅ 1=14839
 Tm ethyl sulfate, oxide, trifluoride, and electronic shielding 4=30497
 Tm¹⁶⁹(C₂H₅SO₄)₃·9H₂O, temp. var., Mossbauer meas. 4=3965
 ZnS:Fe⁵⁷, and luminescence centres 4=7351

Nuclear reactions

- See also Chemical analysis, by nuclear reactions;
 Fallout; Nuclear bombardment targets; Nuclear excitation; Nuclear fission; Nuclear fusion; Nuclear spallation; Radioactivity; Thermonuclear reactions
 a + b → c + d + e + ..., relativistic theory 1=19126
 a + b → c + d + e + ..., relativistic theory 3=4337
 absolute differential cross-section using multiangle mag. analyser 4=12269
 accelerator energy calibration 1=13138

Nuclear reactions—contd

α particle prod., reduced widths in magic nucleus, shell calcs. 4=25368
 α -particle stripping cross-sections 3=15236
 angular correlation in direct and indirect reactions 2=5878
 angular correlation and pole terms 4=17110
 angular correlation theory, proper ang. momentum variables 2=1067
 angular correlations, emission from nuclei with large ang. mom. 1=19433
 angular correlations, emission from nuclei with large ang. mom. 3=4612
 angular-distribution chamber 0=17577
 angular distribution expts., design criteria 4=22082
 antiproton scattering, in nuclear matter, effective cross-section 0=5748
 backward peaking in direct interactions 1=8681
 breakup of charged particles by nuclear Coulomb fields 0=13223
 break-up process, soluble model 1=19114
 "cascade evaporation" model 1=3468
 cascade processes, momentum imparted to nuclei, calc. 0=17593
 cascades, intranuclear, calc., shower theory 4=22087
 catalysed, theoretical interpretation 0=9608
 centre-of-mass corrections 2=7963
 chamber for obs. on complex reactions 4=22092
 charge symmetry, evidence for 3=10379
 charge symmetry test 3=15225
 cluster effects in mass-3 particle induced reactions 1=19428
 cluster effects in orbital Young shell model diagrams 4=22096
 cluster stripping, theory 3=15167
 collected papers, Herceg-Noví (1962) 4=27930
 collision matrix 0=11391
 complex-eigenvalue theory, one-level approx. 3=22357
 complex-eigenvalue theory, two-level approx. 3=24917
 complex particle emission, preformation factor, comparison with evaporating water drop 0=20422
 with complex particles, quasiclassical approx. 1=10998
 compound nuclear processes, competition with direct interactions 1=8671
 compound nuclei of high ang. momentum, neutron emission 1=17157
 compound nucleus cross-sections, averaging in the continuum 4=6311
 compound nucleus deformation, in heavy ion reactions, liquid-drop model 2=3536
 compound nucleus—direct interaction interference, calculable model 1=17069
 compound nucleus formation, energy depend. of reaction cross-section 1=4854
 compound nucleus formation, role of parity 1=8544
 compound nucleus formation, study by ang. distrib. of recoil nuclei 0=13219-20
 compound nucleus formation, surface coupling mechanism for approaching statistical equilibrium 0=1395
 compound nucleus formation time 2=16378
 compound nucleus formation time 3=6216
 compound nucleus γ -radiation 2=16379
 compound nucleus, γ -radiation 3=6217
 compound nucleus mode, (p, n) cross-sections, calc. 0=17590
 compound-nucleus model, appl. to Fe⁵⁴ and Ni⁵⁸ α -reactions 1=11034
 compound nucleus processes in medium-mass nuclei 0=4084
 compound nucleus, review 1=8677
 compound nucleus, validity and life time, random phase approximation 4=9465
 compound reactions, classical theory 0=17572-1
 compound, statistical theory, review 4=12194
 computer programme Galaxy 3 for IBM7090 4=30333
 conference, Orsay (1963) 4=11841
 continuum region of compound states, cross-section fluctuations, compound nucleus lifetime 1=672
 Coulomb attraction field, resonances in cross-sections below threshold 4=1058
 Coulomb disintegration of heavy ions 0=20421
 Coulomb interactions in channels, penetration factors 4=9466
 Coulomb scattering interference, high energy 0=20429

Nuclear reactions—contd

Coulomb wave-functions, numerical tables 3=14924
 critical particle momentum for which nucleus does not recoil 3=22359
 cross-section det. techniques 2=16419
 cross-section fluctuation widths at high energies 3=22354
 cross-section fluctuations, angular cross-correlation function 4=22091
 cross-section fluctuations, finite energy range effects 4=22097
 cross-section fluctuations, and width to spacing ratio 4=12195
 cross-sections near threshold, calc. 1=10996
 cross-sections, probability distributions 3=24916
 cross-sections, theory 0=7600
 in cyclotrons, vacuum-tight walls for obs. devices 4=16163
 data handling, using on-line computer 4=22088
 density of states functions for cross-sections 3=330
 deuteron emission, reduced widths, on Nilsson model 2=7961
 deuteron prod. by nucleon bombard. of nuclei, theory 0=11398
 deuteron stripping, optical model 1=5885
 deviations from current models, review 1=8668
 differential cross section meas., use of two detectors in coincidence 4=16745
 diffraction breakup of light by heavy nuclei 0=2670
 diffraction formula, black sphere 4=9471
 diffraction model extension 4=28013
 diffraction processes, high energy 1=10997
 diffraction processes, inelastic, at high energies 3=15169
 diffraction scattering, elastic and inelastic 1=8679
 direct, amplitudes, complex singularities 3=15165
 direct, ang. localization of reaction sites 3=8065
 direct, angular distribution and polarization 0=20420
 direct, coupling potential, character 3=19885
 direct, cross-section near singularities 3=15163
 direct, between deformed nuclei, gross structure 1=19423
 direct, diffraction mechanism 4=25362
 direct, dispersion theory 2=3540
 direct, dispersion theory 3=4609
 direct, interact. in initial and final states 3=22352
 direct, interact. in initial and final states 4=6308
 direct, interaction in initial and final states 3=15164
 direct interaction with strong coupling in collisions 0=4087
 direct interaction in 2-nucleon emission 0=13222
 direct interactions, ang. distrib. and polarization 1=8674
 direct interactions, competition with compound nuclear processes 1=8671
 direct interactions, Coulomb effect, appl. to (p,p') and (p,n) 1=8716
 direct interactions, distorted-wave Born approx. 2=1857
 direct interactions, distorted-wave Born approx., effect of wave-function distortions 1=8675
 direct interactions, effect of a compound-nucleus resonance 1=8673
 direct interactions, effect of wave-function distortion of scattered particle 1=7363
 direct interactions, mechanism 1=8670
 direct interactions, mechanism in (d, α) reactions 2=20668
 direct interactions and nuclear models 1=5881
 direct interactions of very short duration 0=9609
 direct interactions, single-particle versus collective excitations 1=19465
 direct knock-out, distorted-wave Born calc. 3=24918
 direct, nuclear polarization, rel. to spin-orbit interact. 4=6312
 direct, nucleus polarization from γ -ray props. 0=11397
 direct, at 0° and 180° 4=28006
 direct, with polarized particles, theory 0=9610
 direct, with polarized targets 1=19429
 direct processes, vertex parts of amplitudes 3=2427
 direct reactions, amplitude vertex parts, study on optical model basis 3=2422
 direct reactions, dispersion theory 2=3541
 direct reactions, exchange terms 4=3627
 direct reactions, initial and final state interactions 4=1059
 direct, symmetry of distorted-wave theory 0=17573
 disintegration, Li⁸ fragment emission 0=17575
 dispersion formulae, with optical interaction and overlapping levels 1=17068

Nuclear reactions—contd

dispersion formulae and resonances in reactions 1=3431
 distorted wave Born approx. amplitude study 4=25366
 distorted-wave, Born-approx. calc. 1=19430
 distorted-wave theory, spin-orbit effects 4=25365
 distorted-waves calc., finite-range, theory 4=9467
 distribution function, simultaneous emission of
 3-particles 2=10080
 double peripheral model 4=30253
 double stripping reactions, review 1=8678
 double stripping, three models, detailed study 4=12273
 due to neutrinos, boson prod., intermediate on Al^{27} ,
 Cu^{63-64} , calc. 4=17111
 effect of Coulomb scatt. of charged particles on
 atoms 0=12875
 elast. and inelast. scattered waves, coupling, rel. to
 E2 excitation 1=19426
 elastic scatt. by complex nuclei, strong absorpt.
 model 4=6301
 emulsion nuclei with cosmic ray nucleons 1=3259
 emulsion nuclei, at 9 GeV 1=12190
 energies, $A > 70$ tables 1=19609-10
 Ericson cpd. nucleus theory 3=2473
 evaporation model, analysis and fluctuations 3=12652
 evaporation model (p, α) and (p, p') analysis 2=1889
 evaporation processes, Monte Carlo calc. 0=13217-18
 evaporation processes, Monte Carlo calc. for low-energy
 reactions ($E < 50$ MeV) 0=1397
 evaporation theory, level density formula for calc. 1=7365
 exchange effects inclusion in collision theory 4=3625
 exchange reactions, example of inapplicability of Austern—
 Butler—Manus theory 1=13788
 excitation functions rel. to ang. momentum and
 γ -ray emission 2=20581
 excitation functions, effect of competition between
 γ -ray and particle emission 1=10996
 excitation, mutual or double transfer, semi-
 classical 3=22355
 extranuclear direct capture, γ -ray transitions 1=8682
 extreme-angle reactions, information 2=1854
 fast nucleon scattering, optical model potential 0=5739
 fast particle scatt., effect of boundary smearing 2=20578
 few-nucleon reactions with central forces 2=1859
 final states involving three or more particles,
 theory 2=5777
 fluctuations in cross-sections, doorway state
 spacing 4=28009
 fluctuations in cross-section, Monte Carlo
 calc. 4=15195
 fluctuations in cross-sections near overlapping
 resonances, theory 4=6305
 fluctuations in cross-sections, statist. hypothesis 2=12178
 formation of iron group elements in supernovae 1=15516
 γ -ray spectra following reactions, statistical theory 1=7364
 gas target chamber, for large currents 2=7785
 general prop., review 2=20177
 general relativistic theory 1=3432
 giant double resonance, e.m. structure 4=12128
 giant resonances, nuclear Ramsauer effect 2=3588
 giant resonances, S-wave strength functions, rel. to
 surface diffuseness 4=992
 handbook 3=2146
 heavy charged particles, meas. 2=5883
 heavy nuclei, optical potential 3=4611
 heavy particle stripping, distorted wave theory 2=18310
 heavy particle stripping, distorted wave theory 3=15168
 heavy particle stripping, rearrangement collision
 theory 2=22779
 heavy target nuclei, energies $> 10^{11}$ eV
 meson prodn. 2=20377
 high energy cascade observations 4=25367
 high energy central collisions of heavy primary cosmic
 rays 4=27925
 high-energy, dissociation of beam particles by nuclear
 Coulomb field and diffraction scatt. 1=469-70
 high energy, fireball model 4=17108
 high energy, with heavy nuclei, light nuclei prod. and
 target structure 4=6307
 high-energy, intranuclear cascades, calc. 1=9849
 high energy jets and five ball model 4=27918
 high-energy, multiple production of particles 0=9264
 high energy, new model 1=19303

Nuclear reactions—contd

high energy nuclear physics, symposium,
 London (1962) 2=16377
 high-energy, nucleon momentum distrib., from quasi-
 deuteron model 0=17468
 high energy nucleons, inelastic scattering 2=1867
 high-energy physics conference, Tihany (1962) 4=21689
 high-energy with secondary particle isotropic ang.
 distrib. 3=2428
 high-energy, statistical models 0=7541, 15565
 inelastic scattering by deformed nuclei 0=17578
 interference between compound and direct
 processes 4=15196
 inelastic diffraction scattering, theory, equivalence of
 distorted-wave Born approx. and adiabatic
 method 0=20426
 inelastic processes, analytical props. 4=855
 inelastic scattering of nucleons by light nuclei 0=9626
 intermediate energy, resonances, partial equilibrium
 model 2=5880
 intermediate energy structure and compound
 excitation 4=9470
 interaction radius in direct reactions 1=3433
 isotopic spin conservation, electromagnetic
 corrections 0=1239
 K-shell ionization probability during reaction 4=3548
 kinematic analysis, high energy 0=9307
 kinematics, book 4=12193
 kinematics nomograms for 2-particle emission 4=22089
 light elements, Q_0 values, remeas. 2=5881
 light nuclei, ang. distrib. of reaction products 1=19432
 light nuclei, energy distrib., using astigmatic focusing
 spectrometer 0=9251
 light nuclei, fast nucleons, "spectroscopic
 approach" 3=2440
 liquid H or D thin target 1=474
 Lobachevskii's kinematics and geometry, use 4=18
 low energy, Dalitz diagrams, generalized, for
 $A + a \rightarrow C^* \rightarrow b_1 + b_2 + b_3$ 3=8061
 low-energy, resonance theories discussion 3=6215
 many-channel, schematic theory 2=18313
 mechanism of primary collision with nucleons in
 nucleus 3=24938
 mechanisms, review of recent results 3=12647
 meson prod., multiple, new quantum mechanism 3=10133
 use in microanalysis, solid state application 4=20770
 momentum transfer to target nucleus, meas. 3=8060
 multi-BeV, theory 0=13227
 multinucleon transfer between complex nuclei 3=8066
 multiparticle reactions, three-dimensional
 representation 4=6310
 (n,p) cross-sections on 30 nuclei, test of statistical
 theory 1=8680
 nature, rel. to jet investigations 3=17364
 neutrino and antineutrino losses 2=22485
 neutrino capture, bound state, in sun 4=22100
 neutrino induced, in Be^9 3=19886
 neutrino-induced, possible 2=10145
 neutrino-induced, search for 4=6314
 neutrino interactions with complex nuclei, assuming
 existence of a neutral lepton current 1=3161
 neutrino production, large cosmic population due to
 previous reactions 1=10369
 neutrinoless coherent capture of μ^- , meas. 2=22831
 neutrinos, $Cl^{37}(\nu, e^-)Ar^{37}$, for solar ν detect. 4=20918-19
 by neutrinos, high-energy, conserved vector current and
 partially conserved axial-vector current
 hypotheses 4=28015
 neutrinos, μ prod., nuclear struct. effect 4=28016
 neutron evaporation, rel. to level densities in excited
 nuclei 0=5736
 neutron evaporation, Monte Carlo calc. 1=16960
 neutron separation energies, Hg, Tl, Pb and Bi
 isotopes 4=19638
 neutron transfer, nuclear potential shape effects 3=17448
 non-locality and finite range effects, local energy
 approx. 4=22099
 non-relativistic graph technique for direct reactions 3=8059
 (ν , e), Fermi gas model of nucleus 2=12228
 nuclear interior and surface, relative contribs. 4=6187
 nuclear recoil, effect of chemical binding 0=13131
 nuclear recoil momenta, rel. to evap. processes 3=4638
 nuclear surface thickness, effect 2=13952

Nuclear reactions—contd

nucleon—heavy nuclei, 10^{10} – 10^{14} eV, slow particle emission 3=8084
 nucleon indistinguishability, influence 2=1852
 nucleon inelastic scatt., direct interaction theory 0=11443
 nucleon—nuclear interactions, nonlocal optical model 0=13107
 nucleon—nucleon collisions, direct, inside nucleus, impulse approx. 1=8683
 nucleon—nucleon, weak, at high energy, rel. to μ meson production 1=16682
 nucleon—nucleus collisions at 100 GeV 2=5897 2=5897
 nucleon—nucleus, inelastic, rel. to residual interactions 4=9486
 nucleon scattering, on nuclei with shell properties, elastic and inelastic cases 4=22123
 nucleon transfer, probability by tunnelling, theory 2=1855
 nucleon tunneling of single N transfer, limitations 4=28022
 nucleons with nuclei $A > 20$, 5–20 MeV, review 1=17067
 by nucleons, 100 GeV, secondary particles 3=10105
 nucleus with diffuse boundary, effect on ang. distrib. 4=25364
 optical giant resonances, theory 2=3544
 optical model, appl. of fluctuation-dissipation theorem 0=20501
 optical model, appl. to neutron elastic scatt. at low energies 0=15592
 optical model, foundations 1=17066
 optical model foundations of nucleus and direct interactions 0=1349
 optical model, for high-energy polarized nucleons 0=5738
 optical model in the interior of the nucleus 3=2425
 optical model, nonlocal, plausibility 0=1344
 optical model, one-particle motions 1=3430
 optical model, for oriented nuclei, anisotropy parameters 0=20482
 optical model potential, effect of nuclear energy gap 0=17463
 optical model potential for forward scatt., amplitude, high-energy limit 0=20428
 optical model potential, target exchange corrections 0=15566
 optical model, review, rel. to direct interactions 1=8542
 optical model, scattering amplitude 0=13109
 optical model wave-functions for strongly absorbing nuclei 1=19422
 optical potential expression for reactions with heavy nuclei 4=3624
 optimum target orientation 0=9611
 oriented nuclei, angular correlations 1=8646
 parity change in inelastic scatt., det. from ang. distrib. 1=5904
 "parity-unfavoured", forward and backward "selection rule" 3=24637
 particle detection, with semicond. p–n junctions 1=3086
 peripheral collisions of high-energy nucleons 0=9613
 peripheral interactions 0=9618
 phase shift behaviour when reaction channels present 2=20575
 pickup reactions, nucleon momentum distrib., optical potential effects 3=624
 polarization between incoming and outgoing particles, direct reactions 1=19431
 polarization of emitted deuteron, theory 1=13528
 polarization of particles with arbitrary spin 4=6309
 polarized H, D and T targets, metallic foil solutions 1=671
 polarized targets for test expts. 2=20582
 primary study inside cyclotron vacuum tank 3=10321
 prod. of radioactive two-proton emission 1=19380
 prod. of 3 low-energy particles, amplitude expansion 0=9612
 prod. of 2–4 spin- $\frac{1}{2}$ fermions, ang. correl. 0=11395
 production of delayed protons, possible observation 4=3629
 production of two particles 1=4773
 products, charged, magnetic multispectrograph 4=16844
 products, emission angle dependence, nomogram 4=1062
 products, identification, energy meas. 2=5975
 proximity scatt., meas. of fast transit. and scatt. of unstable particles 2=3537
 pycnonuclear, and nova explosions 0=11396

Nuclear reactions—contd

Q-values, corrections due to atomic binding and excitation 1=5882
 quanta, low energy, prodn. 2=20602
 R-matrix theory, reduced width ampl. distrib. and random sign rules 4=1056
 radiative capture cross-sections, even nucleon number effect 4=3668
 radiative capture reactions in resonance region 0=17570
 reaction amplitudes, cross-section dependence, dispersion relations, near thresholds 0=20077
 reaction cross-section, energy depend. when compound nucleus is formed 1=4854
 reaction matrix calc., separation method 2=3454
 reactions involving formation of several particles, partial wave minima 1=19160
 reactions involving formation of several particles, partial wave minima 2=22466
 rearrangement, theory for both direct and cpd. processes 2=7960
 recoil nuclei, ang. distrib., accurate meas. 0=13219–20
 recoil nuclei, counting by surface barrier semiconductors 4=14973
 recoil nuclei, measurement of angular and energy distributions 1=12187
 recoil nucleus obs. in semiconductor detector 4=11857
 recoil probability in (x, y) reactions in solids 2=3546
 recoil technique in cyclotron bombardment of powder targets 1=2202
 resonance levels, reduced widths theory 3=15194
 resonance parameters, average, R-matrix theory 3=6213
 resonance peaks, correction for exptl. resolution 1=17982
 resonance reactions, Blatt–Biedenharn formalism, extension 0=7543
 resonance reactions, dispersion relations 4=28007
 resonance reactions, formal theory, without channel radii 0=17567
 resonance reactions, generalized one-level approximation 0=17569
 resonance reactions, Regge pole concept 4=17109
 resonance, Regge poles 4=30334
 resonance scatt. theory 4=6304
 resonance theory, tabulations of $\psi(x, t)$, $\phi(x, t)$, $\Psi_n(t)$ 0=13216
 resonances, dispersion rels, for overlapping levels 1=4852
 resonant transfer processes 2=14069
 resonant yields, straggling effects, calc. 2=3545
 review, historical account 3=2512
 review of theory 0=12718
 scattering chamber, continuous rotation type 1=13237
 scattering, closely coupled states, rel. to optical potential 2=11286
 scattering, inelastic, low energy, compound nucleus effect 4=6306
 scattering on nonspherical nuclei, nuclear interaction 0=11392
 scattering near reaction threshold, cross-section energy depend., resonances 0=11393
 scattering, relativistic amplitude parametrization for arbitrary particle spins 2=7831
 secondary particle reabsorption model 2=7962
 selection rules for polarized particles 0=2507
 separation of mechanisms, by excitation ang. correl. obs. 4=22098
 shell model, appl. for phase space quasi-probability distrib. 0=17470
 Σ^- capture with π^- emission 2=18346
 Σ^\pm , inelastic, summary of 3=8121
 with simultaneous emission of several neutrons 4=1111
 single-channel, phase shift analysis, review 3=12650
 singularity w. r. t. momentum transfer in 2-loop graphs for low energies 4=3628
 solar system, formative reactions in early history 2=11107
 spherical nuclei, stripping, pick-up, quasi-particle approx. 3=2372
 spin polarization, distorted-wave theory 0=17574
 spirality inversion 3=15166
 in stars, buildup from C 0=3424
 in stars, dwarf dense white type 0=8517
 in stars, element build-up by He, n and p capture 0=14465

Nuclear reactions—contd

in stars, giant, shell sources of C-N and p-p reactions 0=10528
 stars, models, introductory report 2=2542
 stars, p-p chain, CNO and NeNa cycles 2=4792
 in stars, synthesis of α -particle nuclei heavier than Ne^{20} 0=14466, 18867
 statistical emission and nuclear level density 2=5875
 statistical emission, theory 3=2426
 statistical reactions, ang. correl., theory 2=3543
 statistical theory 4=9472
 statistical theory of energy variations 4=25363
 statistical theory, excitation functions near threshold 1=10996
 statistical theory, experimental test 1=9867
 statistical theory, test using (n,p) cross-sections 1=8680
 stellar nucleosynthesis, abundances, tables 2=2548
 stopping power, atomic, gas-vapour mixture, with temp. gradient 3=22046
 stripping, complex $\cos\theta$ plane 2=20573
 stripping, Coulomb distortions, analysis 4=9469
 stripping and direct processes, selection rules and polarization 1=4853
 stripping, distorted wave theory, finite range effects 4=22094
 stripping, general theory, ang. distrib. 0=7570
 stripping of heavy particles, polarization, theory 1=11031
 stripping, of heavy projectiles, theory 2=3542
 stripping, at high energies, theory 4=6313
 stripping, knock-out amplitude ang. distrib., importance of interaction range 3=19827
 stripping matrix element, with finite range interaction, D.W.B.A., analysis 4=22093
 stripping, and nuclear neutron single particle level determ. 3=19762
 stripping and other direct reactions, inelastic scatt. effects 4=19744
 stripping and pick-up, effect of nuclear superfluidity 1=19434
 stripping and pick-up, effect of nuclear superfluidity 2=22780
 stripping and pickup, plane-wave approx. 3=4636
 stripping reactions, analysis of a related scattering model 0=1255
 stripping reactions, ang. distrib. and polarization 1=8674
 stripping reactions, exchange effects 0=17598
 stripping reactions involving polarized particles, spin-orbit effects 1=2230
 stripping reactions, L=O, Coulomb wave ampl. 4=9468
 stripping reactions, nucleon polarization 2=20603
 stripping reactions, polarization effects 2=1858
 stripping reactions, reduced widths, polology appl. 3=6214
 stripping, rel. to polarization 3=2
 stripping of two nucleons 1=724
 stripping, variational theory 1=12186
 strong, conference, Berkeley 1960 1=13760
 strongly coupled channel theory 4=1060
 study by radioisotope separation 4=30403
 surface nucleons exchange 3=8057
 td, nHe, 2-channel, 5-nucleon reaction 1=9739
 target, Ag, Co, Cu 3=24532
 target optimum orientation 0=9611
 target polarization effects 3=8062
 targets prep. from highly oxidizing elements 2=19113
 targets, reducing Mo impurity in Ti, Zr and Hf foils 4=3233
 theory, appl. of Chew-Low particle scatt. 2=18312
 theory, using eigen-phase shifts and eigen channels 0=11111
 theory, optical model foundations 1=17066
 theory, physical quantities and channel radii 4=1057
 theory, using quantum-mechanical many-body problem 2=5877
 theory, resonant states and collision matrix 1=17065
 thick-target yield curves, energy analysis 4=12223
 three-nucleon stripping, first Born approx. 4=19823
 3-particle emission, energy spectra calc. 2=18309
 threshold effects 0=7542
 threshold effects in average cross-sections, R-matrix theory 3=10320
 threshold effects in three-body channels 0=15287

Nuclear reactions—contd

time delay, measurement, using bremsstrahlung spectra 0=17576
 time-dependent formalism application 4=1055
 time-dependent theory 4=12196
 time reversal in strong interactions 0=2488
 total cross-sections, high energies, theory 2=20576
 transfer and excitation type, perturbation theory, cross-sections 0=5735
 transfer reactions of one, two and three nucleons, discussion 2=1853
 transfer, relative level population 2=22778
 transuranic element prod., review 1=8628
 tripping reactions, divergence of Green's function series 1=427
 tritium-producing reactions, survey, compound-nuclear and direct-interaction effects 0=20425
 triton and He^3 emission, shell-model calc. 0=15567
 two-nuclear stripping; incoming and outgoing polarization correl. 1=19431
 two-nucleon stripping, magnitude by pairing interaction model 2=1856
 two-nucleon stripping process, ang. distrib., calc. 1=9881
 two-nucleon stripping processes, theory 0=13221
 two nucleon stripping reactions 2=18311
 two-particle approximation of many-body problem 0=3925
 ultra high energy, cosmic ray components, conference 3=12646
 unified theory 1=8669
 unified theory of direct reactions 1=5880
 unified theory by effective Hamiltonian method 2=20579
 unified theory for phenomenological analyses 4=22090
 unitary ensemble, reduced width ampl. distrib. 4=80
 unitarity, open and closed channels 4=28008
 unstable final particle production, effect on cross-sections 1=8672
 use to study nuclear structure, review 3=24915
 widths, Porter-Thomas statist. analysis 3=4610
 yield increase, using twin targets 2=5882
 yield invest, by mag. particle spectrometer 2=3342
 yields with different multiplicities, statistical analysis 2=14070
 A(a, b)B type, time and energy considerations 4=28012
 Be^9 (d, p) Be^{10*} , (p, γ) ang. correlation computation 1=7309
 C reactions, in stars, forming O^{16} , Ne^{20} , Na^{23} , Mg^{24} , Fe^{56} nuclei 2=2549
 C^{11} loss from plastic foils, effect on cross-section meas. 1=11008
 $\text{C}^{12} \rightarrow \text{N}^{12}$, due to neutrinos from stopped π and μ 2=10145
 $\text{Cl}^{37}(\nu, e)\text{Ar}^{37}$, in sun, suggested expt. 4=22100
 Cr, electrolytic preparation of isotopic foils 3=24533
 D(A, Z), with $A \leq 4$, using two-body central force 2=9933
 in H_2 , cold, μ -mesic catalysis 1=8751
 $\text{H}^2(\text{H}^3, \text{n}^1)\text{He}^4$, alpha monitor 2=5696
 $\text{H}^3(\text{O}^{16}, \text{p}\gamma)\text{O}^{18}$, study of excited states of O^{18} 1=3465
 O-Ne, in stars, leading to Mg^{24} , Si^{28} , S^{32} formations 2=2549
 $\text{Rb}^{87}(\nu, e^-)\text{Sr}^{87m}$, neutrino detection 0=20392
 Sc^{45} reaction product in Fe meteorites 1=9261
 $\text{V}^{51}(\text{n}, \text{d})\text{Ti}^{50}$, deuteron angular distrib. 1=5928
 X(a, b)Y*-type 4=11953
 X(a, p)Y, competition between p and γ emission 4=3626
 (X, n) stripping, pure Coulomb distortions, exact calc. 4=22095

chemical effects
 See also Chemical effects of radiations, ionizing radiations.
 aqueous solutions, positronium reactions, 3γ e^+ annihilation speed 1=492
 decomposition of $(\text{CH}_3\text{Xe}^{131})^+$ following nuclear decay of $\text{CH}_3\text{I}^{131}$ 2=15159
 hexabromoethane, solid, Szilard-chalmers chem. 3=3412
 hexahalogen complexes of Pt elements, (n, γ) activation, thermal annealing 4=12822
 methyl bromide dissociation by nuclear isomeric transition of Br^{60m} 0=16388
 (n, γ), atomic and ionic recoil 3=18458

Nuclear reactions—contd

chemical effects—contd

- nuclear recoil, probability of diatomic mol.
excitation 1=19618
pentaminebromo complexes of Pt elements, (n, γ) activation,
thermal annealing 4=12822
recoil-labelling with fission fragments, ruthenocene-
Ru¹⁰³ synthesis 1=20736
tritiated propanes and toluenes, fragmentation by
 β -decay 0=4733
Ag, colloidal, recoil products, separation 3=6929
Ag¹⁰⁷ crystals, by thermal neutrons, alloy
formation 4=15227
Au¹⁹⁷ crystals, by thermal neutrons, alloy
formation 4=15227
B determ. in gas mixtures, using B¹⁰(n, α)Li⁷
reaction 0=14153
C¹²(γ , n)C¹¹ recoil reactions in C₈ hydrocarbons 3=11359
CH₃I¹²⁵ and C₂H₄I¹²⁵ decay, formation of fragment
ions 3=18459
Cl³⁵(n, α)P³² in KCl, oxidation states of P³² 4=7777
F¹⁸ labelling of fluoro-organic cpds. by
F¹⁹(n, 2n) 3=6928
I¹²⁷(n, γ)I¹²⁸, reaction with CH₄ 1=10298
I¹²⁸ activated ion reactions with gaseous
molecules 2=4564
In¹¹⁵ crystals, by thermal neutrons, alloy
formation 4=15227
In₂¹¹⁵O₃ powder, by thermal neutrons, alloy
formation 4=15227
K₂CrO₄, thermal neutron capture, compression
annealing 3=25311
Ir¹⁹³ powder, by thermal neutrons, alloy
formation 4=15227
Lu₂¹⁷⁶O₃ powder, by thermal neutrons, alloy
formation 4=15227
T recoil atoms, reactions with alkanes, rel. to C-H
bond type 4=7776

Nuclear reactions due to
alpha-rays

- (α , α), inelastic scatt., DWBA calc. 2=1857
(α , α), stripping reaction 2=3615
(α , Be⁷) reactions, nuclear evaporation model 1=729
(α , d) reactions, cross-sections, calc. 0=20464
(α , d) reactions, possibility of direct interactions 0=4103
(α , d) reactions, theory of two-nucleon stripping 0=13221
(α , d) stripping reaction for light nuclei 3=4566
(α , γ) at (0.5-2.0) $\times 10^9$ °K for A=40-60 3=24941
(α , γ) reaction, rate at stellar temp. 0=18867
(α , γ) reactions in stars, syntheses of nuclei heavier
than Ne²⁰ 0=14466
(α , n) on Be, B, C, O, F, Na, Mg, Al, Si; neutron
yields 4=3704
(α , n), depletion in evolution of pure H stars 2=990
(α , n γ) and (α , p γ) in light element selective
detm. 4=2175
 α , n, mixture of light and heavy (α emitting) nuclei giving
spherical n source, calc. 3=22429
(α , n), from N, O, air, water, var. with α energy 4=1108
(α , n), range of Ga⁶⁶F¹⁸ and K ion products 2=14136
(α , n) reactions, cross-sections, calc. 0=20464
(α , n) reactions, theory, as stripping process 2=22853
(α , n) from Rn and decay products 4=6376
(α , n) yield for A = 27 - 120 at 11 MeV 4=12272
(α , nucleon), finite range interaction effects 4=22184
(α , nucleon) reaction and nucleon polarization 0=5758
(α , p), differential cross-section in large-angle
region, variation 2=7980
(α , p) diffn. cross-section in large-angle region,
variation 3=6244
(α , p), on light and medium-wt. nuclei, 22 MeV 3=19883
(α , p), for p-shell nuclei, rel. to nucleon cluster reduced
widths 4=22131
(α , p) reactions, cross-sections, calc., comparison to
(He³, p) 0=20464
(α , p) reactions, diff. cross-sections, comparison with
theory 0=445
(α , p) reactions in 8 nuclei 1=11035
(α , p) reactions, near Z = 26 2=498
(α , p), rel. to p- α interaction and (1d, 2s) shell
mechanism 4=9564
(α , t) reactions, cross-sections, calc. 0=20464
(α , t) reactions near Z = 28, at 43 MeV, stripping
mechanism 0=9646

Nuclear reactions due to—contd
alpha rays—contd

- (α , t) reactions, survey, compound-nucleus and direct-
interaction effects 0=20425
(α , t) in Zn and Cd 1=19469
(α , t) in Zn and Cd 3=4637
(α , 2 α), rel. to α -particle clustering in nucleus 4=25394
(α , 2 α), 0.91 BeV, data on " α -particle" clusters in
nuclei 3=17385
(α , xn), meas. of following γ -rays 3=22428
compound nucleus decay, ang. momentum of compound and
residual nuclei 4=22190
compound-nucleus reactions, γ -emission 2=18358
cross-sections, theoretical, optical-model
analysis 0=1419
direct knock-out, distorted-wave Born calc. 3=24918
in emulsion at 250 BeV/nucleon 1=7240
40 MeV, meas. rel. to optical model 3=19884
granite (α , n), neutron yield 2=20677
long-range particles in Po-irradiated nuclear
emulsions 0=7581
optical model react. cross-sect. 2=5966
radiative capture, obs. technique 4=9566
review 1=13530
Rutherford's experiments in 1920's 4=27003
scattering by light elements 0=17607
scattering, rotational state excitation of non-axial
nuclei 0=9643
stripping processes, single and multiple, cross-sections,
calc. 0=20464
stripping reactions, theory 2=3542
stripping, use for structure determ. of three and four
nucleon projectiles 4=9565
three-nucleon stripping, first Born approx. 4=19823
A⁴⁰(α , p), modified stacked-foil technique 1=8776
A⁴⁰(α , pn), modified stacked-foil technique 1=8776
Ag(α , p), at 30 MeV 3=4669
Ag, formation of Na²⁴ and Mg²⁸, 320-880 MeV 3=22387
Ag¹⁰⁷, excitation functions 3=10389
Ag^{107,109}(α , xn), 10, 8-38.7 MeV, isomer
ratios 4=25437
Ag¹⁰⁹(α , n)In¹¹², excitation functions 2=20581
Ag¹⁰⁹(α , 2n)In¹¹¹, excitation function 2=20581
Al(α , Be⁷), at 30-42 MeV, cross-sections 1=729
Al(α , n) 2=20677
Al²⁷(α , p)Si³⁰, 14.7 MeV 3=2500
Al(α , p), at 30 MeV 3=4669
Al, Be⁷ prod. at 30-42 MeV 0=1420
Al²⁷(α , Be⁷)Na²⁴, up to 41 MeV 2=16436
Al²⁷(α , n)P³⁰, at 8.15 MeV, low-lying levels in P³⁰ 0=5671
Al²⁷(α , n), yield curves from threshold to ~4 MeV,
Q-value 0=7585
Al²⁷(α , p)Si³⁰ 1=16994
Al²⁷(α , p)Si³⁰, ang. distrib. 2=12224, 16437
Al²⁷(α , p)Si³⁰, γ coincidences and ang. correls., and Si³⁰
3.78 MeV doublet spins 4=19683
Al²⁷(α , p)Si³⁰(ground state and 2.24 MeV), diff. cross-
section 0=445
Al²⁷(α , p)Si³⁰ at 22.5 MeV 1=13855
Al²⁷(α , 2 α)Na²², at 30-42 MeV, excitation function 0=11425
Al²⁷(α , 3p)Mg²⁸, at 42 MeV, excitation function 0=11425
Al²⁰⁶⁻²¹¹ prod. by (α , xn) processes 0=7580
Am, formation of spontaneously fissioning isomer 4=6392
Ar⁴⁰(α , x γ), (α , pn), 20 MeV or less, cross-sections,
proton spectra meas. 4=28064
Au(α , p), at 30 MeV 3=4669
Au, formation of Na²⁴ and Mg²⁸, 320-880 MeV 3=22387
Au, at 22 MeV, Ti²⁰⁰ prod. 4=6246
Au¹⁹⁷(α , xn), excitation functions meas. 4=6379
B(α , n) 2=20677
B(α , p), proton spectrum, possible reaction in impure
 α -sources 1=7338
B¹⁰(α , d)C¹², cross-sections and ang. distrib. at
3.2-3.8 MeV 0=4103
B¹⁰(α , n)N¹³ in NRX reactor 1=19529
B¹⁰(α , n)N¹³, occurrence in Po-irradiated nuclear
emulsions 0=7581
B¹⁰(α , p)C¹³(ground state), diff. cross-section, 0=445
B¹⁰(α , p)C¹³, occurrence in Po-irradiated nuclear
emulsions 0=7581
B¹⁰(α , p)C¹³, study of C¹³ energy levels 0=15535
B¹⁰(α , p)C¹³, 27.5-33.1 MeV bombarding energy 1=13854
B¹⁰(He³, p)C¹² 1=19363

Nuclear reactions due to—contd

alpha rays—contd

- $B^{10}(\text{He}^3, p\gamma)C^{12}$ 2=1928
 $B^{11}(\alpha, n)N^{14}$, ang. distrib. 2=10142, 12219
 $B^{11}(\alpha n)N^{14}$, occurrence in Po-irradiated nuclear emulsions 0=7581
 $B^{11}(\alpha, p_e)C^{14}$, levels in F^{19} 4=17036
 $B^{11}(\alpha, p)C^{14}$, proton excitation curve and ang. distrib. 4=17026
 $B^{11}(\alpha, p_0)C^{14}$, 2.5 to 5.0 MeV 3=19770
 $B^{11}(\text{He}^3, t)C^{11}$ and $B^{11}(\text{He}^3, \alpha)B^{10}$ 2=496
 Ba. γ -emission from compound-nucleus reactions 2=18358
 $Be^a(a, 2n)C^{11}$ 2=1921
 $Be^a(a, n\gamma)C^{12}$ 2=16316
 $Be^a(a, n\gamma)C^{12}$, at 3.35 MeV, n - γ correl. for 4.43 MeV state 2=5967
 $Be^a(a, t)B^{10}$ 2=3540
 $Be^a(a, t)B^{10}$, dispersion theory 2=3541
 Be^7 prod. at 30-42 MeV on Al, Cu and O 0=1420
 $Be(\alpha, h)$ 2=20677
 $Be^9(\alpha, n)C^{12}$, ang. distrib. 2=3618, 12221-2, 20676
 $Be^9(\alpha, n)C^{12}$, energy distrib. meas. 3=17498
 $Be^9(\alpha, n)C^{12}$, at 5.6 and 5.78 MeV, a study of C^{12} 7.66 MeV state 0=17609
 $Be^9(\alpha, n)C^{12}$, 14-23 MeV, interaction mechanism 4=19825
 $Be^9(\alpha, n)C^{12}$, low-energy neutrons study 2=14137
 $Be^9(\alpha, n)C^{12}$, (n, γ) angular correlations 1=19527
 $Be^9(\alpha, n)C^{12}$, nuclear pair emission from C^{12} 7.656 MeV level 0=9573
 $Be^9(\alpha, n)C^{12}$, population ratio of C^{12} levels 1=5939
 $Be^9(\alpha, n)C^{12}$, 17.5-22.1 MeV, ang. distrib. 3=10388
 $Be^9(\alpha, n_0)C^{12}$, 14 to 23 MeV 4=9568
 $Be^9(\alpha, n\gamma)C^{12}$, angular correl. studies 0=20465
 $Be^9(\alpha, n\gamma)C^{12}$, 3.6-7.6 MeV 3=10391
 $Be^9(\alpha, t)B^{10}$ 3=4609
 $Be^9(\alpha, t)$, 40 MeV 1=728
 $Be^9(\alpha, 2n)C^{11}$, excitation curves 0=442
 Be^9 , at 25 MeV, α -spectra, 4-body reaction 2=5968
 $Bi(\alpha, xn)$ secondary reactions after p-irrad., At^{210,211} production 0=20436
 $Bi^{209}(\alpha, n)At^{212}$ 3=2419
 $Bi^{209}(\alpha, n)At^{212}$, 17-25 MeV 3=15157
 $Bi^{209}(\alpha, 2n)$, ($\alpha, 3n$), ($\alpha, 4n$), ang. distrib. of recoil nuclei 0=13219-20
 $Bi^{209}(\alpha, xn)At$, secondary reaction process 1=13802
 $Br^{79,81}$, 10-24 MeV, cross-sections and excitation functions 4=25436
 $C(\alpha, n)$ 2=20677
 C , scatt., elastic, and Regge poles 3=8130
 $C^{12}(\alpha, \alpha)C^{12}$, Regge poles contrib. to resonances 4=17109
 $C^{12}(\alpha, \alpha')C^{12}$ scattering anomalies 1=13852
 $C^{12}(\alpha, \alpha', \gamma)$, 2.8-8.3 MeV 4=30356
 $C^{12}(\alpha, \alpha\gamma)C^{12}$, at 15-19 MeV, 4.43 MeV γ -ray 2=3614
 $C^{12}(\alpha, d)N^{14}$, at 47.5 MeV, d spectra and ang. distrib., levels in N^{14} 1=727
 $C^{12}(\alpha, 4\alpha)$, reaction mechanism 3=2495
 $C^{12}(\alpha, 4\alpha)$, at 23 MeV 2=3619
 $C^{12}(\alpha, 4\alpha)$ at 23 MeV 3=4671
 $C^{12}(\alpha, \gamma)$, 2.8-8.3 MeV 4=30356
 $C^{12}(\alpha, \gamma)O^{16}$ 2⁺ state excit. in O^{16} 0=5730
 $C^{12}(\alpha, n)O^{15}$, at 15-19 MeV, cross-section 2=3614
 $C^{12}(\alpha, n)O^{15}$, 17.5-22.1 MeV, ang. distrib. 3=10388
 $C^{12}(\alpha, n)O^{15}$, thresholds meas. 3=8131
 $C^{12}(\alpha, p\gamma)N^{15}$, γ -decay of N^{15} 7.57 MeV level 2=18260
 $C^{12}(\alpha, p)N^{15}$, ang. distrib. 2=489, 12224
 $C^{12}(\alpha, p)N^{15}$, comparison with $N^{14}(d, p)N^{15}$ 1=12213
 $C^{12}(\alpha, p)N^{15}$ (ground state), heavy-particle-stripping reaction 2=16434
 $C^{12}(\alpha, p)N^{15}$ scattering anomalies 1=13852
 $C^{12}(\alpha, p)N^{15}$, at 16.1-19 MeV, ang. distrib. 0=15582
 $C^{12}(\alpha, p)N^{15}$, 20-23 MeV, energy depend., meas. 4=25435
 $C^{12}(\alpha, p)N^{15}$ at 22.5 MeV 1=13855
 $C^{12}(\alpha, p)N^{15}$, to 25-39 MeV, proton ang. distrib. 0=20466
 $C^{12}(\alpha, p)N^{15}$, < 35 MeV, p ang. distrib. peaks near 180° 3=17459
 $C^{12}(\alpha, 2\alpha)$, at 915 MeV, quasi-elastic α - α scatt. 1=12222
 C^{12} , scatt., 38 MeV, ang. distrib. 3=12699
 C^{12} , at 25 MeV, α -spectra, 4 body reaction 2=5968
 $C^{13}(\alpha, n\gamma)O^{16}$, excitation function 3=10390
 $C^{13}(\alpha, n)O^{16}$, ang. distrib. 0=13245
 $C^{13}(\alpha, n)O^{16}$, 17-23 MeV, interaction mechanism 4=19825

Nuclear reactions due to—contd

alpha rays—contd

- $C^{13}(\alpha, n)O^{16}$, 12-14 MeV, neutron ang. distrib. 2=12220
 $C^{13}(\alpha, n_0)O^{16}$, 14 to 23 MeV 4=9568
 $C^{13}(\text{He}^3, \alpha)C^{12}$ 1=19525
 $C^{13}(\text{He}^3, \text{No})O^{15}$, 1-6 to 3.4 MeV 1=19526
 $C^{13}(\alpha, p)N^{17}$, delayed neutrons from N^{17} 1=7362
 $C^{14}(\text{He}^3, \text{No})O^{16}$, 1-6 to 3.4 MeV 1=19526
 $Ca^{40}(\alpha, p)Sc^{43}$, up to 20 MeV 3=12700
 $Ca^{40}(\alpha, pn)Sc^{42m}$ 3=10257
 $Ca^{40}(\alpha, p)Sc^{43}$, at 21.9 MeV, proton spectra, abs. cross-sections 1=2240
 $Ce^{142}(\alpha, \alpha n)Ce^{141}$, $Ce^{142}(\alpha, 2pn)Ce^{143}$, cross-sections, 16.8-40.1 MeV 1=8777
 $Cl^{35,37}(\alpha, n)K^{38,40}$, neutron spectra, ground-state Q values 1=8778
 $Cm^{244}(\alpha, 2n)Cf^{246}$, ang. distrib. of recoil nuclei 0=13220
 $Co(\alpha, Be^7)$, at 30-42 MeV, cross-sections 1=729
 Co , evaporation neutron spectra, 11-20 MeV 2=14139
 Co , γ -emission from compound-nucleus reactions 2=18358
 $Co^{59}(\alpha, Be^7)$ and (α, He^4He^3), 36-41 MeV 3=22383
 $Co^{59}(\alpha, n)$, 5.8-10 MeV, thick-target yields 4=12280
 $Co^{59}(\alpha, p)$ test of theoretical proton spectrum shape 1=730
 $Co^{59}(\alpha, t)$, at 43 MeV, t spectrum 0=9646
 $Co^{59}(\alpha, t)Ni^{60}$ 2=1927
 $Cs^{133}(\alpha, \alpha + 3n)Cs^{130}$ 0=7584
 $Cu(\alpha, \alpha')$, at 43 MeV 2=1923
 $Cu(\alpha, Be^7)$, at 30-42 MeV, cross-sections 1=729
 $Cu(\alpha, p)$, at 30 MeV 3=4669
 Cu, Be^7 prod. at 30-42 MeV 0=1420
 Cu , formation of Na^{24} and Mg^{28} , 320-880 MeV 3=22387
 $Cu^{63}(\alpha, np)Zn^{65}$, compound nucleus decay, competition between γ and p emission calc. 3=15230
 $Cu^{63}(\alpha, np)Zn^{65}$, de-excitation of compound nucleus 4=3626
 $Cu^{63}(\alpha, p)$ test of theoretical proton spectrum shape 1=730
 $Cu^{63}(\alpha, t)Zn^{64}$ 2=1927
 $Cu^{63,65}$, at 15-41 MeV, excitation functions for various reactions 0=2669
 $Cu^{65}(\alpha, He^3)Cu^{66}$ 1=13858
 $Cu^{65}(\alpha, p)$ test of theoretical proton spectrum shape 1=730
 $Cu^{65}(\alpha, t)$, at 43 MeV, t spectrum 0=9646
 Er^{164} , prod. at Yb^{167} at 17 and 24 MeV 0=20393
 $F(\alpha, n)$ 2=20677
 $F(\alpha, p)Ne$, heavy-particle-stripping reactions, analysis 2=16435
 $F^{19}(\alpha, n)Na^{22}$ neutron spectrum 1=17152
 $F^{19}(\alpha, n)$, yield curves from threshold to ~ 4 MeV, Q-value 0=7585
 $F^{19}(\alpha, n\gamma)Na^{22}$ 0=20414
 $F^{19}(\alpha)Na^{23}$, excited level of Na^{23} 4=17041
 $F^{19}(\alpha, p\gamma)Ne^{22}$ 0=24014
 $F^{19}(\alpha, p)Ne^{22}$, at 18.9 MeV, ang. distrib. 0=15582
 $F^{19}(\alpha, p)Ne^{22}$, 14.7 MeV 3=2500
 $F^{19}(\alpha, p)Ne^{22}$, rel. to Ne^{22} states 4=22018
 $F^{19}(\alpha, p)Ne^{22}$, 1-9 MeV levels of Ne^{22} 2=374, 22737
 $F^{19}(\alpha, p)Ne^{22}$, 10.3, 13.6, 14.7 MeV 3=10387
 $F^{19}(\alpha, p)Ne^{22}$, at 21.9 MeV, proton spectra, abs. cross-sections 1=2240
 $F^{19}(\alpha, p)Ne^{22}$ at 22.5 MeV 1=13855
 $F^{19}(\alpha, t)Ne^{40}$, 18.5 MeV meas. 3=4670
 $F^{19}(\text{He}^4, p\gamma)Ne^{22}$, rel. to Ne^{22} levels 4=15150
 $Fe(\alpha, \alpha')$, at 43 MeV 2=1923
 $Fe^{54}(\alpha, \alpha n)Fe^{53}$, 10-40 MeV 1=12219
 $Fe^{54}(\alpha, \alpha pn)Mn^{52}$, 10-40 MeV 1=12219
 $Fe^{54}(\alpha, 2n)Fe^{52}$, 10-40 MeV 1=12219
 $Fe^{54}(\alpha, n)Ni^{57}$, Fe^{54} excitation functions 1=2241
 $Fe^{54}(\alpha, n)Ni^{57}$, 10-40 MeV 1=12219
 $Fe^{54}(\alpha, p)Co^{57}$, Fe^{54} excitation functions 1=2241
 $Fe^{54}(\alpha, p)Co^{57}$, 10-40 MeV 1=12219
 $Fe^{54}(\alpha, pn)Co^{56}$, 10-40 MeV 1=12219
 $Fe^{54}(\alpha, 2n)Ni^{56}$, Fe^{54} excitation functions 1=2241
 $Fe^{54}(\alpha, 2n)Ni^{56}$, 10-40 MeV 1=12219
 $Fe^{54}(\alpha, 3n)Ni^{55}$, 10-40 MeV 1=12219
 Fe^{54} , excitation functions up to 40 MeV, rel. to compound-nucleus model 1=1034
 $Fe^{56}(\alpha, \alpha pn)Mn^{54}$, excitation functions 1=12220
 $Fe^{56}(\alpha, He^3)Fe^{57}$ 1=13358

Nuclear reactions due to—contd

alpha rays—contd

- $\text{Fe}^{56}(\alpha, \text{pn})\text{Co}^{58}$, excitation functions 1=12220
 $\text{Fe}^{56}(\alpha, \text{p})\text{Co}^{56\text{m}}$, 3=884
 $\text{Fe}^{56}(\alpha, \text{p}2\text{n})\text{Co}^{57}$, excitation functions 1=12220
 $\text{Fe}^{56}(\alpha, \text{3n})\text{Ni}^{57}$, excitation functions 1=12220
 $\text{Gd}(\alpha, \text{xn})\text{Dy}$, γ -rays from excited Dy 3=22428
 $\text{Ge}^{70}(\alpha, \text{2n})\text{Se}^{72}$, $\text{Ge}^{70}(\alpha, \text{pn})\text{As}^{72}$, excitation functions at 20-40 MeV 0=1421
 $\text{He}^3(\alpha, \gamma)\text{Be}^7$, direct-capture model 3=24810
 $\text{He}^3(\alpha, \gamma)\text{Be}^7$, in hot stars, p-p chain completion 0=848
 $\text{He}^3(\alpha, \gamma)\text{Be}^7$, 0.42-5.80 MeV 3=24809
 $\text{He}^3(\alpha, \gamma)\text{Be}^7$, in stellar models 1=18070
 $\text{He}^3(\alpha, \text{p})\text{Li}^8$, differential cross-sections 1=13531
 He^3 elastic scattering, at 29 MeV, optical model analysis 1=19524
 and He^3 events, computer for distinguishing over wide energy range 0=12802
 $\text{He}^3\text{-C}^{12}$, inelastic scatt. 2=8008
 $\text{Hg}^{198}(\alpha, \text{on})\text{Hg}^{197, 197\text{m}}$, isomeric cross-section ratios 0=20424
 Ho , γ -emission from compound-nucleus reactions 2=18358
 I^{127} , 0.25-0.72 BeV 0=15572
 $\text{In}^{115}(\alpha, \gamma)$, (α, an) , (α, pn) , at 20-40 MeV, recoil ranges 2=22811
 $\text{K}(\alpha, \text{p})$, proton spectrum, possible reaction in impure α -sources 1=7338
 $\text{K}^{39}(\alpha, \text{n})\text{Sc}^{42}$ 2=1929
 $\text{K}^{39, 41}(\alpha, \text{n})\text{Sc}^{42, 44}$, neutron spectra, ground-state Q values 1=8778
 $\text{K}^{41}(\alpha, \text{n})\text{Sc}^{44}$, $\text{Sc}^{44\text{m}/44}$ yield ratio 1=11038
 $\text{K}^{41}(\alpha, \text{n})\text{Sc}^{44\text{m}}$, g, low-momentum-transfer process 1=9884
 $\text{K}^{41}(\alpha, \text{n})\text{Sc}^{44\text{m}, 44\text{g}}$, 8-19 MeV 4=28065
 $\text{Li}(\alpha, \text{p})\text{Be}$, heavy-particle-stripping reactions analysis 2=16435
 $\text{Li}^6(\alpha, \text{d})$, ang. distrib., 24.5, 23.7 MeV α 's 3=22427
 $\text{Li}^6(\alpha, \text{d}_0)\text{Be}^8$, ang. distrib., medium energies 4=9567
 $\text{Li}^6(\alpha, \text{d})\text{Be}^8$ direct-interaction mechanism 1=11036
 $\text{Li}^6(\alpha, \text{d})\text{Be}^8$, at 48 MeV 2=3616
 $\text{Li}^6(\alpha, \gamma)\text{B}^{10}$ 1=16980
 $\text{Li}^{6, 7}(\alpha, \text{n})\text{B}^{9, 10}$, up to 15 MeV 4=3702
 $\text{Li}^{6, 7}(\alpha, \text{p})\text{Be}^{9, 10}$, 13.6 and 14.7 MeV 3=2500
 $\text{Li}^7(\alpha, \gamma)\text{B}^{11}$, 400-950 keV, decay schemes 2=10144
 $\text{Li}^7(\alpha, \gamma)\text{B}^{11}$, levels in B^{11} 0=20467
 $\text{Li}^7(\alpha, \text{n})\text{B}^{10}$ at 13.5 and 13.9 MeV 1=19528
 $\text{Li}^7(\alpha, \text{n})\text{B}^{10}$, at 13.5 and 13.9 MeV, ang. distrib. 2=5969
 $\text{Li}^6(\alpha, \text{p})\text{Be}^8$, angular distrib. 0=11426
 $\text{Li}^6(\alpha, \text{p})\text{Be}^8$, at 11.5 MeV 0=9644
 $\text{Li}^7(\alpha, \text{p})\text{Be}^{10}$, angular distrib. 0=11426
 $\text{Li}^7(\alpha, \text{p})\text{Be}^{10}$, at 13.2 MeV 0=9644
 $\text{Li}^7(\alpha, \text{t})$ and (α, d) and (α, p) , 13.2 and 14.7 MeV 4=3703
 $\text{Li}^7(\alpha, \text{t})\text{Be}^8$, ang. distrib. 0=13246
 $\text{Li}^7(\alpha, \text{t})\text{Be}^8$, at 10.15 MeV 0=9644
 $\text{Li}^7(\alpha, \text{t})$, 40 MeV 1=728
 $\text{Li}^7(\text{He}^3, \alpha)\text{Li}^8$, 5 MeV 2=495
 Lu , at 48 MeV, prod. of Ta^{175} 0=9605
 $\text{Mg}(\alpha, \text{Be}^7)$, at 30-42 MeV, cross-sections 1=729
 $\text{Mg}(\alpha, \text{n})$ 2=20677
 $\text{Mg}^{24}(\alpha, \gamma)\text{Si}^{28}$ 3=10219
 $\text{Mg}^{24}(\alpha, \gamma)\text{Si}^{28}$ 3=24836
 $\text{Mg}^{24}(\alpha, \gamma)\text{Si}^{28}$, 1.2-3.2 MeV, resonances obs. 3=2499
 $\text{Mg}^{24}(\alpha, \gamma)\text{Si}^{28}$, at 1.8-3.3 MeV, isobaric spin selection rules 1=8772
 $\text{Mg}^{24}(\alpha, \gamma)\text{Si}^{28}$ resonances 2=5879
 $\text{Mg}^{24}(\alpha, \gamma)$, 3.2-4.5 MeV meas. 4=9399
 $\text{Mg}^{25}(\alpha, \alpha\text{p})\text{Na}^{24}$, at 30-42 MeV, excitation functions 0=11425
 $\text{Mg}^{26}(\alpha, \text{n})\text{Si}^{29}$ 0=15583
 $\text{Mg}^{26}(\alpha, \text{n})\text{Si}^{29}$, levels in Si^{29} 2=22735
 $\text{Mg}^{26}(\alpha, \text{2p})\text{Mg}^{28}$, at 42 MeV, excitation function 0=11425
 $\text{Mn}^{55}(\alpha, \alpha'\text{n})\text{Mn}^{54}$ excitation functions (10-40 MeV) 1=8779
 $\text{Mn}^{55}(\alpha, \text{n})\text{Co}^{56}$ excitation functions (10-40 MeV) 1=8779
 $\text{Mn}^{55}(\alpha, \text{n})\text{Co}^{56\text{m}}$, 3=684
 $\text{Mn}^{55}(\alpha, \text{t})$, at 43 MeV, t spectrum 0=9646
 $\text{Mn}^{55}(\alpha, \text{2n})\text{Co}^{57}$ excitation functions (10-40 MeV) 1=8779
 $\text{Mn}^{55}(\alpha, \text{3n})\text{Co}^{58}$ excitation functions (10-40 MeV) 1=8779
 $\text{Mn}^{55}(\text{d}, \text{2pn})\text{Mn}^{56}$ excitation functions (10-40 MeV) 1=8779
 Mo , Sn , 22 MeV, new Ru^{97} , Te^{113} or 115 isomers prod. resp. 4=12153
 $\text{Mo}^{92}(\alpha, \text{p})$, 20 MeV 4=22190
 α -N interact., separable potl. model 3=2332
 $\text{N}^{14}(\alpha, \text{d})\text{O}^{16}$, at 48 MeV 2=3616

Nuclear reactions due to—contd

alpha rays—contd

- $\text{N}^{14}(\alpha, \text{p})\text{O}^{17}$, occurrence in ThC' -irradiated nuclear emulsions 0=7581
 $\text{N}^{14}(\alpha, \text{p})\text{O}^{17}$, 26.8-33.3 MeV bombarding energy 1=13854
 $\text{Na}(\alpha, \text{p})$, proton spectrum, possible reaction in impure α -sources 1=7338
 $\text{Na}^{23}(\alpha, \text{n})$, yield curves for threshold to ~ 4 MeV, Q-value 0=7585
 $\text{Na}^{23}(\alpha, \text{p})\text{Mg}^{20}$, γ -emission from compound Al^{27} 4=9569
 $\text{Na}^{23}(\alpha, \text{p})\text{Mg}^{26}$ (ground state and 1.83 MeV), diff. cross-section 0=445
 $\text{Na}^{23}(\alpha, \text{p})$, at 19 MeV, ang. distrib. 2=497
 $\text{Na}^{23}(\alpha, \text{t})$, 40 MeV 1=728
 $\text{Nd}^{142}(\alpha, \alpha\text{n})\text{Nd}^{141}$, excitation function 1=13794
 $\text{Nd}^{142}(\alpha, \text{4n})\text{Sm}^{142}$, recoil meas. 4=15242
 $\text{Ne}^{20}(\alpha, \alpha'\gamma)\text{Ne}^{20}$, two new γ -emitting levels 3=2498
 $\text{Ne}^{20}(\alpha, \text{C}^{12})\text{C}^{12}$, cluster model 3=8133
 $\text{Ne}^{20}(\alpha, \text{C}^{12})\text{C}^{12}$, 12-20 MeV 3=24975
 $\text{Ne}^{20}(\alpha, \text{p})\text{Na}^{23}$, 26.9 MeV bombarding energy 1=13854
 Ne^{20} , scatt., 38 MeV, ang. distrib. 3=12699
 $\text{Ne}^{22}(\alpha, \text{n})\text{Mg}^{25}$, γ -n angular correlation 1=11037
 $\text{Ni}(\alpha, \alpha')$, at 43 MeV 2=1923
 $\text{Ni}(\alpha, \text{Be}^7)$, 33-41 MeV 3=22383
 $\text{Ni}(\alpha, \text{p})$, at 9.65-12.8 MeV, evidence for compound nucleus formation 1=2214
 Ni , 11-29 MeV, evaporation neutron spectra 2=14139
 Ni region, 43 MeV, inelastic 2=1924
 $\text{Ni}^{58}(\alpha, \text{xp})$, 32 MeV, rel. to statist. model 2=12223
 $\text{Ni}^{58}(\alpha, \alpha\text{n})\text{Ni}^{57}$ excitation functions 1=12221
 $\text{Ni}^{58}(\alpha, \alpha\text{p})\text{Co}^{57}$ excitation functions 1=12221
 $\text{Ni}^{58}(\alpha, \alpha\text{pn})\text{Co}^{58}$ excitation functions 1=12221
 $\text{Ni}^{58}(\alpha, \alpha\text{2n})\text{Ni}^{56}$ excitation functions 1=12221
 $\text{Ni}^{58}(\alpha, \alpha \times \text{N})$, shell effects 4=17196
 $\text{Ni}^{58}(\alpha, \text{n})\text{Zn}^{61}$ excitation functions 1=12221
 $\text{Ni}^{58}(\alpha, \text{p})$ and (α, γ) , 4.9-11 MeV, thick target yields 4=12280
 $\text{Ni}^{58}(\alpha, \text{p})\text{Cu}^{61}$ excitation functions 1=12221
 $\text{Ni}^{58}(\alpha, \text{p})$ test of theoretical proton spectrum shape 1=730
 $\text{Ni}^{58}(\alpha, \text{pn})\text{Cu}^{60}$ excitation functions 1=12221
 $\text{Ni}^{58}(\alpha, \text{2n})\text{Zn}^{60}$ excitation functions 1=12221
 $\text{Ni}^{58}(\alpha, \text{2p})$, at 32 MeV, proton evaporation from rapidly rotating nucleus 1=8773
 Ni^{58} , excitation functions up to 40 MeV, rel. to compound-nucleus model 1=11034
 Ni^{58} , 46-68 MeV, recoil range meas. 4=19826
 $\text{Ni}^{60}(\alpha, \alpha\text{pn})\text{Co}^{58}$ excitation functions 1=12221
 $\text{Ni}^{60}(\alpha, \text{He}^3)\text{Ni}^{61}$ 1=13858
 $\text{Ni}^{60}(\alpha, \text{n})\text{Zn}^{63}$ excitation functions 1=12221
 $\text{Ni}^{60}(\alpha, \text{p})$ test of theoretical proton spectrum shape 1=730
 $\text{Ni}^{60}(\alpha, \text{pn})\text{Cu}^{62}$ excitation functions 1=12221
 $\text{Ni}^{60}(\alpha, \text{2n})\text{Cu}^{61}$ excitation functions 1=12221
 $\text{Ni}^{60}(\alpha, \text{2n})\text{Zn}^{62}$ excitation functions 1=12221
 $\text{Ni}^{60}(\alpha, \text{3n})\text{Zn}^{61}$ excitation functions 1=12221
 $\text{Ni}^{61}(\alpha, \text{p})\text{Cu}^{64}$ excitation functions 1=12221
 $\text{Ni}^{62}(\alpha, \alpha\text{p})\text{Co}^{61}$ excitation functions 1=12221
 $\text{Ni}^{62}(\alpha, \text{n})\text{Zn}^{65}$ excitation functions 1=12221
 $\text{Ni}^{62}(\alpha, \text{pn})\text{Cu}^{64}$ excitation functions 1=12221
 $\text{Ni}^{62}(\alpha, \text{xp})$ 2=12223
 $\text{Ni}^{64}(\alpha, \text{He}^3)\text{Ni}^{65}$ 1=13858
 $\text{Ni}^{64}(\alpha, \text{p})\text{Cu}^{67}$ excitation functions 1=12221
 $\text{Ni}^{64}(\alpha, \text{3n})\text{Zn}^{65}$ excitation functions 1=12221
 $\text{O}(\alpha, \text{n})$ 2=1688, 20677
 O , Be^7 prod. at 30-42 MeV 0=1420
 $\text{O}^{16}(\alpha, \gamma)\text{Ne}^{20}$, 4.8 to 9.9 MeV 4=22187
 $\text{O}^{16}(\alpha, \gamma)\text{Ne}^{20}$, in stars, and γ -ray width of 7.20 MeV Ne^{20} level 3=11568
 $\text{O}^{16}(\alpha, \text{p})\text{F}^{19}$, 26.7-33.1 MeV bombarding energy 1=13854
 $\text{O}^{16}(\alpha, \text{pn})\text{F}^{18}$, use to det. trace O in transistor-grade Si 1=6581
 $\text{O}^{16}(\alpha, \text{pn})\text{F}^{18}$, excitation function 1=13859
 $\text{O}^{16}(\alpha, \text{2}\alpha)\text{C}^{12}(\text{g. s.})$, 40 MeV, ang. and energy correl. 4=22188
 $\text{O}^{18}(\alpha, \text{n})\text{Ne}^{21}$, γ -n angular correlation 1=11037
 $\text{O}^{18}(\alpha, \text{n})\text{Ne}^{21}$, levels in Ne^{22} 2=22735
 $\text{P}^{31}(\alpha, \text{p})\text{S}^{34}$, 42 MeV, proton ang. distrib. 2=12224
 $\text{P}^{31}(\alpha, \text{p})\text{S}^{34}$ (ground state), diff. cross-section 0=445
 $\text{P}^{31}(\alpha, \text{p})\text{S}^{34}$, 1.7-3.3 MeV, 14 resonances 4=17195
 Pb , $\text{At}^{211, 210, 207}$ formation by capture of Li 1=3461
 $\text{Pb}^{208}(\alpha, \text{n})\text{Po}^{209}$ and $(\alpha, \text{2n})\text{Po}^{208}$, neutron- γ emission competition 4=22191

Nuclear reactions due to—contd

alpha rays—contd

- Pb²⁰⁷(α , n)Po²¹⁰, recoil study 2=14138
 Pb²⁰⁸(α , 2n)Po²¹⁰, recoil study 2=14138
 Po²¹⁰→B¹⁰(σ , n) and Po²¹⁰→B¹¹(α , n)
 sources 2=3620
 Pr¹⁴¹(α , n)Pm¹⁴⁴ 0=428
 Pt(α , xn)Hg^{197,197m}, isomeric cross-section ratios 0=20424
 Pu, formation of spontaneously fissioning isomer 4=6392
 Ra²²⁶(α , 4n)Th²²⁶, recoil study 2=14138
 Rb⁸⁵(α , 2n)Y^{87m,8} 3=884
 Ra—Be (α , n) source, neutron spectrum 4=22133
 Rb, prod. of Y^{90m} 1=10973
 Rb, at 12 MeV, prod. of Y^{90m} 1=19374
 Rb, Y^{86m} prod. 2=10027
 Rb⁸⁷(α , n) 11–18 MeV, isomer ratios for Y^{90g,90m} 4=17197
 Rh¹⁰³(α , p), 20 MeV 4=22190
 Rh¹⁰³(α , t), at 43 MeV, t spectrum 0=9646
 S³²(α , γ)Ar³⁶, rel. to Ar³⁶ levels 4=17048
 S³²(α , n)Ar³⁵, thresholds meas. 3=8131
 S³⁴(α , γ)Ar³⁸, rel. to Ar³⁸ levels 4=17048
 S³⁴(α , n)Ar³⁷, thresholds meas. 3=8131
 Sc⁴⁵(α , n)Sc⁴⁴, Sc^{44m/44} yield ratio 1=11038
 Sc⁴⁵, comparison with Ti⁴⁷ + d reactions 4=22189
 Se⁷⁷, at 2.1–8.0 MeV, Coulomb excitation 2=5970
 Si(α , n) 2=20677
 Si²⁸(α , γ)S³², rel. to S³² levels, 2.0–3.3 MeV 4=22023
 Si²⁸(α , n)S³¹, thresholds meas. 3=8131
 Si²⁸(α , p), at 19 MeV, ang. distrib. 2=497
 Si²⁸(α , p)P³¹ at 22.5 MeV 1=13855
 Si³⁰(α , γ)S³⁴, 2.10–3.25 MeV 4=15238
 Sm¹⁴⁴(α , 3n)Gd¹⁴⁵, excitation function near threshold,
 analysis 1=10996
 Sm¹⁴⁴, prod. of Gd^{145,146} and Eu^{145,146} at 20–40 MeV 0=1381
 Sn¹¹²(α , γ)Te¹¹⁶ and Sn¹¹² (α , n)Te¹¹⁵, excitation
 functions 4=30357
 Sn¹¹⁴(α , n)Te¹¹⁷, excitation functions 4=30357
 Sn¹²⁴, excitation functions, 13–42 MeV 2=1930
 T (α , γ) Li⁷ 1=17151
 T(α , γ)Li⁷, direct-capture model 3=24810
 T(He³, n)Li⁵ at 3.23 MeV 1=19293
 T(He³, np)He⁴ at 3.23 MeV 1=19293
 Ta, γ -emission from compound-nucleus reactions 2=18358
 Ta⁸¹(α , t), at 43 MeV, t spectrum 0=9646
 Tb¹⁴⁹ prod. from Ta, Au, Bi at high energy, two-step
 mechanism 4=28034
 Tb¹⁵⁹ (α , 5n)Ho¹⁵⁸, activity of Ho¹⁵⁸ 2=22777
 Ti(α , Be⁷), at 30–42 MeV, cross-sections 1=729
 U(α , f)X, Cd^{115m,115g} formation 2=10143
 U, formation of Na²⁴ and Mg²⁸, 320–880 MeV 3=22387
 U^{233,238}, at 18–43 MeV, reaction cross-section 2=1937
 V, 11–20 MeV, evaporation neutron spectra 2=14139
 V⁵¹(α , Be⁷) and (α , He⁴He³), 40 MeV 3=22383
 V⁵¹(α , p) test of theoretical proton spectrum
 shape 1=730
 Zn(α , α'), at 43 MeV 2=1923
 Zn⁶⁴, excitation functions 0=444
 Zn^{64,66,68}, excitation of second level 2=494
 Zn⁷⁰(α , pn)Ga⁷², Zn⁷⁰(α , 2p)Zn⁷², excitation functions at
 20–40 MeV 0=1421

cosmic rays

- See also Cosmic rays, effects and interactions,
 air, nuclear active particles, and e- γ showers 1=16938
 in brass, electron-photon showers 3=6104
 cosmic rays, collision with H in space, radiosotopes
 produced 3=619
 double maximum angular distributions 0=20306
 in emulsions, at v. high energies 1=13866
 fast nucleons with heavy emulsion nuclei, shower
 particle angular distrib. 1=16936
 with heavy nuclei, 10¹⁰–10¹⁴eV, slow particle emission 3=8084
 high energy cosmic-rays with emulsion heavy
 nuclei 4=28005
 high-energy models 0=2601
 jets, double max. ang. distrib., in photographic plates
 due to cosmic rays 3=5993
 in photographic emulsions, jets 1=13550
 primaries, 10–100 GeV 0=9452
 10¹² eV star of 5 + 12 p type 0=9496
 \geq 30 BeV, cosmic rays, in graphite, secondary
 multiplicity 3=17200
 100 GeV, in cloud chamber 0=15498
 Al, 10–100 GeV 0=15497

Nuclear reactions due to—contd

cosmic rays—contd

- C, nuclear active particles, and e- γ showers 1=16938
 Fe, at 3860 m 0=9492
 K production in Fe meteorites, age det. 0=4882
 in Pb, electron-photon cascades 0=1328
 in Pb, electron-photon showers 3=6104
 Pb²⁰⁶(p, 2n)Bi²⁰⁵ in Discoverer 17 by solar protons 3=7951
 Pb²⁰⁷(p, 3n)Bi²⁰⁵ in Discoverer 17 by solar protons 3=7951
 Pb²⁰⁸(p, 4n)Bi²⁰⁵ in Discoverer 17 by solar protons 3=7951
deuterons
 See also Deuterons
 activation cross-section survey and mechanisms 3=10382
 (d, α), cross-sections 1=724
 (d, α), rel. to energy levels of stable isotopes
 Sc⁴⁵ to Ni⁵⁸ 4=15155
 (d, α) excitation region for giant resonances 2=483
 (d, α) for p-shell nuclei, rel. to nucleon cluster reduced
 widths 4=22131
 (d, α) reactions, cross-section 1=7397
 (d, α) reactions on heavy nuclei at 15 MeV 0=17596
 (d, α) reactions in heavy nuclei, low-resolution
 survey 2=3604
 (d, α) 13 MeV reactions with light nuclei 1=8764
 d + d \rightarrow He³ + p, catalysis by μ dd mesic molecule 4=20001
 d(d, γ)He⁴ 2=9931
 (d, d') reactions, similarity to (p, p'), rel. to Blair
 model 0=1396
 (d, γ) reactions, (N–Z) dependence 1=9679
 (d, n), with (d, p), rel. to isobaric spin of target 3=877
 (d, n), (d, pn), rel. to d-disintegration 2=5955
 (d, n), differential cross-section, rel. to initialised
 polarization 4=9551
 (d, n), effects of knock-out mode 3=8123
 (d, n) reactions with light nuclei, neutron spectra 1=13846
 (d, n) reactions, spectra, using fast-neutron time-of-flight
 spectrometer 0=2552
 (d, np) reactions, theory 0=2666
 (d, p), ang. correl., final-state density matrix 2=5957
 (d, p), Born approx., Coulomb interaction 4=1102
 (d, p), (d, α), in light and intermediate nuclei, rel. to
 excitation energies 2=5800
 (d, p), (d, n), back angle peaking, exchange effects 2=18348
 (d, p) and (d, n) stripping reactions, with polarized
 deuterons, reaction products interaction 1=714
 (d, p) and (d, t) reactions, pairing plus quadrupole–
 quadrupole force model 1=8762
 (d, p) and (d, t) stripping and pickup reactions 1=13840
 (d, p) and (d, t) studies of structure in 82-neutron
 region 3=2390
 (d, p), effects of knock-out mode 3=8123
 (d, p), rel. to energy levels of stable isotopes,
 Sc⁴⁵ to Ni⁵⁸ 4=15155
 (d, p), exchange effects magnitude 3=24965
 (d, p) on 15 rare earth nuclides at 12 MeV, p
 spectra 3=22285
 (d, p, γ) stripping, γ -ray linear polarization 2=479, 22848
 (d, p), on heavy nuclei <12 MeV 2=10135
 (d, p) for light nuclei, distorted-wave calcs. 3=17493
 (d, p) and (n, γ) reactions, similarity 0=5781
 (d, p), and nuclear neutron single particle level
 determ. 3=19762
 (d, p) polarization of excited-state reactions 2=488
 (d, p), using polarized deuterons 4=19602
 (d, p) reaction on nuclei of Z > 30, proton spectra 0=9635
 (d, p) reactions, ang. distrib., distorted-wave
 Born approx. 1=19522
 (d, p) reactions, ang. distrib., distorted-wave
 calc. 3=2487
 (d, p) reactions, angular distribution 0=1417
 (d, t) reactions, comparison with (d, p) or (p, d) 0=11420
 (d, p) reactions, comparison with (d, t) 0=11417, 11420
 (d, p) reactions with d energies below Coulomb barrier,
 cross-sections and proton ang. distrib. 0=1416
 (d, p) reactions in deformed heavy nuclei, proton
 spectra 1=8770
 (d, p) reactions, energy levels of even–even nuclei 0=13140
 (d, p) reactions for even–even spherical nuclei,
 excitation of collective nuclear levels 1=8757
 (d, p) reactions at 14.8 MeV on Li to Au, low-energy proton
 continuum, spectra and ang. distrib. 1=3456
 (d, p) reactions on heavy elements at low energies 1=2234

Nuclear reactions due to—contd

deuterons—contd

- (d, p) reactions on heavy nuclei, study of proton groups 4=3689
- (d, p) reactions with $l=0, 1$ orbital ang. momentum transfer, proton polarization 3=682-3
- (d, p) reactions, rel. to nuclear shape 0=7460
- (d, p) reactions, polarization, effects of spin-orbit forces 1=2229
- (d, p) reactions with polarized d, spin-orbit effects 1=2230
- (d, p), residual-interaction terms 4=9552
- (d, p) stripping, Born approx. theory 1=19517
- (d, p) stripping, collective level excitation 2=14128
- (d, p) stripping, electric polarization 2=5953
- (d, p) stripping, at 15 MeV 1=19512
- (d, p) stripping and gross structure, in cyclotron of Ukrainian Acad. of Sciences 3=19880
- (d, p) stripping, inelastic scatt. effects from dispersion theory 4=25425
- (d, p) stripping, p ang. distrib. and Si^{30} , $\text{Zr}^{90,92}$, Cd^{114} spin and parity 3=17405
- (d, p) stripping, proton polarization 2=1917
- (d, p) stripping reactions, polarization effects 1=19518
- (d, p) stripping reactions, proton polarization 1=9873
- (d, p), use in study of deformed odd-A nuclei 4=3582
- (d, t) in Al and Pb 1=19469
- (d, t) in Al and Pb 3=4637
- (d, T), in d-polarization meas. 1=7288
- (d, t) mechanism, 20 MeV 4=1105
- (d, t), n- α coincidences, by chronotron 1=7011
- d + t \rightarrow n + He^4 , Ti-T targets 4=19523
- (d, t), and nuclear neutron hole state determ. 3=19762
- d-T, 160-185 keV, rel. to di-neutron existence 2=11944
- (d, t) reactions, energy levels of even-even nuclei 0=13140
- (d, t) reactions, on Fe, Zr, In, Au and Bi, triton spectra 0=9639
- (d, t) reactions filling $1f_{7/2}$ shell, seniority mixing 3=626
- (d, t) reactions on nuclei with $A \approx 60$, at ≈ 1.5 MeV, diff. cross-sections 1=715
- (d, t) reactions, reduced widths, use in nuclear structure analysis 1=716
- (d, t) reactions, survey of compound nucleus and direct interaction effects 0=20425
- deuteron splitting 4=1103
- deuteron splitting, in field of deformed nuclei 3=22426
- diffraction breakup on heavy nuclei 0=2670
- diffraction disinteg. of deuterons 0=4099
- diffraction interaction, with black nuclei 2=8006
- diffraction scattering, on ellipsoidal black nuclei 1=13835
- diffraction scattering, n and p ang. and energy distrib. 1=13836
- diffraction scattering, on non-spherical nuclei, Drozdov-Blair model 2=1910
- dissociation of deuterons in nuclear scattering 0=7571
- distorted wave theory without spin-orbit term 4=12263
- elastic scatt., 15 MeV, by 23 elements 3=15221
- with impurity O, C and Hg in V targets, 8-10.5 MeV 4=22167
- incoming and outgoing polarization correl. 1=19431
- large spin states, excitation 0=9634
- low energy, mechanism, stripping and compound nuclei formation 4=25424
- low-energy, mechanism, stripping and compound nuclei formation 4=25424
- low- and high-energies, review 1=3457
- mechanism, reduced widths, distorted wave effects and polarization phenomena 1=8753
- (n, p) and (n, d), cross-section meas. 1=17108
- in nuclear emulsions, 275 MeV, m.f.p. 3=24808
- optical parameter meas. 4=12253
- optical-model parameters for intermediate energies 2=20662
- p + d \rightarrow He^3 , catalysis by μpd mesic molecule 4=20001
- polarization effects, with spin-orbital interaction 3=22353
- polarization effects, in stripping reactions, ang. distrib. of products 4=22169
- polarization, spin-orbit interaction 2=10134
- reduced width detm., from polarization effects 3=10378
- review 4=1098
- review and bibliography 4=1099
- scattering, high-energy, from nuclei 2=1909

Nuclear reactions due to—contd

deuterons—contd

- scattering, by non-axial nuclei 2=5954
- semi-transparent nuclei, diffraction 2=5958
- splitting, under nuclear forces 2=22847
- stripping, active nucleon ang. distrib. effects 4=19816
- stripping, charge asymmetry of deuteron 3=10380
- stripping in Coulomb field 3=6287
- stripping and diffraction disintegration on non-spherical nuclei 0=1414
- stripping, effect of 2nd term of Born series 4=25428
- stripping, exactly soluble three-dim. problem 4=843
- stripping, general theory, ang. distrib. 0=7570
- stripping and heavy-particle-stripping reactions, antisymmetric treatment 1=13838-9
- stripping at low energies 0=440
- stripping reactions of low Q values, ang. distrib. 0=1418
- stripping reactions and nuclear structure 0=20454
- stripping reactions, nucleon exchange effects 0=17599
- stripping reactions, p- γ ang. correl., calc. using distorted-wave Born approx. 0=11416
- stripping, proton spectra "gross structure" 3=6293
- stripping reactions, analysis of a related scattering model 0=1255
- stripping reactions, ang. distrib. and polarization 1=8674
- stripping reactions, conversion electron ang. correl., calc. 2=5956
- stripping reactions, distorted-wave Born approx. 2=16430
- stripping reactions, distorted-wave effects 1=8755
- stripping reactions, distorted-wave theory for heavy nuclei 2=10140
- stripping reactions, distorted-wave theory, test 0=17604
- stripping reactions, distorted-wave theory, test by ang. correl. meas. 1=17143
- stripping reactions, endothermic 2=18349
- stripping reactions, endothermic, near threshold, theory 1=717
- stripping reactions, on even-even spherical nuclei 2=22846
- stripping reactions, extrapolation method analysis 1=19516
- stripping reactions, by heavy nuclei, ang. distrib. theory 2=3608
- stripping reactions, interference effects 1=8759
- stripping reactions, large-angle ang. distrib. fitting, distorted-wave effects 1=8754
- stripping reactions, low Q, rel. to deuteron spatial structure 2=1918
- stripping reactions, with low Q, distortion effects, calc. 2=481
- stripping reactions of low Q-value, validity of Butler formalism 1=8760
- stripping reactions, new theory 2=16429
- stripping reactions, nuclear structure in Pb region 2=18354
- stripping reactions, nuclear structure in Zr region 2=5964
- stripping reactions, polarization effects 2=1858
- stripping reactions, polarization, theory 1=11031
- stripping reactions, proton spectra "gross structure" 2=16431
- stripping reactions, using rearrangement reaction theory 2=7960
- stripping reactions, reduced nuclear-level widths 3=19765
- stripping reactions, reduced width extraction from data 1=8758
- stripping reactions; spin-dependent distortion, first order effects 1=19514
- stripping reactions, spin polarization, distorted-wave theory 0=17574
- stripping reactions, theory 4=28055
- stripping, reduced widths, calculation 3=10205
- stripping, by S-matrix reduction techniques 3=15223
- stripping theories and shell model 3=22356
- stripping theory below Coulomb barrier 3=22424
- stripping theory, Butler-Born, rel. to $\text{Li}^7(\text{d}, \text{p})\text{Li}^8$ 0=13237
- stripping theory, finite range effects 4=19814
- tandem generator used 2=5906
- 22-4 MeV total cross-sections 3=6292
- various nuclei, excitation by deuterons, 11.2 MeV 1=8763
- wave-function choice, effect of stripping and diffraction splitting 2=8066

Nuclear reactions due to—contd
deuterons—contd

$A(d, n)(A + 1)$ calc. 4=30349
 $A^{36}(d, p)A^{37}$, $A^{36}(d, n)K^{37}$ mirror reactions, Q-values at 3.85 MeV 1=2231
 $A^{36}(d, p)A^{37}$, ang. distrib. 0=11421
 $A^{40}(d, p)A^{41}$, at 7.5 MeV, A^{41} levels 2=1796
 Ag, 26 MeV, fast neutron spectra, meas. with threshold detectors 4=22170
 Al, 26 MeV, fast neutron spectra, meas. with threshold detectors 4=22170
 Al^{27} 0=13244
 $Al^{27}(d, \alpha)Mg^{25}$ 1=16987
 $Al^{27}(d, \alpha)Mg^{25}$ 2=1913, 5801
 $Al^{27}(d, \alpha)Mg^{25}$, α -group intensities 0=5650
 $Al^{27}(d, \alpha)Mg^{25}$, angular distributions, search for fluctuations 4=3694
 $Al^{27}(d, \alpha)Mg^{25}$, doublet level at 3.40 MeV in Mg^{25} 1=8582
 $Al^{27}(d, \alpha)Mg^{25}$, Ericson fluctuations 2=22845
 $Al^{27}(d, \alpha)Mg^{25}$, at 14.7 MeV 2=16425
 $Al^{27}(d, \alpha)Mg^{25}$, Mg^{25} 3.40 MeV doublet 1=8623
 $Al^{27}(d, \alpha)Mg^{25}$, 1.4 to 2.3 MeV, α -spectra, excitation fn., cross-section correlation fn., calc. vs. meas. 4=28059
 $Al^{27}(d, \alpha)Mg^{25}$, 1.5 to 2.6 MeV 4=22177
 $Al^{27}(d, \alpha)Mg^{25}$, statistical model 1=13841
 $Al^{27}(d, \alpha)Mg^{25}$ at 13 MeV 1=8764
 $Al^{27}(d, \alpha)Mg^{25}$, (2I + 1) rule for cross-sections 2=14130
 $Al^{27}(d, \alpha)Mg^{25}$, 2-10 MeV, α -excitation functions, statistical model comparison 4=17188
 $Al^{27}(d, \alpha)Mg^{25}$, at 2-10 MeV, statistical behaviour 4=6374
 $Al^{27}(d, \alpha)Mg^{25}$, 3.35-3.80 MeV, (2I + 1) rule 4=12287
 $Al^{27}(d, \alpha)Mg^{25}$, 4.50 to 5.62 MeV, integrated cross-sect. fluctuation analysis 4=15233
 $Al^{27}(d, \alpha)Mg^{25}$, 27.5 MeV meas. 4=9554
 $Al^{27}(d, \alpha p)Na^{24}$, excitation function, 0-28 MeV 0=2667
 $Al^{27}(d, He^3)Mg^{26}$, at 1.83 MeV, ang. distrib. 2=22844
 $Al^{27}(d, He^3)Mg^{26}$, residual nucleus study 3=8125
 $Al^{27}(d, p)Al^{28}$, at 15 MeV, proton polarization 3=882
 $Al^{27}(d, p)Al^{28}$, 1.4 to 2.3 MeV, p-spectra, excitation fn., cross-section correlation fn., calc. vs. meas. 4=28059
 $Al^{27}(d, p)$ stripping, at 15 MeV 1=19512
 $Al^{27}(d, p)Al^{28}$, at 2.2-12.6 MeV, excitation function 2=18351
 $Al^{27}(d, t)Al^{26}$, spectrum and ang. distrib. of tritons 0=9638
 Am, formation of spontaneously fissioning isomer 4=6392
 $Ar^{40}(d, \alpha)Cl^{38}$, excitation functions and thick-target yields 3=10385
 $Ar^{40}(d, He^3)Cl^{39}$, excitation function 3=10384
 $As^{75}(d, p)As^{76}$, excitation functions and thick-target yields 2=20671
 $As^{75}(d, t)As^{74}$, excitation functions and thick-target yields 2=20671
 Au (d, np), n p ang. correls., and d dissociation 3=17491
 Au (d, p), student expt. 2=14129
 Au (d, 2n), student expt. 2=14129
 Au, 26 MeV, p and n pairs formed by deuteron disintegration 4=6375
 $Au^{197}(d, 2n)Hg^{197, 197m}$, isomeric cross-section ratios 0=20424
 $B^9(d, n)B^{10}$ 1=17142
 $B^{10}(d, \alpha)Be^8$, α -spectrum and Be^8 energy levels 1=3458
 $B^{10}(d, \alpha)Be^8$, differential cross-sections and ang. distrib. 3=19874
 $B^{10}(d, \alpha)$, 1.4 - 3.3 MeV 4=17186
 $B^{10}(d, \alpha)Be^8$, $B^{10}(d, \alpha)Be^{8*}$, at 0.4-0.9 MeV, search for fine structure 1=17141
 $B^{10}(d, \alpha)Be^8$, isotopic-spin selection rule 1=11033
 $B^{10}(d, \alpha)Be^8$, at 0.6-1.5 MeV, α ang. distrib. 0=13240
 $B^{10}(d, \alpha)Be^8$ at 13 MeV 1=8764
 $B^{10}(d, n)C^{11}$ 1=12211
 $B^{10}(d, n)C^{11}$, 8.4 to 12.0 MeV 4=9555
 $B^{10}(d, n)C^{11}$, excitation curves 0=442
 $B^{10}(d, n\gamma)C^{11}$, low levels in C^{11} 1=8587
 $B^{10, 11}(d, n)C^{11, 12}$, at 5-8 MeV, levels in $C^{11, 12}$ 1=8756
 $B^{10}(d, p)B^{11}$, at 11.4 MeV, proton polarization 1=8761
 $B^{10}(d, p)B^{11}$, l-values 3=680
 $B^{10}(d, p)B^{11}$, 0.8 MeV 4=3236
 $B^{10}(d, p)B^{11}$, at 1.2 MeV, ang. distrib. and p- γ correlations 1=2232
 $B^{10}(d, p)B^{11}$, 1.4-3.3 MeV 4=17186

Nuclear reactions due to—contd
deuterons—contd

$B^{10}(d, p)B^{11}$, 10 MeV, proton polarization meas. 4=9557
 $B^{10}(d, p)B^{11}$ at 10.1 MeV 1=19509
 $B^{10}(d, p)B^{11}$, 13.8 MeV 3=15222
 $B^{10}(d, p\gamma)B^{11}$ at 420 keV 1=19519
 $B^{10}(d, Li^8)$, 8-13.5 MeV meas. 4=15231
 $B^{10}(d, Li^8)Li^8$, 8 to 13.5 MeV 4=22171
 $B^{10}(d, t_e)B^9$, 13.5 MeV 4=30351
 $B^{10}(d, n)C^{11}$ 2=1921
 $B^{10}(d, n\gamma)C^{11}$, γ -ray transit. of C^{11} 2=20511
 $B^{10}(d, p)B^{11}$, γ -quanta circular polariz. 2=16426
 $B^{10}(d, p)B^{11*}$, mech. 2=5959
 $B^{10}(d, p)B^{11}$, at 12.5, 15.5, 18.5, 21.5 MeV 2=1915
 $B^{10}(d, p)B^{11}$, at 28 MeV, expt. and theory 2=12216
 $B^{10}(d, p\gamma)B^{11}$ stripping reaction, at 5.35 MeV, distorted wave theory analysis 2=1919
 B^{10} , stripping reaction 2=20672
 $B^{11}(d, \alpha)Be^8$, 6.6 MeV 4=22172
 $B^{11}(d, \alpha)$, 1.4-3.3 MeV 4=17186
 $B^{11}(d, n)C^{12}$ and breakup reactions at 1.60-2.70 MeV 3=8126
 $B^{11}(d, n)C^{12}$, C^{12*} , 12.3 MeV 4=22173
 $B^{11}(d, n)C^{12}$ (15.1 MeV level), theory 1=717
 $B^{11}(d, n)C^{12}$, at 4.43 MeV, exchange stripping effects 2=1920
 $B^{11}(d, n)C^{12}$, stripping mechanism 1=13839
 $B^{11}(d, n)C^{12*}$, 4.43 MeV state in C^{12} 4=9556
 $B^{11}(d, n)C^{12*}$ (γ) C^{12} , heavy particle stripping 2=18310
 $B^{11}(d, n)C^{12*}$ (γ -n) ang. correl. 3=15226
 $B^{11}(d, n\gamma)C^{12}$ 1=5932
 $B^{11}(d, n\gamma_{5.11 MeV})C^{12}$, ang. correl. meas. 3=24967
 $B^{11}(d, p)B^{10}$, ang. distrib., exchange term effects 4=19816
 $B^{11}(d, p)B^{12}$ 2=1857
 $B^{11}(d, p)B^{12}$ 3=4664
 $B^{11}(d, p)B^{12}$, B^{12} polarization 0=1360
 $B^{11}(d, p)B^{12}$, γ -rays from B^{12} 0=7456
 $B^{11}(d, p)B^{12}$, low energy, simple stripping theory 4=3691
 $B^{11}(d, p)B^{12}$, 1-2.6 MeV, differential cross-sections 4=28056
 $B^{11}(d, p)B^{12}$, proton ang. distrib. p- γ ang. correl. 2=484
 $B^{11}(d, t)B^{10}$ 1=17142
 $B^{11}(d, 2n)C^{11}$ 2=1921
 $Ba^{138}(d, p)Ba^{139}$ 3=2360
 $Ba^{138}(d, p)Ba^{139}$, level study 3=2390
 $Ba^{138}(d, t)Ba^{137}$, level study 3=2390
 Be, at 13 MeV, elastic scatt. 2=1911
 Be, 26 MeV, fast neutron spectra, meas. with threshold detectors 4=22170
 $Be^7(d, p)Be^8$ 0=5750
 $Be^7(d, p)Be^8$ 0=20456
 $Be^9(\alpha, n\gamma)B^{10}$, n- γ ang. correl. studies 2=20669
 Be^9 capture, cross-sections 1=19515
 $Be^9(d, \alpha)Li^7$, differential cross-sections 2=20667
 $Be^9(d, \alpha)Li^7$, 13.6 MeV, α ang. distrib. 3=22425
 $Be^9(d, \alpha)Li^7$, 27.5 MeV meas. 4=9554
 $Be^9(d, \gamma)B^{11}$, giant resonances 4=19818
 $Be^9(d, n)B^{10}$ 2=3540
 $Be^9(d, n)B^{10}$ 3=4609
 $Be^9(d, n)B^{10}$, ang. distrib., rel. to stripping theory 0=17599
 $Be^9(d, n)B^{10}$, dispersion theory 2=3541
 $Be^9(d, n)B^{10}$, 80 keV 3=2488
 $Be^9(d, n)B^{10}$, γ -rays from B^{10} 5.16 MeV level 2=16314
 $Be^9(d, n)B^{10}$, neutron spectra measurement 1=13846
 $Be^9(d, n)B^{10}$, 0.5-1.6 MeV, excitation function 4=1106
 $Be^9(d, n)B^{10}$, at 1.41, 1.88, 2.35 MeV, neutron ang. distrib. 0=20457
 $Be^9(d, n)B^{10}$, stripping mechanism 1=13839
 $Be^9(d, n)B^{10}$, stripping reaction 4=15230
 $Be^9(d, n)B^{10}$, studied with nuclear emulsions 1=5933
 $Be^9(d, n)B^{10}$ at 2, 3, 4 MeV 1=19506
 $Be^9(d, n\gamma)B^{10}$, spectra 2=13817
 $Be^9(d, p)Be^{10}$, ang. correl. meas. 1=17143
 $Be^9(d, p)Be^{10}$, excitation functions 1=13843
 $Be^9(d, p)Be^{10}$, parameters, direct reaction theory 2=5960
 $Be^9(d, p)Be^{10}$, proton angular distribution 4=19815
 $Be^9(d, p)Be^{10}$, proton polarization 1=8765
 $Be^9(d, p)Be^{10}$, proton polarization 2=18353
 $Be^9(d, p)Be^{10}$, proton polarization, ang. depend. 2=18350
 $Be^9(d, p)Be^{10}$, stripping reaction 0=15576, 17598
 $Be^9(d, p)Be^{10}$, stripping reaction 4=15230
 $Be^9(d, p)Be^{10}$, stripping reactions, p- γ ang. correlation 4=17184

Nuclear reactions due to—contd

deuterons—contd

- Be⁹(d,p)Be¹⁰ (3.37 MeV), at 6.6 MeV, (p,γ) ang. correl. 4=12263
 Be⁹(d,p)Be¹⁰* at 3.37 MeV, expt. and theory 2=12216
 Be⁹(d,p)Be¹⁰, at 10 MeV, proton polarization 2=18352
 Be⁹(d,p)Be¹⁰, 13.8 MeV 3=15222
 Be⁹(d,p)Be¹⁰, 15 MeV, proton polarization 4=12265
 Be⁹(d,p)Be¹⁰, at 28 MeV, expt. and theory 2=12216
 Be⁹(d,pγ)Be¹⁰ 1=5934
 Be⁹(d,pγ)Be¹⁰* 2=3605
 Be⁹(d,pγ)Be¹⁰, 13.6 MeV 4=9553
 Be⁹(d,p), 13 MeV deuterons 1=13842
 Be⁹(d,t) 0=9640
 Be⁹(d,t)Be⁸ 1=3446
 Be⁹(d,t)Be⁸ 2=16311
 Be⁹(d,t)Be⁸, ang. distrib. 0=17600
 Be⁹(d,t)Be⁸, differential cross-sections 2=20667
 Be⁹ deuteron bombardment, 2-5.6 MeV, γ-ray spectrum 1=2236
 Bi(d,p), rel. to nuclear structure 1=3398
 Bi(d,t), triton spectra, rel. to nuclear structure 1=3397
 Bi²⁰⁹(d,α)Pb²⁰⁷, direct interact. mech. 2=20668
 Bi²⁰⁹(d,p)Bi²¹⁰, at low energy, high-resolution study 3=681
 Bi²⁰⁹(d,p)Bi²¹⁰, at 7.4-9.1 MeV, diff. cross-sections 1=2234
 Bi²⁰⁹(d,p)Bi²¹⁰, at <10 MeV, ang. distrib., calc. 2=3608
 Bi²⁰⁹(d,p), data on Bi²¹⁰ levels 3=24876
 Bi²⁰⁹(d,p), levels in Bi²¹⁰ 0=11323
 Bi²⁰⁹(d,p), 13 MeV deuterons 1=13842
 Bi²⁰⁹(d,t)Bi²⁰⁸, 12 MeV meas. 4=22179
 Bi²⁰⁹(d,3n)Po²⁰⁸, ang. distrib. of recoil nuclei 0=13219
 Bi²⁰⁹, 12.8 MeV, total cross sections 4=9558
 C, elastic scatt., at 1-1.46 MeV 2=1912
 C, stripping reaction, at 620 MeV 2=16433
 C¹² capture, cross-sections 1=19515
 C¹²(d,α)B¹⁰, α-particle spectra 1=8767
 C¹²(d,α)B¹⁰, ang. distrib. 3=8124
 C¹²(d,α)B¹⁰, B¹⁰ energy levels 2=16312
 C¹²(d,α)B¹⁰, 15-20 MeV 3=22418
 C¹²(d,α)B¹⁰, reaction mech. 2=3609
 C¹²(d,α)B¹⁰.10*, detection of α-particles 2=487
 C¹²(d,α), DWB surface interaction theory 1=8670
 C¹²(d,d')C¹², absolute differential cross-sections 1=13837
 C¹²(d,d), excitation curves, 0.9-5 MeV 4=17185
 C¹²(d,d)C¹², C¹²(d,p)C¹³, C¹²(d,p)C¹³*, at 0.5 to 2 MeV, excited states in N¹⁴ 0=7474
 C¹²(d,d)C¹²(d,p)C¹³, d-wave contrib. 2=22837
 C¹²(d,n) 0=4033
 C¹²(d,n)N¹³ 2=1921
 C¹²(d,n)N¹³, excitation curves 0=442
 C¹²(d,n)N¹³(g.s.), distorted-wave analysis 3=24968
 C¹²(d,n)N¹³, neutron polariz., ang. distrib. meas. 4=6371
 C¹²(d,n)N¹³, 0.7-1.35 MeV 1=5936
 C¹²(d,n)N¹³, at 1.45-3 MeV, diff. cross-section 0=4100
 C¹²(d,n)N¹³, at 2.37 MeV level, diff. cross-sections 2=491
 C¹²(d,n)N¹³ at 4 MeV 1=19507
 C¹²(d,n)N¹³, n-polarization 1=719
 C¹²(d,n)N¹³, n-polarization 1=19521
 C¹²(d,n)N¹³, n-polarization 3=4666
 C¹²(d,n)N¹³, neutron flux meas. 1=19520
 C¹²(d,n)N¹³, neutron polarization and reaction angles 1=13845
 C¹²(d,n)N¹³, 6.5 MeV, neutron polariz. 3=22417
 C¹²(d,n)N¹³, stripping mechanism 1=13839
 C¹²(d,n)N¹³, 13 MeV 3=10376
 C¹²(d,p)C¹³ 0=17602
 C¹²(d,p)C¹³ 1=5935
 C¹²(d,p)C¹³ 2=3540, 22849
 C¹²(d,p)C¹³ 3=4609
 C¹²(d,p)C¹³ 3=8128
 C¹²(d,p)C¹³, ang. distrib. 0=20458
 C¹²(d,p)C¹³, C¹³ recoil obs. in semiconductor detector 4=11857
 C¹²(d,p)C¹³, charged particle discrimination 2=3210
 C¹²(d,p)C¹³, de-excitation gamma-rays of C¹³ 1=13844
 C¹²(d,p)C¹³, dispersion theory 2=3541
 C¹²(d,p)C¹³, at 8.9 MeV, polarization calc. 1=2229
 C¹²(d,p)C¹³, excitation curves 3=17400
 C¹²(d,p)C¹³, excited levels of C¹³ 2=486
 C¹²(d,p)C¹³, extrapolation analysis 1=19516

Nuclear reactions due to—contd

deuterons—contd

- C¹²(d,p)C¹³, at 4 MeV, effect of compound-nucleus resonance 1=8673
 C¹²(d,p)C¹³, at 4.65-13.3 MeV, diff. cross-sections 2=16317
 C¹²(d,p)C¹³, 5.5-12 MeV, polariz. and (d,pγ) correl. 3=22422
 C¹²(d,p)C¹³, at 15 MeV, proton polarization 3=683
 C¹²(d,p)C¹³ (15-20 MeV) differential cross-section 1=8766
 C¹²(d,p)C¹³, 0.8-1.2 MeV, proton polariz. 3=2490
 C¹²(d,p)C¹³, at 1.07-1.17 MeV, excitation function 2=3606
 C¹²(d,p)C¹³, polarized deuteron detection 1=13527
 C¹²(d,p)C¹³, proton angular distribution 4=19815
 C¹²(d,p)C¹³, proton analysis 2=485
 C¹²(d,p)C¹³, proton polarization 0=2665, 20459
 C¹²(d,p)C¹³, proton polarization 2=488, 3607
 C¹²(d,p)C¹³, spin-orbit distortions 2=16428
 C¹²(d,p)C¹³, stripping reaction 1=11032
 C¹²(d,p)C¹³ stripping reaction, 6.3 MeV deuterons 1=17144
 C¹²(d,p)C¹³*, at 2-4 MeV, validity of Butler formalism 1=8760
 C¹²(d,p)C¹³, at 28 MeV, expt. and theory 2=12216
 C¹²(d,p)C¹³*, 15 MeV, proton polarization 4=12265
 C¹²(d,p)C¹³*, at 3.68 MeV, expt. and theory 2=12216
 C¹²(d,p)C¹³, 26 MeV, ang. distrib., cross-sections 4=3693
 C¹²(d,p), excitation curves, 0.9-5 MeV 4=17185
 C¹²(d,p,γ)C¹³*, at 1.7-3.1 MeV, cross-section, stripping mechanism 1=718
 C¹²(d,pγ), p-γ ang. correl. 3=679
 C¹²(d,p,n)C¹², 4-5 MeV, evidence for sequential 2-body decay 4=3692
 C¹²(d,p), p polarization ang. var. 4=22174
 C¹²(d,p) stripping, at 15 MeV 1=19512
 C¹²(d,t)C¹¹, spectrum and ang. distrib. of tritons 0=9638
 C¹²(d,Li⁶)Be⁹, rel. to α-particle clusters 4=22175
 C¹², 12.8 MeV, total cross sections 4=9558
 C¹³(d,α)B¹¹ at 3.26 and 3.45 MeV 1=19504
 C¹³(d,α)B¹¹, 3.35-4.2 MeV meas. 3=15227
 C¹³(d,n) and C¹³(d,p), 3.2-4.1 MeV, mechanism 3=24970
 C¹³(d,n)N¹⁴, ang. distrib. 0=11418
 C¹³(d,n)N¹⁴, exchange effect in stripping reactions 0=9636
 C¹³(d,n)N¹⁴, excited states of N¹⁴ 1=8768
 C¹³(d,n)N¹⁴, at 1.3 MeV, ang. distrib. 1=3459
 C¹³(d,n)N¹⁴, 1.3-2.5 MeV, ang. distrib. 4=12264
 C¹³(d,n)N¹⁴, ang. distrib., exchange term effects 4=19816
 C¹³(d,n)N¹⁴, 3-9 MeV differential cross-sections 3=6289
 C¹³(d,p)C¹⁴, 4.6-6.0 MeV, excitation functions 3=24969
 C¹³(d,t)C¹², at 14.8 MeV, t ang. distrib. 0=5751
 C¹⁴(d,n)N¹⁵ 1=12212
 C¹⁴(d,n)N¹⁵ 4=9559
 C¹⁴(d,pγ)C¹⁵, at 2.7-3.4 MeV 2=18349
 Ca, at 13 MeV, elastic scatt. 2=1911
 Ca³⁹(d,p) reactions, J depend of ang. distrib. 4=15234
 Ca⁴⁰(d,n)Sc⁴¹ 1=9874
 Ca⁴⁰(d,n)Sc⁴¹, rel. to Sc⁴¹ levels 1=619
 Ca⁴⁰(d,p)Ca⁴¹, at 11.4 MeV, proton polarization 1=8761
 Ca⁴⁰(d,p)Ca⁴¹, proton polarization 2=488
 Ca⁴⁰(d,p)Ca⁴¹, rel. to Ca⁴¹ spin 2=16297
 Ca⁴⁰(d,p)Ca⁴¹, rel. to optical model calc. 2=12217
 Ca⁴⁰(d,α)K³⁸, 5.46 MeV 3=10256
 Ca⁴⁰(d,α)K³⁸, 7.7 MeV 4=3695
 Ca⁴⁰(d,α)K³⁸, violation of isotopic spin selection rule 0=2664
 Ca⁴⁰(d,He³)K³⁹ 4=19820
 Ca⁴⁰(d,n)Sc⁴¹, ground-state Q-value 0=15580
 Ca⁴⁰(d,n)Sc⁴¹, low-lying levels in Sc⁴¹ 0=4033
 Ca⁴⁰(d,n)Sc⁴¹, time-of-flight 3=17494
 Ca⁴⁰(d,p)Ca⁴¹, ang. distrib. 0=7573
 Ca⁴⁰(d,p)Ca⁴¹, at 15 MeV, proton polarization 3=683
 Ca⁴⁰(d,p)Ca⁴¹ (1.95 MeV), at 6.6 MeV, (p,γ) ang. correl. 4=12263
 Ca⁴⁰(d,p)Ca⁴¹, proton angular distribution 4=19815
 Ca⁴⁰(d,p)Ca⁴¹ stripping reaction 0=15576
 Ca⁴⁰(d,p)Ca⁴¹, stripping reaction, p-γ ang. correlation 4=17184
 Ca⁴⁰(d,p)Ca⁴¹, 10 MeV, proton polarization meas. 4=9557
 Ca⁴⁰(d,p)Ca⁴¹, 13.8 MeV 3=15222

Nuclear reactions due to—contd

deuterons—contd

- $C^{12}(d,p)C^{13*}$; p spin-orbit distortion effect 1=19513
 and Ca^{41} spins, three levels, from (d, p) reactions,
 d, p, γ correl. 3=19777
 $Ca^{48}(d,p)Ca^{49}$, rel. to levels of Ca^{49} 4=27966
 $Cd^{111}(d,p)Cd^{112}$, 13.6 MeV, and Cd^{112} levels, spin and
 parity 3=12592
 $Ce^{140}(d,p)Ce^{141}$, level study 3=2390
 $Ce^{140}(d,p)Ce^{141}$, proton spectra, levels in Ce^{141} 1=8769
 $Ce^{140}(d,t)Ce^{139}$, level study 3=2390
 $Ce^{142}(d,n)$, excitation functions up to 11.8 MeV 3=19879
 $Ce^{142}(d,p)$, excitation functions up to 11.8 MeV 3=19879
 $Ce^{142}(d,2n)$, excitation functions up to 11.8 MeV 3=19879
 $Cl^{35}(d,p)Cl^{36}$ 1=19510
 $Cl^{35}(d,p)Cl^{36}$, strong-coupling unified model 0=4101
 $Cl^{35,37}(d,p)Cl^{36,38}$, ang. distrib., stripping
 analysis 2=22841
 $Co(d,n)$, neutron spectrum structure and
 polarization 3=24963
 Co , 26 MeV, fast neutron spectra, meas. with threshold
 detectors 4=22170
 $Co^{59}(d,p)Co^{60}$, rel. to $Co^{59}(n,\gamma)Co^{60}$ 4=22154
 $Co^{59}(d,p)Co^{60}$, at 6 MeV, stripping analysis 0=13238
 $Cr(d,p)$, stripping at 13.6 MeV 3=24972
 $Cr^{60,62-64}(d,p)Cr^{61,63-65}$, 13.6 MeV 3=19878
 $Cr^{60,62,63,64}(d,p)$, spectrum and ang. distrib. 4=12269
 $Cr^{62}(d,p)Cr^{63}$, calc., finite range effects 4=19814
 $Cr^{62}(d,p)Cr^{63}$, DWBA, optical model parameters 3=4665
 $Cr^{62}(d,p)Cr^{63}$, 6.5-8 MeV 4=30353
 $Cr^{64}(d,\gamma)$, at 3.5-4.5 MeV, cross-section 1=9879
 $Cu(d,n)$, neutron spectrum structure and
 polarization 3=24963
 $Cu(d,np)$, n p ang. correls., and d dissociation 3=17491
 Cu , stripping reaction at 620 MeV 2=16433
 $Cu^{63}(d,2n)Zn^{63}$, 3-11.6 MeV 4=17189
 $Cu^{63}(d,p)Cu^{64}$, 3-11.6 MeV 4=17189
 $Cu^{63}(d,p)$ and (d,2n), 3-11.6 MeV 3=22423
 $Cu^{65}(d,p)$ and (d,2n), 3-11.6 MeV 3=22423
 $D(d,\gamma)He^4$, 1.35 MeV 4=961
 $D(d,n)$, differential cross-section 2=480
 $D(d,n)He^3$, age in water, heavy water 2=5670
 $D(d,n)He^3$, deuteron beam, self-target reaction 1=9872
 $D(d,n)He^3$, differential cross-section, 25.3 \pm 0.3 MeV 4=6142
 $D(d,n)He^3$, at 8.2 MeV, neutron polarization 0=443
 $D(d,n)He^3$, at 5-12 MeV, ang. distrib. 0=17428
 $D(d,n)He^3$, neutron polarization 0=9376, 17346, 17589
 $D(d,n)He^3$, neutron polarization 3=24807
 $D(d,n)He^3$, neutron polarization 4=19804
 $D(d,n)He^3$, neutron polarization, energy depend. 4=25204
 $D(d,n)He^3$ for neutron production, target 0=20155
 $D(d,n)He^3$, for neutron scatt. studies 0=7606
 $D(d,n)He^3$, neutron spectra measurement 1=13846
 $D(d,n)He^3$, to obtain polarized neutrons 2=482
 $D(d,n)He^3$, production of 2.34 MeV neutrons 0=7607
 $D(d,n)He^3$, self-target in Au 3=12514
 $D(d,n)He^3$, time-of-flight meas. 4=16980
 $D(d,n)He^3$, 12-20 MeV, neutron polarization 4=6145
 $D(d,np)D$, neutron spectrum, calc., at 6.3 MeV 0=2666
 $D(d,p)H^3$, at 0.72-1.48 MeV, proton polariz. 2=20438
 $D(d,p)T$, differential cross-section, 25.3 \pm 0.3 MeV 4=6142
 $D(d,p)T$, triton momentum transform 0=11420
 $D(n,p)2n$, rel. to phenomenological
 potentials 4=21958
 $D(A,Z)$, with $A \leq 4$ using 2-body central
 forces 2=9933
 $D-D$, effect of "nucleon clusters" 0=2662
 $D-D$, proton contrib. monitor 2=5696
 DD and DT , neutron output meas. by Si junction
 detector 3=2276
 $Dy^{164}(d,p)Dy^{164}$, 12.0 MeV, Dy^{164} levels meas. 4=9414
 $Er(d,p)$ for various isotopes 3=10270
 $F^{19}(d,\alpha)O^{17}$ (gnd) 1=11029
 $F^{19}(d,\alpha)O^{17}$, at 14.7 MeV 2=16424
 $F^{19}(d,\alpha)O^{17}$, 1.8 MeV, products 1=9875
 $F^{19}(d,\alpha)O^{17}$ at 13 MeV 1=8764
 $F^{19}(d,\alpha)O^{17}$, 27.5 MeV meas. 4=9554
 $F^{19}(d,\alpha)O^{17*}$ (0.872 MeV) state 1=11029
 $F^{19}(d,Li^6)N^{15}$, rel. to α -particle clusters 4=22175
 $F^{19}(d,n\gamma)Ne^{20}$, 500-700 keV, Ne^{20} 10.31 MeV level
 study 4=17040
 $F^{19}(d,n\gamma)Ne^{20}$, γ -ray spectrum 0=13206
 $F^{19}(d,n\gamma)Ne^{20}$, at 0.5-2 MeV, levels in Ne^{20} 0=9535

Nuclear reactions due to—contd

deuterons—contd

- $F^{19}(d,n)Ne^{20}$, ang. distrib., 1-1.3 MeV 3=6288
 $F^{19}(d,n)Ne^{20}$, 1.98 MeV, neutron spectra 4=12262
 $F^{19}d,n)Ne^{20}$, rel. to Ne^{20} nucleus structure 4=15232
 $F^{19}(d,n)Ne^{20}$, study of Ne^{20} excited states 1=665
 $F^{19}(d,n)Ne^{20}$, at 3.57 MeV, low levels in Ne^{20} 1=7398
 $F^{19}(d,p)F^{20}$, ang. distrib. meas. 4=12266
 $F^{19}(d,p)F^{20}$, heavy-particle stripping theory 3=15168
 $F^{19}(d,p)F^{20}$, 0.8-2.5 MeV, excitation fn., cross-section
 meas., comp. to theory 4=28057
 $F^{19}(d,p)F^{20}$, 1.8 MeV, products 1=9875
 $F^{19}(d,p)F^{20}$, resonance analysis and shell-model calc. of
 stripping reduced widths 2=10136
 $F^{19}(d,p)F^{20}$, stripping reaction 0=17598
 $F^{19}(d,n)F^{20}$, 2 MeV, ang. distrib. 3=22419
 $F^{19}(d,t)F^{18}$, excitation functions and thick-target
 yields 2=20671
 $F^{19}(d,t)F^{18}$, at 14.8 MeV 0=11420
 $F^{19}(d,t)F^{18}$, t spectrum and ang. distrib. 0=9638
 F^{19} , differential excit. functions for α , p groups 2=20665
 $Fe(d,n)$, neutron spectrum structure and
 polarization 3=24963
 $Fe^{58}(d,p)$, J depend. of ang. distrib. 4=15234
 $Fe^{54}(d,p)Fe^{55}$, 6.5-8.5 MeV, Q_0 values 4=15217
 $Fe^{54}(d,p)Fe^{55}$, 7.8 MeV meas. 4=22028
 $Fe^{54,56,57}(d,p)$, spectrum and ang. distrib. 4=12269
 $Fe^{56}(d,p)Fe^{57}$, 6.5-8.5 MeV, Q_0 values 4=15217
 $Fe^{56}(d,t)$, ang. distrib. spin dependence 4=19821
 $Fe^{54}(d,t)$, at 21.6 MeV 2=16432
 $Fe^{55,58}(d,p)$, study of levels 3=24833
 $Fe^{56-58}(p,\alpha)Mn^{53-55}$, 6.5-8.5 MeV, Q_0 values 4=15217
 $Fe^{57}(d,p)Fe^{58}$, 6.5-8.5 MeV, Q_0 values 4=15217
 $Fe^{57}(d,p)$, rel. to single-particle levels 2=10017
 $Fe^{58}(d,t)$, at 21.6 MeV 2=16432
 $Fe^{58}(d,p)Fe^{59}$, 6.5-8.5 MeV, Q_0 values 4=15217
 $H(d,p)pn$ 2=3417
 $H^3(d,\gamma)He^4$, 150-1300 keV 3=17356
 $H^3(d,n)He^4$, in Ti tritide foils, efficiency, H^3 concn.
 depth variation 1=5792
 $H^3(d,p)He^4$, analysis by complex-eigenvalue
 theory 3=22358
 $He^3(d,p)He^4$, \sim 2 MeV, proton polariz. 3=22220
 $He^3(d,p)He^4$, 3-12 MeV, proton polariz. 3=15049
 $He^3(d,p)He^4$, at 6-14 MeV, cross-sections, levels
 in He^4 0=15461
 $He^3(d,p)He^4$, 23.2 to 27.0 MeV 4=12078
 $He^3(d,p)He^4$, stripping, at 27 MeV 3=15224
 (d,He^3) in d-s shell nuclei, rel. to structure 3=6128
 (d,He^3) near $Z=28$, at 21.6 MeV 2=1916
 $He^4(d,p)Fe^8$, 20 MeV deuterons 1=16913
 $He^4(d,pn)He^4$, 20 MeV deuterons 1=16913
 He^4 , interaction model 0=13072
 $Hf^{178}(d,p)Hf^{179}$, 12 MeV 4=3582
 Hg , at 11 MeV, Ti^{200} prod. 4=6246
 $Hg^{196}(d,p)Hg^{197,197m}$, isomeric cross-section ratios 0=20424
 $K^{39}(d,d')$, at 15 MeV, ang. distrib. 2=22842
 $K^{39}(d,p)K^{40}$, proton energy and ang. distrib. 0=441
 $La^{139}(d,4n)Ce^{137}$, $Ce^{137m}/^{137}$ yield ratios 1=13847
 $La^{139}(d,p)La^{140}$ 3=2360
 $Li^6(d,\alpha)\alpha$, up to 5 MeV 3=678
 $Li^6(d,\alpha)\alpha$, 3-5 MeV 3=24966
 $Li^6(d,\alpha)He^4$, anal. using two-body and shell models for
 Li^6 4=6370
 $Li^6(d,\alpha)He^4$, 1-2.5 MeV 4=3690
 $Li^6(d,n)Be^7$ and $Li^6(d,p)Li^7$, relative yields 3=15225
 $Li^6(d,n)Be^7$, in NRX reactor 0=20438
 $Li^6(d,p)Li^7$, $Li^6(d,n)Be^7$, charge symmetry 3=10379
 $Li^6(d,p)Li^7$, proton polarization 1=8765
 $Li^6(d,p)Li^7$, 3-5 MeV 3=24966
 $Li^6(d,p)Li^{7*}$, ang. distrib. of protons 0=7575
 $Li^6(d,p)Li^{7*}$, at 2 MeV, diff. cross-sections 2=22843
 $Li^{6,7}$, at 14.8 MeV, ang. distrib. for various reac-
 tions 0=5752
 $Li^{6,7}(d,t)$ 0=9640
 Li^7 , α -ray spectra due to breakup of $Be^{8,9}$ 3=10383
 $Li^7(d,\alpha)He^5$, 150-200 keV meas. 4=9390
 $Li^7(d,n)Be^8$, Be^8 level study 0=3976, 5664
 $Li^7(d,n)Be^8$, n ang. distrib. 4=6080
 $Li^7(d,n)Be^8$, neutron spectra measurement 1=13846
 $Li^7(d,n)Be^8$, 1.98 MeV, neutron spectra 4=12262
 $Li^7(d,n)Be^8$, \sim 4.9 MeV, max. γ energy and
 source 4=25427

Nuclear reactions due to —contd

deuterons — contd

- Li⁷(d,n)Be⁸, recoil protons scattered by neutrons 1=16796
 Li⁷(d,n)Be⁸, study using new fast n spectrometer 3=10130
 Li⁷(d,n)Be⁸, study of 16.67 MeV level in Be⁸ 2=366
 Li⁷(d,n)2 α , neutron spectra measurement 1=13846
 Li⁷(d,p γ)Li⁸, at 1.9–3.3 MeV 2=18349
 Li⁷(d,p)Li⁸ 2=1857
 Li⁷(d,p)Li⁸, disintegration spectrum 1=13701
 Li⁷(d,p)Li⁸, at 1.1–4 MeV, cross-section 0=7574
 Li⁷(d,p), Li⁸ polarization 3=24964
 Li⁷(d,p)Li⁸ stripping, distorted-wave calc. 1=19511
 Li⁷(d,p)Li⁸, at 2–4 MeV, validity of Butler formalism 1=8760
 Li⁷(d,p)Li⁸, at < 2.5 MeV, proton ang. distrib., resonance at 1.4 MeV 0=13237
 Li⁷(d,t)Li⁸, 20 MeV 4=1105
 Li⁷(d,t)Li⁸, 28.1 MeV, ang. distrib. 4=22164
 Li⁷(d,t)Li⁸, at 28 MeV, expt. and theory 2=12216
 Li⁷, neutrons, low energy emission 4=30350
 d-Mg scatt., energy depend. 2=10133
 Mg, at 13 MeV, elastic scatt. 2=1911
 Mg²⁴(d, α)Na²², α -particle spectra 1=8767
 Mg²⁴(d, α)Na²², energy levels of Na²² 4=15151
 Mg²⁴(d,d')Mg²⁴, absolute differential cross-sections 1=13837
 Mg²⁴(d,p γ)Mg²⁵, at 15 MeV, p- γ ang. correl., test of distorted-wave stripping theory 0=17604
 Mg²⁴(d,p)Mg²⁵ 1=16987
 Mg²⁴(d,p)Mg²⁵ 2=1857
 Mg²⁴(d,p)Mg²⁵, ang. distrib. 0=9637
 Mg²⁴(d,p)Mg²⁵, calc., finite range effects 4=19814
 Mg²⁴(d,p)Mg²⁵, doublet level at 3.40 MeV in Mg²⁵ 1=8582
 Mg²⁴(d,p)Mg²⁵, at 15 MeV, proton polarization 3=683
 Mg²⁴(d,p)Mg²⁵, 15 MeV, proton polarization 4=12265
 Mg²⁴(d,p)Mg²⁵, at 14.8 MeV, ang. distrib. 0=13239
 Mg²⁴(d,p)Mg²⁵, proton ang. distrib. stripping theory analysis 2=14131
 Mg²⁴(d,p)Mg²⁵, proton polarization 2=488
 Mg²⁴(d,p)Mg²⁵, 700 to 1500 keV, excitation fns. meas. 4=30352
 Mg²⁴(d,p)Mg²⁵ at 10 MeV 1=19508
 Mg²⁴(d,p)Mg²⁵, Mg²⁵ 3.40 MeV doublet 1=8623
 Mg²⁴(d,p)Mg²⁵, at 10.1 MeV optical model analysis 2=5961
 Mg²⁴(d,p) stripping, at 15 MeV 1=19512
 Mg²⁴(d,t)Mg²³ 2=14133
 Mg²⁴,²⁶(d,p)Mg²⁵,²⁷, p spectra ang. var., 1.2–2.5 MeV d's 4=28058
 Mg²⁵(d, α)Na²³, 7.1–7.7 MeV, (2I + 1) rule 4=12267
 Mg²⁵(d,n)Al²⁶, at 2 and 6.54 MeV, neutron spectra 1=9876
 Mg²⁵(d,p)Mg²⁶ 1=13848
 Mg²⁵(d,p)Mg²⁶ 1=16987
 Mg²⁵(d,p)Mg²⁶, 3.0–5.2 MeV meas. 4=12268
 Mg²⁶(d,p)Mg²⁷ 1=16987
 Mg²⁵(d,t)Mg²⁴ 2=14133
 Mg²⁵,²⁶(d,t)Mg²⁴,²⁵, at 14.8 MeV, ang. distrib. 0=13239
 Mg²⁶(d,t)Mg²⁵ 2=14133
 MgO + d, 9 MeV, Mg²⁷ decay, γ - γ coincidence, absence of 0.84–0.81 MeV or 0.84–1.01 MeV cascades 3=24892
 Mn⁵⁵(d,p) and (d,2n), 3–11.6 MeV 3=22423
 Mn⁵⁵(d,p)Mn⁵⁶, at 8.9 MeV, proton spectra and ang. distrib. 1=17145
 Mn⁵⁵(d,2n)Fe⁵⁵, 3–11.6 MeV 4=17189
 Mn⁵⁵(d,p)Mn⁵⁶, 3–11.6 MeV 4=17189
 Mo⁹²,⁹⁴-(d,p), 13.6 MeV 3=22271
 Mo⁹²,⁹⁷-(d, α)Nb⁹⁰,⁹⁵-, absolute cross-sections 1=722
 Mo⁹⁴, prod. of Tc^{94m} 2=1840
 Mo⁹⁷(d,p), 13.6 MeV, ang. distrib. 3=24973
 N¹⁴(d, α)C¹² 1=12214
 N¹⁴(d, α)C¹² 1=13849
 N¹⁴(d, α)C¹²*, rel. to C¹² 2nd excited state decay 4=9392
 N¹⁴(d, α)C¹²*(4.44 MeV state) 1=11029
 N¹⁴(d, α)C¹²(gnd) 1=11029
 N¹⁴(d, α)C¹², ground state reaction, with 1.5–3.0 MeV deuterons 1=17146
 N¹⁴(d, α)C¹², 90°-excitation functions 2=20664
 N¹⁴(d, α)C¹², at 1.43–2.90 MeV, diff. cross-section 1=9877
 N¹⁴(d, α)C¹², reaction mech. 2=3609
 N¹⁴(d, α)C¹², resonance obs. 2=490
 N¹⁴(d, γ)O¹⁶, giant resonances 4=19818

Nuclear reactions due to —contd

deuterons — contd

- N¹⁴(d,n)O¹⁵ 1=17146
 N¹⁴(d,n)O¹⁵, to ground state and 6.79 and 6.86 MeV states, neutron ang. distrib. 1=720
 N¹⁴(d,n)O¹⁵*(5.20, 5.25, 6.15 MeV), n ang. distrib. 4=6372
 N¹⁴(d,n)O¹⁵, n yield for ds' O-700 keV 3=15228
 N¹⁴(d,n)O¹⁵, at 0.66–5.62 MeV, excitation curves and ang. distrib. 0=13241
 N¹⁴(d,n)O¹⁵ 1.5–2.9 MeV 1=12214
 N¹⁴(d,n)O¹⁵, 1.5–3.2 MeV 1=12215
 N¹⁴(d,n)O¹⁵, stripping reaction 3=2486
 N¹⁴(d,n)O¹⁵, study using new fast n spectrometer 3=10130
 N¹⁴(d,p)N¹⁵ 1=12214
 N¹⁴(d,p)N¹⁵ 1=13849
 N¹⁴(d,p)N¹⁵, ang. distrib. 2=489
 N¹⁴(d,p)N¹⁵, rel. to N¹⁵ 6.33 MeV level 1=7326
 N¹⁴(d,p)N¹⁵, at 0.5–5.5 MeV, excitation functions and ang. distrib. 2=22840
 N¹⁴(d,p)N¹⁵, at 0.75–1.10 MeV 2=22839
 N¹⁴(d,p)N¹⁵, 1.5–3.2 MeV 1=12215
 N¹⁴(d,p)N¹⁵, resonance obs. 2=490
 N¹⁴(d,p)N¹⁵, at 16.2 and 16.7 MeV, ang. distrib., diff. cross-section 1=12213
 N¹⁴(d,p)N¹⁵*, stripping diff. cross-sections, Born 1st approx. 1=13850
 N¹⁴(d,p)N¹⁵, stripping process 2=16423
 N¹⁴(d,p)N¹⁵, stripping reaction 4=15230
 N¹⁴(d,p)N¹⁵, with 13.6 MeV polarized deuterons, proton asymm. 4=6369
 N¹⁴(d,p)N¹⁵*, ang. distrib., stripping charac. 2=16427
 N¹⁵(d, α), (d,p) 2=5907
 Na²³(d,n)Mg²⁴, at 2 MeV 2=12215
 Na²³(d,p), ang. distrib., distorted-wave Born approx. 1=19522
 Na²³(d,p)Na²⁴ 3=19875
 Na²³(d,p)Na²⁴, new Na²⁴ level with 2.512 MeV excitation energy 4=25301
 Na²³(d,p)Na²⁴, proton spectrum, levels in Na²⁴ 1=8572
 Na²³(d,p)Na²⁴, stripping analysis 1=721
 Na²³(d,t)Na²², excitation functions and thick target yields 2=20671
 Nb⁹³(d,t)Nb⁹², ground state of Nb⁹² 4=12152
 Ne(d,p), 2.4 MeV, mechanism 4=1107
 Ne²⁰(d, α)F¹⁸ 2=5907
 Ne²⁰(d, α)F¹⁸, at 14.7 MeV 2=16424
 Ne²⁰(d,n γ)Na²¹, ang. correl. meas. 3=10377
 Ne²⁰(d,n γ)Na²¹, first excited state of Na²¹ 3=2385
 Ne²⁰(d,n)Na²¹ 2=10137
 Ne²⁰(d,n)Na²¹, rel. to Na²¹ levels 1=10972
 Ne²⁰(d,n)Na²¹, at 2.4–6.1 MeV 2=381
 Ne²⁰,²²(d,n)Na²¹,²³, stripping 2=1922
 Ne²⁰,²²(d,n)Na²¹,²³, theory 2=20663
 Ne²⁰,²²(d,p) 2=5907
 Ne²⁰,²²(d,p), levels in Ne²¹,²³ 1=8579
 Ne²²(d,n)Na²³ 2=10137
 Ne²⁰,²²(d,p)Ne²¹,²³, at 4.75–7.5 MeV, Q values and levels in Ne²¹,²³ 0=20351
 Ne²²(d,n)Na²³ 4=22176
 Ne²²(d,p)Ne²³, ang. distrib. 0=11421
 Ni(d,n), neutron spectrum structure and polarization 3=24963
 Ni⁵⁷,⁵⁹,⁶¹(d,p)J depend. of ang. distrib. 4=15234
 Ni⁵⁸(d, γ), at 3.5–4.5 MeV, cross-section 1=9879
 Ni⁵⁸(d,p), ang. distrib., distorted-wave Born approx. 1=19522
 Ni⁵⁸(d,p)Ni⁵⁹ (3.9 MeV) 1=9878
 Ni⁵⁸(d,p), 27.5 MeV, optical model and distortion wave analysis 4=12258
 Ni⁵⁸, absolute cross-sections 2=20666
 Ni⁵⁸(d, α), 0 to 24 MeV, statistical model analysis 3=19876
 Ni⁵⁸(d, α p), 0 to 24 MeV, statistical model analysis 3=19876
 Ni⁵⁸(d, α), 0 to 24 MeV, statistical model analysis 3=19876
 Ni⁵⁸(d,t), at 21.6 MeV 2=1914, 16432
 Ni⁵⁸(d,2np), 0 to 24 MeV, statistical model analysis 3=19876
 Ni⁵⁸, 12.8 MeV 3=6282
 Ni⁵⁸-,⁶⁰-(d,p)Ni⁵⁹-,⁶⁵ 2=10139
 Ni⁵⁸,⁶⁰(d,p)Ni⁵⁹,⁶¹, 13.8 MeV 3=15222
 Ni⁵⁸,⁶⁰, 12.8 MeV, total cross sections 4=9558
 Ni⁵⁸,⁶⁰(d,p), analysis of final-state levels 4=12270
 Ni⁵⁸,⁶⁰,⁶²,⁶⁴(d,p)Ni⁵⁹,⁶¹,⁶³,⁶⁵ 2=10138
 Ni⁵⁸,⁶⁰,⁶²,⁶⁴(d,p) stripping at 13.6 MeV 3=2489

Nuclear reactions due to —contd

deuterons —contd

- $\text{Ni}^{59,61}(\text{d}, \text{p})$, rel. to single-particle levels 2=10017
 $\text{Ni}^{60}(\text{d}, \text{d}')\text{Ni}^{60}$, absolute differential cross-sections 1=13837
 $\text{Ni}^{60}(\text{d}, \text{p})$, ang. distrib., distorted-wave Born approx. 1=19522
 $\text{Ni}^{60}(\text{d}, \text{p})\text{Ni}^{61}$ (8.6 MeV) 1=9878
 $\text{Ni}^{60}(\text{d}, \text{t})$, at 21.6 MeV 2=1914, 16432
 $\text{Ni}^{60}(\text{d}, 2\alpha)$, 0 to 24 MeV, statistical model analysis 3=19876
 Ni^{60} , 12.8 MeV 3=6282
 $\text{Ni}^{60,64}(\text{d}, \text{t})$, ang. distrib. spin dependence 4=19821
 $\text{Ni}^{61}(\text{d}, \text{t})$, at 21.6 MeV 2=1914, 16432
 $\text{Ni}^{62,63,65}$, study of levels 3=24833
 O^{16} , absolute cross-sections 2=20666
 $\text{O}^{16} + \text{d}$, use of semiconductor detectors 4=17187
 $\text{O}^{16}(\text{d}, \alpha)\text{N}^{14}$, α -particle spectra 1=8767
 $\text{O}^{16}(\text{d}, \alpha)\text{N}^{14}$, ang. distrib. 3=8124
 $\text{O}^{16}(\text{d}, \alpha)\text{N}^{14}$, 15–20 MeV 3=22418
 $\text{O}^{16}(\text{d}, \alpha)\text{N}^{14}$, isobaric spin conservation study 4=9560
 $\text{O}^{16}(\text{d}, \alpha)\text{N}^{14}$, 14.5–19.6 MeV, analysis 4=19817
 $\text{O}^{16}(\text{d}, \alpha)\text{N}^{14}$, at 15 MeV 2=8007
 $\text{O}^{16}(\text{d}, \alpha)\text{N}^{14}$, N^{14} recoil obs. in semiconductor detector 4=11857
 $\text{O}^{16}(\text{d}, \alpha)\text{N}^{14}$, reaction mech. 2=3609
 $\text{O}^{16}(\text{d}, \alpha)\text{N}^{14}$, 6.6 MeV 4=22172
 $\text{O}^{16}(\text{d}, \alpha)\text{N}^{14}$, rel. to two-nucleon stripping theory 0=13221
 $\text{O}^{16}(\text{d}, \alpha)\text{N}^{14}(\text{gnd.})$ 1=11029
 $\text{O}^{16}(\text{d}, \text{Li}^6)\text{C}^{12}$, rel. to α -particle clusters 4=22175
 $\text{O}^{16}(\text{d}, \text{n})\text{F}^{15}$, 1.83–2.4 MeV, yield and angular distrib. 1=17147
 $\text{O}^{16}(\text{d}, \text{n})\text{F}^{17}$, by time-of-flight 3=17494
 $\text{O}^{16}(\text{d}, \text{n})\text{F}^{17}$ 0=4033
 $\text{O}^{16}(\text{d}, \text{n})\text{F}^{17}$, F^{17} g.s. and 0.5 MeV level, diff. cross-sections 2=491
 $\text{O}^{16}(\text{d}, \text{n})\text{F}^{17}$, heavy water leak detection 0=5466
 $\text{O}^{16}(\text{d}, \text{n})\text{F}^{17}$, threshold energy, F^{17} accurate mass 0=20460
 $\text{O}^{16}(\text{d}, \text{p})$ and $\text{O}^{16}(\text{d}, \alpha)$, 0.8–2.0 MeV, diff. cross-sections 3=2485
 $\text{O}^{16}(\text{d}, \text{p})\text{O}^{17}$ 2=5803
 $\text{O}^{16}(\text{d}, \text{p})\text{O}^{17*}$ 0=17603
 $\text{O}^{16}(\text{d}, \text{p})\text{O}^{17}$, external pairs, relative intensity 1=13736
 $\text{O}^{16}(\text{d}, \text{p})\text{O}^{17}$, $\text{O}^{16}(\text{d}, \text{t})\text{O}^{15}$, at 15 MeV, ang. distrib. and cross-sections 1=2233
 $\text{O}^{16}(\text{d}, \text{p})\text{O}^{17*}$ (0.87 MeV), proton polariz. 3=22421
 $\text{O}^{16}(\text{d}, \text{p})\text{O}^{17*}$, O^{17*} lifetime 0=17551
 $\text{O}^{16}(\text{d}, \text{p})\text{O}^{17}$, proton angular distribution 4=19815
 $\text{O}^{16}(\text{d}, \text{p})\text{O}^{17}$, stripping reaction 0=17598
 $\text{O}^{16}(\text{d}, \text{p})\text{O}^{17}$, stripping reaction 1=11032
 $\text{O}^{16}(\text{d}, \text{p})\text{O}^{17}$, stripping reaction, 6.3 MeV deuterons 1=17144
 $\text{O}^{16}(\text{d}, \text{t})\text{O}^{15}$ 2=14133
 $\text{O}^{16-18}(\text{d}, \text{p})$, 15 MeV 3=12583
 $\text{O}^{16}(\text{d}, \text{p})$, 27.5 MeV optical model and distorted wave analysis 4=12258
 $\text{O}^{17}(\text{d}, \text{p})\text{O}^{16}$, ang. distrib., exchange term effects 4=19816
 O^{17} , stripping, ang. distrib. 3=22420
 $\text{O}^{17,18}(\text{d}, \text{p})$, 5.55 MeV 4=25295
 $\text{O}^{18}(\text{d}, \alpha)$, (d, p) 2=5907
 $\text{O}^{18}(\text{d}, \alpha)$, Q-value 2=5907
 $\text{O}^{18}(\text{d}, \text{d}')\text{O}^{18*}$, at 15 MeV, ang. distrib., levels in O^{18} 1=7399
 $\text{O}^{18}(\text{d}, \text{Li}^6)\text{C}^{14}$, rel. to α -particle clusters 4=22175
 $\text{O}^{18}(\text{d}, \text{n})\text{F}^{18}$, 3–9 MeV differential cross-sections 3=6289
 $\text{O}^{18}(\text{d}, \text{p})\text{O}^{19}$, distorted-wave analysis 3=10381
 $\text{O}^{18}(\text{d}, \text{p})\text{O}^{19}$, at 15 MeV, proton spectra, levels in O^{19} 1=7399
 $\text{O}^{18}(\text{d}, \text{p})\text{O}^{19}$, at 7 MeV, and energy levels in O^{19} 2=3487
 $\text{O}^{18}(\text{d}, \text{p})\text{O}^{19}$, 7.0 MeV 4=6373
 $\text{O}^{18}(\text{d}, \text{t})\text{O}^{17}$ 2=14133
 $\text{O}^{18}(\text{d}, \text{t})\text{O}^{17}$, distorted-wave analysis 3=10381
 $\text{O}^{18}(\text{d}, \text{t})\text{O}^{17}$, at 15 MeV, ang. distrib., levels in O^{17} 1=7399
 $\text{P}^{31}(\text{d}, \alpha)\text{Si}^{29}$, at 14.7 MeV 2=16424
 $\text{P}^{31}(\text{d}, \alpha)\text{Si}^{29}(\text{gnd.})$ 1=11029
 $\text{P}^{31}(\text{d}, \text{p})\text{P}^{32}$, level study of P^{32} 2=22739
 $\text{P}^{31}(\text{d}, \text{p})\text{P}^{32}$, at 6 MeV, excited states of P^{32} 0=13147
 Pb , $\text{At}^{211,216,207}$ formation by capture of Li 1=3461
 $\text{Pb}(\text{d}, \text{p})$, rel. to nuclear structure 1=3398
 $\text{Pb}(\text{d}, \text{t})$, triton spectra, rel. to nuclear structure 1=3397
 Pb -region, stripping reactions, nuclear struct. studies 2=18354
 $\text{Pb}^{206}(\text{d}, \text{p})\text{Pb}^{207}$ 2=1857
 $\text{Pb}^{206}(\text{d}, \text{p})\text{Pb}^{207}$, at 7.4–9.1 MeV, diff. cross-sections 1=2234
 $\text{Pb}^{206}(\text{d}, \text{p})\text{Pb}^{207}$, at <10 MeV, ang. distrib., calc. 2=3608

Nuclear reactions due to —contd

deuterons —contd

- $\text{Pb}^{208}(\text{d}, \text{p})\text{Pb}^{207}$, theory rel. to deuteron stripping theory 2=10140
 $\text{Pb}^{208}(\text{d}, \text{p})$ stripping, 8.3 to 15 MeV 1=19505
 $\text{Pb}^{207,208}(\text{d}, \text{p})$ 27.5 MeV, optical model and distorted wave analysis 4=12258
 $\text{Pb}^{208}(\text{d}, \alpha)\text{Tl}^{206}$, direct interact. mech. 2=20668
 $\text{Pr}^{141}(\text{d}, \text{p})\text{Pr}^{142}$ 3=2360
 Pu , formation of spontaneously fissioning isomer 4=6392
 $\text{Pu}^{239}(\text{d}, \text{p})$, use to det. neutron fission threshold 0=1415
 $\text{Pu}^{239}(\text{d}, \text{p})$, at 11 MeV, proton spectrum 1=8770
 $\text{S}^{32}(\text{d}, \alpha)\text{P}^{30}$, at 14.7 MeV 2=16424
 $\text{S}^{32}(\text{d}, \text{He}^3)\text{P}^{31}$, levels in P^{31} 4=19819
 $\text{S}^{32}(\text{d}, \text{p})\text{Cl}^{33}$ rel. to Cl^{33} levels 1=619
 $\text{S}^{32}(\text{d}, \text{p})\text{S}^{34}$, 6–0 MeV, proton groups 3=6291
 $\text{Sb}^{121}(\text{d}, 2\text{n})\text{Te}^{121\text{m}}$, Te^{121} , ratio of isomer yields 2=18355
 $\text{Se}^{76}(\text{d}, \text{p})\text{Se}^{77}$, 7.8 MeV 3=17495
 Se^{76} , inelastic scatt., at 11 MeV 2=1874
 $\text{Si}^{28}(\text{d}, \alpha)$, analysis 3=2473
 $\text{Si}^{28}(\text{d}, \text{n})\text{P}^{29}$, rel. to P^{29} levels 1=619
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29}$, at 6–9 MeV, distorted-wave analysis 1=8755
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29}$ 1=4875
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29}$, effect of 2nd term of Born series 4=25428
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29}$, Ericson effect 3=8127
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29}$, at 15 MeV, ang. distrib., states in Si^{29} 1=7400
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29}$, 15 MeV, partial wave contribution 3=17492
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29}$, at 15 MeV, proton polarization 3=682
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29*}$, 15 MeV, proton polarization 4=12265
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29*}(\gamma)\text{Si}^{29}$ 0=9587
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29}$, $\text{p}-\gamma$ ang. correlations, distorted wave effects 0=5753
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29}$ reaction mechanism studies 1=2235
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29}$, reduced widths 1=8758
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29}$, at 6–11 MeV, interference effects in proton diff. excitation curves 1=8759
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29}$, spin-orbit distortions 2=16428
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29}$ stripping reaction, 6.3 MeV deuterons 1=17144
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29}$, 10 MeV, proton polarization meas. 4=9557
 $\text{Si}^{28}(\text{d}, \text{p})\text{Si}^{29}$, 13.8 MeV 3=15222
 $\text{Si}^{28}(\text{d}, \text{p})$ stripping, at 15 MeV 1=19512
 $\text{Si}^{28}(\text{d}, \text{p})$, 13 MeV deuterons 1=13842
 $\text{Si}^{28-30}(\text{d}, \text{p})\text{Si}^{29-31}$, study of levels of Si^{29-31} 0=17503
 $\text{Si}^{28,30}(\text{d}, \text{p})\text{Si}^{29,31}$, 2–3 MeV meas. 4=25429
 $\text{Si}^{29}(\text{d}, \text{p})\text{Si}^{30}$ 3=4667
 $\text{Si}^{29}(\text{d}, \text{p})\text{Si}^{30}$ 2=5962
 $\text{Si}^{29}(\text{d}, \text{p})\text{Si}^{30}$, energy spectra and ang. distrib. 3=24971
 $\text{Si}^{29}(\text{d}, \text{p})\text{Si}^{30}$, 4.3 MeV, ang. distrib., calc. 3=6286
 $\text{Si}^{29}(\text{d}, \text{p})\text{Si}^{30}$, proton polarization 4=16896
 Si^{29} stripping, ang. distrib. 3=22420
 $\text{Si}^{30}(\text{d}, \text{p})\text{Si}^{31}$ 2=5963
 $\text{Si}^{30}(\text{d}, \text{p})\text{Si}^{31}$ 3=4668
 $\text{Si}^{78}(\text{d}, \alpha)\text{Al}^{26}$, statistical emission and Ericson fluctuations 2=16409
 $\text{Sm}^{147,149}(\text{d}, \text{p})\text{Sm}^{148,150}$, at 12 MeV 4=9412
 Sm^{154} , inelastic scatt. at 11 MeV 2=1874
 $\text{Sn}(\text{d}, \text{p})$, $\text{Sn}(\text{d}, \text{t})$, neutron single-particle states of odd Sn isotopes 1=4876
 $\text{Sn}^{112}(\text{d}, \text{n})\text{Sn}^{113}$ 1=17010
 $\text{Sn}^{114}(\text{d}, \text{n})\text{Sn}^{115}$ 1=17010
 $\text{Sn}^{117}(\text{d}, \text{p})\text{Sn}^{118}$, 13.6 MeV, and Sn^{118} levels, spin and parity 3=12592
 $\text{Sn}^{119}(\text{d}, \text{p})\text{Sn}^{120}$, 13.6 MeV, and Sn^{120} levels, spin and parity 3=12592
 $\text{Sn}^{122,124}(\text{d}, \text{p})\text{Sn}^{123,125}$ 4=25314
 Sr , prod. of $\text{Y}^{90\text{m}}$ 1=10973
 Sr , $\text{Y}^{90\text{m}}$ production 2=10027
 $\text{Sr}^{88}(\text{d}, \text{p})\text{Sr}^{89}$ 4=12271
 T , continuous neutron spectra meas. 3=6290
 $\text{T}(\text{d}, \text{n})\text{He}^4$, construction of 14 MeV neutron generator 0=15365
 $\text{T}(\text{d}, \text{n})\text{He}^4$, d polarization meas. 0=17431
 $\text{T}(\text{d}, \text{n})\text{He}^4$, deuteron beam alignment from neutron yield 2=13604
 $\text{T}(\text{d}, \text{n})\text{He}^4$, excitation curve 0=7576
 $\text{T}(\text{d}, \text{n})\text{He}^4$, neutron beam collimation 2=20371
 $\text{T}(\text{d}, \text{n})\text{He}^4$, neutron cross-section meas. 2=5685
 $\text{T}(\text{d}, \text{n})\text{He}^4$, neutron polarization 0=2549
 $\text{T}(\text{d}, \text{n})\text{He}^4$, neutron polarization 1=19291
 $\text{T}(\text{d}, \text{n})\text{He}^4$, neutron polarization 2=22656

Nuclear reactions due to — contd
deuterons — contd

- T(d,n)He⁴, neutron spectra measurement 1=13846
T(d,n)He⁴, at 0.1-7.7 MeV, as source of polarized neutrons 2=293
T(d,n)He, for pulsed neutron prod. 2=16212
T(d,n)He³, at 6-11.5 MeV, neutron ang. distrib. 1=7291
T(d,n)He⁴, at 6-14 MeV, cross-sections, levels in He⁴ 0=15461
T(d,2n)He³, at 12 MeV, energy distrib. of He³ 0=7425
T³(d,n)He⁴ 2=3343
T³(d,n)He⁴, in accelerator neutron source 1=508
Ta, neutron yield, D build-up 0=17979
Ta, 26 MeV, fast neutron spectra, meas. with threshold detectors 4=22170
Ta¹⁸¹(d,p)Ta¹⁸², 7.0 MeV meas. 4=9561
Te¹²⁵(d,p), 13-6 MeV, ang. distrib. 3=24973
Th²³²(d,p), at 11 MeV, proton spectrum 1=8770
Ti(d,p), Q-values 1=19372
Ti^{45,49}(d,p), J depend. of ang. distrib. 4=14234
Ti⁴⁶(d,α)Sc⁴⁴, absolute cross-sections 1=722
Ti^{46,48}(d,p)Ti^{47,49}, proton spectra, levels in Ti^{47,49} 0=17605
Ti⁴⁸⁻⁵⁰(d,He³), meas. 4=19820
Ti^{46,50}(d,t)Ti^{45,49}, at 21.4 MeV 2=20670
Ti^{48,49,50,51}(d,p)Ti^{47,48,49,50,51} 3=19877
Ti⁴⁷, comparison with Sc⁴⁵ + α reactions 4=22189
Ti⁴⁷⁻⁵⁰(d,p) 2=16333
Ti⁴⁹(d,p), rel. to single-particle levels 2=10017
Ti⁵⁰(d,p)Ti⁵¹ 4=6226
Tl(d,t), triton spectra, rel. to nuclear structure 1=3397
U^{233,235,238}(d,p), use to det. neutron fission threshold 0=1415
U^{233,235,238}(d,p), at 11 MeV, proton spectrum 1=8770
V⁵¹(d,p) stripping, at 15 MeV 1=19512
V⁵¹(d,p)V⁵², comp. with V⁵¹(n,γ)V⁵² 0=7577
V⁵¹(d,p)V⁵², at 15 MeV, proton polarization 3=683
V⁵¹(d,p)V⁵², proton spectrum 1=13851
W(d,α) and W(d,αn), excitation functions 1=5937
W(d,p) for various isotopes 3=10270
W + d → Re¹⁸⁴, 13.6 MeV, Re¹⁸⁴ decay, e⁺e⁻ conversion spectra 3=24910
Y, at 12 MeV, prod. of Y^{90m} 1=19374
Y⁸⁹(d,α)Sr⁸⁷, direct interact. mech. 2=20668
Y⁸⁹(d,p), 5-12 MeV, isomer ratios for Y^{90g,90m} 4=17197
Y⁸⁹(d,p)Y⁹⁰, 15 MeV, ang. distrib., and Y⁹⁰ energy splitting 3=15109
Y⁸⁹(d,p)Y⁹⁰, 12 MeV 4=22178
Yb¹⁷⁶(d,p)Yb¹⁷⁷, 12 MeV 4=3582
Zn⁶⁴(d,αn)Cu⁶¹, excitation functions and thick-target yields 3=10385
Zn⁶⁴(d,p)Zn⁶⁵ + Zn⁶⁴(d,n)Ga⁶⁵(β⁺)Zn⁶⁵ 3=10385
Zn⁶⁴(d,2p)Cu⁶⁴, excitation functions and thick-target yields 3=10385
Zn^{66,68-69}(d,p), stripping, rel. to Zn level structure 4=6227
Zn⁶⁶(d,α)Cu⁶⁴, excitation functions and thick-target yields 3=10385
Zn⁶⁶(d,n)Ga⁶⁷, excitation functions and thick-target yields 3=10385
Zn⁶⁶(d,p) and (d,2n), 3-11.6 MeV 3=22423
Zn⁶⁶(d,2n)Ga⁶⁸, excitation functions and thick-target yields 3=10385
Zn^{66,68}(d,p)Zn^{67,69}, 3-11.6 MeV 4=17189
Zn⁶⁷(d,αn)Cu⁶⁴, excitation functions and thick-target yields 3=10385
Zn⁶⁷(d,2p)Cu⁶⁷, excitation functions and thick-target yields 3=10385
Zn⁶⁸(d,He³)Cu⁶⁷, excitation function 3=10384
Zn⁶⁸(d,p) and (d,2n), 3-11.6 MeV 3=22423
Zr(d,p) and (d,t), nuclear structure studies 3=24866
Zr⁹⁰(d,α)Y⁸⁸, Zr⁹²(d,α)Y⁹⁰, direct interact. mech. 2=20668
Zr⁹⁰(d,He³)Y⁸⁹, and Zr⁹⁰ ground state 4=30299
Zr⁹⁰(d,p)Zr⁹¹, at 10.85 MeV, 11 energy levels in Zr⁹¹ 1=4877
Zr^{90,91}(d,p)Zr^{91,92} 1=17148
Zr^{90,92,94}(d,α)Y^{88,90,92}, absolute cross-sections 1=722
Zr⁹¹(d,p)Zr⁹², at 10.85 MeV, levels in Zr⁹² 2=3492
Zr^{91,92,94}(d,t) at 20 MeV 1=17149
Zr^{94,96}, stripping and compound-nucleus mechanisms 1=19523

electrons

- collective nuclear transitions, hydrodynamic model 0=5761

Nuclear reactions due to—contd
electrons—contd

- disintegration, rel. to photon processes, in 2-body system 4=25370
(e,N) diff. cross-section, ratio to (γ,N) total cross-section 1=8701
(e,n), effective cross-section 0=2672
(e,N) to (γ,N) cross-section ratio, two -quanta-exchange 1=19174
(e,2N), rel. to nucleon pair-correl. function 4=25382
electron accelerator shielding, rel. to 3=455
heavy nuclei—electron scattering, high-energy, semi-classical descript. 2=3557
light nonspherical nuclei, cross-sections, with rotational excitation 1=13777
magnetic dispersion corrections 1=13775
neutron yields from thick targets bombarded at 10-36 MeV 0=4109
nuclear recoil in equivalent-photon method 2=430
nuclear-recoil in equivalent photon method 3=666
scattering, from C target, 194 MeV 2=434
scattering, non-coherent, on nuclei 2=3556
scattering, non-coherent, on nuclei 3=2438
slow electrons (<3eV) with neutral atoms, bremsstrahlung cross-section 1=17087
Al, backscatt. coeff., 8-22 MeV 4=22122
Al(e,p), 1-4 BeV meas. 4=27840
Au(β → γ, p) 0=11432
Au, double-Mott scatt., 45-245 keV 2=429, 22799
Au¹⁹⁷, prod. of Au¹⁹⁵⁻⁹⁶ 0=20473
Be⁹, disintegration, 17-49 MeV 3=4628
Be⁹, 2.43 MeV and ground states, scattering 1=13776
C(e,p), 1-4 BeV meas. 4=27840
C¹³(e,e'p) 1=13770
Cd, backscatt. coeff., 8-22 MeV 4=22122
Cu, backscatt. coeff., 8-22 MeV 4=22122
Cu, cascades, up to 400 MeV 3=22369
Cu(e,p), 1-4 BeV meas. 4=27840
D disintegration, by polarized electrons 0=12910
D, disintegration at 204-500 MeV, n-p interaction 2=325
H³, disintegration, 400 MeV calc. 3=15048
He⁴ disintegration 0=9445
He⁴ disintegration at 400 MeV, calc. 0=20248
In(β → γ, p) 0=11432
Li⁶, disintegration, and nucleus model as α + d 3=17455
Li⁶(e,p), 1-4 BeV meas. 4=27840
Li⁶(e,e'p), prod. ang. distrib. 2=14089
Li⁷, 5.7 MeV, disintegration into t + α 4=12211
Nb(β → γ, p) 0=11432
(e, Ne') model, where N has spin 0 or 1/2 4=6327
O¹⁶, prod. of O¹⁵, N¹³, C¹¹, rel. to protoprod. 2=10087
Pb, backscatt. coeff., 8-22 MeV 4=22122
Pb(β, γ) → Pb(γ, n), neutron yield 0=20472
Pb, cascades, up to 400 MeV 3=22369
Ta(β → γ, p) 0=11432
Ta¹⁸¹, prod. of Ta^{178,180} 0=20473
Zn(β, γ) 2=3558
- gamma-rays**
See Nuclear reactions, photons.
- helium-3**
double stripping reactions, review 1=8678
elastic scattering by Al, V and Cu at 29 MeV 1=8774
elastic scattering by nuclei of medium weight 1=723
with ions, cross-section reduced width calc., overlap integral method 4=30355
mechanism 1=8753
overlap integral calc. 4=25430
review, reactions mechanism, results and bibliography 1=2237
scattering, elastic, on He³, at 20 and 25 MeV, diff. cross-section and phase-shift analysis 1=8521
scattering, elastic, on He³, at 20-29 MeV, calc. 1=3249
scattering on Ne 2=1925
stripping reactions, theory 2=3542
tandem generator used 2=5906
Al, elastic scattering, 5.5 MeV, optical model analysis 1=9880
Al²⁷, elastic scattering, 26-33 MeV 3=24974
Al²⁷(He³, α)Al²⁸ 0=11422
Al²⁷(He³, d)Si²⁸ 1=2238

Nuclear reactions due to—contd

helium-3—contd

- Al²⁷(He³,d)Si²⁸, at 5.2 MeV 0=5754
 Al²⁷, at 6-24 MeV, excitation functions 3=2497
 B¹⁰(He³,α)B⁹ 0=11422
 B¹⁰(He³,α)B⁹, 3.0 to 10.5 MeV 4=9391
 B¹⁰(He³,d)C¹¹ 1=12217
 B¹⁰(He³,d)C¹¹, ang. distrib. 2=3617
 B¹⁰(He³,p)C¹², at 2.2 MeV, C¹² level at 9.0 MeV discounted 1=8619
 B¹⁰(He³,p)C¹², at 2.2 MeV, (p,γ,γ) coincidences 0=17558
 B¹⁰(He³,p)C¹², at 2-2 MeV, p-γ-γ coincidences, decay of C¹²(7.66 MeV) 1=17058
 B¹⁰(He³,p)C¹², at 3.74 MeV, levels in C¹² 2=3617
 B¹⁰(He³,n)N¹³, Q values meas. 4=12276
 B¹⁰(He³,N¹³)n, Q value, by mag. analysis 4=12275
 B¹⁰(He³,t)C¹⁰, threshold and 10.5 MeV, total cross-section 4=22186
 B¹⁰,¹¹(He³,d)C^{11,12} at 5.2 MeV 0=5754
 B¹¹(He³,α)B¹⁰ 0=11422
 B¹¹(He³,d)C¹² 1=12217
 B¹¹(He³,p)C¹³, Q-values 0=2624
 B¹¹(He³,p)C¹³, rel. to C¹³ levels 3=8132
 B¹¹(He³,p)C¹³, 3.1-4.2 MeV meas. 3=15227
 Be⁹(He³,α)Be⁸, heavy particle stripping 3=19882
 Be⁹(He³,α)2He⁴, 3 and 4 MeV, continuum spectra 4=3699
 Be⁹(He³,d)B¹⁰ 0=11423
 Be⁹(He³,d)B¹⁰, deuteron ang. distrib. 0=5755
 Be⁹(He³,d)B¹⁰, at 25 MeV, ang. distrib. 0=15580
 Be⁹+He³ at E(He³) ≤ 2.0 MeV 3=22269
 Be⁹(He³,γ)C¹², 1.5 tp 4.5 MeV 4=22185
 Be⁹(He³,n)C¹¹, distorted-wave calcs. rel. to expt. 4=3700
 Be⁹(He³,n)C¹¹, energy spectra, ang. distrib. 3=19881
 Be⁹(He³,p)B¹¹ 0=11423
 Be⁹(He³,p)B¹¹, rel. to B¹¹ levels 1=10964
 Be⁹(He³,p)B¹¹, diff. cross-sections at 4.5 MeV 0=4102
 Be⁹(He³,p)B¹¹, proton ang. distrib. 0=5755
 Be⁹(He³,t)B⁸, triton ang. distrib. 0=5755, 15580
 Be¹⁰(He³,α)B⁹, rel. to B⁹ levels 1=3396
 C, elastic scattering, 5.5 MeV, optical model analysis 1=9880
 C¹² 0=2624
 C¹², elastic scattering, 26-33 MeV 3=24974
 C¹², scatt., 28.5 MeV, ang. distrib. 3=12699
 C¹², at 6-24 MeV, excitation functions 3=2497
 C(He³,He⁴) and C(He³,d) on plane wave direct interact. theory 3=2493
 C¹²(He³,α) 0=11424, 20463
 C¹²(He³,α)C¹¹, pick-up 2=3612
 C¹²(He³,α)C¹¹, 26-33 MeV meas. 4=6377
 C¹²(He³,α)C¹¹, 29 MeV 4=3701
 C¹²(He³,α)C¹¹, 1.8-5.4 MeV, cross-sections and ang. distrib. 4=15240
 C¹²(He³,d) 0=11424
 C¹²(He³,d)N¹³, 29 MeV 4=3701
 C¹²(He³,d)N¹³, at 21 and 25 MeV, ang. distrib. 0=15580
 C¹²(He³,γ)O¹⁵, resonances 4=15209
 C¹²(He³,n)O¹⁴ 1=5940
 C¹²(He³,n)O¹⁴, C¹²(He³,p)N¹⁴*, Q-values 2=18290
 C¹²(He³,n)O¹⁴, C¹²(He³,p)N¹⁴*, Q values 1=645
 C¹²(He³,n)O¹⁴, 5.5-11.0 MeV, rel. to ang. distrib. 4=17200
 C¹²(He³,n)O¹⁴, at 5.5 MeV, ang. distrib. 0=15581
 C¹²(He³,n)O¹⁴, neutron angular distrib. 1=3460
 C¹²(He³,n)O¹⁴, 19, 22 and 25 MeV meas. 3=12701
 C¹²(He³,n)O¹⁴, 1.8 to 5.3 MeV 2=1926
 C¹²(He³,n)O¹⁴, 1.8 to 5.5 MeV 4=9563
 C¹²(He³,n)O¹⁴, threshold 1=13857
 C¹²(He³,n)O¹⁴, threshold energy 1=4847
 C¹²(He³,n)O¹⁴, total cross-section excitation function 4=15209
 C¹²(He³,p)N¹⁴ 4=17027
 C¹²(He³,p)N¹⁴, C¹²(He³,d)N¹³, at 13.9 MeV, stripping effects, ang. distributions 0=15579
 C¹²(He³,p)N¹⁴, 1.8-5.4 MeV, cross-sections and ang. distrib. 4=15240
 C¹²(He³,p) 0=11424
 C¹³(He³,α)C¹² differential cross section at 1.8 MeV 1=725
 C¹³(He³,α)C¹², pick-up and alpha-particle stripping mixture 1=13856
 C¹³(He³,α)C¹², ang. correls., reaction mechanism 3=2496
 C¹³(He³,n)O¹⁵, distorted-wave calcs. rel. to expt. 4=3700

Nuclear reactions due to—contd

helium-3—contd

- C¹³(He³,n)O¹⁵, 7.5-11.0 MeV, rel. to ang. distrib. 4=17200
 C¹³(He³,p)N¹⁵, Q values 0=2624
 Ca⁴⁰(He³,d)Sc⁴¹, at 25 MeV, ang. distrib. and Q-values 0=15580
 Ca⁴⁸(He³,d)Sc⁴⁹, and Sc⁴⁹ single-particle state splitting 3=22026
 Cu, elastic scattering, 5.5 MeV, optical model analysis 1=9880
 Cu⁶³, 7-24 MeV, eight reactions meas. 3=12702
 Cu⁶³, 7-24 MeV, five reactions meas. 3=12702
 F¹⁹(He³,d)Ne²⁰, 13.0 MeV meas. 3=4670
 F¹⁹(He³,p)Ne²¹, Ne²¹ energy levels 0=7475
 Fe¹⁹(He³,p)Ne²¹, ang. correl. in Ne²¹ 4=25299
 Fe^{54,56-8}(He³,α), at 14.3 MeV, ang. distrib., expt. and calc. 2=18359
 Fe⁵⁶(He³,t)Co⁵⁶ 2=20678
 Fe⁵⁸(He³,T), at 25 MeV 3=2455
 (He³,d), with (d,p), rel. to isobaric spin of target 3=877
 (He³,n), three models, detailed study 4=12273
 (He³,n) on various light nuclei, neutron spectra 4=19224
 (He³,np), plane-wave stripping-type calc. 4=15239
 (He³,p), cross-sections 1=724
 (He³,p) reactions, ang. distrib. and diff. cross-section calc. 1=9881
 (He³,p) reactions, cross-sections rel. to (α,p), cal. 0=20464
 (He³,p) reactions, theory of two-nucleon stripping 0=13221
 (He³,p), (t,p) type, exchange effects 2=14135
 (He³,p), theory, as stripping process 2=22853
 (He³,p), two-nucleon stripping on deformed nuclei 4=25434
 (He³,t), optical model and DWBA anal. 4=17198
 He³(He³,2p)He⁴, in stellar models 1=18070
 and He⁴ events, computer for distinguishing over wide energy range 0=12802
 Li⁶(He³,p)Be⁸*, 16.63 MeV 4=9469
 Li⁷(He³,α)Li⁶, lower levels of Li⁶ 4=17199
 Li⁷(He³,α)Li⁶, study of Li⁶ levels 0=15523
 Li⁷(He³,n)B⁸, distorted-wave calcs. rel. to expt. 4=3700
 Li⁷(He³,np)Be⁸, plane-wave stripping calc. 4=15239
 Mg, elastic scattering, 5.5 MeV, optical model analysis 1=9880
 Mg, elastic scattering, 26-33 MeV 3=24974
 Mg²⁴(He³,α)Mg²³, 5.5 MeV 1=9885
 Mg²⁴(He³,α)Mg²³, 26-33 MeV meas. 4=6377
 Mg²⁴(He³,n)Si²⁶, at 8 MeV, identification of Si²⁶ 0=20417
 Mg²⁴(He³,n)Si²⁶, at 5.5 MeV, ground-state Q-value 0=15581
 Mg²⁴(He³,p)Al²⁶, Al²⁶ energy levels 0=9530
 Mg²⁶(He³,t)Al²⁶ 2=20678
 N¹⁴(He³,α)N¹³ 0=11422
 N¹⁴(He³,α)N¹³, rel. to N¹⁴ levels 3=8132
 N¹⁴(He³,d)O¹⁵, at 5.2 MeV 0=5754
 N¹⁴(He³,d)O¹⁵, Q-values 0=2624
 N¹⁴(He³,n)F¹⁶, levels in F¹⁶ 1=8577
 N¹⁴(He³,p)O¹⁶, study with pulse-height analyser system 1=1868
 N¹⁴(He³,p)O¹⁶ 4=15146
 N¹⁴(He³,p)O¹⁶, 2.5-5.5 MeV 3=15231
 N¹⁵(He³,α)N¹⁴*, α-particle spectrum 3=6162
 Na²³, elastic scattering, 26-33 MeV 3=24974
 Na²³(He³,α)Na²², energy levels of Na²² 4=15151
 Na²³(He³,d)Mg²⁴ 1=617
 Ne²⁰, scatt., 28.5 MeV, ang. distrib. 3=12699
 Ne²⁰(He³,n)Mg²², at 3.4 and 4.5 MeV 2=381
 Ni⁶²(He³,d)spectrum and ang. distrib., and Cu⁶³ levels 4=17054
 O¹⁶(He³,α)O¹⁵ 0=11422
 O¹⁶(He³,α)C¹⁵ 1=12218
 O¹⁶(He³,α)O¹⁵, ang. distrib. 0=7578
 O¹⁶(He³,α)O¹⁵, resonances in excit. curves 0=5756
 O¹⁶(He³,d)F¹⁷, ang. distrib. 0=7578
 O¹⁶(He³,d)F¹⁷, ground state Q-value 0=15580
 O¹⁶(He³,He⁴)O¹⁶, O¹⁶(He⁴,He⁴)O¹⁵, at 1-3 MeV, diff. cross-sections 2=493
 O¹⁶(He³,n)Ne¹⁸ 1=5940
 O¹⁶(He³,n)Ne¹⁸ 1=12218
 O¹⁶(He³,n)Ne¹⁸, at 5.2 MeV, decay study of Ne¹⁸ 1=4850
 O¹⁶(He³,n)Ne¹⁸, at 5.5 MeV, ground-state Q-value 0=15581
 O¹⁶(He³,n)Ne¹⁸, neutron angular distrib. 1=5941
 O¹⁶(He³,p)F¹⁸ 0=5756-7
 O¹⁶(He³,p)F¹⁸, levels in F¹⁸ 1=7323

Nuclear reactions due to—contd

helium-3—contd

- $O^{16}(He^3, p)F^{18}$ 1=12218
 $O^{16}(He^3, p)F^{18}, O^{16}(He^3, \alpha)O^{15}$, Q values 0=2624
 $O^{16}(He^3, p\gamma)F^{18}$ 0=20414
 $O^{16}(He^3, p\gamma)F^{18}$, mechanism study by ang. correlation meas. 4=6378
 $P^{31}(He^3, d)S^{32}$ 1=617
 $Si^{28}(He^3, \alpha)Si^{27}$, at 9.16 MeV, α ang. distrib. 0=9642
 $Si^{28}(He^3, d)P^{29}$, at 9.16 MeV, d ang. distrib. 0=9642
 $Si^{28}(He^3, n)S^{30}$, new isotope prod. 1=7336
 $Ti^{48}(He^3, t)V^{48}$ 2=20678
 $Y^{89}(He^3, d)Zr^{90}$, ang. distrib., and Zr^{90} levels 4=25312

mesons

See also Cosmic rays, effects and interactions.

- A = 50, near, s- and p-wave, subshell effect 2=10116
 absorption, effect of resonance absorber 2=14108
 alpha-particles disintegration 2=13808
 capture cross-sections in keV region (errata) 2=1901
 capture, mag. spectrometer for internal conversion spectra 2=20313
 capture, thermal, M1 transition probab. 2=3476
 capture, 30 keV, γ -ray spectra, 14 elements 2=18340
 complex nuclei, π^- charge exchange 4=22162
 D fusion in cold gas, catalysis by μ -mesic atoms 1=8751
 diffraction processes, rel. to N-N production 3=15169
 emulsion nuclei + negative pions, disintegration, double emission of heavy fragments ($Z \geq 3$) 4=25418
 emulsions, Li-loaded, hyperfragments due to 1.5 GeV/c K^- 4=17006
 heavy nuclei, μ capture, Primakoff plot 4=19803
 light isotopes, lifetimes and capture rates of μ^- 4=1096
 $\mu + A \rightarrow \pi + \nu + A$ 3=24768
 μ , in C^{12} , capture rate 0=13291
 μ , in C^{12} , prod. of B^{12} 0=9686, 13290, 15385
 μ , in Ca^{40} , capture 3=10371
 μ capture, atomic hyperfine effects 4=22328
 μ capture by complex nuclei, hyperfine effects 3=10373
 μ capture in C^{12} , Ne^{20} , Si^{28} , S^{32} 1=17134
 μ , capture by complex nuclei, theories 3=10371
 μ capture by Cu with electron emission, negative evidence 1=7395
 μ capture, γ emission, rel. to muon decay rate 2=10126
 μ capture, in He, review 2=1907
 μ capture, heavy nuclei, neutron emission 2=10127
 μ , capture by light spin- $1/2$ nuclei 0=20506
 μ capture, nuclear surface effects 2=474
 μ capture, in nuclei, review 2=1907
 μ capture, by P 2=14232
 μ capture, with spin $1/2$ to $3/2$ transition 0=11449
 μ , capture, theory of allowed and forbidden transitions 0=9686, 13290
 μ capture theory, relativistic corrections 4=9544
 μ , capture, rel. to universal Fermi interact. 3=4656
 μ , in He liq., capture rate 2=22830
 μ , in heavy mesic atoms, excitation, theory 2=1908
 μ , high energy, shower, 300 GeV transferred energy 2=3436
 μ , inelastic scatt., Weizsäcker-Williams method 0=365
 μ -meson capture in heavy nuclei, relativistic effects 2=5948
 μ -meson capture, radiative, theory 3=17487
 μ -meson capture, by spin $1/2$ polarized nuclei 4=19804
 μ -mesons, relativistic, energy loss rate 3=7882
 (μ, n) , rel. to universal Fermi interaction 1=4766
 (μ, n) type reactions in Pb, neutron asymmetry 1=3304
 μ , nonradiative transitions in mesic atoms, nuclear excitation mechanism 0=20567
 μ , nuclear interaction cross-sections at ~ 200 MeV 2=5771
 μ , in nuclei other than H, rel. to universal Fermi interaction 4=15082
 μ , in O^{16} , capture 3=10371
 μ , in Pb, evaporation-neutron study 0=11194
 μ -Pb, Sn, Fe, (cosmic-rays) 300-1000 MeV/c 2=13920
 μ , prodn. of knock-on electrons 3=17300
 μ^- absorption by polarized nuclei, neutron ang. distrib. 0=9687
 μ^- absorption at rest, neutron energy and longit. polarization, virtual π -meson effects 0=17368
 μ^- , in C^{12} , β -decay of B^{12} , calc. 0=4130
 μ^- , in C^{12} , prod. of bound B^{12} 0=9695
 μ^- , in C^{12} , rel. to universal Fermi interaction 0=4129

Nuclear reactions due to—contd

mesons—contd

- μ^- capture, bound μ decay anomaly explained 1=12210
 μ^- capture in Ca, ang. distrib. of emitted neutrons 1=19499
 $\mu^- + C^{12} \rightarrow B^{12} + \nu$, by filament scintill. chamber 2=9733
 μ^- capture, in Ca, ang. distrib., emitted neutrons 2=22832
 μ^- capture, in Ca, neutron emission, ang. asymmetry 2=14122
 μ^- capture, γ -emission, circular polarization 0=9688
 μ^- capture by light nuclei, calc. 0=9692
 μ^- capture, nuclear shell effects, calc. for N^{14} , O^{16} , F^{19} 0=7629
 μ^- capture in O^{16} 4=28052
 μ^- , in He^3 , capture rate, calc. 0=9395
 $\mu^- + He^3 \rightarrow H^3 + \nu$ 2=11970
 μ^- , in Li^6 , prod. of He^6 ground state, capture rate calc. 0=1447
 μ^- -meson capture, neutron production, ang. distrib. 1=4873
 μ^- -mesons, fission of U^{238} 1=745
 $\mu^- + O^{16} \rightarrow N^{16} + \mu^-$, and induced pseudoscalar coupling constant 4=923
 μ^- , in O^{16} , probab. ratio in 0^- and 1^- states 1=19500
 μ^- , polarized, capture, ang. distrib. of neutrons 0=2687
 μ^- , polarized, capture by nucleus 2=16422
 μ^- , radiative capture 3=17488
 μ^- radiative capture, spin-emission correl. 0=9689
 μ^- , transition probabilities of Li^6 mesic atom to He^6 4=3683
 muon capture, spin-dependence, expt. results 1=19497
 nuclear fragment production by π^+ at 80 MeV 1=17135
 π , absorption, with two nucleons prod. 2=10130
 π -complex nuclei, He particle emission 4=25417
 π , deuteron prodn., mech. 2=18325
 π , on heavy nuclei, at 1080 MeV/c, Λ prod., depolarization due to target motion 0=20094
 π -mesons, Li^8 , Li^9 , B^8 emission from stars 1=11028
 π , pair prodn. in peripheral collisions 2=20387
 π , relative nuclear activity, near creation point 0=15605
 π^\pm , cascade calc., intranuclear, low-energy 3=22384
 π^- , above 10^8 eV, heavy particle emission 3=4658
 π^- absorpt., ratio neutrons/protons emitted 3=10372
 π^- , in Al, nuclear pair correlations 0=13292
 π^- , Be^8 direct production in emulsion nuclei interactions 4=19807
 π^- -C, elastic, at 2.8 and 6.8 BeV/c 2=3602
 π^- -C, rel. to Λ^0 prod., at 1.3 GeV 2=5950
 π^- -C, at 915 MeV 2=5951
 π^- , in C, nuclear pair correlations 0=13292
 π^- on C nuclei, 6.1 and 18.1 GeV/c, diffrn. dissociation 4=1097
 π , on C, at 0.6-1.2 GeV, total cross-section, calc. 1=3210
 $\pi^-(C^{12}, N^{12})\pi^-, \pi^0, \pi^-\pi$ interaction study 0=15399
 π^- capture in Cu, Sn, Pb, n spectra 4=17179
 π^- capture by light nuclei, mechanism 3=22411
 π^- capture by light nuclei from rest, theory 4=15229
 π^- , capture by nuclei in U-loaded emulsions 0=15604
 π^- in Cu, Cd, Pb, at 6-17.6 GeV/c, total inelastic cross-sections 2=8002
 π^- in Cu at 1.12 BeV/c, prod. of neutral V 's, cross-section and decay asymmetries 1=4811
 π^- , with emulsion nuclei, mesic hyper fragment production 4=17178
 π^- , emulsion plates, 4.6 GeV/c, Li^9 decay "hammer" track 2=22836
 π^- in emulsion, Ag, Br, 17 GeV/c, hyperfragments, ang. distrib. anisotropy 3=19872
 π^- , in emulsion, production of hyperfragments 0=9691
 π^- , in emulsions, 4.5 and 17 GeV 3=19733
 π^- , in emulsions, Li^8 prodn. at 17 GeV/c 2=20661
 π^- in emulsions, 16.2 GeV/c 3=8120
 π^- , with G5 emulsion nuclei, hyperfragments 2=18347
 $\pi^- + He^3 \rightarrow H^3 + \gamma$ 2=11970
 $\pi^- + He^3$, Panoisky ratio 3=24770
 π^- -mesons, 4.6 GeV/c, in emulsions 1=5930
 π^- -mesons at 4.5 GeV with nuclei in emulsions 1=17137
 π^- -N collisions, relativistic secondary products 3=2482
 π^- -nuclear emulsion nuclei, at 14, 16, 17 GeV 2=22562
 π^- , in nuclear emulsions, by stopping and absorption by C^{12} , N^{14} , O^{16} 4=17181
 π^- scatt. on C and O, diff. cross-sections, optical model analysis 1=7394
 π^- , 7 GeV, mechanism of primary collision 3=24938
 π^- , 17 GeV/c, bubble chamber meas. 4=25135

Nuclear reactions due to—contd mesons—contd

π^- , slow, absorption in light nuclei, theory 0=20505
 π^- , to 10 GeV, inaccuracy of Castagnoli formula and Duller-Walker diagram 2=22574
 π^- -Xe collisions at 8.4 GeV/c, π^0 production 3=2483
 $\pi^- + \text{Xe} \rightarrow \Lambda + k + \text{Xe}' + n\pi$ at 2.8 BeV/c 1=19501
 $\pi^- + \text{Xe} \rightarrow \pi^- + \pi^0 + \text{Xe}$, for 9 GeV/c primary π^- -mesons 4=28054
 $\pi^+ + \text{A} \rightarrow \text{A}' + 2p$, correlational model 4=3685
 π^+ , absorption by C and Li 0=11451
 π^+ , absorption at 80-300 MeV by C, F and Cl 0=11452
 π^+ -C scatt., elastic and inelastic at 87 MeV 2=10124
 π^+ , with C, Al, Cu, Sn, Pb, inelastic cross-sections 1=19265
 π^+ , with C, Al, Cu, Sn, Pb, inelastic cross-sections 2=22581
 π^+ , in C, star production, distrib. and structure 0=9694
 π^+ , charged particle prod. at 280 MeV 0=7630
 π^+ -nucleus, cross-sections at 3 BeV/c 2=3387
 π^+ -O scatt., elastic and inelastic, at 87 MeV 2=10124
 π^+ scattering in NIKFI emulsion 2=445
pion capture, π -nucleon resonances 3=15218
pion high energy reactions, photon spectra 3=8102
scattering, multiple, high momentum, in nuclear emulsions 1=19450
 Σ -capture, rel. to hyperfragment prod. 2=5791
 $\Sigma^- + \text{C}_{12} \rightarrow \Lambda \text{B}^{12} + n$ 3=7975
 Σ^- -hyperon capture, with p and π^- emission 1=3390
 Σ^- hyperons absorpt., hyperfragment emission 2=10128
2s-1d nuclei, μ capture rates, Nilsson model 4=17177
Ag, by 4.5 GeV pions, Li^8 , Be and B emission 3=12380
Ag, fragment prod. by 7.5 π^- , emulsion meas. 4=9548
Al, π^- capture, emitted neutron spectrum 4=9546
Al, π^+ absorption, rel. to optical model 2=10125
 $\text{B}^{10} + \mu$, capture, $\nu\nu$ correlation 4=19808
Br, by 4.5 GeV pions, Li^8 , Be and B emission 3=12380
Br, fragment prod. by 7.5 π^- , emulsion meas. 4=9548
C, capture of 78 MeV mesons 2=5721
C, $\Lambda^0 \text{K}^0$ -pair prodn. 2=22637
on C, $\Lambda^0 \text{K}^0$ -pair prodn. 3=6075
C, π^- capture, emitted neutron spectrum 4=9546
C + π^- , $\Lambda(\Sigma^0)$ and K^0 production, 7 GeV 4=19810
C(π^- , Λ), 7 BeV, Λ polarization 4=3491
C(π^- , Λ^0), 2 BeV/c, parity conservation meas. 4=9290
C(π^- , π^+), 2.8 BeV/c, nucleus effect 4=3444
C, π^+ absorption, rel. to optical model 2=10125
 $\text{C}^{12}(\gamma, \pi^0)\text{C}^{12}$, elastic, at 155 MeV 2=13847
 C^{12} , μ^- capture, B^{12*} formation 2=475, 22833
 $\text{C}^{12}(\mu, n)$ 1=5929
 C^{12} , μ^- capture probability, calc. 3=6278
 $\text{C}^{12}(\mu, \nu)\text{B}^{12}$, capture rate 3=8122
 $\text{C}^{12}(\mu^-, \nu)\text{B}^{12}$, capture rate 1=9871
 $\text{C}^{12}(\mu^-, \nu)\text{B}^{12}$, probability meas. 4=9545
 $\text{C}^{12} + \mu^- \rightarrow \text{B}^{12} + \nu + \gamma$ 3=17488
 $\text{C}^{12}(\pi^-, n)\text{B}^{11}$ 2=14121
 $\text{C}^{12}(\pi^-, n)\text{B}^{11}$ 3=6277
 $\text{C}^{12}(\pi^-, \pi^- n)\text{C}^{11}$, excitation function, 53-1610 MeV 4=9547
 $\text{C}^{12}(\pi^-, \pi^- n)\text{C}^{11}$, 0.45-1.9 GeV, excit. function 4=19809
Ca(μ, n), 7 to 23 MeV 4=3684
 Ca^{40} , μ capture, correction from a nuclear surface effect 3=10370
 $\text{Ca}^{40}(\mu, \gamma)$ 3=24961
Cd, π^- capture, emitted neutron spectrum 4=9546
Cd, π^+ adsorption, rel. to optical model 2=10125
Cl, $\Lambda^0 \text{K}^0$ -pair prodn. 2=22637
on Cl, $\Lambda^0 \text{K}^0$ -pair prodn. 3=6075
Cl(π^- , π^0), 2.8 BeV/c, nucleus effect 4=3444
 $\text{Cl}^{35,37}$, μ -absorption, shell model calc. 3=10368
Cu, neutrinoless coherent capture of μ^- , meas. 2=22831
Cu, π^+ absorption, rel. to optical model 2=10125
D, K^- capture, Y^* production 3=10170
F, $\Lambda^0 \text{K}^0$ -pair prodn. 2=22637
on F, $\Lambda^0 \text{K}^0$ -pair prodn. 3=6075
 F^{19} , μ capture 2=20659
 F^{19} , μ capture, hyperfine effects 3=10373
 F^{19} , μ^- -meson capture 2=5949
Fe(π^- , π^0), 2.8 BeV/c, nucleus effect 4=3444
H, μ capture, rel. to weak interaction consts. 4=15083
H, π -meson absorption, in liquid, lifetime 3=10162
H, $\pi^- + p \rightarrow \pi^+ + n$ 1=16849
H + $\pi^- \rightarrow \pi^+ + \pi^- + n$, ang. distrib., reaction cross-section 1=2083
He, K^- capture, Y^* production 3=10170

Nuclear reactions due to—contd mesons—contd

He^3 , μ capture, transition to H^3 , relativistic calc. 4=12081
 $\text{Fe}^3(\mu, \nu)\text{H}^3$, rel. to induced pseudoscalar coupling 4=12084
 $\text{He}^3(\mu^-, \nu)\text{H}^3$, calc. 3=10181
 $\text{He}^3(\mu^-, \nu_\mu)\text{H}^3$, theory, relativistic corrections 4=9544
 $\text{He}^3(\mu^-, \nu)\text{H}^3$, ang. distrib. of H^3 , calc. 4=6144
 He^3 , total μ capture rate meas. 4=9322
 $\text{He}^4(\text{K}, \Lambda\pi^-)\text{He}^3$, Y_1^* resonance formation 4=25183
 $\text{He}^4(\mu^-, \nu_\mu)\text{H}^3$, theory, relativistic corrections 4=9544
 $\text{He}^4(\pi^-, \text{H}^3)$ 2=18157
 $\text{He}^4(\pi^-, \text{N})$, max. excitation cross-section 1=19297
 $\text{He}^4 + \pi^- \rightarrow t + n$ or $d + 2n$ or $p + 3n$ 3=4476
 $\text{He}^4(\pi^-, \text{N})$, max. excitation cross-section 3=4474
 K^- absorption, nuclear emulsion study 3=4660
 K^- in bubble chamber, Λ trapping in nuclear matter 4=19805
 K^- capture in C, N, O, Ag, Br rel. to hyperfragment prodn. 2=5791
 K^- capture, in complex nuclei, mechanism 3=15217
 K^- capture, in complex nuclei, multi-nucleon processes 4=28051
 K^- capture in deuterium, non-mesic processes 3=6068
 K^- capture, hyperon resonance states 3=19871
 K^- capture in N^{14} , study using nuclear emulsions, review 4=19343
 K^- capture in nuc. emulsions, ΛBe^7 hyperfragment 2=20500
 K^- , in emulsion, capture mechanism 0=9690
 K^- in emulsion, at 800 MeV/c 2=22631
 K^- in emulsion at 800 MeV/c, rel. to hyperfragment prodn. 2=22834
 K^- , in emulsion, elastic scatt. at 106-144 MeV 0=20231
 K^- , in emulsion, hyperon prod. 0=15447
 K^- , in emulsion, 1.5 GeV/c, Li^8 hammer track spectrum 4=19806
 K^- , in emulsion, hypernuclei prod., 3 GeV/c 4=17176
 K^- in emulsion nuclei, hyperon, hyperfragment prodn. 3=8121
 K^- , with emulsion nuclei, mesic hyper fragment production 4=17178
 K^- , with emulsions, 50-300 MeV/c, hypernuclei prod. 3=17489
 K^- in emulsions, strangeness conservation 1=19498
 $\text{K}^- + \text{He}^4$ 0=1372
 K^- and heavy emulsion nuclei interactions, Li^8 formation, emission freq. 4=30346
 K^- meson capture by complex nuclei 3=12697
 K^- -mesons, on emulsion nuclei, at 800 MeV/c, hyperfragment production 1=19502
 K^- , multi-nucleon capture 2=319
 K^- , 1.5 GeV/c, in emulsion, hypernuclei 3=10226
 K^- , 1.5 GeV/c, in emulsion stack, hypernuclei prod. 4=3545
 $\text{K}^- + p \rightarrow \Sigma + \pi$, Y^{*0} effects on complex nuclei 1=16893
 K^+ , with C, Al, Cu, Sn, Pb, inelastic cross-sections 1=19265
 K^+ , with C, Al, Cu, Sn, Pb, inelastic cross-sections 2=22581
 $\text{Li}^6(\mu, \nu)\text{He}^8$ rel. to coupling consts. G_A , G_P 4=22328
 Li^8 fragments from nuclear disintegrations 1=13834
 Ne, μ^- bound to nuclei, capture meas. 4=6365
 $\text{Ne}^{20}(\mu, n)$ 1=5929
 $\text{O}^{16}(\mu, \gamma)$ 3=24961
 $\text{O}^{16} + \mu^- \rightarrow \text{N}^{15} + n + \nu$, resonance mechanism 4=22163
 $\text{O}^{16}(0^+)$, μ^- capture, absolute capture rates 4=28053
 O^{16} , π^- capture from rest 4=15229
 $\text{O}^{16}(\pi^-, n)[\text{Li}^8 + \text{Be}^7]$ 2=14123
 $\text{O}^{16}(\pi^-, n)[\text{Li}^8 + \text{Be}^7]$ 3=6279
Pb, π^- capture, emitted neutron spectrum 4=9546
Pb- K^0 , $\Lambda^0(\Sigma^0)$ prod. 2=10131
Pb- K^0 , $\Lambda^0(\Sigma^0)$ production 3=6280
S(μ, n), neutron ang. distrib. rel. to muon polariz. 2=10129
 $\text{S}^{32}(\mu, n)$ 1=5929
 $\text{Si}^{28}(\mu, n)$ 1=5929
U, π^- capture, emitted neutron spectrum 4=9546
Xe ions, with π^- , 2.8 BeV/c, nucleus effect 4=3444

neutrons

See also Neutrons and antineutrons, absorption;
Nuclear fission.
absorption, reson., approx. to Doppler broadening function 4=12308
absorption, resonance, calc., lack of temp. effect 3=22147
activation cross-sections at 14.8 MeV on Ba, La, Ce, Pr, Nd, Sm, Eu, Gd, Dy, Er, Yb, Lu 0=9672

Nuclear reactions due to—contd
neutrons—contd

activation of 100 nuclides, rapid graphical assessment 0=5782
anelastic scattering by crystal vibrations 1=19481
average cross-sections in resonance region 1=11017
capture, anomalous intensities of primary γ -rays 1=8738
capture chains in heavy element synthesis 1=7389
capture cross-sections 0=5784
capture cross-sections, calc., using statistical theory 0=2681
capture cross-sections, magic and adjacent nuclei, 2.5-4 MeV 1=12205
capture cross-sections, at 0.15-6.2 MeV, for $A = 51 - 197$ 0=2680
capture cross-sections, $75 \leq A \leq 130$, spin-orbit coupling, optical model 0=20488
capture cross-sections at 30 and 65 keV, survey 3=10364
capture, γ -ray prod. and resonant scatt. 3=6218
capture, Lane—Lynn theory, test with Au 4=9541
capture, by lightest nuclei 3=14987
capture by nuclei bound in crystals, analogue of Mössbauer effect 1=5927
capture, as possible γ -ray source of variable energy and high resolution 3=17232
capture, radiative, by heavy nuclei, 1 keV—1 MeV, cross-sections 1=17117
capture reactions in stars 3=1532
capture of thermal neutrons, γ -ray asymmetry, calc. 0=17461
cascade calc., intranuclear, low-energy 3=22384
classical treatment of reactions induced by fast nucleons 1=684
cloudy crystal ball model 0=9664
collimation-detection, system, for cross-section meas. 0=5788
collision cross-sections, inelastic, at 14.5 MeV for 24 elements from Be to Bi 0=7603
cosmic rays in nuclear emulsions 3=24817
counter telescope, $dE/dx-E$, for charged particles prod. 2=3200
counter telescope system 2=3358
cross-section detm., pile oscillator method, theory 3=25007
cross-section energy spread due to compound-nucleus level-density fluctuations 3=24855
cross-section meas. at 14.7 MeV by activation 4=12239
cross-section theory 0=7600
cross-sections, rel. to optical potential shape, imaginary part 1=19447
cross-section meas., sample nonuniformity effect 2=20648
cross-section, 28.4 MeV, rel. to theory 2=465
cross-sections, optical model calc. 4=17152
 $d(n, 2n)p$, at 14 MeV 2=9932
Dancoff correction factor, resonance capture 2=8000
data for reactor studies 3=17510
direct interactions, mechanism 1=8704
effective resonance integral, in heterogeneous reactors, allowance for fuel geometry 0=13316
ejection reactions, direct interaction methods 1=13816
even-even excited nuclei, γ -ray spectra 0=9764
excited nucleus absorption coeff., optical potential calc. 3=2480
experimental technique using cold neutrons 0=7351
fast neutron physics conference, Houston (1963) 4=22142
fast neutrons, statistical model 0=9668
ferromagnetic and antiferromag. subs., scattering 3=3121
fission (n multiplication) in BeO by (n, Zn), (n, α) 4=15222
fission-product absorption cross-sections, statistical evaluation 0=13270
fissionable nuclei, low-energy cross-sections, analysis 0=9706
5 BeV, total and reaction cross-sections in 6 elements 1=12206
formation of nuclei heavier than Ca 3=15185
14 MeV elastic small-angle scattering by nuclei 1=13810
14 MeV (n,p) differential cross-sections for 40 nuclei 1=9867
43 elements, γ -emission, msec half-life isomers 0=11376
 γ -emission due thermal neutron capture by V, Mn, Co, Al nuclei 0=7628

Nuclear reactions due to—contd
neutrons—contd

gamma-emitters formed by neutron activation, identification 1=13745
giant resonances, model 0=1445
graphite absorption cross-section 1=17125
heating of non-fissile materials by thermal neutrons 2=20722
heavy-element creation by neutron capture on a fast time scale, theory 0=20485
heavy nuclei excitation by fast nucleons 1=685
heavy nuclei-nucleon colls., hydrodynamic theory 2=3560
heavy nuclei—nucleon colls.; hydrodynamic theory 3=2439
high-energy, nucleus-nucleus cross-sections 1=5903
inelastic scattering, on nonspherical nuclei 3=22397
inelastic scattering, wave distortions 1=19480
intermediate resonance levels 0=17579
isomer prod., short lived, meas., chopping system 4=9371
isomer prod., thermal neutron activation cross-sections 3=10361
isomeric yield ratio, rel. to cpd. nuc. spin 3=6271
isotope prep. in sample, graph theory 2=5928
light, medium nuclei, 14 MeV, α -ray spectra 3=6265
light nuclei, high energy 4=3647
light odd-odd nuclei, γ -transitions following capture 0=7483
measurement, by reactor osc., EWA reactor 4=9530
medium-weight nuclei, at 3.7 MeV, rel. to optical model 2=1903
medium-weight nuclei, at 12-18 MeV 3=2476
in meteorites, isotopes by slow neutron irradi. 2=4750
moderation, effect of atomic motions 2=5669
multiple capture processes, fluctuations 4=25407
multiple interactions in resonant foils 0=13269
(n, α), calc. for nuclei from Na to mass 120, rel. to optical model 4=19793
(n, α), cross-sections at 12-19.6 MeV 2=467
(n, α) cross-sections at 14 MeV, shell effect 4=1088
(n, α), cross-sections at 14.6 MeV, mechanism and shell effects 2=5930
(n, α), cross-sections, 14-15 MeV, $12 < A < 150$ 4=3670
(n, α) in CsI, 12.1—19.6 MeV 1=11022
(n, α) in emulsions, at 14 MeV 1=2227
(n, α), even-even nuclei, ang. distrib. with aid of direct interaction process 4=1087
(n, α), 14 MeV, cpd. nuclear shell effects 4=17157
(n, α), 14 MeV, statistical model calculations 3=10365
(n, α) on heavy nuclei, 14.7 MeV 3=19864
(n, α) on light nuclei, 14 MeV 3=10362
(n, α) and (n, n α) in KI(Tl) and CsI(Tl), 12.1 to 21.5 MeV 3=2479
(n, α) and (n, p), 14 MeV, with CsI crystal 1=13821
(n, α) reactions, analysis, rel. to level density parameters 0=13134
(n, α) reactions at 14.8 MeV in rare earth region 0=9672
(n, α), shell effects, 14 MeV 4=9526
(n, α), statistical model anal., cross-sections for 14 MeV neutrons 4=15221
(n, α), statistical model anal., excitation functions and energy spectra 4=15220
(n, d) 1=11018
(n, d) in $f_{7/2}$ proton shell nuclei 3=19865
 $n + d \rightarrow He^3 + \gamma$ fusion reaction 1=13873
(n, d) and (n, p) reactions near $Z = 50$, at 14 MeV 1=12209
(n, γ), anomalous reactions in neutron-resonance region 0=17571
(n, γ), bidimensional analyser 2=10115
(n, γ), capture, in steel 2=8045
(n, γ) conversion electrons meas. 3=2245
(n, γ) capture of 25 keV neutrons 1=4872
(n, γ), cross-sections calc. 2=12199
(n, γ) cross-sections, 175-1000 keV, for 28 elements 0=17624
(n, γ) cross-sections at 7-170 keV for 22 nuclei 1=7384
(n, γ) and (d, p), similarity 0=5781
(n, γ), direct and semi-direct 4=28026
(n, γ), rel. to excited state spins 4=9393
(n, γ), 14.7 MeV, for 3 nuclei 3=24952
(n, γ), 15 nuclides, no. of γ -rays emitted 0=11439
(n, γ), γ -meas., importance of isomeric states data 2=5596

Nuclear reactions due to—contd

neutrons—contd

- (n, γ), γ -ray energy variation for photonuclear resonant scatt. 4=21821
 (n, γ), γ -ray spectra 6=13285-6
 (n, γ) γ scatt. and self-absorpt., energy level meas. 4=6349
 (n, γ), γ -spectra incl. resonance effects 4=19791
 (n, γ), in heavy nuclei, γ -ray spectra 0=9592-3
 (n, γ), internal conversion electrons, spectrometer 3=7831
 (n, γ), mech. of following chem. reaction 2=14116
 (n, γ), for odd Z nuclei, shell effect 2=14112
 (n, γ) for odd Z nuclei, shell effect 3=6273
 (n, γ) reactions, anomalous γ -intensities 1=8738
 (n, γ) reactions, isomeric cross-section ratios 3=675
 (n, γ) reactions, isomeric pair production cross-section ratios for (n, γ) and (γ , n) 0=20423
 (n, γ) reactions, product half-lives, γ energies 0=5783
 (n, γ) reactions in VVR reactor, γ ray spectra 1=17110
 (n, γ), on several nuclei, at 3 MeV 2=1898
 (n, γ) slow-neutron reactions, γ -ray polarization and ang. distrib. 0=9594
 (n, γ) sum-coincidence spectrometer 1=16740
 (n, γ) thermal neutron capture 0=9592-3
 (n, γ), in water 0=15598
 (n, n α) + (n, α n), 14.7 MeV, for 13 nuclei 3=24952
 (n, n α), 12 to 19.6 MeV, meas. 2=7993
 (n, n' γ), for A ~ 100 nuclei analysis rel. to nuclear optical model 2=10117
 (n, n' γ), coincidence, n' γ , meas., circuit 3=19870
 (n, n' γ) reactions, diff. cross-sections 2=459
 (n, np), calc. of direct-interaction cross-sections 1=19494
 (n, np) + (n, pn), 14.7, for 2 nuclei 3=24952
 (n, n) reactions at 14 MeV 0=11442
 (n, n'), inelastic scatt., DWBA calc. 2=1857
 (n, p), activation cross-sections using d+d neutrons 1=8744
 (n, p), calc. for nuclei from Na to mass 120, rel. to optical model 4=19793
 (n, p), cross-sections rel. to compound nucleus model 2=466
 (n, p), cross-sections at 14.6 MeV, mech. and shell effects 2=5930
 (n, p) cross-sections at 14.8 MeV in rare earth region 0=9672
 (n, p), cross-sections, at 14 MeV, survey 2=5929
 (n, p), cross-sections, 14-15 MeV, 12 < A < 150 4=3670
 (n, p) in CsI, 12.1-19.6 MeV 1=11022
 (n, p) on deformed nuclei 1=19423
 (n, p) direct, analysis 4=9523
 (n, p) in Fe, Al, Cu, Ce, Cs, 14 MeV, cross-sections 1=11018
 (n, p), 14.5 MeV, effect of pairing energy δ values 2=14109
 (n, p) and (n, α), with A \leq 65, compound nucleus theory 0=4084
 (n, p) and (n, d) reactions near Z = 50, at 14 MeV 1=12209
 (n, p) reactions, DWBA calcs. 4=6350
 (n, p) reactions, energy spectra, statistical model 3=2426
 (n, p) reactions on medium nuclei, evap. mechanism and direct effect 1=19493
 (n, p) reactions on medium-weight nuclei, single-particle effects 1=8742
 (n, p), (n, α) and n, 2n cross-sections at 14 MeV 0=5793
 (n, pn) cross-sections of heavy nuclides 0=1446
 (n, p), (n, d), (n, α) in CsI(Tl) crystals 4=9539
 (n, p), (n, n'), cross-sections at 14 MeV, statistical model 2=5875
 (n, p), (n, n'), 4 to 16 MeV, energy spectra, statistical model 2=5875
 (n, p), (n, 2n), cross-sections, collected data 4=30341
 (n, p), on 9 nuclei (A = 27-64) at 14.1, 13.0 and 15.7 MeV 0=11446
 (n, p) reactions, analysis, rel. to level density parameters 0=13134
 (n, p) reactions at 14 MeV in 3rd and 4th shell nuclei 2=3598
 (n, p) reactions, statistical theory, test 1=13812
 (n, p) reactions, structures in proton spectra 0=1439
 (n, t) on medium-wt. nuclei 3=22403
 (n, 2n), activation cross-sections, theory and expt. 2=12206

Nuclear reactions due to—contd

neutrons contd

- (n, 2n), cross-sections, rel. to compound nucleus model 2=466
 (n, 2n) cross-sections, 14.1 MeV, nuclei with β^+ residual activity 3=6260
 (n, 2n), cross-sections at 14.6 MeV, mech. and shell effects 2=5930
 (n, 2n), cross-sections at 14.8 MeV, rel. to theory 2=3585
 (n, 2n), cross-sections for Th²³², U²³⁸, Np²³⁷, 14 MeV 2=3610
 (n, 2n) excitation functions of 15 nuclei 1=11019
 (n, 2n), formation of Y^{86m}, Nb^{92z}, Pb^{207m}, Bi^{208m} 1=19496
 (n, 2n) at 14 MeV, mechanism 3=24950
 (n, 2n) mechanism 4=9524
 (n, 2n), (n, α) in Be moderated reactor 1=13817
 (n, 2n), (n, p), (n, α) on nuclei of Z = 40 total cross-sections at 14 MeV 1=19484
 (n, 2n), use in nuclear level determ. 1=4834
 (n, 2n), positron emitter absolute activation cross-section determ. 4=1086
 (n, 2n), use as pick-up reaction in nuclear spectroscopy 2=18343
 (n, 2n) reactions, cross sections at 14.8 MeV in rare earth region 0=9672
 (n, 2n) reactions, cross-sections and neutron yield at 14 MeV 0=20486
 (n, 2n) reactions at 14.4 MeV for 27 nuclides, cross-sections 1=7382
 (n, 2n) reactions at 12-19.8 MeV, excitation functions 1=3452
 (n, 2n) reactions, Weisskopf's cross-section eqn., comparison with exptal. data 0=9680
 (n, 2n), in reactors, Monte Carlo calc. 2=6014
 (n, 2n), 12 to 19.6 MeV, expt. and statist. theory 2=7993
 (n, 2p), 14.7 MeV, for 13 nuclei 3=24952
 (n, 3n), 14.7 MeV, for 3 nuclei 3=24952
 neutron absorption resonances, Doppler effect 1=5919
 neutron force function in optical model 1=19485
 neutron force function in optical model 2=22825
 neutron-nuclei, fast, rel. to nuclear structure 2=1871
 neutron transfer in nuclear collisions 1=19486
 neutron transfer in nuclear collisions 3=4654
 neutron widths, strength functions 3=19760
 nonspherical nuclei, with rotational spectrum 4=22145
 Nuclear Data Library, Aldermaston, cross-sections etc up to 14 MeV 4=6342
 nuclear explosions as neutron sources for expts. 0=20483
 0, 0.0001 eV-15 MeV 4=29044
 optical mode, scatt. phase shift calc. by variational method 0=4114
 optical model, absorption cross-sections 4=30337
 optical model, comparison for medium-weight nuclei 2=1903
 optical-model fringe absorption and neutron strength function, erratum 3=8113
 optical model, fringe absorption, 90 > A > 120 region 2=20654
 optical model, nonlocal 0=13107
 optical model potential, imaginary part 2=9980
 optical model, radiative capture and inelastic scatt. 3=19869
 optical model, rel. to resonance parameters 2=1897
 optical model, variational principle 1=699
 oriented nuclei, by polarized beams 2=12179
 optical potential, imaginary part 0=2615, 5779, 17580
 p + n \rightarrow d + γ , gamma-ray energies 1=8464
 P-wave neutron strength function $\Gamma_n^{(1)}/D$ 2=22697
 photoneutron activation analysis 2=5891
 pick-up reactions, deuteron production 1=5916-17
 product identification, standard γ -ray spectra 1=19417
 propane bubble chamber study 2=5540
 radiative capture cross-sections, resonance self-shielding corrections 2=20649
 radiative capture cross-sections for 22 nuclei at 7-170 keV 1=7384
 radiative capture, effect of even nucleon numbers 4=22149
 radiative capture, partial width, shell model 0=11441
 radiative capture, statistical theory of γ -ray spectra 1=7364
 radiative capture of thermal neutrons, atlas of γ -ray spectra 0=4115
 radiative capture of 25 keV neutrons 1=4872
 radioactivity activation, 14 MeV, data tabulation 2=4572

Nuclear reactions due to—contd**neutrons—contd**

radioactivity, induced, nomograms for 70
nuclides 4=6250
Ramsauer effect in total cross-sections 2=3588
rare-earth elements, capture γ -ray spectra 0=9673
rare-earth oxides, control rods, relative worths 0=13377
recoil nuclei breaking-off, 14.8 MeV neutrons 4=9528
reduced widths and charge independence 2=14082
removal cross-sections, 18 elements and cpds.,
3, 15 MeV 4=12240
resonance absorpt., materials with grain structure 3=6263
resonance absorption, in crystals, Doppler broaden-
ing 2=18520
resonance absorption, effect of chemical binding on
nuclear recoil 0=13131
resonance absorption integrals for 42 elements 0=9666
resonance absorption, interference from potential
scatt. 2=5947
resonance absorption, theory rel. to expt. 2=16202
resonance capture in Au rod, Monte Carlo
calculations 1=13822
resonance capture integral 0=7376
resonance capture, level density, spin depend. 4=6352
resonance capture, radiation analysis 2=18333
resonance cross-sections, Doppler-broadened,
calc. 4=12018
resonance integral calculation, flat source approx.
correction 4=25452
resonance integrals, calculation refinements 0=13280
resonance integrals, capture and fission cross-sections,
Fortran program 4=25463
resonance integrals, effective, equivalence relations 3=6262
resonance integrals, new calc. 2=12249
resonance interactions, medium and heavy nuclei obs.
apparatus 4=17153
resonance interactions, medium and heavy spin $\frac{1}{2}$
nuclei 4=17154
resonance interactions, Co, La, Pr, Nd 4=17155
resonance, isotopic identification from capture γ -
spectra 2=469
resonance levels, low-energy 2=20636
resonance line shape function, evaluation 2=3589
resonance, low energy, Doppler broadening 2=5931
resonance, low energy, in Eu^{151} 2=5938
resonance self-shielding in capture cross-section
meas. 4=22150
resonance structure parameters, 0.3-2.7 MeV, for
11 elements 4=28040
resonance structure of total cross-section, 11
elements 4=9522
resonance study, fast chopper installation 2=5692
resonance theory for neutrons below 5 MeV 2=14110
resonance theory for neutrons below 5 MeV 3=6274
resonances, area analysis, potential scatt.-resonance
interference 0=5787
S- and P-wave strength functions, collective-motion
effects 2=20655
s-wave cross-sections, approximation based on square-
edged optical well 0=4113
scattering from various nuclei, angular
distributions 1=7380
with simultaneous emission of several neutrons 4=1111
single-particle model, γ -ray emission parameters 2=10082
slow-neutron capture by unfilled bound p states,
cross-section, calc. 1=2222
slow neutron interactions, review 0=15595
slow-neutron resonances, Doppler broadening 2=2657
slow-neutron resonances, review 1=8740
slow-neutron resonances, statistical model 3=2426
slow neutrons, interference between direct and
resonance capture 2=468, 22828
Soviet progress, conference 4=9002
spherical nuclei, low energy, optical model 3=24947
spherical nuclei surface, collective interaction 3=24943
spherical nuclei, with vibrational spectrum 4=22145
spinless, with rectangular complex cavity 3=10352
statistical emission of nucleons in 14 MeV
reactions 0=15593
statistical model, comp. with expt. 3=2476
strength function, d-wave, determ. from scatt. to
isomeric states 4=6345
strength function T^c_n/D 0=17622

Nuclear reactions due to—contd**neutrons—contd**

strength functions, S and P, rel. to optical model 4=9527
strength functions, s- and p-wave, calc. 2=3586
stripping, radioactive heavy-ions detector 3=12609
stripping reactions, wave-mechanical treatment 1=13805
in supernovae, abundances of rare-earth nuclei produced
by rapid neutron capture 0=844
target foil prep., use of inert matrix 2=11966
temperatures, kinetic and activation, calc. 3=22390
theory, in 2nd quantization 4=9487
thermal capture cross-sections 0=5790
thermal neutron activation, corrections for position of
foil 4=4727
thermal neutron capture γ -emission, obs. by three
crystal pair spectrometer 4=9161
thermal neutron capture gamma-ray data for over
80 elements 1=11044
thermal neutron capture, use of monoenergetic γ -rays
for photonuclear studies 1=2207
thermal neutrons, prod. of short-lived isomers 0=17523
threshold meas., 7 reactions 4=6351
threshold measurements 1=13138
threshold (n, α) and (n, p) in U^{235} fission spectrum 4=28041
threshold reaction cross-sections for fission
neutrons 2=5941
total cross-sect., up to 20 MeV, on optical
model 4=22143
total cross-section meas. method 4=6241
total cross-sections, 2.1-3.1 MeV 0=1438
total cross-sections for 7 elements, at 12-21
MeV 0=11440
total cross-sections, 17-29 MeV, for 42 nuclides, rel. to
optical model 0=17623
20 elements, inelastic scatt., rel. to nuclear level
densities 3=8107
various elements, absorption cross-sect. meas. 3=24946
2200m/sec cross-sections for capture, absorption and
fission 1=11048
Ag, absorption cross-section 1=2223
Ag, capture, averaged cross-sections, 1-50 keV 3=17479
Ag, capture, γ -ray spectra 3=6267
Ag(n, γ) 0=13266
Ag(n, γ), by capture of 0-30 keV neutrons 0=15599
Ag(n, γ), γ -ray ang. distrib., parity conservation 0=2684
Ag(n, γ), γ -ray spectra 1=4870
Ag(n, t) 2=5933
Ag, radiative capture cross-sections, 18-300 keV 3=4648
Ag, slow neutron capture, γ -yield 0=5789
Ag, slow-neutron resonance parameters 1=700
Ag, spallation meas. at 385 MeV 4=3671
 $\text{Ag}^{107}(\text{n}, \alpha)\text{Rh}^{106}$ 3=12693
 $\text{Ag}^{107}(\text{n}, \gamma)$ 1=3427
 $\text{Ag}^{107}(\text{n}, \gamma)$ 1=17116
 $\text{Ag}^{107}(\text{n}, \gamma)\text{Ag}^{108}$, γ - γ coincidences 3=15215
 $\text{Ag}^{107}(\text{n}, 2\text{n})\text{Ag}^{106}$ 1=5924
 $\text{Ag}^{107}(\text{n}, 2\text{n})\text{Ag}^{106}$, 12-19.6 MeV 3=12690
 $\text{Ag}^{107}(\text{n}, 2\text{n})$, cross-section by sandwich scintillator 2=244
 $\text{Ag}^{107}(\text{n}, 2\text{n})$, at 12-19.8 MeV, excitation function 1=3452
 $\text{Ag}^{107}(\text{n}, 2\text{n})$, by 2511 keV annihilation γ
coincidences 3=24951
 $\text{Ag}^{107,109}$ 0=5797
 $\text{Ag}^{107,109}$, capture of polarized thermal neutrons, $\text{Ag}^{108,110}$
 β -decay asymmetry 2=14031
 $\text{Ag}^{109}(\text{n}, \alpha)\text{Rh}^{108}$ 1=5924
 $\text{Ag}^{109}(\text{n}, \gamma)$ 1=3427
 $\text{Ag}^{109}(\text{n}, \text{p})\text{Pd}^{109}$ 1=5924
 Ag^{109} , reactor activation cross-sections 1=17115
 $\text{Ag}^{110\text{m}}$, reactor neutron capture cross-section 3=22401
Al, activation cross-sections, 14.7 MeV 2=16419
Al, cylinders and sheets, total cross-section 0=13279
Al, at 5 BeV, total and reaction cross-sections 1=12206
Al, γ -spectra, 2.8 MeV inelastic scatt. 1=12204
Al(n, α)Na, probab. of α -ray emergence 2=3546
Al(n, γ) 0=15598
Al(n, γ), 50 keV-10 MeV, γ -ray cascades 3=24948
Al(n, p)Mg, probab. of proton emergence 2=3546
Al, (n, p) and (n, α) cross-sections 1=701
Al(n, t), expt. and cpd. nucleus mech. 2=5933
Al, neutron absorption cross-sections 1=5920
Al, 0.0006 eV-15 MeV 4=28044
Al, removal cross-section for 2.9 MeV neutrons 1=7385
Al, 2-11 MeV γ -ray cross-sections 1=17114
Al, 36 keV resonance 0=5785

Nuclear reactions due to—contd

neutrons—contd

Al, total cross-section, 0.003-0.009 eV 2=7995
 Al²⁷, absolute activation cross-sections at 14.8 MeV 0=456
 Al²⁷, 14 MeV, activation cross-sections 3=22407
 Al²⁷, at 14.8 MeV, p and d ang. distrib., levels in Mg²⁶⁻⁷ 1=9868
 Al²⁷(n,α), at 15 MeV 3=12692
 Al²⁷(n,α)Na²⁴, absolute cross-sections 3=24949
 Al²⁷(n,α)Na²⁴, reactor neutron spectra comparison 1=17219
 Al²⁷(n,α)Na²⁴, at 6.1-8.3 and 14.8 MeV, cross-section 1=2220
 Al²⁷(n,α)Na²⁴ 0=15596
 Al²⁷(n,α)Na²⁴ 2=10084
 Al²⁷(n,α)Na²⁴, ang. distrib. 3=6264
 Al²⁷(n,α)Na²⁴, cross-section 1=13814
 Al²⁷(n,α)Na²⁴ cross-section fluctuations 4=22153
 Al²⁷(n,α)Na²⁴, cross-section fluctuations 4=1091
 Al²⁷(n,α)Na²⁴, cross sections, 12.5-21 MeV 4=17151
 Al²⁷(n,α)Na²⁴, excit. curves up to 20 MeV 3=8109
 Al²⁷(n,α)Na²⁴, using fission neutrons 3=8116
 Al²⁷(n,α)Na²⁴, 14 MeV 3=19863
 Al²⁷(n,α)Na²⁴, 14 MeV, Na²⁴ forward-backward asymmetry 3=10367
 Al²⁷(n,α)Na²⁴, nuclear recoil 4=9528
 Al²⁷(n,α)Na²⁴, range in Al of Na²⁴ recoil nuclei 4=6355
 Al²⁷(n,α)Na²⁴, rel. to n-flux meas. 2=16209
 Al²⁷(n,α)Na²⁴, recoil nuclei, forward-backward asymmetry 3=19868
 Al²⁷(n,α)Na²⁴, in swimming bath reactor 2=3672
 Al²⁷(n,α), at 12-18 MeV, cross-section 3=2476
 Al²⁷(n,β), remittant nuclear polarization 1=5923
 Al²⁷(n,d), 14 MeV 0=5792
 Al²⁷(n,γ)Al²⁸, 14 MeV 3=10366
 Al²⁷(n,γ)Al²⁸, threshold neutron detection 0=12996
 Al²⁷(n,np), 14.8 MeV, by cpd. nucleus theory 3=17481
 Al²⁷(n,p), cross-section 1=13824
 Al²⁷(n,p), cross-section by sandwich scintillator 2=244
 Al²⁷(n,p)Mg²⁷ 0=15600
 Al²⁷(n,p)Mg²⁷ 1=5924
 Al²⁷(n,p)Mg²⁴, cross-section 1=13814
 Al²⁷(n,p)Mg²⁷, counter for low fast-neutron flux 0=17357
 Al²⁷(n,p)Mg²⁷, 14 MeV, p spectra ang. distrib. 4=3673
 Al²⁷(n,p)Mg²⁷, 14.8 MeV 3=19861
 Al²⁷(n,p)Mg²⁷, nuclear recoil 4=9528
 Al²⁷(n,p)Mg²⁷, proton ang. distrib., at 14 MeV 0=460
 Al²⁷(n,p)Mg²⁷, proton energy and angular distrib. 1=13813
 Al²⁷(n,p)Mg²⁷, range, recoil, in Al 3=6270
 Al²⁷(n,p)Mg²⁷, reactor neutron spectra comparison 1=17219
 Al²⁷(n,p)Mg²⁷, threshold neutron detection 0=12996
 Al²⁷(n,p)Mg²⁷, rel. to n-flux meas. 2=16209
 Al²⁷(n,p), (n,γ), cross-sections, 2.5-5 MeV 3=6269
 Al²⁷(n,p), test of statistical theory 1=13812
 Al²⁷(n,p), at 12-18 MeV, cross-section 3=2476
 Al²⁸(n,γ), polarization of γ-rays 1=13825
 Am²⁴¹(n,γ)Am^{242m} 0=7508
 A, total cross-section, 120 keV-6 MeV, 12-20 MeV 0=9676
 A³⁶(n,α)S³³, thermal neutrons 2=1902
 A⁴⁰(n,γ)A⁴¹, meteorite age determination 0=5683
 Ar⁴⁰, activation cross-section, by comparison with Au¹⁹⁸, Na²³ 4=17165
 Ar³⁶(n,p)Cl³⁶, 1.2 to 9 MeV 4=28046
 Ar^{36,40}(n,α)S^{33,37}, 1.2 to 9 MeV 4=28046
 As, 14 MeV, total cross-section 3=22402
 As, total cross-section, 0.01-0.1 eV 0=17625
 As total effective cross-section 1=7406
 As⁷⁶(n,α), 14 MeV, level densities of residual nucleus 3=6265
 As⁷⁵(n,α)Ga⁷², at 14 MeV 2=5934
 As⁷⁵(n,α)Ge⁷⁵, isomeric cross-section ratios, 14 MeV 2=3590
 As⁷⁵(n,γ) 1=17116
 As⁷⁵(n,γ), gamma-ray spectrum due to thermal neutrons 1=7383
 As⁷⁵(n,He³)Ca⁷³ 0=7610
 As⁷⁶(n,2n), at 12-19.8 MeV, excitation function 1=3452
 As⁷⁵, reactor activation cross-sections 1=17115
 Au, absorption cross-section 1=2223
 Au, capture, anomalous radiative, and Lane-Lynn theory 4=9541

Nuclear reactions due to—contd

neutrons—contd

Au, capture, γ-ray spectra 3=6266
 Au, formation and extraction of Hg¹⁹⁸ 0=17678
 Au(n,γ), by capture of 0-30 keV neutrons 0=15599
 Au(n,γ), γ-ray spectra 1=4870
 Au(n,γ), resonance capture, γ-spectra meas. 4=6363
 Au, neutron capture cross-section at 30 and 64 KeV 1=11024
 Au, radiative capture cross-sections, 18-300 keV 3=4648
 Au, radiative capture cross-sections, 30 keV 3=17478
 Au, resonance interactions, radiation widths 4=17156
 Au, slow-neutron resonance parameters 1=700
 Au¹⁹⁷, activation cross-section, 30-1500 keV 1=8745
 Au¹⁹⁷, capture cross-sections, 3-200 keV 0=20487
 Au¹⁹⁷ fast neutron capture cross-section 1=702
 Au¹⁹⁷(n,α), 14.7 MeV 3=19864
 Au¹⁹⁷(n,α)Ir¹⁹⁴, yields, 14 MeV 2=14118
 Au¹⁹⁷(n,γ) 1=17116
 Au¹⁹⁷(n,γ)Au¹⁹⁸ 1=12153
 Au¹⁹⁷(n,γ)Au¹⁹⁸, reson. capture interference with potl. capture, 4.9 MeV 4=19799
 Au¹⁹⁷(n,γ)Au¹⁹⁸, 0.12-1.8 MeV 4=30342
 Au¹⁹⁷(n,p), 14.8 MeV 4=1095
 Au¹⁹⁷(n,2n)Au^{196m}, branching ratio 0=17521
 Au¹⁹⁷(n,2n), β-activity of Au¹⁹⁶ 2=16417
 Au¹⁹⁷(n,2n), at 12-19.8 MeV, excitation function 1=3452
 Au¹⁹⁷, neutron-activated cross-sections 3=4651
 Au¹⁹⁷, radiative capture cross-section, 50 keV 4=12248
 Au¹⁹⁸, resonance integrals 3=17485
 B, activation cross sections, 14.7 MeV 2=16419
 B, and B¹⁰, total cross-section, 3.4-16 MeV 1=11020
 B, Harwell standard, cross-section at 2200 m/sec 0=5794
 B, removal cross-section for 2.9 MeV neutrons 1=7385
 B, thermal absorpt., precise meas. 3=12694
 B¹⁰(n,α), appl. to semicond. counters 2=9864
 B¹⁰(n,α), B¹⁰(n,t2α), at 0.2-8.2 MeV 1=19487
 B¹⁰(n,α), cross-section in B carbide 2=1692
 B¹⁰(n,α), cross-section dependence on neutron energy 1=19491
 B¹⁰(n,α), cross-section dependence on neutron energy 3=4653
 B¹⁰(n,α)Li⁷, use in B determ. 0=14153
 B¹⁰(n,α)Li⁷, rel. to B¹⁰(n,α)Li⁷* 3=674
 B¹⁰(n,α)Li⁷, use for irradiating solids 0=1610
 B¹⁰(n,α)Li⁷, for n detect. from Li⁷ formed 4=30239
 B¹⁰(n,α)Li⁷, used in nuclear spot-welding 3=13977
 B¹⁰(n,α)Li⁷, with polarized thermal neutrons, ang. distrib. 1=13815
 B¹⁰(n,α)Li⁷, radiolysis of methanol by recoils 0=14133
 B¹⁰(n,α), Li⁷*, Li⁷* de-excitation appl. 2=16207
 B¹⁰(n,α)Li^{7,7*}, branching ratio 0=5795
 B¹⁰(n,α)Li⁷, Li⁷* branching ratio 4=1090
 B¹⁰(n,α)Li⁷, in reactors, heating effect, calc. 4=9592
 B¹⁰(n,γ)B¹⁰, cross-section 0=7605
 B¹⁰(n,t)Be⁸, 14.4 MeV 4=22151
 B¹⁰, slow-neutron absorption cross-section, precise det. 0=15597
 B¹⁰, thermal absorpt., precise meas. 3=12694
 B¹⁰, total cross-section at 0.018-0.4 eV 0=17626
 B¹¹(n,α)Li⁸(β)Be⁸, by 14 MeV neutrons 0=17627
 B¹¹(n,γ)B¹², at 139-2325 keV and thermal energy 2=5935
 Ba¹³⁰, reactor activation cross-sections 1=17115
 Ba¹³²(n,γ)Ba^{133m} 1=3453
 Ba¹³⁴(n,γ)Ba^{135m} 1=3453
 Ba¹³⁸(n,γ)Ba^{137m} 1=3453
 Ba¹³⁸(n,α)Xe¹³⁵, isomeric cross-section ratios 2=3590
 Ba¹³⁸, reactor activation cross-sections 1=17115
 Be, cross-section, 140-240 keV 2=20640
 Be, effect on nuclear reactor moderation 4=17230
 Be(n,γ), 50 keV-10 MeV, γ-ray cascades 3=24948
 Be(n,γ), spectra and cross-sections 2=5939
 Be, (n,2n) cross-section 1=19488
 Be(n,2n), cross-sections, 6-10 MeV 1=11023
 Be(n,2n), effect on reactor criticality 1=17236
 Be(n,2n), 14 MeV 4=12241
 Be, (n,2n), (n,α), neutron slowing down 2=10118
 Be, non-elastic cross-section, 14 MeV 2=3584
 Be, total cross-section, 3.4-16 MeV 1=11020
 Be⁷(n,α)He⁴ 3=17480
 Be⁷(n,α)He⁴, rel. to parity 2=14111
 Be⁷(n,γ)He⁴ 3=17480

Nuclear reactions due to—contd
neutrons—contd

Be⁹, and fission neutron multiplication, using U²³⁵ converter 4=9594
 Be⁹(n, α), effect on Fermi age calc. for Be 0=13283
 Be⁹(n, α)He⁶ 1=5921
 Be⁹(n, α)He⁶, beta-decay 4=1039
 Be⁹(n, p)Li⁹, beta-decay 4=1039
 Be⁹(n, 2n), analysis as pick-up reaction 2=18343
 Be⁹(n, 2n)Be⁸ 1=7386
 Be⁹(n, 2n)Be⁸, direct interaction methods and cpd. nucleus theory 1=13816
 Be⁹(n, 2n)Be⁸, use in nuclear level determ. 1=4834
 Be⁹(n, 2n) at 14 MeV, mechanism 3=24950
 Be⁹(n, 2n)2α 0=20489
 Be⁹(n, 2n), 3.2-4.5 MeV 4=12242
 Be⁹, photodisintegration theory 2=20589
 Be⁹(n, 2n)Be⁸, direct interaction process 0=9669, 13222
 Be⁹(n, 2n)Be⁸, effect on Fermi age calc. for Be 0=13283
 Be⁹(n, 2n)Be⁸, ejection processes 0=17628
 Be⁹(n, 2n)Be⁸ by 14 MeV neutrons 0=17627
 Be⁹(n, 2n)Be⁸, neutron ang. correlation 4=17159
 Be⁹(n, t')Li⁷* → Li⁷ + γ, cross-section near 14 MeV 0=20490
 Bi(n, n'), at 14.1 MeV, Monte Carlo calc. 0=13217
 Bi(n, 2n) cross-section 1=19488
 Bi total effective cross-section 1=7406
 Bi²⁰⁰(n, γ) 0=459
 Bi²⁰⁹ 0=5788
 Bi²⁰⁹, absolute activation cross-sections at 14.8 MeV 0=456
 Bi²⁰⁹, γ-ray spectra, on scatt. inelastic, 2.95 MeV 3=8106
 Bi²⁰⁹, measured cross-sections 4=22160
 Bi²⁰⁹(n, α)Tl²⁰⁸ 1=5924
 Bi²⁰⁹(n, β⁻)Po²¹⁰, cross-section 3=10356
 Bi²⁰⁹(n, γ) 1=17116
 Bi²⁰⁹(n, γ)Bi²¹⁰, γ-γ coinc. study 2=3591, 12212
 Bi²⁰⁹(n, p)Pb²⁰⁹ 1=5924
 Bi²⁰⁹(n, 2n)Bi²⁰⁸, neutron ang. correlation 4=17159
 Bi²⁰⁹(n, 2n) at 14 MeV, mechanism 3=24950
 Br, capture, averaged cross-sections, 1-50 keV 3=17479
 Br, capture resonances meas. up to 400 eV 4=6359
 Br(n, γ), recoil products separation, by elec. field 3=8110
 Br⁷⁹(n, α)As⁷⁸, 12-19 MeV 3=15210
 Br⁷⁹(n, γ)Br⁸⁰ energy-distrib. function 4=28042
 Br⁷⁹(n, γ)Br⁸⁰, molecular activation, failure to bond rupture and nucl. recoil 2=6130
 Br^{79,81}, activation meas. 130-1800 keV 4=9536
 Br^{79,81}(n, γ) 1=17116
 Br⁸¹(n, 2n)Br⁸⁰, isomeric cross-section ratios 2=3590
 Br⁸¹, reactor activation cross-sections 1=17115
 C, absorption of 155 MeV neutrons 1=5902
 C and Fe, elastic slowing down 2=471, 22827
 C, at 5 BeV, total and reaction cross-sections 1=12206
 C, 14 MeV scattering cross-sections 1=17094
 C(n, γ) 0=15598
 C(n, γ), spectra and cross-sections 2=5939
 C, removal cross-section for 2.9 MeV neutrons 1=7385
 C, scattering cross-sections, 14 MeV 2=22806
 C, total cross-section, 3.4-16 MeV 1=11020
 C, total cross-sections, 3.3-5.0 MeV 1=12208
 C, 2-11 MeV γ-ray cross-sections 1=17114
 C, at 200-960 keV, total cross-sections, interpretation 1=3449
 C¹²(n, α)Be⁹ 4=9323
 C¹²(n, α)Be⁹, 5.0-8.8 MeV 4=3672
 C¹²(n, α)Be⁹, 14 MeV 3=12691
 C¹²(n, α)Be⁹, 14 MeV, using nucl. emulsions 4=15223
 C¹²(n, α)Be⁹, in stilbene, scintillation study 3=14489
 C¹²(n, α)Be⁹, study in diamond-loaded emulsions 0=12791
 C¹²(n, n'γ) C¹² at 14 MeV, angular correlation 1=703
 C¹²(n, np)B¹¹, 120-150 MeV 2=1870, 18318
 C¹³(n, p)B¹³, proton polarization, calc. 1=12131
 C¹²(n, n')3α 4=9323
 C¹²(n, n')3α, at 14.8 MeV 0=20491
 C¹²(n, n')3α, 14.18 MeV, mechanisms 4=25409
 C¹²(n, n'3α), intermediate Be⁸ formation 2=18324
 C¹²(n, 2n) cross-sections, 10-30 MeV 1=11021
 C¹²(n, 2n) cross-sections, 10-30 MeV 1=12207
 C¹², 3-660 keV, total cross-section 3=24954
 C¹², total cross-section, 500-1350 keV, search for levels in C¹³ 0=5791
 C¹³, total cross-section, 110 keV-9 MeV, 16-23 MeV, levels in C¹⁴ 1=7387

Nuclear reactions due to—contd
neutrons—contd

C¹⁴ production, from N¹⁴ and cosmic ray neutrons, secondary 4=23769
 C₆H₅Br, (n, γ) recoil products of bromine 1=13818
 Ca, diff. cross-sections, 3.7 MeV 2=1903
 Ca, total cross-section, 1.25-2.1 MeV 4=17161
 Ca(n, α), 14 MeV, energy and ang. distrib. 4=25410
 Ca, 2-11 MeV γ-ray cross-sections 1=17114
 Ca, at 200-960 keV, total cross-sections, interpretation 1=3449
 Ca⁴⁰ 0=9532
 Ca⁴⁰(n, d), 14 MeV 0=5792
 Ca⁴⁰(n, α)A³⁷, Ca content of meteorites 0=5683
 Ca⁴⁰(n, α)A³⁷, 6 MeV 2=3592
 Ca⁴⁰(n, α), α spectrum, ang. distrib. 3=22408
 Ca⁴⁰(n, p)K⁴⁰, 6 MeV 2=3592
 Ca⁴⁰(n, t) 1=7391
 Ca⁴⁶, slow-neutron capture cross-section, calc. 1=2222
 Ca⁴¹(n, γ) 0=4124
 Ca⁴⁶(n, 2n)Ca⁴⁷, cross-sections, 14.5 MeV 2=20645
 Cd, absorption cross-section 1=2223
 Cd effective cutoff energies 1=507
 Cd, 14 MeV scattering cross-sections 1=17094
 Cd(n, γ), γ-ray ang. distrib., parity conservation 0=2684
 Cd, radiative capture cross-sections, 30 keV 3=17478
 Cd radiative capture of neutron 1=7392
 Cd, resonances, isotopic identification from γ-spectra 2=469
 Cd, scattering cross-sections, 14 MeV 2=22806
 Cd¹⁰⁸, activation cross-section meas., thermal n 4=19800
 Cd¹⁰⁸(n, γ)Cd¹⁰⁹(EC)Ag^{109m}, cross-sections and Ag-energy level 4=9538
 Cd^{108,110,116}, thermal neutron activation cross-sections 2=20647
 Cd¹¹²⁻ⁿ, zero energy, optical potl., imag. part 2=9981
 Cd¹¹³(n, γ)Cd¹¹⁴, γ-spectrum, levels in Cd¹¹⁴ 1=17119
 Cd¹¹³(n, γ)Cd¹¹⁴, levels, from capture γ, internal conversion β spectra 3=24959
 Cd¹¹³(n, γ)Cd¹¹⁴, low levels in Cd¹¹⁴ 1=8595
 Ce¹³⁸(n, γ)Ce¹³⁹, isomeric cross-section ratios 3=875
 Ce^{140,142} 0=5786
 Ce¹⁴², reactor activation cross-sections 1=17115
 Ce¹⁴⁴, capture cross-section, resonance capture integral 2=18335
 Cl, activation cross-sections in NRX reactor 1=13819
 Cl, cross-sections 3-5 MeV 3=19860
 Cl(n, γ), cross-section energy depend. 2=3594
 Cl(n, γ), 50 keV-10 MeV, γ-ray cascades 3=24948
 Cl(n, γ), 10eV-20keV, reson. 4=15224
 Cl, thermal neutron absorption cross-section, spherical symmetry method 0=5796
 Cl³⁵(n, γ)Cl³⁶ 2=14113
 Cl³⁵(n, γ)Cl³⁶, electron-positron pair ang. distrib. 4=15214
 Cl³⁵(n, γ)Cl³⁶, γ-γ ang. correls. 3=6268
 Cl³⁵(n, γγ')Cl³⁶, two-step γ-cascade study 1=8746
 Cl³⁵(n, p), cross-sections, 0.2-20 keV 1=19489
 Cl³⁵(n, p), cross-sections, 0.2-20 keV 3=4655
 Cl³⁵(n, p)S³⁵, study of CsCl allotropic transformation 0=3171
 Cl³⁵(n, 2n)Cl^{34m} 1=3450
 Cl³⁵, resonance parameters 1=19489
 Cl³⁵, resonance parameters 3=4655
 Cl³⁶, cascade γ-transitions 1=17120
 Cl³⁶, γ-cascade transitions, neutron capture 0=4117
 Cl³⁶(n, γ) 0=4124
 Cl³⁷(n, p)S³⁷ 1=3450
 Cm²⁴⁴, total cross-section, 0.01-900 eV meas. 4=22161
 Co, capture, resonance and thermal neutron self-shielding 2=20644
 Co cross-sections for 14.5 MeV neutrons 1=704
 Co(n, γ) 0=13266
 Co(n, γ), neutron capture, γ-ray spectra 3=22409
 Co(n, t), expt. and cpd. nucleus mech. 2=5933
 Co, resonance activation integrals 2=7994
 Co⁵⁸(n, γ), cross-section meas. 4=9533
 Co⁵⁹, absolute cross-sections 3=24949
 Co⁵⁹, with 14.8 MeV neutrons 0=7612
 Co⁵⁹(n, α)Mn⁵⁶ 3=6264
 Co⁵⁹(n, α)Mn⁵⁸, cross-sections, threshold to 20.3 MeV 4=22152
 Co⁵⁹(n, α)Mn⁵⁸, cross sections, 12.5-21 MeV 4=17151

Nuclear reactions due to—contd neutrons—contd

Co⁵⁹(n,α), at 12-18 MeV, cross-section 3=2476
 Co⁵⁹(n,γ) 1=17116
 Co⁵⁹(n,γ)Co⁶⁰, rel. to Co⁵⁹(d,p)Co⁶⁰ 4=22154
 Co⁵⁹(n,γ), neutron capture, double cascade transition 1=17121
 Co⁵⁹(n,He³)Mn⁵⁷ 0=7610
 Co⁵⁹(n,p) 0=15600
 Co⁵⁹(n,p)Fe⁵⁹, cross-sections, 12.5-21 MeV 4=17151
 Co⁵⁹(n,p)Mg²⁷, 14.8 MeV 3=19861
 Co⁵⁹(n,2n), activation cross-sections, 13.8-14.8 MeV 2=12205
 Co⁵⁹(n,2n)Co⁵⁸, cross sections, 12.5-21 MeV 4=17151
 Co⁵⁹, 132 eV resonance parameters 4=17166
 Co⁵⁹, pick-up reaction 1=8749
 Co⁵⁹resonance doublet, 4.34 keV 4=17155
 Co⁵⁹, thermal capture, spin depend. 3=15213
 Co⁵⁹ thermal neutron absorption cross-section 1=17130
 Co⁶⁰, resonance capture integral 3=22400
 Cr, capture cross-sections 2=20637
 Cr, cross-sections 500 to 1200 keV 4=19796
 Cr(n,t), expt. and cpd. nucleus mech. 2=5933
 Cr⁵⁰(n,t) 1=7391
 Cr⁶⁰(n,2n)Cr⁴⁹ 1=5924
 Cr⁵⁰, reactor activation cross-sections 1=17115
 Cr^{50,52,53}(n,γ), thermal neutron capture 2=10119
 Cr⁵²(n,p)V⁵² 1=5924
 Cr⁵², pick-up reaction 1=8749
 Cr⁵³(n,γ)Cr⁵⁴ 3=19866
 Cs, capture, averaged cross-sections, 1-50 keV 3=17479
 Cs, capture, γ-ray spectra 3=6267
 Cs(n,γ)Cs¹³⁴ 0=459, 11325
 Cs(n,γ), use in Cs level study 0=13149
 CsI:TI crystals, (n,p), (n,d), (n,α) reactions 14.6 MeV 3=12689
 Cs¹³³ + I¹²⁷ (n,np), in scintillators 0=13289
 Cs¹³³ + I¹²⁷ (n,p), in scintillators 0=13289
 Cs¹³³(n,γ)Cs¹³⁴, cross-section 2=3593
 Cs¹³³(n,γ)Cs^{134m}, Cs¹³³ thermal neutron capture cross-section 1=7388
 Cs¹³³(n,p), 12-22 MeV, cross-section study 4=3244
 Cs¹³³, reactor activation cross-sections 1=17115
 Cs¹³⁷(n,γ)Cs¹³⁸, thermal neutron cross-sections 1=17122
 CsI, (n,p) and (n,α), 12.1 to 21.5 MeV 1=19490
 Cu, absorption cross-section 1=2223
 Cu absorption cross-section for thermal neutrons 1=13820
 Cu, activation cross-sections, 14.7 MeV 2=16419
 Cu, capture cross-sections, fast neutrons, energy depend. 4=9535
 Cu, at 5 BeV, total and reaction cross-sections 1=12206
 Cu, γ spectra from capture 3=4649
 Cu, γ-spectra, 2.8 MeV inelastic scatt. 1=12204
 Cu(n,γ) 0=15598
 Cu(n,γ), neutron capture, γ-ray spectra 3=22409
 Cu(n,γ), thermal and fast neutrons meas. 4=19798
 Cu(n,p), ang. distrib., test of statistical theory 1=13812
 Cu(n,p), cross-sections, pairing energies 2=14109
 Cu(n,t), expt. and cpd. nucleus mech. 2=5933
 Cu radiative capture of neutron 1=7392
 Cu, removal cross-section for 2.9 MeV neutrons 1=7385
 Cu, spallation meas. at 385 MeV 4=3671
 Cu, U, Th, at 0.8 and 2.8 MeV, small-angle scatt. 2=460
 Cu, U, Th, at 0.8 and 2.8 MeV, small angle scattering 3=4646
 Cu⁶², neutron capture, resonance levels 2=18304
 Cu⁶³(n,d), 14 MeV 0=5792
 Cu⁶³(n,γ) 1=3427
 Cu⁶³(n,γ)Cu⁶⁴, reactor neutron spectra comparison 1=17219
 Cu⁶³(n,γn') 1=13809
 Cu⁶³(n,p) 0=15600
 Cu⁶³(n,2n), cross-section by sandwich scintillator 2=244
 Cu⁶³(n,2n)Cu⁶², absolute cross-section as standard for (n,2n) reaction study 1=7382
 Cu⁶³(n,2n)Cu⁶², at 12.5-18 MeV, cross-sections 0=9680
 Cu⁶³(n,2n)Cu⁶², reactor neutron spectra comparison 1=17219
 Cu⁶³(n,2n)Cu⁶², 12-19.6 MeV 3=12690
 Cu⁶³, reactor activation cross-sections 1=17115
 Cu^{63,65}(n,γ) 1=17116
 Cu^{63,65}(n,2n), cross-sections, 14 MeV 2=5936

Nuclear reactions due to—contd neutrons—contd

Cu^{63,65}, resonance activation integrals 2=7994
 Cu⁶⁴(n,γ), polarization of γ-rays 1=13825
 Cu⁶⁵, absolute activation cross sections at 14.8 MeV 0=456
 Cu⁶⁵(n,γ) 1=3427
 Cu⁶⁵(n,γn') 1=13809
 Cu⁶⁵(n,n'α), cross-sections, 14.5 MeV 2=3597
 Cu⁶⁵(n,p) 0=15600
 Cu⁶⁵(n,p), cross-sections, fission neutrons 2=5941
 Cu⁶⁵(n,p)Ni⁶⁵ 1=5924
 Cu⁶⁵(n,p)Ni⁶⁵, cross-section 1=13814
 Cu⁶⁵(n,p)Ni⁶⁵, 12-19 MeV 3=15210
 Cu⁶⁵(n,2n)Cu⁶⁴, cross-section 1=13814
 Cu⁶⁵(n,2n)Cu⁶⁴, 12-19 MeV 3=15210
 Cu⁶⁵(n,2n), at 12-19.8 MeV, excitation function 1=3452
 D(n,p)2n, 14.4 MeV 2=1728-9
 D(n,p)2n, 14.4 MeV 3=17350
 D(n,p)2n, at 14.4 MeV, proton spectra 1=7290
 D(n,p)2n, 14.4 MeV, proton spectrum 4=12098
 D(n,2n), cross-sections, 6-10 MeV 1=11023
 D(n,2n), in D₂O, reactivity effect 2=8025
 D(n,2n)H, ang. distrib., 14 MeV 2=5932
 DD(n,He³), rate of reaction 2=1943
 DT(n,He⁴), rate of reaction 2=1943
 Dy^{161,162,163}, capture, energy var., time-of-flight meas. 4=15226
 Dy¹⁶⁴, capture cross-section up to 1.5 MeV, theory 4=22159
 Dy¹⁶⁴, capture, prod. of Dy¹⁶⁶ 0=13175
 Dy¹⁶⁴, thermal activation cross-sections 2=20647
 Dy¹⁹⁴, activation and total cross-sections, 0.02-2.0 eV 2=5937
 Er(n,γ) 3=15209
 Er¹⁶⁴(n,γ)Er¹⁶⁵ 3=22344
 Er¹⁶⁸⁻⁸, low-energy resonances 1=17123
 Er¹⁶⁸(n,p)Ho¹⁶⁸ 1=17113
 Er¹⁶⁹(n,γ)Er¹⁶⁸ 4=9415
 Er¹⁷⁰, double capture to form Er¹⁷² 1=8639
 Er¹⁷⁰(n,γ)Er¹⁷¹, by thermal neutrons 1=9831
 Er¹⁷⁰(n,p)Ho¹⁷⁰ 1=17113
 Er¹⁷⁰(n,2n)Er¹⁶⁹, 14.8 MeV meas. 4=12249
 Er¹⁷⁰, prod. of Er¹⁷² and Tm¹⁷² 1=19394
 Eu, capture, γ-spectra 0=9671
 Eu, effect of resonances on temp. defect of water-moderated reactors 0=13327
 Eu(n,γ), resonance capture 0=5724
 Eu¹⁵¹(n,2n)Eu¹⁵⁰, 14.8 MeV meas. 4=12249
 Eu¹⁵¹, total cross-sections, <1 eV 2=5938
 Eu^{151,152}(n,γ)Eu^{152,154}, γ-ray spectra 0=1393
 Eu¹⁵²(n,γ) 2=3595
 F, activation cross-sections, 14.7 MeV 2=16419
 F, 14 MeV 2=1899
 F, radiative capture cross-sections, 30 keV 3=17478
 F, surface interaction with 14 MeV neutrons 1=17124
 F, total cross-sections, 3.3-5.0 MeV 1=12208
 F, 27 and 49 keV resonance 0=5785
 F¹⁹ cross-sections, 10-30 MeV 1=12207
 F¹⁹(n,α)N¹⁶, cross-sections, 13-21 MeV 4=17160
 F¹⁹(n,α)N¹⁶, excitation function, 3.2-6 MeV 0=4118
 F¹⁹(n,α)N¹⁶, levels in N¹⁶ 1=8577
 F¹⁹(n,α)N¹⁶, at >2.9 MeV 1=19487
 F¹⁹(n,β), remittant nuclear polarization 1=5923
 F¹⁹(n,d)O¹⁸ 0=1440
 F¹⁹(n,d)O¹⁸ 1=3451
 F¹⁹(n,d)O¹⁸ 1=9816
 F¹⁹(n,d)O¹⁸, deuteron ang. distrib., 14 MeV 2=5932
 F¹⁹(n,γ)F²⁰, pile-neutron capture 4=6353
 F¹⁹(n,γ)F¹⁹, γ-ray ang. distrib. 0=7605
 F¹⁹(n,γ)F²⁰, thermal cross-section 3=8030
 F¹⁹(n,p) 0=15600
 F¹⁹(n,p)O¹⁹, cross-sections, 13-21 MeV 4=17160
 F¹⁹(n,2n) cross-sections, 10-30 MeV 1=11021
 F¹⁹(n,2n)F¹⁸, cross-sections, 12-21 MeV 2=470
 F¹⁹(n,2n)F¹⁸, cross-section fluctuations 4=22153
 F¹⁹(n,2n)F¹⁸, cross-sections, 13-21 MeV 4=17160
 F¹⁹(n,2n)F¹⁸, in fluoro-organic cpds. 3=5171
 F¹⁹, Wigner cusp search 4=15210
 Fe, capture below 3 keV, resonance at 1200 eV 4=1092
 Fe, γ-spectra, 2.8 MeV inelastic scatt. 1=12204
 Fe, inelastic scatt., 14.7 MeV 4=15219
 Fe(n,γ), neutron capture, γ-ray spectra 3=22409
 Fe(n,γ), at 0.30 keV 0=15599

Nuclear reactions due to—contd

neutrons—contd

- Fe (n, n' γ), test of neutron source 3=24742
 Fe(n,p), ang. distrib., test of statistical theory 1=13812
 Fe(n,p), cross-sections, pairing energies 2=14109
 Fe(n,t), expt. and cpd. nucleus mech. 2=5933
 Fe, radiative capture 2=20638
 Fe radiative capture of neutron 1=7392
 Fe, removal cross-section for 2.9 MeV neutrons 1=7385
 Fe, 2-11 MeV γ -ray cross-sections 1=17114
 Fe⁵⁴(n, α)Cr⁵¹, at 15 MeV 3=12693
 Fe⁵⁴(n,d)Mn⁵³, pick-up reaction 2=20646
 Fe⁵⁴(n,p) 0=15600
 Fe⁵⁴(n,t) 1=7391
 Fe⁵⁴(n,2n), by 2511 keV annihilation γ coincidences 3=24951
 Fe⁵⁴, pick-up reaction 1=8749
 Fe^{54,56}(n,p), cross-section, fission neutrons 2=5941
 Fe^{54,56}, at 14.8 MeV, reaction cross-sections 1=7390
 Fe⁵⁶(n,p), cross-section 1=13824
 Fe⁵⁶(n,d)Mn⁵⁵ 3=19865
 Fe⁵⁶(n, γ)Fe⁵⁷, levels in Fe⁵⁷ 1=8609
 Fe⁵⁶(n, γ n') 1=13809
 Fe⁵⁶(n, γ), thermal neutron capture, rel. to Fe⁵⁷ levels 2=10120
 Fe⁵⁶(n,n' γ)Fe⁵⁶, γ -ray ang. distrib. 0=7605
 Fe⁵⁶(n,n' γ), n' γ correl., 2.0 MeV 2=20641
 Fe⁵⁶(n,n' γ), at 1.0-3.3 MeV, cross-sections 1=8734
 Fe⁵⁶(n,p) 0=15600
 Fe⁵⁶(n,p), cross-section 1=13824
 Fe⁵⁶(n,p)Mn⁵⁶, cross-section 1=13814
 Fe⁵⁶(n,p)Mn⁵⁶, cross-section fluctuations 4=22153
 Fe⁵⁶(n,p)Mn⁵⁶, cross-sections, threshold to 20.3 MeV 4=22152
 Fe⁵⁶(n,p)Mn⁵⁶, rel. to n-flux meas. 2=16209
 Fe⁵⁶(n,p)Mn⁵⁶, reactor neutron spectra comparison 1=17219
 Fe⁵⁶(n,2n)Fe⁵⁵, cross-section 1=13814
 Fe⁵⁶-n, zero energy, optical potl., imag. part 2=9981
 Fe⁵⁶, pick-up reaction 1=8749
 Fe⁵⁷(n, γ), polarization of γ -rays 1=13825
 Fe⁵⁸, resonance activation integral meas. 4=6358
 Fe, Pb in B₄C, removal cross-sections, neutron distrib. 4=12014
 Ga^{69,71}(n, γ), 0.2-2 MeV 2=1904
 Ga^{69,71}, radiative capture cross-section 0=4119
 Ga⁷¹, reactor activation cross-sections 1=17115
 Gd, capture γ < 1.5 MeV from Gd₂O₃ 4=25412
 Gd(n, γ), γ -ray and conversion electron spectra 4=6239
 Gd(n, γ), γ -ray spectra 0=11448
 Gd(n, γ), statistical theory of γ -ray spectra 1=7364
 Gd, thermal neutron capture 4=6362
 Gd¹⁵⁵(n, γ), partial radiation widths, distrib. 4=3669
 Gd¹⁵⁵(n, γ)Gd¹⁵⁶, neutron resonances meas. 4=9540
 Gd^{155,157}, low-energy resonances 1=17123
 Gd^{155,157}(n, γ)Gd^{156,158}, comparison of γ -spectra 1=8739
 Gd^{156,158}(n, γ) 2=3595
 Gd¹⁵⁸, reactor activation cross-sections 1=17115
 Gd¹⁶⁰(n,p)Eu¹⁶⁰ 1=17113
 Ge, diff. cross-sections, 3.7 MeV 2=1903
 Ge, transmutation doping, impurity conduction 0=13595
 Ge⁷⁰(n,2n), at 12-19.8 MeV, excitation function 1=3452
 Ge^{70,74}, reactor activation cross-sections 1=17115
 Ge⁷²(n, γ n') 1=13809
 Ge⁷⁴(n, γ n') 1=13809
 Ge⁷⁶(n, γ n') 1=13809
 Ge⁷⁶(n,p)Ga⁷⁶ 1=17113
 Ge⁷⁶(n,2n)Ge^{75m,g}, 14 MeV 4=9525
 H¹(n,n), appl. to semicond. counters 2=9864
 H²(n,2n) at 14 MeV, mechanism 3=24950
 He, total cross-section 120 keV-6 MeV, 12-20 MeV 0=9676
 (n,He³) 1=11018
 (n,He³), 14.7 MeV, for 4 nuclei 3=24952
 (n,He³), cross-sections at 14.5 MeV, limits for 12 nuclei 2=3597
 He³(n, γ)He⁴, 4 MeV meas. 4=961
 He³(n,p), cross-section dependence on neutron energy 1=19491
 He³(n,p), cross-section dependence on neutron energy 3=4653
 He³(n,p), He³(n,d), and elastic scatt. cross-sections, 0.95-17.5 MeV 1=9779
 He³(n,p)T, proton polarization 0=9362

Nuclear reactions due to—contd

neutrons—contd

- He³(n,p) reaction, T production energy-distrib. function 4=28042
 He³(n,p), appl. to semicond. counters 2=9864
 He⁴(n,d)T, 22-26 MeV, and total cross-section meas. 4=21859
 n-He⁴ interactions, at 40-160 MeV 1=558
 d, He³ and H³ prod. at high energies, composite collision model 4=16572
 Hf, γ - emission from thermal neutron capture 4=3680
 Hf, production of Lu isotope 0=20385
 Hf¹⁷⁷(n, γ)Hf¹⁷⁸, thermal capture 3=8011
 Hf¹⁷⁷(n, γ), partial radiation widths, distrib. 4=3669
 Hf^{178m,179m}, activation cross-sections 2=14114
 Hf¹⁸⁰(n,p)Lu¹⁸⁰ 1=17113
 Hf¹⁸⁰, neutron-activated cross-sections 3=4651
 Hf¹⁸², capture cross-section 1=12169
 Hg, absorption cross-section 1=2223
 Hg, capture, γ -ray spectra 3=6266
 Hg, inelastic scatt. 2=3583
 Hg(n, γ), resonance capture, γ -spectra meas. 4=6363
 Hg, radiative capture cross-sections, 18-300 keV 3=4648
 Hg, resonance parameters at γ -ray spectra 1=705
 Hg¹⁹⁶(n, γ)Hg¹⁹⁷, isomeric cross-section ratios 3=675
 Hg¹⁹⁶(n, γ)Hg^{197,197m}, isomeric cross-section ratios 0=20424
 Hg¹⁹⁸(n,2n)Hg^{197,197m}, isomeric cross-section ratios 0=20424
 Hg^{196,199,201}(n, γ), resonances 0=4074
 Hg¹⁹⁹(n, β -)Tl²⁰⁰, cross-section 2=12206
 Hg¹⁹⁹(n, γ), partial radiation widths, distrib. 4=3669
 Hg¹⁹⁹(n, γ), 34-175 eV resonances, meas. 4=9542
 Hg¹⁹⁹, partial radiation width fluctuations 0=2623
 Hg²⁰⁰(n, γ) 0=4124
 Hg²⁰¹(n, γ), partial radiation widths, distrib. 4=3669
 Hg²⁰¹, total radiation widths 3=15211
 Hg²⁰²(n, γ), γ self absorpt. and 5.4 MeV 4=6349
 Hg²⁰², resonance activation integral meas. 4=6358
 Hg²⁰⁴(n, α)Pt²⁰¹ 2=20540
 Hg²⁰⁴(n, α)Pt²⁰¹, cross-section 4=3619
 Ho(n, γ), capture, 60-500 keV γ 's 3=10355
 Ho, (n, γ) reaction 4=12246
 Ho¹⁶⁵(n, α), 14.7 MeV 3=19864
 Ho¹⁶⁵, oriented, n polarized, spin-spin interaction << spin \approx orbit interaction 4=25413
 Ho¹⁶⁵(n,p)Dy¹⁶⁵, isomeric cross-section ratios 2=3590
 Ho¹⁶⁵, polarized, polarized neutron transmission 2=12207
 I, absorption cross-section 1=2223
 I, capture, averaged cross-sections, 1-50 keV 3=17479
 I, capture, γ -ray spectra 3=6267
 I(n, γ) 0=13266
 I(n, γ), recoil products separation, by elec. field 3=8110
 I, thermal activation, from β activity in liquid scintillator 4=9529
 I, total cross-section in resonance region 0=5799
 I¹²⁷, capture cross-section, 0.02 to 2.5 MeV 3=2478
 I¹²⁷, γ -ray spectra, on scatt. inelastic, 2.95 MeV 3=8106
 I¹²⁷(n, α)Sb¹²⁴, 14 MeV 2=18336
 I¹²⁷(n, γ) 1=17116
 I¹²⁷(n, γ) 0=459
 I¹²⁷(n, γ)I¹²⁸, molecular activation, failure to bond rupture and nucl. recoil 2=6130
 I¹²⁷(n,p), in scintillators 0=13289
 I¹²⁷(n,p), 12-22 MeV, cross-section study 4=3244
 I¹²⁷(n,2n), in scintillators 0=13289
 I^{127,129}, fission prod., total cross-section meas. 4=17173
 I¹²⁸(n, γ) 0=11381
 I¹²⁸(n, γ) 2=10024
 I¹²⁹, cross-section meas., 0.02-0.20 eV 1=17131
 In, absorption cross-section 1=2223
 In, capture, averaged cross-sections, 1-50 keV 3=17479
 In(n, α)Ag, α -particles ang. distrib. 3=2475
 In(n, γ), γ -ray ang. distrib., parity conservation 0=2684
 In, resonance, slowing down distrib. meas. from fission neutron line-source in heavy-water 2=11956
 In, thermal activation, from β activity in liquid scintillator 4=9529
 In, total cross-section in resonance region 0=5799
 In¹¹⁵ 0=5797
 In¹¹⁵, activation meas. 130-1800 keV 4=9536
 In¹¹⁵, capture, depend. of In¹¹⁶ activation ratio on neutron energy 0=13287

Nuclear reactions due to—contd
neutrons—contd

In^{115} , capture 0.1-1.5 MeV, "transmission" coeffs. 4=22156
 $\text{In}^{115}(\text{n}, \text{d})$ and (n, p) reactions at 14 MeV 1=12209
 $\text{In}^{115}(\text{n}, \gamma)$ 1=3427
 $\text{In}^{115}(\text{n}, \gamma)$ 1=17116
 $\text{In}^{115}(\text{n}, \gamma)\text{In}^{116}$, γ -ray spectrum 4=6361
 $\text{In}^{115}(\text{n}, \gamma)\text{In}^{116}$, ratio of 54 min to 13 sec activities, correction 1=11026
 $\text{In}^{115}(\text{n}, \text{n}') \text{In}^{115\text{m}}$, up to 14.6 MeV 4=17170
 $\text{In}^{115}(\text{n}, \text{p})$, 14.8 MeV 4=1095
 $\text{In}^{115}(\text{n}, \text{p})$, spectra, single-particle effects 1=8742
 $\text{In}^{115}(\text{n}, 2\text{n})$, at 12-19.8 MeV, excitation function 1=3452
 In^{115} , resonance integrals 3=17485
 In^{115} , spin states associated with first three slow-neutron resonances 0=9678
 In^{115} , thermal activation cross-sections and reson. integrals meas. 4=17169
 In^{116} isomers formation, by thermal n capture, cross-section ratios 3=8114
 In^{116} , 2.16 sec. isomer, thermal neutron activation 3=15112
 InSb , resonance absorpt., suppression 2=20642
 Ir bombardment origin of 47 sec. β -activity 1=12171-2
 Ir , capture, averaged cross-sections, 1-50 keV 3=17479
 Ir , total cross-section in resonance region 0=5799
 $\text{Ir}^{191, 193}(\text{n}, \gamma)$ 0=459
 $\text{Ir}^{191, 193}$, total radiation widths 3=15211
 $\text{Ir}^{193}(\text{n}, \gamma)$ 1=17116
 K , diff. cross-sections, 3.7 MeV 2=1903
 K , total cross-section, 0.9-2.1 MeV 4=17161
 $\text{K}^{39}(\text{n}, \alpha)$, in scintillators 0=13289
 $\text{K}^{39}(\text{n}, \alpha)\text{Cl}^{36}$, 1.46-8.7 MeV 2=3599
 $\text{K}^{39}(\text{n}, \alpha\gamma)\text{Cl}^{36}$, coincidence study, 5.4 MeV 3=8115
 $\text{K}^{39}(\text{n}, \text{np})$, in scintillators 0=13289
 $\text{K}^{39}(\text{n}, \text{p})\text{A}^{39}$, absolute cross-section for 2.5 MeV neutrons 1=8747
 $\text{K}^{39}(\text{n}, \text{p})$, 12-22 MeV, cross-section study 4=3244
 $\text{K}^{39}(\text{n}, \text{p})\text{A}^{39}$, 1.46-8.7 MeV 2=3599
 $\text{K}^{39}(\text{n}, \text{p})\text{A}^{39}$, meteorite age determination 0=5683
 $\text{K}^{39}(\text{n}, \text{p})\text{A}^{39}$, in scintillators 0=13289
 $\text{K}^{39}(\text{n}, \text{p}\gamma)\text{Ar}^{39}$, coincidence study, 5.4 MeV 3=8115
 $\text{K}^{40}(\text{n}, \gamma)$ 0=4124
 $\text{K}^{41}(\text{n}, \alpha)$, in scintillators 0=13289
 K^{41} , reactor activation cross-sections 1=17115
 $\text{Kr}(\text{n}, \text{p})$, cross-sections 2=10121
 Kr , total cross-section 0=7608
 Kr , total cross-section and isotopic identification 0=4126
 Kr , total cross-section, 120 keV-6 MeV, 12-20 MeV 0=9676
 $\text{Kr}^{86}(\text{n}, \text{p})$, (n, pn) , (n, α) reactions, prod. of Br^{86} 2=18289
 La , γ -emission from thermal neutron capture 4=3680
 La , (n, γ) reaction 4=12246
 La radiative capture of neutron 1=7392
 La^{139} , γ -ray spectra, on scatt. inelastic, 2.95 MeV 3=8106
 $\text{La}^{139}(\text{n}, \alpha)\text{Cs}^{136}$, α -spectrum 4=19801
 $\text{La}^{139}(\text{n}, \gamma)$ 1=17116
 La^{139} , radiative capture cross-sect., 50 keV 4=12248
 La^{139} , reactor activation cross-sections 1=17115
 $\text{Li}(\text{n}, \gamma)$, spectra and cross-sections 2=5939
 $\text{Li}(\text{n}, \text{t})$, in Li-doped NiO, tritium release 2=17100
 Li^6 , 0.001 eV-15 MeV, recommended values 4=28043
 $\text{Li}^6(\text{n}, \alpha)$, cross-section dependence on neutron energy 3=4653
 $\text{Li}^6(\text{n}, \alpha)$, appl. to semicond. counters 2=9864
 $\text{Li}^6(\text{n}, \alpha)$, cross-section dependence on neutron energy 1=19491
 $\text{Li}^6(\text{n}, \alpha)\text{H}^3$, det. of Li impurities in target materials 3=22403
 $\text{Li}^6(\text{n}, \alpha)\text{H}^3$, in emulsion, absolute neutron flux meas. 2=18331
 $\text{Li}^6(\text{n}, \alpha)\text{H}^3$, used in nuclear spot-welding 3=13977
 $\text{Li}^6(\text{n}, \alpha)\text{H}^3$, 2-15 MeV, cross-section, for D-D neutrons 3=8119
 $\text{Li}^6(\text{n}, \alpha)\text{He}^3$, use in neutron spectroscopy 2=5686
 $\text{Li}^6(\text{n}, \alpha)\text{T}$, cross-section, 1.2-8.0 MeV 0=1441
 $\text{Li}^6(\text{n}, \alpha)\text{T}$, Li^7 levels study 0=5670
 $\text{Li}^6(\text{n}, \alpha)\text{T}$ reaction in LiI 0=17146
 $\text{Li}^6(\text{n}, \text{dn})\text{He}^4$, 5-14 MeV 2=12208
 $\text{Li}^6(\text{n}, \text{n}\gamma)\text{Li}^6$ 1=9866
 $\text{Li}^6(\text{n}, \text{p})$, ang. distrib., calc. 0=20492
 $\text{Li}^6(\text{n}, \text{p})\text{He}^3$, 3.5-14.8 MeV 3=24953
 $\text{Li}^6(\text{n}, \text{t})\text{He}^4$, in Al, helium precipitation along dislocations 1=11245

Nuclear reactions due to—contd
neutrons—contd

$\text{Li}^6(\text{n}, \text{t})\text{He}^4$, use in neutron spectrometry 3=19656
 $\text{Li}^6(\text{n}, \text{t})\text{He}^4$, 150-250 keV, differential cross-section 3=12695
 $\text{Li}^6(\text{n}, \text{t})\text{He}^4$, triton ang. distrib. 4=17158
 $\text{Li}^6(\text{n}, 2\text{n})$, 10-2 and 14-1 MeV meas. 3=8112
 $\text{Li}^{6,7}(\text{n}, \text{n}')$ secondary spectra 4=9531
 Li^7 , capture of polarized thermal neutrons, Li^8 β -decay asymmetry 2=14031
 Li^7 , cross-section, partial and total, 0.001 eV to 15 MeV 4=25408
 $\text{Li}^7(\text{n}, \alpha)\text{H}^4$, 14 MeV, search 4=21964
 $\text{Li}^7(\text{n}, \beta)$, remittant nuclear polarization 1=5923
 $\text{Li}^7(\text{n}, \text{n}')\text{Li}^{7*}$, cross-section at 14 MeV 3=2474
 $\text{Li}^7(\text{n}, \text{t})$, 3.5-15 MeV meas. 3=19858
 $\text{Li}^7(\text{n}, \text{tn})\text{He}^4$, 5-14 MeV 2=12208
 $\text{Li}^7(\text{n}, 2\text{n})$, 10-2 and 14-1 MeV meas. 3=8112
 Li^6 and Li^7 , 1.5-7.5 MeV 4=1089
 $\text{Lu}(\text{n}, \gamma)$, capture, 60-500 keV γ 's 3=10355
 Lu , radioactive Lu isotopes produced 1=16816
 $\text{Lu}^{175}(\text{n}, \alpha)$, 14.7 MeV 3=19864
 Lu^{175-6} , neutron absorption 2=3596
 $\text{Lu}^{176}(\text{n}, \gamma)$, neutron temperature measurements 1=7255
 Lu^{176} 0-142 eV resonance parameters 1=17126
 Mg , γ -spectra, 2.8 MeV inelastic scatt. 1=12204
 Mg , inelastic scatt., compound nucleus mech. 2=10112
 $\text{Mg}(\text{n}, \gamma)$ 0=15598
 Mg , total cross-section 0=20493
 Mg , 2.8-5.2 MeV, cross-sections 4=6354
 Mg , 2-11 MeV γ -ray cross-sections 1=17114
 Mg^{22-6} 0=5786
 Mg^{24} 0=9532
 $\text{Mg}^{24}(\text{n}, \text{n}')\text{Mg}^{24}$, n' - γ correl., 3.25 MeV 2=5940
 $\text{Mg}^{24}(\text{n}, \text{p})$ 0=20494
 $\text{Mg}^{24}(\text{n}, \text{p})$, cross-sections, fission neutrons 2=5941
 $\text{Mg}^{24}(\text{n}, \text{p})\text{Na}^{24}$, absolute cross-sections 3=24949
 $\text{Mg}^{24}(\text{n}, \text{p})\text{Na}^{24}$, cross-section 1=13814
 $\text{Mg}^{24}(\text{n}, \text{p})\text{Na}^{24}$ cross-section fluctuations 4=22153
 $\text{Mg}^{24}(\text{n}, \text{p})\text{Na}^{24}$, cross-sections, 12-5-21 MeV 4=17151
 $\text{Mg}^{24}(\text{n}, \text{p})\text{Na}^{24}$, excit. curves up to 20 MeV 3=8109
 $\text{Mg}^{24}(\text{n}, \text{p})$, at 12-18 MeV, cross-section 3=2476
 $\text{Mg}^{25}(\text{n}, \text{d})\text{Na}^{24}$, cross sections, 12.5-21 MeV 4=17151
 $\text{Mg}^{26}(\text{n}, \text{p})\text{Na}^{26}$, by fast neutrons, decay of Na^{26} 1=7347
 $\text{Mg}^{26}(\text{n}, \text{t})\text{Na}^{24}$, cross sections, 12.5-21 MeV 4=17151
 $\text{Mn}(\text{n}, \gamma)$, neutron capture, γ -ray spectra 3=22409
 $\text{Mn}(\text{n}, \gamma)$, thermal and fast neutrons meas. 4=19798
 $\text{Mn}(\text{n}, \text{t})$, expt. and cpd. nucleus mech. 2=5933
 Mn , resonance activation integrals 2=7994
 Mn , total cross-section, 0.1 eV-50 keV 4=19797
 $\text{Mn}^{55}(\text{n}, \alpha)$, 14 MeV, level densities of residual nucleus 3=6265
 $\text{Mn}^{55}(\text{n}, \alpha)$, at 12-18 MeV, cross-section 3=2476
 $\text{Mn}^{55}(\text{n}, \text{d})$, 14 MeV 0=5792
 $\text{Mn}^{55}(\text{n}, \gamma)$ 1=17116
 $\text{Mn}^{55}(\text{n}, \gamma)\text{Mn}^{56}$, levels in Mn^{56} 0=4024
 $\text{Mn}^{55}(\text{n}, \text{He}^3)\text{V}^{53}$ 0=7610
 $\text{Mn}^{55}(\text{n}, \gamma)\text{Mn}^{56}$, for calibration of neutron source 2=3355
 Mn^{56} , pick-up reaction 1=8749
 $\text{Mn}^{56}(\text{n}, \gamma)$ 0=4124
 Mo , fast-neutron radiative capture cross-section 4=12250
 Mo , 14 MeV scattering cross-sections 1=17094
 Mo , (n, γ) reaction 4=12246
 Mo , radiative capture cross-sections, 30 keV 3=17478
 Mo radiative capture of neutron 1=7392
 Mo , resonance transmission, system. det. 2=18334
 Mo , scattering cross-sections, 14 MeV 2=22806
 Mo , total cross-section in resonance region 0=5799
 $\text{Mo}^{92, 94, 95, 96, 98, 100}(\text{n}, \alpha)$, 15 MeV, α particle study 4=25411
 $\text{Mo}^{92, 94-96, 100}$, total and radiative capture cross-sections, 7-15000 eV 3=24956
 $\text{Mo}^{92, 95-96}(\text{n}, \text{p})\text{Nb}^{92, 95-96}$, by fission neutrons, cross-sections 3=2477
 Mo^{95} , capture γ -ray spectra, s and p-wave resonances 3=24958
 $\text{Mo}^{95}(\text{n}, \gamma)\text{Mo}^{96}$, γ - γ ang. correls. 3=6268
 $\text{Mo}^{95}(\text{n}, \gamma)$, p-wave capture, direct obs., below 700 eV 2=20653
 Mo^{98} , capture, averaged cross-sections, 1-50 keV 3=17479
 $\text{Mo}^{98}(\text{n}, \text{p})\text{Nb}^{98}$ 1=17113
 Mo^{98} , reactor activation cross-sections 1=17115
 Mo^{98} , resonance activation integrals 2=7994
 Mo^{100} , capture, averaged cross-sections, 1-50 keV 3=17479

Nuclear reactions due to —contd
neutrons —contd

Mo¹⁰⁰, cross-sections and capture integral 1=706
 Mo¹⁰⁰(n,p)Nb¹⁰⁰ 1=17113
 Mo¹⁰⁰, radiative capture cross-sections 4=12247
 Mu cross-sections for 14.5 MeV neutrons 1=704
 N, 14 MeV scattering cross-sections 1=17094
 N, scattering cross-sections, 14 MeV 2=22806
 N¹⁴ cross-sections, 10-30 MeV 1=12207
 N¹⁴(n,α)B¹¹ 0=4120
 N¹⁴(n,α)B¹¹*, at 4.7-8.1 MeV 0=4116
 N¹⁴(n,α), in neutron detection, with gas scintillators 1=3077
 N¹⁴(n,d) at 14 MeV, ang. distrib. 3=8111
 N¹⁴(n,H³)C¹² 0=4120
 N¹⁴(n,p)C¹⁴ 0=4120
 N¹⁴(n,p)C¹⁴, thermal neutrons 2=1902
 N¹⁴(n,p), in neutron detection, with gas scintillators 1=3077
 N¹⁴(n,2n) cross-sections, 10-30 MeV 1=11021
 N¹⁴(n,2n)N¹³, at 12.5-18 MeV, cross-sections 0=9680
 N¹⁵(n,γ), polarization of γ-rays 1=13825
 N¹⁵ + n, and N¹⁶ level spins and parities 4=27961
 Na, cross-sections 2.8-5.2 MeV, 4=6354
 Na(n,γ) 0=13266
 Na, resonance activation integrals 2=7994
 Na, 3 and 53 keV resonance 0=5785
 Na, total cross-section, 0.9-2.1 MeV 4=17161
 Na²²(n,γ), cross-section meas. 4=9533
 Na²³ excitation via compound nucleus, up to 4 MeV, calc. 4=25300
 Na²³, 14 MeV, activation cross-sections 3=22407
 Na²³(n,α)F²⁰ 1=5924
 Na²³(n,α)F²⁰, cross-sections, 13-21 MeV 4=17160
 Na²³(n,α)F²⁰, 14 MeV 2=16418, 18336
 Na²³(n,α), 14 MeV, level densities of residual nucleus 3=6265
 Na²³(n,α), at 14 MeV in NaI:Tl crystal 1=2226
 Na²³(n,α), in scintillators 0=13289
 Na²³(n,p), at 14 MeV in NaI:Tl crystal 1=2226
 Na²³(n,p)Ne²³, cross-sections, 13-21 MeV 4=17160
 Na²³(n,p)Ne²³ 1=5924
 Na²³(n,p)Ne²³, Na²³(n,α)F²⁰, at 4-19 MeV, abs. cross-sections, statistical-theory discrepancy 1=9869
 Na²³(n,p), in scintillators 0=13289
 Na²³(n,2n)Na²², cross-sections, 12-21 MeV 2=470
 Na²³(n,2n)Na²², cross-sections, 13-21 MeV 4=17160
 Na²³, total cross-section, 0.5-4 MeV 2=14107
 Nb, capture, averaged cross-sections, 1-50 keV 3=17479
 Nb, (n,γ) reaction 4=12246
 Nb, removal cross-section for 2.9 MeV neutrons 1=7385
 Nb⁹³, capture γ-ray spectra, s and p-wave resonances 3=24958
 Nb⁹³, capture, s and p-wave, total widths meas. 4=6360
 Nb⁹³(n,α)Y⁹⁰, 14 MeV 4=22155
 Nb⁹³(n,α)Y^{90m}, new isomer prod. 1=12185
 Nb⁹³(n,γ) 1=17116
 Nb⁹³(n,2n), at 12-19.8 MeV, excitation function 1=3452
 Nb⁹³ radiative capture cross-sections 3=8118
 Nd, γ-emission from thermal neutron capture 4=3680
 Nd(n,γ) 0=11381
 Nd, resonance interactions, radiation widths 4=17156
 Nd, total cross-section, 3.3-5 MeV meas. 4=22158
 Nd¹⁴³, thermal neutron capture, α-emission 2=18341
 Nd¹⁴³, total cross-section, 0.01-10 eV 0=7611
 Nd¹⁴⁴(n,γ) 1=2224
 Nd¹⁴⁴(n,γ) 1=3419
 Ne, absorption and scattering of thermal neutrons 1=13823
 Ne, slow-neutron scatt., and absorption cross-sections 0=20504
 Ne, total cross-section, 120 keV-6 MeV, 12-20 MeV 0=9676
 Ne²⁰(n,α), in neutron detection, with gas scintillators 1=3077
 Ne²⁰(n,α)O¹⁷, cross-sections 2=10121
 Ne²⁰(n,α)O¹⁷, at 2.8-7.3 MeV 0=4122
 Ne²⁰(n,d)F¹⁹ 1=3451
 Ne²¹(n,α)O¹⁸, energies and cross-sections 2=472, 22826
 Ne²²(n,γ)Ne²³ 2=1821
 Ni, γ spectra from capture 3=4649
 Ni(n,γ) 0=15598
 Ni(n,γ), γ-ray spectra 1=4870
 Ni(n,γ), neutron capture, γ-ray spectra 3=22409
 Ni(n,p)Co, 15 MeV 4=1094

Nuclear reactions due to—contd
neutrons—contd

Ni(n,p), at 13.4-17.5 MeV, Monte Carlo calc. 0=13217
 Ni(n,t), expt. and cpd. nucleus mech. 2=5933
 Ni, removal cross-section for 2.9 MeV neutrons 1=7385
 Ni, total cross-sections, 175-300 keV 4=17167
 Ni⁵⁸, absolute cross-sections 3=24949
 Ni⁵⁸(n,α)Fe⁵⁵, 14 MeV, ground state transition 3=12686
 Ni⁵⁸(n,p)Co⁵⁸, excitation functions 2=20643
 Ni⁵⁸(n,p)Co⁵⁸, 1.6-14.7 MeV meas. 3=8117
 Ni⁵⁸(n,p)Co^{58m}, 1.04-2.67 MeV 3=15214
 Ni⁵⁸(n,p), cross-section 1=13824
 Ni⁵⁸(n,p), cross-sections, fission neutrons 2=5941
 Ni⁵⁸(n,p), (n,np), 14 MeV 2=5936
 Ni⁵⁸(n,2n), at 12-19.8 MeV, excitation function 1=3452
 Ni⁵⁸, pick-up reaction 1=8749
 Ni⁵⁸ proton and deuteron emission due to 14.8 MeV neutrons 1=8748
 Ni^{58,60}, total cross-sections, 3-300 keV 0=5786
 Ni^{58,60},⁶²(n,γ), for pile neutrons, γ-ray spectra 1=4871
 Ni^{58,60-2,64}, at 14.8 MeV 0=7612
 Ni⁵⁶(n,np)Co⁵⁷ 0=7613, 9682
 Ni⁵⁸(n,p)Co⁵⁸ 0=7613, 9682, 15600
 Ni⁵⁸(n,p)Co⁵⁸, branching ratio, n spectra effects, and n dosimetry errors 4=19536
 Ni⁵⁸(n,p)Co⁵⁸, cross sections, 12.5-21 MeV 4=17151
 Ni⁵⁸(n,p)Co⁵⁸(n,p)Co⁵⁸, at 2.2-3.6 MeV, statistical theory 0=20495
 Ni⁵⁸(n,p)Co⁵⁸, positron emitter absolute activation cross-section determ. 4=1086
 Ni⁵⁸(n,p)Co⁵⁸, 2.2-3.8 MeV, cross-sections 4=3677
 Ni⁵⁸(n,2n)Ni⁵⁷ 0=7613
 Ni⁵⁸(n,2n)Ni⁵⁷, cross sections, 12.5-21 MeV 4=17151
 Ni⁵⁹(n,γ), polarization of γ-rays 1=13825
 Ni⁶⁰(n,p) 0=15600
 Ni⁶⁰, pick-up reaction 1=8749
 Ni⁶⁰(n,γ)Ni⁶¹, γ-γ ang. correl. rel. to Ni⁶¹ level 4=15225
 Ni^{61,62,64}(n,p) and (n,np), 14.1 MeV 4=1093
 Np²³⁹, resonance integral 0=13284
 O, activation cross-sections, 14.7 MeV 2=16419
 O(n,α), (n,p), in D₂O, reactivity effect 2=8025
 O(n,d) meas. 4=12243
 O, total cross-section, 3.4-16 MeV 1=11020
 O, total cross-sections, 3.3-5.0 MeV 1=12208
 O, 2-11 MeV γ-ray cross-sections 1=17114
 O¹⁵ cross-sections, 10-30 MeV 1=12207
 O¹⁶, up to 15.0 MeV, total cross-sections 4=9532
 O¹⁶(n,α)C¹³, absorption of neutrons 2=5942
 O¹⁶(n,α)C¹³, 5.0-8.8 MeV 4=3672
 O¹⁶(n,α)C¹³, at 14.4 MeV, ang. distrib., thin crystal method 1=2225
 O¹⁶(n,α)C¹³, 6 and 8 MeV, direct interaction calc. 4=1087
 O¹⁶(n,α)C¹³, 12-19 MeV 3=15210
 O¹⁶(n,d)N¹⁵ 4=19792
 O¹⁶(n,p)N¹⁶ 3=22405
 O¹⁶(n,p)N¹⁶, cross-section 0=13278
 O¹⁶(n,p)N¹⁶, cross-section, 11-19 MeV 2=18338
 O¹⁶(n,p)N¹⁶, 14 MeV 4=9446
 O¹⁶(n,p)N¹⁶, at 14.7 MeV, cross-section 0=20496
 O¹⁶(n,p)N¹⁶, in Latina-type reactor, Monte Carlo calc. 0=11471
 O¹⁶(n,p)N¹⁶, and low N¹⁶ levels 4=19792
 O¹⁶(n,p)N¹⁶, in NRX reactor cooling water 0=13273
 O¹⁶(n,2n) cross-sections, 10-30 MeV 1=11021
 O¹⁷(n,α)C¹⁴, thermal neutrons 2=1902
 O¹⁷(n,p)N¹⁷, cross-section 0=13278
 O¹⁷(n,p)N¹⁷, in NRX reactor cooling water 0=13273
 Os, γ-emission from thermal neutron capture 4=3680
 Os, resonances, isotopic identification from γ-spectra 2=469
 Os, total cross-section in resonance region 0=5799
 Os¹⁸⁹, thermal neutron activation cross-section 2=20647
 Os¹⁹⁰(n,γ)Os^{191,191m} 1=3453
 Os¹⁹³ capture meas. 4=25359
 P, activation cross-sections, 14.7 MeV 2=16419
 P, cross-sections 3-5 MeV 3=19860
 P, thermal activation, from β activity in liquid scintillator 4=9529
 P, total cross-section, 830-1200 keV 4=3675
 P, total cross-section at 3-5 MeV 1=5925
 P, 2-11 MeV γ-ray cross-sections 1=17114
 P³¹(n,α)Al²⁸ up to 5 MeV, excitation function 4=6356

Nuclear reactions due to—contd

neutrons—contd

$P^{31}(n,\alpha)Al^{28}$, 14.8 MeV, cross-section 4=12244
 $P^{31}(n,\alpha)Al^{28}$, 12-19 MeV 3=15210
 $P^{31}(n,\alpha)$, at 12-18 MeV, cross-section 3=2476
 $P^{31}(n,d)$, at 14 MeV, ang. distrib. 3=8111
 $P^{31}(n,d)Si^{30}$ 0=1440, 1442, 15602
 $P^{31}(n,d)Si^{30}$ 1=3451
 $P^{31}(n,p)$, cross-section 1=13824
 $P^{31}(n,p)Si^{31}$, cross-section 0=15601
 $P^{31}(n,p)Si^{31}$, rel. to n-flux meas. 2=16209
 $P^{31}(n,p)Si^{31}$, reactor neutron spectra comparison 1=17219
 $P^{31}(n,p)Si^{31}$, in swimming bath reactor 2=3672
 $P^{31}(n,2n)P^{30}$, 14.8 MeV, cross-section 4=12244
 $P^{31}(n,2n)P^{30}$, at 12.5-18 MeV, cross-sections 0=9680
 $P^{31}(n,2n)P^{32}$, 12-19 MeV 3=15210
 $P^{31}(n,2n)$ by 2511 keV annihilation γ coincidences 3=24951
 Pa^{231} , total cross-section, 0.01 eV-2 keV 2=10122
 Pa^{233} , resonance integral 0=13284
 Pa^{233} , thermal capture cross-section 0=11447
 Pb , absorption, cross-section 1=2223
 Pb , capture, γ -ray spectra 3=6266
 Pb , at 5 BeV, total and reaction cross-sections 1=12206
 Pb , inelastic scatt. 2=3583
 $Pb(n,\gamma)$ 0=15598
 Pb , (n, 2n) cross-section 1=19488
 Pb , removal cross-section for 2.9 MeV neutrons 1=7385
 Pb , at 200-960 keV, total cross-sections, interpretation 1=3449
 $Pb^{204,206-208}$, measured cross-sections 4=22160
 $Pb^{206}(n,3n)Pb^{204m}$ for different energy distrib. 4=28047
 $Pb^{206}(n,2n)Pb^{205m}$ 1=17133
 Pb^{206} , scattering 2=1896
 Pb^{207m} , from $Pb^{208}(n,2n)$ and $Pb^{207}(n,n')$, as neutron detector 2=13819
 $Pb^{208}(n,n'\gamma)Pb^{208}$, ang. distrib. of 2-6 MeV γ -rays 1=17127
 $Pb^{208}(n,2n)Pb^{207}$, analysis as pick-up reaction 2=18343
 $Pb^{208}(n,2n)Pb^{207}$, use in nuclear level determ. 1=4834
 PbI_2 , resonance spectra 0=9381
 Pd , total cross-section in resonance region 0=5799
 Pd^{108} , reactor activation cross-sections 1=17115
 $Pd^{110}(n,2n)Pd^{109m,\epsilon}$, 14 MeV 4=9525
 Pm^{147} , activation cross-sections to Pm^{148} , Pm^{148m} 2=12204
 $Pm^{147}(n,\gamma)Pm^{148}$ 1=5878
 $Po^{210}(n,\alpha)$, capture cross-section, upper limit 3=22404
 Pr , γ -emission from thermal neutron capture 4=3680
 Pr , neutron resonances 4=25406
 Pr , total cross-section at 14 MeV, meas. 4=17171
 $Pr^{141}(n,\gamma)$, radiative capture, 3-7.5 MeV 4=3681
 $Pr^{141}(n,2n)Pr^{140}$, at 12.5-18 MeV, cross-sections 0=9680
 Pr^{141} , radiative capture cross-section, 50 keV 4=12248
 Pr^{141} , reactor activation cross-sections 1=17115
 $Pt(n,\alpha)Os$ reactions, at thermal energies 2=5943
 $Pt(n,\gamma)$, resonant capture 0=4079
 $Pt(n,\gamma)$, resonance capture, γ -spectra meas. 4=6363
 Pt , radiative capture cross-sections, 30 keV 3=17478
 Pt , resonance interactions, radiation widths 4=17156
 Pt , resonance transmission, system. det. 2=18334
 Pt , resonances, isotopic identification from γ -spectra 2=469
 Pt , spallation meas. at 385 MeV 4=3671
 $Pt^{192,194}(n,\gamma)Pt^{193m,195m}$, cross-sections 3=675
 $Pt^{195}(n,\gamma)$, partial radiation widths, distrib. 4=3669
 Pt^{195} , partial radiation width fluctuations 0=2623
 Pt^{195} , radiative capture, γ -intensity 1=17111
 $Pt^{196}(n,\gamma)Pt^{197}$, isomeric cross-section ratios 3=675
 Pt^{196} , thermal neutron activation cross-section 2=20647
 Pt^{196} , capture cross-sections, 3-200 keV 0=20487
 Pu^{239} , cross-section energy depend., 12.6-20 MeV 2=3636
 Pu^{239} , fission, radiative capture, 5-100 eV 4=17140
 Pu^{239} , low-energy cross-sections, analysis 0=9706
 Pu^{239} , low energy cross-sections, fission widths 2=7992
 $Pu^{239}(n,\alpha)U^{236}$ 2=14115
 $Pu^{239}(n,f)$, in uranium pile 2=3671
 Pu^{239} , at 0.15 to 1.0 MeV 0=13272
 Pu^{239} , ratio of 0.0011 eV absorption to fission cross-sections 0=7639
 Pu^{239-42} , resonance integrals 0=13284
 Pu^{239-42} , slow-neutron resonance behaviour 0=7615
 Pu^{240} , cross-section meas., 0-02-0.20 eV 1=17131
 Pu^{240} , effective cross-section, reactivity calc. 0=13354
 Pu^{240} , 1 eV resonance width 0=13282

Nuclear reactions due to—contd

neutrons—contd

Pu^{240} , slow-neutron cross-section 0=20497
 Pu^{240} , thermal cross-section 0=2683, 7614, 13271
 Ra^{226} , total cross-section 0=4123
 Rb^{85} , capture, averaged cross-sections, 1-50 keV 3=17479
 Rb^{85} , reactor activation cross-sections 1=17115
 $Rb^{85}(n,\gamma)Rb^{86m}$ 1=3453
 $Rb^{85,87}(n,\gamma)$ 1=17116
 $Rb^{85,87}(n,2n)$, at 12-19.8 MeV, excitation function 1=3452
 $Re^{185}(n,\gamma)Re^{186}$, in K_2ReBr_6 crystals 2=14116
 Re^{185-86} , reactor activation cross-sections 1=17115
 $Re^{185,187}(n,\gamma)$ 1=17116
 $Re^{186,188}$, capture, low-energy γ -ray spectra 3=12696
 Rh , capture, averaged cross-sections, 1-50 keV 3=17479
 Rh^{103} , activation meas. 130-1800 keV 4=9536
 Rh^{103} , capture resonances, 17, meas. 4=9537
 Rh^{103} , capture, $Rh^{104}\beta$ -decay 2=12156
 $Rh^{103}(n,\alpha)Tc^{100}$ 3=10360
 $Rh^{103}(n,d)$, 14 MeV 0=5792
 $Rh^{103}(n,d)$ and (n,p) reactions at 14 MeV 1=12209
 $Rh^{103}(n,\gamma)$ 1=17116
 $Rh^{103}(n,\gamma)$, γ spectra 4=22139
 $Rh^{103}(n,\gamma)Rh^{104}$ 2=16420
 $Rh^{103}(n,\gamma)Rh^{104}$ 3=6272
 $Rh^{103}(n,\gamma)Rh^{104}$, low-energy capture 2=12211
 $Rh^{103}(n,p)$, spectra, single-particle effects 1=8742
 Rh^{103} , neutron resonance cross-section, 4 eV-10 keV 2=462
 Rh^{103} , 0.032 eV-14.67 MeV, cross-sections 3=10360
 Rh^{103} , strength functions, "s" and "p", to 800 keV 4=17168
 $Rh^{103}(n,He^3)Tc^{101}$ 0=7610
 $Ru^{99,102}$, total radiation widths 3=15211
 Ru^{105} , thermal neutron activation cross-section 0=20498
 S , activation cross-sections in NRX reactor 1=13819
 S , cross-sections 3-5 MeV 3=19860
 S , 14 MeV scattering cross-sections 1=17094
 $S(n,\gamma)$ 2=10024
 S , radiative capture cross-sections, 30 keV 3=17478
 S , scattering cross-sections, 14 MeV 2=22806
 S , total cross-section at 3-5 MeV 1=5925
 S , 2-11 MeV γ -ray cross-sections 1=17114
 $S^{32}(n,d)$, at 14 MeV, ang. distrib. 3=8111
 $S^{32}(n,d)P^{31}$ 1=3451
 $S^{32}(n,d)P^{31}$ 0=1442, 15602
 $S^{32}(n,d)P^{31}$, 14 MeV 4=22021
 $S^{32}(n,p)$ 0=20494
 $S^{32}(n,p)P^{32}$, cross-section as reference standard 1=13824
 $S^{32}(n,p)P^{32}$, E_D and ang. distrib., cross-sections 3=19862
 $S^{32}(n,p)P^{32}$, as fast-neutron monitor, 2-20 MeV 3=12687
 $S^{32}(n,p)P^{32}$, using fission neutrons 3=8116
 $S^{32}(n,t)$ 1=7391
 $S^{32}(n,p)$, 14.4 MeV 2=3600
 $S^{32}(n,p)P^{32}$, fast-neutron flux meas. 2=22540
 $S^{32}(n,p)P^{32}$, rel. to n-flux meas. 2=16209
 $S^{32}(n,p)P^{32}$, in swimming bath reactor 2=3672
 $S^{33}(n,\gamma)$ 0=4124
 $S^{33}(n,\gamma)$, polarization of γ -rays 1=13825
 Sb , absorption cross-section 1=2223
 Sb , capture, averaged cross-sections, 1-50 keV 3=17479
 Sb , γ -spectra, 2.8 MeV inelastic scatt. 1=12204
 $Sb(n,d)$ and (n,p) reactions at 14 MeV 1=12209
 Sb , resonances, isotopic identification from γ -spectra 2=469
 $Sb^{121}(n,\gamma)$ 1=17116
 $Sb^{121}(n,2n)$, by 2511 keV annihilation γ coincidences 3=24951
 $Sb^{121}(n,2n)Sb^{120}$, 12-19.6 MeV 3=12690
 Sb^{121} , reactor activation cross-sections 1=17115
 Sb^{121} , total radiation widths 3=15211
 $Sb^{121,123}(n,p)$, spectra, single-particle effects 1=8742
 $Sb^{121,123}(n,2n)$, at 12-19.8 MeV, excitation function 1=3452
 Sb^{123} , successive neutron capture 0=7604
 $Sb^{123}(n,2n)Sb^{122m,\epsilon}$, 14 MeV 4=9525
 $Sb(n,p)Sn$, distribution correlations 0=1443
 $Sc(n,\gamma)$ 2=10024
 $Sc(n,\gamma)$, 50 keV-10 MeV, γ -ray cascades 3=24948
 Sc radiative capture of neutron 1=7392
 Sc^{45} , capture, 0.15-14.65 MeV 4=6357
 $Sc^{45}(n,\alpha)K^{42}$ 1=5924
 $Sc^{45}(n,2n)Sc^{44}$ 1=5924
 $Sc^{45}(n,2n)Sc^{44m}$ 1=5924

Nuclear reactions due to—contd

neutrons—contd

Sc⁴⁸(n,2n), at 12-19.8 MeV, excitation function 1=3452
 Sc⁴⁸, pick-up reaction 1=8749
 Se, diff. cross-section, 3.7 MeV 2=1903
 Se, at 30 MeV, As⁵¹ production 0=9546
 Se⁷⁸(n,γn') 1=13809
 Se⁷⁷(n,γ), partial radiation widths, distrib. 4=3669
 Se⁷⁷(n,γ)Se⁷⁸, thermal capture, sum-coinc. meas. 4=12245
 Se⁷⁸(n,γn') 1=13809
 Se⁷⁸(n,γ)Se^{79m} 1=3453
 Se⁸⁰(n,γ,n') 1=13809
 Si, cross-sections 3-5 MeV 3=19860
 Si detector, 14 MeV neutrons 1=19495
 Si(n,α)Mg, 6-9 MeV, excitation fluctuations 3=19867
 Si(n,α), in semicond. detector 2=1806
 Si(n,α), in the solid, identification 2=18339
 Si(n,p)Al, 6-9 MeV, excitation fluctuations 3=19867
 Si(n,p), in semicond. detector 2=1806
 Si, for production of uniform resistivity samples 1=6156
 Si, 2.8-5.2 MeV, cross-sections 4=6354
 Si, 2-11 MeV γ-ray cross-sections 1=17114
 Si²⁸ 0=5786
 Si²⁸(n,α), up to 5.5 MeV 3=10359
 Si²⁸(n,α)Mg²⁵, Si²⁹ spin cut-off and correlation energy calc. 4=17163
 Si²⁸(n,α), (n,d), (n,p), 14 MeV 2=20651
 Si²⁸(n,α)Mg²⁵, compound nucleus formation 3=15212
 Si²⁸(n,α)Mg²⁵, cross-section oscillations, 12.5-18.5 MeV 2=14117
 Si²⁸(n,α)Mg²⁵, Ericson fluctuations 2=20650
 Si²⁸(n,α)Mg²⁵, 14.6 MeV 2=7996, 12202
 Si²⁸(n,α)Mg²⁵, 12.5-18.5 MeV 3=2473
 Si²⁸(n,p)Al²⁸, absolute cross-sections 3=24949
 Si²⁸(n,p)Al²⁸, ang. distrib. of protons 1=13826
 Si²⁸(n,p)Al²⁸, cross sections, 12.5-21 MeV 4=17151
 Si²⁸(n,p)Al²⁸, DWBA analysis, 14 MeV 2=20656
 Si²⁸(n,p)Al²⁸, use for fast photoneutron detection 1=8688
 Si²⁸(n,p)Al²⁸, 5.2 to 9 MeV, cross-section meas. by solid state detector 4=28045
 Si²⁸(n,p)Al²⁸, 14 MeV 4=9523
 Si²⁸(n,p)Al²⁸, 14 MeV, p ang. distrib., calc., correction 3=17482
 Si²⁸(n,p)Al²⁸, 14.1 MeV, finite range and exchange effects 4=9534
 Si²⁸(n,p), up to 5.5 MeV 3=10359
 Si²⁸(n,p) and Si^{28,29}(n,α), 4.6-8.5 MeV 4=3674
 Si^{28,29}(n,α)Mg^{25,26}, cross sections rel. to Mg^{25,26} levels 4=17162
 Si^{28,29}(n,α)Mg^{25,26}, Mg^{25,26} energy levels 3=8108
 Si²⁹(n,α)Mg²⁶, states in Mg²⁶, 14 MeV 2=7997
 Si²⁹(n,α)Mg²⁶, 2.2-3.8 MeV, cross-sections 4=3677
 Si²⁹(n,α)Mg²⁶, 5.2 to 9 MeV, cross-section meas. by solid state detector 4=28045
 Si³⁰(n,p), and possible Al³⁰ isomer prod. 4=6225
 Sm, capture γ < 1.5 MeV from Sm₂O₃ 4=25412
 Sm(n,γ), γ-spectra 0=11448
 Sm nuclides, capture, 30 keV, and synthesis of elements 3=10354
 Sm¹⁴⁴(n,γ)Sm¹⁴⁵ → Pm¹⁴⁵ 2=18280
 Sm¹⁴⁴(n,2n)Sm¹⁴³ 3=6174
 Sm¹⁴⁴⁻⁵, thermal capture cross-sections 2=18280
 Sm^{147,149}, thermal neutron capture, α-emission 2=18341
 Sm¹⁴⁹(n,α)Nd¹⁴⁶ 2=20652
 Sm¹⁴⁹(n,γ), γ and conversion electrons 3=10353
 Sm¹⁴⁹(n,γ), rel. to Sm¹⁵⁰, 1360 keV spin 4=22041
 Sm¹⁴⁹(n,γ)Sm¹⁵⁰, pile neutron absorption cross-section 0=4125
 Sm¹⁴⁹ + n, resonances, spin determination 4=17172
 Sm^{150,153}(n,γ) 2=3595
 Sm¹⁵¹, fission prod., total cross-section meas. 4=17173
 Sm¹⁵³, resonance and absorption cross-sections 1=17128-9
 Sm¹⁵², total cross-sections 2=5926
 Sn, capture, γ-ray spectra 3=6267
 Sn, at 5 BeV, total cross-section 1=12206
 Sn, γ-spectra, 2.8 MeV inelastic scatt. 1=12204
 Sn(n,p), giving isomeric and ground states of In and Sb isotopes 3=22406
 Sn, radiative capture cross-sections, 30 keV 3=17478
 Sn¹¹²(n,2n), at 12-19.8 MeV, excitation function 1=3452
 Sn¹¹², prod. of Sn^{113m} by thermal neutrons 2=383

Nuclear reactions due to—contd

neutrons—contd

Sn^{112,116,118,119,120}(n,p), 14.5 MeV 3=22410
 Sn^{112,117}(n,p), 14.1 MeV 4=22157
 Sn^{112,124}(n,2n), 14.1 MeV 4=22157
 Sn^{116,120}(n,d) and (n,p) reactions at 14 MeV 1=12209
 Sn^{116-20,122,124}, capture at 18-40 keV 2=24082
 Sn^{116,118,120}(n,p)In^{116,118,120}, isomeric ratios 4=22071
 Sn^{116,120}(n,p), spectra, single-particle effects 1=8742
 Sn^{116-120,122,124}, total cross-sections, 14.2 MeV 3=17483
 Sr, diff. cross-sections, 3.7 MeV 2=1903
 Sr⁸⁴(n,γ)Sr^{85,85m} 1=3453
 Sr⁸⁴(n,2n), at 12-19.8 MeV, excitation function 1=3452
 Sr⁸⁶, reactor activation cross-sections 1=17115
 Ta, capture, γ-ray spectra 3=6266
 Ta(n,γ) 3=15209
 Ta(n,n'), at 14.1 MeV, Monte Carlo calc. 0=13217
 Ta, radiative capture cross-sections, 18-300 keV 3=4648
 Ta, radiative capture cross-sections, 30 keV 3=17478
 Ta, slow-neutron resonance parameters 1=700
 Ta, total cross-section in resonance region 0=5799
 Ta total effective cross-section 1=7408
 Ta total neutron cross-sections, 0.002-0.285 eV 1=13827
 Ta¹⁸(n,α)Lu¹⁷⁸, in fast neutron flux, Lu¹⁷⁸ identified 1=5926
 Ta¹⁸¹, activation meas. 130-1800 keV 4=9536
 Ta¹⁸¹(n,α), 14.7 MeV 3=19864
 Ta¹⁸¹(n,α)Lu¹⁷⁸, 14 MeV, for decay of Lu¹⁷⁸ 4=24356
 Ta¹⁸¹(n,α)Lu¹⁷⁸, yields, 14 MeV 2=14118
 Ta¹⁸¹(n,γ) 1=17116
 Ta¹⁸¹(n,γ), 2.95 MeV 2=10114
 Ta¹⁸¹(n,γ) at 2.95 MeV 3=6256
 Ta¹⁸¹(n,2n), at 12-19.8 MeV, excitation function 1=3452
 Ta¹⁸¹, neutron-activated cross-sections 3=4651
 Ta¹⁸¹, radiative capture cross-sect., 50 keV 4=12248
 Ta¹⁸¹, reactor activation cross-sections 1=17115
 Ta^{182,182m}, pile-neutron activation cross-sections 1=3404
 Tb(n,γ) 3=15209
 Tb, neutron resonances 4=25406
 Te, at 14 MeV, no detectable yield 1=12209
 Te, 14 MeV scattering cross-sections 1=17094
 Te isotopes, (n,α) cross-sections at 14.8 MeV 3=10358
 Te(n,γ) 0=13266
 Te(n,γ), radiative capture cross-section, rel. to neutron energy up to 1.5 keV 4=3679
 Te(n,p) giving isomeric and ground states of In and Sb isotopes 3=22406
 Te, scattering cross-sections, 14 MeV 2=22806
 Te^{120,130}(n,γ)Te^{121,131}, isomeric cross-section ratios 3=675
 Te¹²²(n,p)Sb¹²², proton spectrum and ang. distrib., 14.1 MeV 2=18337
 Te^{126,128,130}, thermal neutron activation cross-sections 2=20647
 Te^{127,129,130}(n,2n), 14.8 MeV, activation cross-sections 3=10358
 Te¹³⁰(n,γ)Te¹³¹ 2=20548
 Th, Doppler effect meas. in fast neutron energy spectrum 4=6418
 Th, effective resonance integral 0=13274
 Th, infinite dilute reson. integral 4=25414
 Th metal, effective resonance integral 2=7998
 Th metal rods, resonance integral 2=5944
 Th(n,3n), 14 MeV 4=12241
 Th, total cross-section, using modified neutron spectrometer 0=9380
 Th, total cross-section in resonance region 0=5799
 Th, total cross-sections, 3.3-5.0 MeV 1=12208
 Th²³⁰, 2200 m/sec neutron capture cross-section 2=5834
 Th²³², capture cross-section, 5-200 keV 4=9543
 Th²³², cross-section, 30-1000 keV 0=7622
 Th²³², effective thermal neutron cross-section 0=7610
 Th²³²(n,γ), 0.1-4 keV, total cross-section 4=19802
 Th²³²(n,γ), at 300-1200 keV 0=5800
 Th²³²(n,2n), cross-section 0=7618
 Th²³²(n,2n)Th²³¹, cross-section 2=12209
 Th²³²(n,2n)Th²³¹, cross-section, 8.34-20.4 MeV 1=7393
 Th²³²(n,2n), at 12-19.8 MeV, excitation function 1=3452
 Th²³², neutron resonances, partial radiation widths 2=464
 Th²³², ratio (n,γ) to (n,2n) fission-neutron cross-sections 0=7617
 Th²³² thermal neutron absorption cross-section 1=17130
 Th^{232,3}, resonance integrals 0=13284

Nuclear reactions due to—contd
neutrons—contd

- Th^{233} thermal neutron absorption cross-section 1=17130
 ThO_2 , effective resonance integral 0=13274
 ThO_2 , grains in graphite matrix, resonance absorpt. 3=6263
 Ti (n, γ), 50 keV-10 MeV, γ -ray cascades 3=24948
 Ti total neutron cross-sections, 0.002-0.285 eV 1=13827
 Ti^{46} (n,2n), at 12-19.8 MeV, excitation function 1=3452
 $\text{Ti}^{46,48,50}$ (n,p), relative 4=19794
 Ti^{46-50} , absolute activation cross-sections at 14.8 MeV 0=456
 Ti^{47} (n,p) Sc^{47} , cross-section, var. with n energy 3=24957
 Ti^{47} (n,p) Sc^{47} , excitation function, 2.0-3.6 MeV 2=10123
 Ti^{48} (n, γ) Ti^{48} , γ - γ ang. correlation 1=8651
 Ti^{48} (n,p) Sc^{48} , Ti^{47} (n,p) Sc^{47} , cross-sections 2=20645
 Ti^{48} (n,p), at 12-18 MeV, cross-section 3=2476
 Ti^{48} (n, γ), polarization of γ -rays 1=13825
 Ti^{50} , 14 MeV, activity 3=10287
 Ti^{50} (n, α) Ca^{47} , cross-sections, 14.5 MeV 2=20645
 Ti , measured cross-sections 4=22160
 Ti^{203} (n,2n), at 12-19.8 MeV, excitation function 1=3452
 Ti^{205} (n, γ) 1=17116
 Ti^{205} (n,2n) Ti^{204} , 14.8 MeV 4=12249
 Ti^{205} radiative capture cross-sections 3=8118
 Tm (n, γ), capture, 60-500 keV γ 's 3=10355
 Tm (n, γ) reaction 4=12246
 U , absorption in U^{238} , effect, 66-100 eV 2=14108
 U carbide, effective resonance integral 0=20499
 U , composition after long-term reactor irradiation 0=15623
 U , inelastic scatt. 2=3583
 U , metal and oxide, resonance integral 2=12203
 U metal and oxide, resonance integral temp. coeff. 3=4687
 U , natural, thermal neutron bombarded 2=14120
 U , non-elastic cross-section, 13-19 MeV 2=3584
 U , product-neutron spectrum 1=17160-1
 U , radiative capture cross-sections, 18-300 keV 3=4648
 U , resonance absorption, effect of geometry 0=13268
 U rod, resonant neutron capture distribution 1=783
 U , slow-neutron capture by bound nuclei, analogue of Mössbauer effect 1=5927
 U^{233} , capture to fission ratio, epithermal n 3=22434
 U^{233} , low-energy cross-sections 1=17162
 U^{233} (n, n), 14 MeV, and n's prod. by fission 4=9578
 U^{233} , resonance energy cross-section, to 25 eV 1=8790
 U^{233} , thermal-neutron absorption cross-section 0=5802
 U^{233} , total cross-section meas., 0.07-10 000 eV 4=17174
 U^{233} , total cross-section, 0.000818-0.0818 eV 0=9705
 U^{233} , total cross-section, 0.02-200 eV, multilevel analysis 0=9703-4
 U^{233} , total cross-section, 3.4-1611 keV 2=14119
 U^{233} total neutron cross-section, 0.02-0.08 eV 1=13829
 U^{233-5} , cross-section meas., 0.02-0.20 eV 1=17131
 $\text{U}^{233,235}$, low-energy cross-sections, analysis 0=9706
 $\text{U}^{233,238}$, ratio of 0.0011 eV absorption to fission cross-sections 0=7639
 $\text{U}^{233-6,8,9}$, resonance integrals 0=13284
 U^{234} , 1 keV-15 MeV, recommended data 4=28048
 $\text{U}^{234,6}$, total cross-sections 0=7646
 U^{235} , absorption reson., screening effect of U^{238} reson., 4-60 eV n 4=1122
 U^{235} , capture cross-section, 0.02-2 eV 3=6258
 U^{235} , cross-section from Breit-Wigner analysis 0=13277
 U^{235} fission 1=19542
 U^{235} fission 1=19543
 U^{235} , fission, emitted neutron spectra 2=14149
 U^{235} fission products, γ -energy production, calc. 1=19572
 U^{235} fission, prompt neutrons per fission study 2=10162
 U^{235} (n, α) Th^{232} evidence 4=3682
 $\text{U}^{235} + \text{n}$, and U^{236} level spacing distrib., errata 4=25327
 U^{235} , neutron energies 1 to 3.5 keV, resonances 1=17112
 U^{235} , neutron resonance parameters, 8-22 eV 2=463
 U^{235} , at 0.15 to 1.0 MeV 0=13272
 U^{235} , radiative neutron capture 2=20686
 U^{235} slow neutron absorption, origin of intense gamma-rays 1=9870
 U^{235} , slow, and U^{236} level distrib. 4=17077
 U^{236} , time-of-flight measurement and resonance analysis 1=13868
 U^{236} total cross section at very low energies 1=709

Nuclear reactions due to—contd
neutrons—contd

- U^{235} , total and fission cross-sections 0=13294
 U^{235} total neutron cross-section, 0.02-0.08 eV 1=13829
 U^{235} , variation of ratio of radiative capture to fission cross-sections 0=5807
 $\text{U}^{235,238}$, cross-sections 1 KeV - 15 MeV 4=12252
 $\text{U}^{235,238}$ (n, f), U^{238} (n, γ), cross-sections 2=3637
 $\text{U}^{235,238}$ (n, f), U^{238} (n, γ), in uranium pile 2=3671
 $\text{U}^{235,238}$ (u, xn), at 14 MeV 0=11181
 U^{236} , activation cross-section 0=5803
 U^{236} , capture cross-sections, 0.30-1.7 MeV 2=5946
 U^{236} , cross-sections, partial and total, 1 keV to 15 MeV 4=25415
 U^{236} (n, γ) U^{237} , cross-section, 0.3-4.0 MeV 2=473
 U^{236} , thermal cross-section 0=7620
 U^{238} , capture cross-sections, 3-200 keV, meas. techniques 0=20487
 U^{238} , capture cross-section, 5-200 keV 4=9543
 U^{238} , capture and fission patterns in EBR-1 (Mk II) 0=13821
 U^{238} , capture γ -rays, transition probab. 1=8667
 U^{238} , cross-section, 30-1000 keV 0=7622
 U^{238} , effective resonance absorption integral, heavy-atom mixtures 1=710
 U^{238} effective resonance integral calculation 1=13830
 U^{238} , effective resonance integral, temp. coeff. 3=12688
 U^{238} , fission obs., 14.7 MeV 2=12231
 U^{238} , 40 keV-16 MeV, optical model calc. 3=4650
 U^{238} , γ from capture 3=4647
 U^{238} , inelastic scatt. cross-section 1=17166
 U^{238} , multiple capture in "Mike" thermonuclear device 0=17512
 U^{238} (n, α) U^{235} , α spectrum meas. 4=15228
 U^{238} (n, γ) 2=12210
 U^{238} (n, γ), partial radiation widths, fluctuations 4=19705
 U^{238} (n, γ), 0.001-5.6 eV, cross-section calc. 4=17175
 U^{238} (n, γ), 0.1-4 keV, total cross-section 4=19802
 U^{238} (n, γ) U^{239} , 0.12-7.6 MeV 4=30343
 U^{238} (n, 2n) U^{237} 0=13267
 U^{238} (n,2n) U^{237} at 15 MeV 1=3454
 U^{238} , neutrons per inelastic collision, 12-19 MeV 2=18342
 U^{238} , at 0.15 to 1.0 MeV 0=13272
 U^{238} , 1 keV-15 MeV, cross-sections, secondary n energies and ang. distrib. 4=12251
 U^{238} , resonance absorption, in close-packed lattice 0=7666
 U^{238} , resonance absorption integral 0=7623
 U^{238} , resonance capture 2=3601
 U^{238} , resonance capture, in U-C and U- H_2O lattices, Monte-Carlo calc. 1=17203
 U^{238} , resonance capture in U metal, UO_2 rods 3=6261
 U^{238} , resonance capture in UO_2 fuel rods 2=5945
 U^{238} , resonance capture in U rods, spatial distribution 0=13275
 U^{238} , resonance escape probab., resonance integrals 3=6262
 U^{238} , resonance, neutron absorpt., 6.7 eV 2=7999
 U^{238} , resonance parameters 3=10357
 U^{238} , resonances up to 1.8 KeV 1=8741
 U^{238} , slow-neutron resonances, up to 1000 eV 0=9685
 U^{238} , total cross-section in resonance region 0=5799
 U^{238} , in uranium oxide, resonance, 4.77 $^\circ$ K, 6-7eV 3=6259
 U-H mixtures, homog., resonance absorption 0=7619
 U-Nb fuel plates, resonance, U^{238} activation 2=22874
 U_3O_8 , slow-neutron capture by bound nuclei, analogue of Mössbauer effect 1=5927
 V , total cross-section 1=17132
 V total effective cross-section 1=7406
 V total neutron cross-sections, 0.002-0.285 eV 1=13827
 V^{50-1} (n, γ) V^{51-2*} , levels in V^{51-2} 1=2173-4
 V^{51} , below 25 keV, s-wave neutron strength function 3=24955
 V^{51} (n, α) Sc^{48} , cross-sections 2=20645
 V^{51} (n, d) Ti^{50} , 14.4 MeV 2=1900
 V^{51} (n, d) Ti^{50} , 14.4 MeV, meas. 3=4652
 V^{51} (n, γ) 1=17116
 V^{51} (n, γ) V^{52} , comp. with V^{51} (d, p) V^{52} 0=7577
 V^{51} (n, p) Ti^{51} , 12-19 MeV 3=15210
 V^{51} , pick-up reaction 1=8749
 V^{51} radiative capture cross-sections 3=8118
 V^{52} (n, γ) 0=4124
 W , capture, γ -ray spectra 3=6266
 W , fast neutron radiative capture cross-section 4=12250

Nuclear reactions due to—contd

neutrons—contd

- W, γ -emission from thermal neutron capture 4=3680
 W isotopes, neutron capture, γ -ray spectra 2=16376
 W(n, γ), resonance capture, γ -spectra meas. 4=6363
 W, radiative capture cross-sections, 18-300 keV 3=4648
 W, radiative capture cross-sections, 30 keV 3=17478
 W total neutron cross-sections, 0.002-0.285 eV 1=13827
 W¹⁸³(n, γ), partial radiation widths, distrib. 4=3669
 W¹⁸³(n, γ)W¹⁸⁴, anomalous γ -intensities 1=8738
 W¹⁸³, partial radiation width fluctuations 0=2623
 W¹⁸⁴, thermal neutron activation cross-section 2=20647
 W¹⁸⁴, reactor activation cross-sections 1=17115
 W¹⁸⁶, (n,pn) and (n,p) cross-sections 0=1446
 W¹⁸⁶, neutron-activated cross-sections 3=4651
 W¹⁸⁶ radiative capture cross-sections 3=8118
 Xe, total cross-sections and isotopic identifications 0=4126
 Xe, total cross-section, 120 keV-6 MeV, 12-20 MeV 0=9676
 Xe¹³⁵, cross-sections, total and absorption 2=22824
 Xe¹³⁵, total cross-section, 0.01 - $\sim 10^3$ eV 0=1444
 Y, radiative capture cross-sections, 30 keV 3=17478
 Y total neutron cross-sections, 0.002-0.285 eV 1=13827
 Y⁸⁹(n, γ) 1=17116
 Y⁸⁹(n,n' γ), level excitation 3=10363
 Y⁸⁹(n, γ)Y^{90m}, new isomer prod. 1=12185
 Y⁸⁹(n,2n), at 12-19.8 MeV, excitation function 1=3452
 Y⁸⁹, thermal-neutron capture 1=10974
 Y⁹⁰(n, γ), polarization of γ -rays 1=13825
 Y⁹¹, capture cross section 1=708
 Yb(n, γ) 3=15209
 Yb¹⁷³(n, γ), partial radiation widths, distrib. 4=3669
 Yb¹⁷⁴(n,p)Tm¹⁷⁴ 1=17113
 Yb¹⁷⁶(n,p)Tm¹⁷⁶ 1=17113
 Yb¹⁷⁶(n,2n)Yb¹⁷⁵, 14.8 MeV meas. 4=12249
 Zn, absorption cross-section 1=2223
 Zn(n, γ) 0=13266
 Zn(n,p), cross-sections, pairing energies 2=14109
 Zn⁶⁴(n, α)Ni⁶¹, at 15 MeV 3=12693
 Zn⁶⁴(n, γ n') 1=13809
 Zn⁶⁴(n,p)Cu⁶⁴, excitation functions 2=20643
 Zn⁶⁴(n,p)Cu⁶⁴ 0=15600
 Zn⁶⁴(n,p)Cu⁶⁴, at 8 and 14 MeV, mechanism 0=20500
 Zn⁶⁴(n,p)Cu⁶⁴, 12-19 MeV 3=15210
 Zn⁶⁴(n,p), at 12-18 MeV, cross-section 3=2476
 Zn⁶⁵(n,t) 1=7391
 Zn⁶⁴(n,2n), (n,p), activation cross-sections, 13.8-14.8 MeV 2=12205
 Zn⁶⁴(n,2n)⁶⁵, excitation function, 12.2-18.1 MeV 0=13288
 Zn⁶⁴(n,2n)Zn⁶³, 12-19.6 MeV 3=12690
 Zn⁶⁴(n,2n)Zn⁶³, 12-19 MeV 3=15210
 Zn^{64,67}(n,p), cross-section, fission neutrons 2=5941
 Zn^{64,66,68}, with 14.8 MeV neutrons 0=7612
 Zn^{64,69}, reactor activation cross-sections 1=17115
 Zn^{64,68}, resonance activation integral meas. 4=6358
 Zn⁶⁶(n, γ n') 1=13809
 Zn⁶⁸(n, γ n') 1=13809
 Zn^{68,70}, thermal neutron activation cross-sections 2=20647
 Zr, capture cross-sections, fast neutrons, energy depend. 4=9535
 Zr(n,n'), at 14.1 MeV, Monte Carlo calc. 0=13217
 Zr(n,p), Zr(n,np), at 14 MeV, proton energy and ang. distrib. 0=15603
 Zr, total neutron cross-sections 4=197 \pm 0
 Zr⁹⁰(n,p)Y^{90m}, new isomer prod. 1=12185
 Zr⁹⁰(n,2n), at 12-19.8 MeV, excitation function 1=3452
 Zr^{90,92,94} 0=5786
 Zr⁹⁰(n,2n)Zr^{90m,g}, 14 MeV 4=9525
 Zr⁹¹, capture γ -ray spectra, s and p-wave resonances 3=24958
 Zr⁹⁴, reactor activation cross-sections 1=17115

nuclei of Z > 2

- See also Ions, scattering.
 α -transfer, distinction bet. direct and exchange processes 4=22214
 collisions of particles of similar e/m, e.m. emission 1=17154
 complex nuclei, complex nucleus mechanism, recoil range evidence 3=6303
 complex nuclei, by heavy ions, product charge distrib. 4=22213

Nuclear reactions due to—contd

nuclei of Z > 2—contd

- complex nucleon transfer reactions, "contact-transfer" mechanism 0=447
 compound nuclear level densities, high ang. momentum cut-off 4=22210
 compound-nucleus formation, cross-section 0=7588
 compound-nucleus formation, cross-section calc. for C, N, O, Ne ions on 7 metals 0=1424
 compound-nucleus formation and exceptions 1=2245
 compound-nucleus processes, statistical theory modification 1=12224
 compound nucleus states with high ang. momentum 4=22212
 conference, Asilomar (April 1963) 4=22192
 Coulomb excitation by N¹⁴ and Ne³⁰ ions 3=10237
 Coulomb multiple excitation with heavy ions 0=17487
 direct interactions, indirect aspects 4=22207
 in emulsion at 250 BeV/nucleon 1=7240
 grazing collisions of heavy ions, nucleon transfer mechanism 1=735-6
 heavy-ion-induced fragmentation 2=1934
 heavy-ion induced reactions, apparatus for investigation 1=782
 heavy ion induced, rotating charged drop, equilib. shapes 4=22211
 heavy ion-nuclei transfer reactions, neutron detection 2=10146
 heavy-ion reactions, compound-nuc. formation 3=24979
 (heavy ion, xn)Dy^{149,150,151}, x = 3 to 9 4=22234
 (heavy ion, xn)Tb¹⁴⁹, x = 3 to 8 4=22234
 heavy ions, scattered on medium and heavy nuclei 3=15232
 heavy ions, survey 1=13860
 heavy nuclei with C¹², O¹⁶-type nuclei, α -part. transfers 4=9570
 high energy central collisions of heavy primary cosmic rays 4=27925
 liquid-drop model 1=3383
 meson production 1=13459
 neutron evap. theory 0=5736
 neutron evaporation, ang. momentum effect 3=17499
 neutron evaporation, ang. momentum effects 4=19831
 neutron transfer, cross-sect. rel. to energy 3=8139
 neutron transfer, cross-section rel. to energy 2=20682
 nucleon transfer in heavy-ion grazing collisions, mechanism 1=735-6
 nucleon-transfer scatt., direct-interaction theory 4=12281
 nucleon transfer theory, approximations 4=22 \pm 05
 nucleons colliding with complex nuclei, interaction cross-section and energy conserved 4=28021
 nucleus-nucleus scattering, at high energy, theory 2=1909
 p, α transfer, in collisions 3=6296
 in photographic emulsion, multicharged-particle interaction 3=24985
 proton prod. delayed, after β' decay 4=28066
 range of heavy ions, up to 100 MeV energy 4=25438
 reaction mechanism 0=15585
 recoils of Tb¹⁴⁹, At and Po, ranges and straggling in Al and Au 1=2244-5
 review, nuclear structure evidence 1=8781
 review of recent advances 4=19827
 secondary reactions in Bi and Pb α -, p- and d-bombardment 4=19834
 single-nucleon transfer reactions of F¹⁹, C¹⁶, N¹⁴ and C¹² 1=736
 in stars, synthesis of α -particle nuclei heavier than Ne²⁰ 0=18867
 statistical theory, allowance for ang. momenta of the nuclear states 1=12224
 stripping, interference concepts 4=22193
 transfer reaction products, ang. distrib. calc. 4=19829
 transfer reaction products, angular distrib. 4=22206
 transfer reactions, distorted wave analysis 4=22208
 transfer reactions, mechanism 0=4106
 transuranium elements production 2=7778
 Z=6, 7, 8, from cosmic radiation, in nuclear emulsions 2=1936
 A⁴⁰(O¹⁶), at 153 MeV 2=16489
 Ag + Be⁹ \rightarrow Be⁸ 3=24981
 Ag (N, α p), at 65 MeV 0=13248
 Ag(N¹⁴) 1=8786
 Ag-Ne³⁰, 200 MeV 4=22232
 Al, fragment identity and energy 0=4104

Nuclear reactions due to—contd
nuclei of $Z > 2$ —contd

Al isotope prod. in sec. reactions in Bi and Pb
 α -, p- and d-bombardment 4=19834
 Al²⁷, Li⁶-induced reactions at 1-63.3 MeV 1=12223
 Al²⁷(C¹²), excitation function 2=3627
 Al²⁷(F¹⁹, F¹⁸), neutron transfer 2=10148
 Al²⁷(Li⁶, 5p, 4n)Na²⁴ 1=5942
 Al—N¹⁵ react., N¹⁷ production 3=2501
 Al—N¹⁵ reaction, N¹⁷ production 2=3629
 Al²⁷(N¹⁴, α)A³⁷, at 28 MeV, stripping mechanism 1=740
 Al²⁷(N¹⁴, Mg²⁷)O¹⁴, thick-target yield 0=17610
 Al²⁷(N¹⁴, N¹⁷), detection apparatus 2=10146
 Al²⁷(N¹⁴, O¹⁵)Mg²⁶, 27.5 MeV, single nucleon transfer excitation 4=22230
 Al²⁷(N¹⁴), excitation function 2=3627
 Al + N¹⁴ → N¹³, with neutron transfer 3=2502
 Al + N¹⁴ → N¹⁷, with neutron transfer 3=2502
 Al + N¹⁵ → N¹⁷, with neutron transfer 3=2502
 Al with Ne²⁰, N¹⁴ ions, neutron pick-up and proton stripping 2=12226
 Al with Ne²⁰, N¹⁴ ions, neutron pick-up and proton stripping 3=6302
 Al—Ne²², N¹⁷ production 3=2501
 Al—O¹⁶ react., N¹⁷ production 3=2501
 Al²⁷, due to 27.5 MeV N¹⁴ ions 3=6301
 Al²⁷(N¹⁴, O¹⁸)Mg²⁶, 27.5 MeV, near barrier 3=12703
 Al²⁷(Ne²⁰, 2pn)Sc⁴⁴, cross-section ratio 4=6382
 Al²⁷(Ne²², α n + 2p3n)Sc⁴⁴, cross-section ratio 4=6382
 Al—Ne²², N¹⁷ production 2=3629
 Al²⁷(O¹⁶), excitation function 2=3627
 Al²⁷(O¹⁶, F¹⁶)Mg²⁷ 2=3628
 Al²⁷(O¹⁶, F¹⁷)Mg²⁶ 2=3628
 Al²⁷(O¹⁶, γ) 1=5943
 Al²⁷(O¹⁶, O¹⁵)Al²⁸ 2=3628
 Al (O¹⁶), at 160 MeV, neutron emission 1=17157
 Al—O¹⁶ reaction, N¹⁷ production 2=3629
 Al²⁷(O¹⁶, N¹⁵)Si²⁸ near Coulomb barrier, proton final state transfer 4=3706
 Al²⁷(O¹⁶, N¹⁵)Si²⁸, 30 MeV, N¹⁵ ang. distrib. 4=22228
 At²¹¹ formation cross-section 1=2245
 Au, bombardment by C and Ne ions 1=19386
 Au(C¹²), At cpd. nuclei decay 2=14141
 Au¹⁹⁷(C¹²), α spectra and ang. distrib. 2=499
 Au¹⁹⁷(Li⁶, α p)Au¹⁹⁸, excitation functions, 15-40 MeV 3=19888
 Au¹⁹⁷(Li⁶, Li⁷)Au¹⁹⁸, excitation functions, 15-40 MeV 3=19888
 Au¹⁹⁷(N¹⁴), α spectra and ang. distrib. 2=499
 Au¹⁹⁷(N¹⁴, N¹³)Au¹⁹⁸, N¹³ ang. distrib., neutron transfer and tunnelling mechanism 0=15584
 Au¹⁹⁷(O¹⁶), α spectra and ang. distrib. 2=499
 Au (O¹⁶), at 160 MeV, neutron emission 1=17157
 Au—O¹⁶, 164-142 MeV 4=22237
 Au¹⁹⁷(O¹⁶, 2pxn and 3pxn)At, Po, recoil study 1=2245
 B¹⁰(Li⁷, d)N¹⁵, 3.5 to 4.5 MeV 4=22220
 B¹¹(Li⁶, d)N¹⁵, 3.5 to 4.5 MeV 4=22220
 B¹⁰(Li⁶, p)N¹⁵, 3.5 to 4.5 MeV 4=22220
 B¹⁰, Li⁷, 3.5 to 4.5 MeV ang. distributions 4=22220
 B¹⁰, ¹¹ + Li⁶, ⁷, gamma-rays 3=15238
 B¹¹(Li⁷, t)N¹⁵, 3.5 to 4.5 MeV 4=22220
 B¹⁰(N¹⁴, C¹³)C¹¹, range and ang. distrib. 3=17501
 B¹⁰(N¹⁴, C¹³)C¹¹, at 27.5 MeV 2=3626
 B¹⁰(N¹⁴, C¹³)C¹¹, at 28 MeV 1=19531
 B¹¹(N¹⁴, C¹³)C¹², at 27.5 MeV 2=3626
 B¹¹(N¹⁴, C¹³)C¹², at 28 MeV 1=19531
 B¹¹, N¹⁴, F¹⁹ on light nuclei, induced transfer 4=22209
 B¹⁰(N¹⁴, N¹³)B¹¹, range and ang. distrib. 3=17501
 B¹⁰(N¹⁴, N¹³)B¹¹, at 28 MeV 1=19531
 B¹⁰(N¹⁴, O¹⁵)Be⁹, at 27.5 MeV 2=3626
 B¹⁰(N¹⁴, O¹⁵)Be⁹, at 28 MeV 1=19531
 B¹¹, due to 27.5 MeV N¹⁴ ions 3=6301
 Ba^{136, 137, 138}—Li⁶ Li⁷, B¹⁰, C¹², N¹⁴, Sm¹⁴² recoil range study 4=22233
 Ba(Ne²², pxn)Tb¹⁴⁸, recoil study 1=2245
 Be⁹ disintegration in Coulomb field of heavy nuclei 3=24977
 Be⁸, by Li⁶, α - γ coincidences 3=19157
 Be⁹ projectiles, α -stripping by black targets 2=8011
 Be⁹(He³, n)C¹¹ 2=18360
 Be⁹(Li⁶, α)B¹¹, α -particle angular distrib. 1=17156
 Be⁹(Li⁶, α)B¹¹, α -particle study 2=500

Nuclear reactions due to—contd
nuclei of $Z > 2$ —contd

Be⁹(Li⁶, α)B¹¹, stripping 1=19532
 Be⁹(Li⁶, α)B¹¹, stripping analysis 1=13864
 Be⁹(Li⁶, α)B¹¹, at 2-4 MeV, diff. cross-sections 1=738
 Be⁹(Li⁶, α)B¹¹, at ~ 3 MeV, diff. cross-section 2=503
 Be⁹(Li⁶), γ -rays produced, using 2 MeV Li 1=13862
 Be⁹ + Li⁶, ⁷, gamma-rays 3=15238
 Be⁹(Li⁷, α)B¹², at ~ 3 MeV, diff. cross-section 2=503
 Be⁹(Li⁷, Li⁸)Be⁸, ang. distrib. of Li⁸ 0=4108
 Be⁹(Li⁷, Li⁸)Be⁸, Coulomb distorted-wave approx. 3=24980
 Be⁹(Li⁷, Li⁸)Be⁸, at 1.1-4.0 MeV, excitation function and model 1=737
 Be⁹(Li⁷, Li⁸)Be⁸, classical analysis 0=17611
 Be⁹(Li⁶, 2n)N¹³, at < 4 MeV 1=3462
 Be⁹(O¹⁶, α γ)Ne²¹, 24 MeV 4=22017
 Bi²⁰⁹(C¹²), p and α spectra and ang. distrib. 2=499
 Bi(N, α) at 102 MeV 0=13249
 Bi²⁰⁹(N¹⁴), α spectra and ang. distrib. 2=499
 Bi²⁰⁹(O¹⁶), p and α spectra and ang. distrib. 2=499
 Br, spallation element yield for high energies 4=12228
 Br + Be⁹ → Be⁸ 3=24981
 Br—Ne²⁰, 200 MeV 4=22232
 C ion bombardment of W, Re, Os, Ir 2=392
 C ions with emulsion nuclei 2=16439
 C with Ne²⁰, N¹⁴ ions, neutron pick-up and proton stripping 3=6302
 C, scattering of N ions 0=7590
 C—N¹⁵ react., N¹⁷ production 3=2501
 C—Ne²² react., N¹⁷ production 3=2501
 C¹², excitation curves on various nuclei for p, n, α and γ prod. 1=8783
 C¹²(γ , 3 α), in photographic emulsions 4=19751
 C¹²-induced compound-nucleus reactions, γ -emission 2=18358
 C¹² ions in emulsion, Coulomb disintegr. into 3 α -particles 0=20421
 C¹² ions, neutron yields on range of nuclei 0=9647
 C¹² projectiles, α -stripping by black targets 2=8011
 C¹² + B¹⁰ → B¹⁰ + 3 α , for 30-90 MeV B¹⁰ 4=6381
 C¹²(B¹¹, Be⁹)N¹⁴, 115.5 MeV 4=22221
 C¹²(B¹¹, Be¹⁰)N¹⁴, 115.5 MeV 4=22221
 C¹² on Be, C, Al, Fe, Ni, Cu, Ag, Sn, Ta, Au, 114 \pm 5 MeV 4=22219
 C—C inelastic scatt. 2=12225
 C(C¹²), at 9-29 MeV, p, n, α , γ yields, "molecular" bound state 0=13251-3
 C—O¹⁶ react., N¹⁷ production 3=2501
 C¹²(C¹², α γ) 2=1810
 C¹²(C¹², α γ)Ne²⁰, α - γ angular correlations 2=1933
 C¹²(C¹², α)Ne²⁰ 1=18116
 C¹²(C¹², α)Ne²⁰ 2=1807
 C¹²(C¹², α)Ne²⁰, energy levels of Ne²⁰ 4=15149
 C¹²(C¹², α)Ne²⁰, 5- and 6+ states of Ne²⁰ 4=15148
 C¹²(C¹², α)Ne²⁰, levels in Ne²⁰ 1=16989-91
 C¹²(C¹², α)Ne²⁰, rel. to levels of Ne²⁰ 4=25298
 C¹²(C¹², α)Ne²⁰, α - γ ang. correl. 2=3623
 C¹²(C¹², α)Ne²⁰, 9-15.6 MeV centre of mass energies 4=22223
 C¹²(C¹², α)Ne²⁰, occurrence in stars 0=14466
 C¹²(C¹², α)Ne²⁰, rate at stellar temp. 0=18867
 C¹²(C¹², α)Ne²⁰ at 16.6 MeV 2=1809
 C¹²(C¹², α)Ne²⁰, 10.3 to 12.8 MeV, high spin resonances 4=22224
 C¹²(C¹², α)Ne²⁰, at 12.5 MeV 1=19534
 C¹²(C¹², C¹²*)C¹²*, meas. rel. to two-phonon surface interaction 2=5972
 C¹²+C¹² fragmentation at 168 MeV 2=1934
 C¹² + C¹², 123 MeV, α , p ang. distrib. 3=17500
 C¹²(C¹², He⁴)Ne²⁰, spins of Ne²⁰ levels 2=7932
 C¹²—C¹² inelastic scatt., 126 MeV 3=15101
 C¹²(C¹²), at 120 MeV 0=5760
 C¹²(C¹², α)Ne²⁰, high spin resonances 3=19889
 C¹²(C¹², α)Ne²⁰, quasimolecular states 3=12704
 C¹²(C¹², p)Na²³ 1=18116
 C¹² + C¹², quasi-molecular resonances, spin assignments 1=8784
 C¹²—C¹², scatt. resonance 2=5971
 C¹²—C¹² scattering, rel. to "nuclear molecule" 1=17153
 C¹² + C¹² → 6 α , at 115 MeV 3=15235
 C¹²—Co⁵⁹, excitation functions and range distrib. 2=20679
 C¹²—He³ inelastic scatt. at 28.5 MeV 3=8129

Nuclear reactions due to—contd
nuclei of $Z > 2$

- $C^{13} + Li^6, \gamma$, gamma-rays 3=15238
 $C^{12}(Li^6, \alpha)N^{14}$, differential cross-section 2=14143
 $C^{12}(Li^6, \alpha)N^{14}$, heavy particle stripping 2=14142
 $C^{12}(Li^6, \alpha)N^{14}$, 1-2 MeV 4=22216
 $C^{12}(Li^6, \alpha)N^{14}$, rel. to stripping theory 2=16440
 $C^{12}(Li^6, d)O^{16}$, 3.4-4.0 MeV, differential cross-section 3=6298
 $C^{12}(Li^6, p)O^{17}$, 3.4-4.0 MeV, differential cross-section 3=6298
 $C^{12}(Li^7, \alpha)N^{15}$, differential cross-section 2=14143
 $C^{13}(Li^6, \alpha)N^{16}$, 3.4-4.0 MeV, differential cross-sections 4=19832
 $C^{12}(Li^6, n)F^{17}$, at < 4 MeV 1=3462
 $C^{12}(Li^7, n)F^{18}$, at < 4 MeV 1=3462
 $C^{13}(Li^6)$ and $C^{12}(Li^7)$, various products, using 2 MeV Li 1=13861
 $C^{12} + Li^6$ at 3 MeV, ang. distrib. meas. 3=8136
 $C^{12}-Mn^{55}$, excitation functions and range distrib. 2=20679
 $C^{12}(N^{14})$, at 140 MeV 0=5760
 $C-N^{15}$, reaction, N^{17} production 2=3629
 C with Ne^{20} , N^{14} ions, neutron pick-up and proton stripping 2=12226
 $C-Ne^{22}$ reaction, N^{17} production 2=3629
 $C(O)$, no resonances detected 0=13251-3
 $C-O^{16}$ reaction, N^{17} production 2=3629
 $C^{12}(O^{16}, \alpha)Mg^{24}$, 16.8 to 21.6, 30.0 to 32.9 MeV, fluctuations 4=22225
 $C^{12}(O^{16}, \alpha)Mg^{24}$, 25 and 30 MeV, excitation functions 4=1110
 $C^{12}(O^{16})$, at 160 MeV 0=5760
 $Cd^{114}(Ar^{40}, xn)Dy^{149-151}$, $x = 5-3$, cross-sections, energy depend. 4=19833
 $Cd^{116}(Ar^{40}, xn)Dy^{149-151}$, $x = 7-5$, cross sections, energy depend. 4=19833
 $Ce(N^{14}, xn)Tb^{149}$ recoil study 1=2245
 $Cf + B$, prod. of element 103, Lw^{257} 1=13700
 $Cl^{35}(N^{14}, N^{15})Cl^{34m}$, 27.5 MeV, near barrier 3=12703
 $Cl^{35}(N^{14}, N^{15})Cl^{34m}$, 27.5 MeV, single nucleon transfer excitation 4=22230
 $Cl^{35}(N^{14}, O^{16})S^{34}$, 27.5 MeV, near barrier 3=12703
 $Cl^{35}(N^{14}, O^{16})S^{34}$, 27.5 MeV, single nucleon transfer excitation 4=22230
 $Cl^{35,37}$, due to 27.5 MeV N^{14} ions 3=6301
 $Cm(C^{13}, xn)[\text{element } 102]$ 0=7498
 $Cs^{133}-Li^6, B^{10}, C^{12}, N^{14}$, Sm^{143} recoil range study 4=22233
 $Cu + N^{14} \rightarrow N^{17}$, with neutron transfer 3=2502
 $Cu-N^{15}$ reaction, N^{17} production 2=3629
 $Cu + N^{16} \rightarrow N^{17}$, with neutron transfer 3=2502
 $Cu(Ne^{22}, \gamma)$, 74-145 MeV 3=24986
 Cu with Ne^{20} , N^{14} ions, neutron pick-up and proton stripping 2=12226
 Cu with Ne^{20} , N^{14} ions, neutron pick-up and proton stripping 3=6302
 $Cu-Ne^{22}$, react., N^{17} production 3=2501
 $Cu-Ne^{22}$ reaction, N^{17} production 2=3629
 $Cu(O^{16}, \gamma)$, 74-145 MeV 3=24986
 $Cu(O^{16})$, at 160 MeV, neutron emission 1=17157
 $Cu-O^{16}$ react., N^{17} production 3=2501
 $Cu-O^{16}$ reaction, N^{17} production 2=3629
 Dy cpd. nuclei, neutron emission, ang. momentum effects 4=9572
 $Dy^{149-151}$, production, energy and ang. momentum removed by neutrons and protons 4=9571
 F^{19} , due to 27.5 MeV N^{14} ions 3=6301
 $F^{19}(C^{13}, \gamma)P^{32}$, yield 3=19890
 (F^{19}, F^{18}) neutron transfer reactions survey 2=10148
 $F^{19}(Li^6, Li^7)F^{20}$, at < 4 MeV 1=3462
 $F^{19}(N^{14}, p)P^{32}$ 1=11041
 Fe^{54} , by 21-63 MeV Li^6 , effects of ang. momentum and closed shells on nuclear level densities 4=9575
 Fe^{54} , by 21-63 MeV Li^6 , excitation functions 4=9574
 $Ho(N^{14})$, prod. of $Ta^{173,174}$ 0=9605
 $I^{127}(Li^7, 3n)Ba^{131m}$ 3=8000
 $K^{39}(N^{14}, O^{16})Ar^{38}$, 27.5 MeV, near barrier 3=12703
 $K^{39}(N^{14}, O^{16})Ar^{38}$, 27.5 MeV, single nucleon transfer excitation 4=22230
 La^{139} , by 80-140 MeV O^{16} , bombardment 2=10036
 $La^{139}-Li^6, Li^7, B^{10}, C^{12}, N^{14}$, Sm^{142} recoil range study 4=22233
 $La^{139}(O^{16}, 6n)Tb^{149}$, recoil study 1=2245
 $La^{139}(O^{16}, 8n)Tb^{149}$, recoil study 1=2245

Nuclear reactions due to—contd
nuclei of $Z > 2$ —contd

- (Li^6, α) , rel. to α -particle stripping 2=1857
 (Li^6, d) , deuteron angular distrib. 1=17156
 Li^6 dissociation mechanism study 4=15241
 Li^6, γ -induced reactions at < 4 MeV 1=3462
 Li^6 , interaction with Be 1=13863
 Li^6 ions, Coulomb disintegration, cluster-model theory 4=3705
 Li^6 stripping reactions, theory 2=3542
 $Li^6 + B^{10}$, activated nuclear complexes, break-up 4=30358
 Li^6, B^{10} , binary dissociation on C and Ni targets 4=22222
 Li^6 with B^{10} , 1-5 MeV, α spectra 4=17203
 $Li^6 + Be^9$, mechanism of reaction 2=501
 $Li^6 + Be^9, Li^7, B^{10}$ population ratios, 1.5 to 2.9 MeV 2=20681
 Li^6 in C^{12} 2=502
 $Li^7(C^{12}, p\gamma)O^{18}$, rel. to O^{18} state lifetimes 4=22016
 $Li^7(He^3, n)$ 2=18360
 $Li-Li$, charged particle emission meas. 3=6300
 $Li^6 + Li^6, \gamma$, activated nuclear complexes, break-up 4=30358
 $Li^6 + Li^7 \rightarrow \alpha + Be^9$ 3=8137
 $Li^6(Li^6, \alpha)Be^8 \rightarrow 3\alpha$, 1.9 MeV, mechanism 3=22430
 $Li^6(Li^6, \alpha)Be^8$, rel. to structure of Be^8 2=10147
 $Li^6(Li^6, \alpha)Be^{8*}; Be^{8*} \rightarrow 2\alpha$ 4=22218
 $Li^6(Li^6, \alpha)Be^8$, 1-2 MeV 4=22216
 $Li^6(Li^6, \alpha)Be^8$, 3.4 MeV, analysis 4=12282
 $Li^6(Li^7, \alpha)Be^8$ and Be^9 levels 4=28069
 $Li^6(Li^7, \alpha)Be^9$, 2 MeV, Be^9 spectrum 4=17204
 $Li^7(Li^6, \alpha)Be^{8*}$, neutron spectrum from Be^{8*} decay 4=17205
 $Li^7(Li^7, \alpha)Be^{10}$, 2.30-3.77 MeV, differential cross-sections 4=17206
 $Li^6 + Li^6, Be^7, Li^7, B^{10}$ population ratios, 1.2 to 2.8 MeV 2=20681
 Li^6 with Li^6 and Be^9 , product nuclei states 4=17202
 $Li^6 + Li^6 \rightarrow Be^8 + \alpha$, ang. distrib. 3=6299
 Li^6-Li, Be, B , 3 MeV, two-parameter analysis 3=22217
 $Li^6(Li^6, d)B^{10}$, isotopic spin selection rule, cluster model 1=3463
 $Li^6(Li^6, d)B^{10}$, at 6 MeV 1=19533
 $Li^7(Li^6, d)B^{11}$, at 2.1 MeV, ang. distrib., stripping mechanism 1=739
 $Li^7(Li^7, p)B^{13}$, at 2 MeV, levels in B^{13} 0=4023
 $Li^6, \gamma(Li^6, \gamma)$, products identified from γ -rays 2=14144
 $Li^6(Li^7, t)B^{10}$, 3=15167
 $Li^6(Li^7, t)B^{10}$, isotopic spin selection rule, cluster model 1=3463
 $Li^7(Li^6, t)B^{10}$, at 6 MeV 1=19533
 $Li^6(Li^7, t)B^{10}$, at 2.1 MeV, ang. distrib., stripping mechanism 1=739
 Li^6 on Li^6 target nuclei, product nuclei 1st excited levels 4=17020
 Li^6 with Li^6 target nuclei, 1-5 MeV 4=17203
 $Li^6, \gamma(Li^6, \gamma)$, at 2.6 and 3.6 MeV, γ -rays from residual nuclei 3=685
 $Li^6 + Li^6$, 2-4.4 MeV, analysis 4=25440
 $Li-Li$, 2 MeV, ang. distrib. and total cross-sect. 4=22215
 $Li^6 + Li^6$, 2 MeV, product energy and angle distrib., and $Li^6 + Li^6$ complex 3=22431
 $Li^7(Li^6, 2n)C^{11}$, at < 4 MeV 1=3462
 $Li^6, \gamma(N^{14}, \alpha)O^{16,17}$, α ang. distrib. 4=28068
 $Li-N^{15}$ reaction, N^{17} production 2=3629
 $Li-N^{15}$ react., N^{17} production 3=2501
 $Li-Ne^{22}$ reaction, N^{17} production 2=3629
 $Li-Ne^{22}$ react., N^{17} production 3=2501
 $Li-O^{16}$ react., N^{17} production 3=2501
 $Li-O^{16}$ reaction, N^{17} production 2=3629
 $Li^7(O^{16}, p\gamma)Ne^{23}$, rel. to Ne^{23} state lifetimes 4=22016
 (Li^7, t) , rel. to α -particle stripping 2=1857
 $Mg^{24}(N^{14}, N^{15})Mg^{25}$, at 28 MeV 1=19531
 $Mg^{24}(N^{14}, N^{15})Mg^{25}$, N^{15} nuclei meas. 2=12227
 N^{14} ions, 140 MeV, stripping and pickup reactions on Al, Cu and Sn 0=447
 $N^{14,44}$ ions, excitation of Cu, Ge, Mo, Pd 3=10260
 $N^{14}-Co^{59}$, excitation functions and range distrib. 2=20679
 N^{14} ions, neutron yields on range of nuclei 0=9647
 N^{14} , on N^{14} , excitation curves for p, n, α and γ prod. 1=8783
 $N^{14} + B^{10} \rightarrow C^{12} + 3\alpha$, for 30-90 MeV B^{10} 4=6381
 $N^{14} + B^{10} \rightarrow 6\alpha$, for 30-90 MeV B^{10} 4=6381

Nuclear reactions due to—contd

nuclei of $Z > 2$ —contd

- N^{14} on C^{12} , O^{16} , Na^{23} , Al^{27} , 27 MeV, angular momentum effects 4=22226
- N^{14} - F^{19} , at 21.4 and 27.4 MeV 1=19535
- $N^{14}(Li^6, He^3)O^{16}$, $N^{14}(Li^6, d)F^{18}$, at < 4 MeV 1=3462
- $N^{14}(Li^7, t)F^{18}$, at < 4 MeV 1=3462
- $N^{14}(N^{14}, N^{13})N^{15}$, angular distrib. and N^{13} range 1=11040
- $N^{14}(N^{14}, N^{13})N^{15}$, neutron transfer 4=22227
- $N^{14}(N^{14}, N^{13})N^{15}$, neutron transfer to ground state, meas. 4=12283
- $N^{14}(N^{14}, N^{13})N^{15}$, neutron transfer theory at low energies 4=9573
- $N^{14}(N^{14}, N^{13})N^{15}$, at 20-28 MeV, neutron-transfer study 1=3464
- $N^{14}(N^{14}, N^{13})N^{15}$, at 28 MeV 1=19531
- N^{14} - N^{15} , excitation functions and range distrib. 2=20679
- N^{14} - O^{16} , at 27.2 MeV 1=19535
- $Na^{23}(Li^6, Li^3)Na^{24}$, at < 4 MeV 1=3462
- $Na^{23}(N^{14}, \alpha p)P^{32}$, $Na^{23}(N^{14}, \alpha p)Si^{31}$, analysis on compound nucleus model 0=13247, 15585
- $Nb(C^{12}, xn, xp)$ 1=17155
- $Nb^{93}(C^{12-3})$, prod. of Ag^{106-6} , excitation functions 0=9650
- $Nb(O^{16}, xn, xp)$ 1=17155
- $Nd^{144}(C^{12}, n)Dy^{149}$, 108 MeV, recoil range straggling in He 4=22235
- Ne^{20} ions, neutron yields on range of nuclei 0=9647
- Ne^{20} ions, 200 MeV, in emulsion 0=20470
- Ne^{20} ions, 200 MeV, in nuclear emulsions 2=504-5
- Ne^{20} with Ag and Br in emulsion 4=17207
- $Ni + N^{14} \rightarrow N^{13}$, with neutron transfer 3=2502
- Ni , with Ne^{20} and O^{16} , production of proton emitting nuclei 4=30319
- $Ni + Ne^{20}$, 130 MeV, delayed p emission 4=28067
- $Ni(O^{16}, \alpha)$, at 162 MeV, Monte Carlo calc. 0=13217
- Ni , O^{16} ion bombard. at 160 MeV, compound nucleus evaporation 1=734
- $Ni(O^{16})$, at 160 MeV, neutron emission 1=17157
- $O(O)$, no resonances detected 0=13251-3
- O^{16} , excitation curves on various nuclei for p, n, α and γ prod. 1=8783
- $O^{16}(\gamma, p)N^{15}$, 31 MeV 4=9478
- $O^{16}(\gamma, 2n)O^{14}$, photoneutron threshold meas. 4=30335
- O^{16} ions, 160 MeV, stripping and pickup reactions on Al, Cu and Sn 0=447
- O^{16} projectiles, α -stripping by black targets 2=8011
- $O^{16} + Al^{27}$ fragmentation at 168 MeV 2=1934
- O^{16} -Al[Ni, Ag, Au], 167 MeV, charged particle emission 4=22229
- O^{16} -Al[Ni, Ag, Au], $Li^{6,7,8}$ emission 167 MeV reaction 4=22229
- $O^{16} + B^{10} \rightarrow N^{14} + 3\alpha$ for 30-90 MeV B^{10} 4=6381
- O^{16} on Be, C, Al, Fe, Ni, Cu, Ag, Sn, Ta, Au, 150 \pm 8 MeV 4=22219
- O^{16} - Co^{59} , excitation functions and range distrib. 2=20679
- $O^{16}(Li^6, n)Na^{21}$, $O^{16}(Li^6, He^4)F^{18}$, at < 4 MeV 1=3462
- O^{16} - Mn^{55} , excitation functions and range distrib. 2=20679
- $O^{16}(N^{14}, \alpha)Al^{26}$, at 28 MeV, stripping mechanism 1=740
- $O^{16} + N^{14}$, $O^{16} + O^{16}$, compound nucleus formation 2=3625
- $O^{16}(N^{14}, 3p)Mg^{27}$, thick-target yield 0=17610
- $O^{16}(N^{14}, O^{15})N^{15}$, 27.5 MeV, single nucleon transfer excitation 4=22230
- $O^{16}(O^{16})$, heavy fragments prod. 2=5974
- P^{31} , due to 27.5 MeV N^{14} ions 3=6301
- $P^{31}(N^{14}, \gamma)Ti^{45}$, at 27 MeV, cross section 2=18363
- $P^{31}(N^{14}, N^{13})P^{32}$, 27.5 MeV, single nucleon transfer excitation 4=22230
- $P^{31}(O^{16}, \gamma)$ 1=5943
- Pb, bomb. with O and C ions, prod. of α -emitters 0=9552
- Pb(C^{12}), α -emitting nuclei prod. 2=14014
- Pb(C^{12}), α -emitting nuclei prod. 3=6193
- $Pb^{207}(N^{14}, N^{13})Pb^{208}$, neutron transfer 4=22238
- $Pb^{207}(N^{14}, N^{13})Pb^{208}$, at 112 MeV 2=1935
- $Pb^{208}(N^{14}, N^{13})Pb^{209}$, at 112 MeV 2=1935
- $Pr^{141}(C^{12}, 4n)Tb^{149}$, recoil study 1=2245
- $Pr^{141}(C^{12}, 4n)Tb^{149}$, recoil study, comp. with theory 2=22854
- Pr^{141} - $Li^6[Li^7, B^{10}, C^{12}, N^{14}]$, Sm^{142} recoil range study 4=22233
- $Pr^{141}(O^{16}, 2p6n)Tb^{149}$, recoil study 1=2245
- $Pt(C^{12, 13}, \gamma)Po^{196-204}$ 0=7589
- $Pt(N^{14})$, At cpd. nuclei decay 2=14141

Nuclear reactions due to—contd

nuclei of $Z > 2$ —contd

- $Pu^{239, 241}$ prod. of No 0=7497
- Pu^{241} , neutron-evaporation and fission by heavy ions 0=11463
- $Pu^{241}(C^{13}, 4n)Fm^{250}$ 0=9649
- Rh(C^{12}, C^{11}), at 10 MeV/nucleon, ang. distrib., nucleon transfer mechanism 1=736
- Rh(F^{19}, F^{18}), at 10 MeV/nucleon, ang. distrib., nucleon transfer mechanism 1=736
- Rh(N^{14}, N^{13}), at 10 MeV/nucleon, ang. distrib., nucleon transfer mechanism 1=736
- Rh(O^{16}, O^{15}), at 10 MeV/nucleon, ang. distrib., nucleon transfer mechanism 1=736
- S^{32} - He^3 inelastic scatt. at 28.5 MeV 3=8129
- $S^{32}(N^{14}, O^{15})P^{31}$, 27.5 MeV, near barrier 3=12703
- $S^{32}(N^{14}, O^{15})P^{31}$, 27.5 MeV, single nucleon transfer excitation 4=22230
- $S^{32}(O^{16}, 3pn)Sc^{44, 44m}$, cross-section ratio 4=6382
- $Sc^{44, 44m}$, isomer pair formation in reactions of direct interactions with heavy ions, ratio of cross-sections 4=28070
- $Sc^{45}(N^{14}, N^{15})Sc^{44(m)}$, 27.5 MeV, single nucleon transfer excitation 4=22230
- $Se^{60}(O^{16}, 3n)$, production of Mo^{93m} 0=11335
- Si, due to 27.5 MeV N^{14} ions 3=6301
- Sm^{142} product recoil from Eu and Gd cpd. systems 4=15243
- Sm^{142} product recoil from Sm cpd. nucleus mechanisms 4=15242
- $Sn(C^{12}, \gamma)$, at 78 MeV 0=13250
- $Sn(O^{16})$, mechanism 0=4106
- $Sn^{124} + O^{16} \rightarrow Ce^{134, 135, 137m}$, excitation functions 3=15233
- $Sn^{124} + O^{16} \rightarrow La^{135}$, $Ba^{135m, 135m}$, excit. functions 3=15234
- Ta(C^{12} , xn, xp) 1=17155
- Ta + $N^{14} \rightarrow N^{17}$, with neutron transfer 3=2502
- Ta + $N^{15} \rightarrow N^{17}$, with neutron transfer 3=2502
- Ta- Ne^{20} , multinucleon stripping, 160 MeV 4=22236
- Ta with Ne^{20} , N^{14} ions, neutron pick-up and proton stripping 2=12226
- Ta with Ne^{20} , N^{14} ions, neutron pick-up and proton stripping 3=6302
- Ta(Ne^{20}, γ), 74-145 MeV 3=24986
- Ta 181 (Ne^{20}, N^{17}), detection apparatus 2=10416
- Ta(O^{16}, γ), 74-145 MeV 3=24986
- Ta(O^{16} , xn, xp) 1=17155
- Tb cpd. nuclei, neutron emission, ang. momentum effects 4=9572
- Tb 149 formation cross-section 1=2245
- Te(C^{12}), γ -emission from compound-nucleus reactions 2=18358
- Te $^{128, 130} + C^{12} \rightarrow Ce^{134, 135, 137m}$, excitation functions 3=15233
- Te $^{128, 130} + C^{12} \rightarrow La^{135}$, $Ba^{135m, 135m}$ 3=15234
- Te $^{130}(C^{12}, 5n)Ce^{137m}$, recoil study, comp. with theory 2=22854
- Th 232 multiple Coulomb excitation by A^{40} ions 0=448
- Th $^{232}(Ne^{22}, 4n)Fm^{250}$ 3=8138
- Th 232 , Ne^{22} irradi., nucleon transfer 3=24983
- Th 232 , neutron-evaporation and fission by heavy ions 0=11463
- Th $^{232}(C^{12}, 4n)Cm^{240}$ 0=11429
- Th $^{232}(C^{13}, 5n)Cm^{240}$ 0=11429
- Th $^{232}(Ne^{22}, 4n)Fm^{250}$ 2=22855
- U(Ne^{22}, γ), 74-145 MeV 3=24986
- U(O^{16}, γ), 74-145 MeV 3=24986
- U 238 , interactions with B^{11} , O^{16} , $Ne^{20, 22}$, formation of spontaneously fissioning isotope 3=24984
- U 238 , multiple Coulomb excitation by A^{40} ions 0=448
- U 238 - Ne^{22} bombardment, Md 286 prod. 3=8135
- U 238 - Ne^{22} bombardment, Md 286 prod. 3=8140
- U $^{238}(Ne^{22}, 4n)102^{286}$ 4=19740
- U 238 , neutron-evaporation and fission by heavy ions 0=11463
- U $^{236}(O^{16}, 4n)Fm^{250}$ 0=9649
- U $^{238}(O^{16}, xn)Fm^{249}$ 0=7592
- U(O^{16} , xn, xp) 1=17155
- V(C^{12}), γ -emission from compound-nucleus reactions 2=18358
- V $^{51}(C^{12}, 2n)Cu^{51}$ 1=19538
- V $^{51}(C^{13}, 2n)Cu^{51}$ 3=4674
- V(C^{12} , xn, xp) 1=17155
- V $^{51}(O^{16}, xn)Ga^{67}$, excitation functions 0=9650
- V(O^{16} , xn, xp) 1=17155

Nuclear reactions due to—contd

nuclei of $Z > 2$ —contd

- W(Ne^{22}, γ), 74-145 MeV 3=24986
 $\text{W}^{182,4}(\text{Ne}^{20,22}, \text{xn})\text{Po}$, neutron-deficient Po isotopes 0=7591
 W(O^{16}, γ), 74-145 MeV 3=24986
 $\text{Zr}^{90,92,94}$, by N^{15} , 70-120 MeV, two-neutron transfer 4=6383
 $\text{Zr}^{90,92,94} - \text{N}^{15}$, two-neutron transfer 4=22231

photons

- absorption, dipole, nucleon interact. effects 2=20491
 absorption, effect of nucleon repulsion forces 2=20492
 absorption of 10-30 MeV in C, O and Al 0=17618
 acnodes on unphysical sheets 3=17205
 analysis, using approx. intensity spectrum 2=22785
 ang. distrib. of particles 1=8696
 bremsstrahlung yield curves, second-difference analysis 1=480
 collective model, long-range correlations 1=8691
 conference, Karlsruhe (1960) 1=13765
 cosmic-ray nuclei, prod. of showers 0=13079
 cross-section fluctuations, using 441 keV reson. γ 's from $\text{Li}^7 + \text{p}$ 3=8072
 cross-sections, effect of nuclear forces, quasi-deuteron model 0=1427
 cross-sections, energy dependence, synchrotron obs. 4=16591
 cross-sections, 5-13 MeV, transition strength functions 3=15173
 cross-sections for light nuclei 155 MeV 4=6334
 $\text{d}(\gamma, \text{p})\text{n}$, anomalous behaviour near 15 MeV 0=454
 data for reactor studies 3=17510
 Delbrück scatt., imaginary part of scatt. amplitude for energies 2.62 and 6.14 MeV 0=17614
 deuteron disintegration, appl. of pion-theoretical potential 0=5625
 deuteron disintegration, cross-section, calc., using P-wave phase shifts 1=2103
 deuteron disintegration, cross-section and polarization, calc. 1=553
 deuteron disintegration, dispersion relns. 3=612
 deuteron disintegration at 52 and 77 MeV γ -ray energy, calc. 0=15460
 deuteron disintegration at high energy, exchange current effects 1=9778
 deuteron disintegration, low-energy differential cross-sections 0=5623
 deuteron disintegration, mag. dipole sum rules 0=11236
 deuteron disintegration, matrix element for fixed energy, analytic props. 1=12129
 deuteron disintegration and n-p capture 0=7424
 deuteron disintegration near 11 MeV 0=9444
 deuteron disintegration, 9.23-152.4 MeV 0=17429
 deuteron disintegration by 94 MeV bremsstrahlung, diff. cross-sections 0=5626
 deuteron disintegration, nuclear force study 0=15458
 deuteron disintegration, up to 140 MeV, theory excluding virtual π -meson effect 0=17430
 deuteron disintegration, theory 0=9443
 deuteron disintegration at 20-80 MeV, polarizations and ang. distrib., calc. 1=10935
 deuteron disintegration at 320 MeV, p-n coincidence coincidences 0=13260
 deuteron disintegration at 320 MeV, p-n coincidences 0=13260
 deuteron disintegration, validity of extrapolation procedures 1=12130
 deuteron photodisintegration, potential model 1=5676
 deuterons, polarized, photodisintegration 2=1730
 dipole absorption, cross-section, effect of nonlocal nucleon interaction 4=1063
 direct and compound nucleus effects, theory 3=15174
 direct disintegration, by individual-particle shell model 4=15197
 direct photoeffect, rel. to optical model 2=7965
 direct photoeffect rel. to optical model 3=6136
 disintegration, rel. to electron processes, in 2-body systems 4=25370
 disintegration phenomena near 20 MeV, unified model 1=13766
 disintegration of three-particle nuclei, up to 35 MeV 3=22365
 dispersion formula, application 2=3548
 dispersion relations 1=5888
 E1 giant resonance, peak splitting calc. 3=6222
 E1-M1 interference term in low-energy photodisint. 4=3633

Nuclear reactions due to—contd

photons—contd

- elastic scatt. near photonuclear threshold 1=19435
 electric dipole sum rule 0=4110
 electromagnetic, sum rules, application 2=5788
 emulsion nuclei, photodissociation, to 1150 MeV 2=428
 excitation modes, single-particle and core excitation 0=17617
 final states involving three or more particles, theory 2=5777
 (γ, α) , in emulsion light nuclei 4=19751
 (γ, α) at $(0.5-2.0) \times 10^9$ °K for A=40-60 3=24941
 (γ, α) reaction, rate at stellar temp. 0=18867
 (γ, α) reactions, statistical model 1=5898
 (γ, α) reactions in medium-weight nuclei, statistical theory of compound-nucleus decay 0=1437
 (γ, α) reactions on medium wt. nuclei 3=15179
 (γ, d) , (γ, p) and (γ, α) yields in S, Co and Cu 1=5897
 (γ, d) for light nuclei, and level supermultiplet 4=6320
 (γ, d) , on light nuclei, shell model 4=3634
 (γ, d) reactions on light nuclei, theory 1=19438
 (γ, d) reactions, 30-90 MeV, mechanism 2=16389
 (γ, d) , theory 3=15177
 γ, e prod. unification 4=28017
 $\gamma + \text{He}^4 \rightarrow \pi^0 + \text{He}^4$ 0=2456
 (γ, K^+) in complex nuclei, up to 1150 MeV 4=12198
 (γ, n) absolute cross-sections in "giant-resonance" peak 2=12183
 (γ, n) , activation cross-sections at 20.5 MeV 2=10083
 (γ, n) activation cross-sections at 20.5 MeV for 8 nuclei 1=8690
 (γ, n) , angular distrib. of neutrons 1=5889
 (γ, n) , effective cross-section 0=2672
 (γ, n) , $50 < A < 200$, fast neutron ang. distrib. calc. 4=22108
 (γ, n) and (γ, p) , effect of spin—orbital bond 3=4613
 (γ, n) , interpretation of isomeric pair production cross-section ratios for (n, γ) and (γ, n) 0=20423
 (γ, n) , isomeric cross-section ratios, 11 nuclei 2=22787
 (γ, n) on light elements in 0.80 MeV 4=12200
 (γ, n) , neutron angular distrib. 1=17073
 (γ, n) , neutron angular distributions, forward peaking rel. to Z 4=19746
 (γ, n) photonuclear in nonresonance region ($E_\gamma \geq 30 \text{ MeV}$) nucleon correlations 1=17078
 (γ, np) , light nuclei, rel. to nucleon—nucleon correl. 3=19834
 (γ, np) reaction mechanism 2=16388
 (γ, np) reactions at 320 MeV on 10 nuclei, n-p coincidences, theory 0=13260
 (γ, n) reactions, ang. distrib. of fast photo-neutrons 1=19437
 (γ, n) , reactions, monochromatic photons 1=19177
 (γ, n) , SiO_2 mixed with small amounts of Be, H_2O , Li, C, U, Th, calc. 4=7802
 (γ, n) in stars, in proton-rich element prod. 2=6983
 (γ, n) thresholds, rel. to props. of threshold nuclear states 1=8571
 (γ, n) , 25-100 MeV, excitation functions 0=2677
 (γ, n) reactions, yield and ang. distrib. for 25 nuclei 1=8688
 (γ, n) yields from thick targets due to electron bombard. at 10-36 MeV 0=4109
 (γ, N) ang. distrib., γ -polarization effects 0=17615
 (γ, N) data from (e, Ne') cross-section, model 4=6327
 (γ, p) ang. distrib. from deformed nuclei, theory 2=3551
 (γ, p) , in CsI: Tl 0=5771
 (γ, p) , (γ, d) and (γ, t) reactions on Li^6 to Au 0=13264
 (γ, p) in nonresonance region ($E_\gamma \geq 30 \text{ MeV}$), nucleon correlations 2=22793
 (γ, p) photonuclear in nonresonance region ($E_\gamma \geq 30 \text{ MeV}$) nucleon correlations 1=17078
 (γ, p) thresholds, rel. to props. of threshold nuclear states 1=8571
 (γ, p) , 22 MeV bremsstrahlung, on $13 \leq Z \leq 50$, $p > 8 \text{ MeV}$, ang. distrib. 3=19830
 $\gamma + \text{p} \rightarrow \pi^0 + \text{p}$, 600-1100 MeV, resonances 2=1709
 (γ, p) at $(0.5-2.0) \times 10^9$ °K for A=40-60 3=24941
 (γ, pn) , rel. to nuclear pair correl. function and momentum distrib. 3=7964
 (γ, π_0) , on complex nuclei, theory 4=15087
 γ -quanta with oriented nonspherical nuclei 2=5885
 γ -quanta, with oriented nonspherical nuclei 3=4620
 (γ, π) , p-wave dispersion relations 0=11215

Nuclear reactions due to—contd
photons—contd

γ -ray—electron cascades 1=13768
 (γ, Tn) excitation functions up to 80 MeV 3=4623
 $(\gamma, 2n)$ reactions in light elements, yields, rel. to (γ, n) 0=1432
giant dipole resonance, collective model 1=3382
giant dipole resonance, effects in proton inelastic scatt. 1=11005
giant dipole resonance in medium-weight nuclei, residual pair interactions 1=8686
giant dipole resonance, production by particle—hole interaction 1=3381
giant dipole resonances, expt. and theory 1=8684-5
giant E1 resonance for deformed nuclei 2=16383
giant resonance, collective motion 1=19334
giant resonance, configs. with two or more particle—hole pairs 3=8075
giant resonance in deformed nuclei, theory 2=22788
giant resonance, excitation of collective motion by protons 2=20621
giant resonance, independent-particle model 0=15586
giant resonance, influence of pair forces 2=5884
giant resonance, rel. to nuclear phonon excitations 2=20595
giant resonance rel. to nuclear phonon excitations 3=8078
giant resonance photoabsorpt. characteristics 3=7879
giant resonance, quantum mechanics of collective model 1=13767
giant resonance splitting, $Z = 9-30$, for non-spherical nuclei 0=5765
giant resonance, survey of experimental material 0=4111
giant resonance triple splitting, model 2=20596
giant resonances, configurational assignments 0=1428-9
giant resonances, core excitation mode 0=17617
giant resonances, elec. dipole, E1 peak energies, rel. to shell model spacings 1=608
giant resonances, rel. to nuclear structure 0=13129
giant resonances, survey of expt. methods, theory 2=22790
high-energy, charged-particle beam prod., theory 0=20095
high-energy, sum rules 3=24920
isomers, new short-lived, production by 22.5 MeV bremsstr. 1=19439
least structure soln. of photonuclear yield functions 4=6318
light nuclei, with high-energy deuteron emission 4=22107
light nuclei, photodisintegration, review 3=19831
light nuclei, photoprotons, direct interact. model 3=10328
long-range correlations, velocity of Goldhaber—Teller collective mode 1=8691
mechanism, from range of Na^{24} recoil 0=1403
mechanism, single-particle states in target 1=17076
multiple photonuclear processes, statistical model 0=20481
multiplet prod. by 5-90 MeV X-rays in emulsion 2=5893
neutron multiplicity meas. 4=30236
nuclear photoeffect, depend. on A , for 10 nuclei at 320 MeV, theory 0=13260
rel. to nuclear surface shape and optical anisotropy meas. 3=15087
one-particle mechanism, shell model anal. 0=9654
optical anisotropy, tensor polarizability 0=9653
oriented nuclei, by polarized beams 2=12179
 (p, n) on light nuclei, neutron yield 4=19524
photoabsorption branches rel. to photoproduct energy spectra 2=7964
photoabsorption branches rel. to photoproduct energy spectra 3=6137
photoactivation analysis 2=5891
photoactivation, metastable isomer formation 2=5889
photodeuteron reaction mechanisms 2=14073
photodisintegration, quasi-deuteron model 2=20588
photoneutron ang. distrib., fast, forward peaking mech. 4=12199
photoneutron multiplicity meas. 3=10330
photoneutron prod. cross-sections, applications of meas. 2=18317
photoneutron thresholds for 73 nuclides 0=11296
photoneutron yield, electron accelerator shielding 3=455
photoneutrons from Co, energy spectrum 2=423
photonuclear sum rule, effect of tensor force 2=20583
photonucleon polarization 2=20587
photoprotons, angular distrib. rel. to theory 2=424

Nuclear reactions due to—contd
photons—contd

photostar production between 500 and 1100 MeV 0=15591
 π -pair production, on nucleons, strong coupling theory 1=13473
 π pairs, electromag. production, theory 2=1707
 π photoprod. dispersion-relations analysis 0=9423
 π photoprod. cross-section 3=12654
 π photoprod., study by N/D method 3=7891
 π^0 -meson prod. on H, cross-section 0=373
 π^0 photoproduction on complex nuclei, coherent and incoherent 1=19232
 π^0 photoproduction from deuterium 1=8481
 π^0 production, diff. cross-section, nuclear size determ. 4=993
pion photoprod., $\gamma + p \rightarrow p + \pi^+ + \pi^-$ 2=5706
pion photoprod., nuclei with one nucleon outside closed shell 3=2430
polarization of nuclei following π photoprod. 4=6317
resonance and direct, projection operator formalism 3=22362
resonance fluorescence 0=9655
resonance fluorescence, at 7 MeV, for 31 elements 0=9526
resonance measurements 1=13138
resonant scattering of recoil-less 23.8 keV Sn^{119} γ -rays 0=9662
review 1=17074-5
role of repulsive cores 1=5886
scattering, on nuclei, dispersion relations 3=8069
single-particle model, e.m. transitions correl. 2=10082
statistical model failure, threshold states invoked 1=8687
surface effect 0=2675
surface effects in (γ, n) and (γ, p) reactions 0=15587
three-body system, photodisintegration cross sections 4=6319
three-particle nuclei disintegration 0=7426
threshold states invoked for reaction cross-sections 1=8687
tritons, photodisintegration, theory, rel. to n -d scatt. 0=11239
Wilkinson shell model, test using fast photoneutron yields 1=8688
yield curves, second difference analysis 4=22101
 $A(\gamma, \alpha)$ and $A(\gamma, p)$ 0=1431
 $A(\gamma, p)$ at 36 MeV 2=20592
 $A^{40}(\gamma, \alpha n) S^{35}$, at 70 MeV 2=5892, 12182
 $A^{40}(\gamma, \alpha) S^{36}$, at 70 MeV 2=5892, 12182
 $A^{40}(\gamma, p) \text{Cl}^{35}$ 1=7366
 $A^{40}(\gamma, p)$, cross-section at 34 MeV 0=20475
 $A^{40}(\gamma, pn) \text{Cl}^{35}$ 1=7366
 $A^{40}(\gamma, pn)$, cross-section at 34 MeV 0=20475
 $A^{40}(\gamma, 2p)$, yield at 34 MeV 0=20475
 $A^{40}(p, \gamma) \text{K}^{41}$, and K^{41} levels, resonances 4=19685
 A^{40} , photoneutron cross-sections, to 50 MeV 0=9660
 $\text{Ag}(\gamma, n)$ 2=11745
 $\text{Ag}(\gamma, n)$, range of 2-60 keV recoil atoms 1=4858
 $\text{Ag}(\gamma, p)$, 14.8 and 17.6 MeV, cross-sections 3=10324
 Ag , in photographic emulsions, Li^8 fragment formation 4=1083
 $\text{Ag}^{107}(\gamma, n) \text{Ag}^{106}$, fine structure in giant resonance 1=674
 $\text{Ag}^{107}(\gamma, n) \text{Ag}^{106}(24 \text{ min})$, at 7.5-10.8 MeV, threshold and cross-section 1=2207
 $\text{Ag}^{107}(\gamma, n) \text{Ag}^{106g, 106m}$, relative product yields 2=7971
 $\text{Ag}^{107}(\gamma, n)$, cross-sections and yield curve 0=20476
 $\text{Ag}^{107}(\gamma, n)$, 30 MeV, ratio with inelastic scatt. 4=6315
 $\text{Ag}^{107}(\gamma, n)$, threshold to 23 MeV, rel. to giant res. splitting 2=16387
 $\text{Ag}^{107}(\gamma, n)$, threshold to 23 MeV, rel. to giant res. splitting 3=6230
 Ag^{107} , photon inelastic scattering cross-sections 2=1862
 $\text{Ag}^{109}(\gamma, n) \text{Ag}^{108}$, cross-section 1=2028
 $\text{Ag}^{108}(\gamma, n)$, cross-sections 0=20479
 $\text{Ag}^{108}(\gamma, n)$, threshold energy 0=20476
with Ag and Br in emulsions, at 1-3 BeV 1=11015
 $\text{Al}(\gamma, \beta)$, at 80 MeV 2=5886
 $\text{Al}(\gamma, \gamma)$ elastic scattering at 25 MeV near particle threshold 1=17070
 $\text{Al}(\gamma, n)$, cross-section 3=6223
 $\text{Al}(\gamma, n)$ yields due to electron bombard. at 10-36 MeV 0=4109
 $\text{Al}(\gamma, np)$, at 320 MeV 0=13206
 $\text{Al}(\gamma, p)$, 14.8 and 17.6 MeV, cross-sections 3=10324

Nuclear reactions due to—contd

photons—contd

- Al(γ , p), at 36 MeV 2=20592
 Al(γ , p), 24 MeV, meas. and theory 3=4614
 Al(γ , π^+) 0=9421
 Al(γ , π^0), 154 MeV 3=24762
 Al, neutron production 0=1430
 Al, at 170 MeV, π^0 production 2=20597
 Al, photon neutron spectra, 30 MeV bremsstrahlung 4=3640
 Al, total cross-section, 0.6-1.33 MeV 4=3632
 Al, up to 20.8 MeV, ratio of proton-to-neutron yields 0=13262
 Al, 22 MeV, photoprotons 3=10326
 Al, at 260 MeV, range of Na²⁴ recoils 2=1403
 Al²⁷, absorption cross-section 1=17080
 Al²⁷, cross sections, 150-720 MeV 4=19753
 Al²⁷, fast neutron yield, 1-particle mechanisms 2=422, 22792
 Al²⁷, 440 keV, proton spectrum, theory and expt. 2=5887
 Al²⁷(γ , α), forward-backward asymmetry, rel. to α energy 3=4618
 Al²⁷(γ , d) and Al²⁷(γ , p), at 35 MeV, ratio 2=421, 22795
 Al²⁷(γ , n) 0=7598
 Al²⁷(γ , n) 1=5890-1
 Al²⁷(γ , n), resonances, cross-sections 13-24 MeV 3=4615
 Al²⁷(γ , p) 0=9657
 Al²⁷(γ , p), cross-sections meas. 2=16381
 Al²⁷(γ , p)Mg²⁶, fine struct. in proton energy distrib. 4=25375
 Al²⁷(γ , p), at 24 MeV, proton spectrum 2=12181
 Al²⁷(γ , π^+) Mg²⁷, 150-750 MeV γ and π -N reson. 4=9480
 Al²⁷, total absorption cross-section 1=17079
 Al²⁷, total γ absorption at 20 MeV, structure 4=22102
 Al²⁷ \rightarrow Na²⁴, at E γ up to 260 MeV 0=13265
 Al²⁷ \rightarrow Na²⁴, 150-750 MeV γ and π -N reson. 4=9480
 Al²⁷, total absorption cross-sections, 20-20.5 MeV 0=11433
 Ar⁴⁰(p, n)K⁴⁰, thin target for obs. 4=19322
 Au(γ , n), at 18-65 MeV 0=5777
 Au(γ , n), 14 and 19 MeV 4=1066
 Au(γ , n) using 55 MeV bremsstrahlung 1=2205
 Au(γ , n) and (γ , 2n) cross-sections, using nearly monochromatic photons 2=18316
 Au(γ , n), range of 2-60 keV recoil atoms 1=4853
 Au(γ , p), photons due to electron bomb. 0=11432
 Au, photoneutrons, ang. distrib. 2=7966
 Au¹⁹⁷(γ , n) 1=4857
 Au¹⁹⁷(γ , n)Au¹⁹⁶ (5.6 days), at 7.5-10.8 MeV, threshold and cross-section 1=2207
 Au¹⁹⁷(γ , n)Au^{196m}, branching ratio 0=17521
 Au¹⁹⁷(γ , n), β -activity of Au¹⁹⁶ 2=16417
 Au¹⁹⁷(γ , p) 0=5768
 Au¹⁹⁷, photon inelastic scattering, cross-sections 2=1862
 B(γ , p), high-energy, meas. and theory 3=8079
 B(γ , p), proton polarization meas. 3=4624
 B(γ , p), at 36 MeV 2=20592
 B¹⁰(γ , d), excitation functions 2=7968
 B¹⁰(γ , d), excitation functs. 3=6224
 B¹⁰(γ , n), threshold to 10.8 MeV meas. 4=25377
 B¹⁰(γ , p) 0=15589
 B¹⁰(γ , p), excitation functions 2=7968
 B¹⁰(γ , p), excitation functs. 3=6224
 B^{10,11}, production of Be⁷ by 44 and 56.5 MeV bremsstr. 4=12202
 B¹¹(γ , d) 2=7967
 B¹¹(γ , p) 2=7967
 B¹¹(γ , p), (γ , d), (γ , t) 3=6225
 B¹¹(γ , π^-)C¹¹, 80-300 MeV 2=20598
 B¹¹(γ , π^+)Be¹¹, 80-300 MeV 2=20598
 B¹¹(γ , t) 2=7967
 B¹¹(γ , 2p)Li⁹ \rightarrow Be⁸ + β^- , 320 MeV and unknown β activity 3=15136
 Ba(γ , α) 0=2674
 Be(γ , np), at 320 MeV 0=13260
 Be(γ , p), high energy, meas. and theory 3=8079
 Be(γ , p), proton polarization meas. 3=4624
 Be(γ , π), BeV range 4=9473
 Be(γ , π^0), 154 MeV 3=24762
 Be(γ , π); 250 MeV incident bremsstrahlung 1=17084
 Be(γ , π^+) 0=9421
 Be, π prod., off-shell corr. 4=30249
 Be⁹, at 5-17 MeV, combination of (γ , n) and (γ , α) reactions 1=8689

Nuclear reactions due to—contd

photons—contd

- Be⁹(γ , α)He⁵ \rightarrow He⁴ + n, 2.75-9.0 MeV, meas. 4=6321
 Be⁹(γ , d), excitation functions 2=7968
 Be⁹(γ , d), excitation functs. 3=6224
 Be⁹(γ , n) 0=7598
 Be⁹(γ , n)Be⁸ 1=13769
 Be⁹(γ , n)Be⁸ and Be^{8*}, 2.75-9.0 MeV, meas. 4=6321
 Be⁹(γ , n)Be⁸, below giant resonance, cross-sections, calc. 1=673
 Be⁹(γ , n)Be⁸, with circularly polarized γ , n-polarization 1=17077
 Be⁹(γ , n)Be⁸, n polarization, mag. dipole transition effects 3=22364
 Be⁹(γ , n)Be⁸, theory 2=3549
 Be⁹(γ , n)Be⁸, from threshold to 5 MeV, cross-section 1=10999
 Be⁹(γ , n), below giant resonance, cross-section calc. 1=8693
 Be⁹(γ , n), cross-section peaks at 1.8, 2.43, 3.2 MeV below giant res. 1=19440
 Be⁹(γ , n), at 5.4-9.0 MeV, neutron ang. distrib. 2=22784
 Be⁹(γ , n), n polarization, for 2.75 MeV γ 4=22110
 Be⁹(γ , n), near threshold 2=16386
 Be⁹(γ , n), neutron polarization 2=5888
 Be⁹(γ , p), α -particle model, theory 2=3554
 Be⁹(γ , p), α -particle model, theory 3=2435
 Be⁹(γ , p) excitation functions 2=7968
 Be⁹(γ , p), excitation functs. 3=6224
 Be⁹(γ , p) Li⁸, 17-57 MeV 2=14075
 Be⁹, photodeuteron emission, mechanism 2=14073
 Be⁹, photoneutron cross-section, 6.5-18 MeV 0=5769
 Be⁹, photoneutrons, polarization 2=14074
 Be⁹, photonuclear effect, cross-sections 2=22786
 Be⁹, production of Be⁷ by 44 and 56.5 MeV bremsstr. 4=12202
 Be⁹, total γ absorption at 20 MeV, structure 4=22102
 Bi(γ , γ) elastic scattering at 25 MeV near particle threshold 1=17070
 Bi(γ , n), 14 and 19 MeV 4=1066
 Bi(γ , n), n polariz., 0.4-16 MeV 4=22119
 Bi(γ , n), spectra, excited transitions 4=22118
 Bi, neutron spectra 0=17616
 Bi, neutron spectra 1=7367
 Bi photodisintegration 2=16384
 Bi, photoneutrons, ang. distrib. 2=7966
 Bi²⁰⁹(γ , n), betatron energy scale calibration 0=7175
 Bi²⁰⁹(γ , n), 1.5-11.5 MeV 4=3642
 Bi²⁰⁹(γ , π^- pn)Po^{209-x}, 250 MeV 4=929
 Bi²⁰⁹, photoneutrons, ang. distrib. 2=10084
 C(γ , β), at 80 MeV 2=5886
 C(γ , μ pair), var. momentum transfer squared 4=25371
 C(γ , np), at 320 MeV 0=13260
 C(γ , n) yields due to electron bombard. at 10-36 MeV 0=4109
 C(γ , p), high-energy, meas. and theory 3=8079
 C(γ , p), up to 170 MeV 4=22113
 C(γ , p), proton polarization meas. 3=4624
 C(γ , p), 30.5 MeV 3=17451
 C(γ , p), at 36 MeV 2=20592
 C(γ , π^+) 0=9421
 C(γ , π^+), at forward angles, 3-5BeV 4=9475
 C(γ , π^+), 3-3 reson. effect 4=25372
 C, γ -ray spectra from nuclear photoeffect, at 19-61 MeV 0=1433
 C, meson prod., energy spectra 0=15503
 C, at 170 MeV, π^0 production 2=20597
 C, total absorption of γ -rays 0=11431
 C, at 205-335 MeV, π prod. 1=8482
 C, at 245 MeV, photoproton prod., quasi-deuteron analysis 1=8700
 C¹², absorption cross-section 1=17080
 C¹², absorption meas. in giant resonance region 4=9476
 C¹², cross-sections, 150-720 MeV 4=19753
 C¹², fast neutron yield, 1-particle mechanism 2=422, 22792
 C¹²(γ , α)Be⁸, and non-existence of 4 MeV Be⁸ level 3=17450
 C¹²(γ , Li⁸), at 50-120 MeV 1=13774
 C¹²(γ , n) 0=7598
 C¹²(γ , n) 2=20590
 C¹²(γ , n), activation cross-section at 20.5 MeV 1=8690

Nuclear reactions due to—contd
photons—contd

- $C^{12}(\gamma, n)C^{11}$ 1=8697
 $C^{12}(\gamma, n)C^{11}$ 2=10083
 $C^{12}(\gamma, n)C^{11}$, fine structure of activation curve 1=3435
 $C^{12}(\gamma, n)C^{11}$, neutron spectrum 3=662
 $C^{12}(\gamma, n)C^{11}$, 30-80 MeV 2=16390
 $C^{12}(\gamma, n)C^{11}$, 30.5 MeV, neutron spectra 3=4621
 $C^{12}(\gamma, n)$, cross-sections at 3, 5 and 10 MeV 0=9658
 $C^{12}(\gamma, n)$, threshold 0=13261
 $C^{12}(\gamma, p)$ 0=9657, 15589
 $C^{12}(\gamma, p)$ 1=13770
 $C^{12}(\gamma, p)$, α -particle model, theory 2=3554
 $C^{12}(\gamma, p)$, α -particle model, theory 3=2435
 $C^{12}(\gamma, p)B^{11}$, in nonresonance region ($E_{\gamma} \geq 30$ MeV), nucleon correlations 2=22793
 $C^{12}(\gamma, p)$, proton yield curves 0=11434
 $C^{12}(\gamma, p)$, 23.5 MeV, spectrum meas. 4=3636
 $C^{12}(\gamma, p)$, 31 MeV photons, proton spectrum 3=663
 $C^{12}(\gamma, p)$, 30 to 60 MeV, quasi- α part. mechanism, shell model formalism 4=9474
 $C^{12}(\gamma, pt)$, in terms of nucleon cluster model 4=15124
 $C^{12}(\gamma, pt)2\alpha$, role of nucleon clusters 1=19441
 $C^{12}(\gamma, \pi^0)C^{12}$, elastic, at 155 MeV 3=6036
 $C^{12}(\gamma, 3\alpha)$, below 21.5 MeV 4=12203
 $C^{12}(\gamma, 3\alpha)$, cross-section at 14.8 and 17.6 MeV 1=17081
 $C^{12}(\gamma, 3\alpha)$, final state interactions 4=22111
 $C^{12}(\gamma, 3\alpha)$ mechanism at 17.6 MeV 2=7969
 $C^{12}(\gamma, 2n)C^{10}$, yield, rel. to (γ, n) 0=1432
 C^{12} , giant resonance structure 3=8075
 C^{12} , particle-hole model 4=1064
 C^{12} , photodeuteron emission, mechanism 2=14073
 C^{12} , photodisintegration calc. 2=7964
 C^{12} , photodisintegration calc. 3=6137
 C^{12} , photoprotons, 6.75-21 MeV protons 4=6322
 C , photoprotons at 60° 3=2434
 C^{12} , production of Be^7 by 44 and 56.5 MeV bremsstr. 4=12202
 C^{12} , at 30 MeV, photoneutron energy spectra and ang. distrib. 0=11435
 C^{12} , total absorption cross-section 1=17079
 C^{12} , total absorption cross-sections, 20-21.2 MeV 0=11433
 $C^{13}(\gamma, p)B^{12}$, cross-section 4=22112
 $C^{13}(\gamma, n)$, below giant resonance, cross-section calc. 1=8693
 $C^{13}(\gamma, n)C^{12}$, below giant resonance, cross-sections, calc 1=673
 $C^{13}(\gamma, n)C^{12}$, at 6.4 MeV, cross-section 0=15590
 $C^{13}(\gamma, n)$, cross-section peaks below giant res. 1=19440
 $C^{13}(\gamma, n)$ single-particle excitation mode 0=17617
 $C^{13}(\gamma, n)$, threshold to 10.8 MeV meas. 4=25377
 $C^{13}(\gamma, p)$, 31.5 MeV, spectrum meas. 4=19749
 C^{13} , low-energy disint., EI-MI interference term 4=3633
 C^{13} , photonucleon polarization 2=20587
 $Ca(\gamma, \gamma)$ elastic scattering at 25 MeV near particle threshold 1=17070
 $Ca(\gamma, n)$, 15-30 MeV cross-section 4=1065
 $Cu(\gamma, n)$ yields due to electron bombard. at 10-36 MeV 0=4109
 $Ca(\gamma, p)$ 22 MeV 4=22117
 Ca photodisintegration 2=18315
 $Ca^{40}(\gamma, n)$ 2=20590
 $Ca^{40}(\gamma, n)Ca^{39}$, photoneutron spectrum 4=17116
 $Ca^{40}(\gamma, n)Ca^{39}$ 0=2678
 $Ca^{48}(\gamma, n)Ca^{47}$ 2=7970
 $Ca^{40}(\gamma, n)$, 15-30 MeV 4=22115
 $Ca^{40}(\gamma, np)K^{38}$ 0=2678
 $Ca^{40}(\gamma, np)K^{38m}$ 0=2678
 $Ca^{40}(\gamma, p + \gamma, pn)$, 27 MeV 4=22116
 $Ca^{40}(\gamma, p)K^{39}$, up to 22 MeV 2=10085
 $Ca^{40}(\gamma, p)K^{39}$, up to 22 MeV 3=6226
 $Ca^{40}(\gamma, p)$, proton spectrum rel. to statist. model 2=12180
 $Ca^{40}(\gamma, 2n)Ca^{38}$ 0=2678
 Ca^{40} , giant dipole resonance, calc. 1=3381
 Ca^{40} , giant dipole resonance, calc. 1=8686
 Ca^{40} , giant resonance, dipole absorption 0=20477
 Ca^{40} photodisintegration calc. 2=7964
 Ca^{40} photodisintegration calc. 3=6137
 Ca^{40} , photodisintegration in giant resonance region 1=19442

Nuclear reactions due to—contd
photons—contd

- Ca^{40} , photonuclear absorption cross-section 2=433
 Ca^{40} , various photo-reactions up to 31 MeV 0=7599
 $Cd(\gamma, \alpha)$, 21 and 30 MeV 3=15179
 $Cd(\gamma, \gamma)$ elastic scattering at 25 MeV near particle threshold 1=17070
 $Cd(\gamma, p)$ 0=13256
 $Cd(\gamma, \pi^0)$, 154 MeV 4=24762
 Cd , at 170 MeV, π^0 production 2=20597
 Cd , total cross-section, 0.6-1.33 MeV 4=3632
 $Ce(\gamma, \alpha)$ 0=2674
 $Ce^{140}(\gamma, n)Ce^{139}$, relative product yields 2=7971
 $Cl^{35}(\gamma, n)Cl^{34}$, study of decay of Cl^{34m} 1=8653
 $Cl^{35}(\gamma, n)Cl^{34}$, threshold energy 1=11001
 $Cl^{35}(\gamma, n)Cl^{34}$, 30 MeV, cross-sections 3=8071
 $Co^{56}(\gamma, n)$, meas. up to 28 MeV 3=6221
 $Co^{59}(\gamma, 2n)$, meas. up to 28 MeV 3=6221
 $Co^{59}(p, n)$, < 60 MeV, giant reson. splitting 4=22109
 Co^{59} , total photoneutron yield, from threshold to ~30 MeV 0=20478
 $Co^{59} \rightarrow Mn^{56}$, at E_{γ} up to 260 MeV 0=13265
 $Cr^{50}(\gamma, n)$, activation cross-section at 20.5 MeV 1=8690
 $Cs(\gamma, p)$, in CsI:Tl crystal 1=2204
 $Cs(\gamma, p)$, at 14.8 MeV 2=1863
 Cu , cross-sections, 150-720 MeV 4=19753
 $Cu(\gamma, \alpha)$, α spectra 4=28019
 $Cu(\gamma, \alpha)$, 21 and 30 MeV 3=15179
 $Cu(\gamma, d)$ 2=7967
 $Cu(\gamma, dp)$, d/p ratio for 45 MeV bremsstrahlung 1=19443
 $Cu(\gamma, d)$, relative escape and energy distrib. 0=17619
 $Cu(\gamma, d)$, relative escape and energy distrib. 1=4855
 $Cu(\gamma, d)$, 24-40 MeV, meas. 4=15198
 $Cu(\gamma, \gamma)$ elastic scattering at 25 MeV near particle threshold 1=17070
 $Cu(\gamma, n)$ 2=11745
 $Cu(\gamma, np)$, at 320 MeV 0=13260
 $Cu(\gamma, n)$, range of 2-60 keV recoil atoms 1=4858
 $Cu(\gamma, p)$ 2=7967
 $Cu(\gamma, p)$ cross-section from threshold to 27 MeV 4=19754
 $Cu(\gamma, p)$, 14.8 and 17.6 MeV, cross-sections 3=10324
 $Cu(\gamma, p)$, (γ, d) , (γ, t) 3=6225
 $Cu(\gamma, \pi^0)$ 0=9421
 $Cu(\gamma, \pi^0)$, 154 MeV 3=24762
 Cu , γ -ray spectra from nuclear photoeffect, at 19-61 MeV 0=1433
 $Cu(\gamma, t)$ 2=7967
 Cu (natural) (γ, n) and $(\gamma, 2n)$ cross-sections 4=12206
 Cu , at 170 MeV, π^0 production 2=20597
 Cu , photodeuteron and photoproton yield 3=19833
 Cu , total cross-section, 0.6-1.33 MeV 4=3632
 Cu , up to 20.8 MeV, ratio of proton-to-neutron yields 0=13262
 Cu , 22 MeV, photoprotons 3=10326
 $Cu^{63}(\gamma, d)$, yield relative to (γ, p) , 22 MeV bremsstrahlung 4=6325
 $Cu^{63}(\gamma, n)$, absolute cross-section 1=5892
 $Cu^{63}(\gamma, n)$, activation cross-section at 20.5 MeV 1=8690
 $Cu^{63}(\gamma, n)$, betatron energy scale calibration 0=7175
 $Cu^{63}(\gamma, n)Cu^{62}$, use for bremsstrahlung monitoring, corrections due to $Cu^{65}(\gamma, 3n)$ 0=5772
 $Cu^{63}(\gamma, n)$, cross-sections 0=20479
 $Cu^{63}(\gamma, n)Cu^{62}$, cross-section 1=2028
 $Cu^{63}(\gamma, n)Cu^{62}$, cross-section, for Li γ -rays 1=12188
 $Cu^{63}(\gamma, n)Cu^{62}$, fine structure in giant resonance 1=674
 $Cu^{63}(\gamma, n)$, 13-50 MeV, meas. using thick targets 4=12204
 $Cu^{63, 65}(\gamma, n)$ and $(\gamma, 2n)$ cross-sections meas. 4=12206
 $Cu^{65}(\gamma, n)$, absolute cross-section 1=5892
 $Cu^{63, 65}$, giant dipole resonance, calc. 1=8686
 $Cu^{63, 65}$, giant resonance, dipole absorption 0=20477
 $Cu^{65}(\gamma, p)$ 0=13263
 $Cu^{65}(\gamma, 3n)Cu^{62}$, cross-section from threshold to 110 MeV 0=5772
 $D(\gamma, n)$, betatron energy scale calibration 0=7175
 $D(\gamma, n)H$, in pool-type reactors, effect on control 1=17238
 $D(\gamma, n)$, 2.75-9.0 MeV, meas. 4=6321
 $D(\gamma, pn)$, 164 MeV, diff. cross-section 1=13529
 $D(\gamma, \pi)$, π -N multiple scatt. effects 0=17395
 $D(\gamma, pn)$, nucleon ang. distrib. and polarization 0=5624
 $Er(\gamma, n)$, giving short-lived isomeric state 2=18250
 Er , neutron prod. cross-sections and diff. elastic cross-sections 1=8698

Nuclear reactions due to—contd

photons—contd

- Er (p, n), giant resonance, expt. and calc. 2=10086
 Er¹⁷⁰(γ , p) Ho¹⁶⁹, 21 MeV 4=9454
 F¹⁸, prod. by photo-spallation 0=7595
 F¹⁸(γ , n), activation cross-section at 20.5 MeV 1=8690
 F¹⁹(γ , n) F¹⁸ 2=10083
 F¹⁹(γ , n) F¹⁸, breaks in excitation curve 0=7596
 F¹⁹(γ , n) F¹⁸ cross-section 0=17620
 F¹⁹(γ , n), single-particle excitation mode 0=17617
 F¹⁹(γ , n), threshold 0=13261
 F¹⁹(γ , p), 23.5 MeV, spectrum meas. 4=3636
 F¹⁹(γ , 2n) F¹⁷, yield, rel. to (γ , n) 0=1432
 F(γ , p), at 36 MeV 2=20592
 F¹⁹, photoproton production 1=7368
 F¹⁹, total γ absorption at 20 MeV, structure 4=22102
 Fe⁵⁴(γ , n) activation cross-section at 20.5 MeV 1=8690
 Ge⁷⁰, various photo-reactions up to 31 MeV 0=7599
 Ge⁷⁴, polarization of nuclear resonance fluorescence 0=5773
 Ge⁷⁶(γ , p) Ca⁷⁵ 1=7345
 H, π^0 -production, ang. distrib. 0=9420
 H²(γ , n) d 0=7426
 H³(γ , d) n, rel. to rigid nucleon core 4=19609
 H³, photodisintegration, hard-core effect 2=20439
 He(γ , px), at high energies 1=675
 He³(γ , p) d 0=7426
 He³(γ , p) d, near threshold, 6.14-7.08 MeV 4=3496
 He³, photodisintegration meas., 8.5-21.5 MeV 4=9319
 He³, photodisintegration, theory, rel. to n+d scatt. 0=11239
 He⁴, disintegration, calc. 2=18195
 He⁴, disintegration, nucleon pair correl. 2=327, 22660
 He⁴(γ , n) He³ cross-sections 1=16918
 He⁴(γ , p) H³ cross-sections 1=16918
 He⁴(γ , p) H³, cross-section, calc. 1=559
 He⁴(γ , p), at 31 and 32 MeV, fine structure in photoproton energy spectra 0=20249
 He⁴, quasi-deuteron prod. by dipole γ -rays 2=20441
 Hg, prod. of Hg^{201m} 100- μ sec isomer 2=22734
 Ho(γ , n) 1=676
 Ho(γ , n), giant resonance, expt. and calc. 2=10086
 Ho, neutron prod. cross-sections and diff. elastic cross-sections 1=8698
 Ho, photoneutrons, ang. distrib. 2=7966
 Ho¹⁶⁵(γ , n) and (γ , 2n), meas. 3=10329
 Ho¹⁶⁶(γ , n) Ho¹⁶⁴ (34 min), at 7.5-10.8 MeV, threshold and cross-section 1=2207
 I(γ , n), ang. distrib. of fast photoneutrons 1=19437
 I(γ , p), in CsI:Tl crystal 1=2204
 I(γ , π), at 17.6 MeV 2=1863
 I¹²⁷(γ , n) 1=4857
 I¹²⁷(γ , 2n) 1=4857
 In(γ , p), photons due to electron bomb. 0=11432
 In¹¹⁵(γ , n), threshold to 23 MeV, rel. to giants res. splitting 2=16387
 In¹¹⁵, photon inelastic scattering cross-sections 2=1862
 In¹⁸⁶(γ , n), neutron yield, energy and angular distrib. 3=15175
 In¹¹⁵(γ , n), threshold to 23 MeV, rel. to giant res. splitting 3=6230
 K(γ , γ) elastic scattering at 25 MeV near particle threshold 1=17070
 K³⁹(γ , π) A³⁷ 0=11437
 K³⁹(γ , n) K³⁸, theory of K³⁸, isomers 2=16382
 K³⁹, photoproton spectra 2=20591
 La(γ , n), up to 30 MeV, cross-section meas. 4=17117
 La, photoneutrons, ang. distrib. 2=7966
 Li(γ , d) 160-260 MeV 3=2436
 Li(γ , n), ang. distrib. of fast photoneutrons 1=19437
 Li(γ , np), at 320 MeV 0=13260
 Li(γ , p), high-energy, meas. and theory 3=8079
 Li(γ , p), proton polarization meas. 3=4624
 Li, photoneutron cross-sections, to 50 MeV 0=9660
 Li, 210 MeV brems., H³ prod. limits 4=19747
 Li⁶, disintegration processes 4=3635
 Li⁶, rel. to electrodisintegration, α + d model 3=17455
 Li⁶(γ , n), up to 18.5 MeV, yield curve 4=12201
 Li⁶(γ , n) Li⁵ 1=4856
 Li⁶(γ , p) He⁵ 1=4856
 Li⁶(γ , p) He⁴, Li⁶(γ , n) Li⁵(p) He⁴, proton spectra, levels in Li⁶ 1=8584
 Li⁶(γ , p), p-energy spectrum, fine structure 1=5893

Nuclear reactions due to—contd

photons—contd

- Li⁶(γ , n), < 60 MeV, Li⁶ polarization 4=22109
 Li⁶(γ , p), 20 MeV brems., ang. distrib. 4=19748
 Li⁶(p, d) Be⁸ 4=9504
 Li⁶, photodisintegration at 17.3 MeV, n-p coincidences and p spectra 0=9659
 Li⁶, γ (d) 2=7967
 Li⁶, γ (n), threshold to 10.8 MeV meas. 4=25377
 Li⁶, γ (r) 2=7967
 Li⁶, γ (p), (γ , d), (γ , t) 3=8225
 Li⁶, γ (t) 2=7967
 Li⁷(γ , α) H³, α spectrum and possible Li⁷, 5.5 MeV, J = 5/2 state 3=17397
 Li⁷(γ , H³) He⁴, theory 2=3549
 Li⁷(γ , p) He⁶ 2=16385
 Li⁷(γ , p) He⁶ 3=6229
 Li⁷(γ , p) He⁶, 10-32 MeV excit. function 2=14076
 Li⁷(γ , t) He⁴, betatron bremsstrahlung and nuclear emulsion investigation 1=8699
 Li⁷(γ , 2p) H² 3=12620
 Li⁷(γ , 2p) H², delayed neutron search 3=2330
 Li⁷(γ , t) He⁴ 3=24921
 Li⁷(γ , t) He⁴, up to 9.5 MeV 3=10249
 Li⁷(γ , t) He⁴, \leq 9.5 MeV, Li⁷ energy levels 3=8070
 Li⁷, prod. of H³, unsuccessful search 4=9443
 Mg(γ , p), var. γ energy, giant reson. 4=19752
 Mg, photoprotons 3=10325
 Mg, resonant scatt. from 10.15 MeV level, level width 0=17621
 Mg²⁴, fission, into 2C¹², 70 MeV bremsstrahlung 3=15247
 Mg²⁴(γ , n) Mg²³ 0=20480
 Mg²⁴(γ , p), ang. distrib., calc. 2=3551
 Mg²⁴, giant E1 resonance 2=16383
 Mg²⁴, 10.5 MeV level res. scattering and absorption of bremsstrahlung 0=7597
 Mn⁵⁵(γ , n) X-irradiated 0=1436
 Mn⁵⁵, total photoneutron yield, from threshold to \sim 30 MeV 0=20478
 Mo⁹²(γ , n), activation cross-section at 20.5 MeV 1=8690
 Mo⁹²(γ , n), cross-sections and yield curve 0=20476
 on N, cross-sections and yields, expt. and theory 2=14077
 on N, cross-sects. and yields, exptl. and theor. 3=6227
 (γ , N) to (e, N) cross-section ratio, two -quanta-exchange 1=19174
 N(γ , n), analysis of bremsstrahlung-induced activation curves 1=480
 N(γ , p), 30.5 MeV 3=17451
 N(γ , px), at high energies 1=675
 N¹⁴(γ , α) B¹⁰, 21.5 MeV, cross-sects. 4=22114
 N¹⁴(γ , n) N¹³ 0=11438
 N¹⁴(γ , n) N¹³, activation curve, 10-19.5 MeV 1=12189
 N¹⁴(γ , n) N¹³, breaks in excitation curve 0=7596
 N¹⁴(γ , n) N¹³, cross-section determination 0=2679
 N¹⁴(γ , n) N¹³, fire structure of activation curve 1=2206
 N¹⁴(γ , n), N¹⁴(γ , p), single-particle excitation mode 0=17617
 N¹⁴(γ , n), 30.5 MeV, neutron spectra 3=4622
 N¹⁴(γ , n), threshold 0=13261
 N¹⁴(γ , np) 0=13257
 N¹⁴(γ , np), energy dependence of cross-sections and distrib. 3=19834
 N¹⁴(γ , p) 0=13257, 15589
 N¹⁴(γ , p) 1=5895
 N¹⁴(γ , p + α) Be⁹, at 120 MeV 2=22797
 N¹⁴(γ , p) C¹³ 0=11438
 N¹⁴(γ , p) C¹³, p spectrum 4=19750
 N¹⁴(γ , pn) C¹² 0=11438
 N¹⁴ photodisintegration 2=16388
 N¹⁴, photoneutron cross-sections, to 50 MeV 0=9660
 N¹⁴, total absorption cross-sections, 20-20.5 MeV 0=11433
 N¹⁵(γ , p) and (γ , pn), 19-30.5 MeV, spectra and ang. distrib. meas. 4=25373
 N¹⁵, proton prod., 24.5, 31 MeV 3=17452
 Na, photoprotons when irradiated with 18 MeV bremsstrahlung 3=4617
 Na²², ²⁴, K⁴², ⁴³ prod. from light elements, 29 GeV 4=22137
 Na²³(γ , 2n) Na²¹, yield, rel. to (γ , n) 0=1432
 Na²³(γ , n) Na²², 13-15 MeV cross-sections 4=3639
 Nb(γ , α), α spectra 4=28019
 Nb(γ , p), photons due to electron bomb. 0=11432
 Nb⁹³(γ , n) Nb⁹² (10 days), at 7.5-10.8 MeV, threshold and cross-section 1=2207

Nuclear reactions due to—contd
photons—contd

Nb⁹³(γ , p), 19.5-27.5 MeV, rel. to statist. theory 3=24922
 Nb⁹³(γ , p) photoproton props. 1=13771
 Nd(γ , α) 0=2674
 on Ne, cross-sections and yields, expt. and theory 2=14077
 on Ne, cross-sects. and yields, exptl. and theor. 3=6227
 Ne(γ , p), 30.5 MeV 3=17451
 Ne(γ , p), at 36 MeV 2=20592
 Ne(γ , px), at high energies 1=675
 Ne²⁰(γ , α) and Ne²⁰(γ , p) 0=453
 Ne²⁰(γ , p), 23.5 MeV 3=10327
 Ne²⁰, giant resonance structure 3=8075
 Ne²²(γ , α) 0=453
 Ne²², (γ , pn), (γ , α), (γ , α p) reactions 1=3436
 Ne²², (γ , pn), (γ , α), (γ , α p) reactions 1=11000
 Ni(γ , α), α spectra 4=28019
 Ni(γ , α), 21 and 30 MeV 3=15179
 Ni(γ , γ) elastic scattering at 25 MeV near particle threshold 1=17070
 Ni(γ , p), 14.8 and 17.6 MeV, cross-sections 3=10324
 Ni, photodeuteron and photoproton yield 3=19833
 Ni⁵³, giant resonance, dipole absorption 0=20477
 Ni⁵⁸, giant dipole resonance, calc. 1=8686
 Ni⁶⁰(γ , π^-)Cu⁶⁰, at 120-320 MeV 1=5894
 Ni⁶⁴(γ , p)Co⁶³ 1=7345
 Np²³⁴(γ , p), ang. distrib., calc. 2=3551
 on O, cross-sections and yields, expt. and theory 2=14077
 on O, cross-sects. and yields, exptl. and theor. 3=6227
 O(γ , n), analysis of bremsstrahlung-induced activation curves 1=480
 O(γ , n), cross-sections 3=6223
 O(γ , np), at 320 MeV 0=13260
 O(γ , p), 30.5 MeV 3=17451
 O(γ , p), at 36 MeV 2=20592
 O, γ -ray spectra from nuclear photoeffect, at 19-61 MeV 0=1433
 O¹⁶ absorption, in giant resonance region 2=20594
 O¹⁶ absorption, in giant resonance region 3=8077
 O¹⁶(γ , α)C¹², in photographic emulsions 4=19751
 O¹⁶(γ , α)C¹², 21.5 MeV, cross-sects. 4=22114
 O¹⁶(γ , dn)N¹³ 3=15178
 O¹⁶(γ , dp)C¹³ 3=15178
 O¹⁶(γ , 4 α), mechanism 0=13258
 O¹⁶(γ , 4 α), in photographic emulsions 4=19751
 O¹⁶(γ , 4 α), 21.5 MeV, cross-sects. 4=22114
 O¹⁶(γ , n) 2=20590
 O¹⁶(γ , n), excitation, shell model extension 4=25292
 O¹⁶(γ , n), giant dipole states decay 4=25374
 O¹⁶(γ , n), 19-66 MeV, meas. using thick targets 4=12204
 O¹⁶(γ , n)O¹⁶ 1=5896
 O¹⁶(γ , n)O¹⁵ 1=8697
 O¹⁶(γ , n)O¹⁵, break in activation curve 0=5775
 O¹⁶(γ , n)O¹⁵, Breit-Wigner shape fit and shell model predictions 4=6323
 O¹⁶(γ , n)O¹⁵, excited states of O¹⁶ 0=4034
 O¹⁶(γ , n)O¹⁵, integrated cross-section up to 33 MeV 2=1866
 O¹⁶(γ , n)O¹⁵, photoneutron-energy spectrum 2=14078
 O¹⁶(γ , n)O¹⁵, photoneutron spectrum 4=17116
 O¹⁶(γ , n)O¹⁵, 60-150 MeV 2=10087
 O¹⁶(γ , n)O¹⁵, 60 MeV, cross-section 3=17453
 O¹⁶(γ , n)O¹⁵, 30.5 MeV, neutron spectra 3=4621
 O¹⁶(γ , n)O¹⁵, 31 MeV, neutron spectrum 3=662
 O¹⁶(γ , n)O¹⁵ up to 32.5 MeV, cross-sections 2=7972
 O¹⁶(γ , n), up to 30 MeV, cross sections 4=3638
 O¹⁶(γ , n), up to 30 MeV, 13 resonances 4=12207
 O¹⁶(γ , n)O¹⁵ yield curve, fine structure 0=1435
 O¹⁶(γ , np), energy dependence of cross-sections and distrib. 3=19834
 O¹⁶(γ , n), threshold 0=13261
 O¹⁶(γ , N), ang. distrib. above giant reson. calc. 4=28018
 O¹⁶(γ , p) 0=15589
 O¹⁶(γ , p + α)B¹¹, at 120 MeV 2=22797
 O¹⁶(γ , p), giant res. up to 170 MeV 3=8076
 O¹⁶(γ , p)N¹⁵ 1=7366
 O¹⁶(γ , p)N¹⁵ 1=7369
 O¹⁶(γ , p)N¹⁵, 20.5 MeV polarized bremsstrahlung 2=425
 O¹⁶(γ , p) and O¹⁶(γ , n), giant res. up to 170 MeV 2=20593
 O¹⁶(γ , t)N¹³, 60-150 MeV 2=10087
 O¹⁶(γ , Tn), resonances 4=22106
 O¹⁶(γ , 2n)O¹⁴ up to 32.5 MeV, cross-sections 2=7972

Nuclear reactions due to—contd
photons—contd

O¹⁶(γ , 2n)O¹⁴, yield, rel. to (γ , n) 0=1432
 O¹⁶(γ , 2p 3n)C¹¹, 60-150 MeV 2=10087
 O¹⁶, giant dipole resonance, calc. 1=3381
 O¹⁶, giant resonances T=0 and T=1 mixing 4=9477
 O¹⁶, photodeuteron emission, mechanism 2=14073
 O¹⁶ photodisintegration calc. 2=7964
 O¹⁶ photodisintegration calc. 3=6137
 O¹⁶ photodisintegration, nucleon interaction with surface 4=3637
 O¹⁶, quasi-deuteron prod. 2=18314
 O¹⁶, studied by inverse reaction 0=2676
 O¹⁶, total absorption cross-sections, 20-20.5 MeV 0=11433
 O¹⁶, total γ absorption at 20 MeV, structure 4=22102
 O¹⁶(γ , n)O¹⁷, energy and ang. distrib. 4=9479
 O¹⁶(γ , n), 30.5 MeV, neutron spectra 3=4622
 O¹⁶(γ , i), 31.5 MeV, spectrum meas. 4=19749
 P(γ , n), absolute cross-sections 12-30 MeV 4=6324
 P(γ , p), var. γ energy, giant reson. 4=19752
 P, photoprotons, 24 MeV 2=426
 P³¹(γ , n)P³⁰, breaks in activation curve 1=11001
 P³¹(γ , n)P³⁰ excitation 2=1694
 P³¹ \rightarrow Na²⁴, at E γ up to 260 MeV 0=13265
 P³¹(γ , n)P³⁰, 12.45 to 24 MeV 3=10323
 P³¹(γ , n), resonances, cross-sections, 13-23 MeV 3=4618
 P³¹(γ , p), proton spectrum, rel. to statist. model 2=12180
 P³¹(γ , 2p)Al²⁹, P(γ , 2pn)Al²⁸, yields 0=1432
 P³¹, photoneutron energy spectrum 3=6220
 Pb(γ , γ) elastic scattering at 25 MeV near particle threshold 1=17070
 Pb(γ , n), cross-section meas. 4=19755
 Pb(γ , n), using electron bremsstrahlung 0=20472
 Pb(γ , np), at 320 MeV 0=13260
 Pb(γ , n), spectra, excited transitions 4=22118
 Pb(γ , n), neutron energy spectrum 2=22796
 Pb(γ , n), yields due to electron bombard. at 10-36 MeV 0=4109
 Pb(γ , p), and 33.5 MeV 2=14079
 Pb(γ , p), 22.5 and 33.5 MeV 3=2433
 Pb(γ , p) at 22.5 and 33.5 MeV 3=6219
 Pb, photoprotons, ang. distrib., yields 2=22789
 Pb, at 170 MeV, π^0 production 2=20597
 Pb, total cross-section, 0.6-1.33 MeV 4=3632
 Pb²⁰⁸- α , photodisintegration 2=16384
 Pb^{207,208}(γ , n), time-of-flight, energy levels 4=1029
 Pb^{207,208}(γ , p) 3=15176
 Pb²⁰⁸(γ , d) 3=15176
 Pb²⁰⁸(γ , pn) 3=15176
 Pb²⁰⁸, giant resonance rel. to nuclear phonon excitations 2=20595
 Pb²⁰⁸, giant resonance rel. to nuclear phonon excitations 3=8078
 Pb²⁰⁸ photodisintegration calc. 2=7964
 Pb²⁰⁸ photodisintegration calc. 3=6137
 Pb²⁰⁸ photodisintegration, giant resonance 2=3550
 Pb²⁰⁸ photodisintegration, giant resonance 3=4619
 Pr(γ , n) 1=676
 Pr(γ , n), up to 30 MeV, cross-section meas. 4=17117
 Pr, photoneutrons, ang. distrib. 2=7966
 Pr, photoprotons, ang. distrib., yields 2=22789
 Pr¹⁴¹(γ , n), absolute cross-section 1=5892
 Pr¹⁴¹(γ , p) at 22.5 and 33.5 MeV 3=2432
 Pr¹⁴¹(γ , p), at 22.5 and 33.5 MeV 3=3552
 Pr¹⁴¹(γ , 3n)Pr¹³⁸ 1=13772
 Pt(γ , n), spectra 4=22118
 Pt(γ , p), at 22.5 and 33.5 MeV 2=14079
 Pt(γ , p), 22.5 and 33.5 MeV 3=2433
 Pt(γ , p) at 22.5 and 33.5 MeV 3=6219
 Pt, photoprotons, ang. distrib., yields 2=22789
 Rh(γ , n) 2=11745
 Rh(γ , p), at 22.5 and 33.5 MeV 2=14079
 Rh(γ , p) at 22.5 and 33.5 MeV 3=6219
 Rh, photoprotons, ang. distrib., yields 2=22789
 Rh¹⁰³(γ , γ')Rh^{103m}, at 5.9-25.5 MeV, cross-section 1=19436
 Rh¹⁰³(γ , n), threshold to 23 MeV, rel. to giant res. splitting 2=16387
 Rh¹⁰³(γ , n), threshold to 23 MeV, rel. to giant res. splitting 3=6230
 Rh¹⁰³(γ , n), X-irradiated 0=1436
 Rh¹⁰³(γ , p), 14.5-32.5 MeV 4=3641
 Rh¹⁰³, photon inelastic scattering cross-sections 2=1862

Nuclear reactions due to —contd**photons —contd**

Rh-Pt alloys, electron pair prod., effective atomic number 4=3392
 S(γ, γ) elastic scattering at 25 MeV near particle threshold 1=17070
 S(γ, n), absolute cross-sections 12-30 MeV 4=6324
 S(γ, p), var. γ energy, giant reson. 4=19752
 S, at 260 MeV, range of Na²⁴ recoils 0=1403
 S³²(γ, n), resonances, cross-sections, 13-23 MeV 3=4616
 S³²(γ, n)S³¹, photoneutron spectrum 4=17116
 S³²(γ, n)S³¹, 30 MeV, cross-sections 3=8071
 S³²(γ, np)P³⁰, S(γ, Tn) reactions, 30-80 MeV 2=16390
 S³²(γ, p) 0=15589
 S³²(γ, p), cross-sections meas. 2=16381
 S³², photodeuteron emission, mechanism 2=14073
 S³², photoneutron and photoproton reactions 3=19832
 S³², photoproton spectrum 3=15172
 S³², at 24-30 MeV, multiple photonuclear processes, statistical model 0=20481
 S³², various photo-reactions up to 31 MeV 0=7599
 S¹¹⁹, γ -quanta absorption at 23.8 keV 2=3553
 Sb(γ, n)Sb¹²², giving short-lived state 2=18250
 Sb, photodeuteron and photoproton yield 3=19833
 Sb¹²¹(γ, α)In^{117-117m} 1=11002
 Sb¹²¹(γ, n), absolute cross-section 1=5892
 Sb¹²¹(γ, n), activation cross-section at 20.5 MeV 1=8690
 Se⁸²(γ, p)As⁸¹ 1=7345
 Si(γ, γ) elastic scattering at 25 MeV near particle threshold 1=17070
 Si(γ, n), absolute cross-sections 12-30 MeV 4=6324
 Si(γ, n) in solid, displacement radiation effect of recoils 4=10016
 Si, photoprotons, 24 MeV 2=426
 Si, resonant scatt. from 11.40 MeV level, level width 0=17621
 Si, at 260 MeV, range of Na²⁴ recoils 0=1403
 Si²⁸(γ, n), up to 30 MeV, cross sections 4=3638
 Si²⁸(γ, n)Si²⁷, 20 MeV cross-sections 4=3639
 Si²⁸(γ, p)Al²⁷, 15-30 MeV meas. 4=12205
 Si²⁸(γ, p)Al²⁷, p spectrum peaks, up to 21.2 MeV 4=28020
 Si²⁸(γ, p), cross-section fluctuations, 17.6 MeV 3=8073
 Si²⁸(γ, p), cross-sections meas. 2=16381
 Si²⁸(γ, π^-)P²⁹, cross-sections theory and expt. 3=2430
 Si²⁸, 24 MeV bremsstrahlung bombardment 1=17082
 Si²⁸⁻³⁰(γ, n) thresholds 2=427, 22794
 Si²⁹ + $\gamma \rightarrow$ P²⁹ + π^- , polarization of residual nucleus 4=6317
 Si³⁰(p, γ)P³¹, 1-1.53 MeV 4=17133
 Sm(γ, α) 0=2674
 Sn(γ, γ) elastic scattering at 25 MeV near particle threshold 1=17070
 Sn(γ, np), at 320 MeV 0=13260
 Sn(γ, p) 0=13256
 Sn(γ, p), In¹¹⁷ and In^{117m} isomer prod. 1=11003
 Sn, photodeuteron and photoproton yield 3=19833
 Sn¹¹²(γ, n), yield curve, cross-section 1=13773
 Sn¹¹⁹, γ -quanta absorption at 23.8 keV 3=2431
 Sn¹¹⁹, resonance absorption 2=14080
 Sn¹¹⁹, 23.8 keV resonance width determination 0=5661
 Sn¹²⁰(γ, p)In¹¹⁹ 1=17083
 Sn¹²⁰(γ, pn)In¹¹⁸ 1=17083
 Sn^{120, 122, 124}, yielding In^{119, 121, 123} 0=11352
 Sn¹²⁴(γ, n), yield curve, cross-section 1=13773
 T(γ, nn)p, rel. to nuclear three-body theory 2=5777
 Ta(γ, n), 14 and 19 MeV 4=1066
 Ta(γ, n), at 18-65 MeV 0=5777
 Ta(γ, n) yields due to electron bombard. at 10-36 MeV 0=4109
 Ta(γ, p), photons due to electron bomb. 0=11432
 Ta(γ, π^0), 154 MeV 3=24762
 Ta, neutron yield, rel. to bremsstrahlung energy, giant resonance 0=4112
 Ta¹⁸¹(γ, n) and ($\gamma, 2n$), meas. 3=10329
 Ta¹⁸¹(γ, n)Ta^{180m} (8.15 hr), at 7.5-10.8 MeV, threshold and cross-section 1=2207
 Ta¹⁸¹(γ, n), threshold to 10.8 MeV meas. 4=25377
 Ta¹⁸¹(γ, n), threshold to 23 MeV, rel. to giant res. splitting 2=16387
 Ta¹⁸¹(γ, n), threshold to 23 MeV, rel. to giant res. splitting 3=6230
 Ta¹⁸¹(γ, p)Hf¹⁸⁰ 1=677
 Tb(γ, n) 1=676

Nuclear reactions due to—contd**photons—contd**

Tb¹⁵⁹(γ, n) and ($\gamma, 2n$) cross-sections 4=12207
 Tb¹⁵⁹(γ, n), threshold to 23 MeV, rel. to giant res. splitting 2=16387
 Tb¹⁵⁹(γ, n), threshold to 23 MeV, rel. to giant res. splitting 3=6230
 Te(γ, α) 1=678
 Th²³²(γ, p)Ac²³¹, production of new isotope Ac²³¹ 1=637
 Ti(γ, α), α spectra 4=28019
 Ti(γ, np), at 320 MeV 0=13260
 Ti⁴⁶⁻⁵⁰, yielding n and p 2=5890
 Tl(γ, n), giving short-lived isomeric state 2=18250
 (γ, Tn), resonances in light and medium elements, meas. apparatus 4=22106
 U(γ, n), spectra 4=22118
 U(γ, n) yields due to electron bombard. at 10-36 MeV 0=4109
 U photoelectrons, ang. distrib. 3=22366
 U²³⁵, neutron emission meas. 4=9481
 U²³⁸(γ, p)Pa²³⁷ 0=9562
 V(γ, α), 21 and 30 MeV 3=15179
 V⁵¹(γ, α)Sc⁴⁷ 1=5898
 V⁵¹(γ, α)Sc⁴⁷, excitation function, 10.5-25 MeV, expt. and calc. 0=1437
 V⁵¹(γ, α)Sc⁴⁷, at 21 and 30 MeV 2=22791
 V⁵¹(γ, n), meas. up to 28 MeV 3=6221
 V⁵¹($\gamma, 2n$), meas. up to 28 MeV 3=6221
 V⁵¹, giant dipole resonance, calc. 1=8686
 V⁵¹, giant resonance, dipole absorption 0=20477
 W(γ, p), excitation function, 15.5-33.5 MeV 3=24923
 W(γ, p), 22.5 and 33.5 MeV 3=2433
 W, photoprotons, ang. distrib., yields 2=22789
 Y, photoneutrons, ang. distrib. 2=7966
 Y⁸³, photon inelastic scattering cross-sections 2=1862
 Y⁸⁸(γ, n)Y⁸⁸ threshold 3=8074
 Zn⁶⁴(γ, n), absolute cross-section 1=5892
 Zn⁶⁴(γ, n), activation cross-section at 20.5 MeV 1=8690
 Zn⁶⁴(γ, n), cross-sections 0=20479
 Zn⁶⁴(γ, n)Zn⁶³ 0=5778
 Zn⁶⁴(γ, n)Zn⁶³, cross-section 1=2028
 Zr⁹⁰(γ, n), cross-sections and yield curve 0=20476
 Zr⁹⁰(γ, p), 22, 34 MeV, p spectra, ang. distrib., disagreement with shell model calc. 4=25376
 Zr⁹⁰ photodisint., giant resonance 3=6228
 Zr⁹⁰, photodisintegration giant resonance 2=14081

protons
 absolute meas. of energy levels and breadths 0=20345
 activation by 660 MeV protons 4=6251
 antineutron production in nuclei 0=17329
 antiproton absorption, effect of Coulomb forces 0=20430
 antiproton annihilation in complex nuclei 0=4090
 antiprotons, in emulsions, 3GeV/c, m.f.p. 4=12216
 antiprotons, mean free path in emulsions meas. 4=15207
 backing materials, (p, γ) reactions, masking effect 1=13795
 beam intensity meas. at 40-150 MeV 2=18112
 bombardment of matter, deuteron production from cascade nucleon pairing 2=1879
 capture, resonance widths, graphical method 3=2453
 cascade calc., intranuclear, low-energy 3=22384
 CERN protons with photographic emulsion nuclei, around 15 GeV/c 1=17101
 classical treatment of reactions induced by fast nucleons 1=684
 with complex nuclei, He particle emission 4=25417
 with complex nuclei, 27GeV 3=15187
 compound nucleus formation, cross-section 0=11402
 conversion electron prod., meas. by β -spectrometer 2=5621
 cosmic rays in nuclear emulsions 3=24817
 cross-sections at high energies 2=16392
 cross-sections, rel. to optical potential shape, imaginary part 1=19447
 cross sections, total, energy dependence 4=9501
 deuteron formation from 25-30 BeV protons 3=6253
 deuterons from cascade nucleon pairing, at high energy 1=12199
 diamond dust suspension in emulsion, C reactions study 0=5463
 diffraction processes, rel. to π -production 3=15169
 direct interactions, mechanism 1=8704
 direct interactions, pp' and pn, single-particle versus collective excitations 1=19465

Nuclear reactions due to—contd**protons—contd**

- disintegration of light (C, N, O) and heavy (Ag, Br) nuclei at 660 MeV 0=11399
- effect on relative ionization near end of proton range 0=20141
- in emulsion, α -cascade of energy > 30 MeV 0=20433
- in emulsion, α -particle production, cross-section study 0=9620
- in emulsion, Be⁹ and B¹¹ hyperfragment prod. 1=19350
- in emulsion, Coulomb interference 0=20429
- in emulsion, inelastic cross-sections, multi-particle prod., ang. distrib. 0=9618
- in emulsion, at 9 BeV 0=4088, 11400
- in emulsion, at 9 BeV, meson prod. 0=13042
- in emulsion, at 930 MeV 0=20434
- with emulsion nuclei, mesic hyper fragment production 4=17178
- with emulsion nuclei, 9 GeV, Li^{6,7}, B⁸ fragments emission frequency 2=20626
- emulsion nuclei, at 9 GeV, multiple-cascade model 2=1869
- on emulsion nuclei at 25 GeV, hyperfragment prod. 2=10000
- with emulsion nuclei, 25 GeV/c, hypernuclei prod. 3=19756
- with emulsion nuclei, 26.7 GeV/c, meson prodn. 3=6249
- in emulsion, at 100 MeV, fragment prod. 0=13234
- in emulsion, π^- and K-meson prod. 0=9619
- in emulsion, secondary stars prod. by n, p and π 0=9617
- in emulsions, 6 GeV 3=19733
- in emulsion, 24.8 GeV/c protons, hammer tracks study 1=19477
- in emulsion, 25 GeV, with heavy nuclei 3=19628
- in emulsion, 25 GeV/c, secondary particles 3=19626
- in emulsions, GeV protons 1=17104
- excitation of photonuclear giant resonance 2=20621
- fast deuteron prod., mechanism 2=18325
- formation of nuclei heavier than Ca 3=15185
- fragmentation in emulsion at 9 BeV, T-shaped hammer tracks 2=328
- fragmentation in emulsion at 9 BeV, T-shaped hammer tracks 3=4475
- fragmentation at 9 GeV, ang. correl. with fragments 3=22388
- γ production, use of two-crystal spectrometer 3=7746
- gas target chamber, for large currents 2=7785
- giant resonance excited by inelastic scatt. of 155 MeV protons 1=13784
- heavy emulsion nuclei, Li⁸ fragment emission, frequency 3=19853
- heavy and light nuclei in emulsion, at 1 GeV 0=2659
- with heavy nuclei in emulsion, 24 GeV 3=8103
- heavy nuclei excitation by fast nucleons 1=685
- on heavy nuclei in G5 emulsions, Li⁸ and Li⁹ emission 2=10108
- heavy nuclei—nucleon collisions, hydrodynamic theory 2=3560
- heavy nuclei—nucleon colls, hydrodynamic theory 3=2439
- heavy nuclei, prod. of α -emitters with short half-life 0=7504
- heavy nuclei, T production probability 2=447, 22815
- high-energy, on complex nuclei, prod. of Na²⁴ and P³² 0=7569
- high-energy, in emulsion 0=1399
- high energy, fragment ang. correl., energy var. 4=22132
- high-energy, nucleus-nucleus cross-sections 1=5903
- high energy, photon spectra 3=8102
- hypernuclei formation, in photoemulsion, at 8.8 BeV 2=354
- inert gas production by 540 MeV proton irradiation of metals 3=12676
- intermediate resonance levels 0=7579
- L-subshell electron ejection, form factor 0=13398
- Lewis effect observed on Al²⁷ 2=449
- light nuclei; F¹⁹ to S³³, resonances 0=9627
- light nuclei, at 5.7 BeV, cross-sections, sext. and theory 0=13226-7
- light nuclei, high energy 4=3647
- light nuclei, (p, γ), rel. to giant dipole resonance 4=15143
- medium-A nuclei, direct (p, n) reactions, meas. 3=10347
- medium-weight nuclei, ratio of (p, pn) to (p, 2n) cross-sections at 21.5 MeV, theory 0=13229
- multicharge particle prod. in emulsion, 75-350 MeV p's 4=19775

Nuclear reactions due to—contd**protons—contd**

- multicharged particle production, ang. distrib., 75-350 MeV 4=3655
- multicharged-particle production, energy spectra and angular correl. 3=24939
- (n, p), 14.8 MeV, scintillation spectrometer 2=13800
- 9 GeV, mechanism of primary collision 3=24938
- 19.2 MeV, prod. of five new msec isomers 1=19353
- nonmirror nuclei, (p, n) spectra rel. to isobaric states 2=13940
- nuclear cascade process, 9 BeV, produced particle properties 3=2461
- nuclear emulsion elements, at 24.8 GeV/c. rel. to Li⁸ and B⁸ fragments 2=22816
- nuclei A ~ 100 , 11.2 MeV, total reaction cross-sections 3=24931
- with nuclei, π^+ meson beam production 1=19478
- on nuclei, π^+ meson beam production 2=22818
- nucleon-surface interactions, differential cross-section contrib. 0=5740
- optical model, absorption cross-sections 4=30337
- optical model potential, imaginary part 2=9980
- optical model, surface- and volume-absorption potentials rel. to 10 MeV cross-sections 1=12193
- optical model, nonlocal 0=13107
- optical potential, imaginary part 0=17580
- oriented nuclei, by polarized beams 2=12179
- p-nuclei (light), at 9 BeV rel. to secondary distrib. 2=5917
- (p, α), differential cross-sect. in large angle region, variation 2=7980
- (p, α), diffn. cross-sect., in large-angle region, variation 3=6244
- (p, α) at (0.5-2.0) $\times 10^8$ °K for A=40-60 3=24941
- (p, α), with 9 BeV protons, in emulsion 2=5916, 12188
- (p, α) for p-shell nuclei, rel. to nucleon cluster reduced widths 4=22131
- (p, α), rel. to penetration of nuclei by α -rays 0=11309
- (p, α), quasielastic collisions, using harmonic oscill. model 4=6182
- (p, α) reactions and level density curves 2=12128
- (p, α) reactions at 9.5-23 MeV, α -ray ang. distrib. and absolute diff. cross-sections 0=7547
- (p, α), spectra, rel. to evaporation model 2=1889
- (p, α) at 30, 43 and 56 MeV 3=24936
- (p, Be⁸), on heavy nuclei in emulsions 2=12189
- p-C, at 300 MeV, Monte Carlo Calcs. 2=5920
- (p, d), ang. correl., final state density matrix 2=5957
- (p, d) breakup reaction, 10-14 MeV, proton spectra 1=8516
- (p, d) distorted wave calc. at 95 and 145 MeV, partial wave analysis 4=22130
- (p, d), for filled shell model states investigation 2=16407
- p + d \rightarrow He³ + γ fusion reaction 1=13873
- (p, d), at high energies 2=14098
- (p, d) at high energies, composite collision model 4=12229
- (p, d) indirect process 0=11405
- (p, d) at (0.5-2.0) $\times 10^8$ °K for A=40-60 3=24941
- (p, d), and nuclear neutron hole state determ. 3=19762
- (p, d), nuclei from V⁵¹ to Ni⁸⁰, 17.0-18.5 MeV meas. 4=19781
- (p, d), optical potential, effect up to 100 MeV 4=19774
- (p, d) reactions, comparison with (d, t) 0=11420
- (p, d) reactions, interpretation of anomalous inelastic scatt. 2=436
- (p, d) reactions in light nuclei, Butler curves and level widths 1=7374
- (p, d) reactions, theory 2=11398
- (p, d) reactions at 22 MeV, deuteron energy spectra 0=9615
- (p, γ), direct and semi-direct 4=28026
- (p, γ), ang. correl. complexity limiting rule 4=25392
- (p, γ , γ) triple correl., mixing ratio sign 3=12674
- (p, γ), used in NaI crystal counter efficiency calibration 2=3214
- (p, γ), (pp', γ), (p, α' , γ) resonances 2=5605
- (p, γ), proton and radiative widths, 22 < A < 35 4=19773
- (p, γ) in rare-earth oxides 1=13790
- (p, γ) resonance curve anomalies 3=12672
- (p, γ) resonance curves meas., use of H₂⁺ beams 4=3652
- (p, γ) resonant energies, absolute det. as fixed points on high-energy scale 1=690
- (p, γ), used for ripple meas. on cascade generator 4=3064

Nuclear reactions due to—contd**protons—contd**

- (p, γ) spectroscopy, liquid-air trap 2=16100
 (p, γ) in stars, in proton-rich element prod. 2=6983
 (p, Li^8), 9 GeV, in heavy emulsion nuclei 2=14099
 (p, n), comparison with Weisskopf neutron evap. theory 1=2209
 (p, n) cross-sections, optical model distorted wave analysis 3=669
 (p, n), 4-16 MeV, statistical model 2=5875
 (p, n) in mirror nuclei and nuclear two-body force 1=19463
 (p, n) mirror state reactions, new term in nuclear optical potential 2=22810
 (p, n), neutron spectra groups, interpretation 2=22809
 (p, n) on nonmirror even-even nuclei, excited isobaric states 2=18249
 (p, n), and nuclear optical potential, isotopic spin dependence, calc., $> \sim$ MeV 3=19749
 (p, n), (p, $\alpha\gamma$) and (p, α) as energy standards 1=13798
 (p, n) (p, 2n), rel. to bypassed nuclei origin 2=446
 (p, n) production of radioisotopes in cyclotron 1=13674
 (p, n), quasi-elastic, isobaric spin depend. 2=16285
 (p, n), quasielastic model 4=3654
 (p, n) reactions, differences from (p, p'), rel. to Blair model 2=1396
 (p, n), reactions, 18 medium-weight nuclei, cross-sections at 4-5.5 MeV 2=434
 (p, n) reactions, energy spectra, statistical model 3=2426
 (p, n) reactions in intermediate-weight nuclei at 5 MeV, spectra and ang. distrib. 1=8714
 (p, n) reactions, isobaric states props. 3=633
 (p, n) reactions in medium-weight nuclei 1=9862
 (p, n) reactions on mirror nuclei, test of direct reaction mechanism 1=7373
 (p, n) reactions at 190 MeV, rel. to neutron evap. theory 2=5736
 (p, n) reactions, Q-values meas. 3=668
 (p, n) reactions, resonance peaks, rel. to ($p\bar{n}$) collective state 2=20619
 (p, n) reactions at 7-8 MeV on odd-even nuclei, evidence for statistical model 1=696
 (p, n) reactions, width of observed isobaric states 2=16295
 (p, n), resonance peaks, correlation effects 3=8096
 (p, n), thin target for obs. 4=19322
 (p, n) threshold-curve shapes, meas. with proton beams 4=17126
 (p, n) threshold meas. on 8 nuclei 4=6339
 (p, n), 30, 50 MeV, and isobaric state excitation in spectra obs. 4=3653
 (p, p) on 15 rare earth nuclides at 12 MeV, p' spectra 3=22285
 (p, p') inelastic scattering, DWBA calc. 2=1857
 (p, p') rel. to (p, n) cross-sections, direct interaction model 1=8716
 (p, p') reactions, inapplicability of Austern-Butler-McManus theory 1=13788
 (p, p') reactions, similarity to (d, d') and differences from (p, n), rel. to Blair model 2=1396
 (p, p') spectra, rel. to evaporation model 2=1889
 (p, p α), rel. to α -particle clustering in nucleus 4=25394
 (p, p α) reaction on 4n nuclei 2=20615
 (p, p d), high-energy, theory 4=9500
 (p, p d), momentum distrib. of d, theory 4=22129
 p, p' γ , correl. bet. p' γ polarization and photon's direction 3=15191
 (p, p' γ) at high energies, theory 2=439
 (p, p' γ), (p, γ) and (p, n γ), identification 2=20431
 (p, p' γ) reactions, p' γ ang. correl. symmetries, theory 2=22803
 (p, p' γ), use in Zn⁶⁴, ⁶⁶ energy level obs. 4=9402
 (p, p n) cross-sections, effect of nuclear rearrangement 1=13789
 (p, p n), high-energy, nuclear structure effects 3=12679
 (p, p n) reactions at multi-BeV energy, light-nuclei data and theory 2=13226-7
 (p, p n), 370 MeV, medium weight nuclei 3=15197
 (p, p n), 20-150 MeV, mechanisms 2=14093
 (p, p n), 20-155 MeV, results rel. to theory 2=456
 (p, p π^+), cross-section with π -meson exchange 3=4635

Nuclear reactions due to—contd**protons—contd**

- (p, pt) reaction on (4n-1) nuclei 2=20615
 (p, t) in Al and Pb 1=19469
 (p, t) in Al and Pb 3=4637
 (p, t) reactions, mechanism 2=13230
 (p, t) reactions, survey, compound nucleus and direct-interaction effects 0=20425
 (p, t) reactions at 22 MeV, t energy distrib., reaction mechanism 2=17592
 (p, 2 nucleon) reactions at 250-440 MeV, excitation functions 1=4869
 (p, 2p) ang. correl. for p-shell nuclei, analysis 4=15206
 (p, 2p) cross-sections, effect of nuclear rearrangement 1=13789
 (p, 2p), direct interaction 2=17581
 (p, 2p), energy spectra, theory and expt. 2=20622
 (p, 2p), in light nuclei 4=12215
 (p, 2p), on light nuclei, effect of absorpt., calc. 3=19842
 (p, 2p) on light nuclei, residual nucleus states and j-j model 4=12217
 (p, 2p), rel. to nuclear structure 1=3439
 (p, 2p) at 150 MeV, nuclei up to Ca, rel. to shell structure 2=1774
 (p, 2p) 170 and 450 MeV, in 1p-shell nuclei, distorted-wave analysis 4=1078
 (p, 2p) and (p, np), "spectroscopic approach" for protons up to several GeV 3=2440
 (p, 2p) reactions at 40 MeV, mechanism 2=11404
 (p, 2p) reactions, 155 MeV, study of structure of light nuclei 2=20625
 pickup, radioactive heavy ions detector 3=12609
 pick-up reactions, deuteron production 1=5916-17
 plastics, at 9 GeV, C¹¹ prod. and diffusion loss 4=19717
 polarization effects, with spin-orbital interaction 3=22353
 proton-light nuclei in emulsion, at 9 GeV, product distrib. 2=12196
 proton-nuclei, fast, rel. to nuclear structure 2=1871
 proton-nucleus collisions at 27 GeV in emulsion 1=17102
 quasi-free non-coplanar p-p scatt. 4=3650
 reduced widths and charge independence 2=14082
 scatt. cross-sections, inelastic, 10 MeV, for 19 elements 3=8095
 scattering from C¹², degree of polarization 2=440
 scattering on Ilford G5, NIFKI-R emulsions 2=445
 scattering, multiple, high momentum, in nuclear emulsions 1=19450
 secondary particle ang. distrib., for 10¹⁰-10¹³ eV reactions 3=17273
 70-135 MeV, propane bubble chamber study 2=5540
 size resonances, search for, confirmation for Ni 1=8720
 solar cosmic rays in atmosphere, 30-300 MeV 2=22692
 statistical theory, comp. with expt. 2=22813
 supernova envelope, nuclear synthesis in A = 20-40 3=21123
 tandem generator used 2=5906
 target of T, or D, -saturated Zr, temp. distrib. 3=24395
 <10 GeV, inaccuracy of Castagnoli formula and Duller-Walker diagram 2=22574
 10 MeV reaction cross-sections, rel. to optical model 1=12193
 10¹⁰-10¹² eV, apparatus 0=12805
 theory, in 2nd quantization 4=9487
 total and charged-particle cross-sections at 9-85 MeV, rel. to optical model 1=8712
 total cross-section meas. at high energy, beam attenuation technique 2=7552
 140 MeV-4 BeV, absorption cross-sections, characteristic transparency curve 1=17091
 150 MeV, analysis rel. to momentum distrib. nucleons 2=454
 57 MeV, spectra of emitted charged particles 3=8100
 450 MeV, π^{\pm} prod. on 7 nuclei 2=3577
 985 MeV, charged-particle and total cross-section for 11 elements, C to Sn 0=20432
 3.0 BeV/c, cross-sections 2=3387
 3-28 GeV 3=10071
 25 GeV, in complex nuclei, deuteron prod., calc. 0=20245
 25 GeV, rel. to hyperfragment emission 2=14094
 29 MeV, total cross-sections, C, Al, Ni, Ag, Au 4=9501
 A, at 61 MeV, total cross-section 2=7552
 A⁴⁰(p, α)Cl³⁷, at 0.8-3.5 MeV 2=3562
 A⁴⁰(p, γ)K⁴¹ 2=13997

Nuclear reactions due to — contd

protons — contd

- $A^{40}(p, \gamma)K^{41}$ and K^{41} levels, γ spectra, spins 4=3565
 $A^{40}(p, \gamma)K^{41}$, at 1-1.65 keV 3=7991
 $A^{40}(p, \gamma)K^{41}$, resonance anomalies undetected 2=3562
 $A^{40}(p, \gamma)K^{41}$, 700-1400 keV 1=8727
 $A^{40}(p, n)K^{40}$ at 5.6 MeV, γ -ray spectra 3=6250
 $A^{40}(p, p')A^{40}$, at 0.8-3.5 MeV 2=3562
 $Ac(p, \alpha xn)$, cross-sections 3=6251
 Ag , disintegration fragments, charge distrib. 2=488, 22814
 Ag , fission by 1.0-3.0 BeV protons 2=10158
 Ag , formation of Na^{24} and Mg^{28} , 320-880 MeV 3=22387
 Ag , at 480 MeV, ang. and energy distrib. of products 0=9621
 Ag , fragmentation by 9 BeV protons 2=14151
 Ag , inelastic cross-sections, 77 to 133 MeV 2=5919
 Ag , at 9 BeV, fragmentation 0=9622
 Ag , at 190 MeV, Monte Carlo calc. 2=13217
 $Ag(p, \alpha)$, at 1, 2, 3 BeV, α energy and ang distrib. 0=7548
 $Ag(p, \gamma)$ 0=7557
 $Ag(p, \gamma)$, energy spectrum 1=13795
 $Ag(p, \gamma)$ 10-14 MeV 1=9858
 $Ag(p, Li^8)$, 9 BeV meas. 3=22389
 $Ag(p, n)$, cross-section at 10 MeV 1=12193
 Ag , spallation element yield for high energies 4=12226
 Ag , at 340-2000 MeV, light nuclei emission, Monte Carlo calc. 0=13218
 Ag , 2.9 GeV, differential range study of products 4=22140
 $Ag^{107,109}(p, n)$, at 5-10.5 MeV, cross sections 2=22812
 $Ag^{108}(p, n)$ 1=2209
 Ag^{109} , 82, 110 and 156 MeV protons, Monte Carlo calc. of cascades 4=17136
 $AgBr$, 1 and 2 GeV, α -particle evaporation 4=25401
 Al bombarded, γ -rays 2=20615
 Al , elastic scattering, 6-7.4 MeV 2=5898
 Al , at 4-12.9 MeV, reaction cross-section 1=8720
 Al , at 5.7 BeV, cross-sections, expt. and theory 0=13226-7
 Al , inelastic cross-sections, 77 to 133 MeV 2=5919
 Al , neutron evap. cross-sections 1=14088
 Al , 180 MeV, total cross-section 1=19474
 Al -p, 82 and 105 MeV, tritium production 2=12191
 $Al(p, \gamma)$, resonance studies with H_1^+ , H_2^+ and H_3^+ ions 1=691
 $Al(p, \gamma)$ 10-14 MeV 1=9858
 $Al(p, n)$, cross-section at 10 MeV 1=12193
 $Al(p, n)$, 143 MeV, neutron polariz. 3=10349
 Al -p, at 23-1 GeV, γ -ray spectra 2=9840
 Al , at 10-30 BeV, π^+ , K^+ , p, \bar{p} production 2=20627
 Al , 30 GeV, prod. of t, d, p, \bar{p} , π and K 3=6090
 Al , at 25 BeV, mass analysis of secondary particles, high deuteron prod. 0=17582
 Al , at 28 GeV, spallation cross-sections 2=18326
 Al , at 30 and 33 BeV, product analysis 2=14095
 Al^{27} , capture, levels in Si^{28} 1=8588
 $Al^{27}(p, \alpha)$ 3=2473
 $Al^{27}(p, \alpha, \gamma)$, rel. to Si^{28} energy levels 4=22020
 $Al^{27}(p, \alpha)Mg^{24}$ 0=20435
 $Al^{27}(p, \alpha)Mg^{24}$, ang. distrib., mechanism 3=6241
 $Al^{27}(p, \alpha)Mg^{24}$, ang. distribution 2=3572
 $Al^{27}(p, \alpha)Mg^{24}$, energy levels of Mg^{24} 2=20518
 $Al^{27}(p, \alpha)Mg^{24}$, 500-850 keV, α yield measurement 1=7371
 $Al^{27}(p, \alpha)Mg^{24}$, mag. substate population probabilities at 3 reson. 4=9509
 $Al^{27}(p, \alpha)Mg^{24}$, 9-12 MeV, cross-section 4=15211
 $Al^{27}(p, \alpha)Mg^{24}$, numerical differential cross-sections 2=10099
 $Al^{27}(p, \alpha)Mg^{24}$, 1-25 MeV 3=19847
 $Al^{27}(p, \alpha)Mg^{24}$, 730-1390 keV 2=20612
 $Al^{27}(p, \alpha)Mg^{24}$, statistical emission and Ericson fluctuations 2=16409
 $Al^{27}(p, \alpha)Mg^{24}$, 3 to 12 MeV 3=17468
 $Al^{27}(p, \alpha)Mg^{24}$, 10 MeV, fluctuating and direct contribs. 4=19779
 $Al^{27}(p, \alpha)Mg^{24}$, 10.5-14.5 MeV 1=11006
 $Al^{27}(p, \alpha)Mg^{24}$, 224 keV, γ -ray spectra 4=9510
 $Al^{27}(p, Be^7)$, 30 and 39 MeV 3=22383
 $Al^{27}(p, Be^7)$, at 27-31.5 MeV, cross-section 2=18323
 $Al^{27}(p, 5p5n)F^{18}$ 0=20441
 $Al^{27}(p, \gamma, \gamma)$, rel. to Si^{28} energy levels 4=22020
 $Al^{27}(p, \gamma)$, proton energies and resonance widths 0=1406
 $Al^{27}(p, \gamma)Si^{28}$ 1=7372
 $Al^{27}(p, \gamma)Si^{28}$ 3=10219
 $Al^{27}(p, \gamma)Si^{28}$ 3=24836

Nuclear reactions due to—contd

protons—contd

- $Al^{27}(p, \gamma)Si^{28}$ 4=22020
 $Al^{27}(p, \gamma)Si^{28}$, 5 to 13 MeV 2=1884
 $Al^{27}(p, \gamma)Si^{28}$, 500-850 keV, α yield measurement 1=7371
 $Al^{27}(p, \gamma)Si^{28}$, giant resonance 1=5909
 $Al^{27}(p, \gamma)Si^{28}$ in giant resonance region 1=13792
 $Al^{27}(p, \gamma)Si^{28}$, 936 and 1261 keV resonances 3=19844
 $Al^{27}(p, \gamma)Si^{28}$, 991 keV resonance, precision determin. 1=19461
 $Al^{27}(p, \gamma)Si^{28}$, 992 keV reson., thick target yield 4=28030
 $Al^{27}(p, \gamma)Si^{28}$, 922 keV resonance 3=8097
 $Al^{27}(p, \gamma)Si^{28}$, 992 keV resonance 3=12668
 $Al^{27}(p, \gamma)Si^{28}$, 992 keV resonance, Lewis effect 2=449
 $Al^{27}(p, \gamma)Si^{28}$, 992 keV, resonance, thick-target yield curves 4=1223
 $Al^{27}(p, \gamma)Si^{28}$, 992 keV resonance, yield anomalies 2=10106
 $Al^{27}(p, \gamma)Si^{28}$, 0.9-2.5 MeV 3=19811
 $Al^{27}(p, \gamma)Si^{28}$, at 1.3-2.2 MeV, resonances 0=5741
 $Al^{27}(p, \gamma)Si^{28}$, 1315, 1362, 1363 keV resonances, meas. 4=28025
 $Al^{27}(p, \gamma)Si^{28}$ resonance energy 3=12672
 $Al^{27}(p, \gamma)Si^{28}$, resonance, threshold energies 2=22808
 $Al^{27}(p, \gamma)Si^{28}$, resonances 2=5879
 $Al^{27}(p, \gamma)Si^{28}$, resonances, 3=2499
 $Al^{27}(p, \gamma)Si^{28}$ resonances, Monte Carlo study 3=12673
 $Al^{27}(p, \gamma)Si^{28}$, resonances and Si^{28} levels 4=19682
 $Al^{27}(p, \gamma)Si^{28}$, resonant energies, absolute values 1=690
 $Al^{27}(p, \gamma)Si^{28}$ resonant energy, with absolute ion velocity gauge 3=22381
 $Al^{27}(p, \gamma)Si^{28}$, at 7.5-14.7 MeV, giant resonance 1=12194
 $Al^{27}(p, \gamma)Si^{28}$, at 759, 766, 773, 993 keV resonances 1=17097
 $Al^{27}(p, \gamma)Si^{28}$, spin and parity of $Ep=504$, 506 keV resonances 1=17096
 $Al^{27}(p, \gamma)Si^{28}$, 12 resonances, Si^{28} level study 0=17505
 $Al^{27}(p, \gamma)Si^{28}$ at 326, 405, 630 keV resonances 2=3569
 $Al^{27}(p, \gamma)Si^{28}$, 1200-1320 keV protons 4=1013
 $Al^{27}(p, n)Si^{27}$, 8-14 MeV 1=8730
 $Al^{27}(p, n)Si^{27}$, residual nucleus states 2=18272
 $Al(p, Li^8)$, ang. distrib. and energy spectra 4=17132
 $Al^{27}(p, n)$, 2-10 MeV 0=1398
 $Al^{27}(p, p')Al^{27}$, p' ang. distrib. peaks, 6.5 MeV p 3=22375
 $Al^{27}(p, p\pi^+)Mg^{27}$ 2=16412
 $Al^{27}(p, p\pi^+)Mg^{27}$ 3=6247
 $Al^{27}(p, p\pi^+)Mg^{27}$, cross-section calc. 3=4635
 $Al^{27}(p, 3pn)Na^{24}$ 0=20441
 $Al^{27}(p, 3pn)Na^{24}/C^{13}(p, pn)C^{11}$ ratio in GeV region 3=6252
 $Al^{27}(p, 3pn)Na^{24}$, cross-section at 591 MeV 1=8732
 $Al^{27}(p, 3pn)Na^{24}$, 82-426 MeV, excitation function 0=11403
 $Al^{27}(p, 3pn)Na^{24}$, GeV energy protons, recoil study 3=4639
 $Al^{27}(p, 3p2n)Na^{23}$, 155 MeV, cross-section 3=19854
 $Al^{27}(p, 3p3n)Na^{22}$, at 155 MeV, cross-section, Na^{22}/Na^{24} ratio 2=5918
 $Al^{27}(p, 3pn)Na^{24}$, 660 MeV, mechanism 0=1402
 $Al^{27}(p, \gamma)Si^{28}$ 1.6-2.5 MeV 4=30311
 $Al^{27}(p, p'\pi^+; \pi^0 \rightarrow 2\gamma) \pi^0$ prodn. cross-section, γ -ang. distrib., meas. 4=28027
 $Ar^{36}(p, \gamma)K^{39}$ 4=19686
 $Ar^{40}(p, \gamma)K^{41}$ in 750-1450 keV range 4=6340
 $As^{75}(p, \alpha)Ge^{72}$, 8-14 MeV 3=24935
 $As^{75}(p, n)Se^{76}$, γ -ray spectra, spins and levels in Se^{76} 1=9862
 $As^{75}(p, p')As^{75m}$ 1=13690
 $As^{75}(p, pn)$, at 250-440 MeV, excitation function 1=4869
 As , spallation products, range 1=7379
 As^{75} , 2.9 BeV protons, isobaric yields 2=12194
 $As^{75}(p, 3p)$, 100-440 MeV 2=20628
 $As^{75}(p, 4p)$, 100-440 MeV 2=20628
 As^{75m} formation 0=1382
 Au , 8-60 MeV, formation of Hg and Au nuc. isomers 4=3661
 Au , formation of Na^{24} and Mg^{28} , 320-880 MeV 3=22387
 Au , formation of Os^{181} 2=14044
 Au , at 4-10 MeV, neutron yield 0=1398
 Au , Ir^{186} formation, 660 MeV 3=24912
 Au , neutron evaporation spectra 3=12669
 Au , at 154 MeV 2=1892
 Au , 180 MeV, total cross-section 1=19474
 Au , at 190 MeV, Monte Carlo calc. 0=13217
 Au , 660 MeV, Ir^{184} , Pt^{187} prod. 2=14053
 Au -p, 82 and 105 MeV, tritium prodn. 2=12191

Nuclear reactions due to—contd
protons—contd

- Au(p, γ) 0=7557
 Au(p, γ), energy spectrum 1=13795
 Au(p, γ) 10-14 MeV 1=9858
 Au(p, He³ or He⁴), at 155 MeV, α ang. distrib. 4=19785
 Au(p, n), cross-section at 10 MeV 1=14193
 Au(p, pn), excitation function 2=14093
 Au, (p, pn), (p, p2n) and (p, 3n) spallation reactions 0=15571
 Au(p, xn), 40 to 155 MeV 2=1882
 Au(p, xn), 40, 155 MeV, excitation functions 2=457
 Au(p, xn)Hg, 155 MeV protons, cross-sections 1=13804
 Au, at 340-2000 MeV, Monte Carlo calc. 0=13218
 Au¹⁹⁷ bombarded, energy spectra of emitted particles 2=453
 Au¹⁹⁷, 82, 110 and 156 MeV protons, Monte Carlo calc. of cascades 4=17136
 Au¹⁹⁷(p, γ)Hg, 40 to 140 MeV, spallation use of Orsay isotope separator 3=12678
 Au¹⁹⁷(p, pn), 20 to 155 MeV 2=1881
 Au¹⁹⁷(p, n)Hg¹⁹⁷, excitation functions, 4-13 MeV 2=7984
 Au¹⁹⁷(p, n)Hg¹⁹⁷B, threshold to 20 MeV 4=1072
 Au¹⁹⁷(p, n)Hg¹⁹⁷, isomeric cross-section ratios 0=20424
 Au¹⁹⁷(p, n)Hg^{197m}, threshold to 20 MeV 4=1072
 Au¹⁹⁷(p, pn)Au¹⁹⁶, 82-426 MeV, excitation function 0=11403
 Au¹⁹⁷(p, pxn) 1=17098
 Au¹⁹⁷(p, 3p3n), 50-150 MeV, and nucleus, α sub-structure 3=19852
 B, γ -ray production, study 1=19473
 B¹⁰(p, α)Be⁷, excitation function resonances, 3=17463
 B¹⁰(p, α)Be⁷ in NRX reactor 0=20438
 B¹⁰(p, α)Be⁷, at 1.5-2.6 MeV, excitation function 2=22729
 B¹⁰(p, α)Be⁷, 2 to 11 MeV 4=12220
 B¹⁰(p, α), B¹⁰(p, p' γ), B¹⁰(p, γ), 2.4-7.2 MeV 2=16406
 B¹⁰(p, d)B⁸, d energies 4=19780
 B¹⁰(p, d)B⁸ and B⁸ low lying $1/2^+$ level search 4=25289
 B¹⁰(p, γ)C¹¹, rel. to C¹¹ levels 1=10964
 B¹⁰(p, γ)C¹¹, γ -rays from 1.14 MeV resonance 1=9856
 B¹⁰(p, He³)Be⁸, 4-10 MeV, excitation function, 50°, 90° 3=17463
 B¹⁰(p, n)C¹⁰, excit. function, threshold to 10.6 MeV 3=12671
 B¹⁰(p, 2p, 2n), excitation functions, 15-155 MeV 4=30338
 B^{10,11}(p, n)C^{10,11}, threshold 2=3570
 B^{10,11}(p, 2p), 155 MeV, structure of light nuclei 2=20625
 B¹¹, elastic scattering, 6-7.4 MeV 2=5898
 B¹¹(p, α) 2=1833
 B¹¹(p, α) ang. distrib. 1=13791
 B¹¹(p, α), ang. distrib., 140-550 keV 3=2452
 B¹¹(p, α)Be⁸, α -spectrum and ang. distrib. 0=438-9
 B¹¹(p, α)Be⁸, 0.7-6.0 MeV 3=19850
 B¹¹(p, α)Be⁸, sequential two-body decay of C¹² 1=11007
 B¹¹(p, α) and C¹² 2⁺ level decay 4=22064
 B¹¹(p, α), at 163 keV 2=10038
 B¹¹(p, d)B¹⁰, d energies 4=19780
 B¹¹(p, d), 17.6-20 MeV, meas. analysis 3=4636
 B¹¹(p, γ)Be⁸ 1=5910
 B¹¹(p, γ)C¹², above 25 MeV 3=17464
 B¹¹(p, γ)C¹² in giant resonance region 1=13792
 B¹¹(p, γ), resonance width 1=18953
 B¹¹(p, n)C¹¹ 1=19466
 B¹¹(p, n)C¹¹, 8-14 MeV 1=8730
 B¹¹(p, n)C¹¹, excitation function, Ep < 15 MeV 1=12195
 B¹¹(p, n)C¹¹, at 4.9-11.4 MeV, cross-section, C¹² level structure 1=16981
 B¹¹(p, n), 40 to 150 MeV 3=12677
 B¹¹(p, n), at 2-5.7 MeV, ang. distrib., test of direct reaction mechanism 1=7373
 B¹¹(p, n), 2-10 MeV 0=1398
 B¹¹(p, p'), unified model theory 3=2382
 B¹¹, partial widths of C¹², 16, 11 MeV state 2=367
 B¹¹, proton capture in giant resonance region 3=15192
 Ba^{137, 138}(p, n)La^{137, 138}, level densities of La^{137, 138} 4=9409
 Be, ang. distrib. and energy spectra 0=13231
 Be, at 5.7 BeV, cross-sections, expt. and theory 0=13226-7
 Be, γ -ray production, study 1=19473
 Be, high-energy, π charge distrib. 0=9428
 Be, K⁺ prod., poss. B = 2, S = -1 reson., 4=30263
 Be-p at 23.1 GeV, γ -ray spectra 2=9840
 Be(p, n), at 680 MeV, neutron spectrum 0=2550
 Be, at 9-25 GeV/c, elastic and quasi-elastic collisions 1=7243

Nuclear reactions due to—contd
protons—contd

- Be, 180 MeV, total cross-section 1=19474
 Be, at 660 MeV, angular distrib. and energy of charged products 0=5742
 Be at 10-30 BeV; π^+ , K⁺, p, \bar{p} prod. 2=20627
 Be, 30 GeV, prod. of t, d, p, \bar{p} , π and K 3=6090
 Be, at 30 and 33 BeV, product analysis 2=14095
 Be, at 220-362 MeV 0=20439
 BeV accelerator instrumentation 2=7682
 Be⁷, capture at 0.8 and 14 MeV 0=7550
 Be⁷ formation cross section from C and O by 130 to 400 MeV protons 4=25393
 Be⁷ formation cross-section from Fe and Ni by 130 to 400 MeV protons 4=25393
 Be⁷ formation cross-section from Si and Mg by 130 to 400 MeV protons 4=25393
 (p, Be⁷) at high energies 1=12198
 Be⁸(p, α)Li⁶, at 15.6 and 18.6 MeV, ang. distrib. 3=2454
 Be⁸(p, α)Li⁶, 3.5 to 12.5 MeV 4=9504
 Be⁸(p, α)Li⁶, 10 MeV, α momentum spectrum 4=6336
 Be⁸(p, d)Be⁸ 1=4866
 Be⁸(p, d)Be⁸ 2=16311
 Be⁸(p, d)Be⁸(0) 1=3446
 Be⁸(p, d)Be⁸ 4=9504
 Be⁸(p, d)Be⁸, "ghost" interpretation 4=1040
 Be⁸(p, d)Be⁸, polarized deuteron production 1=13527
 Be⁸(p, d)Be⁸, sequential two-body decay of B¹⁰ 1=11007
 Be⁸(p, d)Be⁸, at 3 MeV, d polarization 2=1890
 Be⁸(p, γ) B¹⁰, rel. to B¹⁰ levels 1=5838
 Be⁸(p, γ)B¹⁰, B¹⁰ energy levels 2=16313
 Be⁸(p, γ)B¹⁰, 850-1110 keV, resonance 2=16315
 Be⁸(p, γ)B¹⁰, at 0.27-1.2 MeV, resonances 0=1404
 Be⁸(p, γ)B¹⁰, 1330 keV resonance level 4=3561
 Be⁸(p, γ)B¹⁰, use for proton energy calibration 4=19515
 Be⁸(p, γ)B¹⁰, 6.8 MeV γ -ray yield, interference between 930 and 980 keV levels 1=9857
 Be⁸(p, γ)B¹⁰, study of B¹⁰ levels 0=13133
 Be⁸(p, γ)B¹⁰, 336 keV resonance 3=667
 Be⁸(p, n)B⁸ near threshold and B⁸ ground width upper limit 4=19637
 Be⁸(p, n)B⁸, 3.7-8.5 MeV 3=19848
 Be⁸(p, n)B⁸, threshold 2=3570
 Be⁸(p, n)B⁸, 2.4-4.1 MeV, neutron polariz. and ang. distrib. 3=6243
 Be⁸(p, α) and Be⁸ α substructure 4=1080
 Be⁸(p, n)B⁸, neutron spectra for 8-14 MeV protons 1=8728
 Be⁸(p, n)B⁸, threshold to 2.85 MeV 2=16411
 Be⁸(p, n), at 2-5.7 MeV, ang. distrib., test of direct reaction mechanism 1=7373
 Be⁸(p, 2Nxx) Li⁶ reaction, fast residual nuclei prod. 4=25395
 Be⁸(p, 2p), Li⁶ fast residual study 4=12219
 Bi, α emission, 60-600 MeV, and nuclear struct. 3=17381
 Bi, At^{210, 211} production cross-sections and relative yields, from (α , xn) secondary reactions 0=20436
 Bi, capture cross-section, meas. vs calc. 4=28033
 Bi, fragmentation at 2.9 GeV, Na²⁴ production meas. 4=15218
 Bi, 3-10 BeV, prod. of At isotopes 4=6341
 Bi(p, α), at 150 MeV 0=7580
 Bi(p, α), 240-600 MeV, cross-sections 3=22385
 Bi(p, He³ or He⁴), at 155 MeV, α ang. distrib. 4=19785
 Bi(p, xn)Po, 57-155 MeV, 4 Po isotopes 3=19851
 Bi, prod. of At²⁰⁹ and At²¹⁰ by 120-660 MeV protons 3=15203
 Bi, at 340-2000 MeV, light nuclei emission, Monte Carlo calc. 0=13218
 Bi, at 380 MeV, spallation cross-sections 0=435
 Bi at 660 MeV, fragmentation 0=9623
 Bi²⁰⁵ \rightarrow Pb^{205m} 1=17133
 Bi²⁰⁹, at 0.46-1.84 BeV, momentum imparted to nucleus, calc. 0=17593
 Bi²⁰⁹, 82, 110 and 156 MeV protons, Monte Carlo calc. of cascades 4=17136
 Bi²⁰⁹, at 155 MeV, prod. cross-sections for Po^{206, 208, 210} 0=15570
 Bi²⁰⁹, 135 MeV, calc. including fission 3=4638
 Bi²⁰⁹(p, α), 150 MeV protons, secondary reactions study 1=13802

Nuclear reactions due to—contd

protons—contd

- Bi²⁰⁹(p, γ), 30 to 150 MeV, radiative capture cross-section, meas. vs calc. 4=28032
 Bi²⁰⁹(p,n)Po²⁰⁹ and (p,2n)Po²⁰⁸, neutron—gamma emission competition 4=22191
 Bi²⁰⁹(p,pn)Bi^{208m}, 19.2 MeV 3=2457
 Bi²⁰⁹(p,p2n)Bi²⁰⁷, 450 MeV, recoil studies 4=9516
 Bi²⁰⁹(p,pxn) spallation products, recoil 3=17475
 Bi²⁰⁹(p,2n)Po²⁰⁸, excitation function near threshold, analysis 1=10996
 Bi²⁰⁹(p, xn) Po, at 135 MeV 1=19472
 Bi²⁰⁹(p, xn) Po, at 135 MeV 2=7985
 Bi²⁰⁹(p,xn)Po²⁰⁰⁻²⁰⁸ spallation, 135 MeV 3=10348
 Bi²⁰⁹, at 660 MeV, spallation yield 0=11408
 Br, disintegration fragments, charge distrib. 2=448, 22814
 Br, fission by 1.0–3.0 BeV protons 2=10158
 Br, fragmentation by 9 BeV protons 0=9622
 Br, fragmentation by 9 BeV protons 2=14151
 Br(p, α), at 1, 2, 3 BeV, α energy and ang. distrib. 0=7548
 Br(p, Li⁸), 9 BeV meas. 3=22389
 Br, in photographic emulsions, Li⁸ fragment formation 4=1083
 Br, spallation element yield for high energies 4=12228
 Br⁷⁹(p,n) cross-section at 6.75 MeV 3=12675
 Br^{79,81}(p,pn) at 2.9 GeV 3=12679
 Br^{79,81}(p, pxn), 2.9 GeV calc. 4=1082
 Br⁸¹(p,pn), at 250–440 MeV, excitation function 1=4869
 C, absorption of 95–970 MeV protons 1=5902
 C, ang. distrib. and energy spectra 0=13231
 C, antiproton absorption, effect of Coulomb forces 0=20430
 p–C collisions, at 660 MeV, π meson production 1=17103
 C, deuteron and triton emission due to 155 MeV protons 1=13803
 C, 4–10 MeV, neutron yield 0=1398
 C, at 5.7 BeV, cross-sections, expt. and theory 0=13226-7
 C, γ-ray production, study 1=19473
 C, at high energy, product ang. distrib., expt. and Monte Carlo calc. 0=11171
 C, inelastic cross-sections, 77 to 133 MeV 2=5919
 C, medium-energy cross-sections, rel. to cosmic-ray radio-nuclide prod. 0=11407
 C, 180 MeV, total cross-section 1=19474
 C–p, 82 and 105 MeV, tritium production 2=12191
 C(p, γ) 10–14 MeV 1=9858
 C, p–p and p–n collisions, π⁺ and π[–] spectra 1=16855
 C(p, π) 1=5755
 C(p, π π) 1=19195
 C(p, π π) 3=4388
 C–p, at 24 GeV/c 2=12192
 C, at 6 GeV, antiproton prod., absorption effects 0=15343
 C, at 61 MeV, total cross-section 0=7552
 C, at 154 MeV 2=1892
 C¹³, 660 MeV, rel. to α-particle cascade 3=2462
 C, at 660 MeV, angular distrib. and energy of charged products 0=5742
 C, total cross-section, up to 50 MeV 4=9506
 C, total cross-section at 10–68 MeV 0=4093
 C, 2-stage disintegration, complex particle ejection 1=17106
 C, various reactions, cross-sections, ang. and energy distrib. 0=9624
 C, 220 MeV, elastic scattering 0=5738
 C¹¹(p, d), 40 MeV 4=1073
 C¹², inelastic scattering 1=19453
 C¹², inelastic scattering, 150 MeV ang. correlation with γ-rays 2=1872
 C¹² nuclei at 660 MeV, intranuclear cascade 2=5921
 C¹³ nuclei at 660 MeV, intranuclear cascade 3=4643
 C¹³(p, α)B⁹, due to intermediate C¹³ 9.64 MeV level 4=22134
 C¹²(p, α)B⁹, evidence for B⁹ 1.7 MeV level 2=22728
 C¹²(p, α)B⁹, at 15.6 and 18.6 MeV, ang. distrib. 3=2454
 C¹²(p, d)C¹¹, E_p = 14–20 MeV 3=2447
 C¹²(p, d)C¹¹, at high energy, nucleon momentum distrib. 3=624
 C¹²(p, d)C¹¹ at 145 MeV 0=7553
 C¹²(p, d)C¹¹, at 154 MeV, separation of final states in C¹¹ 2=3571
 C¹³(p, d)C¹², d spectrum, level widths 1=7374
 C¹²(p, γ) 1=4885

Nuclear reactions due to—contd

protons—contd

- C¹²(p, γ), effective cross-section meas., 200–400 keV 1=11009
 C¹²(p, γ)N¹³ 1=19466
 C¹²(p, γ)N¹³ 3=12666
 C¹²(p, γ)N¹³ 3=12666
 C¹²(p, γ)N¹³, E_p = 14–20 MeV 3=2447
 C¹²(p, γ)N¹³, obs. with multiwire counter 0=3890
 C¹²(p, γ)N¹³, 1.5 to 2.0 MeV 3=17465
 C¹²(p, γ)N¹³, 10 to 50 MeV 3=19846
 C¹²–p, inelastic scattering at 150 MeV 2=3565
 C¹²(p, n)N^{12*}, neutron polarization, calc. using impulse approx. 1=13793
 C¹²(p, pα)Be⁸, 85 MeV, quasi-elastic 4=15208
 C¹²(p, p')C^{12*}, 9.5–16 MeV 1=12192
 C¹²(p, p')C¹², 6.5–16 MeV 1=12192
 C¹²(p, p')3α 0=9508
 C¹²(p, p')3α, ang. distrib. 0=9625
 C¹²(p, p'3α), intermediate Be⁸ formation 2=18324
 C¹²(p, p₂γ)C¹², ang. distrib. of γ-rays 2=7979
 C¹²(p, p'γ)C¹², at 5–12 MeV, ang. distrib. of 4.43 MeV γ-ray 2=1878
 C¹²(p, p'γ)C¹², at 15.1 MeV 2=1880
 C¹²(p, p'γ), at 4.4 MeV, p–γ ang. correl. 0=11410
 C¹²(p, p'γ) scattering 15.1 MeV level 2=438
 C¹²(p, pn)C¹¹ 2=18318
 C¹²(p, pn)C¹¹/Al²⁷(p, 3pn)Na²⁴ ratio in GeV region 3=6252
 C¹²(p, pn)C¹¹, cross-section at 591 MeV 1=8732
 C¹²(p, pn)C¹¹, excitation function 0=20440-1
 C¹²(p, pn)C¹¹, at 3, 4.5, 6 BeV, cross-sections 0=7555
 C¹²(p, pn)C¹¹, 21 to 50.5 MeV, absolute cross-sections 4=9505
 C¹²(p, p n)C¹¹, 98.1 MeV, production cross-section meas. 4=28029
 C¹²(p, pn)C¹¹, 1.0 GeV meas. 4=12221
 C¹²(p, pn)C¹¹, 9 GeV 4=6337
 C¹²(p, pn)C¹¹, at 0.25–6.2 GeV, recoil ranges 3=670
 C¹²(p, pn)C¹¹, 120–150 MeV 2=1870
 C¹²(p, pn)C¹¹, in plastic foils, 15% C¹¹ loss by diffusion 1=11008
 C¹²(p, pn)C¹¹, for synchrocyclotron current meas. 3=14700
 C¹²(p, pn)C¹¹, 28 GeV meas. 2=10107
 C¹²(p, p'π⁰; π⁰→2 γ)π⁰ prodn. cross-section, γ-ang. distrib., meas. 4=28027
 C¹²(p, p'3α), 15–29 MeV 3=2458
 C¹²(p, p'3α), 15–29 MeV, mechanism 3=8091
 C¹²(p, p')3α, low-lying states in Li⁵ and Be⁸ 3=10345
 C¹² + p, residual nuclei, excitation yields and energies 4=3656
 C¹²–p, spin-flip inelastic scatt., 15.1 MeV 2=12185
 C¹²(p, 3p3n)Be⁷ 0=20441
 C¹²(p, 2p)B¹¹ 2=14121, 18318
 C¹²(p, 2p)B¹¹ 3=6277
 C¹²(p, 2p)B¹¹, impulse approx. treatment 0=4091
 C¹²(p, 2p)B¹¹, 100 MeV 4=19778
 C¹²(p, 2p)B¹¹, 120–150 MeV 2=1870
 C¹²(p, 2p)B¹¹, at 153 MeV 0=17584-5
 C¹²(p, 2p)B¹¹, at 155 MeV 2=455, 1893
 C¹²(p, 2p)B¹¹, at 158 MeV, quasi-elastic p–p scatt. 0=20135
 C¹²(p, 2p)B¹¹, quasi-elastic scatt. of 153 MeV protons 1=13411
 C¹²(p, 2p), 155 MeV, calc. 3=19842
 C¹²(p, 2p), 155 MeV, structure of light nuclei 2=20625
 C¹²(p, 2p), unified model theory 3=2382
 C¹², produced by 90 MeV protons, 3 α-particle decay 1=17105
 C¹² scattering, giant dipole resonance 1=13785
 C¹², at 24 GeV, π⁰ prod., energy versus angle 2=303
 C¹², at 28 GeV, spallation cross-sections 2=18326
 C¹³(p, γ) 1=4865
 C¹³(p, γ)N¹⁴ 2=16323
 C¹³(p, γ) and N¹⁴ energy levels 4=22012
 C¹⁴(p, n)N¹⁴, at up to 5 MeV, levels in N¹⁵ 0=17583
 C¹⁴(p, n)N¹⁴, neutron spectra 1=16813
 C¹³(p, α)B¹⁰, α-particle detect. by semicon. counter 3=4478
 C¹³(p, γ)N¹⁴, rel. to N¹⁴ levels 3=8094
 C¹³(p, γ)N¹⁴, rel. to N¹⁴ 10.43 MeV state 4=17025
 C¹³(p, γ)N¹⁴, at 100–140 keV, excitation curve 1=2211
 C¹³(p, γ)N¹⁴, proton energies and resonance widths 0=1406

Nuclear reactions due to—contd

protons—contd

- $\text{C}^{13}(\text{p}, \gamma)\text{N}^{14}$ resonance energy 3=12672
 $\text{C}^{13}(\text{p}, \gamma)\text{N}^{14}$, in stars, effect of possible N^{14} level
 ~ 7.60 MeV 3=11566
 $\text{C}^{13}(\text{p}, \gamma)\text{N}^{14}$, study of N^{14} 9.17 MeV level decay
 modes 0=17562
 $\text{C}^{13}(\text{p}, \gamma)\text{N}^{14}$, 9-17 MeV state in N^{14} , γ -ray ang.
 distrib. 1=10971
 $\text{C}^{13}(\text{p}, \text{n})\text{N}^{13}$ 1=19466
 $\text{C}^{13}(\text{p}, \text{n})\text{N}^{13}$, forward and backward peakings 3=12659
 $\text{C}^{13}(\text{p}, \text{n})\text{N}^{13}$, neutron angular distrib. 1=11010
 $\text{C}^{13}(\text{p}, \text{n})\text{N}^{13}$, resonant energies 0=17499
 $\text{C}^{13}(\text{p}, \text{n})\text{N}^{13}$, to 13.1 MeV, neutron yield and ang.
 distrib. 1=8715
 $\text{C}^{13}(\text{p}, \text{n})\text{N}^{13}$, threshold 0=1406
 $\text{C}^{13}(\text{p}, \text{n})\text{N}^{13}$, threshold energy meas. 4=17126
 $\text{C}^{13}(\text{p}, \text{n})\text{N}^{13}$, threshold to 13 MeV 1=8729
 $\text{C}^{13}(\text{p}, \text{n})$, at 2-5.7 MeV, ang. distrib., test of direct
 reaction mechanism 1=7373
 $\text{C}^{14}(\text{p}, \alpha)\text{B}^{11}$, at 18 MeV, ang. distrib. 3=671
 $\text{C}^{14}(\text{p}, \text{d})$ and $\text{C}^{14}(\text{p}, \text{t})$, 17.6-20 MeV 3=4636
 $\text{C}^{14}(\text{p}, \gamma)\text{N}^{15}$ 351 keV resonance, gamma-ray meas. 1=692
 $\text{C}^{14}(\text{p}, \text{n})\text{N}^{14}$, $\text{C}^{14}(\text{p}, \gamma)\text{N}^{15}$, $\frac{1}{2}^+$ states in N^{15} 1=8580
 $\text{C}^{14}(\text{p}, \text{n})\text{N}^{14}$, $\text{C}^{14}(\text{p}, \gamma)\text{N}^{15}$, at < 1.6 MeV, reduced widths
 and isotopic spin impurities of N^{15} $\frac{1}{2}^+$ states 1=8624
 Ca, 180 MeV, total cross-section 1=19474
 Ca(p, γ), 150 MeV 3=10350
 Ca(p, γ) 10-14 MeV 1=9858
 Ca, 220 MeV, elastic scattering 0=5738
 Ca³⁹(p, d), 40 MeV 4=1073
 Ca⁴⁰(p, γ)Sc⁴¹, rel. to final state nuclear density
 distrib. 3=19745
 Ca⁴⁰, inelastic scattering, at 150 MeV 2=1873
 Ca⁴⁰(p, d)Ca³⁹, d energies 4=19780
 Ca⁴⁰(p, d)Ca³⁹, at 30 MeV 4=9514
 Ca⁴⁰(p, γ)Sc⁴¹ 1=11011
 Ca⁴⁰(p, p')Ca⁴⁰ 0=7560
 Ca⁴⁰(p, p')Ca⁴⁰, internal conversion pairs and γ -ray
 spectra 1=13736
 Ca⁴⁰(p, 2p), 150 MeV, equal and opposite p's 4=22135
 Ca⁴⁰, scatt., inelastic, at 6.6 MeV 2=10096
 Ca⁴⁰(p, d)Ca³⁹, medium energies 2=16407
 Ca⁴⁰(p, 2p), 180 MeV, harmonic-oscill. shell model
 calc. 4=3657
 Ca⁴⁰(p, 2p) quasi-scatt., 180 MeV 2=22802
 Ca⁴²(p, γ)Sc⁴³, 780-1420 keV p's, resonances 3=17471
 Ca⁴³⁻⁴⁴(p, n) 0=17504
 Ca⁴⁴(p, γ)Sc⁴⁵, 800-1400 keV p's, resonances 3=17470
 Ca⁴⁴(p, γ)Sc⁴⁵, 1.3-2.5 MeV, and Sc⁴⁵ excited
 states 4=6278
 Ca⁴⁸(p, γ), and Sc⁴⁹ low energy levels 4=15156
 Ca⁴⁸(p, n), 120-660 MeV 3=15201
 Ca⁴⁸(p, pn), 120-660 MeV 3=15201
 Ca⁴⁸(p, pn), (p, 2n) and (p, n), 120-660 MeV 3=10351
 Ca⁴⁸(p, 2n), 120-660 MeV 3=15201
 Cd, at 24 GeV/c, total inelastic cross-section 2=8002
 Cd^{111, 114}(p, n), at 5-10-5 MeV, cross-sections 2=22812
 Cd¹¹⁴(p, n) 1=2209
 Cd¹¹⁴(p, n)In^{114m}, at 19.2 MeV 1=19353
 Ce, capture cross-section, meas. vs calc. 4=28033
 Ce¹⁴⁰, 82, 110 and 156 MeV protons, Monte Carlo calc.
 of cascades 4=17136
 Ce¹⁴²(p, γ), 5 to 50 MeV, radiative capture cross-section,
 meas. vs calc. 4=28032
 Ce¹⁴²(p, γ)Pr¹⁴³, cross-section 1=13794
 Ce¹⁴²(p, pn)Ce¹⁴¹, Ce¹⁴²(p, 2p)Lu¹⁴¹, at 60-233 MeV,
 cross-sections 1=9863
 Ce¹⁴²(p, pn) and (p, 2p), 0.37-2.85 BeV 4=3662
 Ce¹⁴²(p, pn), at 250-440 MeV, excitation function 1=4869
 Ce¹⁴²(p, 2p), at 250-440 MeV, excitation function 1=4869
 Cl(p, γ)A 1=653
 Cl(p, γ), 150 MeV 3=10350
 Cl³⁵(p, α)S³², from 200-850 keV 4=9509
 Cl³⁵(p, γ)A³⁶, resonance energies, 200-700 keV 2=7983
 Cl³⁵(p, γ)Ar³⁶, rel. to Ar³⁶ levels 4=17048
 Cl³⁵(p, n)Ar³⁵, thresholds meas. 3=8131
 Cl³⁵(p, p')Cl³⁵ 1=9814
 Cl^{35, 37}(p, α)S^{32, 34} 0=4098
 Cl^{35, 37}(p, α)S^{32, 34}, fluctuations in cross-section,
 statistical 4=17134
 Cl^{35, 37}(p, γ)A^{36, 38} (300-900 keV) 1=7375
 Cl^{35, 37}(p, γ)Ar^{36, 38}, 1050-1150 keV 4=15213

Nuclear reactions due to—contd

protons—contd

- Cl³⁷(p, α)S³⁴, from 200-850 keV 4=9509
 Cl³⁷(p, γ)A³⁸, resonance energies, 200-700 keV 2=7983
 Cl³⁷(p, n)A³⁷, near threshold, levels in A³⁸ 2=1794-5
 Co, elastic scatt., 6-7.4 MeV 2=5898
 Co, at 4-12.9 MeV, reaction cross-section 1=8720
 Co(p, α), at 15-19 MeV, α -spectra 2=1889
 Co(p, α), 20.5 MeV 4=1071
 Co(p, n), cross-section at 10 MeV 1=12193
 Co(p, n), at 7-8 MeV, evidence for statistical
 model 1=696
 Co⁵⁶ formation cross-section from Fe and Ni by 130 to
 400 MeV protons 4=25393
 Co⁵⁷(p, α)Fe⁵⁸, 7.7-14.1 MeV 1=11012
 Co⁵⁹(p, α)Fe⁵⁸, numerical differential cross-
 sections 2=10099
 Co⁵⁹, diff. elastic cross-sections, optical model
 calc. 1=17093
 Co⁵⁹(p, α) at 18 MeV 1=19462
 Co⁵⁹(p, α)Fe⁵⁸, 22 MeV 3=15196
 Co⁵⁹(p, α)Fe⁵⁸, 10 MeV, fluctuating and direct
 contribs. 4=19779
 Co⁵⁹(p, d)Co⁵⁸, at 22 MeV 2=1885
 Co⁵⁹(p, d), single-particle neutron bound-state
 study 2=18322
 Co⁵⁹(p, n)Ni⁵⁹ 2=12167
 Co⁵⁹(p, n) 1=2209
 Co⁵⁹(p, n), at 4-6.5 MeV, obs. cross-section 2=1891
 Co⁵⁹(p, n)Ni⁵⁹, γ -ray spectra, spins and levels in
 Ni⁵⁹ 1=9862
 Co⁵⁹(p, n) and (p, p'), at 5-11 MeV, statistical
 theory 2=22813
 Co⁵⁹(p, n), 6.5 MeV direct processes 3=12667
 Cr(p, γ) 10-14 MeV 1=9858
 Cr⁵⁰(p, γ)Mn⁵¹, Mn⁵¹ energy levels 4=19688
 Cr^{50, 52}(p, γ), and Mn^{51, 53} energy levels 4=22027
 Cr^{50, 52-4}(p, γ)Mn^{51, 53-5}, at 0.7-1.4 MeV, Mn level
 study 2=7981
 Cr⁶¹ formation cross-section from Fe and Ni by 130 to
 400 MeV protons 4=25393
 Cr⁵², ang. correl. meas. for 4 MeV protons 2=20614
 Cr⁵²(p, α)V⁴⁹ 0=20435
 Cr⁵²(p, γ)Mn⁵³ 4=19782
 Cr⁵²(p, n), absolute cross-sections up to 14 MeV 0=20446
 Cr⁵²(p, n), at 5-10.5 MeV, cross-sections 2=22812
 Cr⁵²(p, n), at 4-0.5 MeV, abs. cross-section 2=1891
 Cr^{52, 53} angular distrib., 5.40 MeV 0=7556
 Cr^{52, 53} diff. elastic cross-sections, optical model
 calc. 1=17093
 Cs(p, pn), excitation function 2=14093
 Cs(p, pxn) type, activation meas. 2=7986
 Cs¹³²(p, pn), 20 to 155 MeV 2=1881
 Cs¹³³(p, 3n)Ba^{131m} 3=8000
 Cu, ang. distrib. and energy spectra 0=13231
 Cu, antiproton absorption, effect of Coulomb
 forces 0=20430
 Cu, elastic scatt., 6-7.4 MeV 2=5898
 Cu, elastic scattering at 9.94 MeV 2=1875
 Cu, formation of Na²⁴ and Mg²⁸, 320-880 MeV 3=22387
 Cu, at 4-12.9 MeV, reaction cross-section 1=8720
 Cu, inelastic cross-sections, 77 to 133 MeV 2=5919
 Cu, at 9.3 MeV, total reaction cross-section, rel. to
 optical model analysis 1=8708
 Cu, neutron evaporation cross-sections 2=14088
 Cu(p, α), 20.5 MeV 4=1071
 Cu(p, α), at 23 MeV, Monte Carlo calc. 0=13217
 Cu(p, γ) 0=7557
 Cu(p, γ), energy spectrum 1=13795
 Cu(p, γ) 10-14 MeV 1=9858
 Cu(p, n), cross-sections, calc., for various
 isotopes 0=17590
 Cu(p, n) at 32 MeV 1=19460
 Cu, production cross-sections for T and inert gases 1=7376
 Cu, reaction cross-section at 9 MeV 2=20616
 Cu, at 660 MeV, angular distrib. and energy of charged
 products 0=5742
 Cu, spallation, 3-30 GeV 3=4641
 Cu, spallation by 24 GeV protons 2=14097
 Cu, at 340-2000 MeV, light nuclei emission, Monte
 Carlo calc. 0=13218
 Cu, total cross-sections at 9.3 MeV 2=5908
 Cu, at 24 GeV/c, total inelastic cross-section 2=8002

Nuclear reactions due to—contd

protons—contd

- Cu⁶³(p,n) cross-section at 6.75 MeV 3=12675
 Cu⁶³(p,n), at 4-6.5 MeV, abs. cross-section 2=1891
 Cu⁶³(p,n)Zn⁶³, residual nucleus states 2=18272
 Cu^{63,65}(p,α), 8-14 MeV 3=24935
 Cu^{63,65}(p,α), at 7-12 MeV, cross-section, optical-model analysis 1=12196
 Cu^{63,65}(p,n), cross-section at 10 MeV 1=12193
 Cu^{63,65}(p,n), at 5-10.5 MeV, cross-sections 2=22812
 Cu^{63,65}(p,n) and (p,p'), at 5-11 MeV, statistical theory 2=22813
 Cu^{63,65}(p,n), at 10 MeV, cross-sections, derivation of σ_R 1=3447
 Cu⁶⁴(p,p' π^0 ; $\pi^0 \rightarrow 2\gamma$), π^0 prodn. cross-section, γ -ang. distrib., meas. 4=28027
 Cu⁶⁵(p,n) cross-section at 6.75 MeV 3=12675
 Cu⁶⁵, diff. elastic cross-sections, optical model calc. 1=17093
 Cu⁶⁵(p,n) 0=17504
 Cu⁶⁵(p,n), 40 to 150 MeV 3=12677
 Cu⁶⁵(p,n) γ Zn⁶⁵, energy levels of Zn⁶⁵ 1=13664
 Cu⁶⁵(p,n)Zn⁶⁵, γ -ray spectra, spins and levels in Zn⁶⁵ 1=9862
 Cu⁶⁵(p,pn)Cu⁶⁴, 82-426 MeV, excitation function 0=11403
 Cu⁶⁵(p,pn)Cu⁶⁴, 130 and 396 MeV, recoil study 4=12226
 Cu⁶⁵(p,pn)Cu⁶⁴, recoil behaviour 2=12193
 Cu⁶⁵(p,pn) at 2.9 GeV 3=12679
 Cu⁶⁵(p, π^-)Ga⁶⁶, at 200-600 MeV 0=7558
 Cu⁶⁵, at 7.5 MeV, interaction cross-section 1=11013
 D(p, γ)He³, 275 keV to 1.75 MeV 2=9848
 D(p,p)pn 2=3417
 DD(p,T), rate of reaction 2=1943
 D He³(p,He⁴), rate of reaction 2=1943
 Er, 6-87 MeV, excitation functions 4=3660
 Er^{162,164}(p,n)Tm^{162,164}, at 8 MeV, new Tm isotope prod. 1=652
 Er¹⁶⁶(p,n)Tm¹⁶⁶, at 6 MeV 0=13172
 Eu, formation of rare-earth, nuclides at 660 MeV 2=14096
 F, at 5.7 BeV, cross-sections, expt. and theory 0=13226-7
 F(p,pn), excitation function 2=14093
 F, at 220-362 MeV 0=20439
 F¹⁹, 440 keV, proton spectrum, theory and expt. 2=5887
 F¹⁹, inelastic scattering at 6.6 MeV 2=441, 22807
 F¹⁹(p, $\alpha\gamma$)O¹⁶ 1=17062
 F¹⁹(p, $\alpha\gamma$)O¹⁶, relative intensities of γ -rays 1=19467
 F¹⁹(p, $\alpha\gamma$)O¹⁶, resonant energies, absolute values 1=690
 F¹⁹(p, α)O¹⁶ 0=7560
 F¹⁹(p, α)O¹⁶ 2=7980
 F¹⁹(p, α)O¹⁶ 3=6244
 F¹⁹(p, α)O¹⁶, ang. distribution 2=3572
 F¹⁹(p, α)O¹⁶, at 8-14.2 MeV 0=20443
 F¹⁹(p, α)O¹⁶, at 5.1-6.5 MeV, α ang. distrib. 1=19468
 F¹⁹(p, α)O¹⁶, internal conversion pairs and γ -ray spectra 1=13736
 F¹⁹(p, α)O¹⁶, 1.8 MeV, products 1=9875
 F¹⁹(p, α)O¹⁶, 3-12 MeV meas. 3=22379
 F¹⁹(p, α)O¹⁶, < 35 MeV, α ang. distrib. peaks near 180° 3=17459
 F¹⁹(p, α)O¹⁶, 22.8 MeV, cross-sections meas. 4=6338
 F¹⁹(p, α)O¹⁶, α ang. distrib., and Ne²⁰ levels spin and parity 4=25397
 F¹⁹(p, α)O¹⁶, 10 MeV, fluctuating and direct contribs. 4=19779
 F¹⁹(p, $\alpha\gamma$)O¹⁶, resonance, threshold energies 2=22808
 F¹⁹(p, $\alpha\gamma$)O¹⁶, 224 and 340 keV resonances 2=5910
 F¹⁹(p,d)F¹⁸, d spectrum, level widths 1=7374
 F¹⁹(p, γ)Ne²⁰ 2=5910
 F¹⁹(p, γ)Ne²⁰, F¹⁹(p, α)O¹⁶, at 4-11 MeV, giant resonance of Ne²⁰ 1=8722
 F¹⁹(p, γ)Ne²⁰, 550-1500 keV, resonances 2=1888
 F¹⁹(p, γ)Ne²⁰, rel. to giant dipole resonance 4=15143
 F¹⁹(p, γ)Ne²⁰, props. of Ne²⁰ 4.97 MeV level 2=1814
 F¹⁹(p, γ), proton energies and resonance widths 0=1406
 F¹⁹(p,n), at 2-10 MeV 0=1398
 F¹⁹(p,n)N¹⁹, threshold energy 2=5911
 F¹⁹(p,n)Ne¹⁹ 3=668
 F¹⁹(p,n)Ne¹⁹, 5 to 11 MeV 3=17466
 F¹⁹(p,p')F^{19*} 1=13621
 F¹⁹(p,p α)N¹⁵, excited states residual nuclei 2=10109
 F¹⁹(p,p' γ), using CF₄ target 0=17586

Nuclear reactions due to—contd

protons—contd

- F¹⁹(p,pn)F¹⁸, 82-426 MeV, excitation functions 0=11403
 F¹⁹(p,pn), 20 to 155 MeV 2=1881
 F¹⁹(p,p'), 140 MeV, rel. to excitation mechanisms 4=25388
 F¹⁹(p,pt), excited states residual nuclei 2=10109
 F¹⁹(p,t)F¹⁷, 22.8 MeV, cross-sections meas. 4=6338
 F¹⁹(p,3n)Ne¹⁷, delayed p emission 4=25343
 F¹⁹, radiative capture at 669 keV 0=20442
 F¹⁹+p, 483-597 keV, resonances 3=15193
 Fe, at 4-12.0 MeV, reaction cross-section 1=8720
 Fe, induced radioactivity, at 10 GeV 2=22817
 Fe, medium-energy cross-sections, rel. to cosmic-ray effects on meteorites 0=11407
 Fe, 180 MeV, total cross-section 1=19474
 Fe(p, α), at 17.5 MeV, α -spectra 2=1889
 Fe(p,d), cross-sections 0=436
 Fe(p, γ) 10-14 MeV 1=9858
 Fe(p,n), cross-section at 10 MeV 1=12193
 Fe, production cross-sections for T and inert gases 1=7376
 Fe, by 6.2 BeV protons, Ar³⁹/Cl³⁵ ratio 3=4491
 Fe, at 61 MeV, total cross-section 0=7552
 Fe, 30 GeV, prod. of t, d, p, \bar{p} , π and K 3=6080
 Fe⁵²(p,t), T = 2 state search 4=27963
 Fe⁵⁴(p,d)Fe⁵³, at 22 MeV 2=1885
 Fe⁵⁴(p, γ)Co⁵³, 770-1100 keV 3=17472
 Fe^{54,56-6}(p,d), single-particle neutron bound-states study 2=18322
 Fe⁵⁶, ang. correl. meas. for 4 MeV protons 2=20614
 Fe⁵⁶(p, α) at 18 MeV 1=19462
 Fe⁵⁶(p, α)Mn⁵³, up to 14.5 MeV 3=24934
 Fe⁵⁶(p,d)Fe⁵⁵ 2=1886
 Fe⁵⁶(p,d)Fe⁵⁷ 2=1886
 Fe⁵⁶(p, γ)Co⁵⁷, product nucleus levels 4=19783
 Fe⁵⁶(p,n)Co⁵⁶, residual nucleus states 2=18272
 Fe⁵⁶(p,n), ground-state threshold 2=10105
 Fe⁵⁶⁻⁷(p,n), absolute cross-sections up to 14 MeV 0=20446
 Fe^{56,58}(p,d), ang. distrib. j dependence 4=19784
 Fe⁵⁶(p,d)Fe⁵⁶ 2=1886
 Fe⁵⁷(p,d)Fe⁵⁶, 22 MeV 3=15196
 Fe⁵⁸(p,t)Fe⁵⁸, 22 MeV 3=15196
 Ga⁶⁹, at 0.5-2.9 BeV, (p,xn), (p,pxn) and (p,3pxn) reactions 2=5922
 Ga⁶⁹(p,n) cross section at 6.75 MeV 3=12675
 Ga^{69,71}, 13-56 MeV, excitation functions 3=17474
 Ga⁷¹, at 0.5-2.9 BeV, (p,xn), (p,pxn) and (p,3pxn) reactions 2=5922
 Ga⁷¹(p,n) cross-section at 6.75 MeV 3=12675
 Ga⁷¹(p,n)Ge^{71m} 1=13690
 Ga⁷¹(p,pn)Ga^{70m} 0=1382
 Gd, production of Tb¹⁵⁰, at 60 MeV 0=1379
 Gd¹⁶⁰(p,p2n)Gd^{158m} 2=10018
 Gd¹⁶⁰(p,p2n)Gd^{158m} 3=6173
 Ge(p,xn)As^{74,76-8} 4=1079
 Ge⁷⁰(p,pn) at 2.9 GeV 3=12679
 Ge⁷²(p,pn)Ge^{71m} 1=13690
 Ge⁷²(p,pn)Ge^{71m}, 19.2 MeV 3=2457
 Ge⁷²(p,pn) at 2.9 GeV 3=12679
 Ge⁷⁶(p,2n)As^{75m} 1=13690
 H³(p,n)He³, threshold, precision determin. 1=19461
 H³(p, π^0)He⁴, near threshold 2=16220
 He³(p, γ)Li⁴, search for 0=2660
 He³(p, π^+)He⁴, near threshold 2=16220
 d, He³ and H³ prod. at high energies, composite collision model 4=12229
 He^{3,4} prod., proton bombardment of Au¹⁹⁷ 2=453
 He⁴(p,d)He³ 4=19514
 He⁴(p,2p)D, rel. to stellar processes 2=21726
 (p,He⁴) at high energies 1=12198
 Hf, disintegration 2=1894
 Hf, at 660 MeV 0=4095
 Ho¹⁶⁵ target, conversion-electron spectra 4=3580
 I¹²⁷, isomerism in Te¹¹⁹ products 2=14001
 I¹²⁷, 0.25-6.2 BeV 0=15572
 I¹²⁷(p,pn), at 250-440 MeV, excitation function 1=4869
 In, 1-6.2 BeV, expt. and calc. 0=15573
 In, 180 MeV, total cross-section 1=19474
 In(p,N¹³) at 1-2 BeV energies 1=12198
 In(p,n), at 7-8 MeV, evidence for statistical model 1=696
 In(p,p π^+) meas. at 30 and 2.9 GeV 3=2460
 In(p,pxn) meas. at 30 and 2.9 GeV 3=2460

Nuclear reactions due to—contd

protons—contd

- $\text{In}^{113}(\text{p}, \text{n})$, at 5-10 MeV, recoil ranges 2=22811
 $\text{In}^{115}(\text{p}, \text{n})$ 1=2209
 $\text{In}^{115}(\text{p}, \text{n})\text{Sn}^{115}$ 2=5808
 $\text{In}^{115}(\text{p}, \text{n})\text{Sn}^{115}$ 3=8098
 $\text{In}^{115}(\text{p}, \text{n})\text{Sn}^{115}$ 4=22035
 $\text{In}^{115}(\text{p}, \text{p}\gamma)$, at 5-10 MeV, recoil ranges 2=22811
 $\text{In}^{115}(\text{p}, \text{pn})\text{In}^{114\text{m}}$, at 19.2 MeV 1=19353
 $\text{In}^{115}(\text{p}, \text{p}\pi^+)\text{C}^{115,115\text{m}}$, 130-660 MeV 4=22141
 Ir , 9-87 MeV 4=3659
 $\text{K}(\text{p}, \gamma)$, 150 MeV 3=10350
 $\text{K}^{39}(\text{p}, \alpha)\text{A}^{36}$, 6.9-7.3 MeV, ang. distrib. 2=5913
 $\text{K}^{39}(\text{p}, \gamma)\text{Ca}^{40}$ 2=20620
 $\text{K}^{39}(\text{p}, \gamma)\text{Ca}^{40}$ γ, γ correl. and Ca^{40} spin, 2, 3, 4th excited states 3=19776
 $\text{K}^{39}(\text{p}, \gamma)\text{Ca}^{40}$, rel. to giant dipole resonance 4=15143
 $\text{K}^{39}(\text{p}, \gamma)\text{Ca}^{40}$, at 1-2.1 MeV, resonances 1=9859
 $\text{K}^{39}(\text{p}, \gamma)\text{Ca}^{40}$, resonances and Ca^{40} levels 4=25398
 $\text{K}^{39}(\text{p}, \gamma)\text{Ca}^{40}$, 6-15 MeV, near giant resonance 4=25399
 $\text{K}^{39}(\text{p}, \gamma)\text{Ca}^{40}$, at 2.05 MeV, resonant absorption of γ -ray 2=352
 $\text{K}^{39}(\text{p}, \gamma)\text{Ca}^{40}$, Ca^{40} giant dipole resonance 2=1864
 $\text{K}^{39}(\text{p}, \text{n})$, 2-10 MeV 0=1398
 $\text{K}^{39,41}(\text{p}, \alpha)\text{A}^{36,38}$ 0=4098
 $\text{K}^{39,41}(\text{p}, \gamma)\text{Ca}^{40,42}$, 1050-1200 keV, new resonances 4=9513
 K^{41} , excitation functions 2=450
 KCl , p^{32} formation, subsequent diffusion 1=14314
 $\text{La}^{139}(\text{p}, \text{n})$, at 5-10.5 MeV, cross-section 2=22812
 $\text{La}^{139}(\text{p}, \text{n})$, 40 to 150 MeV 3=12677
 $\text{La}^{139}(\text{p}, 2\text{n})\text{Ce}^{138\text{m}}$, at 19.2 MeV 1=19353
 Li , γ -ray production, study 1=19473
 Li , 180 MeV, total cross-section 1=19474
 $\text{Li}(\text{p}, \text{n})$, 143 MeV, neutron polariz. 3=10349
 $\text{Li}^6(\text{p}, \alpha)\text{He}^3$ 1=13797
 $\text{Li}^6(\text{p}, \alpha)\text{He}^3$, ang. distrib. rel. to direct interaction process 1=13796
 $\text{Li}^6(\text{p}, \alpha)\text{He}^3$, 130-530 keV, He^3 ang. distrib. 3=12664
 $\text{Li}^6(\text{p}, \alpha)\text{He}^3$, up to 5 MeV 3=17460
 Li^6 , p-d collisions, quasi-elastic at 30 MeV 4=19776
 $\text{Li}^6(\text{p}, \text{He}^3)\text{He}^4$, ang. distrib. and cross-section 4=17127
 $\text{Li}^6(\text{p}, \text{He}^3)\text{He}^4$, 3-5.6 MeV, cross sections 4=12218
 Li^6 and Li^7 , quasi-free p-p scatt. 3=15190
 $\text{Li}^6(\text{p}, \text{n})\text{Be}^6$, ground state of Be^6 0=7551
 $\text{Li}^6(\text{p}, \text{n})\text{Be}^6$, 10 MeV 3=1007
 $\text{Li}^6(\text{p}, \text{pd})$, 155 MeV, calc. 3=22386
 $\text{Li}^6(\text{p}, \text{pd})$ and $(\text{p}, \text{p}\alpha)$, and Li^6 d, α substructure 4=1080
 $\text{Li}^6(\text{p}, \text{pd})\text{He}^4$, rel. to deuteron clusters in Li^6 2=13950
 $\text{Li}^6(\text{p}, \text{p}')\text{Li}^{6*}$ 1=13780
 $\text{Li}^6(\text{p}, 2\text{p})\text{He}^5$, at 155 MeV 2=1895
 $\text{Li}^6(\text{p}, 2\text{p})\text{He}^5$, 155 MeV, quasifree p-p scatt. 3=24942
 $\text{Li}^6(\text{p}, 2\text{p})$, product angular distrib. 2=14089
 $\text{Li}^{6,7}(\text{p}, \text{n})\text{Be}^{6,7}$, at 10.5 MeV, levels in $\text{Be}^{6,7}$ 0=4096
 $\text{Li}^{6,7}(\text{p}, \text{pd})\text{He}^{4,5}$, theory 4=22129
 $\text{Li}^{6,7}(\text{p}, \text{pd})$, sub-structure deuterons 2=20617
 $\text{Li}^{6,7}(\text{p}, \text{p}\pi^+; \pi^0 \rightarrow 2 \gamma) \pi^0$ prodn. cross-section, γ -ang. distrib., meas. 4=28027
 $\text{Li}^{6,7}(\text{p}, 2\text{p})$, 155 MeV, structure of light nuclei 2=20625
 $\text{Li}^{6,7}(\text{p}, 2\text{p})$, 185 MeV protons 2=20629
 Li^7 , at 180 MeV, proton ang. distrib. 0=17587
 $\text{Li}^7 + \text{p}$ 2=20509
 $\text{Li}^7(\text{p}, \alpha)\alpha$, 4.8 MeV 2=16408
 $\text{Li}^7(\text{p}, \alpha)\alpha$ and $\text{Li}^7(\text{p}, \gamma)\text{Be}^8$, rel. to reported new Be^8 levels 4=22008
 $\text{Li}^7(\text{p}, \alpha)\alpha$, meas. eliminating geometrical errors 2=5883
 $\text{Li}^7(\text{p}, \alpha)\text{He}^4$, at 15 and 18.6 MeV, ang. distrib. 3=2454
 $\text{Li}^7(\text{p}, \alpha)\text{He}^4$, 0.5-7 MeV polarized protons 4=1074
 $\text{Li}^7(\text{p}, \alpha)\text{He}^4$, 0.5-2 MeV, proton polarization sensitivity 4=17128
 $\text{Li}^7(\text{p}, \alpha)\text{He}^4$, 1.12 to 3.58 MeV 2=20624
 $\text{Li}^7(\text{p}, \alpha)\text{He}^4$, 1.12 to 3.58 MeV 3=8089
 $\text{Li}^7(\text{p}, \alpha)\text{He}^4$, polarization effects 2=18321
 $\text{Li}^7(\text{p}, \alpha)\text{He}^4$, with polarized protons 3=2459
 $\text{Li}^7(\text{p}, \alpha)\text{He}^4$, reson., ang. distrib. and Be^8 excited states 4=6335
 $\text{Li}^7(\text{p}, \alpha)\text{He}^4$, 3.0 to 5.5 MeV 3=17461
 $\text{Li}^7(\text{p}, \alpha)\text{He}^4$, 3.3-6.6 MeV 2=10100
 $\text{Li}^7(\text{p}, \alpha)\text{He}^4$, 3.3-6.6 MeV 3=6245
 $\text{Li}^7(\text{p}, \alpha)$, 0.85 MeV, rel. to Be^8 low-lying levels 4=2528
 $\text{Li}^7 + \text{p}$, 441 keV γ 's, for studying cross-section fluctuations 3=8072

Nuclear reactions due to—contd

protons—contd

- $\text{Li}^7(\text{p}, \text{d})\text{Li}^6$, deuteron ang. distrib., at 17.5 MeV proton energy 0=1413
 $\text{Li}^7(\text{p}, \gamma)\text{Be}^8$ 1=19471
 $\text{Li}^7(\text{p}, \gamma)\text{Be}^8$, above giant resonance energies 3=17464
 $\text{Li}^7(\text{p}, \gamma)\text{Be}^8$, absolute γ -rays meas. 1=2028
 $\text{Li}^7(\text{p}, \gamma)\text{Be}^8(\alpha)$, γ - α correlation 1=635
 $\text{Li}^7(\text{p}, \gamma)\text{Be}^8$, γ ang. distrib., $E_p = 200$ -1100 keV 1=694
 $\text{Li}^7(\text{p}, \gamma)\text{Be}^8$, cross-sect., rel. to Be^8 new levels 4=22007
 $\text{Li}^7(\text{p}, \gamma)\text{Be}^8$, rel. to giant dipole resonance 4=15143
 $\text{Li}^7(\text{p}, \gamma)\text{Be}^8$, nonresonance radiation 1=3448
 $\text{Li}^7(\text{p}, \gamma)\text{Be}^8$, 1.5-11 MeV, excitation curve 3=22378
 $\text{Li}^7(\text{p}, \gamma)\text{Be}^8$, 1 to 3 MeV 4=1075
 $\text{Li}^7(\text{p}, \gamma)\text{Be}^8$, parity of 441 keV resonance 1=9860
 $\text{Li}^7(\text{p}, \gamma)\text{Be}^8$, relative intensity of gamma-rays 1=693
 $\text{Li}^7(\text{p}, \gamma)\text{Be}^{8*}(\alpha)\text{He}^4$ 0=20444
 $\text{Li}^7(\text{p}, \gamma)\text{Be}^{8*}(\alpha)\text{He}^4$, α -spectrum 1=8710
 $\text{Li}^7(\text{p}, \gamma)\text{Be}^8$, 2.5 to 9 MeV 3=19845
 $\text{Li}^7(\text{p}, \text{n})$ 2=5914
 $\text{Li}^7(\text{p}, \text{n})$, background neutron scatt. from Ta backing of target 3=2472
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, ang. distrib. 1=19470
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, 8-14 MeV 1=8730
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, 4-3 MeV 3=8089
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, 4.5 MeV 4=9503
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, investigation of properties of Li thin films 1=1454
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, rel. to Li target thickness 4=27713
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, in NRX reactor 0=20438
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, neutron polarization 0=17589
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, neutron polarization 1=5911-12
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, neutron polarization 2=10101, 14090
 $\text{Li}^7(\text{p}, \text{n}')\text{Be}^{7*}$, neutron yield near threshold 4=19777
 $\text{Li}^7(\text{p}, \text{n}')\text{Be}^7$, n polariz., ang. distrib., $E_p = 4.5$ MeV 3=17462
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, neutron threshold energy, Q-value 3=10346
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^{7*}$, relative yields of neutron groups leading to ground and 430 keV state of Be^7 1=2212
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, as source of monoenergetic neutrons 0=17355
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, 3-13 MeV 3=10341
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, threshold energy 0=1406, 17588
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$ threshold energy, with absolute ion velocity gauge 3=22381
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, threshold energy meas. 4=17126
 $\text{Li}^7(\text{p}, \text{n})\text{Be}^7$, threshold energy, precise value rel. to Po^{210} α -ray energy 0=20378
 $\text{Li}^7(\text{p}, \text{n})$, threshold, precision meas. 1=19461
 $\text{Li}^7(\text{p}, \text{p}')$, at 150 MeV 2=3568
 $\text{Li}^7(\text{p}, 2\text{p})\text{He}^6$, at 155 MeV 2=1895
 $\text{Li}^7(\text{p}, 2\text{p})\text{He}^6$, 155 MeV, quasifree p-p scatt. 3=24942
 $\text{Li}^7(\text{p}, 3\text{p})\text{H}^2$, search for β -emission 4=9444
 Li^8 formation from C^{13} -p at 660 MeV 4=1081
 Li^8 fragment formation cross-section, emulsions, Nikfir, at 9BeV 3=15200
 (p, Li^8) at high energies 1=12198
 Li^8 prod., in emulsion, 9, 24 GeV, and evap. theory 4=28028
 Lu , prod. of new nuclides, Lu^{168-70} and HF^{168-70} 1=8645
 Lu^{175} target, conversion-electron spectra 4=3580
 Mg bombarded, γ -rays 2=20615
 Mg , at 4-12.9 MeV, reaction cross-section 1=8720
 $\text{Mg}(\text{p}, \beta\gamma)\text{Al}^{25}$, γ -polarization 0=15574
 $\text{Mg}(\text{p}, \text{Be}^7)$, at 27-31.5 MeV, cross-section 2=18323
 $\text{Mg}(\text{p}, \gamma)$ 10-14 MeV 1=9858
 $\text{Mg}^{33-35}(\text{p}, \text{d})$, 40 MeV 4=1073
 $\text{Mg}^{24}(\text{p}, \gamma)\text{Al}^{25}$ γ -polarization 0=15574
 $\text{Mg}^{24}(\text{p}, \gamma)\text{Al}^{25}$ resonance level 1=13799
 $\text{Mg}^{24}(\text{p}, \gamma)\text{Al}^{25}$, 1.49 MeV reson., and Al^{25} , 3.70 MeV level, spin 3=19772
 $\text{Mg}^{24-6}(\text{p}, \gamma)\text{Al}^{25-7}$, resonance energies 0=4097
 $\text{Mg}^{24}(\text{p}, \gamma)$ 825 keV reson., Al^{25} 450 keV level excitation 3=22296
 $\text{Mg}^{24}(\text{p}, \text{p}'\gamma)$, linear polarization of gamma-rays 1=9740
 $\text{Mg}^{24}(\text{p}, \text{p}'\gamma)\text{Mg}^{24}$, at 10.7 MeV 2=1876
 $\text{Mg}^{24}(\text{p}, \text{t})$, T = 2 state search 4=27963
 $\text{Mg}^{25}(\text{p}, \alpha)\text{Na}^{22}$, 9 MeV, rel. to Na^{22} energy levels 4=22019
 $\text{Mg}^{25}(\text{p}, \text{d})\text{Mg}^{24}$, d spectrum, level widths 1=7374
 $\text{Mg}^{25}(\text{p}, \gamma)\text{Al}^{26}$, at 0.85-1.4 MeV, resonances and γ -spectra 1=9861
 $\text{Mg}^{25}(\text{p}, \gamma)\text{Al}^{26}$, 1-2 MeV 0=9630

Nuclear reactions due to—contd

protons—contd

$\text{Mg}^{25}(\text{p}, \gamma)\text{Al}^{26}$, resonances 0=9627
 $\text{Mg}^{25}(\text{p}, \gamma)\text{Al}^{26}$, Al^{26} energy levels 0=9530
 $\text{Mg}^{25}(\text{p}, \gamma)\text{Al}^{26}$, γ -radiations 2=10102
 $\text{Mg}^{25}(\text{p}, \gamma)\text{Al}^{26}$ 0=1175, 13225
 $\text{Mg}^{25}(\text{p}, \gamma)\text{Al}^{26}$ 1=7377
 $\text{Mg}^{25}(\text{p}, \gamma)$ 1 MeV, Al^{26} 418 keV level excitation 3=22296
 $\text{Mg}^{25}(\text{p}, \gamma)\text{Al}^{26}$ 3=19773
 $\text{Mg}^{25}(\text{p}, \gamma)\text{Mg}^{26}$ 0=17519
 $\text{Mg}^{26}(\text{p}, \alpha)\text{Na}^{23}$ 2=16410
 $\text{Mg}^{26}(\text{p}, \alpha)\text{Na}^{23}$ 3=17467
 $\text{Mg}^{26}(\text{p}, \gamma)\text{Al}^{27}$ 0=1175
 $\text{Mg}^{26}(\text{p}, \gamma)\text{Al}^{27}$ 3=4567
 $\text{Mg}^{26}(\text{p}, \gamma)\text{Al}^{27}$, at 0.2-3.0 MeV, 80 new resonances 3=24933
 $\text{Mg}^{26}(\text{p}, \gamma)\text{Al}^{27}$, 1-2 MeV 0=9630
 $\text{Mg}^{26}(\text{p}, \gamma)\text{Al}^{27}$ 648 keV resonance 1=17099
 $\text{Mg}^{26}(\text{p}, \gamma)\text{Al}^{27}$, γ - γ ang. correl. 4=6223
 $\text{Mg}^{26}(\text{p}, \gamma)\text{Al}^{27}$, 292 keV, γ -ray spectra 4=9510
 $\text{Mg}^{26}(\text{p}, \gamma)\text{Al}^{27}$, 661 keV resonance, spin of 2.21 MeV level 2=20618
 $\text{Mg}^{26}(\text{p}, \gamma)$, 721, 809, 839, 954 keV resonances 2=7982
 $\text{Mg}^{26}(\text{p}, \text{n})\text{Al}^{26}$, Q-value 1=19464
 $\text{Mn}(\text{p}, \text{n})$, at 7-8 MeV, evidence for statistical model 1=696
 $\text{Mn}(\text{p}, \text{pn})$, excitation function 2=14093
 Mn^{52} formation cross-section from Fe and Ni by 130 to 400 MeV protons 4=25393
 Mn^{54} formation cross-section from Fe and Ni by 130 to 400 MeV protons 4=25393
 $\text{Mn}^{55}(\text{p}, \alpha)\text{Cr}^{52}$, numerical differential cross-sections 2=10099
 $\text{Mn}^{55}(\text{p}, \alpha)\text{Cr}^{52}$, 7.6-12.9 MeV 1=11012
 $\text{Mn}^{55}(\text{p}, \alpha)$ at 18 MeV 1=19462
 $\text{Mn}^{55}(\text{p}, \text{n})$ cross-section at 6.75 MeV 3=12675
 $\text{Mn}^{55}(\text{p}, \text{n})\text{Fe}^{55}$, nsec proton pulses 2=5407
 $\text{Mn}^{55}(\text{p}, \text{n})\text{Fe}^{55}$, resonance detection of neutron energy groups 0=433
 $\text{Mn}^{55}(\text{p}, \text{n})$, low energy, and Fe^{55} levels 3=17473
 $\text{Mn}^{55}(\text{p}, \text{pn})$, 20 to 155 MeV 2=1881
 Mn^{55} , scatt., inelastic, at 6.6 MeV 2=10096
 $\text{Mo}(\text{p}, \gamma)$, energy spectrum 1=13795
 $\text{Mo}(\text{p}, \gamma)$, γ -ray yield in backing material 0=7557
 $\text{Mo}(\text{p}, \text{n})$, (p,d), (p,pn), (p,2p), 11.2 MeV 3=22382
 Mo^{96} , at 1.8 GeV, isobaric yield distrib. 4=9515
 N , at 5.7 BeV, cross-sections, expt. and theory 0=13226-7
 N , γ -ray production, study 1=19473
 N , medium energy cross-sections, rel. to cosmic-ray radio-nuclide prod. 0=11407
 N , 2-stage disintegration, complex particle ejection 1=17106
 $\text{N}^{14}(\text{p}, \gamma)$, 800 MeV, non-resonant radiation 4=9507
 $\text{N}^{14}(\text{p}, \gamma)\text{O}^{15}$, γ - γ ang. correl. 0=9631
 $\text{N}^{14}(\text{p}, \gamma)\text{O}^{15}$, γ -ray spectra 1=12155
 $\text{N}^{14}(\text{p}, \gamma)\text{O}^{15}$, in giant-resonance region 0=1434
 $\text{N}^{14}(\text{p}, \gamma)\text{O}^{15}$, resonances 4=15209
 $\text{N}^{14}(\text{p}, \gamma)\text{O}^{15}$, at 12-19.5 MeV, 90° γ -ray yields, rel. to giant resonance 1=2213
 $\text{N}^{14}(\text{p}, \text{n})\text{O}^{14}$, total cross-section excitation functions 4=15209
 $\text{N}^{14}(\text{p}, \text{pn})$ and $\text{N}^{14}(\text{p}, 2\text{p}2\text{n})$, excitation functions, 15-155 MeV 4=30338
 N^{14} -p, spin-flip inelastic scatt., 9.2 MeV 2=12185
 $\text{N}^{14}(\text{p}, 2\text{p})$ quasi-elastic, and hole-excitation spectrum 2=20611
 N^{14} , O^{15} , (p, d) N^{13} , O^{14} , d spectrum, level widths 1=7374
 $\text{N}^{15}(\text{p}, \alpha)$ 0=7561
 $\text{N}^{15}(\text{p}, \alpha)$ 2=5907
 $\text{N}^{15}(\text{p}, \alpha)\text{C}^{12}$, 15.16 MeV, ground and first excited states 4=22131
 $\text{N}^{15}(\text{p}, \alpha)\text{C}^{12}$, use for proton energy calibration 4=19515
 $\text{N}^{15}(\text{p}, \gamma)\text{O}^{16}$ 0=2676, 7561
 $\text{N}^{15}(\text{p}, \gamma)\text{O}^{16}$, 4 to 14.4 MeV, rel. to giant dipole resonance 4=15144
 $\text{N}^{15}(\text{p}, \gamma)\text{O}^{16}$, in giant-resonance region 0=1434
 $\text{N}^{15}(\text{p}, \gamma)\text{O}^{16}$, at 10-15 MeV, 90° γ -ray yields, rel. to giant resonance 1=2213
 $\text{N}^{15}(\text{p}, \gamma)\text{O}^{16}$, transitions to O^{16} 6.06 MeV level 4=6222
 $\text{N}^{15}(\text{p}, \gamma)\text{O}^{16}$, O^{16} giant dipole resonance 2=1865
 $\text{N}^{15}(\text{p}, \text{n})\text{O}^{15}$, neutron angular distrib. 1=11010
 $\text{N}^{15}(\text{p}, \text{n})\text{O}^{15}$, 3.95-9.0 MeV, ground state 4=3654

Nuclear reactions due to—contd

protons—contd

Na bombarded, γ -rays 2=20615
 Na , at 5.7 BeV, cross-sections, expt. and theory 0=13226-7
 $\text{Na}(\text{p}, \gamma)$, resonance energies and half-widths 1=5915
 $\text{Na}(\text{p}, \text{pn})$, excitation function 2=14093
 Na^{22} formation cross-section from Si and Mg by 130 to 400 MeV protons 4=25393
 $\text{Na}^{23}(\text{p}, \alpha)\text{Ne}^{20}$, 100-450 keV meas. 3=22380
 $\text{Na}^{23}(\text{p}, \alpha)\text{Ne}^{20}$, 6.9-7.3 MeV, ang. distrib. 2=5913
 $\text{Na}^{23}(\text{p}, \alpha)\text{Ne}^{20}$, study of Ne^{20} excited states 1=665
 $\text{Na}^{23}(\text{p}, \alpha)\text{Ne}^{20}$, 3-12 MeV 3=19849
 $\text{Na}^{23}(\text{p}, \alpha)\text{Ne}^{20}$, at 300-750 keV, intensity 2=5912
 $\text{Na}^{23}(\text{p}, \alpha)\text{Ne}^{20}$, two new resonances at 743.3 and 845 keV 4=9509
 $\text{Na}^{23}(\text{p}, \gamma)\text{Mg}^{24}$ in giant resonance region 1=13792
 $\text{Na}^{23}(\text{p}, \gamma)\text{Mg}^{24}$, at 0.58-1.42 MeV, γ -spectra 2=3573
 $\text{Na}^{23}(\text{p}, \gamma)\text{Mg}^{24}$, resonance capture energies 0=11412
 $\text{Na}^{23}(\text{p}, \gamma)\text{Mg}^{24}$, resonances 2=5879
 $\text{Na}^{23}(\text{p}, \gamma)\text{Mg}^{24}$, resonances 300-800 keV 3=12670
 $\text{Na}^{23}(\text{p}, \gamma)\text{Mg}^{24}$, 250 keV, γ -ray spectra 4=9510
 $\text{Na}^{23}(\text{p}, \gamma)\text{Mg}^{24}$, 3.8 to 11.6 MeV 4=9511
 $\text{Na}^{23}(\text{p}, \gamma)\text{Mg}^{24}$, at 300-750 keV, γ -spectra 2=5912
 $\text{Na}^{23}(\text{p}, \text{n})\text{Mg}^{23}$, Q values 3=668
 $\text{Na}^{23}(\text{p}, \text{p}')\text{Na}^{23}$ 1=11014
 $\text{Na}^{23}(\text{p}, \text{pn})$, 20 to 155 MeV 2=1881
 $\text{Na}^{23}(\text{p}, 2\text{p})$, at 185 and 440 MeV, quasi-free scatt. 1=8717
 Na^{24} formation cross-section from Si and Mg by 130 to 400 MeV protons 4=25393
 $\text{Nb}(\text{p}, \text{n})$, at 7-8 MeV, evidence for statistical model 1=696
 $\text{Nb}^{93}(\text{p}, \alpha)\text{Zr}^{90}$, 22 MeV 3=15196
 $\text{Nb}^{93}(\text{p}, \text{n})$ 1=2209
 $\text{Nb}^{93}(\text{p}, \text{n})\text{Mo}^{93\text{m}}$, for analysing Nb in Ta foil 3=8992
 $\text{Nb}^{93}(\text{p}, 3\text{p}3\text{n})$, 50-150 MeV, and nucleus, α sub-structure 3=19852
 $\text{Nd}^{142}(\text{p}, \text{d})\text{Nd}^{141}$, excitation function 1=13794
 $\text{Nd}^{142}(\text{p}, 2\text{n})\text{Pm}^{141\text{m}}$ 2=10018
 $\text{Nd}^{142}(\text{p}, 2\text{n})\text{Pm}^{141\text{m}}$ 3=6173
 $\text{Nd}^{144}(\text{p}, \text{n})\text{Pm}^{144}$ 1=5878
 $\text{Nd}^{150}(\text{p}, \text{n})\text{Pm}^{150}$, absolute cross-section 1=8731
 $\text{Nd}^{150}(\text{p}, 2\text{n})\text{Pm}^{149}$, absolute cross-section 1=8731
 $\text{Ne}^{20}(\text{p}, \gamma)\text{Na}^{21}$ 0=11413
 $\text{Ne}^{20}(\text{p}, \gamma)\text{Na}^{21}$ 0=11413
 $\text{Ne}^{20}(\text{p}, \gamma)\text{Na}^{21}$, first level in Na^{21} 4=12225
 $\text{Ne}^{20}(\text{p}, \gamma)\text{Na}^{21}$, rel. to final state nuclear density distrib. 3=19745
 $\text{Ne}^{20}(\text{p}, \gamma)\text{Na}^{21}$, rel. to Na^{21} levels 1=10872
 $\text{Ne}^{20}(\text{p}, \text{p}')\gamma$, ang. correls. at 1.63 MeV 4=1076
 $\text{Ne}^{20}(\text{p}, \text{p}')\gamma$, 1.63 MeV, p- γ ang. correl. 0=11410
 $\text{Ne}^{20}(\text{p}, \text{p}')\text{Ne}^{20}$ 2=1808
 $\text{Ne}^{21}(\text{p}, \gamma)$ 0=7568
 $\text{Ne}^{21}(\text{p}, \gamma)$ and (p,p') γ , Na^{22} resonances 4=19768
 $\text{Ne}^{21,22}$, resonance energies for capture, 600-1400 keV 3=4634
 $\text{Ne}^{22}(\text{p}, \gamma)\text{Na}^{23}$ 2=1820, 14091
 $\text{Ne}^{22}(\text{p}, \gamma)\text{Na}^{23}$, γ -ray resonant absorption 0=11311
 $\text{Ne}^{22}(\text{p}, \gamma)\text{Na}^{23}$, resonances 0=9627
 $\text{Ne}^{22}(\text{p}, \text{p})\text{Ne}^{22}$, $\text{Ne}^{22}(\text{p}, \text{p}')\text{Ne}^{22}$ 4=9490
 Ni , at 4-12.9 MeV, reaction cross-section, size resonance confirmed 1=8720
 Ni , neutron evaporation spectra 3=12669
 Ni , at 190 MeV, Monte Carlo calc. 0=13217
 $\text{Ni}(\text{p}, \alpha)$, analysis, Coulomb barrier in highly excited nucleus 1=10948
 $\text{Ni}(\text{p}, \alpha)$, at 15-19 MeV, α -spectra 2=1889
 $\text{Ni}(\text{p}, \alpha)$, 20.5 MeV 4=1071
 $\text{Ni}(\text{p}, \gamma)$ 10-14 MeV 1=9858
 $\text{Ni}(\text{p}, \text{n})$, cross-section at 10 MeV 1=12193
 $\text{Ni}(\text{p}, \text{n})$, cross-sections, calc., for various isotopes 0=17590
 $\text{Ni}(\text{p}, \text{n})$ at 32 MeV 1=19460
 $\text{Ni}(\text{p}, \text{p}')$, at 7.8-11.4 MeV, evidence for compound nucleus formation 1=2214
 Ni , reduced cross-section compared with nearby nuclei due to shell closure 4=22138
 $\text{Ni}^{58}(\text{p}, \alpha)$ at 18 MeV 1=19462
 $\text{Ni}^{58}(\text{p}, \text{d})\text{Ni}^{57}$, medium energies 2=16407
 $\text{Ni}^{58}(\text{p}, \gamma)\text{Cu}^{59}$, 1424 keV, resonance, thick-target yield curves 4=12223

Nuclear reactions due to—contd

protons—contd

- Ni⁵⁸(p, γ)Cu⁵⁹, distrib. of total radiation widths 0=437
 Ni⁵⁸(p, γ)Cu⁵⁸, 153 resonances, for E_p = 1.8-4.3 MeV 0=20445
 Ni⁵⁸(p, γ)Cu⁵⁹, proton energies and resonance widths 0=1406
 Ni⁵⁸(p, γ)Cu⁵⁹, resonance energy 3=12672
 Ni⁵⁸(p, γ)Cu⁵⁸ resonances, Monte Carlo study 3=12673
 Ni⁵⁸(p, n), threshold, precision meas. 1=19461
 Ni⁵⁸(p, n), at 2-10 MeV 0=1398
 Ni⁵⁸(p, 2p), Ni⁵⁸(p, pn), Ni⁵⁸(p, α) 0=7562
 Ni^{58,60}(p, α), up to 14.5 MeV 3=24934
 Ni^{58,60,62}(p, d), ang. distrib. j dependence 4=19784
 Ni^{58,60,62,64}, diff. elastic cross-sections, optical model calc. 1=17093
 Ni⁶⁰, inelastic scattering at 31 MeV 1=19458
 Ni⁶⁰(p, α) at 18 MeV 1=19462
 Ni⁶⁰(p, n), at 2-10 MeV 0=1398
 Ni⁶⁰O, neutron yield, 4-10 MeV 0=1398
 Ni⁶², (p, p'γ-γ) ang. correl. meas. 3=17408
 Ni⁶⁴(p, n)Cu⁶⁴, γ's and Cu⁶⁴ levels 3=12589
 Np²³⁷, 4-12 MeV, total cross-section 4=12289
 O, at 5.7 BeV, cross-sections, expt. and theory 0=13226-7
 O, at high energy, product ang. distrib., expt. and Monte Carlo calc. 0=11171
 O, medium-energy cross-sections, rel. to cosmic-ray radio-nuclide prod. 0=11407
 O(p, γ) 10-14 MeV 1=9858
 O, 2-stage disintegration, complex particle ejection 1=17106
 O, at 220-362 MeV 0=20439
 O¹⁶(p, d), 40 MeV 4=1073
 O¹⁶, heavy-fragment cross-sections 1=13800
 O¹⁶, Li^{6,7} prod., 156 MeV 3=15199
 O¹⁶(p, α)N¹³, excitation function 1=12197
 O¹⁶(p, α)N¹³, excitation function, E_p < 15 MeV 1=12195
 O¹⁶(p, α)N¹³, ground-state Q value 0=11414
 O¹⁶(p, α)N¹³, at 13.5-18.1 MeV 1=17100
 O¹⁶(p, α)N¹³, 7.18-12.90 MeV, meas. 4=9508
 O¹⁶(p, α)N¹³, 18.1 MeV, ground state 4=22131
 O¹⁶(p, d)O¹⁵, d spectrum, and O¹⁶ nuclear shell struct. 4=12222
 O¹⁶(p, d), 17.6-20 MeV, meas. analysis 3=4636
 O¹⁶(p, γ)F^{17*}, F^{17*}, lifetime 0=17551
 O¹⁶(p, γ)F¹⁷, rel. to final state nuclear density distrib. 3=19745
 O¹⁶(p, p') 4α, at 29 MeV, mechanism 1=7378
 O¹⁶(p, pα) 3=2451
 O¹⁶(p, pα), cross-section, first excited C¹² state 2=10109
 O¹⁶(p, p' 4α), 15-29 MeV 3=2458
 O¹⁶(p, pn), γ radiation from residual nucleus 2=10109
 O¹⁶(p, p'π⁰; π⁰ → 2γ)π⁰ prodn. cross-section, γ-ang. distrib., meas. 4=28027
 O¹⁶(p, t), (p, He³) comparison at 37.3 MeV 4=25396
 O¹⁶(p, 3p)C¹⁴, at 0.05-2.7 GeV 1=19476
 O¹⁶(p, 3p3n), 50-150 MeV, and nucleus, α sub-structure 3=19852
 O¹⁶, spallation, 20-150 MeV meas. 3=4642
 O¹⁷(p, α)N¹⁴, at 0.49-1.58 MeV, abs. cross-section, reaction rate in stars 2=3575
 O¹⁷(p, γ)F¹⁸, excitation curve 0=17591
 O¹⁸(p, α₀)N¹⁵, 730-1050 keV, ang. distrib. 3=24932
 O¹⁸(p, α₀)N¹⁵, 2.2-6 MeV 3=12584
 O¹⁸(p, α), 0.85 MeV, rel. to Be⁸ low-lying levels 4=25287
 O¹⁸(p, α)N¹⁵ 0=4098
 O¹⁸(p, α)N¹⁵, 0.79-3.55 MeV, abs. diff. cross-sections, levels in F¹⁹ 1=7370
 O¹⁸(p, α)N¹⁵, at 2.6-3 MeV, α ang. distrib. 0=9632
 O¹⁸(p, d) and O¹⁸(p, t), 17.6-20 MeV 3=4636
 O¹⁸(p, γ)F¹⁸ 0=20414
 O¹⁸(p, γ)F¹⁹, excitation function, F¹⁹ decay 2=3574
 O¹⁸(p, γ)F¹⁹, 570-1500 keV 3=19843
 O¹⁸(p, γ)F¹⁹, at 360-2000 keV 0=2661
 O¹⁸(p, n)F¹⁸ 1=19466
 O¹⁸(p, n)F¹⁸ in water-cooled reactor core, meas. 2=20718
 O¹⁸(p, n)F¹⁸, use for proton energy calibration 4=19515
 O¹⁸(p, n)F¹⁸, at 2.6-3 MeV, total cross-section 0=9632
 Os¹⁸⁸(p, 2n)Ir^{187m} 3=24911
 Os¹⁹⁰(p, 2n)Ir^{189m} 3=24911
 P bombarded, γ-rays 2=20615

Nuclear reactions due to—contd

protons—contd

- P, elastic scattering, 6-7.4 MeV 2=5898
 P(p, γ), resonance energies and half-widths 1=5915
 P(p, γ) 10-14 MeV 1=9858
 P³¹(p, α)Si²⁸ 0=4098
 P³¹(p, α)Si²⁸, ang. distribution 2=3572
 P³¹(p, α)Si²⁸, one new resonance 4=9509
 P³¹(p, α₀)Si²⁸, 355 keV, γ-ray spectra 4=9510
 P³¹(p, d)P³⁰, d spectrum, level widths 1=7374
 P³¹(p, 5p3n)Na²⁴, 660 MeV, mechanism 0=1402
 P³¹(p, γ)S³² 2=1883
 P³¹(p, γ)S³², giant reson. structure 3=22376
 P³¹(p, γ)S³², low energy resonances 3=6242
 P³¹(p, γ)S³² and S³² energy levels, 640-1150 keV 3=22377
 P³¹(p, γ)S³², 355, 440, 540 keV 3=7989
 P³¹(p, γ)S³², 355 and 439 keV resonances 3=8090
 P³¹(p, γ)S³², 355, 440 keV resonances 2=10103
 P³¹(p, γ)S³², 200-700 keV, resonance energies 2=7983
 P³¹(p, γ)S³², 400-850 keV, α yield measurement 1=7371
 P³¹(p, γ)S³², rel. to S³² levels 4=22023
 P³¹(p, n), at 2-10 MeV 0=1398
 P³¹(p, 3p), 100-440 MeV 2=20628
 P³¹(p, 4p), 100-440 MeV 2=20628
 P³² formation cross-section from Fe and Ni by 130 to 400 MeV protons 4=25393
 Pa²²⁷ spallation by 155 MeV protons 1=2215
 Pa^{227,228,230}, fission-evaporation competition 2=10098
 Pb, antiproton absorption, effect of Coulomb forces 0=20430
 Pb, At^{211,210,207} formation by capture of Li 1=3461
 Pb, inelastic cross-sections, 77 to 133 MeV 2=5919
 Pb, neutron yield, 4-10 MeV 0=1398
 Pb, neutron yield at 250-900 MeV, cosmic-ray study 0=13098
 Pb, at 160 MeV, low-energy proton prod. 2=5905
 Pb(p, γ) 10-14 MeV 1=9858
 Pb(p, n), by cosmic ray protons 2=14100
 Pb(p, N¹³) at 1-2 BeV energies 1=12198
 Pb, prod. of At²⁰⁹ and At²⁰⁷ by 120-660 MeV protons 3=15203
 Pb, at 3 BeV, cross-sections for prod. of Cl, K, Ca and Sc 0=5747
 Pb, 3-10 BeV, prod. of At isotopes 4=6341
 Pb, at 24 GeV/c, total inelastic cross-section 2=8002
 Pb¹⁰²(p, γ)Ag¹⁰³, at 3 MeV 2=18293
 Pb²⁰⁶(p, 2n)Bi²⁰⁵ in Discoverer 17 by solar protons 3=7951
 Pb²⁰⁷(p, p'π⁰; π⁰ → 2γ)π⁰ prodn. cross-section, γ-ang. distrib., meas. 4=28027
 Pb²⁰⁷(p, 3n)Bi²⁰⁵ in Discoverer 17 by solar protons 3=7951
 Pb²⁰⁸(p, 4n)Bi²⁰⁵ in Discoverer 17 by solar protons 3=7951
 Pb²⁰⁸(p, n)Bi^{208m}, 19.2 MeV 3=2457
 Pb²⁰⁸(p, 3p)Hg²⁰⁶ 2=10035
 Pd(p, α), at 23 MeV, Monte Carlo calc. 0=13217
 Pr¹⁴¹(p, n)Nd¹⁴¹, excitation function up to 11.1 MeV 1=5913
 Pr¹⁴¹(p, n)Nd^{141m}, threshold to 20 MeV 4=1072
 Pr¹⁴¹ + p reaction, optical model imaginary potential 1=9855
 Pr¹⁴¹(p, 2n)Nd^{140m} 2=10018
 Pr¹⁴¹(p, 2n)Nd^{140m} 3=6173
 Pt(p, α), 20.5 MeV 4=1071
 Pt, at 25 BeV, mass analysis of secondary particles, high deuteron prod. 0=17582
 Pu²³⁹, 4-12 MeV, total cross-section 4=12289
 Rb(p, α), at 17.5 MeV, α-spectra 2=1889
 Re¹⁸⁷(p, pn), at 250-440 MeV, excitation function 1=4869
 Re¹⁸⁷(p, 3p), 100-440 MeV 2=20628
 Rh, neutron evaporation spectra 3=12669
 Rh(p, α), analysis, Coulomb barrier in highly excited nucleus 1=10948
 Rh(p, n), cross-section at 10 MeV 1=12193
 Rh(p, n), at 7-8 MeV, evidence for statistical model 1=696
 Rh¹⁰³(p, α)Ru¹⁰⁰, 8-14 MeV 3=24935
 Rh¹⁰³(p, n) 1=2209
 Rh¹⁰³(p, n) and (p, p'), at 5-11 MeV, statistical theory 2=22813
 Rh¹⁰³(p, n)Pd¹⁰³, neutron spectra 1=16813
 Ru⁹⁶, at 1.8 GeV, isobaric yield distrib. 4=9515
 Ru¹⁰⁰, at 0.46-1.84 BeV, momentum imparted to nucleus, calc. 0=17593
 S bombarded 2=451
 S bombarded, γ-rays 2=20615

Nuclear reactions due to—contd
protons—contd

$S^{31}(p, d)$, 40 MeV 4=1073
 $S^{32}(p, d)S^{31}(\beta^+)P^{31}$, rel. to stellar processes 2=21726
 $S^{32}(p, 4p)$, 100-440 MeV 2=20628
 $S^{32}(p, 5p)$, 100-440 MeV 2=20628
 $S^{32}(p, \gamma)Cl^{33}$ 0=7565
 $S^{32}(p, \gamma)Cl^{33}$, 500-1900 keV 2=20613
 $S^{32}(p, \gamma)Cl^{33}$, γ -polarization 0=15574
 $S^{32}(p, \gamma)Cl^{33}$, resonance level 1=13799
 $S^{32}(p, p'\gamma)$, ang. correls. rel. to mechanisms 2=14092
 $S^{32}(p, p'\gamma)$, at 2.25 MeV, $p-\gamma$ ang. correl. 0=11410
 $S^{33}(p, \gamma)Cl^{34}$, 300-1300 keV 4=28031
 $S^{33}(p, p'\gamma)S^{33}$, resonances 4=19771
 S^{34} , γ -ray spectra, from proton capture at 1214 keV 3=8087
 $S^{34}(p, \gamma)Cl^{35}$, 800-1400 keV p's 3=17469
 $S^{34}(p, \gamma)Cl^{35}$, 6 resonances 2=16320
 $Sb \rightarrow Te^{116-119}$ 2=1851
 $Sb^{123}(p, n)$ 1=2209
 $Sc^{45}(p, \alpha)$ at 18 MeV 1=19462
 $Sc^{45}(p, d)Sc^{44}$, 17.5 MeV, spectrum meas. 4=17051
 $Sc^{45}(p, \gamma)Ti^{46}$, resonances, γ -decay 3=10344
 $Sc^{45}(p, \gamma)Ti^{46}$, 900-1400 keV 3=12665
 $Sc^{45}(p, n)$ 0=17504
 $Sc^{45}(p, n)$ cross-section at 6.75 MeV 3=12675
 $Sc^{45}(p, n)$, 120-670 MeV, cross-sections meas. 4=15215
 $Sc^{45}(p, pn)$, 120-670 MeV, cross-sections meas. 4=15215
 $Sc^{45}(p, n)Ti^{45m}$, at 19.2 MeV 1=19353
 $Sc^{45}(p, pn)$ and $Sc^{45}(p, n)$, 120 to 670 MeV 4=22136
 $Sc^{45}(p, 2p)$, 150 MeV, equal and opposite p's 4=22135
 $Se^{76}(p, pn)$ at 2.9 GeV 3=12679
 Se^{78} , inelastic scattering at 11 MeV 2=1874
 $Se^{78}(p, n)Br^{78}$, threshold 1=8630
 $Se^{80}(p, p'\gamma)$ 2=10071
 $Se^{82}(n, \alpha n)Ge^{78}$, study Ge^{78} half-life 0=20384
 Si bombarded, γ -rays 2=20615
 Si , natural, at 0.3-1.84 MeV, γ -ray yields, 55 resonances 0=17594
 $Si(p, \gamma)$ 10-14 MeV 1=9858
 $Si(p, 2p)$, 100-440 MeV 2=20628
 $Si^{18}(p, \gamma)P^{30}$ 1=4867
 Si^{28} , capture, levels in P^{29} 1=8588
 $Si^{28}(p, 4pn)Na^{24}$, 660 MeV, mechanism 0=1402
 $Si^{28}(p, \gamma)P^{29}$ 1=12159
 $Si^{28}(p, \gamma)P^{29}$, 500-1900 keV 2=20613
 $Si^{28}(p, \gamma)P^{29}$, P^{29} excited states 4=17046
 $Si^{28}(p, \gamma)P^{29}$, P^{29} level study 1=12158
 $Si^{28}(p, \gamma)P^{30}$, 300-1700 keV 1=13801
 $Si^{28}(p, \gamma)P^{29}$, 367 keV resonance 0=7566
 $Si^{28}(p, \gamma)P^{29}$, 367 keV resonance, spin of P^{29} low levels 1=9817
 $Si^{28}(p, p'\gamma)$, at 5.8-7.0 MeV, $p-\gamma$ ang. correl. 1=4868
 $Si^{28}(p, p'\gamma)$, 1.78 MeV, $p-\gamma$ ang. correl. 0=11410
 $Si^{28}(p, p')Si^{28*}$, diff. cross-sections at 1.4-3.8 MeV 0=4032
 $Si^{28} + p$, resonance levels, reduced widths 3=15194
 $Si^{29}(p, \gamma)P^{30}$ 2=5915
 $Si^{29}(p, \gamma)P^{30}$, $E_p = 1375, 1500$ keV resonances 2=10104
 $Si^{29}(p, \gamma)P^{30}$, $E_p = 1375$ and 1500 keV resonances 3=6246
 $Si^{29}(p, \gamma)P^{30}$, at <1 MeV, levels in P^{30} 1=8576
 $Si^{29}(p, \gamma)P^{30}$, resulting γ -emission 4=15212
 $Si^{29}(p, \gamma)P^{30}$, at 6.847 MeV 2=3576
 $Si^{29}(p, \gamma)P^{30}$, at 6.847 MeV 3=2456
 $Si^{29}(p, \gamma)P^{30}$, 300-1700 keV 1=13801
 $Si^{29}(p, p')Si^{29*}$ 1=13780
 $Si^{30}(p, \alpha)Al^{27}$, ground-state Q value 0=11414
 $Si^{30}(p, \gamma)P^{31}$ 1=5914
 $Si^{30}(p, \gamma)P^{31}$ 3=15195
 $Si^{30}(p, \gamma)P^{31}$, γ -polarization 0=7567, 15574
 $Si^{30}(p, \gamma)P^{31}$, γ polarization, from photoproton tracks in emulsion 3=8088
 $Si^{30}(p, \gamma)P^{31}$, γ -ray spectra at reson. between 1 and 2.7 MeV p energy, and P^{31} levels 3=12586
 $Si^{30}(p, \gamma)P^{31}$, 1177 to 1509 keV 3=19774
 $Si^{30}(p, \gamma)P^{31}$, 1514 to 3435 keV 4=12224
 $Si^{30}(p, \gamma)P^{31}$, and P^{31} levels 4=25303
 $Si^{30}(p, \gamma)P^{31}$, props. of excited P^{31} states 2=22742
 $Si^{30}(p, \gamma)P^{31}$ reaction, 1.00-1.5 MeV, resonances and P^{31} energy levels 4=9512
 $Si^{20}(p, \gamma)P^{31}$, resonance level 1=13799

Nuclear reactions due to—contd
protons—contd

$Si^{30}(p, \gamma)P^{31}$, 300-1700 keV 1=13801
 $Si^{30}(p, n)$, at 2-10 MeV 0=1398
 $Si^{30}(p, \pi^+)Si^{31}$, at 200-600 MeV 0=7558
 $Si^{30}(p, 3p)$, 100-440 MeV 2=20628
 $Sm^{147}(p, 2n)Eu^{146m}$ 2=10018
 $Sm^{147}(p, 2n)Eu^{146m}$ 2=10018
 $Sm^{147}(p, 2n)Eu^{146m}$ 3=6173
 Sm^{154} , inelastic scattering at 11 MeV 2=1874
 Sn , neutron yield at 250-900 MeV, cosmic-ray study 0=13098
 Sn , at 160 MeV, low-energy proton prod. 2=5905
 $Sn(p, \alpha)$, 20.5 MeV 4=1071
 $Sn(p, \gamma)$ 0=7557
 $Sn(p, \gamma)$, energy spectrum 1=13795
 $Sn(p, \gamma)$ 10-14 MeV 1=9858
 $Sn(p, n)$, cross-section at 10 MeV 1=12193
 Sn , secondary reactions due to fast protons 0=9633
 Sn at 61 MeV, total cross-section 0=7552
 $Sn^{112}(p, n)$ 1=2209
 $Sn^{119}(p, p'\pi^0; \pi^0 \rightarrow 2\gamma), \pi^0$ prodn. cross-section, γ -ang. distrib., meas. 4=28027
 $Sn^{120}(p, \alpha)$, formation of In^{117} , In^{117m} 3=8092
 $Sn^{120}(p, \alpha)In^{117, 117m}$, theory 3=8093
 $Sn^{120}(p, n)$ 1=2209
 Sr , at high energy, Kr^{74} prod. 0=20395
 $Sr^{88}(p, n)$, 40 to 150 MeV 3=12677
 $Sr^{88}(p, n)$, ground state threshold 2=10105
 $Sr^{88}(p, n)Y^{88m}$, 19.2 MeV 3=2457
 $Sr^{88}(p, n)Y^{88, 88*}$, thresholds, $Y^{88}-Sr^{88}$ mass diff. 2=1773
 $T >> 1$ GeV, duetron prod., mechanism 2=16391
 $T(p, \gamma)He^4$, at 5.8-9.2 MeV, γ -ray ang. distrib. 2=3419
 $T(p, \gamma)He^4$, yield curves, 4-11 MeV 2=13894
 $T(p, n)$ 2=5914
 $T(p, n)$ charge exchange, analysis 1=16916
 $T(p, n)He^3$ 1=3194
 $T(p, n)He^3$, rel. to deuteron binding energy 2=5749
 $T(p, n)He^3$, at 5-13.5 MeV, diff. cross-section 1=19294
 $T(p, n)He^3$, neutron polarization 0=9362
 $T(p, n)He^3$, neutron polarization 4=15063
 $T(p, n)He^3$, as neutron source 4=24934
 $T(p, n)He^3$, neutrons polarization 2=7908
 $T(p, n)He^3$, spectrum meas. 2=5688
 $T(p, n)He^3$, at 3.4-12.4 MeV, neutron ang. distrib. 1=8520
 $T(p, n)He^3$ threshold, $n-p$ mass difference 4=18610
 $T(p, n)He^3$, 12-17 MeV, neutron polarization 4=6145
 $T^3(p, n)He^3$, threshold energy meas. 4=17126
 $T^3(p, n)He^3$, threshold energy, $n-H$ mass diff. 0=20246
 Ta , with 5.7 GeV protons, products analysis 2=12195
 Ta , neutron evaporation spectra 3=12669
 Ta , at 160 MeV, low-energy proton prod. 2=5905
 $Ta(p, \gamma)$ 0=7557
 $Ta(p, \gamma)$, energy spectrum 1=13795
 $Ta + p$, Lu^{172} , $Lu^{189} + Lu^{170}$, conversion electron spectra 1020-3200 keV 3=12641
 $Ta + p$, 660 MeV, and Tm^{162} decay, β^+ conversion 3=22345
 $Ta(p, n)$, cross-section at 10 MeV 1=12193
 $Ta(p, xpn)$, up to 84 MeV 4=3658
 Ta , at 660 MeV, prod. of $Eu^{147, 149}$ 2=5865
 Ta , spallation 1=17029
 Ta , spallation, α , spectrum of Ta fraction 2=14060
 Ta , spallation, 660 MeV, Eu^{145} formation 2=16413
 $Te^{125, 126}(p, 2pxn)$, 120 to 660 MeV 3=15202
 $Te^{125, 126}(p, xn)$, 120 to 660 MeV 3=15202
 $Te^{130}(p, pn)Te^{129, 129m}$ 60-233 MeV, excit. function 3=6248
 $Te^{130}(p, 2p)Sb^{129}$ 60-233 MeV, excit. function 3=6248
 $Ta^{181}(p, n)W^{181*}$ 1=7328
 $Ta^{181}(p, n)W^{181}$, excitation functions, 4-13 MeV 2=7984
 $Ta^{181}(p, 2n)W^{180m}$, at 19.2 MeV 1=19353
 Tb^{149} prod. from Ta , Au , Bi at high energy, two-step mechanism 4=28034
 Tb^{150} target, conversion-electron spectra 4=3580
 $Tb^{150}(p, 9n)Dy^{151}$ and $Tb^{150}(p, 10n)Dy^{150}$, excitation functions, 80-155 MeV 4=17137
 $Te^{130}(p, \gamma)$, radiative capture cross-section, meas. vs calc. 4=28032
 Th , neutron yield, 4-10 MeV 0=1398
 $Th(p, \alpha xn)$ and $(p, p\alpha xn)$, 155 MeV mechanism 2=10110

Nuclear reactions due to—contd
protons—contd

Th-p, 82 and 105 MeV, tritium production 2=12191
 Th (p, He³ of He⁴), at 155 MeV, α ang. distrib. 4=19785
 Th, at 135 MeV, T production 0=17595
 Th, spallation, α -particle emission 3=6251
 Th, at 340 MeV, fission competition, calc. 0=15607
 Th²³², 155 MeV protons, fission-spallation competition 1=13871
 Th²³²(p, α n)Ac^{228m}, cross-sections 4=17138
 Th²³²(p, pn)Th²³¹, comparison with Th²³²(p, n)Pa²³² 2=12190
 Th²³²(p, n)Pa²²⁶ 155 MeV, formation cross-section, rel. to Pa²²⁷ 4=30340
 Th²³²(p, 2pxn)Ac^{231-x}, cross-sections 4=17138
 Ti, capture, γ -rays, low energy, and V^{48,50} levels 3=17406
 Ti, at 4-12.9 MeV, reaction cross-section 1=8720
 Ti(p, γ) 0=7557
 Ti(p, γ) resonances, rel. to V nuclear levels 1=5844
 Ti(p, n), cross-section at 10 MeV 1=12193
 Ti⁴⁴(p, t), T = 2 state search 4=27963
 Ti⁴⁶(p, n)V⁴⁶(g^+)Ti⁴⁶, levels in V⁴⁶ 4=1077
 Ti⁴⁶(p, n)V^{46m}, 19.2 MeV 3=2457
 Ti⁴⁶⁻⁵⁰(p, d), 17.5 MeV meas. analysis 4=25400
 Ti⁴⁷(p, d), 40 MeV 4=1073
 Ti⁴⁷(p, n), at 4-6.5 MeV, abs. cross-section 2=1891
 Ti⁴⁷(p, n)V⁴⁷ 3=12587
 Ti^{47,48}(p, n), absolute cross-sections up to 14 MeV 0=20446
 Ti^{47,48,50}(p, n) 0=17504
 Ti⁴⁸(p, α) at 18 MeV 1=19462
 Ti⁴⁸(p, n), ground-state threshold 2=10105
 Ti⁴⁸(p, 2p), 150 MeV, equal and opposite p's 4=22135
 Tl, Li and Be fragments emission 1=13802
 Tl(p, γ) 10-14 MeV 1=9858
 Tl²⁰⁵(p, n)Pb^{205m} 1=17133
 Tm¹⁶⁹ target, conversion-electron spectra 4=3580
 U, ang. distrib. and energy spectra 0=13231
 U, formation of Na²⁴ and Mg²⁸, 320-880 MeV 3=22387
 U, neutron yield, 4-10 MeV 0=1398
 U, neutron yield at 250-900 MeV, cosmic-ray study 0=13098
 U(p, N¹³) at 1-2 BeV energies 1=12198
 U, at 3 BeV, cross-sections for prod. of Cl, K, Ca and Sc 0=5747
 U, at 340 MeV, fission competition, calc. 0=15607
 U, at 660 MeV, angular distrib. and energies of charged products 0=5742
 U²³³(p, xn)Np^{234-x} 4=17139
 U²³³(p, 2pxn)Pa^{232-x} 4=17139
 U^{233,235,238}, total cross-sections at 22.8 MeV 0=1412
 U^{233-8,238}, 4-12 MeV, total cross-section 4=12289
 U²³⁵(p, xn)Np^{236-x} 4=17139
 U²³⁵(p, 2pxn)Pa^{234-x} 4=17139
 U²³⁸, 82, 110 and 156 MeV protons, Monte Carlo calc. of cascades 4=17136
 U²³⁸, at 0.46-1.84 BeV, momentum imparted to nucleus calc. 0=17593
 U²³⁸(p, 3n)Np²³⁶, 30-150 MeV, excitation function 2=3578
 U²³⁸(p, xn)Np^{239-x} 4=17139
 U²³⁸(p, 2pxn)Pa^{237-x} 4=17139
 V, at 4-12.9 MeV, reaction cross-section 1=8720
 V(γ , α), at 17.5 MeV, α -spectra 2=1889
 V(p, n), neutron spectra 1=695
 V(p, n), at 7-8 MeV, evidence for statistical model 1=696
 V(p, xpyn), up to 84 MeV 3=24937
 V⁴⁸ formation cross-section from Fe and Ni by 130 to 400 MeV protons 4=25393
 in V⁵¹, excitation functions of γ -rays 2=452
 V⁵¹(p, α) at 18 MeV 1=19462
 V⁵¹(p, Be⁷), 33 and 39 MeV 3=22383
 V⁵¹(p, γ)Cr⁵², at 1.67-2.05 MeV, γ -ray yield 2=12187
 V⁵¹(p, n), absolute cross-sections up to 14 MeV 0=20446
 V⁵¹(p, n) cross-section at 6.75 MeV 3=12675
 V⁵¹(p, n)Cr⁵¹ 1=16983
 V⁵¹(p, n)Cr⁵¹ 2=13940
 V⁵¹(p, n)Cr⁵¹, γ -ray spectra, spins and levels in Cr⁵¹ 1=9862
 V⁵¹(p, n)Cr⁵¹, at 1.67-2.05 MeV, resonances 2=12187
 V⁵¹(p, n)Cr⁵¹, partial cross-sections, optical and statistical model applications 4=17135
 V⁵¹(p, n), at 5-10.5 MeV, cross section 2=22812
 V⁵¹(p, n), at 4-6.5 MeV, abs. cross-section 2=1891

Nuclear reactions due to—contd
protons—contd

V⁵¹(p, n), 40 to 150 MeV 3=12677
 V⁵¹(p, γ)Cr⁵¹, excitation functions 2=1887
 V⁵¹(p, n) and (p, p'), at 5-11 MeV, statistical theory 2=22813
 V⁵¹(p, n), at 12.1 MeV 3=2455
 V⁵¹(p, 2p), 150 MeV, equal and opposite p's 4=22135
 V⁵¹(p, 3p), 100-440 MeV 2=20628
 V⁵¹(p, 3p3n), 50-150 MeV, and nucleus, α sub-structure 3=19852
 V⁵¹, at 7.5 MeV, interaction cross-section 1=11013
 W, neutron evap. cross-sections 2=14088
 W, neutron yield, 4-10 MeV 0=1398
 W, neutron yield at 250-900 MeV, cosmic-ray study 0=13098
 W(p, γ) 0=7557
 W(p, γ), energy spectrum 1=13795
 W¹⁸⁶(p, pn), at 250-440 MeV, excitation function 1=4869
 W¹⁸⁶(p, 2p), 100-440 MeV 2=20628
 W¹⁸⁶(p, 2p), at 250-440 MeV, excitation function 1=4869
 Y, absolute cross-sections, 60-240 MeV, and mechanism of reaction 0=1405
 Y(p, n), (p, d), (p, pn), (p, 2p), 11.2 MeV 3=22382
 Y(p, pn), excitation function 2=14093
 Y⁸⁹(p, γ)Zr⁸⁹, rel. to isobaric analogue states in Zr⁸⁹, 4=30313
 Y⁸⁹(p, n), 4-5.5 MeV, excit. functions 4=17057
 Y⁸⁹(p, n)Zr^{88m}, threshold to 20 MeV 4=1072
 Y⁸⁹(p, n)Zr^{88g}, threshold to 20 MeV 4=1072
 Y⁸⁹(p, pn), 20 to 155 MeV 2=1881
 Y⁸⁹(p, pn)Y^{88m}, 19.2 MeV 3=2457
 Yb¹⁶⁸(p, n)Lu¹⁶⁸, at 6 MeV 0=9569
 Yb¹⁷⁰, at 6 MeV, Lu¹⁷⁰ prod. 0=20391
 Yb¹⁷¹(p, n)Lu¹⁷¹, at 6 MeV 1=649
 Yb¹⁷²(p, n)Lu¹⁷², at 6 MeV 0=9570
 Zn, at 4-12.9 MeV, reaction cross-section 1=8720
 Zn, at 160 MeV, low energy proton prod. 2=5905
 Zn(p, α), 20.5 MeV 4=1071
 Zn(p, n), cross-sections, calc., for various isotopes 0=17590
 Zn(p, N¹³) at 1-2 BeV energies 1=12198
 Zn⁶⁴(p, γ)Ga⁶⁵, energy levels of Zn⁶⁵ 1=13664
 Zn^{64,66}, diff. elastic cross-sections, optical model calc. 1=17093
 Zn⁶⁶(p, pn) at 2.9 GeV 3=12679
 Zn⁶⁶(p, 2p)Cu⁶⁷, 80 and 430 MeV, recoil study 4=12227
 Zn⁶⁸(p, 2p), 100-440 MeV 2=20628
 Zr⁹⁰(p, d)Zr⁸⁸, nuclear states, obs. 3=17395
 Zr⁹⁰(p, n)Nb^{90m}, 19.2 MeV 3=2457
 Zr⁹⁰(p, n)Nb⁹⁰, 6.9-11.2 MeV, excitation function 3=24931
 Zr⁹⁰(p, 3p6n)Sr⁸³, Zr⁹⁰(p, 2p6n)Y⁸³, at 60-240 MeV, cross-sections 1=9864
 Zr⁹¹(p, d)Zr⁹⁰, 22 MeV 3=15196
 Zr⁹¹(p, n)Nb⁹¹, γ -ray spectra, spins and levels in Nb⁹¹ 1=9862
 Zr⁹²(p, t)Zr⁹⁰, 22 MeV 3=15196
 Zr⁹⁶, at 1.8 GeV, isobaric yield distrib. 4=9515
 Zr⁹⁶(p, pn), at 250-440 MeV, excitation function 1=4869
 Zr⁹⁶(p, 2n), at 250-440 MeV, excitation function 1=4869

tritons
 double stripping reactions, review 1=8678
 with ions, cross-section reduced width calc., overlap integral method 4=30355
 mechanism 1=8753
 overlap integral calc. 4=25430
 study using 340 kV accelerator 0=9113
 (t, d) reactions in light nuclei at 5.5 MeV, ang. distrib. 1=8785
 (t, p), cross-sections 1=724
 (t, p), zero-range distorted-wave theory 4=12257
 tandem generator used 2=5906
 A⁴⁰(t, α)Cl³⁹ 1=10955
 A⁴⁰(t, p)Al⁴² 1=10955
 Al(t, d), at 5.5 MeV, ang. distrib. 1=8785
 Al²⁷(t, α)Mg²⁷ 1=16987
 Al²⁷(t, d)Al²⁶ at 5.5 MeV 1=9887
 Al²⁷(t, n), neutron yield and ang. distrib. 1=19536
 Al²⁷(t, n), neutron yield and ang. distrib. 3=4673
 Al²⁷(t, p)Al²⁹ 1=731
 B(t, d), at 5.5 MeV, ang. distrib. 1=8785
 B¹⁰(t, d)B¹¹ 2=1932
 B¹⁰(t, d)B¹¹ at 5.5 MeV 1=9887

Nuclear reactions due to—contd
tritons—contd

$B^{10}(t, p), (t, d)$ and (t, α) , 5.5 and 2.0 MeV 4=3697
 $B^{10}(t, 2n)C^{11}$ in NRX reactor 1=19529
 $B^{10}(t, p)B^{12}$ 1=731
 $B^{10,11}(t, p)B^{12,13}$, 10-11 MeV, rel. to plane wave theory 4=12259
 $B^{11}(t, p)B^{13}$ 2=18285
 $B^{12}(t, p)B^{13}$, B^{13} mass excess 0=20462
 $Be^9(t, n)B^{11}$ 2=18360
 $Be^9(t, n)$, n-yield and resonances 2=10149
 $Be^9(t, p)Be^{11}$ at 14 MeV, ang. distrib. and Be^{11} 319 keV state parity 4=19822
 $Be^9(t, p)Be^{11}$, levels in Be^{11} 1=8581
 $C(t, d)$, at 5.5 MeV, ang. distrib. 1=8785
 $C^{12}(t, \alpha)B^{11}$, at 0.8-2 MeV, diff. cross-sections 2=3631
 $C^{12}(t, \alpha)B^{11}$, 0.3-1.2 MeV 3=24982
 $C^{12}(t, \alpha)B^{11}$, at 1 to 2 MeV 2=3630
 $C^{12}(t, d)C^{13}$ at 5.5 MeV 1=9887
 $C^{12}(t, n)$, at 0.35-2.4 MeV 1=19537
 $C^{12}(t, n)$, at 0.35-2.4 MeV 3=4672
 $C^{12}(t, p)C^{14}$ 1=731
 $C^{12}(t, p)C^{14}$, at 0.8-2 MeV, diff. cross-sections 2=3631
 $C^{12}(t, p)C^{14}$, 0.32 to 1.18 MeV 3=15237
 $C^{12,14}(t, p)C^{14,16}$, 10-11 MeV, rel. to plane wave theory 4=12260
 $C^{13}(t, d)C^{14}$ at 5.5 MeV 1=9887
 $C^{14}(t, p)C^{16}$, at 6 MeV, new isotope produced 1=7343
 $Ca^{40}(t, d)Ca^{41}$ at 5.5 MeV 1=9887
 $Ca^{40}(t, p)Ca^{42}$ rel. to Ca^{42} struct. 4=25426
 $Ca^{40}(t, p)Ca^{42}$, 10-11 MeV, rel. to plane wave theory 4=12261
 $Cd^{110}(t, p)Cd^{112}$, 10-11 MeV, rel. to plane wave theory 4=12261
 $F^{19}(t, \alpha)O^{18}$ 2=1816
 $F^{19}(t, \alpha)O^{18}$, energy level dets. of O^{18} 3=637
 $F^{20}(t, n)$, neutron yield and ang. distrib. 1=19536
 $F^{19}(t, n)$, neutron yield and ang. distrib. 3=4673
 $F^{19}(t, p)F^{21}$ 2=1816, 12135
 $F^{19}(t, p)F^{21}$, rel. to F^{21} levels 4=17037
 $H^1(t, n)He^3$, as neutron source 3=24742
 $H^3(t, 2n)He^4$ differential cross-sections 1=19292
 $H^3(t, 2n)He^4$ differential cross-sections 2=22659
 He^3 , α -particle and proton spectra 3=7939
 $He^3 + T$, 460-1087 keV, ang. distrib. 4=6148
 He^3 , total cross-section, 150-970 keV 1=555
 $K^{39}(t, \alpha)A^{39}$, 5.48 MeV 3=10256
 $Li(t, n)$ for 100-300 keV tritons 1=2242
 $Li^6(t, d)Li^7$ 2=1932
 $Li^6(t, d)Li^{7*}$, 5-6 and 7.47 MeV 4=3696
 $Li^6(t, n)Be^8$, 0.8-2.6 MeV, absolute thick target yields 4=17190
 $Li^{6,7}(t, n)$ 2=18360
 $Li^7(t, \alpha)He^6$, at 1 to 2 MeV 1=19530
 $Li^7(t, n)Be^9$, 0.8-2.6 MeV, absolute thick target yields 4=17190
 $Li^7(t, \alpha)He^6$, study of He^6 levels 0=15523
 $Li^7(t, p)Li^9$, rel. to Li^9 struct. 4=25426
 $Li^7(t, p)Li^9$, 10-11 MeV, rel. to plane wave theory 4=12259
 $Mg^{24}(t, d)Mg^{26}$ at 5.5 MeV 1=9887
 $Mg^{24}(t, d)Mg^{26}$, reduced width 4=1104
 $Mg^{24}(t, p)Mg^{26}$ 1=16987
 $Mg^{26}(t, p)Mg^{27}$ 1=16987
 $Mg^{26}(t, \alpha)Na^{25}$ 2=1816
 $Mg^{26}(t, p)Mg^{28}$ 1=16987
 $Mg^{26}(t, p)Mg^{28}$, 10-11 MeV, rel. to plane wave theory 4=12261
 $N^{14}(t, \alpha)C^{13}$, 1-2 MeV, differential cross-sections 4=17191
 $N^{14}(t, \alpha)C^{13}$, 1.8-2.6 MeV 2=20680
 $N^{14}(t, C^{12})He^5$ (α), 1.8-2.6 MeV 2=20680
 $N^{14}(t, d)N^{15}$, 1-2 MeV, differential cross-sections 4=17191
 $N^{14}(t, n)O^{16*}$ (α) C^{12} , 1.8 to 2.6 MeV 2=20680
 $N^{14}(t, n)O^{16*}(p)N^{15}$ 1=13865
 $N^{14}(t, n\alpha)C^{12}$, 1.8-2.6 MeV 2=20680
 $N^{14}(t, p)N^{16}$, rel. to N^{16} levels 1=12154
 $N^{14}(t, 2\alpha)Be^9$, 1.8-2.6 MeV 2=20680
 $Na^{23}(t, p)Na^{25}$ 2=1816, 12135
 Ne , energy levels in $F^{19,21}$, $Ne^{22,24}$, and cross-sections 1=10967
 $O(t, d)$, at 5.5 MeV, ang. distrib. 1=8785
 $O^{16}(t, d)O^{17}$ at 5.5 MeV 1=9887
 $O^{16}(t, n)F^{18}$, cross section energy dependence 2=3632

Nuclear reactions due to—contd
tritons—contd

$O^{16}(t, p)O^{18}$ 1=731
 $O^{16}(t, p)O^{18}$ 2=1816
 $O^{16}(t, p)O^{18}$, ang. distrib., t of 660-1400 keV 3=19887
 $O^{16}(t, p)O^{18}$, emission of proton pairs from O^{18} 3.63 MeV level 4=17032
 $O^{16}(t, p)O^{18}$, 5 MeV, two-nucleon stripping 3=10392
 $O^{16}(t, p)O^{18}$, levels in O^{18} 0=20350
 $O^{16}(t, p)O^{18}$, levels in O^{18} 1=8583
 $O^{16}(t, p)O^{18}$, $O^{18}(t, p)O^{20}$, energy level dets. of O^{18} , O^{20} 3=637
 $O^{16,18}(t, p)O^{18,20}$, rel. to $O^{16,20}$ structure 4=15235
 $O^{16,18}(t, p)O^{18,20}$, 10-11 MeV, rel. to plane wave theory 4=12260
 $O^{17}(t, p)$, 5.55 MeV 4=25296
 $O^{17}(t, p)O^{19}$, cross-section 2=18361
 $O^{18}(t, \alpha)N^{17}$, levels in N^{17} 0=20350
 $O^{18}(t, \alpha)N^{17}$, $O^{18}(t, p)O^{20}$, levels in N^{17} and O^{20} 1=8583
 $O^{18}(t, p)O^{20}$ 2=1816
 $O^{18}(t, p)O^{20}$, levels in O^{20} 0=20350
 $Si(t, d)$, at 5.5 MeV, ang. distrib. 1=8785
 $Si^{28}(t, d)Si^{29}$ at 5.5 MeV 1=9887
 $Si^{28,29}(t, p)Si^{30,31}$, 10-11 MeV, rel. to plane wave theory 4=12261

X-rays

See Nuclear reactions, photons.

Nuclear reactors, fission

(Heading introduced in 1964)

AGR reference design 4=6431
 AGR, U.K. development and research programme 4=6435
 absorbing rod, effect on neutron flux 2=10180
 absorbing rod system, efficiency 2=18382
 accidents, and escaped fission products, for various operating powers 3=8162
 active contamination of steam—water loop, 1st USSR station 4=3755
 aerosols as coolants 1=17232
 age-diffusion theory, adjoint functions and orthogonality rels. 3=11666
 age of U^{233} fission neutrons in water 0=15628
 air-cooled graphite channels, thermal props. beryllium oxide, irradiation damage 2=3971-2
 Aircraft Reactor Experiment 0=13311-14
 albedo, generalized, of Cd sheets 1=2267
 alkali metal coolants, heat-transfer and high-temp. props. 0=3526
 ammonium salts as moderators for cold neutron sources 3=6010
 "Anna", 2nd Polish, critical assembly 3=25013
 "Anna", 2nd Polish exptl., critical assembly 3=691
 "Apsara", Trombay, γ -dose rates 2=10184
 aqueous homogeneous zero-energy UO_2 suspension reactor 2=12265
 aqueous moderators, neutron spectra meas. 0=7657
 Argonaut reactor, time behaviour of neutron density and of reactivity 0=15630
 Argonaut type, redundant safety channel 2=17850
 Argos, instrumentation improvements 2=10182
 asymptotic period reactivity determinations, sources of error 0=13331
 asymptotic reactor theory, slab systems 3=2526
 automatic control systems, electronic circuiting 1=2263
 automatic control systems, theory, Liapounov's function 1=2264
 Avogadro R.S.I. reactor first start-up 0=2700
 Avogadro RS1 reactor, reactivity effects 2=5997
 BBC-Krupp high-temp. reactor, construction and characteristics 0=5821-2
 BEPO, reactivity absorption of shut-off rods, by source-jerk technique 2=20701
 BEPO, subcritical reactivity, meas. by source-jerk technique 2=20700
 BEPO, transfer junction model for control studies 3=12729
 B.E.R. reactor, Berlin, reactivity measurements 1=3482
 BR-5, high-energy neutron spectrum 1=19565
 BR-5, neutron beam facility for shielding studies 2=18385
 BSR-I, effective delayed neutron fraction meas. 2=12253
 BSR-I (Oak Ridge), reactivity worth of central fuel element 2=6036
 BWR, dynamics, with natural convection 2=20705
 BWR, flux distribution calc. 0=15633

Nuclear reactors, fission—contd

bang—bang control, boiling moderator reactors 3=19906
 bare homogeneous reactors, critical conditions
 correl. 2=8023
 bare Pu^{239} critical assembly, leakage spectrum 1=17218
 basic data, world-wide tabulation 2=3641
 basic nuclear principles, review 2=20695
 Belgrade D_2O natural U critical assembly,
 buckling 1=13903
 biological shield, thermal stresses 0=14561
 biological shielding, multigroup calc. 2=14175
 black void reactor concept 1=17195
 boiling-water, dual cycle power reactor 0=11469
 boiling-water, effect of press. on dynamic
 behaviour 2=6010
 boiling-water, Nb-V, Nb-Zr alloys in 2=4330
 boiling-water, neutron and gamma shielding calc. 2=8041
 boiling water reactor, dynamic performance
 evaluation 1=3495
 boiling water reactor plant, analogue 1=751
 boiling water reactors, kinetics 1=752
 boiling water reactors, static hydraulic stability 1=17230
 boiling water reactors, vapour bubble size distrib. 4=11419
 boiling-water, use of Th^{232} 2=14174
 boiling-water type, dynamic model 3=25016
 Boltzmann eqn., energy-depend., transport
 approx. 3=12463
 Boltzmann eqn., monoenergetic, variational
 analysis 3=18755-6
 Boltzmann eqn., 1-dimensional, energy dependent 0=15618
 boundary, gap, blackness conditions, spherical harmonics
 approx. 2=14166
 boundness and stability in nonlinear dynamics 1=17196
 breeder reactors, review 2=14160
 breeding gain and power level dependence on level
 of U^{235} in reactor blanket 0=7661
 breeding potential of thermal reactors 1=757
 Bucharest 2000 kW reactor, transient states 0=11468
 bulk shielding facility, thermal neutron flux calc. 2=6012
 Bulk Shielding Reactor, fast-neutron and gamma
 spectra 0=9719
 burnable fission products, power reactor kinetics 2=6026
 burnout heat flux, statistical prediction 1=17216
 burn-up calc., simplified method 2=10168
 calculations using Fermi age theory, minimum crit. mass
 and flux flattening 2=18373
 Calder Hall, resonance integral and Doppler coeff.
 Monte Carlo evidence 2=20707
 Calder Hall type, Pu recycle 0=13366
 calorimeter, for high radiation fields 3=12740
 Canada—India reactor, physics calc. 2=5998
 Canada's nuclear energy programme, review 1=2251
 CANDU power station, review 1=2251
 CANDU power station, U reactivity life 1=2252
 CANDU type, neutron slowing-down spectrum 3=25031
 CANDU-type power reactor, neutron temp. 3=25030
 cascade theory, characteristic-functional methods 1=6
 catalytic, tubular, chemical reaction and
 diffusion 1=17244
 cell calcs. in cylindrical geometry, effect of zero
 gradient boundary conditions 3=6322
 cell calculations, Sn code accuracy 1=13883
 ceramic fuel pin, transient heat transfer 3=17514
 ceramic fuels, irradiation calc., design, high
 burnup 1=17234
 chain reactions, analogy with vibrating systems 3=4680
 channel temp. field and thermoelastic stress in element
 shell 3=4681
 chemical reactions, use for 3=6924
 chemonuclear reactors 1=11056
 Cherenkov radiation during start up 4=1162
 circulating-fuel reactors, heat transfer 0=12513
 clad fuel elements, diffusion bonding 0=13478
 codes for computers 3=17508
 collection of papers(1964) 4=25451
 collision density at epithermal energies 3=12525
 collision probabilities in reactor physics 1=13877
 compact reactors, power density calc. 2=10167
 complex relaxation time, soln. of kinetic
 equations 1=769
 composite reactor lattices 1=768

Nuclear reactors, fission—contd

computer codes tabulation 2=3642
 computer control 0=2068
 computers, on-line, for power reactors 2=20717
 concentric cut-off rod efficiency 0=7670
 concrete shielding const. 3=17516
 conduction heat-flow transients, nomogram 0=12509
 consistent P_1 criticality calcs. 2=6023
 "Consort" reactor, for teaching and research 0=17641
 continuous-medium reactor, stability 1=765
 control element linear extrapolation distance, improvements
 on Milne solution 3=22449
 control element perturbation theory 0=13375-6
 control evaluation, theory of application of "absorption
 area" 0=15627
 control materials, B-containing, irradiat. damage 2=18625
 control, neutron detector 0=9384
 control rod absorption of neutrons 1=13888
 control-rod burn-up 3=4695
 control rod effectiveness, effect of boundary
 condition 0=7664
 control rod reactivity, variational calculation 0=13379
 control rod theory, criticality conditions, various
 configurations 1=17211
 control rod worths, pulsed neutron meas. 2=6038
 control rod worths of rare earth oxides 0=13377
 control rods, effectiveness determination 2=18380
 control rods, fabrication and props. of B-Ti
 dispersions 0=14057
 control sheets, general theory 0=13374
 control in subcritical region 1=2265
 control system of Ispra-1 2=8042
 control; temp. self-regulation 2=8036
 control by temperature 1=3494
 control, treatment of results 1=13900
 coolant failure results, analogue computer
 simulation 0=5466
 coolant-gas outlet temp., rel. to output level 2=10173
 coolant materials, props. tabulation and biblio-
 graphy 2=3666
 coolant temp. coeff. and two-thermal group diffusion
 model 3=15259
 coolants, nucleate boiling of organic liquids 0=13359
 cooling channel temp., simple numerical
 determination 1=13901
 cooling efficiency rel. to props. of cooling gas 3=694
 cooling facility for irradiated sample 2=16459
 cooling gas flow, elec. field effect 2=14171
 cooling, heat transfer from tube bundles to water
 flow 0=14868
 cooling systems, "burnout" studies with wet
 steam 0=2698
 core kinetics, reactivity fluctuations 2=20702
 core physics and kinetic studies 3=24997
 counting rate autocorrelation functions 1=758
 critical assembly, neutron flux data, measuring
 techniques 0=13348
 critical assembly prompt neutron periods, meas.
 with pulsed source 0=13345
 critical assembly, (r, z) multigroup calc. 0=13338
 critical equation, theory 3=22446
 critical mass calc., anisotropic diffusion coeff. 3=10415
 critical mass meas. room scatt. neutron corr. 4=21879
 critical parameters for fissile bodies 2=3659
 critical reactor equations 0=13324
 critical size and flux distrib. at power level 3=12722
 critical system, cylindrical channels, reactivity
 effect 2=14162
 critical system with small cavities 1=13891
 critical thickness of slabs, neutron transport
 theory 1=10890
 critical $\text{UO}_2\text{F}_2\text{--D}_2\text{O}$ assemblies 0=13335
 criticality condition, Chebyshev polynomial
 calc. 1=10891
 criticality condition derived by multigroup diffusion
 theory 1=17184
 criticality estimates for spheres and slabs 1=13896
 criticality estimation 2=6009
 criticality, low enrichment uranium in hydrogen 2=12250
 criticality measurements, BeO moderated, enriched
 U fueled 1=17235-6
 criticality problems, use of Green functions in
 stationary neutron transport theory 0=14546

Nuclear reactors, fission—contd

cross flow reactor, heat transfer calc. from electrical analogue 0=13357
 current integrator, precision, zero power reactor 2=10185
 cylindrical, completely reflected, neutron distrib. 2=20706
 cylindrical, geometric buckling, pulsed neutron source 0=5826
 cylindrical neutron multiplying structure, heterogeneous theory 0=17644
 cylindrical reactor, effect of control rods, two-group calc. 1=3493
 cylindrical reactors, calculations 0=7673
 DFR, coolant, impurity content reductn. 3=2541
 DFR, operation, safety assessment 3=2540
 Dancoff correction, fuel rods with air gaps 3=6337
 Dancoff correction, several infinitely long cylindrical rings 3=10413
 delayed-neutron fractions, effective, meas. 3=19904
 delayed neutron group theory 2=3648
 Denmark, Risø, 3 research reactors, comprehensive survey 0=9714-16
 dense lattices, effective resonance absorption cross-sections 0=15613
 describing function of a supercritical reactor 3=8159
 design, radiation damage theory, developments 1=6120
 detector weighting functions 3=22443
 development in U.S. 1=9894
 DIDO, calc. of radiation dosage rates 3=2515
 Dido (FRJ-2), kinetics 3=15262
 DIDO, neutron diffr. equipment 3=7869
 DIDO, period meter for fast period protection 2=20728
 diffusion anisotropy, singly and doubly periodic lattices 3=6324
 diffusion coeff. weighting, streaming theory 2=12254
 diffusion equation, perturbation methods 0=15619
 diffusion equations, accuracy and scope of difference solutions 1=784
 diffusion length, thermal n, effect of empty channels in moderator 4=17216
 diffusion lengths and diffusion hardened spectra 2=14165
 diffusion theory flux peaking at sharp corner 3=15255
 dilute fast reactor, Na-reactivity effects, calc. 2=20708
 dimethyl acetylene as moderator for cold neutron sources 3=6010
 diphenyl-diphenyl oxide, as moderator and coolant 0=5825
 diphenyl-impregnated graphite as moderator 1=5732
 direct-contact core systems 4=19900
 discrete ordinate quadratures for thin slab cells 3=6326
 Doppler broadening of cross-sections 3=10418
 Dresden nuclear power station, reactor details 0=5816
 dynamic parameters, statistical estimation 3=693
 dynamics, spherically symmetric 4=3722
 EBR-I meltdown, core physical and metallurgical changes 0=13380
 EBR-I (Mk II), U^{238} capture and fission patterns 0=13281
 EBR-2, reactor system, fuel, control 3=2517
 EBWR, reactor "noise", statistical analysis 0=5833
 EGCR fuel assemblies 2=22863
 EGCR fuel evaluation studies 2=22873
 EL3, automatic control system 1=2255
 EWA; neutrons scattered from channel, ang. distrib. 1=19569
 effect of emptying D_2O coolant channels, theory 2=8040
 effect of parity nonconservation 2=5977
 effective fission cross-section ratios Pu^{239}/U^{235} for various lattices 0=2692
 effective resonance integral, allowance for fuel geometry 0=13316
 effective resonance surface, formulation 3=2524
 for electricity, direct conversion, coupled to m.h.d. generator 4=18669
 for electricity, direct conversion from ionized gas 4=18417
 electricity from fission heat by thermionic cell 0=265
 electricity by thermionic converters 0=264
 electronic simulator, at Czech. Inst. Nuclear Physics 1=761
 electronic simulator, Polish 1=759
 elimination of radio-Xe, Kr, by thermal diffusion 0=961

Nuclear reactors, fission—contd

encyclopaedia of nucl. energy 3=4285
 end-leakage calculations, homogenization approx. validity 2=3650
 enriched lattices, minimum loading conditions 0=13336
 enriched U and UO_2 lattices, water moderated, f, p and ϵ meas. 0=13339
 enriched UH , critical assemblies 1=13898
 epithermal, control rod worths 3=15266
 epithermal neutron spectrum, meas. 3=25026
 epithermal effects on control element worth 0=7663
 epithermal, variable density, minimum critical mass. 2=6017
 escape probabilities, asymptotic reactor theory 2=6024
 excess reactivity indicator 2=6073
 excursions at low flux levels, detection 2=10189
 experimental Breeder Reactor, Idaho, neutron spectra meas. 0=12999
 experimental reactor VVR-S, study 1=750
 explosive metal-water reaction temps. 2=4540
 exponential column flux, radial mode separation, teaching demonstration 4=6446
 extrapolation length, linear, of infinite plate with "can" on both sides 2=1944
 FRJ-1 Merlin, critical masses for core configs. 3=4692
 FRJ-1 Merlin, neutron flux distrib. 3=4691
 FRJ-1, subcritical experiments 2=12258
 fast breeder systems, calculational survey 1=17220
 fast breeders, liq.-Na cooled, friction of immersed metals 3=1249
 fast ceramic reactor development 2=22864
 fast effect in lattice reactors 0=13317
 fast effect, Spinrad three-group theory 1=13887
 fast fission activation of U^{238} foils 2=12252
 fast fission effect, meas. method 2=16456
 fast group constants, variational procedure for calculation 3=25003
 fast, with low fuel concns., projected 3=2523
 fast-neutron detection 0=20162
 fast neutron flux meas. 3=10430
 fast-neutron impulse reactor, impulse amplitude, statistical spread 2=22869
 fast power reactors, analogue calc. of nonlinear kinetics and stability 1=7414
 fast, Pu-fuelled, breeding ratios, costs 3=22458
 fast, pulsed operation, parameters for nuclear research 2=3654
 fast reactor control rod effect, calc. 2=16458
 fast reactor rocket engines, criticality 2=20698
 fast reactor for sea-water distillation 3=19902
 fast reactors, book 1=12233
 fast reactors, high burn-up 2=3653
 fast, two-zone, averaging of multi-group constants 2=12255
 fast, in U, Be, system, Monte Carlo calc. 2=6014
 fast, world survey in tabular form 3=6319
 feedback dynamics, using elec. analogue 3=10426
 Fermi age computation by Monte Carlo method 1=7416
 Fermi age, moments calcs. 2=16203
 fin cooling efficiency 0=6976
 fine flux meas., analysis in concentric annuli fuel elements 3=10409
 fins, triangular, temp. distrib. and heat flow 3=3908
 first-collision probabs. for linearly anisotropic flux distrib. 3=25009
 fission chamber for neutron beam monitoring 2=3670
 fission-fragment energy converters for space vehicles 4=446
 fission gas re-solution 2=12270
 fission neutron age in water 2=5985
 fission product poisoning evaluation 2=16455
 fission product trapping, Cs sorption 2=6857
 fission ratio for configurations of UO_2 rod clusters 2=20699
 flat flux by nonuniform moderation 1=17194
 flattened, multigroup theory application 1=17224
 fluid fuel, aq. homogeneous and molten salt types 2=14173
 flux calc., Wigner effect 2=22865
 flux changes in Calder Hall type 0=7656
 flux disadvantage factor, plane slab lattices 0=13341
 flux distrib. during fuel burnup, analysis 3=24998
 flux meas. by activated steel wires 2=12262
 flux meas. with ion-chamber systems 2=12264
 flux meas. by semiconducting detector 2=12263

Nuclear reactors, fission—contd

- flux perturbation by ion and fission chambers 0=15621
 flux ratio calcs. in lattices, integral transport theory 2=20704
 flux shape changes due to added reactivity, time-dependent analysis 0=13352
 flux synthesis, new methods 2=14164
 Fokker-Planck eqn. and autocorrel. function 2=1945
 Ford, pile oscillator 0=4144
 fragment trapping by ThO₂ slurry particles 1=785
 France, review 0=5815
 fuel assemblies, vib. frequencies, critical coolant flow velocities 2=16460
 fuel behaviour when coolant boils 3=4689
 fuel bursts, Cherenkov counter detection 1=19571
 fuel cans, steel, bursting strength 2=23779
 fuel cell and Carnot cycle 0=3695
 fuel charging, formulae 2=20725
 fuel clusters, resonance integral calc. 3=2514
 fuel cycle analysis, B. method, validity 1=3483
 fuel cycle analysis, computer code FUELCYC 2=6066
 fuel cycle analysis by series methods 0=13387
 fuel cycles, conference, London (Jan., 1959) 0=5813
 fuel defects, detection by fission gas emission 2=20692
 fuel diluent BeO, thermal props. 2=3845
 fuel element containers, thermal shocks 2=12269
 fuel element, epithermal flux distortion by probes of different layers 4=6429
 fuel element failures, detection 0=11473
 fuel element geometry, optimization, criterion 2=3645
 fuel element resonance absorption, spatial distrib. 1=19558
 fuel element screening 0=9720
 fuel element technology 0=11472
 fuel element, thermal neutron spectrum 3=10408
 fuel elements, cylindrical, transient temp. distrib., calc. 2=6031
 fuel elements, extrapolation length, var. calc., appl. 4=9611
 fuel elements, neutron spectral shift eval. 3=2525
 fuel elements, non-destructive testing 0=2697
 fuel elements, polyzonal spiral, heat transfer 3=4698
 fuel elements, stacked, creep buckling 2=4331
 fuel elements, stresses in tubes under heat generation, appl. 1=20341
 fuel elements, temp. and heat flow distrib. calc. 2=8046
 fuel elements, thermal stresses in, calc. 0=12989
 fuel elements, thermoelastic dynamics 2=8049
 fuel elements, wall temp. meas. 2=3675
 fuel failure precipitator monitor 1=13904
 fuel, irradi., power and burn-up, meas. 3=19907
 fuel, metallic, high-temp., Nb-U alloy 2=6062
 fuel, Pt, review 2=10188
 fuel rod elastic-plastic deformation 1=1310
 fuel rod vibration due to flow cooling 0=5072
 fuel rod waterlogging, Chalk River experience 0=5824
 fuel rods, evolution of UO₂ structure during irradiation 3=25650
 fuel swelling, rel. to U-Mo alloys, annealing 4=3759
 fuel transporting containers 0=20530
 fuel, use of UC 2=12271
 fuel, UO₂ thermal performance 2=3860
 fuels, bubble formation 1=19818
 fuels, enriched, Fe-encased, storage and transit safety 0=15626
 fuels for fast breeder 2=8051
 fuels, inert-gas, emission during irradiation from UO₂-BeO and UO₂-ThO₂-BeO 2=20727
 fuels processing, solvent extraction expts. 2=5994
 fuels, review 3=17513
 fuse, using improved heat-transfer surface 3=16817
 G2, automatic control system 1=2256
 gamma and neutron heating in homogeneous reactor 0=13361
 gamma radiation due to extended source 3=2522
 γ-ray build-up factor, in barrier geometry 4=3724
 γ-ray build-up factors 2=7843
 gamma-ray flux, outside core, approx. calc. 0=13362
 γ-ray shielding, design curves 2=3667
 γ-ray spectrum of Soviet IRT reactor 1=4888
 γ-rays from neutron shields, lattice defect prod. 2=20992
 gamma-spectra calc. 0=9718

Nuclear reactors, fission—contd

- gas-cooled (AGR), symposium, London (1963) 3=22444
 gas-cooled, coolant flow inversion 1=13902
 gas cooled, D₂ content in He, determ. by mass spectrometry 4=2174
 gas cooled, lattice calcs., computer programme 4=6425
 gas-cooled power reactors, raising efficiency 3=8163
 gas-cooled, review, and uranium-magnox type 2=12241
 gas-cooled, thermal parameters, optimization 3=17512
 gas-graphite, control with self-regulating neutron absorbers 2=12244
 gas interdiffusion in graphite 2=19610
 gas moderation, by monatomic gas 0=7370
 gaseous, for space-ship propulsion 3=21138
 generalized variational method of analysis 3=6327
 geometrical parameter for arbitrary homogeneous bodies 2=22867
 "Godiva", γ-dose rate, during prompt critical burst 1=17241
 "Godiva" II, design, operation, performance 1=17182
 graphite, control specimen, accurate meas. of growth 1=17246
 graphite, degree of purity meas., pile-oscillator method 4=3757
 graphite impregnated with UO₂ particles, stored energy 1=12235
 graphite lattices, mixed, reactivity and reaction rates 3=22448
 graphite-moderated, conference, Bournemouth (1962) 2=18383
 graphite-moderated, core calc. 2=20714
 graphite moderated, fast neutron energy spectra 2=6039
 graphite-moderated subcritical assembly, operating characteristics 0=13346
 graphite moderator, thermal neutron spectra 2=20355, 16447
 graphite, neutron-irradiated, microstructural changes 3=25651
 graphite, Pile Grade, 450°C, irradi. damage 3=10433
 graphite, properties suitable 1=10255
 graphite purification from petroleum coke 0=13355
 graphite, reactor grade, impurities 2=12272
 graphite-thorium moderators, resonance shielding 3=25028
 group diffusion eqns., cylindrical flux trap assembly 3=19901
 group diffusion eqns., numerical soln. 1=17204
 HTGR, principles and design 0=5820
 H.T.R.E's as heat sources for aircraft turbine operation 1=11055
 Halden reactor 0=4141-3
 handbook 3=2146
 heat exchanger, statistical dynamic expts. 4=1169
 heat generation by nonfissile materials irradi. 4=1168
 heat-producing elements, cylindrical, temperature field 3=10411
 heat rating and burn-up meas., Ispra-1 4=30363
 heat release in shut-down, calc. 2=1948
 heat removal systems 0=5831
 heat transfer between heated bodies and liqs., flow conditions 1=17228
 heat transfer by boiling 0=20527
 heat transfer of fins, effects of internal heat generation 1=18650
 heat transfer, formal solutions 2=6004
 heating of non-fissile materials by thermal neutrons, calc. 2=20722
 heavy-ion-induced, momentum transfer 2=5984
 heavy nuclide cross-sections of reactor interest 0=13284
 heavy water, Chinese, at Peking 3=25025
 heavy-water, critical assembly expts. 2=18371
 heavy water leak detection 1=2259
 heavy-water manufacture, Sweden 3=4688
 heavy-water-moderated, cooled by light steam-water mixtures 1=7418
 heavy-water-moderated power reactors, invest. for Swedish programme 3=6330
 heavy water moderated reactor, theory, with appl. to FRJ-2 3=8164
 heavy water-natural uranium assembly, meas. of k_{∞} and migration length 0=20520
 heavy-water pressure tube reactor, shielding 3=19903

Nuclear reactors, fission—contd

heavy water, USSR Acad. Sci. 3=25023
 HERO, thermocouple calibration by gas thermometer 3=284
 heterogeneous, cylindrical fuel elements 3=10416
 heterogeneous, flux distrib., effect of geometric symmetries 1=764
 heterogeneous, homogenization method 2=3656
 heterogeneous laminar reactors, neutron spectra 1=3492
 heterogeneous lattices, absorber rod reactions calc. 2=8024
 heterogeneous multiplying media, coupling 2=18388
 heterogeneous power reactors, stability in the large 1=19556
 heterogeneous, profiling of heat prod. for const. power generation 2=18377
 heterogeneous reactor structure, buckling, expt. det. 0=5827
 heterogeneous reactors, 2-group diffusion eqn., numerical calc. 1=13892
 heterogeneous, slowing-down spectrum 1=2266
 heterogeneous, space depend. neutron spectra 3=8157
 heterogeneous, thermal utilization, simplified calc. 1=774
 heterogeneous, thermal utilization, 2-group theory 1=775
 Hifar (Australia) thermal spectrum 3=3289
 high flux reactors, short review 0=13308
 high flux, Xe poisoning calcs. 3=4696
 high power, effect of neutron temperature on charge life and conversion ratio 1=770
 holes, flux variations, streaming factors 2=3661
 homogeneous boiling reactor, stability 3=10429
 homogeneous boiling type, neutron flux distrib. 4=3747
 homogeneous solution type, instruments for kinetic studies 1=5956
 homogeneous, U^{238} burnup 2=6068
 homogenizing heterogeneous reactor, approx. method 1=19563
 hot-channel factors for fuel elements 1=17229
 hot-water loop, natural circulation; supercrit. temp. and press. conditions 2=12257
 hydrogenous moderators in uranium lattices, theory 1=11052
 I.R.T. reactor gamma-ray spectrum 0=2704
 impulse power meas. with Cherenkov radiation 3=12732
 impulse response meas., cross-correlation method 2=6027
 in-core neutron flux meas. 3=22452
 Indian Point, pressurized-water 3=25015
 individual source-sink method 2=18381
 infinite cylinders, linear extrapolation length and blackness 3=10405
 infinite, unmoderated, homogeneous, critical reactor, neutron study 1=17186
 in-pile circulating fuel loop, electronic analogue 0=13363
 in-pile displacement meas., pneumatic gauges 1=2269
 in-pile meas. radiation effects on mag. materials 0=3071
 instability of power density and xenon concentration 1=3490
 instrumentation and protective ccts., transistorized 1=13053
 instrumentation and control circuits, review 2=14181
 integral theory, orthogonality and importance 1=17215
 integral expts., correl. with high energy cross-sections 2=18379
 internally cooled, heat conduction 0=12515
 irradiation behaviour of graphite 3=25027
 irradiation conditions indicators, diamond and SiC 2=18389
 irradiation plant, low-temp., for Munich research 4=28085
 Ispra, neutron spectrometer at centre 2=9868
 Italian, "Enrico Fermi" of Seln 3=6329
 Italian nuclear programme 0=3872
 JEN-1, fast flux 2=3665
 JEN-1 (Madrid), crystal neutron spectrometer 2=18134
 kinetic equations, general solution 1=17221
 kinetic eqns. soln., for various reactivity time dependences 0=4146
 kinetic equations without feedback, solution 0=13321
 kinetics, application to analysis of expts. 0=13318
 kinetics of circulating fuel reactors 0=13329
 kinetics eqn., numerical solution 2=22866
 kinetics eqn., solution, large and small excursions 2=6006
 kinetics equations soln., by successive approx. 4=9606

Nuclear reactors, fission—contd

kinetics of low source startups 3=25005
 kinetics when reactivity linear function of time 3=25000
 kinetics and thermodynamics, simulators, bibliography 1=2261
 laminated heterogeneous reactor, exact multigroup diffusion theory 1=13894
 LAPRE type, kinetics 0=13322
 Latina-type, N^{16} production 0=11471
 lattice cells of n media, first-collision probabs. 3=15260
 lattice collision probabilities and resonance integrals 1=13879
 lattice parameters, det. by meas. on single fuel element 2=3649
 lattice reactors, fast effect 0=13317
 lattice self-shielding 0=13343
 lattice system, first flight collision probability 1=17227
 lattices, heterogeneous, thermal utilization factor 1=11051
 lattices, sandwich, and Block's theorem 3=12728
 light water heterogeneous reactors, Monte-Carlo calc. of Fermi age and leakage factor 1=3484
 light-water UO_2 cores, low enrichment, analysis 2=3657
 linearized theory of reactors, errors 1=17223
 liquid drop model, equilibrium configurations 2=5780
 liquid loop as radiation source 1=13878
 liquid moderated cell assessment, computer programme 4=15260
 loose coupled systems, dynamics rel. to automatic control 2=6002
 low power, high thermal flux exptl. reactor 0=7652
 low-temperature expts., use of uncooled thermal shield 4=12326
 MTR fuel loadings calc. 0=13368
 MTR-type fuel elements, criticality calc. 1=2268
 Magnox AL 80 and ZR 80, fatigue behaviour at high temp. 3=25762
 Magnox AL 80, effect of Be on exaggerated grain growth 3=25760
 Magnox ZR 55, mech. props., effect of H_2 pick-up 3=25761
 materials, Mg/MgO sintered 3=15268-9
 materials problems, historical review 2=20696
 materials, radiation effects, conference, Venice (1962) 3=10697
 materials, radiation effects, conference, Venice (1962) 3=6547-8
 materials for use in reactors, book 1=4884
 materials testing reactor, choosing characteristics, comparative data 1=760
 maximum prompt neutron lifetime 2=6021
 measurement, multiplication factor k_{∞} , water- UO_2 lattice 4=3761
 measurement of neutron flux, from activity of flowing medium 4=19910
 measurement, reson. in absorpt. in U^{238} , shielding corr., Dancoff method improvement 4=3762
 measurements, neutron source, 5×10^{13} /sec 4=16906
 measurements, Scorpio 1 and 11 sub-crit. assemblies 4=28090
 Melusine, automatic control system 1=2258
 Merlin, charge and discharge channels, gamma- and thermal neutron flux calc. 2=10169
 Merlin, Dido, AVR at Jülich 3=8165
 MERLIN, neutron spectrometer automatic recording system 4=15077
 Merlin, ring-shaped neutron sources, value 2=16457
 Merlin, shielding calc. 3=2516
 Merlin, tank, radiation dose level 3=4690
 metallurgical problems 1=3479
 metallurgy 0=4834
 metals, aqueous corrosion, review 3=695
 metals, pure, damage rel. to neutron flux 3=2847
 migration areas and effective delayed neutron fractions 1=782
 minimum total mass reactor design 0=15612
 model bed, neutron space-energy distrib. meas. 4=15257
 model of xenon poisoning 1=3486
 moderating materials, mixtures, U^{238} absorption 2=8026
 moderation, heterogeneous media calc. 2=6034
 moderator coeffs. rel. to model and cross-sections 3=8155
 moderator-cylind. fuel system, first-flight collision probab. 3=19911

Nuclear reactors, fission—contd

moderator density spatially variable, soln. of reactor eqns. 2=18378
 moderator, heavy-gas, neutron spectrum 2=1951
 moderator, liquid, radiation nucleation of bubbles 3=23864
 moderator and U fuel regions separate 2=20697
 moderators and absorbers, abs. cross-sect. of free proton model 3=22460
 moderators, homogeneous, neutron slowing-down distrib. 4=17218
 moderators, organic cpds. as 1=17245
 moderators, small, low temp. for cold neutron beams 2=6037
 moderators, thermal-neutron scatt. 2=20345
 monoenergetic neutron transport, in spherical geometry, Boltzmann eqn. 1=8604
 multigroup bucklings, iteration method of specification 1=778
 multi-group diffusion equation, soln. for reactors of circular and spherical symmetry 1=3487
 multigroup diffusion eqns., computer programme 2=20715
 multigroup-multiregion diffusion eqns., soln. by expansions 1=17200
 multigroup theory in neutron spectrum 1=17224
 multilayer slab systems, critical problems 1=17183
 multiplication const., terminology discussed 1=13424-5
 multiplication factor, thermal utilization for cylindrical cell 2=6016
 multiplication factors, relation to inhour equation 1=13890
 multiplication parameters η , meas., from Xe poisoning 3=25008
 multiplying assembly, probab. distrib. 3=10404
 multiplying core, time dependence of buckling 1=3190
 multiplying systems with heavy water moderators, surface blocking meas. 4=3723
 multi-region multi-fuel, reactor kinetics 1=767
 NPD, operation 3=15264
 NRU, clean-up after fuel rod failure 0=5823
 NRU, fuel rod failure, due to waterlogging 0=5824
 NRU (Harwell), scatt. law expt. 2=22526
 NRX reactor, $B^{10}(\alpha, n)N^{13}$ and $B^{10}(t, 2n)C^{11}$ reactions 1=19529
 natural U graphite, long term irradiat. effects 2=10190
 natural uranium and light water, subcritical assembly 1=19567
 negative reactivity measurements 1=17242
 neutron absorbers, self-regulation, theory 2=12245
 neutron absorpt., generalized resonance integral represent. 1=17240
 neutron age in D_2O-H_2O mixtures 1=3191
 neutron attenuation in iron-water shields, calc. 2=20712
 neutron backscattering from plane and spherical reflectors 4=21860
 neutron beam producer, intense 3=22450
 neutron beam tube in FRM reactor 2=10187
 neutron beam from WWR-S reactor, spectrum 2=1949
 neutron chain reactions, statistical theory 3=12717-18-19
 neutron collision probability in cylind. cell 2=10175
 neutron cross-section meas., by reactor osc., EWA reactor 4=9530
 neutron data for reactor kinetics 3=17509
 neutron decay in subcritical assembly 3=12727
 neutron density and "importance", variational representations 1=17189
 neutron density standard, graphite cylinder with cavity 4=27867
 neutron diffusion calculations, graphical methods 2=3646
 neutron diffusion cooling in finite moderator 0=7373-4
 neutron diffusion cooling in finite solid moderator assembly 0=20528
 neutron diffusion, one-group, time-depend., extrapolation length 2=7863
 neutron diffusion parameters, diphenyl and MIPB($C_{12}H_{10}$) 4=3758
 neutron diffusion in reproducing media multigroup treatment 0=7356-7
 neutron diffusion, single-group theory 1=13889
 neutron diffusion, two-group, matrix formulation 2=6001
 neutron diffusion in two-temp. lattice, thermalization theory 2=20348
 neutron diffusion in U-water lattice 0=7365

Nuclear reactors, fission—contd

neutron distrib. meas., use of neutron effects on Ge 2=8044
 neutron distrib., statistical fluctuations 3=2528
 neutron distrib., thermal, in a subcritical flux trap assembly with spontaneous fission source 4=6428
 neutron distribution, near partially inserted black rod 2=1946
 neutron dosimetry, pile oscillator appl. 2=14179
 neutron effective reson. integral meas. on U and Th 3=2544
 neutron effective temperature, definitions 4=1152
 neutron energy spectra, rel. to displacement damage 3=17517
 neutron fluctuations, cellular structure reactor 3=10412
 neutron flux calc., "multichannel synthesis" 2=10170
 neutron flux at cylindrical surface due to activity in water 1=17185
 neutron flux, distrib. and reactivity, long-term variations 4=1140
 neutron flux, effect of cylindrical channel 2=3664
 neutron flux, elec. analogy of transmission line, teaching 2=5996
 neutron flux flattening in large and small reactors 3=4686
 neutron flux gradients, automatic meas. 1=5955
 neutron flux meas., absolute determ. 2=20719
 neutron flux meas., Co self-shielding factors 2=20644
 neutron flux meas., Dy foils 3=2283
 neutron flux meas. in EWA reactor 2=14180
 neutron flux meas., foil activation expts. 2=5681
 neutron flux meas., P-polythene mixtures 3=2284
 neutron flux meas. by "thin-film capture" using U^{238} and Th^{232} fission 4=3430
 neutron flux monitoring by mica fission-track prod. 4=28091
 neutron flux in multiplying medium due to source introduction 1=3491
 Neutron flux at a point, Monte Carlo estimation 3=24739
 neutron flux in polyethylene moderated medium 3=19908
 neutron flux in reflector, multigroup calc. 0=12966
 neutron flux spectrometer, fast 4=28092
 neutron flux and spectrum meas. 3=19912
 neutron flux, thermal, meas. 1=13907
 neutron fluxes, time dependent 0=7355
 neutron and γ -ray data 3=17510
 neutron high flux detector 4=6081
 neutron-induced, cross sections at 3 MeV, calc. 2=5982
 neutron intensity meas. with Au and S probes 3=25018
 neutron kinetic eqns., standard curves 3=10417
 neutron kinetics formulation 1=19557
 neutron kinetics in nonmoderating assemblies 3=17287
 neutron kinetics simulation with RC network 3=10406
 neutron leakage through iron shielding 0=13360
 neutron leakage through voids 1=19564
 neutron multiplying systems, spiking theory 1=17187
 neutron net current in asymmetric thin regions 3=4683
 neutron poisoning, by gaseous fission products 0=7665
 neutron pulse in moderators, theory 3=25004
 neutron resonance absorpt. in lumps with nonunif. temp. distrib. 3=6323
 neutron resonance absorption, theory 1=3488-9
 neutron resonance absorption, in U and UO_2 1=16810
 neutron resonance capture in bundle arrangement of fuel elements 1=3485
 neutron resonance escape prob. in slab lattices 0=4152
 neutron scattering in cylindrical absorbers 0=11177
 neutron shielding materials, data tabulation 2=3668
 neutron slowing down in infinite media 1=19562
 neutron slowing-down length in water 0=3975
 neutron slowing-down relaxation time, in moderators 0=7371
 neutron slowing down as stochastic process 2=11957
 neutron slowing-down in water, rel. to inelastic scattering in U 3=2275
 neutron source in just-crit. reactor, meas. uses 4=28093
 neutron spectra det. with threshold detectors 1=13908
 neutron spectra, fast reactors, parametric representation 4=1135
 neutron spectrum, conversion to fission, by U 4=1167
 neutron spectrum, fast, high power, RA reactor 4=9616

Nuclear reactors, fission—contd

neutron spectrum, meas. using fast chopper 1=13448
 neutron spectrum temp. distrib. in heterogeneous systems, calc. 2=5682, 9856
 neutron surface leakage calculation 0=4145
 neutron telescope monitors 3=6331
 neutron temp. distrib. in cylinder of hot moderator 3=25001
 neutron temp. distrib., scatt. sample effects, WWR-S reactor 4=12314
 neutron temp. meas. 1=17233
 neutron temp. meas. by Lu activation 3=22461
 neutron temp. of a moderator composed of small regions at various temps. 0=5822
 neutron temperature spatial dependence in moderators 1=3192
 neutron thermal flux in cell with temp. discontinuity 2=8030
 neutron thermalization, characterization 3=2527
 neutron thermalization and diffusion 2=5657
 neutron thermalization in lattice, theory 3=10410
 neutron thermalization, space-energy distrib., in heavy media 0=1453
 neutron thermalization, time decay consts. 3=8167
 Neutron time-dependent thermalization problem 3=24738
 neutron transmission methods, data handling on IBM 7090 computer 2=9865
 neutron transport eqn. plane problem, diffusion approximation 2=10178
 neutron transport problems, solution 2=4968
 neutron transport in U fuel rod in moderator 2=14169
 neutrons amplifiers 1=16792-3
 neutrons from D-D source, distrib. in water 2=5649
 neutrons, heating in Be cans 1=13895
 neutrons and precursors in multiplying medium, probability distrib. 3=25002
 neutrons and precursors, time-dependent importance 1=17188
 neutrons, production of approx. collimated fast beam 0=15622
 neutrons, slowing down with anisotropic scatt. 2=12248
 neutrons, thermal, density standard 2=18390
 neutrons, thermal, distribution in cell and linear extrapolation length 1=13876
 neutrons, thermal energy distrib. in finite Be oxide assembly 2=8037
 neutrons, thermal, flux density in hydrogenous moderators 1=9895
 neutrons, U^{235} fission, age in water 1=17205
 neutrons in water, slowing down time scale 3=22148
 noise analysis 3=12733
 noise in nuclear reactors, electric model 1=7415
 noise parameters, statistical estimation 3=693
 nonlinear reactor dynamics, geometric theory 2=6020
 nonlinear reactor dynamics, validity 2=6025
 nuclear composition of natural U after long-term irradiation 0=15623
 nuclear data for reactor studies 1=11048
 nuclear electronics symposium 0=12719-20
 nuclear engineering curriculum, radiation and matter interaction 2=5993
 nuclear heating in Mg, Bi, calorimeter meas. 2=17684
 nuclear power plant, stability 1=753
 nuclear power plants, influence of radioactive decay energy of products on automatic control 0=17643
 nuclear power station operation (USSR) 0=7653
 nuclear power supplies in space 0=20525
 nuclear rocket design 1=17181
 nuclear ship Savannah 2=20730
 numerical mathematics conference 0=12232
 numerical mathematics conference 1=4169
 OCDRE, description 1=2254
 OMCR, review of technology and economics 0=5819
 OMRE, operating experience 0=5818
 ORNL, lid-tank fission plate calibration 0=13342
 Oak Ridge high flux isotope reactor 4=17225
 Oak Ridge programme 1=4887
 one group diffusion theory rel. to Yankee startup exptl. data 3=2520
 one-velocity transport eqn., for cylinders and spheres, double spherical harmonic method 0=15617
 operating experience, MTR-ETR 2=6041
 organic-cooled D-moderated reactors, review 1=2254

Nuclear reactors, fission—contd

organic moderators, investigation 1=13445
 organic reactor, C.N.E.N. development programme U—Th power reactor—reprocessing plant complex 1=7412
 organically moderated, U—Mo and UO_2 fuels 2=6060
 ORGEL lattices, natural buckling, crit. expts. 3=2519
 oscillations, Xe, threshold, shape effects 4=3732
 outer control rod zone, time behaviour 2=8022
 PCTR, determination of k_{∞} of a multiplying medium 0=13326
 PMI, pressurized water reactor 3=15263
 parameters det., variance to mean neutron no. ratio 3=2521
 parasite reactor for phase studies under irradiation 0=13310
 pebble-bed core, coolant flow temp. distrib. 3=22451
 pebble-bed, gas-cooled, flow and temp. field 3=10414
 pebble bed, turbulent gas flow theory 2=16449
 pebble-bed type, cooling 1=19568
 period meter for fast period protection 2=20728
 period meter, fed from ionization chamber tune response during startup transients, computer calc. 3=12741
 period meter, fed from pulse counter, time response during startup transients, computer calc. 3=12742
 period-reactivity relations from prompt-burst neutron decay data 0=13332
 perturbation theory of higher order, validity of first-order theory, calc. for cavities 0=13347
 perturbations, by Schrödinger's eqn. application 2=6003
 photo-neutron source for start-up of WWR-S reactor 2=1950
 use as physics instruments 0=20523
 physics and technique, Conference, Bucharest 1961 3=19900
 pile noise, simplified theory 1=17193
 pile noise, spectrum and variance, Rice formulation 1=17201
 pile oscillator, neutron—nucleus cross-section detm. method 3=25007
 plane periodic lattice, effective boundary condition at surface 2=18375
 plate lattice, thermal utilization of neutrons, calc. 2=8028
 plate-type fuel subassembly in air, decay heat removal 0=13358
 Pluto, ratio neutron capture to fission for U^{235} 2=14148
 pneumatic transfer from pool reactor 0=4036
 pneumatic transfer of samples, reactor to lab. 0=5810
 poisoning, fission product capture cross-sections 2=5988
 Polish second exp. reactor, fuel element design 2=3652
 Polish second exp. reactor, multizone calcns. 2=3651
 pool type, control, effect of photoneutrons 1=17238
 porous solid fuels, swelling interpret. 3=2543
 power bursts, approx. eqns. 0=5832
 power determination by means of "noise" 3=4694
 power, fuel, for 200 reactors 3=17506
 power-level auto regulation investigation 2=10181
 power-limiting system, in Na-cooled plant, conceptual design 1=2262
 power, list, descriptions 4=6410
 power meas., from γ activity of coolant 3=25032
 power meas., Cherenkov detectors 3=12739
 power monitor, utilization Cherenkov light 2=8052
 power noise transfer function 1=755
 power oscillations in the prompt critical region 3=8160
 power plant, thermodynamic cycle parameters 3=2513
 power reactor, multigroup calc. 1=19561
 power-reactor noise, statistical analysis 0=5833
 power reactors, fuel element burn-up meas. 2=12260
 power reactors and reactor safety 1=5950
 power reactors, stored energy in the graphite 2=1947
 power sources for space vehicles 3=21144
 power, for stable and unstable reactors, boundedness for initial conditions 1=762
 power station, optimum thermodynamic cycle 1=4886
 power-station reactor, neutron spectrum in thermal column 1=771
 power, Xe concn. calc. 3=10424
 precipitation-hardened materials, use 2=8264
 pressure-tube reactors, STAGNANT computer programme 2=20713
 pressurized water, Ag—In—Cd as control rod 3=6336
 pressurized water reactor, internal reloading unit 3=25012

Nuclear reactors, fission—contd

pressurized water reactor, steam-water mixtures, density meas. 0=10806
 problem solution by resistance-network analogue 0=7655
 product spectra of discharged fuel 0=13293
 prompt neutron decay constants, multiplying media 2=6040
 pulse arrival rate, rapid recognition 2=1348
 pulsed n. experiment evaluation, use of prompt and delayed n.s 3=19910
 pulsed neutron experiments in multiplying media 0=13356
 pulsed neutron experiments, theory 3=25006
 pulsed subcritical assembly, time-dependent thermal neutron flux 0=15634
 RA reactor (Yugoslavia), fast neutron flux 2=5999
 RA reactor (Yugoslavia), radiation dosimetry 2=6000
 RA reactor (Yugoslavia), radiation dosimetry, chemical methods 2=18372
 radiation damage experiments, analysis, Monte Carlo calculations 3=10403
 radiation damage to materials used 0=7674
 radiation damage monitor, using sputtering 2=14178
 radiation dosimetry, isothermal calorimeter 3=696
 radiation heating calc. in vessel and shield 4=28087
 use as radiation sources, survey 1=13897
 radiation streaming through channels 2=12256
 radioactivity, artificial production, by n amplification in internal thermal column 4=1033
 radioisotope prod. methods 2=20535
 radionuclide prod., activity calc. 2=3494
 radio-I vapour in Dido and Pluto 1=11635
 random fluctuations, cross spectrum analysis 4=8
 random fluctuations, digital analysis by TIMTAPE and DEUCE 3=14
 random fluctuations, spectral analysis 1=5951
 random reflector, multi-group arrays, interaction theory 1=17226
 react. equation for a core with a re-entrant corner 3=8161
 reactivities, low, meas. by sinusoidal source modulation 4=1125
 reactivities, low meas. by source modulation 3=15257
 reactivity, analogue computer study 1=17247
 reactivity assoc. with Np^{239} decay in irradiated UO_2 1=786
 reactivity, calc. using transport approx. 1=17210
 reactivity changes, long-term 0=4149
 reactivity coefficients, in critical systems, perturbation theory 1=17217
 reactivity effect of cavities, P_L approx. of transport equation 1=13893
 reactivity effect due to neutron streaming in empty tube 0=5829
 reactivity effects from fluid motion in core 2=16451
 reactivity, highly enriched uranium assembly 2=10179
 reactivity and kinetic relations 3=17507
 reactivity meas. errors due to photo-neutron effects 0=15632
 reactivity meas., FRJ-1 Merlin 3=15261
 reactivity meas., pulsed neutron system 1=4885
 reactivity meas. with reflector, theory 2=14168
 reactivity meas., subcritical, by neutron statistical fluctuations 4=1171
 reactivity of oblique rods, meas. by heat conduction model 4=6447
 reactivity, transistorized analogue computer 3=4685
 reactor dynamics, theory 0=5817
 reactor eqn., solution 2=10174
 reactor kinetic response, neutron space-time problems 0=13349
 reactor kinetics, application to analysis of experiments 0=13318
 reactor kinetics, use of dimensionless variables 0=20526
 reactor kinetics, use of generation time 1=13884
 reactor kinetics, integral equation formulation 2=3662
 reactor materials and radiation damage, conference 3=12716
 reactor oscillation analysis for reactivity coefficients 0=13333
 reactor oscillator, optimum operating conditions 2=3677
 reactor physics study 2=5992
 reactor shell, thermal stresses, due to γ -irradiation 0=7671
 reactor shell, thermal stresses, due to neutron irradiation 0=7672

Nuclear reactors, fission—contd

reactor shell thermal stresses due to neutron irradiation 1=781
 reactor stationary flux distrib., simulation by analogue computer 0=5834
 reactor test volumes, average flux calc. 0=13351
 reference manual 1=11043
 reflected reactor, flat thermal flux distrib. in core 3=10407
 reflected-reactor kinetics 2=14163
 reflected, two-group theory of ring of rods 2=6019
 relation between k_{∞} and k_{eff} , direct deriv. 3=22447
 removal cross-sections bet. overlapping thermal groups 3=2530
 replacement of a lattice block close to the reflector, calc. 2=18374
 research, Scottish 4=15251
 resonance absorption, in close-packed lattice 0=7666
 resonance absorption in power station reactor 0=7667
 resonance capture, in U-C and U- H_2O lattices, Monte-Carlo calc. 1=17203
 resonance flux meas. 0=7668
 resonance integral, cylindrical rods of U metal and oxide 3=4687
 resonance integral, effective, calc. 2=8034
 resonance integral, effective, dependence on moderator slowing-down properties 3=8156
 resonance integrals, effective in statistical region, calc. 3=692
 resonance integrals, effective, trends in temp. depend. 2=20709
 resonance integrals, new calc. 2=12249
 resonance, in reactors, rel. to reactivity calc. 2=6011
 resonance shielding in thorium-graphite mixtures 2=20721
 response, to linear reactivity variation 0=4151
 response at low power for periodic reactivity variation 2=8035
 rethermalization in graphite, cross-section meas. 1=17239
 review article, covering European work 1=13874
 review, historical account 3=2512
 review of recent ideas 1=754
 rock vessel reactor power plant, 235 MW 3=4684
 for rocket propulsion 3=16434
 rod absorption factors by absorption area method 0=12985
 rod-drop expts., kinetic eqn. 2=10176
 rod-type fuel element, transient temp. distrib. 2=8050
 Rossendorf reactor, operational experience 3=25024
 Roumanian Inst. of Atomic Physics, 2000 kW reactor, transient states, calc. 0=20522
 SM-2, flexible critical expts. 2=3644
 SR-1 heterogeneous subcritical assembly, investigation 1=13875
 SRE, failure due to coolant contamination 0=5828
 SRE prompt power coeff. 3=6333
 Saclay, reactor incidents 0=9717
 safety policy in Canada 1=2253
 safety of start-up, rate and period meters 2=6071
 safety of UO_2 - ThO_2 - H_2O systems 2=3658
 sampled flow of random pulses, counting rate, errors 4=28089
 samples, irradiated intermittently, activity 2=20711
 SANDPIPER I programme for liquid-moderated UO_2 lattices 2=20710
 sandwich reactor, effective thermal diffusion length 0=7662
 "sandwich" reactors, exact two-group diffusion theory 2=10177
 scram system, hydrodynamics 0=13372
 screening meas. for type WWR-S 3=25019
 second fundamental theorem, validity 1=17192
 sectionalized systems, k_{eff} and burn-up 2=8038
 sheath rupture detection, numerical control 1=7417
 sheath rupture detectors 1=2257
 shield, power-producing 3=22454
 shielding calc., hydrogen-free "removal cross-section" method 3=17515
 shielding damage due to fast neutrons, determ. by dosimeter 3=10423
 shielding, effect of B carbide on (n, γ) reaction in steel 2=8045
 shielding, for linear source, shape 2=6052
 shielding materials, review 3=2539

Nuclear reactors, fission—contd

shielding, model experiments 3=4693
 shielding of neutron point sources, by metal/
 hydrogenous shield 4=12318
 shielding props., different types of concrete 2=14177
 shielding studies using neutron beam facility 2=18385
 shielding, temp. and stress distrib. 1=777
 shielding, two and three-group calcs. 3=17511
 shields, metal—water, thermal neutron flux
 distrib. 1=17237
 shields, neutron penetration 4=21875
 short time behaviour calc. 0=4150
 shut-down bubble detection following power burst 2=11453
 shut-down circuits 3=10425
 shut-down reactor as strong γ -ray source 3=25014
 Siemens Argonant, Rossi- α meas. 4=28094
 signal-flow graphs and stability analysis 1=8803
 siting and building 1=17225
 Sizewell reactor transients 3=22455
 slab geometry, disadvantage factors, conveyance
 improvement 3=12724
 slab geometry, thermal flux disadvantage factors 2=12247
 slab lattices, epithermal flux 3=15254
 slow neutron flux meas. 2=6072
 small cells, failure of neutron transport approx. 2=6013
 sodium graphite reactor programme 3=2542
 solid dielectric irradiation methods 2=10183
 solid moderator assembly, thermal neutron energy
 distrib. 1=16794
 source of discrete γ -rays up to 11 MeV 2=5612
 Soviet research reactor SM, 50 MW, design 3=10421
 for space propulsion 1=15578-81
 space-time kinetics by modal expansion, finality 2=6005
 space-time neutron kinetic eqns., semidirect variational
 method 2=16452
 spatial dynamics, transfer function synthesis 3=2531
 spatial stability criteria 3=15256
 spatial transients due to homogeneous slab gaps 0=15629
 spatially dependent thermal spectra, calc. 2=6018
 specific activity of fluid circulating through reactor 0=2703
 spectrum analyser, 10^{-3} –30 c/s 3=24161
 split core, slow-neutron spectrum meas. 3=6334
 square lattice cell theory, evaluation of series 2=3647
 square lattice cell, thermal utilization 4=28086
 square lattices, two-group plane boundary
 conditions 3=8154
 stability, effect of delayed neutrons 1=17209
 stability, homogeneous reactors, nonlinear reactivity
 temp. dependence 2=6029
 stability in the large and boundedness of models 4=3746
 stability of n -th spatial mode, crit. size 2=14167
 stability, nonlinear dynamics, for stationary
 systems 1=17202
 stability, nonlinear, investigation for reactors and control
 systems 2=10166
 stability, nonlinear, theory 1=8802
 stability, problem of Xe^{135} , modal interaction 2=20703
 stability, use of two-parameter diagram 0=17642
 stainless- UO_2 cermet fuels, burnup 1=13880
 starting, automatic system 1=2260
 start-up incident calc. 0=2699
 startup of low source reactors, neutron kinetics 3=12734-5
 start-up of reactor, safe procedure 0=11474
 start-up simulator 2=6032
 steady states, positive reactivity coeffs. 2=3660
 steam generating, fog flow conditions 3=10420
 stochastic kinetics 3=2529
 subcritical assemblies, with spontaneous fission
 source 0=13334
 subcritical assembly, description 3=25011
 subcritical assembly, flux distrib. calc. 2=12242
 subcritical assembly, material buckling measure-
 ments 1=779
 subcritical D_2O lattices, pulsed neutron expts. 3=19909
 subcritical homogeneous suspension reactor,
 instrumentation 0=13382
 subcritical, reactivity meas. 3=10428
 subcritical reactivity meas. by source-jerk
 method 3=8153
 subcritical reactor as a college facility 0=5814
 subcritical, space-dependent prompt kinetics 1=13882

Nuclear reactors, fission—contd

subcritical system, interaction study, albedo
 method 2=22868
 surface film formation 2=6042
 surface perturbation theory for reactivity
 determination 1=17190
 suspension, stability theory 3=22445
 Swedish heavy-water R1 reactor, slow-neutron
 spectrum 0=7654
 Swedish zero-power reactor R0 0=4140
 swimming bath reactor, epithermal and fast neutrons,
 spectral distrib. 2=3672
 teaching, German 4=15252
 teaching, Scottish 4=15251
 technology, advances, book 3=2511
 temp. coeff. calc., two-group albedo theory 0=13353
 temp. distrib., in coolant channels, vector diagram 0=5830
 temp. distrib. in a finite unsheathed cylinder 0=1460
 temperature coeffs., effect of reflector 3=12720
 temperature histories of thin internally-heated
 bodies 2=22079
 test explosion, generation of elec. current 2=5991
 tests, out of pile, simulation of heat rating 1=17231
 theory and expt., teaching 2=5995
 theory, mathematical problems 0=17640
 theory, two-group, modification, additional
 group 3=24999
 thermal activation calcs., one-group model 2=8029
 thermal changes at centre, analogue representa-
 tion 2=12243
 thermal column, branched, flux distrib. 2=16448
 thermal, Doppler effect 2=3676
 thermal flux perturbs., probe-induced 3=12726
 thermal neutron diffusion, effect of Bragg cutoff,
 calc. 2=5662
 thermal neutron distribution, spatial and energy
 depend. 1=17206-7
 thermal neutron flux distrib., in space and energy 1=17214
 thermal neutron flux increase by internal thermal
 columns 2=20716
 thermal, neutron lifetime and reactivity, meas., by
 Rossi α -method 4=1166
 thermal neutron scatt. by moderators, data and
 theory 2=11948
 thermal neutron spectra in lattices, ang. depend. 3=12723
 thermal neutron spectra spatial dependence, rel. to
 thermal utilization factors 2=8039
 thermal neutron spectra, spatial dependence and thermal
 utilization meas. interpretation 2=16453-4
 thermal neutron spectrum, integral eqn. 3=12721
 thermal neutron transport, few-group calc. 2=5959
 thermal neutron transport in heavy gas moderator,
 theory 2=10171
 thermal, Pu fuel cycles 3=22459
 thermal processes in reactor core, sol. of eqns. 2=16450
 thermal, reactivity calc. with resonance fission 2=6011
 thermal, relative worth of control
 materials 1=11053-4
 thermal systems, Sn computations 1=13885
 thermal utilization factor of a close-packed lattice 0=7660
 thermal utilization factor determ., method 0=7659
 thermal utilization factor theory, infinite slab
 geometry 1=13881
 thermal utilization, flux ratios, in complex
 lattices 3=8158
 thermal utilization, in lattice cell with bare fuel
 element 1=776
 thermal utilization, Monte Carlo calc. 0=15615
 thermal utilization in a rectangular cell 2=6028
 thermalization, diffusion of neutrons 2=18128
 as thermionic heat convector, review 2=15880
 thermocouple, weakened, for fuel cells 4=28095
 thermodynamic behaviour, mathematical theory 0=20529
 thermodynamic cycle, optimum, approx., power
 station 3=6321
 threshold detectors, fast neutron flux meas. 2=22537
 time-dependent eqns. reduced to ordinary differential
 eqns. 2=6007
 time-dependent thermal neutron diffusion equations,
 solution 0=12956
 Tokyo sub-critical assembly, neutron lifetime,
 Rossi- α -method 4=12325

Nuclear reactors, fission—contd

transfer cross-section between overlapping thermal groups 3=8168
 transfer function meas., non linear 4=17233
 transfer function of steadily diverging reactor 0=7669
 transfer functions of distributed parameter reactor systems 0=13320
 transfer functions, statistical correlation methods 2=8032
 transfer functions from steady operation meas. 0=13319
 transfer functions, theory and applications 2=14161
 transient effects, simulation 0=12535
 transient heat conduction, responses, transfer functions 2=3663
 transient operation, by analogue VVR-S 3=25022
 transients in log count-rate and period meters 1=2932
 transients, space-independent kinetics, exact theory 3=6328
 transport equation for critical assemblies, S_0 technique 0=13340
 transport eqn. for plane cell, sol. 2=8033
 transport problems in multigroup theory 0=1284
 transuranic element buildup, effect of U recycle 0=13364
 TREAT, meltdown tests of EBR-2 fuel 0=15624
 T.R.E.A.T., progress report 1=12234
 Triga, counting-rate channel 1=18733
 TRIGA Mark II, prompt temperature coefficient, Pu conversion effect 3=12731
 two-dimensional theory, analytic approach 3=6325
 two-group reactor kinetics 2=22871
 two-region reactor fuel elements, transient temp. distribution analysis 1=773
 two-zone reactor, theory, design and control 4=1138-42
 USSR first station, active contamination of steam—water loop 4=3755
 Ulysses, neutron fluctuations, expt. results and interpretation 2=22872
 unmoderated assemblies, neutron spectra measurement 1=13899
 uranium reserves in U.S., operating costs 2=3643
 α -uranium, swelling due to irradiation 2=3674
 VVR, fast neutron spectrum and thermal flux distrib. 2=18384
 VVR-M, horizontal channel, γ -ray spectrum 2=14170
 VVR-M, physical parameters 2=18387
 VVR-S, cooling water activation 2=6047
 VVR-S, critical dimensions, kinetic props., modification 2=20720
 VVR-S, exptl. reactor 3=12730
 VVR-S, flux meas. around horizontal canals, rel. to protection 2=6057
 VVR-S, flux meas. near horizontal channels 2=6049
 VVR-S, meas. of neutron absorption by oscillator method 2=6046
 VVR-S, neutron flux and γ -ray distrib. 2=6056, 8043
 VVR-S, neutron temp. distrib. meas. 3=25017
 VVR-S, for pile oscillator method 2=6055
 VVR-S, pile oscillator method problems 3=25021
 VVR-S, reactivity variations 3=25020
 VVR-S reactor, Roumania; neutron spectrum 1=5954
 VVR-S, start-up automatization 2=6044
 VVR-S, thermal flux in perturbation expts. 2=6045
 VVR-S thermal neutron flux determ. by perturbation expts. 2=6058
 VVR-S, water, impurity build-up 2=6048
 vapour void profiles in heated channels 2=11516
 variational principle for nonlinear systems 2=6030
 vel. depend. neutron transport with high-energy sources 3=10126
 voids between core and reflector, reactivity theory 2=8027
 volatilization of by-products, diffusion from graphite 2=6370
 WWR-S reactor, Bucarest, thermal neutron spectrum 1=3481
 WWR-S reactor (Poland), automatic control 1=17243
 water behaviour, primary circuit 2=6059
 water-boiler (KEWB) at high power excursions, dynamics 4=3748
 water boilers, radiolytic yields of N_2 and H_2 0=13370
 water cooled, F^{18} activity, meas. 2=20718
 water-cooled and moderated, neutron spectrum 1=7413
 water cooling, flow stability 0=6749
 water cooled, flow stability 2=12259

Nuclear reactors, fission—contd

water gap peaking, few-group theory 1=17213
 water-graphite moderated lattice, thermal utilization factor 1=19559
 water moderated, effect of Eu resonances on temp. defect 0=13327
 water-moderated critical system type ZR-1 3=25010
 water-moderated lattices, Dancoff correction, new formula 2=6064
 water moderated, neutron spectrum 0=7386
 water, radiolysis 3=15265
 water reactors for power generation, symposium 3=10402
 water solutions, $U^{233,235}$, Pu^{239} , critical dimensions 2=5976
 Welton's stability criterion 0=2701
 Wigner's contributions to theory and technology 3=6320
 wire activity, automatic recording 4=1153
 worth of cylindrical control rods 2=6033
 xenon poisoning, influence on control, security 2=14172
 xenon spatial instability 2=12251
 Yankee, description 1=11050
 Zebra, zero power fast reactor 3=2518
 Zephyr, neutron lifetime measurements 1=766
 zero-energy, fast neutron flux meas. 3=22149
 zero energy fast, VERA, neutron spect. meas. in core 4=25469
 zero energy reactor "RB" 0=20519
 zero energy reactor "RB", safety-rod effectiveness 0=20521
 zero power kinetics, oscillator bias and freq. response 2=12246
 zero power, neutron population fluctuations 2=22870
 zero power reactor transfer function 1=756
 Zeus, neutron lifetime measurements 1=766
 zirconium hydride water-moderated reactor, transient behaviour 0=15631
 zonal profiling calc. method for power optimization 2=18376
 A^{41} activity as neutron flux meas. 2=12261
 Au, by heavy ions, momentum transfer 2=5984
 B, standards for slow-neutron absorption cross-sections 2=7866
 Be, irradiated, mechanical props. 2=4338
 Be moderated reactor, ($n, 2n$), (n, α) reactions 1=13817
 Bi, by heavy ions, momentum transfer 2=5984
 Bi preparation, for liquid-metal reactor 0=7673
 $Cd_3Ta_2O_7$ as control material 3=4699
 D_2O -cooled, temp. transients of outlet water of fuel element 3=4697
 D_2O lattices, K_{∞} , multigroup diffusion calc. 0=15616
 D_2O -moderated lattices, multiplication factor 2=10164
 D_2O moderated, wet steam cooled, critical size calc. 0=11470
 D_2O - U^{235} critical assemblies, few-group anal. 1=17199
 H_2O - D_2O moderated, cost of D_2O 2=3669
 H_2O - D_2O moderating mixture 3=6335
 H_2O - D_2O moderated, Dancoff effect, expt. 1=17212
 H_2O - D_2O moderated reactor 1=17197
 Hf control rod worths, epithermal parameters 0=13378
 Hf control rods, mechanical properties 0=15635
 Ho, by heavy ions, momentum transfer 2=5984
 Mg-Zr alloy ZA, creep at 400° and 450°C in CO_2 3=25629
 Mg-Zr alloys, heat treatment in H_2 for creep ductility improvement 3=25763
 N_2 boiling, elec. resistance 2=6051
 Na-cooled, release of fission products 3=21007
 Na, molten, heat transfer in staggered tube bank cross-flow 3=16816
 Nb alloys as high-temp. core materials 1=5952
 $Ni^{58}(n, p)$ reaction as fast flux monitor 2=5941
 Pm^{147} poison, neutron activation cross-sections 2=12204
 Pu breeder with oxide fuel and blanket elements 0=13315
 Pu carbides, props. (nuclear engng. data sheet) 1=4168
 Pu-enriched, effect of res. absorption in Pu^{239-41} 0=7658
 Pu spherical fast reactor, effect of alloying on critical mass 0=13328
 Pu thermal reactor, neutron study 3=10422
 Pu^{239} -fueled, breeding ratio 1=17198
 $Pu^{239}(n, f)$ reaction rate distrib., neutron leakage 2=3671
 Pu^{239} in irradiated-U BR 1 at Mol 2=6069
 $Pu^{239,241}$, resonance fission integrals 2=5979
 Pu^{240} effective cross-section for reactivity calculations 0=13354

Nuclear reactors, fission—contd

- Pu²⁴⁰ as fuel in near-thermal burner reactors 2=8049
 Pu²⁴⁰ fuel in near-thermal convective reactors 2=8047
 Pu²⁴⁰, possible use as fast reactor fuel 2=12232
 Pu²⁴¹, by neutrons, at 0.25–21 MeV, cross-sections 2=5982
 Pu²⁴¹, total neutron cross-section, low energy 2=5980
 PuC, 42–60 at.% C, fuel, prep. and props. 3=10431
 Th fuelled, specific power and fuel reactivity 2=6063
 Th²³², fast neutrons, meas. of prompt neutrons 2=5981
 Th²³² irradiated long-term reactivity changes 2=3673
 Ti and Fe containers for irradiated samples 3=19905
 U, Be, systems, fast effect, Monte Carlo calc. 2=6014
 U carbide effective resonance integral 0=20499
 U carbides, props. (nuclear engng. data sheet) 1=4168
 U, crack-formation by post-irradiation thermal cycling 2=8751
 U fuel elements, crystal texture 2=4367
 U/graphite cells, fast neutron effects 3=10419
 U-graphite fuels, fission products loss 3=12737
 U-monoisopropylidiphenyl lattice, subcritical, n spectrum 3=25029
 U, natural, light water lattices 1=19560
 U, reactivity life in U–D₂O reactor 1=2252
 U rod geometrical optimization for various moderators 2=6070
 U rod, resonant neutron capture distribution 1=783
 U rod, transient temperatures 1=772
 U-water, control response, temp. coeff. 2=6054
 α-U thermal cycling, fuel choice and working conditions 0=13570
 UC as fuel for Na-cooled reactors 1=13905
 U–D₂O systems, review 1=2251
 U–H₂O lattice, sub critical, n spectrum 3=25029
 UO₂ as reactor fuel, Swedish investigations 1=3480
 U²³³ breeder core heavy isotope buildup 0=4147
 U²³³ breeder–U²³⁵ converter reactor 0=13309
 U²³⁵ burn-up, effect of temp., by-products 3=2534
 U²³³ fast breeder, effect of Pu²³⁹ build-up 3=6332
 U²³³ fuel for AETR critical expts. 3=15267
 U²³³ fuel, neutron total cross-section, 3.4–1611 keV 2=14119
 U²³³–fuelled, breeding ratio 1=17198
 U²³³, η values 2=6008
 U²³⁵ cross-section, 0.01–0.1 eV, 2200 m/sec neutrons 2=5983
 U²³⁵ fission neutrons, age in metal-water lattices 2=5680
 U²³⁵ fission products, thermal neutron reactions on, calc. 1=19572
 U²³⁵ fuel elements, Doppler temp. coeff. 0=15625
 U²³⁵, by neutrons, at 10–21 MeV, cross-sections 2=5982
 U²³⁵O₂–H₃PO₄ solns, critical measurements 0=13365
 U²³⁵ poisoning, product energy dependence 0=4148
 U²³⁵ and Pu²³⁹ critical assemblies, neutron spectra 1=17219
 U²³⁵, resonance fission integral 2=5979
 U²³⁵, resonance integral in homogeneous mixture and fuel lump 2=22857
 U²³⁵, by thermal neutrons 2=5978
 U^{235, 238} (n, f), reaction rate distrib., neutron leakage 2=3671
 U²³⁸, fast neutrons, meas. of prompt neutrons 2=5981
 U²³⁸ foils, bare and Cd-covered, activation 3=8166
 U²³⁸, by heavy ions, momentum transfer 2=5984
 U²³⁸ lattices, resonance escape probability, meas. 1=17248
 U²³⁸ resonance integral calc. 2=10150
 U²³⁸ rod, light water moderator, resonance neutron capture 2=3061
 UC as fuel, neutron irradiation results 2=6065
 UC as fuel, props. and preparation 0=20524
 UC₂–Al plate-type fuel elements 0=9722
 U–D₂O lattices, fast fission effect 0=13350
 U–Nb fuel plates, resonance, U²³⁸ activation 2=22874
 UO₂ fuel, distrib. of fission products and plutonium 2=12235
 UO₂ fuel elements in SRE core, transient thermal behaviour 2=20726
 UO₂ fuel elements, temp. distrib. 3=10432
 UO₂ fuel rods, U²³⁸ resonance neutron capture 2=5945
 UO₂ lattices, liquid-moderated, analysis programme (SANDPIPER I) 2=20710
 UO₂–NaK fuel slurries, behaviour 0=14143

Nuclear reactors, fission—contd

- UO₂ rods, temperatures, thermal stresses and displacements 0=6962
 UO₂–Si, Zr or Th cermet, study 0=6533
 U₃O₈, photofission 2=5990
 U and Pu fuel in water, neutron thermalization calc. 0=12991
 U, and UO₂, enriched water-moderated lattices, flux distributions 0=13344
 U to Xe¹³³, in meteorites 0=4883
 Xe-controlled, dynamics, space-independent 1=17208
 Xe controlled, temp. effect, stability 2=6015
 Xe build-up after shut down, absorbed radioactivity calc. using sliderule 0=9723
 Xe spatial oscill., flux threshold 3=4682
 ZOE reactor, neutron spectra, emulsion meas. 0=12792
 Zr data manual 2=22875
- materials**
- (subheading introduced in 1964)
 for boiling water of superheated stream, corrosion 4=19905
 borates and boric acid, distrib. in boiling reactors 4=15253
 boro-organic cpds., use as soluble poisons 4=22267
 carbides, review of symposium 4=19906
 ceramic oxides, Xe diffusion 4=20293
 concrete, γ-ray scattering 4=3372
 coolants, organic, viscosity meas., apparatus 4=18151
 fuel burnup, calc. by eigenvalue method 4=17229
 fuel cycles, EAES symposium report 4=19901
 fuel element, cylindrical, plasticity problem 4=5116
 fuel elements, cylindrical, temp. distrib. calc. 4=19919
 fuel elements, EBR, melt down in Na 4=17227
 fuel elements, metallurgy 4=30361
 fuel particle damage, electron microscope replica obs. 4=19904
 fuel particles, instrument for crushing strength determ. 4=22268
 fuel rod, spatial variations of isotopic concs. 4=1170
 fuel rods, X-ray surface structure obs. 4=17822
 fuel, swelling, coalescence of gaseous pores 4=9610
 fuel, swelling, kinetics 4=9609
 fuels, ceramic coated particles, review 4=12320
 fuels and coolants, molten, physical props. 4=6443
 fuels, diffusion and coalescence of gas bubbles 4=6441
 gas-cooled, fuel compacts, assaying system 4=15255
 graphite, irradiated, decreasing damage with increasing annealing freq. 4=9615
 graphite, neutron irradiation, surface smoothing 4=10013
 graphite, radiation-induced dimensional changes, compressive stress effects 4=25464
 graphite, thermal expansion, –196° to 2000° C 4=22505
 graphitization of polymer carbons 4=23264
 iron, neutron non-elastic scattering cross-sections 4=3676
 isotope separation, UF₆ 4=19998
 liquid metals, heat transfer by forced convection 4=11390
 magnox A 12 and ZA, comparison as canning materials 4=19902
 Magnox AL80 canning alloy, directional diffusion 4=12796
 moderators, H₂O, CH₂ and C₆H₆, neutron spectra meas. 4=17222
 moderators, pulsed, asymptotic and transient analysis 4=6444
 NRX type U-metal rod, fission cross-sections and neutron spectra 4=1129
 shielding, quantum mechanical calculation 4=19907
 swelling and gas release, theory 4=19903
 thermal breeding and improved fuel cycle, need in U.S. 4=9602
 water, diffusion length of thermal neutrons, 24°–82° C 4=21869
 water, neutron diffusion parameters 4=21868
 water, neutron thermalization parameters, meas. method 4=21877
 Windscale AGR, fuel elements 4=6433
 Zircaloy, and Zr, high temp. oxidation in O₂ and H₂O 4=15254
 Zircaloy and Zr–Nb alloy, dimensional changes 4=20691
 Zircaloy-2, reduction of corrosion and hydrogen embrittlement 4=10994
 B alloys, neutron effects, and crystal structure 4=10007
 Be, mechanical ductility, improvement, above 300°C, and crack growth 4=10371
 Be, neutron slowing down spectrum calc. 4=21876

Nuclear reactors, fission—contd
materials—contd

- Be-Fe, heat treatment effects 4=7667
 BeO, neutron slowing down spectrum calc. 4=21876
 BeO, sintered, neutron diffusion meas. 4=21866
 C, pyrolytic, coating on fuel particles, hardness meas. 4=13400
 D₂O, neutron scattering, 22° and 150° C 4=21862
 D₂O, thermal neutron diffusion parameters 4=6064
 H₂O, neutron pulse parameters, temp. var. 4=17221
 H₂O, thermal neutron spectra 4=17223
 K, boiling, as working fluid for light space systems 4=12322
 Mg-Zr(0.5 wt.%), cracking in traces of moisture, in reactors 4=20667
 Nb-U alloys, radiation effects 4=9613
 NH₃, liquid, as moderator, thermal neutron diffusion coefft. 4=21865
 Ni₃Fe, neutron irradiation resist. rel. to impurity 4=7276
 Pu, δ and η , lattice structure and thermal expansion 4=7638
 Pu, utilization 4=17228
 Pu-Al rods, resonance integral for Pu²⁴⁰ 4=3740
 Pu-C, < 50 at % C, phase diagram, 500-1500°C 4=7508
 Pu²³⁹, thermal neutron fission cross-sections 4=17209
 SiC, prodn. and props., bibliography 4=5000
 Th, Doppler effect meas. in fast neutron energy spectrum 4=6418
 U, α , swelling, rel. to burn-up and temp. 4=6440
 U carbides, use as fuels, fabrication methods 4=13611
 U content in flat fuel elements, determ. by γ -ray absorption 4=6442
 U, fission, proton induced 4=17213
 U, irradiation growth rates 4=22654
 α -U, mechanical props, tensile, effect of grain shape 4=7463
 U (natural) heavy water, increased conversion factors 4=1142
 β -U, tensile props., rel. to strain rate and temp. 4=20689
 U^{233,235}, fission, channel effects 4=17211
 U²³⁵, number of neutrons from fragments 4=25442
 U²³⁵, ternary fission by slow neutrons 4=17210
 UC fuel particles, fission-gas release 4=17226
 U-Mo alloys, deformation mechanisms 4=20687
 U-Mo alloys, tensile tests 4=20686
 U-Mo(1-3.5 wt. %), phase transformations, γ + β and γ \rightarrow α 4=7518
 UN, prod., and U-N phase diagrams 4=12321
 UO₂, fission gas transport, Ar-CaF₂ model 4=25466
 UO₂ fuel pins, betatron radiographs 4=9614
 UO₂, over-sintered, grain-boundary precipitates in 4=7680
 UO₂, pellets, nitrogen release at high temp. 4=12323
 UO₂, structure of heat treated crystals 4=7679
 UO₂, thermal cond. changes at high-temp., theory 4=12664
 UO₂(NO₃)₂ aqueous solutions, critical parameters 4=12316
 U-Zr alloys, phase transformations 4=7516
 ZrH_{1.75}, neutron thermalization, temp. dependence 4=21878

operation

- (subheading introduced in 1964)
 AGR research measurements 4=6436
 AGR Windscale, control and instrumentation 4=6434
 boiling water heat transfer, tube burnout, world data 4=29789
 changes of reactivity in Pu-U fuel elements, meas. 4=30364
 computer programme, GREENSHANK I, liquid mod. UO₂ 4=6422
 computer programme, REDSHANK I, liquid mod. UO₂ 4=6422
 control rod interaction in subcritical assembly 4=30362
 control rods, boron carbide, "ANNA" reactor 4=19918
 coolant, steam-water critical flow, pressure gradients 4=2632
 corona counter of neutrons, use in meas. 4=24942
 critical assembly laboratory, instrumentation 4=15258
 cross-power spectral meas., two-core reactor 4=19868
 cylindrical reactor, control rod efficiency 4=1164
 direct-contact core, delayed-neutron economy 4=19913
 electricity, direct conversion, by electrode insertion into ionized vapour 4=18660
 electromagnetic transport system, installation 4=28096
 EWA, void coeff. meas. 4=1154
 experimental advanced gas-cooled reactor 4=6432

Nuclear reactors, fission—contd
operation—contd

- fluctuations in power excursion 4=12324
 fuel cycle, reactivity and discharged fuel irradiation calc. 4=6438
 fuel element temp. distribution, calc. 4=19917
 fuel rod burn-out detector, boiling heat transfer expt. 4=25467
 graphite exponential assembly, Bucharest, standard meas. 4=1158
 heat transfer by free convection, up to near-critical conditions 4=5413
 HIFAR, neutron energy spectrum 4=6427
 instability and reactivity losses L54M reactor 4=19911
 lattice resonance escape probability, meas. 4=1165
 leakage-neutron energy spectra 4=19916
 measurement, strong absorpt. in sub-critical reactor, by random pulsed source and intercorrel. 4=6445
 molten salt, 10 MW, descript. 4=12313
 multiregion reactors, control rod efficiency 4=1141
 neutron detectors, comparison of reaction rates 4=6448
 neutron diffractometer 4=17805
 neutron field distrib. curve, automatic recording device 4=25468
 neutron flux amplification, by reflector trap 4=1148
 neutron flux, fast, energy distrib. meas. 4=19909
 neutron flux at fuel-element position 4=19908
 neutron flux meas., correction factors, with Cd-covered Co wires 4=3760
 neutron flux monitors 4=19914
 neutron spectra calcs. rel. to radiation damage 4=17231
 neutron spectrum, fast, and traversing graphite, Pb and Fe 1-10 MeV 4=12312
 neutron spectrum, transmission function of choppers 4=9218
 neutron transport theory problems 4=906
 noise analysis, neutron flux and core flow, GE VBRW 4=19881
 noise analysis, symposium (Nov. 1963) 4=19855
 noise analysis technique, University of Florida programme 4=19873
 noise measurement, Dounreay fast reactor 4=19882
 noise measurements, Saxton reactor 4=19880
 organic cooled, optimization of amount of retained degradation products 4=3750
 period meter, digital 4=22269
 period meter, magnetic core 4=15259
 photoneutrons as start-up source in TRIGA 4=6430
 power recorder with moveable ionization chamber 4=1161
 power spectral density meas., subcritical reactor 4=22271
 pressurized-water, noise analysis for instability 4=19879
 radiation heating, in reactor and shield, calc. 4=9592
 reactivity change meas., precision limitations 4=17232
 reactivity, direct meas. methods 4=9617
 reactivity, negative, meas. using neutron fluctuation anal. 4=19865
 reactivity, negative, measurement 4=19867
 reactivity and power meas. using neutron detection-probabilities 4=19859
 research utilization, Avogadro RS1 4=19854
 safety parameters, fission product release 4=9608
 shutdown reactivity meas. using noise techniques 4=19864
 space-power systems, Rankine-cycle fluids, thermal data 4=5462
 stable neutron period, in presence of neutron source 4=3754
 start up, rapid, by fission rate obs. 4=15256
 subcritical assemblies, interaction, exper. data 4=12300
 subcriticality determ., pulsed neutron source meas. 4=1126
 thermal neutron He³-Ne-CH₄ proportional counter 4=21881
 thermal, Tc accumulation 4=1163
 transfer function meas. by noise analysis 4=19871
 transient boiling, temp. overshoot and delay time, exptl. study 4=3756
 transient minimisation during loading 4=22266
 UTR-10, coupled regions, kinetic behaviour 4=3752
 VVR-M, spectra, neutron and γ , in beamhole 4=1149
 VVR-S, effects of reflectors 3=1160
 VVR-S, neutron spectrum modification in thermal columns 4=12319

Nuclear reactors, fission—contd**operation—contd**

- VVR-S "EVA" with graphical reflector, critical expt. 4=6437
 VVR-S, fuel exposure, rel. to neutron spectra 4=1151
 VVR-S, prompt n lifetime 4=3749
 VVR-S, soft γ -spectrum 4=1150
 WWR-M, critical experiments 4=1156
 Wigner energy measurement 4=19912
 ZR-1 critical assembly, investigations 3=1157
 Be BR02, delayed photoneutrons 4=3753
 Ni-activation neutron dosimetry 4=19915
 U—Mo alloy reactor, unmoderated, unreflected, super-prompt-critical behaviour 4=1128

theory

(subheading introduced in 1964)

- absorber representation in finite difference codes 4=9607
 adiabatic point, dynamics, temp. effect on reactivity 4=25460
 age diffusion equation, analytical calc. 4=22252
 analysis, symmetry props. of eigenfunctions 4=3738
 axial flux shape, under continuous fuel cycle at equilibrium 4=9597
 boiling-water, nucleation kinetics 4=3727
 boiling water reactor, neutron kinetics 4=17220
 boiling water, size limitations and economics 4=6408
 breeder, fast, problems review 4=6407
 breeder, thermal, aqueous 4=6409
 calculation, THULE scheme 4=28082
 CANDU type, conversion ratios and fission factors 4=3734
 chain reactions, statistical theory 4=1144-6
 channel flow, boundary conditions 4=17219
 collision density, asymptotic form 4=6419
 concentric-ring resonance integral and collision probability, by Dancoff coeff. 4=3729
 continuous spectra, analysis using matrix method 4=3741
 control, correlation function applications 4=19870
 cooling, natural liquid circulation, non-stat. regimes 4=25456
 core thermal performance, design variable uncertainties 4=3737
 correlation function and power spectral density 4=17224
 correlation, two n detectors, just critical reactor 4=3745
 critical calc., D_2O , using eigen cross-sections 4=9595
 critical parameters, spherical harmonic appl. to many-group approx. 4=22260
 critical problem, one-dimensional, transport soln. 4=3735
 critical region, with nonlinear temp.—neutron flux coupling 4=15249
 critical state, for non-linear flux/temp. rel., many-group approx. 4=22259
 critical state with non-linear temp.-n flux relation 4=19898
 criticality, slab, calculation 4=19857
 cross-correlation method for dynamic response meas. 4=19866
 cylindrical cell approx. in lattice calc., validity 4=22264
 cylindrical, reflected, neutron flux boundary conditions 4=1133
 cylindrical slug lattice, n diffusion lengths calc. 4=6411
 cylindrical, surrounded by reflector, calc. with special metrics orthog. system 4=1155
 diffusion coeff. energy averaging 4=25461
 diffusion coeffs., cell averaged, calculation 4=22258
 dynamics, with loss rate proportional to energy 4=3731
 effective delayed neutron fraction, meas. methods 4=22270
 equipoise method, convergence 4=3730
 excess reactivity predicting, ETR 4=19890
 fast, extrapolation length formula, in multigroup P_1 -approx. 4=9598
 fast, few-group diffusion calcs. 4=12303
 fast fission factor, water moderation, calc. 4=3743
 fast reactor, behaviour after reactivity step, rel. to prompt negative temp. coeff. 4=12315
 fast reactor, Doppler coeff., delayed supercrit. excursion, meas. theory 4=12309
 fast reactors, gas-cooled, parametric studies 4=12310
 fast reactors, prompt supercritical power excursions 4=12306
 flat field of energy release, prod. of 4=6417
 flux calc., eccentric point source in spherical reactor 4=22261

Nuclear reactors, fission—contd**theory—contd**

- flux distrib., Boltzmann eqn. ang. expansion 4=2602
 flux, resonance absorption and disadvantage factor 4=3733
 Fokker—Flanck and Langevin equations 4=9605
 fuel elements, seven-pin cluster, fission distrib. 4=12305
 fuel-importance function and criticality 4=19887
 fuel, optimum distrib. 4=9599
 Galanin small-source theory, modification 4=6424
 heterogeneous, flux distortions, Feinberg—Galanin theory 4=6415
 heterogeneous resonance capture, variational principle 4=22256
 heterogeneous structures, neutron resonance absorption, approximation 4=28081
 heterogeneous, thermal neutron spectra calc. 4=9600
 high-flux, reactivity losses due to neutron absorpt. in fission products 4=28083
 inverse problem, position—velocity distrib. function 4=15248
 kinetics equations, Volterra integrals 4=1134
 kinetics, neutron "importance" transport 4=3721
 lattices, cylindrical, collision probabilities 4=22263
 migration areas, heterogeneous reactors, calculation 4=22257
 Milne problem extrapolation distance, chemical binding effects 4=22254
 model, iterative analogue, for core dynamic study 4=25458
 moderating media, neutron wave propagation rel. to $1/v$ poisoning 4=3426
 moderation, core, various shapes, calc. 4=17217
 multi-group neutron kinetic eqns., Monte-Carlo calc. 4=17215
 multigroup transport programme for thermal spectrum 4=6423
 multiregion two-dim. theory, analytic method 4=1124
 neutron density calc., perturbed-kernel method 4=9601
 neutron diffusion calc., allowing for delayed n 4=6413
 neutron diffusion constant, anisotropy due to empty channels 4=19892
 neutron diffusion from flat source in $Pb-H_2O$ plate and rod lattices 4=15066
 neutron diffusion in moderators, near absorbing rods 4=9603
 neutron energy and lethargy distrib. in infinite "pure" medium, eqn. soln. by adjoint moments 4=12317
 neutron escape probabilities, approximation 4=1130
 neutron Fermi age in D_2O and H_2 4=21874
 neutron flux energy-space distrib., multigroup calc., perturbation method 4=12297
 neutron flux, thermal, energy distrib. in Be 4=12019
 neutron fraction, effective delayed, in fast reactor, calc. method 4=28084
 neutron kinetics eqn., computer soln., BWR application 4=17220
 neutron moderating and absorpt., core of concentric cylinders 4=19856
 neutron multiplication expts. involving one fuel element, flux calcs. 4=6414
 neutron multiplication in Be^9 , using U^{235} converter 4=9594
 neutron multiplication, flux fluctuations 4=3728
 neutron multiplication, with single fuel element 4=9596
 neutron multiplication with a single fuel element 4=12311
 neutron pulse in infinite slab, variational solution 4=21864
 neutron-pulse parameters in H_2O , temp. var. 4=17221
 neutron resonance cross-sections, Doppler-broadened, calc. 4=12018
 neutron resonance integrals, capture and fission cross-sections, Fortran program 4=25463
 neutron rethermalization in graphite and water 4=3739
 neutron scatt. in solids and thermalization 4=25455
 neutron spectra, calc. 4=1143
 neutron spectra, time dependent, in graphite 4=12016
 neutron spectrum calc. in composite fuel element, rapid, approx. 4=9612
 neutron spectrum, thermal, in moderator near temp. discontinuity 4=19896
 neutron thermalization in graphite 4=19897
 neutron thermalization, heterogeneity effect on spectrum carr. 4=12299
 neutron thermalization, transient phenomena 4=19893-4

**Nuclear reactors, fission—contd
theory—contd**

- neutron transport eqn. soln., STRETCH computer programme 4=6074
- neutron transport eqns., existence and uniqueness 4=3420
- neutron transport eqn., improved computer nucl. 4=6075
- neutron transport eqn., spherical-harmonics solns. 4=16061
- neutron transport in rods 4=19886
- neutron transport theory, energy-dependent Milne's problem 4=19895
- neutrons, moderation in carbon, spectrum 4=6073
- neutrons, transport eqn. synthetic method soln. 4=3736
- noise analysis, digital data reduction 4=19872
- noise expts., simple reactor kinetics interpretation 4=19875
- noise field 4=19861
- noise minimization by min. bandwidth control 4=19876
- noise in reactors 4=19860
- noise sources in power reactors 4=19878
- non-linear equation solution 4=22250
- nonlinear problems, existence and uniqueness of soln. 4=12301
- one-group delayed neutrons, mean decay constant for reactor kinetics equation 4=25462
- P-3 approx., improved boundary conditions 4=22255
- pebble-bed gas-cooled, gas flow and temp. field 4=3751
- "pebble bed", safety, calc., effect of large cavity 4=3744
- periodic lattices, Boltzmann's eqn., boundary conditions 4=9591
- perturbation theory for multiplication coeff. and other numerical rels. 4=9593
- poisoning, Xe, reactivity changes 4=6426
- power reactors, self-control 4=12307
- power spectrum meas. and power spectral density estimation 4=19862
- pressurized water, size limitations 4=6406
- prompt-neutron period determ., Feynman, Rossi, Mogilner methods 4=6421
- pulsing 4=22251
- reactor parameters, meas. in sub-critical and critical assemblies 4=25454
- reactor system analysis, application of power spectra 4=19863
- reactivity concept, application to kinetic meas. 4=1132
- reactivity, correlation-function analysis 4=19883
- reactivity, single channels and slots, effects 4=3725
- reactivity variations, periodic, kinetic eqns. 4=1131
- reactor kinetics analysis 4=19885
- resonance absorpt. of neutrons 4=30360
- resonance integral calc., flat source approx. correction 4=25452
- resonance integral errors, tight lattices 4=9604
- resonance integrals, effective, temp. depend. 4=1136
- shield, iron/water, neutron penetration 4=25459
- shielding coeff. calc., simple 4=15250
- shielding, deep penetration problems, transformation for Boltzmann eqn. 4=24109
- shielding, n-group neutron flux determ. using Lie series 4=22262
- shut-down, neutron flux calculation 4=3726
- size, maximum, economic considerations 4=6405
- slab geometry, anisotropic kernel, spectral analysis 4=12012
- small cell disadvantage factors, rel. to moderator thickness 4=28088
- spatial kinetics of reactor NORA 4=12304
- spherical-harmonics equation, numerical integration 4=19884
- stability criterion, mean square, by macrostochastic approach 4=6412
- start-up, appl. of optimization methods 4=19858
- statistical uncertainties, pulsed-neutron and excursion expts. 4=19877
- stochastic models for reactors 4=19874
- subcritical assemblies, interaction, "equivalent" single reactor 4=12300
- subcritical, periodic changes in neutron density and multiplication 4=12302
- thin fuel cells thermal homogenization 4=25465
- thermal neutron spectra, reflection correction 4=3742
- thermal neutron spectrum, calc. methods 4=1123

**Nuclear reactors, fission—contd
theory—contd**

- thermal spectra in lattice cells, "Spectrox" method 4=1137
 - thermal utilization factor calc., with neutron thermalization included 4=12298
 - thermal utilization factor of cylindrical cell with several coaxial zones 4=6420
 - transfer function meas. signals 4=19869
 - transfer functions, theory and applications 4=25453
 - transport eqn. in slab geom., spatial expansion 4=22253
 - transport theory, general and stationary one velo. case 4=6416
 - tridimensional, for heterogeneous reactors 4=19891
 - two-group plane boundary conditions, square lattices 4=1147
 - Wigner-Seitz cell, calc. method 4=19888
 - ZEEP, multigroup transport programme for thermal spectrum 4=6423
 - zero-energy reactor 4=1159
 - Be moderator reaction effects 4=17230
 - H moderation, validity of constant source in cell problem 4=19889
 - Pu recycling, stationary 4=25457
 - U^{238} , lattices, resonance integral calc. 4=1127
 - UO_2 - D_2O lattices, conversion ratios and fission factors 4=3734
- Nuclear reactors, fusion**
- (Heading introduced in 1964)
- Alpha apparatus 1=9602-7
 - Astron, Coulomb interactions in E layer 1=10768
 - Astron, "Elayer" stability 2=17822
 - Astron, self-consistent theory of relativistic electron motion 0=9156
 - B-1 Stellarator, ohmic heated plasmas, kinematics 1=312
 - C-Stellarator discharge, interpretation of impurity radiation 4=11681
 - C-Stellarator, u.h. vacuum system 1=4619
 - conference report, London (Sept., 1959) 0=1458
 - DCX-1, proton trapping from Lorentz dissociation of H_2^+ 4=5687
 - D-D reactor, energy loss by synchrotron radiation 1=11938
 - economical operation from T-Nt diagram 0=4157
 - electron density, by interferometry, in Sceptre IV 3=5679
 - experimental system Ogra, report 2=7632
 - fusion, review 1=287
 - heavy-current toroidal discharge tubes, materials and design 0=5305
 - high compression and neutral injection expts., diagnostic techniques 2=7625
 - hydrogen plasma, ionization times of impurities 0=10902
 - "ionic centrifuge" as possible reactor 1=16347
 - ionization and dissociation using e.m. fields only 3=14516
 - limitations and T-Nt diagram for self-sustaining systems 1=9893
 - magnetic mirror machines, charged particle motion 0=5315
 - method of filling with hot plasma 4=24628
 - magnetic mirror system, plasma potential 1=18871
 - neutron sources, ring-shaped in research reactor 1=10894
 - non-stationary thermonuclear plasma device 1=10728
 - OGRA, adiabatic charged particle trapping 0=5840
 - ORGA-type device, critical current for burn-out 1=9613
 - plasma cyclotron radiation 1=9618
 - plasma, D, cyclotron heated, mag. mirror, n energy spectrum 3=19913
 - plasma diffusion in systems with particle losses 1=9553
 - plasma magnetic confinement 1=9587
 - plasma in magnetic grid system 1=7066
 - plasma, review 4=21545
 - plasma stabilization by h.f. fields 4=8728
 - postgraduate lectures 1=17249
 - present outlook 1=8805
 - principles, elementary review 2=10191
 - radiant energy loss 1=10783
 - reactions in unconfined plasma 0=20532
 - relativistic electron beam device for fusion 0=19670
 - review of world research 2=12240
 - research, fundamental error 0=12611
 - Sceptre, electron-flux X-ray film, calibration 3=2068
 - Sceptre, proton energy meas. from D discharge 0=20143
 - Sceptre III A, X-ray emission 2=7631
 - Sceptre III, heavy-current discharges 0=5304

Nuclear reactors, fusion—contd

- Sceptre III, proton energy measurement 1=9619
 Sceptre IIIA 0=5839
 Sceptre III, (d-d) product velocities by 2-group model 1=9775
 Scylla, D plasma study, emission of protons, neutrons, tritons, light and X-rays 0=13385-7
 Scylla expt., effect of preionization and initial mag. conditions 1=10721
 Scylla, ion temperature 0=462
 Stellarator, B-1, He recombination 1=11924
 Stellarator, B-3, electrostatic instability 0=17001
 Stellarator, charged particle losses in ohmic heating 0=11475
 stellarator, charged-particle loss during ionization 1=2979
 Stellarator, charged-particle motion 3=21940
 stellarator, high-energy electrons, particle surfaces 1=16348
 stellarator, interchange instability 3=19284
 Stellarator, ion wave instabilities 0=7118
 Stellarator, mag. field calc. 2=17849
 Stellarator, model C, symmetrized 3=19269
 Stellarator, particle diffusion across magnetic field 0=17087
 C-Stellarator, r.f. heating and vacuum system 2=19987
 Stellarator, rotational transforms 2=13576
 Stellarator synchrotron radiation from runaway electrons 1=9620
 Stellarator, turbulent particle loss 2=15932
 Stellarator-type devices, magnetic confinement 0=19661
 theatron, reversed field heating, calc. 3=413
 tritium production and cycling 0=4158
 vacuum pumps, diffusion 4=8264
 Zephyr, effective capture cross-sections 0=5784
 Zeta, absolute intensity spectral calibr. 3=16767
 Zeta, design and performance 0=5837
 Zeta, diagnostic measurements using microwave whistler mode propagation 0=10916
 Zeta, energy loss processes 2=7628
 zeta, hot plasma, e.m. radiation emission, sub-millimetre 1=9574
 Zeta, modifications 0=5838
 Zeta, neutron energy spectra 4=3013
 Zeta-type device, ion energy 3=1999
 Cs-plasma, production in stellarator geometry 4=8671

Nuclear spallation

- α -particle emission, cross-sections for Ac isotopes 3=6251
 angular correl. with fragments due to 9 GeV protons 3=22388
 complex nuclei, by heavy ions, product charge distrib. 4=22213
 conference, Orsay (1963) 4=11841
 emission of Li^8 fragments 0=17575
 and fission, at high energy, "cascade evaporation" model 1=3468
 fragments in photo-emulsion by π^+ mesons at 80 MeV 1=17135
 interstellar matter, by cosmic rays, average cosmic-ray intensity 1=9251
 iron meteor "Carbo", age det. from K content 0=3413
 light nuclei, by 5.7 BeV protons, expt. and theory 0=13226-7
 low momentum transfer, perturbation theory 2=20574
 momentum imparted to complex nuclei, calc. 0=17593
 protons on emulsion elements at 24.8 GeV/c, Li^8 and B^8 fragments 2=22816
 recoil track visualization in mica 2=18051
 yield cross-sections calc. 3=8058
 Ag, Au, Bi, Cu, by 340-2000 MeV protons, light nuclei emission, Monte Carlo calc. 0=13218
 Ag, element yield for high energies 4=12228
 Ag, by high energy protons and heavy nuclei 4=12228
 Ag, by 7.5 MeV π^- -mesons, emulsion meas. 4=9548
 Ag, by 385 MeV neutrons, meas. 4=3671
 Ag, by 2-9 GeV protons, upper limit 4=9502
 Al, by heavy ion bombard., fragment identity and energy 0=4104
 Al, by protons 660 MeV: Be^7 yields 3=8150
 Al, by protons at 28 GeV, cross-sections 2=18326
 $\text{At}^{209,210,212}$ cpd. nuclei, fission competition 2=14141
 Au, prod. of Hg^{183-90} 1=13686

Nuclear spallation—contd

- Au^{197} by protons, 40 to 140 MeV, use of Orsay isotope separator 3=12678
 Be^8 direct production in π^- -emulsion nuclei interactions 4=19807
 Bi, by protons, secondary reactions (α , 2n) to (α , 6n) 0=20437
 Bi, by protons, 3-10 BeV, At isotope yield 4=6341
 Bi, by 380 MeV protons, cross-sections 0=435
 Bi^{209} , by BeV protons, momentum imparted to nucleus 0=17593
 Bi^{209} , by p, 135 MeV, $\text{Po}^{200-208}$ 3=10348
 Bi^{209} , by 660 MeV protons, yield 0=11408
 Br, by high-energy protons and heavy nuclei 4=12228
 Br, by 7.5 MeV π^- -mesons, emulsion meas. 4=9548
 Br, by 2-9 GeV protons, upper limit 4=9502
 C, 200 MeV, Be^{10} production cross-section 4=15216
 C^{12} , by protons at 28 GeV 2=18326
 Co product in Ni, by 3BeV protons 3=8101
 Cr^{51} , product in Fe by 3BeV protons 3=8101
 Cu, by protons, 660 MeV, Si^{31} and P^{32} yields 2=20689
 Cu, by protons, 660 MeV, Si^{31} and P^{32} yields 3=8150
 Cu, by protons, 3-30 GeV 3=4641
 Cu, by 24 GeV protons 2=14097
 Cu, by 385 MeV neutrons, meas. 4=3671
 F^{18} , prod. by photo-spallation 0=7695
 Fe and light nuclei, by fast protons 4=15216
 Fe, by 150 MeV protons 3=24940
 Fe, 730 MeV, production cross-sections for long lived radio nuclides 4=15216
 Fe target by protons, 3BeV, products 3=8101
 Fe wall, induced by 10 GeV proton beam or secondary mesons 2=22817
 Fe^{56} product in Fe by 3BeV protons 3=8101
 Hf, by 660 MeV protons 0=4095
 Ir, by protons, at 9-87 MeV 4=3659
 Li fragments, proton induced spallation 4=17129
 $\text{Li}^{6,7}$ fragments, p bombarded targets 4=17130
 Mn^{55} product in Fe by 3BeV protons 3=8101
 Mo^{96} , by 1.8 GeV protons, isobaric yield distrib. 4=9515
 N, 200 MeV, Be^{10} , production cross section 4=15216
 O, 200 MeV, Be^{10} production cross-section 4=15216
 section 4=15216
 $\text{O}^{16}(\pi^-, n)[\text{Li}^8 + \text{Be}^7]$ 2=14123
 $\text{O}^{16}(\pi^-, n)[\text{Li}^8 + \text{Be}^7]$ 3=6279
 O^{16} , by protons, 20-150 MeV meas. 3=4642
 Pa^{117} , by 155 MeV protons 1=2215
 Pb, by protons, 3-10 BeV, At isotope yield 4=6341
 Pb, by 3 BeV protons 0=5747
 Pt, by 385 MeV neutrons, meas. 4=3671
 Ru^{96} , by 1.8 GeV protons, isobaric yield distrib. 4=9515
 Ru^{100} , by BeV protons, momentum imparted to nucleus 0=17593
 Sb, by protons, 660 MeV; Be^7 , F^{18} , Na^{24} , Mg^{28} , Si^{31} , P^{32} yields 3=8150
 Sn, by protons, secondary reactions due to capture of products 0=9633
 Ta, rel. to $\text{Dy}^{152,153,155,157}$ decay 2=14050
 Ta by protons, 600 MeV 2=18302
 Ta by 660 MeV protons 1=17029
 Th, by 82 and 150 MeV protons 1=12200
 Th, by 155 MeV protons 2=10110
 $\text{Th}(p, \alpha xn)\text{Ac}$ formation cross-section calc. 4=30339
 Th^{232} , fission-spallation competition, by 155 MeV protons 1=13871
 Th^{232} , by 1-2 BeV protons 1=11016
 $\text{Th}^{232} + \text{He}^4$, spallation-fission competition at 15-46 MeV 0=1450
 Tl, by protons, secondary reactions, (α , 2n) to (α , 6n) 0=20437
 U, by 3 BeV protons 0=5747
 $\text{U}^{233} + \text{d}$, spallation-fission competition at 9-24 MeV 0=1450
 $\text{U}^{235,238}$ by 1-2 BeV protons 1=11016
 U^{238} , by BeV protons, momentum imparted to nucleus 0=17593
 Y, by protons, 60-240 MeV 0=1405
 Zr^{90} , by 1.8 GeV protons, isobaric yield distrib. 4=9515

Nuclear track emulsions

- absorption of water, swelling 0=17168
 α -active elements in sol., estimation method 2=5558
 Agfa K2, "constant sagitta" scheme 0=5461
 Agfa K2, proton range 1=16633
 Agfa K2, proton range 4=789

Nuclear track emulsions—contd

Agfa K2, range-energy relation 0=5460
 Agfa K2, sensitivity to electrons, 80-90 keV 0=7255
 α^- particle production, by p-bombardment 0=9620
 for alpha ray spectra meas. 4=25216-17
 use in analysis of 0.25-5 MeV neutron spectra 0=12793
 ang. distrib. meas., search for instrumental effects 2=5557
 angles of emission in showers, meas. 1=13261
 angular spread of beam of particles 0=3900
 antiproton interactions 0=5562
 antiprotons, nuclear interaction, mean free path 4=15207
 area scan efficiency, in normal and water loaded emulsions 0=9246
 automatic development 1=10822
 automatic development at one temperature 0=12754
 automatic examination, with television raster 4=790
 automatic meas. of multiple scatt. parameters 0=12786-7
 automatic track analysis, survey 0=12784-5
 avoiding corrosion during fixing 0=194
 background fog variation with developer pH 0=191
 use in β -autoradiography 0=15216
 use in β -spectroscopy 3=17252
 blob length det. for heavy primaries in cosmic radn. 4=30284
 Buchner spectrometer for particle selection 1=13701
 calibration for neutron spectrum meas. from RaD-Be 4=25115
 Canadian and Ilford G5, comparison 0=12798
 cascade energy determination by optical study of emulsion 1=3301
 charge determ. of nuclei by δ -electron counting 4=16779
 charge determination for relativistic particles 3=14841
 charged particles of different masses, discrim. 3=4304
 chart tracing method modification 4=14994
 comparison in π^+ -decay, Ilford G-5 and NIKFI-R 0=11198
 Conference, Strasbourg (1957) 0=2260
 use in conjunction with particle accelerators 0=12654
 use for cosmic-ray absorption meas. 0=12090
 for cosmic ray flux, scanning efficiency 4=15116
 cosmic ray, recovery 0=20251
 cosmic ray stars, statistical distrib. 0=7434
 use in cosmic-ray studies 0=12797
 cosmic ray variations, measurement 1=3341
 curved photographic emulsions 0=3902
 damp effects, α , track lengths 3=19535
 density of single grains, calc. along track 2=7804
 density vs exposure curves, for 20-200 kV electrons 1=13252
 density versus exposure curves, for 20-200 kV electrons 1=13252
 depth gauge for tracks 3=2181
 detection of events 1=13260
 developer ageing time effect on emulsion background 1=16632
 developing device 0=12748
 development, apparatus 0=19986
 development defects and track structures, using amidol developers 1=13249
 development, use of diphenyl idonium nitrate 0=12756
 development, in domestic refrigerator 0=15212
 development effect, on track structure and fog 0=5188
 development of emulsion stacks 1=13256
 development kinetics in Ilford G5 emulsions 0=12759
 development parameter, and Ilford C2 and K2 2=16102
 development of use, review 1=7178
 development of thick emulsions, diffusion theory 0=12760
 development, wet hot-stage technique 0=12753
 diamond dust suspension, proton-carbon reactions study 0=5463
 diamond-loaded, for study of $C^{12}(n, \alpha)Be^9$ reactions 0=12791
 Digiscat, digitally controlled meas. of multiple scatt. 2=13714
 diluted emulsions, props and use 0=190
 discrimination between α - and γ -rays, by i.r. post-exposure 0=15215
 discrimination between particles at high γ -intensities 0=202
 discrimination of photofission fragments in high background 1=13259
 discrimination between proton and deuteron tracks 0=12766-7

Nuclear track emulsions—contd

disintegration of emulsion nuclei by 930 MeV protons 0=20434
 distorted, magnetic curvature 0=2467
 distortion, effect on angular distrib. of tracks 0=12775
 distortion, effect of pH and development temp. 0=12774
 distortion and spurious scatt. 4=27732
 distortions, effect of fixing process 2=13715
 for dosimetry, neutron 4=915
 drying with alcohol, effect on α -particle visible range 2=22375
 drying speed effect on granular props. 3=12381
 effect of β -rays 0=12733
 effect of spurious scatt. in 10 BeV proton scatt. meas. 4=16898
 elec. conductivity rel. to photochem. sensitivity 3=3899
 electron background due to mode of transportation 1=413
 electron conversion spectrum meas. 2=3316
 electron-photon cascade investigations 0=9462
 electron scatt., multiple, calc., by c.g. and sum method 3=24567
 electron scattering, 10 MeV, Moliere's theory check 0=7337
 for electrons, individual detection, 15-50 keV 0=9334
 electrons, knock-on, prod. by 26 GeV protons 3=4387
 emulsion chamber observation of high energy jet showers 1=7296
 emulsion chambers, effect of hydrogenous impregnation 3=24571
 in emulsion, distortion and spurious scatt. 4=27732
 use of emulsion mixtures 0=198
 emulsion-scintillator sandwiches, for dense shower detection 0=1233
 exposure in "free space" by means of rockets 0=12796
 exposure to pulsating magnetic field and 13 GeV proton beam 4=3400
 extra fine-grained, prepn. 0=9244
 fading induced by acid agents 2=3231
 fading of minimum tracks 0=15208
 fading phenomena 3=14845
 fast neutron spectra determination 0=3976
 fast-neutron spectroscopy in, nomographs for knock-on proton data 0=7388
 field curvature as systematic errors source 3=12379
 fine-grain emulsions, prep. 1=12737, 12740
 fine-grain emulsions, use in autoradiography 0=12799
 fixing, automatic Ag conc. control 1=2000
 fixing baths, comparison 0=12752
 fixing of thick emulsions 0=19983
 fog formation 1=7180
 fog formation 1=10821
 follow-through plate holder 0=3903
 Forte P/22, props. 0=17166
 fragments position rel. to end of track 2=10160
 Fuji, fundamental characteristics 0=9245
 Fuji type ET-7A emulsions, props. 0=12741
 (γ - α) reactions with light nuclei 4=19751
 gamma background eradication method 0=17165
 γ -radiation and chemical fog 0=12731
 gap-length - velocity relation 0=19985
 in gel form, loaded, for thermal neutron flux meas. 1=13451
 gelatin content, effect on μ^+ -meson depolarization 0=2565
 gelatine, action of ionizing particles 4=3267
 grain densities, primary and secondary, of heavy ions 4=21718
 grain density of singly-charged relativistic particles 0=15206
 grain density of tracks 0=196
 grain density, rel. to velocity of particle 2=11843
 grain size, effect of stirring speed during precipitation 1=9708
 grain structure of tracks, effect of contact developments 0=12781
 granulation of plates after exposure to electrons 0=12730
 heat fading investigation 2=11845
 heavy fragments identification method 3=12380
 heavy-ion track widths, effect of processing, track discrimination 1=2001
 heavy relativistic nuclei, photometric track profiles 2=3233
 high Ag halide content, prep. 0=12734
 hyperfragment emission on Σ^- absorption 4=6207
 hyperfragment measurements, short range 4=21994

Nuclear track emulsions—contd

hypersensitization 0=19984
 hypersensitization with triethanolamine 0=12738
 hypersensitized Ilford emulsion 1=13257
 use in I.G.Y. 1=16921
 identification of particles 4=3266
 identification of particles in fine-grain emulsions 0=197
 identification of radioactive minerals 0=3335
 identification of radioactive particles 0=7486
 identification of tracks, photometric device 3=24573
 Ilford C2, image prod. by charged particles,
 regression 0=15213
 Ilford G5 and C2, sensitivity at low temps. 0=12764
 Ilford G5, discrimination of charged particles 2=20211
 Ilford G5 emulsion stack cosmic ray data 1=3314
 Ilford G5/G0 mixtures, props. 0=12765
 Ilford G5, grain diameter and particle track
 density 0=12762
 Ilford G5, heavy-ion tracks, props. 0=11073
 Ilford G5, π mean free path at 4.5 BeV 1=13475
 Ilford G5, track distortion elimination 2=16104
 Ilford K5 and L4, grain size and density 0=12761
 Ilford KO, discrimination of low energy protons and
 alphas 4=16778
 Ilford K-1, proton range, meas. 4=16899
 Ilford Q2 plates, effect of C ions and sensitivity 1=19077
 illuminator for rapid scanning 4=16782
 image production by charged particles 1=19079
 image rotator, for microscopic track analysis 0=12789
 improvement of mechanical props. 0=12742
 "included targets", rel. to scattering meas. 2=22372
 index of identification of 100 μ tracks 1=411
 interaction of emulsion nuclei with 10^{10} - 10^{13} eV
 particles 1=3260
 interactions of K⁻ mesons at 0-180 MeV 4=12059
 ion beam detection, 10 to 100 keV 2=20052
 ion sensitivity, H⁺, H₂⁺, D₂⁺, Ar⁺, up to 25
 keV 4=9037
 ion track transverse dimensions 1=13246
 ionization along tracks of electron pairs 0=355
 ionization loss, relativistic electrons, radiation
 correction 3=7826
 ionization meas., semiautomatic gap meter 2=22371
 ionization meas. on very steep tracks 3=22047
 ionization measurement, gap and blob length
 relations 0=2469
 ionization measurements, with calibrating
 tracks 1=4751
 ionization parameter studies 0=7256
 ionization props. of K5 and G5 emulsions 0=12768
 "jets", "core" meas., microphotographic method 2=11844
 jets due to cosmic rays, ang. distrib. of particles 1=3262
 jets in emulsions, from carbon 1=3266
 jet production by cosmic rays, ang. distrib. of
 secondaries 1=3263
 K⁻ meson absorption with Λ^0 emission 2=3409
 K⁻ mesons interaction, at 500 MeV/c 3=603
 K⁻ stopping interactions, Λ^0 production 2=16247
 latent image of α -rays, β -rays and light flashes 0=12763
 latent image of β -rays in Ilford G5 and C2 emulsions,
 effect of temp. 0=15214
 latent image fading, Fuji ET-7A, ET-6B, due to
 oxidation 3=14840
 latent-image fading in Ilford K.5 2=11842
 latent image formation, conduction electron
 losses 1=13248
 latent image and grain formation by charged
 particle 0=12780
 loaded emulsions, use of special developer 0=12755
 loading with B and Li for neutron flux det. 1=415
 loading with Be grains 2=22373
 long-range particles from Po sources, study 0=7581
 low sensitivity, heavy ion identification 0=15205
 magnet, high-field, 200 kG, pulsed 3=21934
 magnetic field, 200 kG, for bending high-energy
 particles 2=18045
 manipulation of emulsions at high hydrogen
 pressures 0=12795
 mean free path of α -particles 1=9780
 use in meas. of cosmic-ray energies 0=13089
 meas. of multiple Coulomb scatt., elimination of
 distortion and noise effects at high energies 4=19342

Nuclear track emulsions—contd

meas. of small-angle scatt., microscope and recorder
 ("Hasem") 1=5621
 use in meas. of thermal neutron flux 0=12794
 meas. of vertical component of particle tracks, mechanical
 device 0=17167
 measurement, microscope stages 2=20209
 mesic hyper fragment production and disintegration,
 meson and proton reactions 4=17178
 microscope with thermal enclosure, for track
 analysis 0=12476
 microscopic track analysis, improvement of
 accuracy 0=12477
 microscopic track analysis, scanning device 0=12790
 momentum meas., high-energy particles, using 200 kG
 pulsed mag. field 2=13713
 mounting emulsion films on glass 0=12747
 μ -meson decay, polarizing effect of
 photoemulsion 1=8468
 μ^- meson scattering, elastic 3=6028
 multicharged-particle interaction, with emulsion
 nucleus 3=24985
 multiplate camera, counting efficiency 4=16750
 multiple Coulomb scatt., parameter meas. 1=13262
 multiple meson production at 10^{12} eV 0=9448
 use for multiple scatt. obs., semiautomatic second
 difference calculator 4=16784
 multiple scatt., semiautomatic meas. 2=20208
 NIKFI, μ^- -meson depolarization in emulsion under
 mag. field 1=2076
 NIKFI-R, distortions, effect of drying methods 2=20210
 neutron absolute flux measurement 1=5735
 neutron dosimetry, with increased gelatine 3=24569
 neutron spectra meas., microscope with punched card
 read out 4=9229
 neutron spectroscopy, sampling and track meas. 2=16105
 non-stopped particles, identification, ionization range
 estimate 1=402-3
 non-stopped particles, identification, mass
 estimation 1=404
 nuclear disintegr. due to 2-9 GeV protons, short
 range products 4=9502
 nuclear interactions induced by 200 MeV Ne²⁰
 ions 0=20470
 nucleon interact. with heavy nuclei at $>10^{12}$ eV 3=4382
 p range var. with water content, 6.4 MeV 4=9199
 particle charge sign determination 1=10820
 particle identification, use with mag. field 1=19081
 particle identification by scale method 4=16780
 particle momenta, accuracy of determinations in
 strong magnetic field 3=24572
 particle momentum meas., high energy diffusion
 separation 3=24668
 particle photography conference (Montreal, 1958) 0=17169
 particle range-energy rel., from K⁺, π decays 4=9034
 particle track identification 1=13263
 photograph study, cathode ray tubes 3=12242
 photographic, charged particle track density 2=3232
 photometric analysis of tracks 0=199
 photometric measurements, automatization 0=17164
 photometric study of tracks in diluted emulsions 0=12779
 π -meson effects 0=5585
 π -meson prod. by 9 GeV protons 3=596
 π^- -meson reactions with nuclei at 4-5 GeV,
 stars 1=17137
 π -N, 7 GeV two prong interaction, observation 4=27880
 π^- scatter at 6.5 GeV, rel. to Fermi model 2=18345
 π^- stopping, reactions with C¹², N¹⁴, O¹⁶ 4=17181
 pions, 560 MeV negative, interaction stars analysis 2=1711
 plateau-to-minimum ionization ratio in K5
 emulsions 0=12769
 plates, Ilford Q, sensitivity 1=9711
 polyvinyl alcohol base, prep. and props. 0=3899
 powder grain interactions, non-visibility
 theory 1=16636
 precision of angular measurements 0=201
 preparation 1=9712
 preparation for electron microscopy 0=3904
 process of track formation 2=16103
 processing formulae 2=5550
 processing a given volume 0=193
 processing plant 0=17170
 processing plant for thick emulsions 0=15211

Nuclear track emulsions—contd

processing of stacks, apparatus and laboratory 1=5620
 processing, uniform isothermal 2=3230
 production, with excess Ag ions 1=1999
 production, p-Ag effect on grain diameter 2=5551
 production, study of properties 1=1997
 proton and α -ray tracks in Ilford emulsions 1=16634-5
 proton beam in pulsed mag. field, error meas. 4=21853
 proton beam study in CERN accelerator 4=27593
 proton-deuteron discrim. by grain counting 3=4304
 proton inelastic interactions, multi-particle prod. 0=9618
 proton interactions at 25 GeV, meas. 3=7847
 in proton polarization 1=13419
 proton range-energy relations 0=195
 proton reactions, 9 GeV, particle ang. correl. 0=1401
 proton reactions, 24.8 GeV/c, hammer tracks study 1=19477
 proton reactions, 24.8 GeV/c, hyperfragments prod. 1=19350
 proton scatt., 27 GeV, multiple, lateral distrib. meas. 4=11999
 protons and α -particles, discrim. in D1 and K0 emulsions 0=12770
 protons, range-energy relation in NIKFI-Ya2 2=20340
 R-type, sensitivity and development centres, size and structure 3=2180
 radiograms, auto, quantitative, possibilities 3=17158
 radius of curvature of tracks, meas. 2=1642
 range-energy rel. to heavy ions 0=17051
 range-energy relation, for light nuclei, B¹¹ and C¹³ data 1=12225
 range-energy rels. of ions 0=12771
 range and ionization of N, O, Ne and A ions 0=12772
 recoil spectra from fast neutron spectra 2=5652
 response to showers, agreement of plural-multiple theory 1=3259
 review 4=19343
 review 4=24935
 Russian NIKFI type R, hypersensitization 0=12744
 Russian NIKFI type R, props. at low temps. 0=12743
 sagitta meas. on protons, in G5, K5 and L4 emulsion 0=12776
 sagitta method, cell noise 0=15204
 scanner 0=19987
 scanning device, automatic, for collimated beam 3=17160
 scanning, fast, 3.5 m/day 4=16781
 scanning, frequ. of events by max. likelihood method 4=24958
 scattering const. at long cell lengths, using 17 GeV/c π 4=19341
 scattering measurement device 2=5699
 scattering multiple, at large cell sizes 2=5554
 scattering, multiple, at large cell-sizes 3=14844
 scattering of 90-140 MeV protons, asymmetry 1=687
 scattering, spurious, meas. methods comparison 2=5553
 secondary particles prod. in high-energy interactions 4=19550
 secondary star production, after p-interaction, by n, p and π 0=9617
 semi-automatic Brussels processing plant 0=12750
 semi-automatic meas. 3=19536
 semiautomatic processing, of large stacks 2=1643
 sensitivity to α -rays, HNO₃ influence 1=13247
 sensitivity, β -track meas., using radioisotopes 2=1644
 sensitivity of brominated Ag hydrosol emulsions 1=7179
 sensitivity change during irradi., possibility 3=4303
 sensitivity, effect of absorbed foreign ions 2=5556
 sensitivity, effect of Cd, I ions and of triethanolamine 0=12735
 sensitivity, effect of ions adsorbed on AgBr micro-crystals 2=5555
 sensitivity, effect of temp. 1=19078
 sensitivity, electron track meas., using betatron 2=1645
 sensitivity, Ilford G0 and G2 1=9709
 sensitivity to light and α -particles, from 20 to -196°C 1=414
 sensitivity and thermal conductivity, low temp., NIKFI-R and G-5 4=16786
 sensitivity, -200° to +30°C, β , γ , α photons 3=14839
 sensitivity at very low temperatures 1=1998
 sensitivity to X-, α - and β -rays 1=5619
 sensitization with inorganic cpds 0=12746

Nuclear track emulsions—contd

sensitization to light and ionising radiation, by chem. 2=17659
 sensitization, with various chemical complexes 0=12745
 sensitizing by Cd ions 0=3901
 shrinkage factor meas. using specific-gravity bottle 0=17163
 shrinkage, inhibition 0=2468
 "shuffler" of plates in stack 4=16785
 size distribution of stars 1=405
 slowing down of particles of $Z \geq 2$ 0=200
 spark chambers for entrance coord. meas. 3=17159
 spurious scatt. meas. with 20-24 GeV/c protons 4=9035
 spurious scatt. reduction 3=14843
 spurious scattering, causes of 3=24568
 spurious scattering, effect of processing 0=19982
 spurious scattering, effects of processing 1=13251
 spurious scattering, reduction 0=15207
 stack loading with aqueous Li acetate 4=5918
 stack processed without glass backing, props. 3=14842
 stacks, mounting and development 0=12751
 stars, containing hypernuclei, prod. by 9 BeV protons 3=24848
 stars, high-energy, particle identification 0=15203
 stars, shower particles, ang. distrib. 0=9470
 use in studies of electron-pair prod. 0=12911
 use in studies of neutron spectra from ZOE reactor 0=12792
 use in studies of pion prod. in p-p collisions 0=13047
 study of elementary proton-nucleon processes 3=7848
 use in study of radioactivity of pegmatite 0=13163
 surface hand mark removal 4=9036
 swelling back to orig. thickness, use of colophane resin 0=12757
 tanning development 0=192
 techniques and theory, book 4=11865
 for thermal-neutron density meas. 0=7257
 thick emulsions, improved quality of development 1=7181
 thick plates, fixing method avoiding corrosion 1=13250
 thickness recovery by colophony resin treatment 1=412
 thin-down of p, He, C¹² and O¹⁶ tracks in Ilford G5 0=12777
 track calculations, nomograms 4=16783
 track density determination 2=11839
 α -track and γ background discrimination 1=9710
 track-grain depth meas. 1=13255
 track lengths and background fog 0=12773
 track measurement, digital 3=19328
 track microphotography device 2=5552
 track obs. by MBI-9 microscope, stage noise 4=16217
 track photometry instrument 1=16638
 track profile meas., micro-densitometer 3=534
 track profiles, semi-automatic meas. 0=12788
 track resolution, effect of development 0=12778
 tracks, grain structure, optical model 0=12783
 tracks regarded as pulse assemblies 0=17282
 two-stage development 0=12749
 type-R, ionization meas. 2=18042
 U salts introd. for min. ionization sensitivity 3=24570
 ultra-fine-grained emulsions, prep. and props. 0=12736
 ultra-fine polyvinyl-alcohol based emulsions, effect of Cl⁻ 0=12739
 uniform development of Agfa K2 emulsions 0=12758
 very finely grained, preparation 3=24574
 Z det. for light nuclei using δ ray density 0=19989
 AgBr influence on asymmetry of μ^+ meson decay 1=16836
 Ag and Br nuclei reactions with Ne²⁰ 4=17207
 Be⁹(d,n)B¹⁰ reaction study method 1=5933
 Be⁹ direct production in π^- interactions 4=19807
 C ions, 110 MeV, interaction with different emulsion nuclei 2=16439
 D₁ and K₁ emulsions, effects of 14 MeV neutrons 1=2227
 H and D introduction 1=4750
 K⁻-mesons, capture at rest, interactions 1=19267
 Li⁶-loaded, absolute neutron flux meas. 2=18331
 Li⁶-loaded, hyperfragments prod. by 1.5 GeV/c K⁻-mesons 4=17006
 Li⁶ fragments, formation from Ag and Br, by 19 BeV protons 4=1083
 Ra meas. 4=6252
 U²³⁵, fission tracks, photographic study 1=8409

Nucleons and antinucleons

See also Neutrons and antineutrons; Protons and anti-protons.

ang. distrib., azimuthal, in (γ, N) reactions, γ -polarization effects 0=17615

ang. distrib. in cosmic-ray showers, two-stage model 0=1329

ang. distrib. and polarization in $D(\gamma, p)n$ 0=5624

annihilation, emitted π multiplicity 0=15344

annihilation process 0=7312

antinucleon absorption effects in nuclear matter 0=15343

antinucleon annihilation, charge independence 0=20128

antinucleon annihilation, multiple meson production, theory 0=11162

antinucleon annihilation, rel. to π -nucleon interaction 0=11202

antinucleon-nucleon collisions near threshold 0=17425

antinucleon-nucleon interactions, model 0=11156

antinucleons, nuclear properties 0=17328

antinucleons, phenomena, absorption effects 0=17329

β -decay of "bare" nucleon, appl. of ξ -limiting process 3=553

Bethe-Salpeter structure, rel. to non-relativistic three-nucleon problem 4=15049

"bootstrap" explanation of N and N_{33} , static model 4=19497

bound state nature, expt. criterion 4=30221

cascade, in nuclear matter, statistical problems 1=13195

2-channel, 5-nucleon reactions 1=9739

charge conservation, rel. to gauge invariance 2=3236

charge distrib., rel. to Coulomb energy of He^3 3=613

charge distribution 0=2535

charge distribution, higher moments, 2-pion state 1=13406

charge and mag. form factors, expressions for 3=7840

charge radius calc. with modified propagator 3=17261

clouds, pion fluctuations, statistical study 4=9185

clusters in nuclear surface 0=15500

clusters in nuclei, geometrical positions 4=9344

collective correlation between vacuum nucleons, effects in S-wave π -nucleon scatt. 1=10920

collective correlation between vacuum nucleons, possible effects in pion physics 1=8451

collisions, inelastic, π -meson creation, momentum distrib. 0=9350

collisions, peripheral, in nuclear reactions 0=9613

collisions of two nucleons with large orbital momenta 0=7343

composite particle model, rel. to π -N (3, 3) resonance 4=9248

conservation of number, expt. test 2=13785

core potentials, soft, one-pion-exchange study 4=11981

core radius determination 2=13804

core structure, Hartree approx. 1=16765

distant N-N collision, impact parameter 1=3170

dynamics, perturbation calc. with modified Schrödinger eqn. 4=25471

e.m. form factor, rel. to 2π and 3π resonances 3=22115

e.m. form factors in Regge representation 2=20323

e.m. structure, contrib. of three-pion state 3=2255

e.m. structure, isoscalar, three-pion state contrib. 3=14968

e.m. structure, 2π contribution calc. 3=2253

electric dipole moment assuming violation of T invariance for weak interactions 4=25075

electric and magnetic structure 1=7234

electric polarizability, rel. to electric multipole phonon scatt. 1=13405

electric structure 3=4381

electrical and magnetic polarizabilities 1=13404

electromag. form factors, rel. to vector mesons 1=19243

electromag. struct. 3=4418

electromagnetic form factor, analyticity 1=10833

electromagnetic form factors, coupled integral eqns. with π form factor 0=12844

electromagnetic form factors, rel. to gauge invariance 0=12915

electromagnetic form factors, rel. to π - π interacts. 3=5920

electromagnetic form factors, π - π interactions 1=8450

electromagnetic interaction, at large distances 0=9260

Nucleons and antinucleons—contd

electromagnetic props., charge-core model, appl. to e-p and e-d scatt. 1=7232

electromagnetic props., current and magnetic moment 0=12916

electromagnetic structure 0=20116-17

electromagnetic structure 2=5630

electromagnetic structure, using composite model of pion 1=12082

electromagnetic structure, contrib. of 3π processes 0=11153, 17319

electromagnetic structure, effects of pion correlations on form factors 2=20325

electromagnetic structure, effects of virtual nucleon pairs 0=12917

electromagnetic structure, form factors 0=9347

electromagnetic structure and mass difference, theory 1=3167

electromagnetic structure, proton charge distrib., theory 1=3177

electromagnetic structure, spectral representation for fixed momentum transfer 1=10881

electromagnetic structure, static limits of 3π -state contrib. and S-wave effects 0=20118

electromagnetic structure, static meson source theory 0=20206

electromagnetic structure and vector mesons 4=25073

electron scatt., study by scatt. on Li^6 ,⁷ at 500 MeV 0=1425

emission by rotating nuclei 0=13168

excited, interpretation of high-energy nuclear interactions 0=9456

excited-nucleon model of meson production 0=15372

excited states, rel. to 3-3 isobar trajectories 4=9186

form factor, appl. of unitary scatt. amplitudes 1=7216

form factor in $e + p \rightarrow n + \gamma$ 0=11143

form factor, p-meson effects 3=14970

form factor, pionic 0=17249

form factor, scalar, rel. to deuteron data 2=13787

form factor, high momentum, and Dirac particles 4=16881

form factor, isoscalar, effect of ϕ - ω mixing 4=12063

form factor, isoscalar part 2=9830

form factor, scalar, $F_1^N + P_1^N$ 2=9832

form factors, contrib. of KK intermediate state 4=890

form factors, effect of high-energy limits 2=20324

form factors, effect of π -K interactions 2=9831

form factors, elec. and mag., review 4=891

form factors, elec. and mag., vector-meson fit 4=3396

form factors, electromagnetic 2=18106

form factors, electromagnetic, high energy behaviour 2=13783

form factors, from "elementary" particle theory 0=9278

form factors with a fundamental length 4=30220

form factors in helicity representation 2=18107

form factors, Hofstadter's, mass diff. estimate 2=278

form factors, isotopic scalar, ratio 0=20147

form factors, isovector, ρ^0 -n coupling 2=16236

form factors used to obtain π - π resonances 2=5632

form factors and resonance particles 3=10103

form factors, second resonances 4=11982

form factors, useful expt. suggestion 3=19671

form factors and symmetries of strong interactions 1=494

form factors, rel. to various resonances 2=13782

free nucleon theory 0=12914

functional theory, extension 0=5488

Green's function, approx. method 0=331

Green's functions in meson dynamics 1=4777

ground-state energy 2=7849

hard-sphere model, appl. to high-energy p-p scatt. 1=19197

Heisenberg non-linear theory in 5-D space 2=7805

high isospin states, search possibilities 2=20326

indistinguishability, rel. to nuclear models 2=9984

interaction with neutrinos, $\rightarrow e + N$, cross-section, rel. to nucleon form factor 0=17300

interaction of two nucleons, static model 0=2536

interactions 0=2534

interactions, parity conservation, β - γ and γ - γ correl. test 0=2484

interactions with π -mesons, phenomenological theory 0=369

interaction with scalar charged mesons 0=5505

interactions, theory 0=2534

internucleon potentials, parity-nonconserving, invariance requirements 0=12862

Nucleons and antinucleons—contd

isobar production model, ρ -photon analogy 4=19593
 isobaric model, for K^- - p interact. 3=7923
 isobaric nucleon model of π prod. in π -N, N-N, and N- \bar{N} interactions 1=10904
 isobaric nucleon model, appl. to π production in π -N and N-N interactions 0=17403
 isobars, association with peaks in π^- - p cross-section 0=371
 isoscalar e.m. structure, multi-pion resonances 3=24710
 isoscalar structure, 3π contrib. 2=3326
 isovector form factors 3=17259
 K^+ -nucleon scattering, theory 0=7415
 level structure, in terms of π - π resonance 1=10880
 mag. moment, anomalous 0=357-9
 mag. moment, anomalous, appl. of Fermi interaction 0=17233
 mag. moment, anomalous, Chew's theory 0=9349
 mag. moment, anomalous, Heitler-Arnous theory, 2nd order calc. 0=20120
 mag. moment, anomalous, in static model 0=12918
 mag. moment density and total charge, core-meson cloud model 0=11155
 mag. moment, hyperon and K-meson contrib. 0=5554
 mag. moment, static cutoff perturbation theory 0=1250
 mag. moments, quenching in nuclear matter 1=596
 magnetic moment, anomalous, effect of K-meson interactions 1=7235
 magnetic moment, calc. using composite pion model 1=3215
 magnetic moment distribution, higher moments, 2-pion state 1=13406
 magnetic moment, by 4th order meson eqn. 1=8430
 magnetic moments 3=10104
 magnetic moments, global symmetry model 2=18089
 mass difference, from e^- - p high-energy scatt. 0=11154
 mass difference, estimate from Hofstadter's form factors 2=278
 mass difference, n- p 3=6009
 mass difference, p-n, pair state contrib., inner nucleon structure 1=10882
 mass difference, self-energy theory 1=10831
 mass difference, theory 1=10887
 mass, rel. to electron mass 0=5553
 mass, origin as self-energy of a primary fermion 1=7193
 mass splittings of N and \bar{N} , relative parity 0=12845
 meson-atomic model 0=17318
 meson cloud distribution 0=7391
 meson field, radiation damping theory 3=7806
 meson-nucleon collisions, Fermi's statistical theory 0=13070
 mesonic mean-square radius 1=8452
 mixed nucleon-meson cascades in finite absorbers 0=7397
 model, rel. to anomalous mag. moment 2=20322
 model, appl. to π -nucleon peripheral collisions 1=2080
 model based on "charged-on" neutrino 1=9722
 model, rel. to jet investigations 3=17364
 model as π -N system on Regge trajectory 4=19565
 motion in deformed light nuclei 3=10203
 multi-nucleon capture mode 0=17413
 N + K^* , rel. to hyperon 1815 MeV resonance 3=4420
 neutron-proton mass difference 1=16767
 nuclear matter, stability conditions of fermion systems 3=18750
 nuclear reactions with exchange of surface nucleons 3=8057
 nucleon-antinucleon annihilation, multiple meson prod., two-parameter model 0=20217
 nucleon-antinucleon annihilation, π -meson multiplicity 0=15356
 nucleon-antinucleon annihilation, products, three models compared 0=17327
 nucleon-antinucleon, annihilation, theory 0=15250
 nucleon-antinucleon interaction, Ball and Chew model, appl. to protonium 0=15355-6
 nucleon-antinucleon interaction, new Tamm-Dancoff approx. 0=20121
 nucleon-antinucleon interactions without annihilation, π production, cross-section calc. 0=17403
 nucleon-antinucleon pair, bound state, eigenvalue problem 1=3215
 nucleon-antinucleon pair, π -meson as quantum of lowest excited mode 0=13024

Nucleons and antinucleons—contd

nucleon-antinucleon pairs, diffractive production 3=15169
 nucleon-antinucleon static short-range potential, attractive 0=20203
 nucleon-antinucleon system, bound-state problem 0=3922
 nucleon-antinucleon system, chain approximations 1=3168
 nucleon-antinucleon system, parameter computation 1=495
 nucleon-antinucleon two-meson annihilation 1=13408
 nucleon core coupling constant diminution 1=16704
 nucleon core interactions 1=13325
 nucleon core phenomena 2=11936
 nucleon core structure, differential eqn. solution 2=13779
 nucleon-deuteron inelastic scatt., impulse approx. 0=7344-5
 nucleon- Λ -hyperon forces, study by polarized Λ scatt. 0=385
 nucleon-nucleon collisions, high-energy, cloud-cloud interactions 0=20123
 nucleon-nucleon collisions, high-energy, discrimination from π -N and K-N 0=11280
 nucleon-nucleon collisions and interactions with mesons and hyperons 0=1288
 nucleon-nucleon collisions, meson-nucleon cloud, hydrodynamic model, viscosity effects 0=9322
 nucleon-nucleon collisions, meson production, recoil nucleon effects 0=7393
 nucleon-nucleon collisions with multiple meson prod. 0=3979
 nucleon-nucleon collisions, multi-production of heavy unstable particles 0=15338
 nucleon-nucleon collisions, π -production 0=13040
 nucleon-nucleon collisions, 10-100 GeV 0=9452
 nucleon-nucleon cross-section and polarization, applicability of static π -meson potential 0=12872
 nucleon-nucleon inelastic scatt., diff. cross-section, contrib. of one- π -meson exchange term 1=439
 nucleon-nucleon interactions, Bethe-Salpeter eqn., solution for instantaneous interaction 0=12863
 nucleon-nucleon interactions, cross-sections at 9 GeV 0=11158
 nucleon-nucleon interactions, generalized isobar model 0=17249
 nucleon-nucleon interactions, high-energy, interpretation 0=15339
 nucleon-nucleon interactions, multiple particle production hydrodynamical model, applicability 0=20044
 nucleon-nucleon interactions, π production, appl. of isobaric nucleon model 0=17403
 nucleon-nucleon interactions, test of charge independence 0=11157
 nucleon-nucleon interactions at $\sim 10^{12}$ eV, multiple meson prod. 0=2559
 nucleon-nucleon interactions, ultrarelativistic, "two-fireballs" model, rel. to π - π interaction 0=17404
 nucleon-nucleon L.S. potential in pseudoscalar meson theory 0=17263
 nucleon-nucleon and nucleon-pion collisions, multiple pion prod. 0=2588
 nucleon-nucleon potential, derivation 0=17321
 nucleon-nucleon potential, field theoretic definition 1=445
 nucleon-nucleon potential, including effects of nucleon recoil 0=5511
 nucleon-nucleon potential and K-meson exchange 3=14974
 nucleon-nucleon potential with one-pion exchange tail 0=20072
 nucleon-nucleon potential, theories compared 0=12865
 nucleon-nucleon scatt., ambiguity in mixing parameter 0=20124
 nucleon-nucleon scatt., covariant treatment 0=338
 nucleon-nucleon scatt., cross-section, calc. 0=3923
 nucleon-nucleon scatt., rel. to deuteron photo-disintegration 0=15458
 nucleon-nucleon scatt., dispersion relations 0=12919-20, 15292
 nucleon-nucleon scatt., dispersion relations, rel. to π -nucleon coupling const. 0=15395
 nucleon-nucleon scatt., dispersion relations, S-wave effective ranges 0=20127
 nucleon-nucleon scatt., low-energy, theory 0=15341
 nucleon-nucleon scatt., Mandelstam spectral functions 0=15254

Nucleons and antinucleons—contd

nucleon-nucleon scatt., modified analysis, appl. to p-p scatt. at 210 MeV 0=12931
 nucleon-nucleon scatt. in momentum space, one-pion exchange potential, non-adiabatic 0=20125
 nucleon-nucleon scatt. at 9 GeV with multiple particle prod. 0=3964
 nucleon-nucleon scatt., one-pion exchange potential 0=7342
 nucleon-nucleon scatt., phase shifts, energy depend., calc. 0=15340
 nucleon-nucleon scatt., phase shifts, test using p-d scatt. 0=20136
 nucleon-nucleon scatt., single virtual boson exchange interaction 0=20194
 nucleon-nucleon scatt., rel. to two-nucleon L.S. potential 0=17263
 nucleon-nucleon scatt., structure of forward scatt. amplitude 0=3934
 nucleon-nucleon scatt., tensor and spin-orbit forces 0=11161
 nucleon-nucleon scatt., triplet odd state potential from data at 90 and 150 MeV 0=20126
 nucleon-nucleon scatt., two-meson approx. 0=9351, 12921, 17324
 nucleon-nucleon scattering, effective range theory 1=455
 nucleon-nucleon scattering, elastic, 1-meson approx., phase shifts 0=11160
 nucleon-nucleon spin-orbit interaction and the repulsive core 0=17320
 nucleon-nucleon static short-range potential, repulsive 0=20203
 nucleon-nucleon system in momentum space 1=10865
 nucleon-nucleus interaction, high-energy, mechanism 1=12190
 number of almost real surrounding pions 4=19503
 one-nucleon and two-nucleon wave-functions in fixed source theory 1=8449
 pair production by $\pi \rightarrow N + \bar{N} + \pi$, high-energy vertex 0=17376
 peripheral collisions, multiple prod. of jet particles 0=12922
 peripheral interactions at 9 BeV 0=5556
 in photonuclear reactions, nucleon pair correlations 2=327, 22660
 photon-nucleon scattering, one-meson approx. 0=11132
 photonucleons, polarization 2=20587
 π -nucleon attraction in scattering 0=17377
 π -nucleon collisions, angular asymmetry 0=15396
 π -nucleon collisions at $E \geq 1$ GeV 0=3964
 π -nucleon collisions, rel. to π - π scatt. 0=7408
 π -nucleon coupling const., meas. and significance 0=20184
 π -nucleon coupling constant 0=11201
 π -nucleon diffraction scatt., at 1.3 and 5 BeV 0=2582
 π -nucleon interactions at high energies 0=2575
 π -nucleon scatt. below meson prod. threshold 0=5588
 π -nucleon scatt., charge-dependent corrections 0=7407
 π -nucleon scatt., cross-section peaks 0=17388
 π -nucleon scatt., effect of nucleon recoil 0=17389
 π -nucleon scatt., Levinson's theorem 0=15407
 π -nucleon scatt., phase-shift errors 0=3943
 π -nucleon scatt., resonance in dispersion rels. 0=17390
 π -nucleon scatt., strange-particle effects 0=15405
 π -nucleon scatt., theory 0=11208
 pionic structure 2=5630
 pions in nucleons, state 1=5721
 polarizability 0=17326
 polarizability, rel. to γ -ray scattering 3=15170
 polarization due to anomalous mag. moment 0=15342
 polarization from charge-exchange reactions in D 0=3963
 polarization during deuteron diffraction splitting 2=5635
 polarization in high-energy elastic scatt. on light nuclei, calc. 1=4861
 polarization, in leptonic decay of hyperons 0=9438-9
 polarization, in π -N scatt., influence of N^* state 4=894
 polarization in π -nucleon scatt., rel. to higher π -nucleon resonances 0=13027
 polarization by scattering, review 1=3175
 potential model representation, 2-nucleon data below 315 MeV 2=13780
 production in p-p collisions, statistical model 0=12935
 propagator, recoilless strong coupling 0=7284
 pseudo-scalar interaction, Bethe-Salpeter equation, covariant soln. 0=9266

Nucleons and antinucleons—contd

as Regge pole, and $J = \frac{1}{2} T = \frac{1}{2}, \pi N$ phase shift 3=14969
 Regge trajectories and resonances 4=939
 resonant states, rel. to bilocal field theory 4=15048
 resonant states, phenomenological theories 3=14872
 scattering on C, elastic, polarization 0=17464
 scattering and capture of Λ -particles 0=15453
 scattering and deformed nuclei 0=7544
 scattering on deuterons, elastic, at low energies 0=3965
 scattering on deuterons, elastic, in soluble model, test of impulse approx. 0=360
 scattering, elastic, in GeV region, theory 0=17323
 scattering, elastic, on nuclei, effect of spin-orbit potential 0=5737
 scattering, elastic, at very high energy 0=17322
 scattering, with excitation of nuclear collective states 0=9616
 scattering of γ -rays, dispersion relation 0=7319
 scattering of γ -rays, near meson prod. threshold 0=5533
 scattering, inelastic, by light nuclei 0=9626
 scattering, inelastic, by nuclei, direct interaction theory 0=11443
 scattering, inelastic, spin polarization, distorted wave theory 0=17574
 scattering of K^+ -mesons, non-adiabatic theory 0=17419
 scattering, by nonlocal potential, at high energy 0=9295
 scattering on nuclei, optical model 0=4086, 5739, 13109
 scattering of pions, Chew-Low amplitude eqns 0=15406
 scattering of scalar mesons by static nucleon 0=7392
 scattering, two-pion contribution 0=15293
 scattering, validity of dispersion relations in perturbation theory 0=15294
 second-resonant state, in η -meson prod. 4=899
 several-nucleon system, symmetric group theory 4=12105
 single nucleon capture mode 0=17414
 spin-orbit interaction, electromagnetic effects 1=19180
 stability, lifetimes 0=15337
 state vectors, Tomonaga's intermediate coupling theory 0=17250
 statistical emission in reactions produced by 14 MeV neutrons 0=15593
 stripping-reaction produced, polarization 2=20603
 structure 0=5552
 structure, rel. to β -decay coupling consts. 0=20119
 structure, charge distrib. and a.m.m. 1=3179
 structure, with core existing only in charge isoscalar part 1=10882
 structure, data from neutron form factors 2=13805
 structure, e.m., effects of $T = 1$ vector meson 2=9833
 structure, e.m., rel. to meson-nucleon interactions 2=13781
 structure, e.m. and mesic, review 1=2047
 structure, e.m., rel. to π - π scatt. resonance 2=7850
 structure, effect on high-energy interactions 0=11159
 structure, effect of π - π resonance 0=7341
 structure, electromagnetic, pion-nucleon scatt. 4=3394
 structure, electromagnetic, 3π -state contrib. to isoscalar part 1=9751
 structure, rel. to electron scatt. 2=22523
 structure, evidence from $N\bar{N} \rightarrow \pi\pi$ amplitude 1=3176
 structure and form-factor 1=16837
 structure, form factor in π^- -p scatt. at 1.4 BeV 1=3173
 structure, isovector part, rel. to π - π scatt. 2=13784
 structure, model 1=9750
 structure, model, rel. to π -nucleon interaction 2=3327
 structure, Nobel prize lecture 2=18224
 structure, from nucleon-nucleon interactions 0=9348
 structure, rel. to π - π and π -nucleon scatt. 1=2088
 structure, resonant pion-pion model 1=16766
 structure and spectra from strong coupling meson theory 4=25074
 structure, static π -nucleon potential 0=20203
 structure, theory and expt., review 4=6032
 structure, through π - π interaction in π -N scattering 1=5763
 theory, τ_γ gauge invariance 2=9808
 three-N system, vector harmonics 4=25084
 three-nucleon system, with Yamaguchi interaction 4=9313
 two-meson approximation for real nucleon 1=5719
 two-nucleon potential with full recoil 2=11938-9
 two-nucleon potentials 2=11898
 two-pion-exchange internucleon potential 2=3289

Nucleons and antinucleons—contd

- vacuum state as collective state of BCS type 1=8451
- wave functions of N-systems, antisymmetrization 4=3316
- Yukawa potentials between two nucleons 1=7208
- 20-180MeV, semi-classical approx. and optical model exact solution 3=12658
- $N + N \rightarrow \pi^+ + \pi^- + \pi^0$, ang. correl. 0=15398
- $N_a + N_b \rightarrow Y_c + Y_d$, spin correl., rel. to invariances 4=25085
- interactions**
 - (subheading introduced in 1961)
 - boson-nucleon, isobar production, "p-exchange" process 4=19499
 - with bosons, production amplitudes, dispersion relations 2=261
 - collisions, $> 3 \times 10^{10}$ eV, characteristics 3=22116
 - correlation between vacuum nucleons 1=12069
 - cosmic ray, high-energy interactions, character 3=12538
 - cosmic ray nucleons, 3×10^{11} to 6×10^{12} eV, 6-12 km 4=12092
 - with deuterons, charge-exchange collisions, theory 1=12131
 - with electrons, π production, nucleon recoil calc. 4=16931
 - with emulsion nuclei, at $\geq 10^{11}$ eV 1=3438
 - emulsion nuclei at $> 10^{12}$ eV, analysis 3=4382
 - 5×10^{12} eV, in emulsion, shower-particle energy 1=19185
 - form factor, contribution of scalar di-pion reson. 4=19498
 - four-nucleon coupling, bound states 1=3168
 - four-nucleon reactions, with central forces 1=3171
 - $\gamma + N \rightarrow N + 2\pi$, (π, π) resonance obs. 2=7892
 - hard-core in 1S_0 scatt., rel. to shape parameter 2=3330
 - heavy nuclei-nucleon reaction; hydrodynamic theory 3=2439
 - heavy nuclei-nucleon reactions, hydrodynamic theory 2=3560
 - high-energy, by diagram method and dispersion relations 3=12540
 - high-energy, exponential and Gaussian form factors compared 1=3173
 - high-energy, statistical analysis of products, including secondary reactions 4=863
 - high energy, $\sim 3 \times 10^{11}$ eV, in cosmic rays 4=27835
 - hyperon-nucleon, one pseudoscalar and one vector meson exchange 4=21943
 - hyperon scatt., to 315 MeV, calc. 2=3408
 - with hyperons, inelastic, $\Lambda-\pi$ resonance effects 2=1725
 - with hyperons, possible $[\sigma(1) - \sigma(2)] \cdot L$ term 2=18186
 - with hyperons, 2- and 3-body Y-N potentials, including rescattering corrections 1=9769
 - indistinguishability, influence on nuclear reactions 2=1852
 - isobaric excitation in collisions with fast particles 1=8453
 - jets, double max. ang. distrib., in photographic plates, due to cosmic rays 3=5993
 - with Λ -hyperons, hard core 3=10179
 - lepton-nucleon, peratization method 4=11921
 - light nuclei, high energy 4=3647
 - magnetic monopoles, search 2=3293
 - meson field, Green functions 3=24605
 - meson-two nucleon, meson field, Chew-Low formalism 2=7851
 - with mesons, chiral symmetry 4=3322
 - mesons, rel. to e.m. structure of nucleon 2=13781
 - with mesons, pseudoscalar 3=5930
 - mesons, 10^{10} - 10^{10} eV, shower particles 2=13826
 - Monte Carlo calc. 2=11905
 - multiple meson prod., two-centre model, test 1=7238-9
 - with neutrinos, high-energy, pion production 2=18100
 - with neutrinos, 1 GeV, pion and strange particle prod. 2=18099
 - nuclear axial-vector form factor 4=6033
 - in nuclear matter, eff. of veloc.depend. forces 3=6132
 - on nuclei, direct interactions, effect of wave-function distortion of scattered particle 1=7363
 - with nuclei, forward and backward peakings 3=12659
 - nucleon-antinucleon annihilation collisions, interaction volumes 1=16725
 - nucleon-antinucleon system, bound S-states 2=11936
 - nucleon-nucleon collisions, interaction volumes 1=16725

Nucleons and antinucleons—contd interactions—contd

- nucleon-nucleon collisions, 100 GeV 2=5897
- nucleon-nucleon correlations in electron inelastic scatt. by nuclei 2=3555
- nucleon-nucleon, cosmic rays, energetic electromag. cascade 2=5762
- nucleon-nucleon, at high energies 2=5631
- nucleon-nucleon, high energy, reduction to π -nucleon data 1=10883
- nucleon-nucleon, high-energy, single virtual-boson exchange interaction model 1=4792
- nucleon-nucleon interactions at 10^{11} eV energies 1=5801
- nucleon-nucleon, low energy 2=1681
- nucleon-nucleon, meson field, Chew-Low formalism 2=7852
- nucleon-nucleon, multiple meson prod., transition rates rel. to isospin 1=2048
- nucleon-nucleon, multiple meson prod., two-centre model, spatial extension of "fireballs" 1=4816
- nucleon-nucleon, non-locality in second-order potential 1=9733
- nucleon-nucleon, non-static effects 2=3329
- nucleon-nucleon, nonstatic one-boson exchange potentials 2=3287
- nucleon-nucleon parity-nonconserving potential, effects 1=19288
- nucleon-nucleon peripheral collisions, model 2=7829
- nucleon-nucleon potential 1=3169
- nucleon-nucleon potential 2=9979
- nucleon-nucleon potential with full recoil, one-pion exchange potential 1=10864
- nucleon-nucleon potential, rel. to O^+ levels 2=16324
- nucleon-nucleon potential with one-pion-exchange tail, appl. to p-p scatt. at < 100 MeV 1=3172
- nucleon-nucleon potentials, review 2=3290
- nucleon-nucleon pots., role of π - π resonances 2=5632
- nucleon-nucleon, relativistic Schrödinger eqn. 2=280
- nucleon-nucleon, with singlet isotopic spin state, rel. to N-d collisions 1=12131
- nucleon-nucleon, at $> 10^{12}$ eV, analysis 2=3328
- nucleon-nucleon, total cross-section, calc. 2=3288
- nucleon-nucleon, at 250 BeV, $\langle n_g \rangle$ value 1=7240
- nucleon and (3,3) resonance, "bootstrap" relationship 3=7841
- with nucleons, at 9 BeV, pole model of peripheral collisions 1=19183
- nucleons and pions, ≥ 10 GeV, effective target mass 2=9834
- with nucleons, at 10^{11} eV, peripheral collisions 1=19184
- nucleus, binding energy at infinite volume 2=5787
- rel. to nucleus rotation theory 2=12104
- with nucleus, at 10^{11} eV, peripheral collisions 3=4385
- with p, in emulsion, 9 BeV 3=17271
- p-N collision, 9 GeV azimuthal effects 2=281
- photon-nucleon vertex parts, integral representation 3=14889
- photons and pions, multiple pion production 2=5714
- photoproduction of pion pairs 4=3440
- π -meson-N resonance 1=13479
- πN coupling const., from pp-scattering data 1=19248
- $\pi N \rightarrow \pi \pi N$, isotopic relations anal., resonant $\pi \pi$ 1=16860
- π -N scattering, Wigner's condition 1=5699
- potential derivation using Tamm-Dancoff formalism 1=493
- potential bet. two nucleons, using Low eqn. 3=15069
- with protons, strange particle prod. calc. 3=7927
- with protons, 25 GeV, in emulsion 3=7848
- reciprocal bootstrap with πN (3,3) isobar, in SU(3) symm. 4=25159
- resonances, dispersion relations 2=13791
- resonances, rel. to hyperons, global symmetry 3=4420
- 1S_0 interaction in boundary condition model 1=8454
- secondary particle ang. distrib., for 10^{10} - 10^{13} eV reactions 3=17273
- single burst spectra in cosmic rays 3=19595
- spin-spin and scattering from polarized nuclei 4=19763
- with spurions, symmetry requirements 3=12510
- strong, renormalization, parity not conserved 1=7197
- surface nucleon stripping reactions 4=28014
- $> 10^{11}$ eV, in emulsion, multiple prod., analysis 1=19186
- three-body system, diagram summation technique 4=3494

Nucleons and antinucleons—contd
interactions—contd

- 3-nucleon interact., integral eqn. by graph summation method 4=21956
two-body problem, exactly soluble, with non-central forces 3=24664
two-nucleon, review 3=14973
two-nucleon system, chain approximations 1=3168
two-nucleon system, K^- capture, Y^* prod. 3=10170
two-nucleon system, Serber—Pais charged-scalar strong-coupling theory 1=7236
with unstable particles 4=6136
virtual particles, interaction cross-sects. 3=2256
 e^-N , strange-particle prod., dispersion theory 4=9285
 $\gamma + N \rightarrow \pi + N$, at high energies, helicity formalism 4=19547
 $\gamma-N$, pion prod., $\pi-\pi$ interact. effects 3=15016
 $\gamma + N \rightarrow Y + K$, resonance model 3=24797
 K and \bar{K} -mesons, ρ and ω exchange 3=4458
 \bar{K} -mesons, S-wave, with vector mesons 3=10172
 $\bar{K}-N$, S-wave, as two-channel problem 3=15029
 K^-N rel. to Y_0^* , 1765 MeV 4=12072
 K^- -pairs 4=21933
 $\bar{K}N$ bound states, rel. to K^-p scatt. 2=5739
 $K-N$, high-energy, resonance prod. rel. to decay 4=24997
 $K + N \rightarrow K + \pi + N$, isobar model analysis 4=19499
 $\bar{K}-N$, resonant states 2=20419
 $\bar{K}-N$, search for Y^* resonances 4=21944
 $\bar{K} + N \rightarrow \pi + Y$, fixed-angle dispersion relns. near and below threshold 4=19588
 $\bar{K}-N$, $I = 1$, $p_{3/2}$ channel, calc. 4=21935
 Λ -hyperons, 1S_0 - 3S_1 comparison 2=13974
 $\Lambda-N$, average, for bound hypertriton 4=9316
 $\Lambda + N$ and baryon cascade disintegration 4=24995
 $\Lambda-N$, low-energy, central potentials and wells 4=9292
 $\Lambda-N$ potentials, two-pion-exchange, baryon excited states effect 4=9293
 $\Lambda-N$, rel. to Λ binding energy in nuclei 4=9366
 $\Lambda-N$, three-body, two-body exchange contrib. 4=6139
 N coupling const., from pp-scattering data 2=22582
 (N, e) and (N, \bar{e}) transitions, symmetry behaviour 2=7830
 $N + \gamma \rightarrow N + \pi + \pi$ and $N + \pi \rightarrow N + \pi + \pi$, near threshold, theory 3=6032
 N -hyperon bound systems 3=17340
 $2N-K^-$ mechanism 3=24788
 $N + K^- \rightarrow \Lambda + 3\pi$ in D at 765 MeV/c and η isospin = 0 and not 1 4=25165
 $N-\Lambda$, charge-symm. violation 4=19644
 $N-\Lambda$ potentials in Λ -hypernuclei 2=1783
 NAK , coupling constant 2=9929
 $N-\bar{N}$, annihilation potential, range 1=16775
 $N-\bar{N}$ annihilation, with prod. of two pions 1=5720
 $N-\bar{N}$ bound state in ladder-chain approx. 3=7813
 NN collisions, $\Lambda\Lambda$ pair prod. 2=9924
 $N-N$ in cosmic ray jets, model 3=4542
 $NN \rightarrow KK$ or YY , calc. 2=22499
 $N-N$ 4=21748
 $N-N$ collisions, transverse momentum, 27 GeV 2=20328
 $N-N$ collisions, Treman-Yang criteria 2=22509
 $N-N$, in cosmic-rays, multiple particle prod., hydro-dynamic and fireball models 1=2118
 $N-N$, coupled to meson field, ground state energy 4=846
 $N-N$ field, semi-phenomenological Hamiltonian 2=9837
 $N-N$ forces, ground state props. of nuclei 3=2357
 $N-N$, in heavy nuclei, effect of many-body forces 4=9339
 $N-N$, high-energy jets, two-centre model and nonlocal theory 2=22410
 $N-N$, high energy, pion cloud role 2=305, 13825
 $N-N$ jets, multiplicity, ang. distrib. 2=18155
 $N-N$, rel. to low-energy nuclear potentials 3=2348
 $N-N$, low-energy, rel. to nucleon core 3=4383
 $N-N$, very low momentum transfers 2=20574
 NN mechanism in $\pi-\pi$ resonances, Chew—Mandelstam eqns. 1=10908
 $N-N$ meson multiplicity at 2800 GeV meas. 4=11983
 $N-N$, momentum spectra of recoil protons, pole approx. 4=25078
 $N-N$, multiple meson prod., two-centre model 4=9238
 $N-N$ and N -nucleus, cosmic rays in emulsions 3=24817
 $N-N$, in nuclear matter, potential, forces, calc. 4=27941
 $N-N$, from nuclear—electron scatt., Fermi fluid model 4=6037

Nucleons and antinucleons—contd
interactions—contd

- $N-N$, 1-10³ GeV, intensities of produced particles 3=4366
 $N-N$, 100 GeV 3=10105
 $N-N$, >100 GeV, study of showers 2=13786
 $N\bar{N} \rightarrow \pi\pi$ amplitude, rel. to nucleon electromag. structure 1=3176
 $N-N$ potentials, rel. to meson resonances 4=25076
 $N-N$ potential, using nucleon core + single pion model 2=11937
 $N-N$, and ζ -meson quantum numbers 2=20327
 $N-N$, single- π prodn. 4=6092
 $N-N$, spin-orbit, rel. to vector mesons 4=25077
 $N-N$, to 10 GeV, inaccuracy of Castagnoli formula and Duller-Walker diagram 2=22574
 $N-N$, 200 GeV, multiple meson prod. 3=24711
 $N-N$, ultrahigh-energy, Monte-Carlo method analysis 4=11985
 $N-N$, $\sim 10^{18}$ eV, effective target-mass distrib. 4=11984
 $N-N$ and $N-\bar{N}$ total cross-sections, systematic analysis 4=19502
 $\bar{N}-N$ and $N-N$, \bar{N} production cross-section 4=30222
 $N-N$, $N-\bar{N}$, π prod., isobaric nucleon model 1=10904
 $\bar{N}-N$, peripheral, effect of annihilation at ~ 2 BeV 4=6038
 $\bar{N}-N$ potential, suppression of 3π annihilation 4=6036
 $N-N$ potential, two-pion exchange, calc. 3=12450
 $N-N$, renormalized coupling const. 3=2254
 $N-N$, s-wave, charge symmetry 3=12519
 $N-N$, in shell-model analysis 3=2373
 $\bar{N}-N$ system, chirality invariance 3=7897
 $N-N$, velocity depend., in nucleus 3=17382
 $N-p$, at 9 BeV, in nuclear emulsions, rel. to multiplicity 3=6002
 $N-p$, 26.7 GeV/c, effective target mass 3=19627
 $N-\pi$ cross-sections, rel. to virtuality, analytic props. 1=19250
 $N + \gamma \rightarrow N + \pi + \pi$ and $N + \pi \rightarrow N + \pi + \pi$, near threshold theory 2=7888
 $N + N \Rightarrow m\pi^0$, in supernovae 2=15375, 19331
 $N + N \rightarrow \Lambda + N + K$, $\Lambda-N$ pairs in $\Lambda + N \rightarrow \Sigma + N$ 1=2025
 $N + N \rightarrow N + N + \pi$, overlapping resonances 4=16803
 $N + N \rightarrow \pi + N + N$, "bipion" diag. contrib. 3=5994
 $N + N \rightarrow \pi + N + N$, "bipion" diagram contribution 2=16188
 $N + \bar{N} \rightarrow \pi + \omega$, ang. correl. 4=6039
 $\bar{N} + N \rightarrow \pi + \omega$, ang. correl. 4=6039
 $\bar{N}_s + N_b \rightarrow \bar{Y}_c + Y_d$, spin correl., rel. to invariances 4=25085
 $N-p$, at 9 BeV, in nuclear emulsions, rel. to multiplicity 2=7856
 $N-p$, inelastic, at 9 BeV 2=1684
 $N-\pi$ coupling constant, upper limit 4=21895
 $N-\pi$, high energy, rel. to "target mass" in one-meson-exchange 3=12539
 $N-\pi$, hyperon ang. distrib., rel. to parity 3=4462
 $N-\pi$, inelastic, at high energy 2=7884
 $N-\pi$, inelastic, at high energy 3=6040
 $N-\pi$, rel. to jets, 10^{14} - 10^{18} eV and $N-N$ interact. 3=17364
 $N-\pi$, neutral scalar theory with recoil 4=848
 $N-\pi$ resonances, review 3=4430
 $N-\pi$, strange-particle prod. 3=19700
 $N-\pi$, at 7.3 GeV in emulsion 2=11981
 $N-\pi$, 7 GeV two prong interaction, observation 4=27880
 ν , meson production 4=3434
 $\nu-N$, high-energy, conserved vector current and partially conserved axial-vector current hypotheses 4=28015
 $\nu + N \rightarrow \mu^+ + N^*$, 4=30267
 ν , weak, meson production 4=19420
 $p-N$, free and quasifree, 14 GeV, in emulsions 4=19506
 $p-N$, secondary particle prod., angular distrib. 4=25089
 $p-N$, 9 GeV, four momentum transfer and isobar mass 4=25090
 $p-p$ and $n-n$ final state interactions, comparison 4=19508
 π electro- and photoproduction, theory 2=3377
 π -meson, high energy, Λ -particle prod. model 2=9925
 π -meson-nucleon, isobar model 2=3384
 π -mesons, multiple pion prod., isobaric model 2=18152
 π -mesons, one pion exchange, photon production 2=9898
 π -mesons, 1100 MeV, simple π^0 prod. 2=9892
 $\pi-N$, above first max., by strong coupling method 2=11984

Nucleons and antinucleons—contd
interactions—contd

- π -N, absorption and strange particle prod., 6.1-18.1 GeV/c 4=12036
- π -N, rel. to bilocal field theory 4=15048
- π -N, canonical structure rel. to asympt. reduction methods 4=19412
- π -N coupling const., boson-baryon theory 4=9086
- π -N coupling from d wave-function parameterized form fitting 4=25201
- π -N cross-sections, rel. to virtuality, analytic props. 2=22585
- π -N, double peripheral model appl. 4=30253
- π -N, high energy, pion cloud role 2=305
- π -N, majorization of Feynman diagram 4=27884
- π -N and p-N, up to 10 BeV, review 3=22120
- π -N $\rightarrow \pi\pi$ N at 290 MeV 3=4439
- π -N, ps- and pv-type two-nucleon potential 2=11939
- π -N, Regge trajectory 4=27877
- π -N, resonance spectrum, Regge trajectories, dynamical basis 3=22170
- π -N, resonance structure, dynamical mechanism 3=22169
- π -N, resulting $N^* \rightarrow \mu^+ + \mu^- + N$, cross-section calc. 4=30243
- π -N, second and third isobars 4=25132
- π -N, 7.5 GeV, pole diagram analysis 3=24773
- π -N, single-pion prod., using Regge poles 4=12037
- π -N, 7 GeV, one pion exchange events 4=6106
- π -N, 7 GeV peripheral 4=27879
- $\pi + N \rightarrow \Lambda + K$ or $\Sigma + K$ or $\pi + N$, I = $\frac{1}{2}$ s-wave part, model 4=21896
- $\pi + N \rightarrow \pi + \pi + N$, effect of logarithmic singularities 4=11922
- $\pi + N \rightarrow N + 2\pi$, one-pion-exchange model 4=16935
- $\pi + N \rightarrow N + 2\pi$, ($\frac{3}{2}, \frac{3}{2}$) resonance effect 4=3447
- $\pi + N \rightarrow \pi + \gamma + N$, differential cross-sections by pole approx. 4=6105
- $\pi + N \rightarrow \pi + \pi + N$ 2=308
- $\pi + N \rightarrow \pi + \pi + N$, singularities in production amplitudes 4=19553
- $\pi \rightarrow \pi\pi$ N, at 290 MeV 2=310
- $\pi + N \rightarrow \rho + N$, unitarity and form factors 4=25137
- π -N, S isotope splitting, inelasticity explanation 4=16936
- π -nucleon coupling consts 3=19551
- $\pi^- + N \rightarrow K^0(K^0) + Y(K,N) + m\pi$, 2.8 BeV/c, resonances 3=17315
- $\pi^- + N$, 6.8 BeV, inelastic, in emulsion 4=934
- π^- -N, ~ 7 GeV, multiple π prod., secondary p's, review 4=25136
- π^- -N, 17 GeV/c, meas. analysis 4=25135
- $\pi^- + N \rightarrow Y_2^* + K$, Y_2^* search 3=17349
- π^- -nucleon inelastic interactions at 7.5 GeV 1=9760
- π photoproduction, from dispersion relns. 3=22162
- 30-100 GeV, particle prod. in cosmic rays, review 4=16882
- > 100 GeV, in cosmic-ray showers 3=19618

scattering

- by α -particles, calc. in N-N scatt. matrix 2=13788
- angular correl., inelastic, review 4=17122
- bremstrahlung production, calc. 4=9483
- by complex nuclei, interaction cross-section and energy conserved 4=28021
- Compton, dispersion relns. 4=6000
- Compton dispersion relns. rel. to expt. 4=6001
- Compton effect, dispersion relations 1=16729
- Compton, high-energy, using Regge hypothesis 4=19463
- cross-section, double differential, var. with angles, and direct interaction admixture detect. 4=3645
- direct inelastic scatt., tensor forces 2=7976
- elastic, high energy decrease as $1/E_0$ 2=9906
- elastic, high-energy, large-angle cross-section decrease 2=13861
- elastic, on light nuclei at high energy, polarization calc. 1=4861
- elastic, obs. poss. of n-p charge exchange peak 4=25080
- elastic, on target of spin 1 1=16769
- electron-nucleon at high energies 1=10878
- electrons, rel. to nucleon form factors 2=13782
- 4th order scattering matrix elements 1=13335
- γ -N, amplitude, and crossing symmetry 1=16734
- high-energy, effect of Pauli principle 2=10092
- with hyperons, S-wave, rel. to SU₃, symm. 4=25187

Nucleons and antinucleons—contd
scattering—contd

- intermediated compound state, multiparticle excitations 4=19762
- on K-mesons, dispersion relations 1=3235
- leptons, dominated by moving poles, 6 amplitudes calc. 4=16810
- by light nuclei, comp. with N-N scattering 2=436
- on light nuclei, inelastic, with N-N interaction 1=13780
- by light nuclei, 147-220 MeV, spin-orbit interaction 2=7974
- on light nuclei, spin-dependent quasi-elastic 3=10336
- by meson, asymptotic 4=30242
- meson-nucleon, large-angle, Regge poles and asymptotic behaviour 3=14994
- by mesons, peripheral model, vector meson and isobar production 4=25120
- mesons, spin structure of amplitudes 2=16189
- by mesons, rel. to unitary symm. 4=25121
- neutrino-N, Regge pole effects 3=22104
- neutrino-nucleon, π production 3=15008
- neutrinos, search at 1 GeV 3=578
- by nuclear density fluctuations inside nucleus 3=6121
- nuclear, high-energy, total cross-sections 3=10334
- nuclear potential, rel. to double dispersion relations 2=13942
- nuclei, rel. to absorbing part of optical potential 2=22701
- by nuclei, channel coupling 2=10094
- on nuclei (complex), elastic, at high energy, model 1=9848
- nuclei, coupling constant, rel. to nucleus theory 2=18229
- on nuclei, elastic, high-energy, ang. distrib. predictions verified 1=13779
- on nuclei, elastic, high-energy, reduction factor from two-body interaction 1=3437
- by nuclei, elastic, multiple scatt. within the nucleus 2=3559
- nuclei, elastic scatt. at high energies, expt. analysis 2=7975
- by nuclei, excit. of collective states on extended optical model 4=6303
- on nuclei (heavy), nucleon-nucleon correlation effects 1=5901
- on nuclei, at high energies, angular correl. 1=19446
- on nuclei, at high energies, angular correl. 3=4629
- by nuclei, high energies, optical-type model 2=14083
- by nuclei, high energy, impulse approx. 3=15184
- on nuclei, high-energy, inelastic, γ ang. distrib., theory 1=19445
- nuclei, high-energy optical potential, target-momentum and nonlocal effects 4=9484
- on nuclei, high-energy, validity of impulse approx. above He⁴ 1=682
- nuclei, inelastic, cpd., γ -N ang. correl. rel. to nuclear spins 4=9485
- nuclei, inelastic, medium energies, semi-classical model 2=7977
- on nuclei, light-weight, high energy elastic scatt., appl. of N-N phase shifts 1=10885
- by nuclei, multiple-scatt. theories, identity effects 4=3646
- on nuclei with non-zero spin, polarization 1=4862
- by nuclei, rel. to nuclear structure 2=1871
- on nuclei, optical model 1=8703
- on nuclei, optical model 1=17089
- nuclei, optical model and one-pion exchange 2=5896
- nuclei, phase shifts rel. to optical potential 2=13941
- by nuclei, radiation of low energy quanta 2=20602
- nuclei, resonance theories, rel. to optical model 4=15126
- on nuclei, rotational levels excitation, cross-section depend on deformation 4=15138
- by nuclei, with shell properties, elastic and inelastic cases 4=22123
- nucleon-deuteron, cross-section at GeV energies 1=2087
- nucleon-nucleon, partial wave dispersion relations 2=7893
- nucleon-nucleon scattering, transition matrix 1=10884
- nucleon-nucleus, choice of nucleon-nucleon phase shifts 1=17090
- nucleon-nucleus, complex effective mass, calc., 100-300 MeV 3=6231

Nucleons and antinucleons—contd**scattering—contd**

- nucleon-nucleus, effect of exclusion principle on optical potential 1=9795
 nucleon-nucleus, high-energy, inelastic, rel. to nuclear structure 2=1867
 nucleon-nucleus, optical potential, radial dependence 2=1868
 nucleon-nucleus spin-orbit interaction potential, 40-660 MeV 3=17285
 by nucleus, and distorted-wave impulse approx. 3=10337
 in nucleus, on nuc. matter density fluctuations, using optical potential 3=8083
 in nucleus, on nuclear matter density fluctuations, using optical potential 2=20605
 by nucleus, one-pion exchange approx. 3=622
 by nucleus, optical model analysis 3=621
 nucleus, optical potential, calc. from phase shifts 2=10093
 photons, Compton, fixed-angle dispersion relations 2=11917
 photons, partial wave dispersion relations 2=16180
 polarization, in optical model framework 3=17267
 from polarized nuclei 4=19763
 polarized nucleons, geometrical considerations 2=9835
 potential model representation, 2-nucleon data below 315 MeV 2=13780
 small angle, vel. to nuclear parameter 4=6302
 strongly coupled channel theory 4=1060
 theory, low energy, and nuclear models 4=25383
 20-180 MeV, semi-classical approx. and optical model exact solution 3=12658
 d-N, exactly soluble three-dim. problem 4=843
 d-N, optical theorem 4=27814
 γ -N, virtual Compton effect, amplitude 4=21818
 by K⁻ mesons, assuming odd relative parity 2=3404
 K-mesons, high-energy, possible interpretations 3=2267
 by K mesons, ρ and ω reson. exchange contrib. 3=15034
 K-mesons, S-wave, Y* effects 2=16242
 K⁺-N, elastic, Tamm-Dancoff approx. calc. 3=24795
 K-N representation, rel. to nucleon form factor 4=890
 K-N, vector meson exchange effects calc., 4=30273
 K-N, I = 0 state, from K⁺-d scatt. data. 4=19589
 \bar{K} -N, low-energy, Y* Regge pole 4=27899
 \bar{K} -N s-wave interactions, 6 sets of solns. 4=25184
 \bar{K} -N, rel. to Y* resonance data 4=9279
 \bar{K} -N, I = 1, $p_{3/2}$ channel, calc. 4=21935
 K⁺-N partial scattering amplitudes, approx. coupled integral eqns. 4=15103
 Λ -hyperons, partial wave dispersion relations 2=13886
 Λ -hyperons, rel. to π -N coupling constants 3=4468
 Λ -N, rel. to interaction potentials 4=9292
 Λ -N, in K⁻-d capture at rest 4=12066
 Λ -N, two pion-exchange contrib. calc. 3=17344
 N-d, inelastic, amplitude, graph summation method 4=21956
 N-e, differential cross-sect. using dispersion relations for form factors 4=21845
 N-d, elastic, impulse approximation correction 4=25083
 N-e, form factor sum rules 4=3395
 (N, e) and Λ (N, \bar{e}), symmetry behaviour 2=7830
 N- γ , invariant functions, factorization 4=831
 N-H³, and H⁴ state 3=19714
 N-K 3=4460
 N-K, low-energies, by partial-wave dispersion relations 2=12093
 N-K⁺, low energy, analysis using Rodberg-Thaler phase shifts 2=12002
 N-N, coupling constants 2=13850
 N-N, hard core, transition operator 3=22118
 N-N, interpolation problem 2=21789
 N-N, phase shifts 3=17263
 N-N scatt. amplitudes, multiperipheral model 3=19556
 N-N, velocity dependent interactions, 100-300 MeV 2=13789
 N-O scatt. dispersion rel., Lee model with dipole ghost 3=10038
 N-p, Dirac monopoles prodn. cross-section 3=14861
 N- π , effect of π prod. 4=938
 N- π , elastic, Regge-pole 2=11987
 N- π , elastic, second resonance calc. 4=19564
 N- π , empirical systematics 3=22184
 N- π , exchange, threshold singularities 3=2316

Nucleons and antinucleons—contd**scattering—contd**

- N- π forward scatt. amplitude, complex diagram 4=6112
 N- π , higher resonances 2=11986
 N- π , lengths and singularities in complex J-plane 2=20402
 N- π , low-energy 2=22596
 N- π multiplicity, rel. to primary energy, 6 GeV to 10 TeV 4=9189
 N- π , phase-shifts, inner Coulomb corrections 3=15021
 N- π , π - π , algebraic description 4=12040
 N- π resonances, optical model 4=3459
 N- π , s- and p-wave detm. 3=4419
 N- π , square diagram analyticity 3=17185
 N- π , strip approx. and peripheral method 3=2295
 N- π , 3-3 resonance, theoret. interpretation 4=15094
 π , K-mesons, peripheral, charge branching ratios 2=5633
 with π , K, \bar{N} , expt. and theory review above 1 BeV 4=5972
 π , K, N, review above 1 BeV 4=5972
 π -meson, dispersion rel. proof 2=13741
 π -meson-nucleon, collective correlation 1=12069
 π -meson-nucleon, Edwards-Matthews approach 1=4808
 π -meson-nucleon, with multiple meson prod. 1=3200
 π -meson-nucleon, partial-wave scattering eqns. 1=5679
 π -meson-nucleon, $\pi\pi$ interactions 1=5767
 π -meson-nucleon, s-wave amplitudes 1=12106
 π -meson-nucleon, "strip" approximation 1=12107
 π -meson scattering on nucleons 1=13485
 π -mesons, analysis of partial waves 2=7885
 π -mesons, effect of π - π interact. 3=7905
 π -mesons, effect of π - π interaction 3=599
 π -mesons, high-energy, real part 2=20265
 π -mesons, high-energy, real part 3=5961
 π -mesons, low-energy, rel. to π - π resonance 2=13784
 π -mesons, rel. to nucleon-nucleon scatt. theory 2=1682
 π -mesons, ρ^0 - ω^0 ratio, rel. to Γ vector meson 2=9784
 π -mesons, s-wave, dispersion relns. 3=7900
 π -mesons, s-wave, rel. to π - π interactions 2=5723
 π -mesons, spin rotation coeffs. meas. 3=6048
 π -mesons, up to 25 GeV, statist. model 3=7794
 π -N, anomalous eqns., interaction consts. 4=19562
 π -N, backward-angle, Regge treatment 4=16838
 π -N, backwards, effect of nucleon Regge pole 3=19681
 π -N below 500 MeV, analysis. 4=30259
 π -N, bremsstrahlung cross-section, static nucleon calc. 4=16943
 π -N, calc., low energy, and phase shifts by dispersion relations 4=15092
 π -N, consequences of analyticity and unitarity 3=10119
 π -N, counter coincidence system, multichannel 3=16895
 π -N coupling const. from N-N depolarization data 4=16942
 π -N, coupling const. from π -N trajectory 4=19565
 π -N, crossing relns. for helicity amplitudes 4=15023
 π -N, description by fermion Regge poles 4=6113
 π -N, dispersion relation appl. 4=829
 π -N, dispersion theory, errors 4=21893
 π -N, effect of J = 2, T = 0 π - π interaction 4=3458
 π -N, effect of π - π interaction 3=15017
 π -N, effects of biphon resonances ξ and ρ 3=10160
 π -N, effects of ρ -meson, and nucleon form-factors 4=12043
 π -N, elastic, forward dispersion rels. 4=5942
 π -N, elastic, I = $\frac{1}{2}$ s-wave part, model 4=21896
 π -N, elastic rel. to inelastic, using unitarity condition 4=9247
 π -N, up to 500 MeV, Chew-Low theory 3=24776
 π -N, forward ampl., zeros calc. 4=27883
 π -N, forward amplitude, asympt. props. 3=10037
 π -N, forward peak in high-energy limit 4=5965
 π -N, with inelastic contribution 2=16169
 π -N, interpolative phase shift formulae 4=15093
 π -N, low-energy, coupling const. and P-wave phase shift 4=9249
 π -N, low-energy, effect of π - π interact. 4=19563
 π -N, low-energy, $P_{11}^{(++)}$ and S waves 3=24778
 π -N, low-energy phase shifts, inelasticity effects 4=25144
 π -N, low-energy, phase shifts and parameters, determ. 4=27835
 π -N, low energy, in ($\frac{1}{2}$, $\frac{1}{2}$) state, using Khuri represent 4=12042

Nucleons and antinucleons—contd
scattering—contd

- π -N, majorization of Feynman diagram 4=27884
 - π -N, model for nucleon Regge trajectories 4=16944
 - π -N, N/D formalism 4=27813
 - π -N and N-N, diffn. scatt. model 4=3337
 - π -N, non-charge exchange, two vacuum poles 3=12492
 - π -N, in octet model 3=19687
 - π -N, $I = \frac{1}{2}$, $J = \frac{1}{2}$ state 3=2314
 - π -N, one-nucleon exchange, partial waves 4=25147
 - π -N, one-pion exchange and asympt. behaviour 4=19500
 - π -N, p, d and f-wave, peripheral model 4=25143
 - π -N, $P_{1/2}$, $T_{3/2}$ state, N/D calc. 4=25146
 - π -N, partial-wave dispersion relns., variational method 4=12044
 - π -N, π - π interaction 1=13489
 - π -N, π production, model with final-state π - π interaction 4=16932
 - π N phase shift ($J = \frac{1}{2}$, $T = \frac{1}{2}$) and nucleon as Regge pole 3=14969
 - π , N polarization, influence of N^* state 4=894
 - π -N, pseudoscalar symm. theory, Low eqn. 4=9141
 - π -N resonance, $J = \frac{3}{2}$, $I = \frac{3}{2}$ theory 3=12491
 - π -N, S-waves, boundary-condition model 3=19685
 - π -N, second resonance, boundary condition model 4=16945
 - π -N, second and third resonances rel. to cpd. states 3=22182
 - π -N, soft-pion prod. and chirality conserv. 3=22181
 - π -N, theory, and $Y^*(\pi\Lambda)$ reson. 3=17343
 - π -N (3, 3) phase shifts, rel. to N^* Regge pole 4=9251
 - π -N (3, 3) resonance, rel. to composite nucleon model 4=9248
 - π -N, total number of zeros 3=14895
 - π -N, with 2.8 BeV/c pions 2=5726
 - π -N, with 2.8 BeV/C pions 3=4443
 - π -nucleon, Regge poles and J parity 3=7910
 - ρ -N, N/D formalism 4=27813
 - pion-nucleon scattering, higher resonances 1=13484
 - polarization in scattering from light nuclei 1=9850
 - shielding for space applications 1=15582
 - on spin 1 targets, scattering matrix 1=2049
 - C^{12} , high-energy, effect of exclusion principle 2=10092
 - Ca^{40} , high-energy, effect of exclusion principle 2=10092
 - C^{12} , inelastic, at 18.9 MeV, spin-orbit and volume effects 1=11004
 - He^4 , elastic, calc. on nuclear shell model 2=20329
 - He^4 , 0-40 MeV, phase shifts rel. to nuclear forces 4=3498
 - by Li^8 first excited state, impulse approx. 3=15183
 - O^{16} , high energy, effect of exclusion principle 2=10092
- scattering, nucleon-nucleon**
(subheading introduced in 1961)
- amplitude form 3=4419
 - amplitudes, elastic scatt., calc. 4=3350
 - analysis, p-p scatt. at 9'68-98 MeV 1=16771
 - analytic props. of amplitudes in perturbation theory 1=5668
 - antinucleon, theory 4=3350
 - asymptotic behaviour, Regge pole analysis 3=24713
 - Azimov conditions for essential singularity absence 4=11986
 - Born amplitude unitarity corrs. 4=19501
 - bound for high-energy ampl. at $\theta \neq 0$ or π 4=15051
 - calc. with full recoil 3=12452
 - calculation, elastic phase shifts, by dispersion relations, 0-400 MeV 4=21846
 - chain-of-pions range for very high energy 3=22117
 - comparison with scattering by light nuclei 2=436
 - complex phase shifts and peripheral processes 2=5634
 - consequences of analyticity and unitarity 3=10119
 - coupling const. and spectral functions, by conformal mapping 3=22081
 - cross-sections, and polarization effects 4=16837
 - cross-sections, 800-1000 MeV, rel. to isotopic spin 1=16770
 - current experimental information, review, rel. to nuclear forces 2=1757
 - d-N, phase shift ambiguity 3=24736
 - DWBA validity range 3=19829
 - with deuterons, elastic, theory 3=10108
 - diffraction effects calc. using S-matrix unitarity 3=4384
 - dispersion rel., proof to every order of perturb. theory 2=13741
 - dispersion relations 2=13791

Nucleons and antinucleons—contd
scattering, nucleon-nucleon—contd

- dispersion relations, resonances in many-pion system 2=3332
- dispersion relations treatment 1=8455
- dispersion relations, two-pion contrib. to absorptive part of scatt. amplitude 1=3174
- dispersion reln. study rel. to angle 3=10116
- dispersion rels. 0 to 190 MeV, using parameters 2=9836
- dispersion rels., static Coulomb corrections 2=13790
- dispersion rels., two-pion contrib. at 10 MeV 2=16194
- dispersion theory, at large impact parameter 2=7854
- double dispersion rels., rel. to nuclear potentials 2=13942
- elastic ampl. enhancement by inelastic channel 4=25081
- elastic, cross-sects., above 10 GeV, rel. to Pomeranchuk prediction 3=4361
- elastic, high-energy, large-angle cross-section decrease 3=6057
- elastic, high-energy, small angles 2=20604
- elastic, phase-shift analysis near 140 MeV 4=25079
- electrons, high-energy, use of Regge poles theory 3=5987
- energy-momentum transfers, high energy collisions 4=9125
- expansion for high orbital momenta contrib. 1=19181
- final-state interact. 3=19619
- final state interact. corrections 3=12451
- forward dispersion relation, rel. to integral representation of commutators 1=12051
- Fredholm formalism, unified and complete 3=14975
- γ -N, amplitude, and crossing symmetry 2=22470
- high-energy, analyticity in ang. momentum 3=14976
- high-energy creation of other particles in cosmic rays 1=13407
- high-energy, double-max. ang. distrib. interpretation 2=7853
- high-energy, range, single-channel model 3=19620
- high-energy, rel. to Regge poles and isospin indep. 3=2267
- high energy, single-vector, meson exchange processes 2=256
- inelastic, 10^{12} eV, mean free path in C 3=24715
- inelastic, with only one or neither "excited" 3=14972
- inside nucleus, direct collisions, impulse approx. 1=8683
- intermediate mesons, Born amplitudes 2=29332
- rel. to jets, 10^{11} - 10^{15} eV and π -N interact. 3=17364
- longitudinal polarization, calc. 1=19121
- low-energy, double dispersion relations, theory 1=495
- low energy, theory, high waves 1=5717
- low energy, theory, low orbital momentum amplitudes 1=5718
- Mandelstam represent., strip approx. 3=7842
- meson multiplicity at 2800 GeV meas. 4=11983
- meson production at high energy, "two-centre" model 3=6019
- and meson resonances, π , η , ρ , ω , f exchange 4=16885
- and mesons, vector, exchange, 170 MeV 3=17264
- momentum-space integral eqn. sol. 2=3329
- momentum space, one-pion-exchange phase shifts 3=22119
- multiple production of pions, angular distrib. 1=7209
- multiple production of pions, angular distrib. multiplicity, rel. to primary energy, 6 GeV to 10 TeV 4=9189
- NN \rightarrow NN, polarization cross-section 1=16775
- non-local, singlet even parity 3=19557
- nonrelativistic, optical model 4=19505
- non-static effects in $T = 0$ states 1=16773
- in nuclear matter, amplitude, from dispersion relations 1=12143
- in nuclear matter, elastic, inelastic cross-sections, calc. 4=27941
- nucleon-nucleon, high-energy, single virtual-boson exchange interaction model 1=4792
- nucleons within nucleus, rel. to scatt. by nuclei 2=7975
- ω NN coupling const., impulse approx. 3=5948
- >0.8 BeV, cross-sections 1=8492
- one-boson-exchange potentials, phenom. models fit 4=25082
- one-pion exchange and asympt. behaviour 4=19500
- one-pion exchange model at 8.3 GeV 3=10106
- one-pion exchange potential, test, absence of large deviations 1=7217
- one-and-two-pion and vector boson contrib. 4=9190
- P-wave phase shifts, rel. to deuteron photodisintegration 1=2103

Nucleons and antinucleons—contd

scattering, nucleon—nucleon—contd

- partial-wave amplitudes, high ang. momentum, props. 1=19135
- partial-wave dispersion relns., and ρ and ω contribs. 3=10109
- partial waves ($l \geq 2$), numerical results 3=12453
- peripheral. charge branching ratios 2=5633
- perturbation theory, integral representations 2=5579
- phase-shift analysis at 40-310 MeV 3=14877
- phase-shift analysis, 147 MeV 4=3397
- phase-shift analysis, 630 MeV 4=16884
- phase-shift calc. for Gaussian, exponential and Yukawa wells 1=3135
- phase shifts, appl. to high-energy elastic scatt. from light nuclei 1=10885
- phase shifts, charge dependence, 10-300 MeV 4=11987
- phase shifts, energy depend., 23-126 MeV 4=16883
- phase shifts with higher ang. momenta, 1π and 2π exchange contributions 2=18108
- phase shifts, nuclear force studies 2=3453
- phase shifts, spin—orbit interact. 3=581
- phase-space integral calc. for 25 GeV collision 2=7814
- phenomenological parameters and expt. results 1=19188
- π -meson and nucleon prod. at 9 BeV 1=19239
- π -meson and nucleon prod. at 9 BeV 3=4439
- π -meson production, amplitude relations 1=16851
- π parity doublet, coupling const., Chew's approx. 2=7880
- π - π interaction 1=16859
- π prodn., single 3=10146
- π , slow, production 3=17309
- pion exchange theory, rel. to π -N scatt 2=1682
- pion—nucleon resonances, Regge pole theory 3=5952
- pionic form factor effects 2=3331
- polarization cross-section 2=22498
- polarization by spin—orbit forces 3=10107
- polarization, effect of Regge poles 3=5995
- polarizations, for nucleons and antinucleons 4=16948
- polarized targets, usefulness 1=4794
- potential, for phase parameters fits to scatt. data 2=11895
- potential, 2π exchange contribution 2=22497
- primary energy determination, ultra-relativistic, tests 3=17262
- pseudopotential, from boundary condition model reformulation 4=9341
- quasi-elastic nucleon—nucleus at high energy 1=19187
- quasi-elastic peak at 9-25 GeV, one-pion exchange model 1=16774
- radial potential shape, rel. to low-lying nuclear levels 4=27957
- Raphael's analysis, invalidity 1=9752
- realistic model, rel. to $3-\pi$ resonance at 785 MeV 2=1704
- Regge poles and polarization at high energies 2=22496
- Regge poles, pole-residues and trajectories 3=7843
- Regge poles, in scattering amplitudes 3=24714
- relations between relativistic and non relativistic 4=27837
- relativistic corrections and recoil effects, non-static potentials 4=12100
- repulsive core model 4=892
- review, expt. and theory, above 1 BeV 4=5972
- 1S_0 , hard core rel. to shape parameter 2=3330
- S-wave amplitude, singlet, two-parameter approx., from Mandelstam representation 1=7206
- scatt. matrix reconstruction from data, use of polarization transfer tensor 1=4794
- scattering amplitudes, vacuum Regge poles 3=24654
- shape-independent theory, high-energy phase shifts 1=16772
- singlet phase-shift behaviour 2=279
- small-angle, high-energy 1=13417
- soft core model with one-pion-exchange tail 4=30292
- spin correlation coeff. C_{KP} , relativistic formula 1=2050
- spin-orbit interaction 2=7974
- spin-orbit, rel. to vector mesons 4=25077
- spin structure of amplitudes 2=16189
- statistical model, up to 25 GeV 3=7794
- strip approx. at 4 BeV, for inelastic scatt. 4=893
- strip approx. at high energies 3=24712
- tests of form of one-pion exchange potential 1=3138
- theoretical interpretation 4=3350
- theory, review of selected aspects 3=5996

Nucleons and antinucleons—contd

scattering, nucleon—nucleon—contd

- 30-280 MeV, Ball—Chew model recal. 4=25086
- three-nucleon system, with Yamaguchi interaction 4=9313
- total cross-section analysis, systematic 4=19502
- total cross-sections, high energy 2=20331
- triplet-even potential, spin—orbit, parameters 4=27836
- triplet-even potentials, rel. to one-pion exchange 2=13787
- two-meson approximation, with π - π interaction 3=17266
- two-pion exchange interaction, evidence from phase-shift analysis 1=4807
- two-pion exchange potential, spin—orbit interaction 1=9735
- virtual bound state, in eightfold way 4=21766
- wave distortion, rel. to mag. moments 2=20330
- Williams—Weizsäcker method for high energies and no excitation 4=19503
- 10^2 — 10^4 GeV, in cosmic-ray showers 3=6100
- 10 MeV, rel. to π - π resonances, calc. 4=19504
- 25 GeV, elastic, Regge pole hypothesis 4=834
- 142 MeV, phase shifts analysis 3=12454
- 300 BeV, diagram method calc., rel. to experiment 3=12541
- 660 MeV, amplitudes, by superposition model 3=17265

antinucleons

(subheading introduced in 1961)

- annihilation, electron pair obs., due to second π^0 4=25087
- annihilation, heavy meson prod., residual interact. 3=6081
- annihilation $\rightarrow K + \bar{K} + \pi$, transition rates rel. to isospin 1=2048
- annihilation to $\bar{K}K$ or $\bar{Y}Y$, calc. 2=22499
- annihilation, NN , model 1=9750
- annihilation, perturbation theory 3=7844
- annihilation, in π -N scatt. 1=13492
- annihilation, pion emission 2=9837
- annihilation to pions, resonant statistical model 2=13731
- annihilation producing two mesons, unitary symmetry 3=582
- annihilation, resonance model at rest 3=17268
- annihilation, selection rules 2=13792
- annihilation, strange-particle prod. 3=19700
- annihilation, theory 3=4386
- annihilation, "true" π multiplicity 1=19189
- annihilation and vector theory of strong interacts. 4=33398
- annihilation, SU_3 invariance calc. 4=27838
- antinucleons, properties, review 1=16726
- beams, from particle accelerators 1=12083
- Λ -hyperon scatt., dispersion relations 2=13886
- nucleon—antinucleon prod. by photons, calc. 2=16180
- pair production by thermal photons, theory 2=20333, 22500
- Pauli exclusion principle for nucleon—antinucleon system 2=22495
- π prod. in N - \bar{N} interactions, isobaric nucleon model 1=10904
- production in N - N , \bar{N} - N and π - N interactions 4=30222
- NN collisions, $\bar{\Lambda}\bar{\Lambda}$ prodn., interaction potentials 2=9924
- N - \bar{N} collisions, nonrelativistic, optical model 4=19505
- N - \bar{N} interactions, peripheral, annihil. effect 4=6038
- N - \bar{N} potential, suppression of 3π annihil. 4=6036
- N - \bar{N} scatt., 30-280 MeV, Ball—Chew model recal. 4=25086
- N - \bar{N} total cross-section analysis, systematic 4=19502
- $\bar{N}_a + N_b \rightarrow \bar{Y} + Y$, spin correl., rel. to invariances 4=25085

Nucleus

- See also Elements, origin; Hypernuclei; Radioactivity; Scattering, particles.
- actinides, α -particle and fission anisotropy 0=11341
- " α -particle" clusters, data from $(\alpha, 2\alpha)$ meas. 3=17385
- α -scattering studies, review 1=13530
- alignment, paramagnetism without Kramer's degeneracy 0=8032
- analysis by neutron activation, standard γ -ray spectra 1=19417
- analog state, isospin multiplet nature, geom. test 4=27958
- asymmetry, axial 0=13132
- binding energy, B_p and B_n determ. in region $Z = 49 - 54$ 0=17477
- binding energy, calc. 0=20322
- binding energy, correl. with atomic number periodicity 2=7921
- binding energy, given mass number 5=25260
- binding energy, graphical determ. of B_p, B_n 0=17478

Nucleus—contd

binding energy, nuclei in $2s_{1/2}$ and $1d_{3/2}$ shells, low energy-levels calc. 0=13138
 binding energy, smoothness of B_0, B_n graphs 0=17479
 binding energy, from Sr to Ru 1=19612
 binding energy, from Sr to Ru 3=4728
 binding energy tables, $C^{12} = 12$ scale 4=12408
 binding energy, var. mass, 2nd polynomial + periodic fit 4=25259
 binding and pairing energies near $Z=50$ 4=3533
 binding, separation and pairing energies near $N=50$ 4=3532
 charge, determ. in emulsions by δ -electron counting 4=16779
 charge distrib., det. by combined use of e^- and e^+ scatt. 1=8702
 charge distrib., rel. to energy levels of μ -mesic atoms 1=3527
 charge distribution, ellipsoidal, in deformed nuclei 1=6761
 charge distributions of $1p$ shell 0=404
 charge form factor, by e^- and e^+ scatt. 2=5573
 collected papers, Herceg-Noví (1962) 4=27930
 compressibility, expt. and statistic. theory 2=12113
 cosmic ray nuclei, fragmentation parameters 2=9977
 Coulomb field effects in electron interaction with e.m. field 1=19576
 d-s shell, structure of low-lying states 3=6128
 deformation, calc. for $4 < A \leq 40$, exper. data 2=12103
 deformation, rel. to ground and excited states 0=1350
 deformation, non-axial, of medium and heavy even-even nuclei 1=8552
 deformed, closed-shell + one nucleon 2=1780
 deformed, μ -mesic atom form. 4=25267
 deformed nuclei, dipole resonance shape 3=15093
 deformed, photon scatt., cross-section relations, sum rule 1=8692
 density distrib. in drop model 4=25248
 density distrib. in extreme surface region 3=6369
 density distrib., from 0.3-5.0 GeV neutron scattering 1=5918
 dipole and quadrupole polarizability by Hartree perturbation 1=9805
 dynamic polarization 2=22711
 dynamic polarization by thermal contact of spin systems 1=7797
 effective charge, electron scatt. study 3=7971
 $84 \leq A \leq 104$ and $111 \leq A \leq 125$, masses, binding energies 3=10220
 electron scattering form factors 2=20599
 equilibrium shape 4=25266
 excited, in films, quad. interaction rel. to decay meas. 2=7934
 form factors for medium and heavy nuclei 4=21989
 (γ , np) reactions, rel. to nucleon-nucleon correlations, light nuclei 3=19834
 γ -ray scattering, resonant and Rayleigh interference 1=17071
 general properties review 2=20177
 ground state calc., $50 < Z, N < 82$, oblate deformed model around Ba 4=15127
 gyromagnetic factors of odd-mass nuclei ($153 \leq A \leq 187$) 0=17482
 heavy ion scatt., elastic, quasiclassical analysis 4=19828
 heavy nuclei, pairing energies 2=20495
 heavy nuclei, surface texture rel. to α -emission 2=10037
 light nuclei, charge density calc. 3=19754
 light nuclei, momentum distribution 0=15503
 light nuclei, structure, study by (p, 2p) reactions at 155 MeV 2=20625
 mag. field, effective, at nuclei in Co-Fe, Co-Ni alloys, from low-temp. heat capacity 0=517
 mag. field at nucleus, contrib. of Fermi contact term 1=6269
 mass excess, particle binding energies, tables 1=9804
 mass, nucleon separation and pairing energy for 200 nuclei Sm to Rn 0=17673
 mass of rare light nuclei, Baz' formula confirmed 2=12117
 mass, semi-empirical formula for diffuse nuclear surface 4=27943
 mass table (1961) 2=9990
 masses up to $A = 70$ 0=9509

Nucleus—contd

masses of light nuclei, review of measurements 0=20321
 masses, review and tabulation 3=10221
 microwave spectra of gases, analysis review 2=20785
 models for investigation of nuclear forces 0=13099
 moment of inertia, calc. by forced rotation method 4=12114
 moment of inertia, correlation with deformation 1=8550
 moment of inertia, cranking model formula, modification 1=2157
 moment of inertia, deformation dependence 1=8553
 moment of inertia of deformed nuclei, pair correlation effects 1=7313
 moment of inertia, with nucleon pairing 1=16966
 moment of inertia, rel. to shell model 4=6199
 moment of inertia, pairing correlation effects 1=2158
 moments of inertia 0=9505
 moments of inertia, calc. 2=12118
 moments of inertia, effect of internal motion 0=15509
 moments of inertia, from effective two-body interaction 0=20310
 moments of inertia, even-even rare earth nuclei from superconductor model 0=9504
 moments of inertia, Inglis and Bohr-Leeuwen models 0=15510
 moments of inertia, $K = 0$ rot. bands of odd nuclei 3=10243
 moments of inertia of large systems, theory 2=12114
 moments of inertia, non-axial, rel. to rotat. energies 0=17476
 moments of inertia of odd nuclei, calc. 1=8551
 moments of inertia rel. to superfluid phase collective excitations 3=10222
 Mössbauer effect explained by Debye theory 1=17394
 Mössbauer effect, review of Russian work 2=9998
 neutron binding energy in 53 nuclei of mass 81-209 4=25261
 and neutrons, historical review 0=20144-5
 nonaxial nuclei, moments of inertia and rotational energy 0=13119
 nonmirror, isobaric states rel. to (p, n) spectra 2=13840
 nuclear dynamic polarization, thermodynamics 4=24096
 nuclear pair correl. function and momentum distrib. meas. 3=7964
 nuclear structure conference 1=2153
 nucleon pair production, pairing energies 0=9513
 nuclidic masses, relative 2=9989
 odd-A deformed, study with (d, p) reaction 4=3582
 odd-A nuclei ($151 \leq A \leq 191$), moments of inertia 3=2380
 optical anisotropy investigation method 3=15087
 optical potential 3=4611
 orientation 0=7442
 orientation, dynamic, by forbidden transitions in paramag. resonance 0=5654-5
 orientation, prod. at low temps. 0=10857
 orientation, in radiative K-capture 0=1390
 orientation, by superconducting Nb magnet 0=11299
 orientation, techniques and factors, review 2=12179
 oriented, optical anisotropy parameters 0=20482
 p and n separation energies and β -decay energies, corrected tables 1=16964
 pairing correlations, wave functions, simplified, and moments of inertia 4=21987
 polarizability, effect on isotope and isomer shifts 2=20496
 polarizability, rel. to γ -ray scattering 3=15170
 polarization from α -ray inelast. scattering 4=28061
 polarization by capture of polarized μ^- in K shells 0=1490
 polarization, dynamic, Lorentz field meas. method 3=2365
 polarization following π photoprod. 4=6317
 polarization, following π photoproduction 4=12119
 polarization, by forbidden paramag. and by double resonances 0=13116
 polarization, rel. to low-energy elastic scatt. 2=3538
 polarization, low-temp., dynamic 4=27945
 polarization, in magnetic field and gyromagnetic effects 2=23629
 polarization in μ -mesic deuterium 0=17485
 polarization by rotation of paramag. crystal 3=14432
 polarization in solids, effect of ESR structure 1=1272
 polarization, in transverse Stern-Gerlach expt. 2=6112
 radii of mirror nuclei 0=5648
 radii of mirror nuclei ($2Z = A \pm 1$), $A = 19$ to 39 0=7505
 radii, from neutron and electron scatt. 0=11306
 radius, $A^{1/3}$ law failure for $Cu^{63,66}$ proton scatt. 1=12196

Nucleus—contd

radioactive, atomic beam m. r. apparatus for moments 4=30297
 radioactive nuclei, determ. of props. using atomic beams 0=472
 rare earth nuclei, even-even, moments of inertia 0=1354, 9504
 recoil nuclei, by μ -meson capture, ang. distrib. 4=19804
 rotation, Hartree-Fock theory 1=3379
 rotational g-factors for several nuclei 1=2163
 Rutherford scattering apparatus 1=7401
 scattering of α -particles, He^3 and heavy ions, model 4=22084
 scattering, nucleus-nucleus, elastic long-range interaction 4=19830
 size, effect on β -spectrum, Fermi theory 0=11349
 size and shape, calc. 0=20322
 spherical shape deviations, from proton scattering expts. 0=7545
 spin- $\frac{1}{2}$ particle scatt., elastic, strong-absorpt. model 4=22083
 spin- $\frac{1}{2}$ particles scatt., elastic, strong absorpt. model, polarization 4=19741
 spin-orbit potential, in correlated heavy nuclei, many-particle theory 1=4819
 structure, conference 2=1751
 structure, by fast nucleon-nucleus reactions 2=1871
 structure, and internal conversion coeffs., review 4=12132
 structure, in lead region, stripping-reaction studies 2=18354
 structure, Nobel prize lecture 2=18224
 structure, from stripping reactions 0=20454
 structure, temporary, in heavy ion primary interactions 2=504
 surface, rel. to O^{16} - O^{16} scatt. 2=5973
 surface parameters, "thickness" det. by elastic scatt. of light nuclei 1=8545
 surface study by heavy-ion elastic scatt. 2=3621
 "temperature", from (n,p) reactions in 10 nuclides 0=15600
 transuranic elements, superfluid model, properties 1=16953
 vibrations, rel. to equilibrium configuration props., closed shell nuclei 4=17019
 virtual binding and resonance scattering 0=17568
 Ac^{224-6} , prod. by Ne^{22} irradi. of Th^{232} 3=24983
 Ac^{231} , identification, production, data 1=637
 Al^{27} polarization, after capture of polarized neutrons 1=5923
 Al^{27} - Mg^{24} mass difference 3=24836
 Al^{27} - Mg^{24} mass difference, precision detm. 3=10219
 Am^{241} , h.f.s. coupling consts. 0=20329
 Ar^{36} , mass 3=8131
 Au, charge distrib., calc., from e^- and e^+ elastic scatt. 1=8702
 Au isotopes, masses and binding energies 0=9510
 Au, polarization in magnetized Au-Fe alloys 0=9520
 Au, size, from electron scattering 0=17613
 Au^{198} , dissolved in Fe or Ni, local magnetic field, sign 2=4219
 Au^{197} - O^{16} scattering, optical 4=22196
 B^9 ground width upper limit from $\text{Be}^9(\text{p},\text{n})\text{B}^9$ near threshold 4=19637
 B^{11} , range-energy relation, in emulsions 1=12225
 B^{12} , polarization, after prod. by (d,p) reaction 0=1360
 BCS type theory extension 4=8109
 Ba, charge radius, mesic atom data 3=8218
 $\text{Ba}^{131\text{m}}$, new isomer 3=8000
 Ba^{136} , large deformations, anisotropic oscillator model, various props. 4=19636
 Be, nucleon momenta 0=5742
 Be^7 , prod. in NRX reactor, by (p, α), (p,n), (d,n) reactions 0=20438
 Be^8 , detection in ground state 3=22269
 Be^8 , prod. due to interaction of Be^9 with Ag and Br 3=24981
 Be^9 , charge distrib., quadrupole term required by electron scatt. data 1=13626
 Bi isotopes, neutron separation energies 4=19636
 Bi, size, from electron scattering 0=17613
 Bi^{210} ground state wave function. 4=30300
 Bi^{210} , pair correlations 1=19326
 C, lifetime of knock-on α -particles 1=17106

Nucleus—contd

C, nucleon momenta 0=5742
 C^{10} , mass excess 2=3570
 C^{12} , α -clustering, evidence from α -scatt. at 915 MeV 1=12222
 C^{12} , neutron kinetic energy in, from $\text{C}^{12}(\text{p},\text{pn})$ 3=670
 C^{12} , nucleon momentum distrib. 3=624
 C^{12} , polarization following ($\alpha, \alpha'\gamma$) 4=28062
 C^{12} , proton momentum distrib. 2=1893
 C^{12} scatt. by other nuclei 2=5971
 C^{12} - C^{12} , 127 MeV, elastic and inelastic scattering 4=22198
 C^{12} - Li^7 , elastic scattering 4=22197
 C^{13} , coupling strength between positive-parity nucleon and C^{12} core 1=8585
 C^{13} , range-energy relation, in emulsions 1=12225
 Ca, charge distrib., calc., from e^- and e^+ elastic scatt. 1=8702
 Ca^{40} , binding energies, 3 least-bound protons 2=22802
 Cd, polarization effects, isotope studies 3=25049
 Ce^{139} alignment 1=16979
 Ce^{140} , large deformations, anisotropic oscillator model, various props. 4=19636
 Ce^{141} alignment 1=16979
 Co^{55} , polarization, γ -ray studies 0=11307
 $\text{Co}^{55,58}$, g-values from γ -ray ang. distrib. 0=11307
 Co^{57} , polarization in Fe metal at low temp. 1=8877
 $\text{Co}^{58,60}$, nuclear alignment 0=9598
 Co^{59} , ground states, sphericity 2=1756
 Co^{60} , dynamic orientation in a crystal, γ -ray anisotropy 0=5655
 Co^{60} , orientation in Nb supercond. magnet. 0=11299
 Co^{60} , polarization, in ferromagnets, γ -ray anisotropy 0=9521
 Cr^{51} , polarization in Cr-Fe alloys 0=13115
 Cr^{54} , distortion 2=1756
 Cu, nucleon momenta 0=5742
 Cu^{59} , total radiation widths, distrib. 0=437
 D, binding energy 1=552
 Dy^{164} , pairing energy of last neutron pair 0=20323
 Er^{158} , observation 2=12152
 Er^{168} , deformation, in ground and γ -vibrational states 1=13728
 $\text{Eu}^{145,146}$, mass assignment 0=1381
 F^{17} , accurate mass and mass excess 0=20460
 F^{19} , polarization, after capture of polarized neutrons 1=5923
 Fe^{54} , ground states, sphericity 2=1756
 Fe^{56-8} , distortion 2=1756
 $\text{Fe}^{56,6}$, prolate deformations 2=1886
 Fe^{57} , Mössbauer effect, expts., principle of equivalence 0=7467
 Fe^{57} , resonant γ -ray absorption 0=3947-8
 Fe^{59} , polarization, in ferromagnets, γ -ray anisotropy 0=9521
 $\text{Gd}^{145,146}$, mass assignment 0=1381
 Gd^{156-8} , moments of inertia 2=5783
 Gd^{158} , pairing energy of last neutron pair 0=20323
 H^3 , binding energy, effect of hard core 0=17433
 H^3 , binding energy, variational calc. 1=2104
 H^5 , search 3=2330
 H^8 , search in thermal-neutron fission of U^{235} 4=19852
 He, electric field, shielding factor by Hartree perturbation 1=9805
 He^3 , alignment in solid He 0=8884
 He^3 , binding energy, effect of hard core 0=17433
 He^3 , Coulomb energy calc., symmetry importance 3=17358
 He^3 , Coulomb energy, charge distrib. of nucleon 3=613
 He^3 , elastic scatt. by V, Ni, Cu, Rh, Sn^{118} , Sm, Yb and Pb at 20 MeV 4=22183
 He^3 , electromagnetic processes, effect of nucleon spin-orbit interaction 1=19180
 He^3 , form factors, by electron scatt. 3=17357
 He^3 , polarization in μ -mesic atoms 1=12270
 He^3 , scatt. by α -particles, resonating-group structure 3=24811
 He^4 , binding energy, by Irving wave function 2=18240
 He^4 , binding energy, rel. to pion-theoretical potential 0=20311
 He^4 , polarization in μ -mesic atoms 1=12270
 He^4 , structure, rel. to deuteron-deuteron capture 2=9931
 He^5 , binding energy 3=7939
 He^9 , observation from T-shaped hammer tracks of 9 BeV proton react. in emulsion 2=328

Nucleus—contd

- He⁸, observation from T-shaped hammer tracks of 9 BeV
proton react. in emulsion 3=4475
He³-C¹² scatt. at 28.5 MeV 3=8129
He³-S³² elastic scatt. at 28.5 MeV 3=8129
Hf^{178,180}, pairing energy of last neutron pair 0=20323
Hg isotopes, masses and binding energies 0=9510
Hg isotopes, neutron separation energies 4=19638
Hg¹⁹⁷, shape, effect on isomeric shift in atomic
spectra 0=7721
Hg¹⁹⁸ 412 keV E_γ transition, conversion coeff.,
meas. 1=9840
Ho, nuclear contrib. to specific heat, 0.95–4.2° K 1=17424
Ho¹⁶⁵, observation 2=12152
Ho¹⁶⁶, γ-anisotropy 0=9561
Ho¹⁶⁶, resonant gamma-ray absorpt. 1=13632
In, polarization in magnetized In-Fe alloys 0=9520
In¹⁰⁶, production and props. 2=10033
In¹¹⁵, shape, effect on isomeric shift in atomic
spectra 0=7721
In¹²³, production and identification 3=4593
In^{144m}, polarization in In-Fe alloys 0=13115
Ir isotopes, masses and binding energies 0=9510
K⁴³, 22 hr, hyperfine-structure separation 0=1353
K⁴⁷ identification 4=12179
Kr⁸⁶, large deformations, anisotropic oscillator model,
various props. 4=19636
La¹²⁴⁻¹²⁸, identification 3=8040
Li⁶, internuclear attractive potential calc. 2=5775
Li⁶ wave functions 2=13949
Li^{6,7}, evidence for sub-structure deuterons 2=20617
Li^{6,7}, mag. form factors for electron scatt. 2=22798
Li⁷, proton momentum distrib. in individual nuclear
shells 0=17587
Li⁹, polarization, Li⁷(d, p) study 3=24964
Li⁷-Li⁷, elastic scattering 4=22197
Mg²⁴, polarization following (α, α'γ) 4=28062
Mg²⁴⁻⁶, deformation parameter, from deuteron inelastic
scatt. 1=7396
Mn^{52,56}, orientation in CeMg sulphate, γ-ray ang. distrib.
and circ. polarization 0=4076
Mn⁵⁴, polarization in Fe 3=17636
Mn⁵⁵, distortion 2=1756
Mn⁵⁶, alignment in Ni fluosilicate crystal, γ-ray ang.
distrib. 0=9515
N, lifetime of knock-on α-particles 1=17106
N¹⁴, mag. dipole interaction const. 0=20550
N¹⁴, 0.17 MeV state, γ-ray ang. distrib., rel. to shell
model 1=10971
N¹⁴, quadrupole charge distrib., effect on electron scatt.
at 420 MeV 0=5763
N¹⁴, scatt. by other nuclei 2=5971
N¹⁴-Be⁹ elastic scatt., by optical model 4=22201-2
N¹⁴-C¹² elastic scatt., by optical model 4=22201-2
N¹⁴-C¹² elastic scattering, 8 to 20 MeV, centre-of-mass
energy 4=22199
N¹⁴-N¹⁴ elastic scattering, 8 to 20 MeV, centre-of-mass
energy 4=22199
Ne²³, shape of deformation from reduced neutron
widths 0=7460
Ni isotopes, ground states, sphericity 2=1756
Ni isotopes pairing correlations, wave functions,
simplified, and moments of inertia 4=21987
O, lifetime of knock-on α-particles 1=17106
O¹⁴, ground-state spin and parity 1=3460
O¹⁶, binding energy, calc. 0=4016
O¹⁶, binding energy from vel. depend. nuclear
forces 4=25262
O¹⁶, binding energy and radius, calc. 0=9511-12
O¹⁶, scatt. by other nuclei 2=5971
O¹⁶ shell struct., from O¹⁶(p,d)O¹⁵, d spectrum 4=12222
O¹⁶-C¹² elastic scattering, 8 to 20 MeV, centre-of-mass
energy 4=22199
O¹⁶-C¹² elastic scatt., by optical model 4=22201-2
O¹⁶-C¹² scattering, elastic and inelastic, 168 MeV 4=25439
O¹⁶-C¹² scattering, 168 MeV 4=22200
O¹⁷, mag. dipole interaction const. 0=20550
Os isotopes, masses and binding energies 0=9510
Os¹⁹³, resonant gamma-ray absorpt. 1=13632
Pb isotopes, neutron separation energies 4=19638
Pb-region structure studies, by stripping regions 2=18354
Pb²⁰⁸, surface parameters, from O¹⁶ elastic
scatt. 1=8545

Nucleus—contd

- Pb²⁰⁸-C¹², inelastic scattering 4=22204
Pb²⁰⁸-O¹⁶, inelastic scattering 4=22204
Po²¹⁰, α-particle energy 2=22808
Pr¹⁴⁴, configurations for unpaired n-p 2=22741
Pt isotopes, masses and binding energies 0=9510
Pu²⁴⁰, binding energy of last neutron 1=8770
Sb, neutron separation energies of isotopes 3=714
Sb, polarization in magnetized Sb-Fe alloys 0=9520
Sb¹²², polarization in Sb-Fe alloys 0=13115
Sc⁴⁶, ground state Q, from Sc⁴⁵(d,p), with
6.5 MeV d's 4=12145
Sc⁴⁶, polarized in Fe alloy, γ-ray asymmetry, effective
mag. field 0=20787
Si^{30,31}, shapes of deformation from reduced neutron
widths 0=7460
Sn, neutron separation energies of isotopes 3=714
Sn¹¹⁹, Mössbauer effects 2=9998
Sn¹¹⁹, in organic Sn cpds., quadrupole interaction and
isomeric shifts 3=15415
Sr isotope shifts, nuclear volume effect
discontinuity 1=9913
Sr stable isotopes and Sr⁹⁰, isotopic shift, discontinuity
in nuclear volume effect 0=9774
Sr⁸³ and Y⁸³ prod. by Zr⁹⁰ + p, at 60-240 MeV,
cross-section ratios 1=9864
Sr⁸⁸, large deformations, anisotropic oscillator
model, various props. 4=19636
Sr⁹⁰, large deformations, anisotropic oscillator model,
various props. 4=19636
T, binding energy, calc. from Brueckner-Gammel
potential, discrepancy from expt. 1=5793
T, polarization in μ-mesic atoms 1=12270
Ta¹⁸¹-O¹⁶, 166 MeV, inelastic scatt. 4=22203
Th¹⁵⁶, orientation in ethyl sulphate lattice 2=7922
Th¹⁵⁸, g-factors, collective and internal motion 1=19341
Th¹⁵⁸, surface parameters, from F¹⁹ elastic
scatt. 1=8545
Th^{158,6,8,130}, double neutron separation energies 3=22336
Th²²⁷, prod. by Ne²² irradi. of Th²³² 3=24983
Th²³², deformation rel. to Th²³², from atomic
spectrum isotope shift 1=4906
Tl isotopes, neutron separation energies 4=19638
Tl²⁰¹, saddle-point mass 4=19848
Tl²⁰⁸, pair correlations 1=19326
Tm¹⁶⁹, structure effects on internal conversion 2=7953
U^{234,238}, binding energy of last neutron 1=8770
U²³⁸, nuclear temp. 3=8104
U²³⁸, small rot. energy, from fission props. 4=6398
U²³⁸, temp. rel. to magic number 126 2=5925
W isotopes, neutron binding energies 2=16376
W, nucleon momenta 0=5742
W^{182,183}, Mössbauer effect 2=8155
W^{182,184,186}, gyromagnetic ratios of 2+ states 2=18244
Y⁸⁸-Sr⁸⁸, mass difference 2=1773
Yb¹⁷³, g-factors, collective and internal motion 1=19341
Yb¹⁷⁴, pairing energy of last neutron pair 0=20323
Zn⁶⁴, deformation 1=17000
Zn⁶⁷, Mössbauer effect 2=9998
Zn⁶⁷, Zeeman effect in recoilless γ-resonance 0=13128
Zr⁹⁰-Sr⁸⁸ mass difference 3=8074

electric moment

- See also Molecules, nuclear coupling.
asymmetric nuclei, dipole, theory 0=7481
atomic shielding factors, theory, review 3=8173
calc., from configuration mixing in jj-coupling shell
model 0=11300
closed-shell ± one nucleon, quadrupole, calc. 2=1780
deformed nuclei, intrinsic quadrupole moments 0=20330
deformed nuclei, with K = 1, 1/2, quadrupole
moments 0=20401
deformed, quadrupole, Hill-Wheeler derivation,
calc. 4=30307
determination methods, from nuclear and e. m.
interactions 4=9358
dipole absorption on γ-quanta, light nuclei 2=10003
dipole, proposed test of existence, using nuclear spin
relaxation 0=5659
dipole-quadrupole coupled oscillations 4=25279
dipole sum rule for photonuclear reactions 0=4110
effect on energy levels of an atom in a uniform
elec. field 1=796
even-even medium-mass, octupole deform. 3=24859

Nucleus—contd

electric moment—contd

even—even, rotational levels, intrinsic quadrupole 4=19661
 gamma-ray absorption, giant dipole resonance 2=3547
 hexadecapole moments induced in ionic closed shells,
 calc., antishielding effects 1=7424
 hexadecapole, second-order quadrupole effect in
 ions 2=18396
 interaction with elec. and mag. fields, level
 splitting 2=3474
 internal conversion and elec. dipole transitions 2=14055
 internuclear potential energy 2=1762
 levels, 2⁺, from second order correction 4=25283
 light nuclei, quadrupole, on generalized model 2=20490
 measurement, rel. to interaction with elec. field 4=6201
 medium nuclei, ground state, collective model 1=13616
 in mesic atoms, induced quadrupole moment 2=6116
 multipole, for diffuse-edge charge distrib. 4=12118
 octupole deformation, rel. to fission mechanism 1=5825
 octupole, effect on neutron scatt. 0=11305
 octupole, vibrations, evidence and theory 0=5660
 odd-mass nuclei with a $j = \frac{3}{2}$ particle coupled to a vibr.
 core 4=6184
 odd nuclei, single closed shell, quadrupole
 moments 0=17458-9
 odd nuclei, single-configuration model 0=11301
 open shell antishielding of hyperfine interact. 3=25038
 quadrupole, antiscreeing consts. calc. 3=19923
 quadrupole, calc. for metals 1=14207
 quadrupole, calc. for weakly deformed nucleus 2=13971
 quadrupole, calculation from h.f.s., intermediate
 coupling 3=2362
 quadrupole coupling integrals, evaluation 0=20331-2
 quadrupole moment, vacuum polarization
 induced 3=22515
 quadrupole moments, $128 \leq A \leq 236$, calc. 1=2161
 quadrupole moments, tables 1=16970
 quadrupole, odd-A nuclei, positive--neg. asymm. 3=15077
 quadrupole perturbations in angular correlations 3=12563
 quadrupole, for polarized nucleus in e.m. field 2=9685
 quadrupole precession, classical discussion 3=12561
 quadrupole shielding, Sternheimer's theory 2=9997
 quadrupole, unified model calc. for 16 nuclei 1=8604
 rare-earth, even, quadrupole deformation theory 2=5778
 rare earth ratios, Mössbauer obs., review 4=19663
 review 0=20324
 shell model, effect of hard-core correlations 0=5658
 static quadrupole, as test of VKV and DF
 models 1=8603
 transuranic, unstable, quadrupole, calc. 3=19752
 Ag¹⁰⁷, hexadecapole moment, antishielding 1=10957
 Ag¹⁰⁷, quadrupole 0=20476
 Am²⁴² (16 hr), quadrupole 2=1778
 Bi¹⁰, quadrupole shielding, Sternheimer's theory 2=9997
 Ba^{135,137} 4=991
 Ba^{135, 137}, quadrupole 1=19345
 Ba, quadrupole, and isotope shifts 3=12562
 Ba^{135,137}, quadrupole, from h.f.s. coupling 4=25496
 Ba^{135,137}, quadrupole moments by double resonance 2=348
 Ba¹³⁷/Ba¹³⁵ ratio, from quadrupole resonance 2=16302
 Be, quadrupole moment calc. 1=14207
 Be⁸, electric quadrupole to magnetic dipole
 ratio 1=635
 Be⁹, α -particle model, effect of α - α dynamics 4=6189
 Be⁸, charge distrib., quadrupole term required by
 electron scatt. data 1=13626
 Be⁹, quadrupole, calc. 3=2437
 Bi, quadrupole, heat capacity contribution, 0.1-2°K 0=9856
 Bi²⁰⁹, quadrupole 0=7457
 Bi²⁰⁹, quadrupole moment 1=2288
 Bi²¹⁰, ground state wave function deduction 4=30300
 Bi²¹⁰ (RaE) 2=3465
 Br⁸² quadrupole 0=1352
 Br⁷⁶, 17 hr, quadrupole 0=13120
 C¹², quadrupole, calc. 3=2437
 C¹², quadrupole 4.43 MeV state 2=16301
 Cd, 247 keV level, quadrupole, from γ -ray
 polariz. 2=12124
 Cd, quadrupole moment calc. 1=14207
 Cd^{107,109} ratio 4=3788
 Cd¹¹¹, quadrupole and hexadecapole moments 0=11301
 Cd¹¹¹, static, quadrupole interaction, rel. to 17%-247 keV
 γ -cascade 4=22034

Nucleus—contd

electric moment—contd

Cd^{115,115m}, (5s5p)³P, state 4=15162
 Cl³⁵, quadrupole shielding, Sternheimer's theory 2=9997
 Co, quadrupole moment calc. 1=14207
 Co⁵⁹ 3=6221
 Co⁵⁹, from h.f.s. of atomic spectrum 1=7437
 Co⁵⁹, quadrupole 0=13121
 Cr⁵³ 4=6226
 Cr⁵³, quadrupole moment 1=11490
 Cu⁺, hexadecapole moment, antishielding 1=10957
 Cu^{63,65}, quadrupole, from h.p.s. of 3d⁴4s²m²D-3d¹⁰
 4p²P transition 1=9802-3
 D, quadrupole, calc. 1=5790
 D, quadrupole, calc. using James-Coolidge 11-term
 wave-function 0=13071
 Dy^{166,168}, internal quadrupole 3=15282
 Dy¹⁶⁰, quadrupole 3=19790
 Em, even nuclei 2=18256
 Er¹⁶⁶, 81 keV state 4=17333
 Er¹⁶⁶, first excited state, quadrupole 2=13986
 Er¹⁶⁸, quadrupole 0=11303
 Er¹⁷¹, hyperfine const. atomic beam obs. 4=27944
 Eu^{151,153}, quadrupole, from Eu II h.f.s. 1=4903
 Eu¹⁵⁴, quadrupole 3=3173
 F, 2nd. energy level meas., use of ClF p scatt.
 target 4=25297
 F¹⁹, second excited state 4=17039
 Fe⁵⁷, excited state, quadrupole 3=25038
 Fe⁵⁷, 14.4 keV level, from He⁺ scatt. γ spectra 4=25307
 Fe⁵⁷, 14.4 keV level, Mossbauer meas. 4=15157
 Fe⁵⁷, 14.4 keV state, quadrupole 2=12123
 Fe⁵⁷, quadrupole, of first excited state 3=2567
 Fe⁵⁷, quadrupole, 14.4 keV 3=6142
 Fe⁵⁷, quadrupole moment 2=3468
 Fe⁵⁷, quadrupole moment of excited state 4=12587
 Fe⁵⁷, quadrupole moment of first excited state 1=13623
 Fe^{57m} 1=795
 Fe^{57m}, from Mossbauer effect in Fe₂O₃ 4=15158
 Fe^{57m}, quadrupole 0=15514
 Fe^{57m}, quadrupole 1=16971
 Fe^{57m}, quadrupole 3=12772
 Fe^{57m}, quadrupole 4=9808
 Ga⁶⁸ 2=18418
 Ga^{69,71}, quadrupole shielding, Sternheimer's theory 2=9997
 Ga⁷², 14 hr, quadrupole 1=593
 Gd¹⁵⁵ 2=16298
 Gd^{155,157}, quadrupole 0=13123, 13420
 Gd¹⁵⁷ 2=16298
 He³ 4=6201
 Hf¹⁸⁰, 501 keV γ -transition 1=19410
 Hf¹⁸¹, quadrupole 4=6684
 Hg⁺⁺, hexadecapole moment, antishielding 1=10957
 Hg^{194,195,195m}, quadrupole 3=17529
 Hg^{197*} 1=17259
 Hg²⁰³, quadrupole constant, h.f.s. meas. 4=15133
 Ho⁶⁵, from h.f.s. of Ho atom 4=17003
 Ho¹⁶⁵, quadrupole 3=2362
 Ho¹⁶⁵, quadrupole 3=10329
 I¹²⁹, 26.8 keV, from Mössbauer effect in KIO₃,
 NH₄IO₃ 3=19786
 I¹³¹, quadrupole, by atomic beam method 0=17484
 In, quadrupole moment calc. 1=14207
 In¹¹¹, quadrupole interaction of excited states 2=12138
 K⁴⁰, quadrupole 0=11304
 K⁴⁰, quadrupole, from KI h.f.s. 2=9996
 Kr³⁸, quadrupole moment 1=13927
 Kr⁸³, quadrupole 2=1957
 La, quadrupole, in atomic spectral h.f.s. 2=3701
 La, quadrupole moment calc. 1=14207
 Li⁶, calc. from three-body model 2=9986
 Li⁶, quadrupole, meas. 4=9360
 Li⁷, quadrupole 3=25099
 Li⁷, quadrupole moment 1=12150
 Li⁷, quadrupole, rel. to (1p)³ config. 3=24840
 Li⁷ in LiNO₃ 1=20280
 Lu¹⁷⁵, quadrupole 2=9993
 Lu¹⁷⁶ 2=9992
 Lu¹⁷⁷, quadrupole 2=9994
 Mg, quadrupole moment calc. 1=14207
 Mg²⁵, quadrupole 2=14189
 Mn⁵⁵ 3=12564
 Mn⁵⁵, from e.s.r. of (MnO₄)³⁻ 0=21070

Nucleus—contd

electric moment—contd

- N, quadrupole, from NO microwave spectra 0=13443
 N^{14} , in ND_3 and NH_3 1=17356
 N^{14} , quadrupole 0=2617-18, 20333
 N^{14} , quadrupole, rel. to electron scatt. at 420 MeV 0=5763
 Na^{23} , dipole 4=22314
 Na^{23} , quadrupole 0=7701, 20552
 $Nd^{143,145}$, quadrupole, by atomic beam magnetic resonance 3=4709
 Ne^{20} 3=6165
 Ne^{20} , dipole-quadrupole mixing 2=3623
 Np^{237} , quadrupole, sign 0=403
 O^{16} , dipole, giant resonance excitation 2=432
 O^{17} , quadrupole, calc. 0=20550
 Os^{184} , quadrupole 2=16482
 $Os^{188,190,192}$, first excited 2^+ states 4=25322
 Os^{190} in metallic environment, electric field gradient 4=1352
 Pa^{233} , from h.f.s. in atomic spectra 1=7434
 Pb , mesic atoms, induced quadrupole moment 2=6116
 $Pm^{143,148,149}$ 3=12906
 Pm^{147} 1=5971
 $Pm^{147,151}$, quadrupole, from atomic h.f.s. 4=989
 $Po^{205,207}$, from atomic h.f.s. 2=523
 Pr^{141} , quadrupole 3=2362
 Pr^{142} 2=12295
 Pu , even nuclei 2=18256
 Ra , even nuclei 2=18256
 Rb^{87} , quadrupole 4=6203
 Re , quadrupole moment calc. 1=14207
 S^{32} , transition to second excited state 2=380
 $Sb^{121,123}$, quadrupole 2=3467
 $Sb^{121,123}$, quadrupole moments 1=2294
 Sb^{122} 1=3388
 Sc , quadrupole moment calc. 1=14207
 $Sc^{44,44m}$, quadrupole 4=988
 Sc^{45} , quadrupole 0=401
 Sc^{46} , quadrupole 3=2361
 Sn^{119} , first excited state 2=5790
 Sn^{119} , ground and first, from isomer shift 4=19693
 Sn^{119} , quadrupole interaction h.f.s. of 23.8 keV state 0=20788
 Sr^{87} , quadrupole, from atomic spectrum 2=18243
 Sr^{87} , quadrupole, from h.f. s. of $Sr\ I$ 3=24842
 Ta^{181} , $d_{5/2}$, quadrupole coupling in $(NH_4)_2Hf^{181}F_6$, $Hf^{181}OCl_2$, $8H_2O$ 4=6690
 Ta^{181} , quadrupole 3=10329
 Ta^{181} , quadrupole, in Hf crystals, by γ - γ correl., 0-48 MeV level 3=6454
 Tb^{156} , quadrupole 2=7922
 Te^{126} , 35 keV level, quadrupole, from γ -ray splitting 3=19785
 Th , even nuclei 2=18256
 Th^{229} , quadrupole, from spectral h. f. s. 4=28139
 Tm^{166} , 8.42 keV level, quadrupole 3=24841
 Tm^{169} , 8.4 KeV state 4=12600
 Tm^{168} , 8.42 keV state, quadrupole 3=8006
 Tm^{170} , quadrupole 0=20328
 Tm^{171} , hyperfine const. atomic beam obs. 4=27944
 $Tn^{220}[Rn^{220}]$, quadrupole 0=9554
 U , even nuclei 2=18256
 V^{50} , quadrupole 4=25263
 V^{51} 3=6221
 V^{51} , from n.m.r. dispersion in V_2O_5 4=25264
 V^{51} , and three-particle model 3=19778
 Xe^{129*}/Xe^{131} from Mössbauer effect in XeF_4 4=27974
 Xe^{131} , quadrupole and octupole, h.f.s. anomaly 1=11065
 Y^{90} (64 hr) 2=3462
 Y^{91} , quadrupole 3=2361
 Yb^{170} , quadrupole 2=14005
 Yb^{173} 4=19639
 Yb^{173} , quadrupole 3=2364
 Zn , quadrupole moment calc. 1=14207
 Zn^{67} , quadrupole 2=14189

energy levels

See also Radioactivity, decay schemes.

- A = 50, near, subshell effect in neutron spectra 2=10116
 A=14 isobaric spin triplet charge dependence 4=6175
 A = 14 triplet, energy separation 4=19630
 A = 152-197, γ -energies, precision det. 3=8004
 A=6, from free nucleon-nucleon interaction, calc. 3=12579

Nucleus—contd

energy levels—contd

- absolute precision measurements 0=20345
 actinide isotopes, collective γ -vibs. 3=17396
 α -emitters, level widths 0=11343
 α widths, reduced calc., in α particle model 4=3552
 analog, isospin multiplet nature, geom. test 4=27958
 angular correlations, α - γ , measurement 3=24882
 axially asymmetric nuclei, perturbation theory 0=13132
 β -emitters, total disintegration energy and shell models 0=15507
 β - and γ -vibrational levels in non-spherical nuclei 1=19360
 β -, γ -vibrational levels, non-spherical nuclei 2=13977
 β -vibration, spurious K = 0 state 4=9380
 β -vibrational bands, moments of inertia 4=999
 Bohr-Sommerfeld nucleus 2=18228
 bound highly-excited levels meas. with neutron-capture γ -rays 4=9386
 χ - γ decay, spin relaxation in ang. correlations 4=19655
 calculation method, application to anharmonic oscillator 1=9811
 calculation, from π -N interaction in shell model 1=13601
 "centre of gravity" theorem in second order 3=2376
 cluster structures in light- and medium-weight nuclei 1=3378
 collective effects, microscopic description 1=8592
 collective excitation, spherical even nuclei, anharmonic corrections 3=6155
 collective M1 transitions in even nuclei, non-existence 4=17012
 collective motion in even-even spherical nuclei 1=8606
 collective, non-spherical nuclei 2=13977
 collective oscillations, theory 2=1792
 collective and single particle levels, investigation techniques 2=1791
 collective states excit. using extended optical model 4=6303
 collective states, excit. by nucleon scatt. 0=9616
 collective, vibrational, spheroidal even nuclei 3=17396
 compound nucleus, average level width 4=3035
 compound nucleus, pairing energy effects 2=1081
 compound-nucleus, statistical fluctuations 3=24855
 consecutive electromagnetic transitions, external field effects 4=3773
 core excitations in nondeformed, odd-A nuclei 1=8616
 core + nucleon type, single-particle level shifts, N pair addition 2=360, 22724
 Coulomb energy differences A = 1-54 0=17486
 Coulomb excitation and nuclear resonance effects 2=12130
 Coulomb excitation of vibrational nuclei 1=13645
 coupling schemes with S-state interactions 1=8586
 data for 40 nuclei 2=355
 deep hole excitation states, shell single-particle model 3=17449
 definite excitation energies, appearance in different nuclei 0=7471
 deformation, non-axial, of even-even nuclei 1=10963
 deformed, E2, M1, transition prob., Hill-Wheeler integral calc. 4=30307
 deformed, equilibrium shape, phenomenological discussion 4=9376
 deformed even-even, corrections and transition probabilities 3=15094
 deformed even-even, Davydov theory, comparison with axisymm. top with vibr. -rot. interaction 4=6198
 deformed even nuclei, coupling of K = 2 and rot. bands 2=1787
 deformed even nuclei, perturb. corrections to collective states energies 3=6154
 deformed even nuclei, rotation-vibration modes 2=22723
 deformed light nuclei 0=1350
 deformed nuclei without axial symmetry, collective model 1=13647
 deformed nuclei, effect of pairing correlation 2=5793
 deformed nuclei, ground state properties 0=9506
 deformed nuclei, particle states 1=8593
 deformed nuclei, Peierls-Yoccoz theory 4=21997
 deformed nuclei, spectral line isotopic shift 2=13978
 deformed nuclei, spectral line isotopic shift 3=6159

Nucleus—contd

energy levels—contd

deformed nuclei, spin-orbit interaction 4=9378
 deformed nuclei, spin-orbit splitting 2=20537
 delayed coincidence meas., statistical errors 0=7258
 densities, effect of pairing correl., Fermi gas model 4=12127
 densities, rel. to nuclear well diffuseness 3=24834
 density, excitation energy var. 4=25274
 density formulae comparison 4=19793
 determination, using (n,2n) reactions 1=4834
 dipole excitations on superfluid model 2=16308
 dipole excitations on superfluid model 3=6157
 dipole state, production by particle-hole interaction 1=3381
 double quantum emission 0=17550
 doublet splitting in 1p shell due to tensor interaction 2=3475
 doublet splittings, use to det. two-nucleon interaction 1=7308
 doublet splittings, shell-model calc. 3=22258
 EO transitions, collective, rel. to nuc. shape 3=24843
 E1 overtones and quasi-deuteron effects 2=20506
 E1 transitions, odd nuclei, rare-earth region 4=30308
 E2-M1 mixing ratios $2^+ \rightarrow 2^+$ transitions, even nuclei 3=15096
 E2 transitions in β^- and γ^- vibrational bands of even-even nuclei 3=15097
 E2 transitions in deformed even nuclei bet. β and γ -vib. states 3=2375
 in 82-neutron region, stripping study 3=2390
 elec. moment, 2^+ states, from second order correction 4=25283
 electric dipole giant resonance energy 2=12107
 electromagnetic transitions 0=4027
 electromagnetic transitions, deformed odd-odd nuclei 3=6150
 electromagnetic transitions in isomeric nuclei 1=633
 electromagnetic transitions of multipole order $L=|J_i - J_f| + 1$ 3=7983
 electron scatt., electron-proton pairs data 2=10089
 electron scatt. obs., review 4=25273
 energy gap mechanism, finite versus infinite nuclei 4=30294
 energy surface spacing 2=3477
 energy surface spacing 3=4562
 even, deformed, $2^+ \rightarrow 0^+$ transitions, internal conversion studies 4=9382
 even-even, classification by mass number times energy 4=17009
 even-even deformed nuclei, rotational 0=17490
 even-even, lowest states 4=25275
 even-even medium nuclei, 2nd excited state, 2^+ , 4^+ doublet 1=12151
 even-even medium-weight nuclei, second 2^+ states, Coulomb excitation 1=609
 even-even, $\text{Ne}^{20}\text{-S}^2$, spins, from γ ang. correl. on p scatt. 3=24852
 even-even, nonspherical, Bogolyubov method, accuracy 3=2377
 even-even nuclei, all shown to have rotational levels 1=8605
 even-even nuclei, collective levels, excitation 4=19660
 even-even nuclei, deformed, rotational levels, calc. 1=8607
 even-even nuclei, different rotational states, from odd-odd nuclei 0=9578
 even-even nuclei, energy and e.m. transitions calc. 2=5796
 even-even nuclei, energy ratio of first and second levels 1=8614
 even-even nuclei, excitation energy of first 2^+ level 1=13642
 even-even nuclei, excited levels in intermediate regions 0=9527
 even-even nuclei, first excited state calc. 1=7318
 even-even nuclei, first excited states, survey 1=13640
 even-even nuclei, first 2^+ states, elec. quadrupole transition probabilities 2=20503
 even-even nuclei, 5^- levels 3=22283
 even-even nuclei, $J = 0 - 2$ splittings, using Signell-Marshak potential 1=13637
 even-even nuclei, low-lying levels, study using (d,p) (d,t) reactions 0=13140
 even-even nuclei, low-lying odd-parity states, theory 0=15516

Nucleus—contd

energy levels—contd

even-even nuclei, non-axial rotator model, possible test 1=19355
 even-even nuclei, $152 \leq A \leq 186$, rotational levels, multiple Coulomb excitation 4=22003
 even-even nuclei, second 2^+ levels 2=13979
 even-even nuclei, theory, review 3=10204
 even-even nuclei, two-phonon 0^+ , 2^+ , 4^+ triplet 2=1791
 even-even nuclei, unified model calc. 2=1784
 even-even nuclei, VKV and DF models, critical tests proposed 1=8603
 even-even nuclei, vibrational levels 1=9810
 even-even, second 2^+ levels 3=6160
 even-even spherical nuclei, anomalous vibrational spectra 3=2370
 even-even spherical nuclei, collective motion 1=9801
 even-even spherical nuclei, nature of first excited states 1=19356
 even-even spherical nuclei, nature of first 2^+ level 1=8596
 even-even, strongly deformed, quadrupole states, energy 4=25276
 even-even, strongly deformed, octupole collective states with $I\pi K = 1-0$ 4=12125
 even-even, $2^- - 2$ transition, M1-E2 mixing ratios, rel. to vibrational states purity 4=3555
 even-even, $228 \leq A \leq 254$, octupole collective states, energies 4=1030
 even-even, vibr., Raz model verif. 4=25278
 even-mass, deformed, octupole vibrations 4=9381
 even-mass, first rotational level, γ -ray correl. function 4=9383
 even-mass nuclei, deformed, two-quasi-particle states 2=18248
 even-mass nuclei, $82 < N < 92$, up to 2 MeV 3=24853
 even nuclei, all shown to have rotational levels 1=9812
 even nuclei, asymmetric quadrupole rotor predictions 0=11320
 even nuclei, β -vibrations 4=9379
 even nuclei, deformed, vib. E1, E2, E3 transitions 3=10241
 even nuclei, double Coulomb excitation 3=12577
 even nuclei, first excited state, empirical rule explained for B(E2) 1=8553
 even nuclei, first 2^+ levels, interpretation 1=612
 even nuclei, mag. dipole transitions 3=7981
 even nuclei, non-axial, rotation-vibration interaction 1=8615
 even nuclei, odd parity states, model 2=18231
 even nuclei, $150 < A < 190$, first excited 2^+ states, half-lives 3=8003
 even nuclei without symmetry axis 0=4029
 even nuclei with vibration-rotation interaction 1=13644
 even and odd systems, level spectra, on "superfluid nuclear model" 3=10207
 excited levels of 0^+ report 2=375
 excited nuclei, shell structure effect on level spacing 1=7317
 $f_{7/2}$ nuclei, configuration interact. 3=15092
 $f_{7/2}$ particle, weakly coupled vibrations 4=15128
 $f_{7/2}$ shell, neglecting configuration mixing and Ca^{40} core distortion 4=6209
 Fermi-Thomas-type approx., from Hartree-Fock eqns. 1=9800
 first excited states, delayed coincidence lifetime meas., analysis 3=2384
 first intrinsic excited states, calc., theory of energy gap 1=610
 g-factors, meas. by reactions due to H_2^+ and He^+ beams 3=24837
 γ -transitions, intensity meas. by ext. conversion 4=17017
 γ -vibrational bands, moments of inertia 4=999
 general properties review 2=20177
 generalized density of states function, significance 1=8589
 gross structure studies, interpretation, comment 2=1790
 ground state, after (p,n) reactions, isomer formation threshold to 20 MeV 4=1072

Nucleus—contd

energy levels—contd

- ground state, variational method with 2 particle correl. 0=399
- ground states, theory 1=3391
- h.f.s. of odd-A nuclei, rel. to distributed magnetization 1=12152
- + $1/2$ -shell, even-parity-hole states 4=30310
- harmonic oscillator wave-functions in nuclear spectroscopy 0=4025
- Hartree-Fock method, application to nuclear calc. 4=9368
- heavy elements, level-nuc. surf. energy mean distance 4=11118
- heavy nuclei, from deuteron inelastic scatt. 1=11030
- heavy nuclei, effect of isobaric spin purity on nuclear potentials 3=10223
- heavy nuclei, large clusters, evidence from level structure 1=16955
- heavy nuclei level spacings, neutron spectroscopy 1=13652
- heavy nuclei, surfaces, intersection, rel. to α -transition 3=10235
- high isomeric states, from residual np interaction 4=19666
- high-spin rot., and models 4=17011
- highly excited nuclei, collective motion 2=1786
- Hofstadter potential distrib. 3=24851
- hyperfine structure, μ -mesic atoms 3=10208
- individual-particle states 3=10240
- intensity-direction triple correls., from cascade 4=22004
- interaction energy of last neutron and proton in odd-odd nuclei 1=2170
- intrashell-interaction levels and their excitation 0=5666
- investigation by slow neutron interactions 0=15522
- isobaric analogue states and shell model 4=19648
- isobaric correspondence, persistence 2=5789
- isobaric nuclei, analogue states 3=17395
- isobaric states correspond., heavier nuclei 3=633
- isomeric states, data, rel. to γ -cascade meas. 2=5596
- isomeric states, pneumatic transfer tube 2=10002
- isomers, sepn. and enrichment 3=2369
- isotope shift in axially asymmetric nuclei 1=13648
- J = 1, transition probabilities, in W^{184} and Pt^{186} 1=16999
- j^n config., pairing, quadrupole interact. 3=620
- $K\pi = 0^-$ states, two-quasiparticle, perturbed rotational band spectra 4=27954
- level densities, effect of correlations in nucleon motions 1=8613
- level densities in excited nuclei, rel. to neutron evaporation 0=5736
- level densities, medium mass nuclei 4=17008
- level densities, models with pairing correls. 3=12550
- level densities rel. to nuclear temp. for Z = 50 and N = 82 4=12126
- level densities, statistical model 1=10962
- level density analysis, of (p, γ) excitation curves 2=12129
- level density, angular momentum effects, nuclear evaporation spectra anal. 4=19647
- level density of compound nucleus in (n, γ) reactions 0=9594
- level density curves, from (p, α) reactions 2=12128
- level density, effects on (n, γ) γ -ray spectra 0=13285-6
- level density, interacting Fermi system 3=15091
- level density, from (n, γ) reactions 0=9592-3
- level density rel. to neutron no. near closed neutron shell 3=19779
- level density of nucleons interacting in one shell. 0=4028
- level density parameters, analysis 1=13646
- level density parameters, odd-even dependence 0=13134
- level density, spin depend., from (γ , n) reactions 2=22787
- level density, statistical calcs. 2=5875
- level positions in asymmetrically deformed nuclei 4=19649
- level spacing, statistical theory 4=3550
- level spacings, statistics 0=20343-4
- lifetime meas. from recoil, electrostatic method 4=22006
- lifetime meas. by recoil technique 0=5688
- lifetime det. from K-shell ionization probability 4=3548
- lifetimes, E2, for N = 82-126 region 2=13983
- lifetimes of excited levels of odd-A nuclei 0=7587

Nucleus—contd

energy levels—contd

- lifetimes of excited states, det. by new application of delayed coincidence technique 1=3406
- life times, meas. by Doppler shift attenuation 4=15139
- lifetimes of metastable states, radioactive elements, meas. using correlation function 4=17018
- lifetimes of rotational levels, microwave meas. 0=20397
- lifetimes of states in μ sec region 1=12163
- light mirror nuclei, lower excited levels 3=22284
- light nuclei, excitation, "packing" near threshold 3=22289
- light nuclei, ghosts near thresholds 3=660
- light nuclei, level densities, mag. spectrograph data discussed 1=9813
- light nuclei, levels involving $(d_{5/2})^2_0$ state 3=4566
- light nuclei, lifetimes of first excited states, theory 0=17552
- light nuclei, mag. dipole transitions 3=10332
- light nuclei, supermultiplet, and (γ , d) reactions 4=6320
- light nuclei up to C^{10} , harmonic oscillator fitted to Gaussian potential, model 4=21996
- low-lying, double closed-shell, hole-particle interactions 4=9387
- low-lying, independ. of potential shape 4=27957
- low-lying vibrational states, spin-dependent forces 2=13946
- low-lying and virtual, study with reactions 3=24915
- M4 transitions and independent particle model 4=15137
- M4 transition probabilities, effect of radial matrix element 4=3557
- M1 transitions from highly-excited states 2=3476
- M1 transitions, l-forbidden, E2/M1 mixing ratio 3=10239
- magnetic moments, meas. and theory, review 4=6208
- magnetic spectrograph, design and performance 2=5535
- many-body and single-particle aspects, relation 1=4830
- mass-eight, single excit., classified by SU3 coupling scheme 4=6183
- mass 14 systems, configuration mixing 2=18233
- mass-13 nuclei, positive-parity states, coupling strengths 1=8585
- mass-13 nuclei, search for $\frac{1}{2}^+$ level 3=8132
- mass-12 nuclei, shell model in LS coupling 4=19652
- measurement, by (n, γ) γ scatt. and self-absorpt. 4=6349
- medium A nuclei, excited isobaric states 2=18249
- medium even nuclei, second 2^+ level 1=19459
- medium nuclei, ground state, collective model 1=13616
- medium-weight nuclei, data from nucleon scattering 0=7544
- medium-weight, spin-parity schemes, using Signell-Marshak potential 1=13638
- mesic atoms, energy shift due to meson 2=6116
- mirror levels, Coulomb energy differences predicted from cluster structures 1=3395
- moments of excited states, meas. by ang. correl. 2=12127
- moments of excited states, meas. apparatus 2=12126
- monopole transition theory review 4=25284
- Mössbauer effect applications 1=13630
- Mössbauer spectrometer for high resolution obs. 4=11860
- μ -mesic atoms, collective levels 3=6372
- μ -mesic atoms, excitation of collective levels 2=10232
- multiple E2 Coulomb excit. of rotl. states, cross-sections 3=4559
- N=82 to 90, collective levels and deformations 3=8019
- N-particle system, ground state, Monte Carlo calc. 1=19295
- near fission threshold, dumb-bell potl. quantization 0=17630
- near-magic nuclei, excitation spectrum 1=8599
- "negative levels" existence establishing method 3=12571
- neutron, hole states, from (p, d) or (d, t) reactions 3=19762
- neutron inelastic scattering study 1=7381
- neutron levels in diffuse potential 0=17494
- neutron separation energies, rel. to structure 1=7319
- neutron, single particle, from (d, p) reactions 3=19762
- neutron states, single-particle, energies obs. 3=10247
- neutron width distrib. 3=22282
- Nilsson diagram, generalized 2=5795
- Nilsson single-particle levels, octupole deformation effects 2=356
- nonaxial even-even nuclei, collective-excitation states 0=20334

Nucleus—contd

energy levels—contd

- nonaxial nuclei 0=20315
 non-axial nuclei with $J = 10$ and 12 , rotational states 1=19354
 nonaxial nuclei, by rigid rotator model 3=10206
 non-axial nuclei with rotational spectrum 1=4825
 nonaxial nuclei, rotational states, transition probabilities 0=11318
 non-axial rotator, possible test of model 1=19355
 non-spherical, excited, vibrational levels 3=10238
 non-spherical nuclei, β and γ vibrational levels 2=22726
 nonspherical nuclei, collective levels, microscopic description 3=2379
 non-spherical nuclei, negative parity low-lying levels 2=10006
 non-spherical nuclei, negative parity low-lying levels 3=6158
 nonspherical nuclei, vibrational levels 3=24854
 nonspherical odd nuclei, e.m. transition probabilities 4=996
 nuclear collective motion, higher-order perturbations 4=22001
 nuclear matter, energy gap, magnitude 0=13101
 nuclear spectra; Rutherford Jubilee Conference; review 1=19351
 nuclear spectroscopy conference, Kiev (1963) 3=15090
 nuclear spectroscopy conference, Leningrad, Jan.-Feb. 1962 3=7977
 nuclear spectroscopy, review 1=16977
 nuclear symmetry rel. to fission 2=8013
 nuclear symmetry rel. to fission 3=6305
 nuclei of $A = 5, 6, 7, 8$ 2=1763
 nuclei with $A = 50$ and 90 , calc. from bounded isotropic harmonic oscillator potl. 0=1362
 nuclei in $d_{3/2}$ - $f_{7/2}$ shell, low levels, calc. 0=11324
 nuclei in $1p$ shell and near closed shells 1=8573
 nuclei with oriented shells, ang. distrib. and correl. of emission 0=9544
 nuclei of reflectional asymmetry 0=7481
 nuclei in $2S_{1/2}$ and $1d_{3/2}$ shells, low levels, calc. 0=13138
 0^+ levels in even rare-earth nuclei 0=7477
 017 , single-particle levels 2=10020
 octupole deform. in even—even medium-mass nuclei 3=24859
 octupole deformation, effects on Nilsson single-particle levels 2=356
 odd- A nuclei, excited states in terms of excitations of even—even core 1=8616
 odd- A nuclei ($151 \leq A \leq 191$) 3=2380
 odd- A rotational nuclei, mag. dipole transition probabilities 1=8597
 odd-mass, deformed nuc., pairing correls., blocking 3=632
 odd-mass, elec. quadrupole transitions calc. 4=9385
 odd-mass nuclei, elec. quadrupole transitions calc. 4=9385
 odd-mass nuclei, excited states 2=20504
 odd $N = Z$ nuclei, $A > 40$, lowest $T = 0$ states 2=7925
 odd nuclei, general theory 1=5835
 odd nuclei, j -doublet splittings, calc. 1=13638
 odd nuclei, lifetimes of rotational levels 0=20397
 odd nuclei, non-spherical, independent particle model 0=9507
 odd nuclei, odd—even shift in $K = 0$ rot. bands 3=10243
 odd nuclei, spin $1/2$, theory rel. to expt. 2=359
 odd nuclei, without axial symmetry, rotational states 0=11317
 odd—odd deformed, with $K = 0$, distinctive features 3=10236
 odd—odd nuclei, rel. to γ -transitions 0=7522
 $1d-2s$ shell, low levels of even—even nuclei 1=8578
 $1f_{7/2}$ shell nuclei, mass and level systematics 4=3559
 $1p$ shell, intermediate-coupling shell model, approx. methods 2=358
 1^- state in vibrational region 3=10248
 overlapping levels, dispersion formulae for resonant interactions 1=4852
 $p_{1/2} - g_{9/2}$ configurations, interactions in 1=17001
 from (p, t) reactions at 22 MeV 0=17592
 $(p, 2p)$ on light nuclei, residual nucleus states and j - j model 4=12217
 from $(p, 2p)$ reactions 0=17581
 pair correlations near closed shells, effects 1=8599

Nucleus—contd

energy levels—contd

- pairing and quadrupole interactions in j^n configurations 4=6185
 parameters for 31 elements, from nucl. resonance fluorescence at 7 MeV 0=9526
 perturbation energies, second-order, due to the tensor force, for "closed-shell + one" nuclei 1=3386
 product nuclei from Li^6 reactions with Li^6 and Be^9 4=17202
 projection theorem, particle—hole system 3=12575
 proton subshell $Z = 100$ 0=11316
 quadrupole—quadrupole interaction, rel. to ang. momentum and elec. moment 1=13625
 quadrupole, rel. to quadrupole—quadrupole interaction 1=13625
 quadrupole surface vibrations, corresponding collective excitations 1=9799
 quadrupole vibrational states 1=5693
 quadrupole vibrations, spherical nuclei 3=4563
 quasi-stable states, for high isotopic spin, anomalous neutron widths 0=9529
 random matrix, isolated eigenvalue 4=27065
 random matrix approx., spacing distrib. and level density 1=8612
 rare-earth, deformed, $E1$ transitions 3=6152
 rare earth isotopes, collective γ -vibs. 3=17396
 rare-earth nuclei, deformed individual part. motion 2=16307
 rare-earth nuclei, deformed, individual part. motion 3=6156
 rare earth, quadrupole moment ratios, Mössbauer, receiver 4=19663
 rare-earth region, Coulomb excitation study 1=4833
 rare-earths, rotation— γ -vibration interaction 3=2381
 rare earths, even—even ($150 \leq A \leq 184$) 1=12160
 rectangular well, nonspherical inf. deep. single particle levels 2=13963
 rectangular well, nonspherical, inf. deep, single-particle levels 3=6138
 reduced widths of individual levels 0=20346
 reduced widths, from stripping reactions 3=19765
 resonance absorption, line broadening 2=3470
 resonance levels, perturbation problem, gen. soln. 4=17014
 Roche distribution, n, p energy levels and wave-functions 4=997-8
 rotational, of axi-symmetrically deformed even nuclei 3=10244
 rotational bands, level shift, selection rules deriv. 2=10004
 rotational energies, rel. to moments of inertia in nonaxial nuclei 0=13119
 rotational energies, for non-axially symm. nuclei, theory 2=13954
 rotational energies, odd-mass nuclei, asymmetric rotor model 2=20505
 rotational energies, rotation—vibration correction 1=8553
 rotational, even—even nuclei, excitation in α -decay 0=15542
 rotational functions for three-body problem 1=12142
 rotational levels, coupling betn. rotation and outer nuclear 0=11319
 rotational levels of deformed even—even nuclei, calc. 1=8607
 rotational levels, from effective two-body interaction 0=20310
 rotational levels, evidence for existence in all even—even nuclei 1=8605
 rotational levels, existence in all even nuclei 1=9812
 rotational, non-axial nuclei, rel. to moments of inertia 0=17476
 rotational, of odd nuclei 1=19358
 rotational, of odd nuclei 3=4560
 rotational spectra, rel. to Elliott model 2=12110
 rotational spectra, nonadiabatic corrections 2=361, 22725
 rotational spectra in strongly deformed nuclei 1=8593
 rotational spectra theory 4=3551
 rotational states, break-off due to rotational effects on pairing correlation 1=2158
 rotational states in deformed nuc., semiclassical three-dim. theory 4=27956
 rotational states, intrinsic symmetries 3=2374

Nucleus—contd

energy levels—contd

- rotational states, from rotating solns. of Hartree-Fock eqns. 1=2157
- rotational states, variational approach 2=7923
- rotational and vibrational, interaction in non-axial even nuclei 1=2169
- rotational and vibrational states, reduced widths 2=5856
- rotator model, non-axial, possible exptal. tests 1=9798
- second 2^+ level of even-even nuclei, E2 transitions 0=5722
- 2s-1d shell, intermediate coupling calc. 1=8575
- 2p-shell isobaric triplets, rel. to charge independence 1=8617
- shell model, calc. by supermultiplet theory 2=1766
- shell model, spin-orbit splittings 2=20487
- shell model, spurious states arising from centre-of-mass motion of a nucleus 1=3394
- shell-model states, Flowers' classification 1=5834
- shell model, $Z = 50 \pm 1$ or 82 ± 1 , calc. 1=19336
- 1-p shell nuclei, rotational bands 1=19449
- shell structure and energy levels in bounded isotropic harmonic oscillator potential 0=17491
- 2s-1d shell, systematics 1=8574
- shells, rel. to instantaneous neutron fission 2=8014
- shells, rel. to instantaneous neutron fission 3=6308
- shifts in mag. fields due to anisotropy of inertia 1=12795
- short-lived, g-factor meas. 3=634
- single-particle states in deformed nonlocal diffuse-boundary potentials 0=13108
- slow-neutron resonances, review 1=8740
- spacing, comparison of three eqns. rel. to expt. 2=355
- spacing distrib., mth-order, statistical props. 4=18084
- spacing distrib., next-nearest neighbour energy levels 3=7978
- spacing distrib. 3=9362
- spherical even-even, higher excited states, branching ratios rel. to pairing and quadrupole forces 3=2371
- spherical even-even nuclei, elec. quadrupole transitions 2=20502
- spherical even nuclei, vib. character of low-lying levels 3=22286
- spherical, low levels, quasi-particle and phonon forces, Ni to Pb 4=12123
- spherical nuclei, collective excitations, giant dipole state, theory 2=3473
- spherical nuclei, collective excitations, structure 4=19665
- spherical nuclei, E2 transition probability, from 1st 2^+ level 1=19357
- spherical nuclei, E3 and E4 collective transitions 2=16306
- spherical nuclei, higher random phase approx. 2=13962
- spherical nuclei, low levels, quasi-particle and phonon forces, Ni to Pb 4=12123
- spherical nuclei, oscillatory motion, anharmonic terms effect 4=19658
- spherical nuclei, quadrupole oscillns. 2=16309
- spherical nuclei, quadrupole oscills. 3=6161
- spherical nuclei, solution of two-particle Green's functions 1=5234
- spherical nuclei, vibl. states, low-energy 3=2372
- spin $\frac{1}{2}$ nuclei, rotational levels, radiative transitions 0=9575
- spin-orbit splitting 0=4026
- spin-orbit splitting due to tensor interaction 1=7320
- spin-orbit splitting, effect of tensor force 1=3385-6
- spin-orbit splitting and tensor force 0=20340-1
- spin-orbit state splitting, spherical nuclei 3=15095
- spin and parity of compound nucleus in scatt., inelastic, low energy 4=6306
- spin-wave excitation, giant resonance 3=2378
- spin-zero excited states, rel. to shape 1=16973
- splitting, by combined mag. dipole and elec. quadrupole interaction 4=17015
- splitting of levels by elec. quadrupole and mag. dipole interaction 2=3474
- splitting of neutron levels due to spin-orbit coupling, calc. 1=13650
- splitting prod. by $3s_{1/2}$ neutrons 0=20342
- splittings, combined mag. dipole, elec. quadrupole interact. 3=10234
- stability of axially asymmetric nuclear deformation 1=19352

Nucleus—contd

energy levels—contd

- states with constant neutron excess, relationships betw. 3=10242
- statistical distrib., theory 3=9
- statistical mechanics, review 4=17007
- statistical-mechanics theory 2=4950-2
- statistical theory, proof of Dyson conjecture 2=19444
- statistical theory of spectra, class of ensembles 4=18085
- strength functions and gross structure 1=8611
- strongly deformed, ground and excited state props. superfluid model 2=20508
- strongly deformed, ground and excited state props., superfluid model 3=7982
- strongly deformed nuclei 1=19359
- strongly deformed nuclei 3=4561
- studies using (p,2p) reactions 1=3439
- study by scattering of high-energy protons 1=13639
- superconductivity approx. for nuclear states 2=1758
- systematics for O^{16} to Ca^{40} 1=8574
- $3s_{1/2}$ single-particle neutron level 0=17493
- threshold states, model 2=5781
- threshold states, props., rel. to (γ ,n) and (γ ,p) thresholds 1=8571
- transition, $184 \leq A \leq 192$, from conversion electrons 4=27955
- transuranic even-even nuclei, equilibrium deformations, calc. 2=1785
- $20 \leq Z \leq 28$ and $N = 29$ and 30 , expt. 4=6202
- $(21)^{11}F$, octupole 4=9387
- two-particle excitations, spectrum 2=1788
- two-quantum transitions 3=24850
- 2^+ rotational states, lifetimes, for $150 \leq A \leq 186$ 0=1369
- 2^+-2^+ transitions, mixing ratios in even-even nuclei 1=5863
- unstable states in separable potential model 0=5643
- various nuclei, excitation by deuterons, 11.2 MeV 1=8763
- vibr. and rot. levels, excit. by heavy charged particles 0=11394
- vibrational, in deformed even nuclei 1=13643
- vibrational even nuclei, model for 4=6181
- vibrational level excit. in α -decay of even-even nuclei 0=7503
- vibrational levels, excit. by charged particles 0=9614
- vibrational levels of heavy deformed nuclei, Coulomb excitation 1=8594
- vibrational levels, mass coeffs. of quadrupole vibrations 1=8602
- vibrational nuclei, spherical, spectra, higher random phase approximation 4=19656
- vibrational quadrupole excitation model, possible exptal. tests 1=9798
- "vibrational region", s-wave strength function 3=19761
- vibrational states, energies and lifetimes 0=4019
- vibrational states in even-even nuclei 0=9528
- vibrations in spherical and nearly spherical nuclei 1=8614
- vibrations of spherical nuclei 1=8560
- vibrational states, random phase approx. 1=3393
- weakly deformed nuclei, surface oscillations, unified model 1=8604
- widths calc. for proton scatt., Woods-Saxon potl. 3=22281
- Wigner supermultiplets 0=7482
- $Z = 11$ to 20 , compilation of data 2=12131
- $A = 13$ nuclei, nucleon + C^{12} model 1=5836
- A^{36} 1=653
- A^{36} , negative level, anomalous neutron scatt. 2=3581
- $A^{36,38}$ 0=4098
- A^{37} , comparison with K^{37} 1=2231
- A^{37} , low levels, calc. 0=11324
- A^{38} , from Cl^{37} (p,n) A^{37} near threshold 2=1794-5
- A^{39} , from K^{39} (n,p) A^{39} 2=3599
- A^{40} 1=13734
- A^{40} 1=19361
- A^{40} , p-bombarded at 5.6 MeV, γ - γ , γ -p ang. correls. 3=6250
- A^{41} , from A^{40} (d,p) 2=1796
- A^{41} , Fermi component in β -decay 0=2634
- A^{41} , parity mixture, from decay data 0=4030
- A^{42} 1=10855
- Ac^{227} 2=3591
- Ac^{227} 3=2420
- Ac^{227} , from Pa^{231} decay 4=17106

Nucleus—contd

energy levels—contd

Ac C \rightarrow Ac C¹¹, γ - α correl. and γ -polarization 2=12174
 AcC¹¹, lifetimes, upper limits 1=16979
 Ag¹⁰⁴ 0=13171
 Ag¹⁰⁷ 1=3427
 Ag¹⁰⁷, existence of negative level 0=5790
 Ag¹⁰⁷, from (γ ,n) giant-resonance fine structure 1=674
 Ag¹⁰⁷, 10 states up to 1222 keV 2=16330
 Ag^{107,109}, neutron capture 2=416
 Ag^{107m}, 109m 2=18271
 Ag¹⁰⁸ 2=20565
 Ag¹⁰⁸ 3=15215
 Ag¹⁰⁹ 1=3427
 Ag^{109m}, 40 sec. isomeric state 4=9538
 Ag¹¹⁰, lower excited states 4=6236
 Ag^{110m}, decay scheme 4=15188
 Ag^{110m}, intermediate level search, following 0.116 MeV transition 4=27971
 Ag^{110m}, γ -ray decay 4=12154
 Al, 1.013 and 1.91 MeV levels 3=6254
 Al²⁵ 3=6234
 Al²⁵ 3=22372
 Al²⁶, 1st excited state, mean life 1=613
 Al²⁶, first excited state lifetime 0=17553
 Al²⁶, lifetime of first excited state 3=12585
 Al²⁶, 3.70 MeV, spin, by Mg²⁴(p, γ)Al²⁵ at 1.49 MeV reson. 3=19772
 Al²⁶ 0=13225
 Al²⁶ 1=7377
 Al²⁶ 2=10102
 Al²⁶, low-lying states 3=19773
 Al²⁶, 0⁺ (T=1) state, residual interaction 4=17038
 Al²⁶, probable level at 0.61 MeV 1=9876
 Al²⁶, resonance capture 0=1175
 Al²⁶, 7.8-9.8 MeV, from p scatt. by Mg²⁵ 4=1069
 Al²⁶, in 2 MeV region 0=9530
 Al²⁶, from Si²⁶ decay 0=20417
 Al²⁷ 0=20347
 Al²⁷ 3=6199
 Al²⁷ 4=9510
 Al²⁷ 4=30320
 Al²⁷, compound (Na²³ + α) nucleus γ -emission 4=9569
 Al²⁷, five excited states 2=437
 Al²⁷, γ -ray widths 0=13139
 Al²⁷, from γ -rays exc. by 2.95 MeV neutrons 2=22819
 Al²⁷, γ -rays from low levels 1=8618
 Al²⁷, low lying levels, branching and mixing ratios 4=17043
 Al²⁷, low lying levels, properties 4=12137
 Al²⁷, MeV doublet 4=19681
 Al²⁷, from Mg²⁶ + p 3=24933
 Al²⁷, mean life of 1.01 MeV level 1=13761
 Al²⁷, 9.7-11.9 MeV, from p scatt., by Mg²⁶ 4=1069
 Al²⁷, rel. to 155 MeV inelastic. proton scattering 4=15203
 Al²⁷, resonance capture 0=1175
 Al²⁷, 2.98 MeV, branching ratio and level width 4=19679
 Al²⁷, 2.98 MeV, width and branching ratio 3=22298
 Al²⁷, 2.21 MeV 3=4567
 Al²⁷, 2.21 MeV, γ -ray widths 3=22297
 Al²⁷, 2.21 MeV, partial width 4=19680
 Al²⁷, 2.21 MeV, spin and parity, from ang. distrib. of reson. scatt. bremsstrahlung 4=6224
 Al²⁷, 2.2 MeV 2=1793
 Al²⁷, below 2.2 MeV, search, from Mg²⁷ decay and Al²⁷ p scatt. 4=9398
 Al²⁷, 3 MeV doublet, de-excitation 2=12132
 Al²⁷, unified model 2=5802
 Al²⁸ 2=5800
 Al²⁸, from γ -ray energies 4=15154
 Al²⁸, level half-lives 1=10994
 Al²⁸ 1=731
 Am^{242m} 2=1831
 Ar³⁶, from S³²(α , γ)Ar³⁶ and Cl³⁵(p, γ)Ar³⁶ 4=17048
 Ar^{36,40}, from projection theorem 3=12575
 Ar³⁸ 3=10256
 Ar³⁸, from S³⁴(α , γ)Ar³⁸ 4=17048
 Ar³⁸ 4=15213
 Ar³⁸ 3=8115
 Ar⁴⁰ 4=28064
 Ar⁴⁰, first excited state 4=17049
 Ar⁴¹, shell model analysis 3=7990

Nucleus—contd

energy levels—contd

As, neutron absorpt. resonances 2=18332
 As, by neutron resonances at 2.5 μ sec m⁻¹ resolution 1=17112
 As⁷³ 3=19781
 As⁷⁴ 0=15559
 As⁷⁵ 0=2653
 As⁷⁵ 2=3533
 As⁷⁵ 3=6297
 As⁷⁵, excited by γ -rays, lifetimes of excited states 4=25369
 As⁷⁵, g-factor of 280 keV state 0=7472
 As⁷⁵, neutron scatt., resonance parameters, rel. to strength fn. 4=28036
 As⁷⁵, 199, 280, 574, 810 keV levels 2=10007
 As⁷⁵, 265 keV state, mean life 2=16310
 As⁷⁶ 1=662
 As⁷⁷ 3=7996
 As⁷⁸, metastable state decay 0=4064
 As⁷⁹ 2=3505
 Au, proton bombarded, nuclear temp. 3=12669
 Au¹⁹², excited levels 3=22350
 Au^{193,195,197}, first excited states, transition probabilities 3=8017
 Au¹⁹⁵, 61.5 keV transition probability 2=1802
 Au¹⁹⁷, fed by Pt^{197m} decay, γ -emission 4=9421
 Au¹⁹⁷, hyperfine splitting of ²S_{1/2} ground state 0=9517
 Au¹⁹⁷, 191 keV transition, spin of 268 keV level 1=8665
 Au¹⁹⁷, proton excitation study 1=5905
 Au¹⁹⁷ spin, Mössbauer obs. 4=20158
 Au¹⁹⁷, transitions rel. to core excitation 2=18257
 Au^{197m} 2=18271
 Au¹⁹⁸, from γ -ray spectrum 1=12153
 Au¹⁹⁹, from γ - and β -ray spectra 4=15169
 Au¹⁹⁹, low-level, from Pt¹⁹⁹ decay 3=17422
 B 1=19473
 B⁸, from Be¹⁰(He³, α)B⁸ 1=3396
 B⁸, evidence for 1.7 MeV level, from C¹² + p 2=22728
 B⁸ intermediate, in C¹²(p, p' γ) react. 3=2458
 B⁸, low lying $\frac{1}{2}^+$ search using B¹⁰(p, d)B⁹ 4=25289
 B⁸, search \sim 1.7 MeV by C¹²(p, α), Be⁹(p, n), Li⁶(α , n) spectra 4=27959
 B⁸, 2.34 and 2.81 MeV 4=9391
 B¹⁰ 1=5838
 B¹⁰ 1=7322
 B¹⁰ 1=17142
 B¹⁰ 1=19506
 B¹⁰ 1=19528
 B¹⁰ 1=19532
 B¹⁰ 1=19533
 B¹⁰ 2=496, 16312-3
 B¹⁰ 3=667
 B¹⁰ 4=12135
 B¹⁰, from Be⁹(d, n) 0=20457
 B¹⁰, from Be⁹(p, γ) 0=1404
 B¹⁰, cluster model of isotopic spin selection rule in Li⁶(Li⁶, d) and Li⁶(Li⁷, t) 1=3463
 B¹⁰, e.m. transitions, by mag. pair spectrometer 4=1008
 B¹⁰, first excited state, lifetime 3=2383
 B¹⁰, 5.16 and 7.56 MeV levels 1=5837
 B¹⁰, 8.89 MeV, and Be¹⁰ 7.37 MeV mirror levels 2=14082
 B¹⁰, excited states 4=3561
 B¹⁰, 1st excited, γ excitation function 4=17020
 B¹⁰, 5.18 MeV state 2=18251
 B¹⁰, 5.11 and 5.16 MeV levels 3=24860
 B¹⁰ above 5.16 MeV 4=17022
 B¹⁰, 5.16 MeV doublet states 1=16980
 B¹⁰ 5.16 MeV level, partial γ -ray width 2=16314
 B¹⁰, 5.1, 6.2, 7.56 MeV levels 2=18252
 B¹⁰, first excited state, lifetime 0=9547
 B¹⁰ γ -ray branching ratios 2=417
 B¹⁰, interference between 930 and 980 keV levels in Be⁹(p, γ) 1=9857
 B¹⁰, from Li⁷(α , n) 2=5969
 B¹⁰, lifetime of 2⁺ rotational state, using pulsed proton beam 0=1369
 B¹⁰, 0.717 MeV, from Li⁶ + Li⁶ react. 2=20681
 B¹⁰, 7.5 MeV 2=16315
 B¹⁰, 7.42 MeV level 0=13133

Nucleus—contd

energy levels—contd

- B^{10} , 720 keV level half-life 0=17557
 B^{10} , 2 MeV level, confirmation and nature 3=2488
 $B^{10,11}$ rel. to 155 MeV inelastic proton scatt. 4=15202
 $B^{10}(He^3, n)N^{12}$, Q values meas. 4=12276
 B^{11} 0=17483
 B^{11} 1=5837
 B^{11} 1=10964
 B^{11} 1=19504
 B^{11} 2=1870, 18318
 B^{11} , from $B^{10}(d, p)B^{11}$ 0=13146
 B^{11} , 8.927 MeV state 1=19509
 B^{11} , 4.46, 5.03, 6.76 and 7.30 MeV levels, $B^{10}(d, p)B^{11}$ study 0=11321-2
 B^{11} , from $Li^7(\alpha, \gamma)B^{11}$ reaction 0=20467
 B^{10} , lifetimes, upper limits 1=16979
 B^{11} , s-doublets 0=17492
 B^{11} , 2.14 MeV transition, multipolarity 2=13980
 B^{11} , in unified model 3=2382
 $B^{11,12}$ 2=5800
 $B^{11,12,13}$ 4=22217
 B^{12} 1=731
 B^{12} 1=19363
 B^{12} 3=4664
 B^{12} , from B^{11} neutron cross-section 1=11020
 B^{12} , 4.31 MeV level 2=5935
 B^{12*} , formation by μ^- capture on C^{12} 2=475, 22833
 B^{13} , from $Li^7(Li^7, p)B^{13}$ 0=4023
 Ba^{126} 2=5797
 $Ba^{126,128,130}$ 4=22038
 Ba^{128} 2=5797
 Ba^{130} 2=5797
 Ba^{131} 0=4057
 Ba^{132} , from Cs^{132} decay 2=22767
 Ba^{134} 3=24903
 Ba^{134} 4=1046
 Ba^{134} 4=6231
 Ba^{134} 4=9408
 Ba^{134} 4=15190
 Ba^{134} , excited states and spins 3=15114
 $Ba^{135m,137m}$ 2=18271
 Ba^{136} 1=3418
 Ba^{136} 3=4572
 Ba^{136} , low-lying excited states 2=10009
 Ba^{136} , neutron resonance widths 1=13654
 Ba^{137} 1=7354
 Ba^{137} , 662 keV transition study 0=7517
 Ba^{139} , and isotronic nuclei, stripping study 3=2390
 Be 1=19473
 Be , dipole states, classified by SU3 coupling scheme 4=6183
 Be , from electron scatt. at 40 MeV 1=681
 Be^0 , ground state, from $Li^6(p, n)Be^0$ data 4=1007
 Be^0 , ground state study 0=7551
 Be^0 , from $He^3 + He^3$ elastic scatt. at 20 and 25 MeV 1=8521
 $Be^{6,7}$ from $Li^6,7(p, n)Be^0$ 0=4096
 Be^7 , 1st excited, γ excitation function 4=17020
 Be^7 , 0.431 MeV, from $Li^6 + Li^6$ react. 2=20681
 Be^7 , reduced widths, cluster model 1=7312
 Be^7 , ~ 10 MeV, α partial width 4=12218
 Be^7 , at 10 MeV 4=6328
 Be^8 0=5750, 9640, 20444
 Be^8 1=11033
 Be^8 2=3616
 Be^8 3=19882
 Be^8 , absence at 7.56, 13.91, 18.0 MeV 4=22008
 Be^8 , from $\alpha-\alpha$ elastic scatt., 23-38 MeV 0=9447
 Be^8 , and $\alpha-\alpha$ model 2=5751
 Be^8 , from $\alpha-\alpha$ scatt. 0=4005-6
 Be^8 , α interactions, effect on $C^{12}(p, p')3\alpha$, p energy distrib. 3=10345
 Be^8 , from $Be^7(d, p)Be^8$ 0=20456
 Be^8 , from $Be^9(He^3, \alpha)$ 4=22185
 Be^8 , from $Be^9(n, 2n)Be^8$ 1=4834
 Be^8 , in C^{12} disintegration into α -particles 2=18324
 Be^8 , 18.9 MeV 3=17480
 Be^8 , first excited, rel. to giant dipole res. 3=17464
 Be^8 , 4 MeV, non-existence, from $C^{12}(\gamma, \alpha)Be^8$ 3=17450
 Be^8 ground state, width 3=6094
 Be^8 intermediate, in $C^{12}(p, p'3\alpha)$ react. 3=2458
 Be^8 , levels between 2.9 and 18.15 MeV 2=20509

Nucleus—contd

energy levels—contd

- Be^8 , from $Li^7(d, n)Be^8$ 0=5664
 Be^8 low levels 0=17497
 Be^8 , low lying from Li^7 and O^{18} reactions 4=25287
 Be^8 , in $Li^7(p, \alpha)He^4$ 4=6335
 Be^8 , from $Li^7(p, \gamma)Be^{8*}(\alpha)He^4$ 1=8710
 Be^8 , 0-8 MeV from $B^{10}(d, \alpha)Be^8$ reaction 1=3458
 Be^8 , refutation of Cavallaro's results 4=22007
 Be^8 , 16.626 and 16.921 MeV levels 4=17088
 Be^8 , 16.67 MeV 2=366
 Be^8 , 16.87 MeV, from $B^8 \rightarrow 2\alpha$ decay 4=19715
 Be^8 , 16.93 MeV isotopic spin, from 2α decay 4=22009
 Be^8 , 16.7 and 17.6 MeV levels study 2=22786
 Be^8 , spin 2 and 4, reduced widths for $Be^8 \rightarrow \alpha + \alpha$, calc. 4=9445
 Be^8 , by study of $Ra + Be$ and $Li^7(d, n)Be^8$ neutron spectra 0=3976
 Be^8 , 3 MeV, asymmetry 1=13655
 Be^8 , three new levels proposed 1=2212
 Be^8 , 20 MeV, $p-\alpha$ branching ratio meas. 3=10250
 Be^8 , ~ 23 MeV 4=17021
 Be^8 , 25 MeV 4=19668
 Be^8 , 25.3 MeV 3=678
 Be^8 , 2.94 MeV state 3=19874
 $Be^{8,9}$ 3=10383
 Be^9 0=5769, 13112, 17601
 Be^9 3=22325
 Be^9 , α -particle model, effect of $\alpha-\alpha$ dynamics 4=6189
 Be^9 , anomalous parity states 4=25288
 Be^9 , from $Be^8(p, p')Be^9$ 1=3396
 Be^9 , excited by electron scatt. 3=12580
 Be^9 , first excited state 3=22291
 Be^9 , from $Li^6(Li^7, \alpha)Be^9$ 4=28069
 Be^9 , from $Li^7 + d$ 0=7574
 Be^9 , positive parity state 1=19362
 Be^9 , rel. to shell-model theory of inelastic scatt. 0=446
 Be^9 , spin and parity 0=5651
 Be^9 , at 2.43 BeV, α scatt., ang. distrib., 23.8 MeV 4=17193
 Be^9 rel. to 155 MeV inelastic proton scatt. 4=15202
 Be^{10} 4=22217
 Be^{10} , e.m. transitions, by mag. pair spectrometer 4=1008
 Be^{10} , 7.37 MeV and B^{10} 8.89 MeV mirror levels 2=14082
 Be^{10} , two-parameter analysis of spectra 3=19767
 Be^{10*} , 3.37 MeV 2=3605
 Be^{11} 1=10964
 Be^{11} 2=18232
 Be^{11} , anomalous order of levels 0=13135
 Be^{11} , from $Be^9(t, p)$ reaction 1=8581
 Be^{11-13} , two-parameter analysis of spectra 3=19767
 Be^{12} , from $Be^9(t, n)$ data 2=10149
 Bi isotopes, (d, p) reaction studies 1=3398
 Bi isotopes, (d, t) reaction studies 1=3397
 $Bi^{199,201}$, α -active isomer 4=17073
 Bi^{205} 2=1797
 Bi^{206} , j-j coupling shell model calc. 4=22049
 Bi^{206} meas. 4=22179
 Bi^{206} 1=10965
 Bi^{206} , Coulomb-excited, transition probabilities 4=3584
 Bi^{206} , doublet splitting 0=4026
 Bi^{210} 0=11339, 13137
 Bi^{210} , from $Bi^{209}(d, p)$ 0=11323
 Bi^{210} , from $Bi^{209}(d, p)$ 3=681
 Bi^{210} , calc. 2=1760
 Bi^{210} , ground-state model, rel. to Pb^{210} and Po^{210} 0=13144
 Bi^{210} , low levels, tensor forces calc. 3=24874
 Bi^{210} , shell-model residual force calc. 3=24875
 Bi^{210} , stripping reaction data, shell-model analysis 3=24876
 Bi^{210m} 1=17013
 Bi^{211} 3=10315
 Bi^{211} , from Pb^{211} decay 2=20549
 Bi^{212} 0=9607
 Bi^{212} , spins 1=2197
 $Bi^{212}(ThC)$, spin and parity of first excited level 1=2186
 Bk^{240} , from E^{255} decay 1=8660
 Br^{78} , 17 hr, inversion of $F = \frac{1}{2}$ and $\frac{3}{2}$ levels 0=13120
 Br^{79} , from Kr^{79} decay γ 's, spin 4=12148
 Br^{79m} 2=18271
 Br^{80} , 37 keV, lifetime meas. 4=25310

Nucleus—contd

energy levels—contd

Br⁸¹ 0=2658
 Br⁸¹ 1=13748
 Br⁸¹ 1=13756
 Br⁸¹ 3=2406
 Br⁸² 2=10042
 Br⁸² 3=6192
 Br⁸³ 1=13748
 C 1=19473
 C, from electron scatt. at 40 MeV 1=681
 C, first excited level, rel. to coupling scheme 4=6210
 C, γ -ray resonances at 22–23.5 MeV 0=11431
 C, from n scatt., 14 MeV, n, γ coincidences 3=17476
 C^{10,11} 3=12671
 C¹¹ 1=10964
 C¹¹ 1=12217
 C¹¹ 2=18318
 C¹¹ 4=9555
 C¹¹, from B¹⁰(d,n, γ)C¹¹ 0=20455
 C¹¹, rel. to B¹¹ 2=20511
 C¹¹, highly excited states, from p elastic scatt. on B¹⁰ 2=22729
 C¹¹, invest. by B¹⁰ proton bombard. 2=16406
 C¹¹, low levels, from B¹⁰(d,n γ) reaction 1=8587
 C¹¹, 6.48 MeV level 3=15100
 C^{11,12} 2=1870
 C^{11,12}, from B^{10,11}(d,n) 1=8756
 C¹² 0=2624, 20458
 C¹² 1=5837
 C¹² 1=5939
 C¹² 1=12195
 C¹² 1=12217
 C¹² 1=13639
 C¹² 1=19363
 C¹² 1=19525
 C¹² 2=1928, 20590
 C¹² 3=2447
 C¹², from B¹⁰(He³, p), widths 2=3617
 C¹², from B¹¹(p,n)C¹² data 4=19524
 C¹², from Be⁹(α , n γ)C¹² reaction 2=16316
 C¹², from Be⁹(He³, γ) 4=22185
 C¹², from C¹²(γ , n)C¹¹ 1=3435
 C¹², rel. to C¹² 127 MeV scattering 4=22198
 C¹², collective states and ground-state correl. 3=17398
 C¹², deformed, giant E1 resonance, calc. 2=1798
 C¹², from electron-proton pairs in electron scatt. 2=10089
 C¹², electron scatt. form factors 4=25380
 C¹², excited by proton scattering 1=5906
 C¹², excited states 3=15192
 C¹² 15.1 MeV level 1=13762
 C¹², first excited, rel. to giant dipole res. 3=17464
 C¹², 4.43 MeV, fed by B¹¹(d,n)C^{12*} reaction 4=9556
 C¹² 4.43 MeV level 1=19527
 C¹², 4.43, 7.66, 9.6 and 10.1 MeV, neutron excitation cross sections 4=17145
 C¹², 4.433 MeV state, diff. formation cross-section 4=1109
 C¹², γ -resonance scatt. on 17.22 MeV level 0=5770
 C¹², grand state correl., rel. to C¹³ transition rates 4=17023
 C¹², hole states study 4=1073
 C¹², 15.1 MeV 2=1880
 C¹², 15.1, 16.1 MeV levels, excitation 2=431
 C¹², 15.11 MeV state, partial widths 2=367
 C¹², 15.11 MeV, verification 2=13999
 C¹², first excited state, polarization 2=3565
 C¹², 4.43 MeV, configuration-mixing calc. 2=16301
 C¹², Green's function computation 2=3486
 C¹² intermediate, in C¹²(p,p α) reaction 3=2458
 C¹², levels between 15 and 20 MeV 3=19850
 C¹², momentum distrib. of p.s. protons 2=455
 C¹², 9.63 MeV 2=5901
 C¹², 9.0 MeV γ -emitting level 0=17558
 C¹², 9.63 MeV γ -ray width, and prod. in stars 3=11568
 C¹², 9.6 MeV state, 3⁻ assignment 1=11004
 C¹², 9.6 MeV 3⁻, induced by α , α' scatt., correl. between α , α' 4=3562
 C¹², 9.63 MeV state 0=20348
 C¹², 9.63 MeV state 1=5910
 C¹², 9.63 MeV state, γ -rays from 16.11 MeV state 2=1799
 C¹², nonexistence of 9.0 MeV level in B¹⁰(He³, p) reaction 1=8619

Nucleus—contd

energy levels—contd

C¹², rel. to O¹⁶ scattering, 168 MeV 4=22200
 C¹², octupole state, systematics 2=1789
 C¹² rel. to 155 MeV inelastic proton scatt. 4=15202
 C¹², 155 MeV proton scattering study 1=13783
 C¹², rel. to Pb²⁰⁸ inelastic scattering 4=22204
 C¹² partial 1=13792
 C¹², particle-hole description 4=22010
 C¹², particle-hole model, highly excited levels, various decay widths 4=1064
 C¹², from photoneutron energy spectra at 30 MeV 0=11435
 C¹², from proton polarization 4=19669
 in C¹² + p reactions, residual nuclei, excitation yields and energies 4=3656
 C¹², second excited state, e. m. decay 4=9392
 C¹² 7.6 MeV level excitation by neutrons 2=12133
 C¹², 7.656 MeV, O⁺ level 3=10242
 C¹², 7.65 MeV, excitation cross-section for 14 MeV neutrons 4=17144
 C¹², 7.66 MeV anomaly, from p scatt. at small angles 4=19671
 C¹², 7.66 MeV level, γ -decay 1=17058
 C¹², 7.66 MeV, radiative decay 4=19670
 C¹², 7.66 MeV state, parameters, participation in element buildup in red giants 0=17609
 C¹², 7.656 MeV level 0=405, 9573
 C¹², 16.11 MeV 2=1833, 10038
 C¹², structure in excitation region 20.5–26.5 MeV 1=16981
 C¹², T = 1 states 2=3479
 C¹², 10 MeV excitation energy 2=13820
 C¹², 12.71 and 15.11 MeV 3=19838
 C¹², 20.5 MeV level, from Be⁹ + α 2=3618
 C¹² 2⁺ decay to α + Be⁸, from B¹¹(p, α) reaction 4=22064
 C¹² to U²³⁸, even-even nuclei, octupole states, systematics 2=1789
 C^{12,13,14} 2=5800
 C¹³ 1=13854
 C^{13*} 1=19513
 C¹³ 2=5803
 C¹³, from C¹² neutron cross-section 1=11020
 C¹³, coupling strength between positive-parity nucleon and C¹² core 1=8585
 C¹³, de-excitation gamma-rays of first three levels 1=13844
 C¹³, 5.51 and 6.10 MeV levels 2=485
 C¹³, J = $\frac{3}{2}^{+}$ states, parameters 1=585
 C¹³, positive parity state 1=19362
 C¹³, single particle transition enhancement 4=17023
 C¹³, search for levels by C¹² + n study 0=5791
 C¹³ from stripping reaction 1=17144
 C¹³, 3.85 MeV level lifetime 0=15535
 C¹³ 3.09 MeV level width 3=24954
 C¹³, transitions between mirror states 0=20353
 C¹³, up to 12 MeV 2=20680
 C¹³, 3.09, 3.68, 3.86 MeV 2=486
 C¹³, 3.85 MeV lifetime 2=16319
 C¹⁴ 1=731
 C¹⁴, in β -decay 0=2618
 C¹⁴, from C¹³ total neutron cross-section 1=7387
 C¹⁴, 1st excited state from C¹³(d,p)C¹⁴ 3=24969
 C¹⁴, shell model assignments 0=9531
 C¹² and Be⁸, intermediate nuclei in C¹²(α , 4 α) reaction 2=3619
 C¹² and Be⁸ intermediate nuclei in C¹²(α , 4 α) reaction 3=4671
 C–C bound system 0=13251–2
 C¹³–N¹³ positive parity levels, spacing 1=19364
 C¹³–N¹³ positive parity levels, spacing 2=22727
 Ca, isotopes, first excited levels. 1=618
 Ca, from n scatt., 14 MeV, n, γ coincidences 3=17476
 Ca⁴⁰ 2=1873, 10096, 20590
 Ca⁴⁰ 3=6237
 Ca⁴⁰, dipole and octupole states, calc. 1=4830
 Ca⁴⁰, dipole state, calc. 1=3381
 Ca⁴⁰, from electron scatt., 80–200 MeV 4=17050
 Ca⁴⁰, fed by K³⁹(p, γ) reaction 4=25398
 Ca⁴⁰, first excited levels 3=22300
 Ca⁴⁰, 4.48 MeV 2=20510
 Ca⁴⁰, hole states study 4=1073
 Ca⁴⁰, from K³⁹ + p 1=9859
 Ca⁴⁰, level density and neutron excess 1=13653

Nucleus—contd

energy levels—contd

- Ca⁴⁰, low levels, proton scatt. 4=19770
 Ca⁴⁰, low-lying levels by (p, p⁺) scatt. at
 E_p = 55 MeV 4=25305
 Ca⁴⁰, lowest 3⁻, (21) representation 4=9387
 Ca⁴⁰, neutron resonance widths 1=13654
 Ca⁴⁰, 9.87 MeV 2=20620
 Ca⁴⁰, odd parity states, particle-hole description 4=22025
 Ca⁴⁰ rel. to 155 MeV inelastic proton scatt. 4=15202
 Ca⁴⁰, (p, p'γ) 150 MeV scatt. study 3=10342
 Ca⁴⁰, parity of excited levels 1=7402
 Ca⁴⁰, 7.08, 8.13 MeV 1=9858
 Ca⁴⁰, spin-wave excitation, giant resonance 3=2378
 Ca⁴⁰, 10.3 MeV level, radiation width 2=352
 Ca⁴⁰, 3.35 MeV monopole transition, double
 γ-emission 4=17031
 Ca⁴⁰, 2, 3, 4th excited states, spin, from K³⁹(p, γ)Ca⁴⁰ γ, γ
 correl. 3=19776
 Ca⁴⁰ 42 0=4098
 Ca⁴¹ 0=9532
 Ca⁴¹, doublet splitting 0=4026
 Ca⁴² 2=1929
 Ca⁴² 3=10257
 Ca⁴², first excited state, calc. 1=614
 Ca⁴², from K⁴¹ + p 2=450
 Ca⁴², lifetimes, from activity-time spectrum 4=1014
 Ca⁴², from Sc⁴² β decay, anomaly 3=22301
 Ca⁴², second excited state, lifetime 1=3406
 Ca⁴², shell-model calc. 1=5839
 Ca⁴², zero-spin excited state 0=1361
 Ca⁴², 44, from the decay of K⁴² and Sc⁴⁴ 1=7356
 Ca⁴², 44, first excited states, energy diff., calc. 0=13148
 Ca⁴³, lower levels, calc. 1=614
 Ca⁴³, shell-model calc. 1=5839
 Ca⁴⁴ 1=12170
 Ca⁴⁴, calc. using config. mixing 4=12147
 Ca⁴⁴, level density and neutron excess 1=13653
 Ca⁴⁴, spins and parities 3=12623
 Ca⁴⁵, 2.24 MeV, spin and parity 4=22024
 Ca⁴⁹, below 6.1 MeV, meas. and shell-model
 assignments 4=27966
 Cd, Fe, Hg, Mo, Nb, Sb, Th, V, and W, neutron inelastic
 scatt., 0.2-1.2 MeV 4=3664
 Cd, from (n, γ) spectra 2=469
 Cd¹⁰⁷ 3=19819
 Cd¹⁰⁸, from In¹⁰⁸ decay 3=15150
 Cd^{108, 109, 112} 2=18253
 Cd^{108, 110, 114}, quadrupole spherical vibration 3=4563
 Cd^{109, 112}, from In^{109, 112} decay 2=18254-5
 Cd¹¹⁰ 2=14062
 Cd¹¹⁰ 4=25350
 Cd¹¹⁰, spin excited states 0=5665
 Cd¹¹⁰, spin and quantum no., parities 0=1391
 Cd¹¹⁰, spins, parities, from Ag^{110m} decay 2=12176
 Cd¹¹⁰, spins, parities, from In¹¹⁰, In^{119m} decay 2=12177
 Cd¹¹¹, g-factors meas. of excited states 4=3570
 Cd¹¹¹, from In¹¹¹ decay, γ-γ cascade 4=19466
 Cd¹¹¹, from nuclear resonance fluorescence
 data 2=7955
 Cd^{111m} 2=18271
 Cd¹¹² 0=15536
 Cd¹¹² 3=24867
 Cd¹¹², as 4 sets of vibrational levels 1=4831
 Cd¹¹², spin and parity, from Cd¹¹¹(d, p)Cd¹¹²; p ang.
 distrib. 3=12592
 Cd^{112, 114} 2=1819
 Cd^{112, 114}, low-lying levels 0=13140
 Cd^{112, 114}, low-lying levels 2=22740
 Cd¹¹⁴, from Cd¹¹³(n, γ), capture γ, internal conversion
 β spectra 3=24959
 Cd¹¹⁴, from Cd¹¹³(n, γ), new levels 1=17119
 Cd¹¹⁴, 4⁺ state, Coulomb excitation 1=609
 Cd¹¹⁴, 556 keV level, lifetime 0=9597
 Cd¹¹⁴, γ-spectrum from neutron capture 4=1022
 Cd¹¹⁴, low-energy spectrum, theory 4=9405
 Cd¹¹⁴, low levels, radiative props. 1=8595
 Cd¹¹⁴, up to 1.363 MeV excitation energy 4=15161
 Ce, O⁺-O⁺ transition 3=17415
 Ce^{139m} 0=11336
 Ce¹⁴⁰ 2=22776
 Ce¹⁴⁰, g-factor of 2.083 MeV 4⁺ state 3=15115

Nucleus—contd

energy levels—contd

- Ce¹⁴⁰, from La 140 decay γ coincidences, spectra 3=22307
 Ce¹⁴⁰, 1597 keV level, resonance fluorescence 2=14072
 Ce¹⁴⁰, lifetime of 1.6 MeV level 0=1367
 Ce¹⁴⁰, lifetime of 2083 keV level 4=17063
 Ce¹⁴⁰, 1.90 MeV level 1=17060
 Ce¹⁴⁰, spins and parities, γ-γ ang. correls. 3=24868
 Ce¹⁴⁰, 2.083 MeV 4⁺ state, g-factor 3=4574
 Ce¹⁴⁰, 2.083 MeV state, g-factor 3=8002
 Ce¹⁴⁰, 2.083 MeV two-proton level 3=12560
 Ce¹⁴⁰, 2.083 MeV level lifetime 2=13983
 Ce¹⁴¹, from Ce¹⁴⁰(d, p) reaction 1=8769
 Ce¹⁴¹, and isotomic nuclei, stripping study 3=2390
 Ce¹⁴² 4=17097
 Cf²⁵¹ 4=9462
 Cl in Cu: CdCl₂, hyperfine structure 2=6248
 Cl, parameters of 405 eV level 2=3594
 Cl³³, from S³²(d, n) reaction 1=619
 Cl³⁴ 4=28031
 Cl³⁴, with realistic potentials 2=13985
 Cl³⁵ 3=19775
 Cl³⁵ low-lying levels 1=9814
 Cl³⁵, from ³⁴(p, γ)Cl³⁵, γ's, 800-1400 keV p's 3=17469
 Cl³⁵, from S³⁴(p, γ)Cl³⁵ reaction 2=16320
 Cl³⁵, 7.55 MeV, from γ-ray spectra from proton
 capture by S³⁴ at 1214 keV 3=8087
 Cl^{35, 39}, low levels, calc. 0=11324
 Cl³⁶ 1=19510
 Cl³⁶ 2=14113
 Cl³⁶ from Ar³⁶(n, p) 4=28046
 Cl³⁶, cascade γ-transitions 1=17120
 Cl³⁶, central two-body interaction 1=9796
 Cl³⁶, two-step γ-cascade study from Cl³⁵ thermal-neutron
 capture 1=8746
 Cl^{36, 38}, average level spacings, strength function 3=19860
 Cl^{36, 38}, from Cl^{35, 37}(d, p) 2=22841
 Cl³⁸, γ-ray energies 4=15154
 Cl³⁸, isomeric decay at 0.66 MeV 2=22732
 Cl³⁹ 1=10955
 Cm²⁴⁴, decay of Am²⁴⁴ 2=7938
 Cm²⁴⁴, first 2⁺ level, lifetime 2=22730
 Co⁵⁵, from Fe⁵⁴(p, γ), E_p = 770-1100 keV 3=17472
 Co^{55, 57} 3=24934
 Co⁵⁶ 2=10105
 Co⁵⁸ 3=15143
 Co⁵⁶, 5 levels up to 1.105 MeV 2=18272
 Co⁵⁷ 3=2386
 Co⁵⁷, from Fe⁵⁶(p, γ) 4=19783
 Co⁵⁷, 1.49 MeV, half-life 2=20512
 Co⁵⁷, 1490 keV level, lifetime 1=12163
 Co⁵⁹ 1=16982
 Co⁵⁹ 1=10965
 Co⁵⁹ 2=1916
 Co⁵⁹, five low-lying levels 2=368
 Co⁵⁹, rel. to 155 MeV inelastic proton scattering 4=15203
 Co⁵⁹, single-particle neutron bound state, from (p, d)
 reaction 2=18322
 Co⁶⁰, from Co⁵⁹(d, p)Co⁶⁰ at 6 MeV 0=13238
 Co⁶⁰, from Co⁵⁹(n, γ), (d, p) reactions 4=22154
 Co⁶⁰, isomeric transitions, γ-ray energies 3=6153
 Co⁶⁰, nuclear resonance fluorescence 2=5798
 Cr, even-even nuclei 2=13982
 Cr isotopes 1=2171
 Cr isotopes, from n capture 4=19795
 Cr, natural, level density and neutron excess 1=13653
 Cr⁵⁰, from inelastic proton scattering 4=19687
 Cr⁵⁰, level density and neutron excess 1=13653
 Cr⁵⁰, neutron resonance widths 1=13654
 Cr⁵¹ 1=695
 Cr⁵¹ 1=12174
 Cr⁵¹ 1=16983
 Cr⁵¹ 2=1887
 Cr⁵¹, 325 keV level, nuclear orientation study 1=7518
 Cr⁵¹, from V⁵¹(p, n) 1=9862
 Cr^{51, 53, 54} 2=10119
 Cr^{51, 53, 54, 55} 4=12269
 Cr⁵² 1=12175
 Cr⁵² 2=1887, 10099, 18319
 Cr⁵², calc. using config. mixing 4=12147
 Cr⁵² from decay of Mn⁵² 2=7929
 Cr⁵², f_{7/2}⁴ levels, seniorities 2=12134
 Cr⁵³⁻⁵, from Cr(n, n'γ) 3=2466

Nucleus—contd

energy levels—contd

Cr⁵², following V⁵² β -decay 4=9448
 Cr⁵², level density and neutron excess 1=13653
 Cr⁵² from Mn⁵⁶(p, α)/Cr⁵² 1=11012
 Cr⁵², neutron resonance widths 1=13654
 Cr⁵², by 150 MeV electron inelastic scatt. 4=17052
 Cr⁵², rel. to 155 MeV inelastic proton scattering 4=15203
 Cr⁵², 3.614 MeV spin 5 state 2=22708
 Cr⁵³ 4=30353
 Cr⁵⁴ 3=19866
 Cr⁵⁴, first excited level lifetime 1=2243
 Cr⁵⁴, level density and neutron excess 1=13653
 Cr⁵⁴, neutron resonance widths 1=13654
 Cs¹³¹, lifetime and multipolarity meas. 4=25315
 Cs¹³¹, new isomeric state 1=632
 Cs¹³¹, 123 keV level, half-life 4=9377
 Cs¹³¹, 123 keV level, lifetime 1=12163
 Cs¹³¹, 133 keV, g, from Ba(n, γ), diff. ang. correl. 4=27975
 Cs¹³²—Xe¹³² ground states, energy diff. 3=10295
 Cs¹³³ 0=5667-8, 17540
 Cs¹³³ 1=7351
 Cs¹³³ 2=3516
 Cs¹³³ 4=22073
 Cs¹³³, excited states 0=13149
 Cs¹³³, internal conversion of 81 keV transition struct. effect. 2=12173
 Cs¹³³, lifetime meas. 4=6230
 Cs¹³³, low levels, rel. to Ba¹³³ decay 0=20381
 Cs¹³³, spin, from Ba¹³³ decay, by e capture 3=19820
 Cs¹³³, spin and parity 0=13170
 Cs¹³⁴, first four even parity levels 3=12600
 Cs¹³⁴, low-lying excited levels 0=11325
 Cu isotopes 2=1923
 Cu isotopes, single proton level splittings 2=13956
 Cu⁶⁰, level spacings, radiation widths 0=20445
 Cu⁶³ 1=3427
 Cu⁶³ 1=13809
 Cu⁶³, first four excited states 3=10338
 Cu⁶³, from (γ ,n) giant-resonance fine structure 1=674
 Cu⁶³, low-lying, comparison with 3 models 3=15107
 Cu⁶³, 961 keV 3=14938
 Cu⁶³, resonance levels at 0.59, 2.0 keV 2=18304
 Cu⁶³, single particle contrib., from Ni⁶²(He³,d), d spectrum and ang. distrib. 4=17054
 Cu⁶³, 668 and 961 keV level lifetimes 1=5876
 Cu⁶³, 669 and 963 keV levels, lifetimes, from resonance fluorescence 1=611
 Cu⁶³, from Zn⁶³ decay 1=8644
 Cu^{63,65}, from alpha ray scatt., 44 MeV, inelastic, ang. distrib. 4=17194
 Cu^{63,65} spin transitions, and u.s. n.m.r. excitation 4=17694
 Cu⁶⁴, from γ rays from Ni⁶⁴(p,n γ)/Cu⁶⁴ 3=12589
 Cu⁶⁴, level half-lives 1=10994
 Cu⁶⁴, 0.277 and 0.607 MeV 4=9393
 Cu⁶⁵ 0=17560
 Cu⁶⁵ 1=3427
 Cu⁶⁵ 1=13809
 Cu⁶⁵ 4=19720
 Cu⁶⁵, model for low-lying levels 3=19780
 Cu⁶⁵, from Ni⁶⁵ decay 1=655
 Cu⁶⁵, 0.77 MeV level lifetime 1=2168
 Cu⁶⁵, 1.114 and 0.890 MeV, lifetimes, γ -reson. scatt. 4=1019
 Cu⁶⁵, isobaric analogue states 4=15160
 Cu⁶⁵ and V⁵¹, comparison 4=17056
 Cu⁶⁶, γ -ray energies 4=15154
 D, ground state calc. with spherical symmetry 1=2100-1
 Dy isotopes, β - and γ -vibrational states, energies 4=25276
 Dy¹⁵⁸ ground state 3=19823
 Dy¹⁵⁸, from Ho¹⁵⁸ decay 1=2191
 Dy^{158,159}, first rotational level 3=17458
 Dy¹⁵⁸ 3=10307
 Dy¹⁵⁸ 3=10308
 Dy¹⁵⁸, population of ground-state rot. bands 4=3580
 Dy¹⁵⁹ 2=5857
 Dy¹⁵⁹ 3=4597
 Dy¹⁶⁰ 1=5840
 Dy¹⁶⁰ 2=14057, 22776
 Dy¹⁶⁰ 4=6293
 Dy¹⁶⁰, 86.5, 283, 966 keV, lifetimes 3=15121

Nucleus—contd

energy levels—contd

Dy¹⁶⁰, first excited state, life time 4=15166
 Dy¹⁶⁰, first vibrational state, lifetime 1=9834
 Dy¹⁶⁰, from Ho¹⁶⁰ decay, conversion electron coincidences 3=15154
 Dy¹⁶⁰, K-conversion coeffs. for γ transitions 0=2650
 Dy¹⁶⁰, lifetime of 283 keV level 1=19365
 Dy¹⁶⁰, odd-parity states 3=12599
 Dy¹⁶⁰, relative transition probabilities 1=8663
 Dy¹⁶⁰, rotational, up to 14+ 4=12155
 Dy¹⁶⁰, from Tb¹⁶⁰ β -decay 3=19790
 Dy¹⁶⁰, 2+, g factor, Mössbauer meas. 4=20172
 Dy^{160,162}, 2+ and 4+ states, lifetimes 3=10267
 Dy¹⁶¹ 0=7473
 Dy¹⁶¹ 2=1777, 10010
 Dy¹⁶¹, hyperfine splitting, temp. depend. 1=20053
 Dy¹⁶¹, hyperfine splitting, temp. depend. 3=4999
 Dy¹⁶¹, hyperfine struct. in ionic crystals. 2=20910
 Dy¹⁶¹, 26 keV 1=5829
 Dy¹⁶¹, from Tb¹⁶¹ decay 4=25318
 Dy¹⁶² 1=8622
 Dy¹⁶², 4+ level energy 3=8134
 Dy¹⁶⁴ 4=27977
 Dy¹⁶⁴, gamma-vibr. bands meas. 4=9414
 Dy¹⁶⁵, isomeric transitions, γ -ray energies 3=6153
 Er^{161,162,164} 2=18256
 Er isotopes, β - and γ -vibrational states, energies 4=25276
 Er, quadrupole, intrinsic 2=10086
 Er, resonance level parameters determ. 4=6241
 Er¹⁶¹ 4=9454
 Er¹⁶², first rotational level 3=17458
 Er^{162,164}, from Tm^{162,164} decay 1=652
 Er¹⁶⁴, population of ground-state rot. bands 4=3580
 Er^{164,166,168,170}, rotational 4+ levels, excitation 3=15098
 Er¹⁶⁵, 1427 keV, 3-quasiparticle model 4=30327
 Er¹⁶⁵, from Tm¹⁶⁵ decay 3=10309
 Er¹⁶⁶ 1=12160
 Er¹⁶⁶ 1=16984
 Er¹⁶⁶ 1=17059
 Er¹⁶⁸ 3=10269
 Er¹⁶⁶, from decay of Ho¹⁶⁶ 2=5846
 Er¹⁶⁶, from decay of 30 yr Ho¹⁶⁶ 2=7939
 Er¹⁶⁶, E2 transitions, from vibration model 4=3558
 Er¹⁶⁶, 80.6 keV level, h.f.s. in Ho₂O₃ and Er₂O₃ 2=5813
 Er¹⁶⁶, 80.6 keV state, hyperfine splitting and g-factor 4=27978
 Er¹⁶⁸, excited states 3=6153
 Er¹⁶⁶, first excited state 2=5859
 Er¹⁶⁶, hyperfine splitting of 80.6 keV level 1=9815
 Er¹⁶⁶, hyperfine struct. in ionic crystals. 2=20910
 Er¹⁶⁶, 1826 keV level 1=8655
 Er¹⁶⁶, 0+ level 0=7477
 Er¹⁶⁶, radiative transit. lifetimes 2=13990
 Er¹⁶⁶, rotational-vibrational interactions 1=13728
 Er¹⁶⁶, from Tm¹⁶⁶ decay 0=13172
 Er¹⁶⁸, from Tm¹⁶⁸ \rightarrow Er¹⁶⁸ decay 3=8049
 Er¹⁶⁸, 2137, 2165 MeV, parity, 2, 4 quasiparticle configs. 4=22044
 Er^{168,167}, resonance levels 4=6240
 Er^{166,168}, from Tm^{166,168} electron-capture decay 0=5714
 Er^{168,169}, 2+ and 4+ states, lifetimes 3=10267
 Er¹⁶⁷ 1=670
 Er¹⁶⁷ 1=3428
 Er¹⁶⁷, branching ratios and mag dipole transit. probabs. 2=20514
 Er^{167m} 2=18271
 Er¹⁶⁷, from γ -rays following Coulomb excitation 4=1025
 Er¹⁶⁷, low levels 0=7559
 Er¹⁶⁷, nature of 531.8 keV level 3=4578
 Er¹⁶⁷, 208 and 532 keV, multipole orders 4=1026
 Er¹⁶⁸ 4=9415
 Er¹⁶⁸ 4=9455
 Er¹⁶⁸, 80 keV level, half-life 0=11303
 Er¹⁶⁶, low-lying, deuteron stripping data 3=10270
 Er¹⁶⁸, 2+ rotation level, gR factor 3=2391
 Er¹⁷⁰, 4+ level energy 3=8134
 Er¹⁷¹ 2=1838
 Eu^{145,147} 4=6237
 Eu¹⁴⁶ 3=12595
 Eu^{146m} 2=10018
 Eu^{146m1} 3=6173

Nucleus—contd

energy levels—contd

- Eu¹⁴⁷ 2=13988
 Eu¹⁴⁷, from Gd¹⁴⁷ decay 3=10300
 Eu^{147,148} by coincidence technique 4=6238
 Eu^{147,148,151} 3=12596
 Eu¹⁴⁸ 3=14117
 Eu¹⁴⁸, from Gd¹⁴⁸ decay 3=10301
 Eu¹⁴⁹, from Gd¹⁴⁹ electron capture decay 2=20558
 Eu¹⁵⁰ 1=12160
 Eu¹⁵¹ 3=24906
 Eu¹⁵¹, 21.7 keV state 3=17631
 Eu¹⁵¹, 21.7 keV transition, Mössbauer effect 2=20498
 Eu^{151,153}, low levels 0=7559
 Eu¹⁵², coincidence nuclear spectroscopy 0=11334
 Eu¹⁵², lower excited states 4=6236
 Eu¹⁵², rotational levels 2=13987
 Eu¹⁵³, 3⁻ → 3⁻ → 2⁺ transition, γ -ray circularly polarized angular correlations 1=2188
 Eu^{153m}, spin, from β - γ correl. in decay to Gd¹⁵³, 344 keV state 4=3612
 Eu¹⁵³ 0=7535
 Eu¹⁵³ 1=13733
 Eu¹⁵³ 2=3528
 Eu¹⁵³, branching ratios and mag. dipole transit. probabs. 2=20514
 Eu¹⁵³, from decays of Sm¹⁵³ and Gd¹⁵³ 1=615
 Eu¹⁵³, e.m. transition probabilities 1=19366
 Eu¹⁵³, $\frac{7}{2}$, K $\frac{3}{2}$ level 4=17100
 Eu¹⁵³, internal conversion lines 1=13656
 Eu¹⁵³, 103 keV level, lifetime 1=12163
 Eu¹⁵³, 69.7 and 103.2 keV, conversion coefficients 4=17065
 Eu^{153,155}, excited states 3=6153
 Eu¹⁵⁴, γ -spectrum from neutron capture 4=1022
 Eu¹⁵⁴, rotational levels 2=13987
 Eu¹⁵⁵, excited levels lifetime 2=369
 Eu¹⁶⁰ 1=17113
 F, 2nd., elec. moment meas., use of ClF p scatt. target 4=25297
 F¹⁶, from N¹⁴(He³,n) reaction 1=8577
 F¹⁷ 3=4631
 F¹⁷ 4=9508
 F¹⁷, calc., low-lying, α -particle model 4=1011
 F¹⁷, first excited state, lifetime 0=17551-2
 F¹⁷, first excited state, lifetime 3=2383
 F¹⁷, first excited state quadrupole decay 3=19745
 F¹⁷, lower levels, α -model of nucleus 3=636
 F¹⁷ from O¹⁶ p scatt. polarization ang. distrib. 4=19767
 F¹⁷, parameters, rel. to O¹⁶(p, p) O¹⁶ data 2=13991
 F¹⁷, proton unstable, from Ne¹⁷ β^+ decay 4=25342
 F¹⁷, single-particle levels 2=10020
 F¹⁷, single-particle levels 3=6163
 F¹⁷ 3.86 MeV 5/2⁻ from O¹⁶(p, γ)F¹⁷, reson. capture and γ ang. distrib. 3=17403
 F¹⁸ 0=2624, 5669, 17591, 20414
 F¹⁸ 2=16424
 F¹⁸, even parity, shell model study 4=19676
 F¹⁸, first T = 1 level 0=17495
 F¹⁸, levels at 8.50, 9.00 MeV, evidence 3=2385
 F¹⁸, low-lying levels, lifetimes 3=17402
 F¹⁸, from O¹⁶(He³, p) p- γ coincidences 1=7323
 F¹⁸, O⁺, T = 1 level as analogue of Ne¹⁸ ground state 1=5841
 F¹⁸, O⁺(T=1) state, residual interaction 4=17038
 F¹⁸, from O¹⁷ + p reaction 2=3575
 F¹⁸, shell-model, tensor force effect 4=25291
 F¹⁸, virtual states, from α scatt. on N¹⁴ 2=493
 F^{18,19}, calc. from deformed potential wave-functions 2=1815
 F^{18,19} deformed, analysis using effective interactions 4=6221
 F¹⁹ 0=4098, 7596
 F¹⁹ 1=13854
 F¹⁹ 2=16397-8
 F¹⁹ 3=6164
 F¹⁹ 3=19843
 F¹⁹, from α scatt. on N¹⁵ 1=7404
 F¹⁹, from B¹¹(α , p.)C¹⁴ reaction 4=17036
 F¹⁹, Coulomb excitation 4=12139
 F¹⁹, first excited state, lifetime meas. 3=22294
 F¹⁹, γ -decay schemes 2=3574
 F¹⁹, low-lying levels 0=433

Nucleus—contd

energy levels—contd

- F¹⁹, low lying levels, properties 4=12137
 F¹⁹, negative parity states 4=12141
 F¹⁹, negative parity states 4=17035
 F¹⁹, 9.07 MeV state 2=370
 F¹⁹, from O¹⁸ + p 0=2661
 F¹⁹, from O¹⁸ + p reactions 1=7370
 F¹⁹, from O¹⁹ decay 0=9560
 F¹⁹, 1.34 MeV level lifetime 1=2168
 F¹⁹, 1.35 and 1.46 MeV levels 4=12138
 F¹⁹, from proton inelastic scatt. 2=441, 22807
 F¹⁹, spin and parity, 9.6-11.2 MeV, from p scatt., by O¹⁸ 4=1070
 F¹⁹, 73 resonances 3=12584
 F^{19,21}, from Ne + t reactions 1=10967
 F²⁰ 1=9875
 F²⁰ 2=5800, 10136
 F²⁰, ang. momentum assignments in F¹⁸(d,p)F²⁰ 4=12266
 F²⁰, from F¹⁹(d,p) reaction 4=28057
 F²⁰, neutron meas. at 1-300 MeV 4=9395
 F²⁰ 4=6353
 F²¹ 2=12135
 F²¹, 11 levels below 5.83 MeV 2=1816
 F²¹, from F¹⁹(t,p)F²¹ 4=17037
 Fe 1=13651
 Fe isotopes 2=1923
 Fe, natural, level density and neutron excess 1=13653
 Fe⁵², T = 2 states, (p, t) reaction search 4=27963
 Fe⁵⁴, level density and neutron excess 1=13653
 Fe⁵⁴, neutron resonance widths 1=13654
 Fe^{54,56}, vibration levels 2=372, 20515
 Fe^{54,56-8}, single-particle neutron bound states, from (p, d) reaction 2=18322
 Fe⁵⁴⁻⁹ 4=15217
 Fe⁵⁵ 4=22028
 Fe⁵⁶, from Mn⁵⁶(p,n) reactions, at low energy 3=17473
 Fe⁵⁶, 0.413 MeV, spin and parity 4=22024
 Fe^{56,57,58} 4=12269
 Fe^{55,56}, shell-model states assignation 3=24833
 Fe⁵⁶ 1=668
 Fe⁵⁶ 1=13809
 Fe⁵⁶ 2=1886, 10099, 18319
 Fe⁵⁶ 4=19719
 Fe⁵⁶, anal. by neutron scatt. 4=1018
 Fe⁵⁶ from Co⁵⁷(p, α)Fe⁵⁶ 1=11012
 Fe⁵⁶, Coulomb excitation, reorientation effects 3=12588
 Fe⁵⁶, 1st excited state, g-factor 3=17407
 Fe⁵⁶, 40 levels below 5.5 MeV 3=19779
 Fe⁵⁶, half-life of 845 keV level 1=19367
 Fe⁵⁶, lifetime and g-factor of first excited state 1=19368
 Fe⁵⁶, by neutron inelastic scatt., expt. and theory 1=8734
 Fe⁵⁶, neutron resonance widths 1=13654
 Fe⁵⁶, rel. to 155 MeV inelastic proton scattering 4=15203
 Fe⁵⁶, rotational consts. 4=25306
 Fe⁵⁷ 2=1886, 10120
 Fe⁵⁷ 3=6297
 Fe⁵⁷ from Fe⁵⁶(n, γ) 1=8609
 Fe⁵⁷, 14.4 keV, E2 meas., from He⁺ scatt. γ spectra 4=25307
 Fe⁵⁷, 14.4 keV, electric moment, Mossbauer meas. 4=15157
 Fe⁵⁷, 14.4 keV state, h.f.s. 2=18245
 Fe⁵⁷, ground and excited, rel. to isomeric displacement in Mossbauer effect 3=7972
 Fe⁵⁷, hyperfine splitting, Mössbauer effect 0=11827
 Fe⁵⁷, Mössbauer effect in Fe₂O₃, quadrupole interaction and chemical binding effects 0=11561
 Fe⁵⁷, Mössbauer scatt. 3=2366
 Fe⁵⁷, 0.365 MeV 4=9393
 Fe⁵⁷, 136 keV level decay 0=17561
 Fe⁵⁷, shell model, single-particle levels 2=10017
 Fe⁵⁷, theory, role of p-n interact. 2=22707
 Fe⁵⁷, Zeeman effect, γ -ray polarization 2=12125
 Fe^{57m}, electric moment, from Mossbauer effect in Fe₂O₃ 4=15158
 Fe⁵⁷, obs. by Mössbauer effect, apparatus 4=12576
 Fe⁵⁸ 2=1886, 1916
 Fe⁵⁸, first excited level lifetime 1=2243
 Fe⁵⁸, 0.81 MeV level, K/ β^+ ratio 2=7948
 Fe⁵⁸, 150 levels below 8.1 MeV 3=19779
 Fm²⁵⁴ 3=638

Nucleus—contd

energy levels—contd

Fm²⁵⁴, 44, 148, 692, 734 keV 2=18287
 Fr²²¹, 388 and 544 keV 3=17446
 Fr²²³ 0=11338
 Ga^m 0=17523
 Ga⁶⁵ 1=13663
 Ga⁶⁸ 2=16345
 Ga⁶⁹ 4=9403
 Ga⁷¹, Ga⁶⁹, neutron scatt., resonance parameters, rel. to strength in. 4=28036
 Ga⁷¹ 4=19721
 Ga⁷¹ 4=22065
 Ga⁷⁶ 1=17113
 Gd^{151,152} 3=10302
 Gd¹⁵² 1=2200
 Gd¹⁵² 4=25354
 Gd¹⁵², conversion-gamma ang. correl. meas. 3=17417
 Gd¹⁵², first excited state, mean life 4=17066
 Gd¹⁵², 0⁺ level 0=7477, 7526
 Gd¹⁵², spins and parities 1=19407
 Gd¹⁵², from Tb¹⁵² decay 2=5867
 Gd¹⁵², 344 keV level, lifetime 2=1803
 Gd¹⁵² vibrational levels 1=9810
 Gd^{152,154} 0=17554
 Gd¹⁵⁴ 1=12160
 Gd¹⁵⁴, collective states energies, perturb. corrections 3=6154
 Gd¹⁵⁴, 123 keV, h.f.s. coupling 3=19789
 Gd¹⁵⁴, 122 keV level, lifetime 1=12163
 Gd¹⁵⁴ vibrational levels 1=9810
 Gd^{154,156} 2=1822
 Gd^{154,156,158,160}, rotational 4⁺ levels, excitation 3=15098
 Gd¹⁵⁵, 87 keV h.f.s. interaction with Gd³⁺ ions, from γ - γ ang. correl. 4=25317
 Gd¹⁵⁵, levels and transitions 2=3480
 Gd^{155,157}, branching ratios and mag. dipole transit. probabs. 2=20514
 Gd¹⁵⁶ 1=5877
 Gd¹⁵⁶ 1=17021
 Gd¹⁵⁶ 2=1801, 3481
 Gd¹⁵⁶, spins of high-energy states 2=7922
 Gd^{156,158} 2=5799, 7930
 Gd^{156,158}, differences above 1.2 MeV, from neutron-capture γ -spectra 1=8739
 Gd¹⁵⁷ 4=19731
 Gd¹⁵⁷, 0.46 μ sec isomer 4=15164
 Gd¹⁵⁸ vibrational levels 1=9810
 Gd^{158m} 2=10018
 Gd^{158m} 3=6173
 Gd¹⁶⁰, 4⁺ level energy 3=8134
 Ge, even nuclei, 2⁺ levels 2=13994
 Ge nuclides, excited by 36 MeV N^{14,4+} ions, reduced probability 3=10260
 Ge⁷⁰ 3=12624
 Ge⁷⁰, 0⁺ level, double Coulomb excitation 3=10261
 Ge⁷² 1=13809
 Ge⁷² 4=22066
 Ge⁷², first excited state 2=3529
 Ge⁷², second 2⁺ level, by proton inelastic scatt. 1=19459
 Ge⁷³ 3=6297
 Ge⁷⁴ 0=15545, 15559
 Ge⁷⁴ 1=13809
 Ge⁷⁴ 2=16321
 Ge⁷⁴, Coulomb excited 1=4874
 Ge⁷⁴, first and second excited states 1=8620
 Ge^{74,76}, second 2⁺ state 2=10141
 Ge⁷⁶ 1=13809
 Ge⁷⁶, Coulomb excited 1=4874
 H⁴ search 4=1004
 H⁴, unbound 4=9365
 H^{5,7}, stability to neutron emission 0=15670
 He⁴, from (d + t) neutron spectra 2=22661
 He⁴, excited state, from D-T reaction 3=2327
 He⁴, existence of 0⁺ state 3=15047
 He⁴, fine structure study of photoprotons 0=20249
 He⁴, level at 20 MeV, from p-T scatt. 0=13073
 He⁴, 1p₁ state at ~28 MeV, from (γ , p) calc. 1=559
 He⁴, proton scatt. data 2=18110
 He⁴, search for levels near 22 MeV 0=15461
 He⁴, at 22.5 MeV, by He⁴(p, p') at 55 MeV 4=16981
 He⁴, virtual state, study using T(d, pn)T 3=2331

Nucleus—contd

energy levels—contd

He⁵, calc. 0=17496
 He⁵, doublet splitting 0=4026
 He⁵, first excited state 4=9390
 He⁵, from He⁴ + n, 20-29 MeV 3=15099
 He⁵, spin-orbit splitting, calc. 1=3385
 He⁵, spin-orbit splitting, calc. 1=7320
 He⁶, from Li⁷(f, α)/He⁶ reaction 0=15523
 He⁷ hyperfragment, isomeric state 3=630
 He⁸, stability to neutron emission 0=15670
 Hf, from γ -emission following neutron capture 4=3680
 Hf, low-lying levels, excitation 1=13787
 Hf¹⁷², conversion electron spectrum 4=9417
 Hf¹⁷⁴, first rotational level 3=17458
 Hf¹⁷⁴, population of ground-state rot. bands 4=3580
 Hf¹⁷⁶ 2=20566
 Hf¹⁷⁸ 3=15155
 Hf¹⁷⁸ 4=9456
 Hf¹⁷⁸, excited states 3=6153
 Hf¹⁷⁷ 2=3524, 18259
 Hf¹⁷⁷, branching ratios and mag. dipole transit. probabs. 2=20514
 Hf¹⁷⁷, from decay of Ta¹⁷⁷ and Lu¹⁷⁷ 1=17027
 Hf¹⁷⁷, first excited state, lifetime 3=6178
 Hf¹⁷⁷, g-factor of 113 keV state 0=7472
 Hf¹⁷⁷, γ -transitions to rotational states, Nilsson model 3=6177
 Hf¹⁷⁷, 113 keV, g-factor 2=10014
 Hf¹⁷⁷, 113 keV, lifetime meas. 4=22045
 Hf¹⁷⁷, 113 keV rot. nuclear g-factor meas. 2=10013
 Hf¹⁷⁷, 113 and 321 keV, lifetimes 3=15121
 Hf¹⁷⁷, spin 2=20516
 Hf¹⁷⁷, 321 keV level lifetime 0=15537
 Hf¹⁷⁷, three-particle states of high spin 4=9416
 Hf^{177,179}, lifetime of first excited state 0=20397
 Hf¹⁷⁸ 3=8011
 Hf¹⁷⁸, 93 keV state, g-factor 2=12137
 Hf¹⁷⁸, from Ta¹⁷⁸ decay 1=8621
 Hf^{178,180}, spins of isomeric states 1=8549
 Hf¹⁷⁸, orbit flip mag. transitions 3=2392
 Hf^{179m} 2=18271
 Hf¹⁷⁹ 4=3582
 Hf¹⁷⁹, existence of negative level 0=5790
 Hf¹⁷⁹, lifetime of first excited state 0=20397
 Hf¹⁸⁰ 1=4849
 Hf¹⁸⁰, 4⁺ level energy 3=8134
 Hf¹⁸⁰, half-lives 2=20527
 Hf¹⁸⁰, rotational states 1=19410
 Hf¹⁸⁰, 2⁺ and 4⁺ states, lifetimes 3=10267
 Hg, odd-A isotopes, e.m. transit. probab. 2=3484
 Hg, optical ns_{1/2}, isotopic shift 2=16322
 Hg, optical ns_{3/2}, isotopic shift 3=6182
 Hg¹⁹² 1=9829
 Hg¹⁹⁵, excitation functions 2=1882
 Hg¹⁹⁵, spins and parities 2=373
 Hg¹⁹⁷ 0=13142
 Hg¹⁹⁷, spins and parities 2=412
 Hg¹⁹⁸ 0=451
 Hg¹⁹⁸ 1=13758
 Hg¹⁹⁸, 411 keV excited level, lifetime 1=18739
 Hg¹⁹⁸, 412 keV, absolute meas. 3=19795
 Hg¹⁹⁸, 412 keV level g factor meas. in Fe-Au(0.5 wt. %) 4=15170
 Hg¹⁹⁸, K-conversion coeff. of 412 keV E2 transition 4=3583
 Hg¹⁹⁸, 2⁺-2 electric monopole transition 4=19702
 Hg¹⁹⁹, electron spectrum of Tl¹⁹⁹ 1=643
 Hg¹⁹⁹, existence of negative level 0=5790
 Hg¹⁹⁹, 158 keV 2=1775
 Hg¹⁹⁹, partial radiation widths 0=2623
 Hg¹⁹⁹, from Tl¹⁹⁹ and Au¹⁹⁹ decay 3=658
 Hg^{199m} 2=18271
 Hg²⁰⁰ 0=4071-2
 Hg²⁰⁰, 1.59 and 2.10 MeV 4=9393
 Hg²⁰⁰, states 2, 3 and 4, two-phonon vibr. triplet 4=9542
 Hg²⁰⁰, vibrational levels 1=9810
 Hg²⁰¹, level spacings and transit. probab. 2=3482
 Hg²⁰² 0=7539
 Hg²⁰², 5.4 MeV, from (n, γ) γ self-absorpt. 4=6349
 Hg²⁰⁶ 2=10035
 Ho, short-lived isomeric state 2=18250
 Ho¹⁵⁹ 2=5857
 Ho¹⁵⁹ 3=4597

Nucleus—contd

energy levels—contd

Ho¹⁶¹ 3=10308
 Ho¹⁶¹, from Er¹⁶¹ decay 1=2196
 Ho¹⁶² 1=8622
 Ho¹⁶² 1=12160
 Ho¹⁶⁵ 1=12179
 Ho¹⁶⁵ 3=10306
 Ho¹⁶⁵ 3=15120
 Ho¹⁶⁵, deformed, Coulomb excitation and decay 4=22043
 Ho¹⁶⁵, low levels 0=7559
 Ho¹⁶⁵, from Dy¹⁶⁵ decay 3=655
 Ho¹⁶⁵, E2 and E1 transition probabilities 3=12598
 Ho¹⁶⁵, excited states 3=6153
 Ho¹⁶⁶ 1=17059
 Ho¹⁶⁶ 2=10074
 Ho¹⁶⁶, deformed, extensive rotational structure 3=10268
 Ho¹⁶⁶, from Dy¹⁶⁶ decay 0=13175
 Ho¹⁶⁶, from Dy¹⁶⁶ decay 4=19735
 Ho¹⁶⁶, γ -spectrum from neutron capture 4=1022
 Ho¹⁶⁶, low-lying, and Nilsson scheme for strongly deformed nucleus 3=12600
 Ho¹⁶⁶, low-lying states, cascade quantum coincidences 1=13659
 Ho¹⁶⁶, transitions between low-lying excited states 1=8648
 Ho¹⁶⁶, K = 0 rotational band 1=8601
 Ho^{166m} 0=17523
 Ho¹⁶⁸ 1=17113
 Ho¹⁷⁰ 1=17113
 I 1=13651
 I, by proton bombardment, 100 MeV 3=12591
 I¹²⁴ 0=20415
 I¹²⁷, from γ -ray spectra, on neutron scatt., inelastic 2.95 MeV 3=8106
 I^{127,129} 2=1804
 I^{127,129}, calc. using unified model 2=7931
 I¹²⁸, from γ -ray spectra after neutron capture 2=10024
 I¹²⁸, level half-lives 1=10994
 I¹²⁹ 3=17414
 I¹²⁹ 4=19729
 I¹²⁹, first excited state, half-life 3=19787
 I¹²⁹, first excited state, lifetime 3=2367
 I¹²⁹, from Te^{129m} 33d decay 4=27973
 I¹²⁹, 26.8 keV state 4=15163
 I¹³¹ 1=13757
 I¹³¹ 1=13694
 I¹³¹ 3=22334
 In¹¹¹, nuclear quadrupole interaction 2=12138
 In¹¹⁵, existence of negative level 0=5790
 In¹¹³, from Sn¹¹³ decay 0=15564
 In¹¹³, from Sn¹¹³ decay 1=9842
 In^{113m+115m} 2=18271
 In¹¹⁴, coincidence nuclear spectroscopy 0=11334
 In¹¹⁵ 1=3427
 In¹¹⁵ 3=7999
 In¹¹⁵ 3=17437
 In¹¹⁵ 4=19692
 In¹¹⁵, 595 keV, half-life and transition probabilities 1=16985
 In¹¹⁵, near 1.4 MeV 3=24899
 In^{116m} 0=17523
 In¹¹⁷ 4=19728
 In¹¹⁹ 0=11352
 In¹²¹ 0=11352
 In¹²³ 0=11352
 In¹²⁹, 129 keV level, width, using resonance absorption 0=411-12
 Ir^{187m,189m} 3=24911
 Ir¹⁸⁸ 3=8016
 Ir¹⁸⁸, excited in electron capture decay of Pt¹⁸⁸ 4=12161
 Ir¹⁸⁹ 4=17104
 Ir¹⁹¹, 42 keV E3 transition, L shell particle parameters 4=19701
 Ir¹⁹¹, 129 keV level, lifetime meas. 3=2394
 Ir¹⁹¹, 129.6 keV, lifetimes 3=15121
 Ir^{191m} 2=18271
 Ir¹⁹² 4=9458
 Ir¹⁹⁴ 4=25359
 Ir¹⁹⁴, isomeric transition, 47 sec 3=2393
 Ir¹⁹⁵, transit. probabs. 2=20569
 K³⁷, comparison with A³⁷ 1=2231
 K³⁷, new levels 4=19684
 K³⁸ 2=16382

Nucleus—contd

energy levels—contd

K³⁸ 3=10256
 K³⁸ 4=3695
 K³⁸, central two-body interaction 1=9796
 K³⁸, first excited state, excitation energy 0=2664
 K³⁸, from Ar³⁸(p, γ) 4=19686
 K³⁹, from d scatt. at 15 MeV 2=22842
 K³⁹, rel. to 155 MeV inelastic proton scattering 4=15203
 K³⁹, single particle hole states 2=18315
 K⁴⁰ 2=5800
 K⁴⁰, shell model calc. 4=25304
 K⁴¹ 2=13997
 K⁴¹ 3=7991
 K⁴¹, from A⁴⁰(p, γ) 4=19685
 K⁴¹, from Ar⁴⁰(p, γ)K⁴¹ reaction 4=6340
 K⁴¹, 57 excited levels 1=8727
 K⁴¹, γ spectra, spins, 8.92 MeV decay scheme 4=3565
 K⁴¹, low levels, calc. 0=11324
 K⁴¹, 100 MeV level 2=450
 K⁴², from γ -ray energies 4=15154
 K⁴³ 4=28064
 Kr⁸⁰ 2=10071
 Kr⁸⁰, 620 keV, lifetime estimation 4=25310
 Kr⁸² 4=22030
 Kr⁸², from Br⁸² β decay, 2430 keV, spin from γ ang. correls. 4=12150
 Kr⁸², lifetimes of levels, estimation 4=25310
 La, from γ -emission following neutron capture 4=3680
 La^{126,128,130} 4=22038
 La^{137,138}, fed by Ba^{137,138} (p,n) reactions, level densities 4=9409
 La¹³⁹ 1=7341
 La¹³⁹, γ -forbidden transitions, matrix elements 3=4573
 La¹³⁹, levels and lifetimes, from Ba¹³⁹ decay 0=20410
 La¹⁴⁰, from Ba¹⁴⁰ decay 0=4054
 La¹⁴¹, from Ba¹⁴¹ decay 2=18291
 Li 1=19473
 Li⁴, from p-He³ elastic scatt. 0=9359
 Li⁶, α -p interaction, effect on C¹⁴(p, p') 3α 3=10345
 Li⁶, calc. 0=17496
 Li⁶, P_{3/2} state 1=19293
 Li⁶, 0=9640
 Li⁶ 1=5893
 Li⁶ 2=495
 Li⁶ 4=6336
 Li⁶, calc. from three-body model 2=9986
 Li⁶, cluster-model calc. 1=10968
 Li⁶, from electron scatt. at 40 MeV 1=681
 Li⁶, from free nucleon--nucleon interaction, calc. 3=12579
 Li⁶, level inversion 2=20494
 Li⁶, from Li⁷(p,d)Li⁶ 0=1413
 Li⁶, from Li⁷(He³, α)Li⁶ 0=15523
 Li⁶, lowest six even parity states calc. 2=18225
 Li⁶, from photo-proton spectra 1=8584
 Li⁶, s-state, single-particle and cluster model wave functions 3=22386
 Li⁶, shell model analysis of T = 1 levels 3=2373
 Li⁶, 3.56 MeV level lifetime 1=5856
 Li⁶, 3.56 MeV state lifetime 0=4075
 Li⁶, 3.56 MeV transition, ang. correl of internal conversion pairs 0=13150
 Li⁶, at 2.184, 4.54 MeV, α scatt., ang. distrib., 23.8 MeV 4=17193
 Li⁶, lower levels, 4.52 and 5.47 MeV 4=17199
 Li⁶, width of 3.56 MeV (T = 1) level 4=1006
 Li^{6,7} 0=9499
 Li^{6,7}, form factors for electron inelastic scatt. 4=17118
 Li^{6,7}, rel. to 155 MeV inelastic proton scatt. 4=15202
 Li⁷ 2=5800, 16385
 Li⁷ 3=6229
 Li⁷ 3=10249
 Li⁷, between 9 and 9.55 MeV excitation, Li⁶(n, H³)He⁴ data 0=5670
 Li⁷, cluster-model calc. 1=10968
 Li⁷, 1st excited, γ excitation function 4=17020
 Li⁷, first excited state 1=19532
 Li⁷, first excited state, mean lifetime 3=4564
 Li⁷, 5.5 MeV, J = 5/2, possible, from Li⁷(γ , α)H³, α spectrum 3=17397
 Li⁷, 5.7, 6.8 MeV, spin and parity 3=19766
 Li⁷, 4.61 MeV level, spin and parity 0=9644

Nucleus—contd

energy levels—contd

Li⁷, $\frac{1}{2}^-$, p scatt., polarization 4=12212
 Li⁷, 1/2⁻ state lifetime 1=3434
 Li⁷, high levels 4=12201
 Li⁷, J = 5/2 state 2=16288
 Li⁷, (Li⁶ + neutron) configuration, doubt on 6.54 MeV level 1=16986
 Li⁷, from Li⁷(γ , t)He⁴, $\gamma \leq 9.5$ MeV 3=8070
 Li⁷, low levels 0=17497
 Li⁷, 0.478 MeV, γ -ray anisotropy for parity non-conservation, calc. 2=418
 Li⁷, 0.478 MeV, from Li⁶ + Li⁶ react. 2=20681
 Li⁷, 0.478 MeV p scatt. cross. and polarization 4=19764
 Li⁷, reduced widths, cluster model 1=7312
 Li⁷, rot. bands 2=3568
 Li⁷, rotational levels 0=13136
 Li⁷, from rotational model 3=12549
 Li⁸, fast residuals, from Be⁹(p,2p) with 660 MeV 4=12219
 Lu¹⁷⁰, K=0 rot. band 4=27981
 Lu^{170,174} 0=15538
 Lu¹⁷² 1=12160
 Lu¹⁷² 2=10016
 Lu¹⁷³ 2=10015
 Lu¹⁷⁴, rot. levels 2=13987
 Lu¹⁷⁵, branching ratios and mag. dipole transit. probabs. 2=20514
 Lu¹⁷⁵, g-factor of 114 keV state 0=7472
 Lu¹⁷⁵, γ -transitions to rotational states, Nilsson model 3=6177
 Lu¹⁷⁵, lifetime of first excited state 0=20397
 Lu¹⁷⁵, 114 and 396 keV, lifetimes 3=15121
 Lu¹⁷⁵, 113.8 keV, lifetime 2=13992
 Lu¹⁷⁵, 343 keV, nuclear resonance fluorescence 2=7954
 Lu^{175,177}, first excited state, lifetime 3=6178
 Lu¹⁷⁶, rot. levels. 2=13987
 Lu¹⁷⁶, 3.7 hr isomeric state, rotational nature 3=8010
 Lu¹⁷⁷, decay 4=12158
 Lu¹⁷⁷, long-lived isomeric state 2=20516
 Lu¹⁷⁷, ~1240 keV, spin, from Yb¹⁷⁷ 1.9 hr β decay 4=12159
 Lu¹⁷⁷, parity mixture, from decay data 0=4030
 Lu¹⁷⁷, spin-23/2⁻ isomer, three-particle state 4=9416
 Lu¹⁸⁰ 1=17113
 Mg 1=13651
 Mg, by γ -ray scattering, resonant, ≤ 12 MeV 3=6166
 Mg, 10.15 MeV level, width, by photon resonant scatt. 0=17621
 Mg, 10.2, 9.3 MeV, widths 2=420
 Mg, 10.42 MeV, characteristics 2=13999
 Mg²² 2=381
 Mg²³ 2=14133
 Mg²⁴ 0=7597
 Mg²⁴ 1=617
 Mg²⁴ 1=2172
 Mg²⁴ 1=10969
 Mg²⁴ 1=11006
 Mg²⁴ 2=1805, 10099, 12215, 14133, 20518
 Mg²⁴ 3=12670
 Mg²⁴ 3=17468
 Mg²⁴ 4=9510
 Mg²⁴, from Al²⁷(p, α) Mg²⁴ reaction 0=20435
 Mg²⁴, anomalous ordering 4=27964
 Mg²⁴, deformation, calc. 1=10951-2
 Mg²⁴, deformed, giant E1 resonance, calc. 2=1798
 Mg²⁴, excitation γ -ray study 1=5842
 Mg²⁴, first excited level lifetime 1=2243
 Mg²⁴, first excited state lifetime 0=2567
 Mg²⁴, γ -decay modes 2=5870
 Mg²⁴, γ -ray branching 2=5912
 Mg²⁴, intermediate coupling shell-model calc. 1=8575
 Mg²⁴ partial 1=13792
 Mg²⁴, reduced width calc. 4=1104
 Mg²⁴, resonance reactions 2=5879
 Mg²⁴, rotational, theory 3=17404
 Mg²⁴, at 6.44 MeV 1=13857
 Mg²⁴, spin-parity combinations below 9.6 MeV 4=9396
 Mg²⁴, T = 2 states, (p, t) reaction search 4=27963
 Mg²⁴, from (d, p) and (d, t) reactions 0=13239
 Mg²⁴⁻⁵, γ -ray widths 0=13139
 Mg²⁴⁻⁶, from deuteron inelastic scatt. 1=7396
 Mg²⁴⁻³⁰, hole states study 4=1073

Nucleus—contd

energy levels—contd

Mg^{24,26}, low levels, by proton inelastic scatt. 1=8578
 Mg²⁵ 1=16987
 Mg²⁵ 1=19508
 Mg²⁵ 2=5961, 14133, 16425, 20650
 Mg²⁵, from Al²⁷ + d reaction 4=3694
 Mg²⁵, doublet at 3.40 MeV 1=8582
 Mg²⁵, even parity levels, rotational structure 4=12142
 Mg²⁵, excitation γ -ray study 1=5842
 Mg²⁵, excited states 0=9532
 Mg²⁵, first excited state lifetime 0=17553
 Mg²⁵, lifetime of first excited state 3=12585
 Mg²⁵, 1.61 MeV level half-life 1=12161
 Mg²⁵, 66 levels 2=5801
 Mg²⁵, 3.40 MeV doublet 1=8623
 Mg^{25,26}, first excited states, rel. to Si^{28,29}(n, α) cross-sections 4=17162
 Mg^{25,26}, from Si^{28,29}(n, α) 3=8108
 Mg^{25,26,27} 2=5800
 Mg²⁶ 1=7377
 Mg²⁶ 1=13848
 Mg²⁶ 1=16987
 Mg²⁶ 2=1784
 Mg²⁶, from Al²⁶ decay γ coincidences 3=22295
 Mg²⁶, excitation γ -ray study 1=5842
 Mg²⁶, first excited state at 1.33 \pm 0.02 MeV 2=1806
 Mg²⁶, 0⁺ first excited state, possible existence 2=22733
 Mg²⁶, 1.83 MeV level half-life 1=12161
 Mg²⁶, 1.33 MeV level, no confirmation 3=7987
 Mg²⁶, 1.33 MeV, unlikelyhood from systematics 4=9397
 Mg²⁶, rotational props. of level structure 3=8125
 Mg²⁶, from Si²⁹(n, α) 2=7997
 Mg²⁶⁻⁷, from Al²⁷ + n reactions at 14.8 MeV 1=9868
 Mg²⁷ 1=16987
 Mg²⁷, low-lying states, radiative decay 4=25302
 Mg²⁷, from proton ang. distrib. in Al²⁷(n, p) 0=460
 Mg²⁸ 1=16987
 Mg²⁸, Coulomb excitation, reorientation effects 3=12588
 Mn 1=13651
 Mn⁵¹, from Cr⁵⁰(p, γ) 4=19688
 Mn^{51,53}, (p, γ) obs. 4=22027
 Mn^{51,53-5}, from Cr (p, γ) 2=7981
 Mn⁵³, 555 keV level, lifetime 1=12163
 Mn⁵², matrix elements, J \rightarrow J transitions 0=7513
 Mn⁵³, from Cr⁵²(p, γ) 4=19782
 Mn⁵³⁻⁵⁵ 4=15217
 Mn⁵⁵ 2=10096, 18267
 Mn⁵⁶ 3=6164
 Mn⁵⁵ 3=6237
 Mn⁵⁵, first 3 excited states, spin 3=22302
 Mn⁵⁵, γ -ray studies 0=5798
 Mn⁵⁶ 1=17145
 Mn⁵⁶, level half-lives 1=10994
 Mn⁵⁶, lifetimes of first three excited levels 0=4024
 Mn⁵⁶, low-lying states, cascade quantum coincidences 1=13659
 Mn⁵⁶, transitions between low-lying excited states 1=8648
 Mo isotopes, odd-A 4=27969
 Mo, isotopic shift (X-ray level) finite nuc. size corr. 2=16322
 Mo, isotopic shift (X-ray level), finite nuc. size corr. 3=6182
 Mo, level distance 0=9533
 Mo nuclides, excited by 36 MeV N^{14,4+} ions, reduced probability 3=10260
 Mo⁹², first level, Coulomb excitation 3=17409
 Mo⁹² spectra from Tc⁹² decay e⁺, γ 4=19691
 Mo^{92,94-98,100} 3=24956
 Mo⁹³ 0=17498
 Mo⁹³, populations 2=10079
 Mo⁹³ spectrum calc., for g $\frac{1}{2}^+$ proton-d $\frac{1}{2}^+$ neutron Nb⁹² interactions, and spin gap 4=19690
 Mo⁹⁴, from Tc⁹⁴ and Tc^{m94} decay 4=30323
 Mo⁹⁵ 0=1377
 Mo⁹⁵ 1=8657
 Mo⁹⁵ 1=13730
 Mo⁹⁶ 3=22305
 Mo⁹⁶, from decay of Te⁹⁶ and Nb⁹⁶ 2=3485
 Mo⁹⁷, existence of negative energy level 0=5790
 N 1=19473

Nucleus—contd
energy levels—contd

- N^{13} 1=12192
 N^{13} 3=17465
 N^{13} , by C^{12} inelastic proton scattering 1=19453
 N^{13} , from C^{12} (p, $p'\gamma$) 2=1878
 N^{13} , from C^{12} (p_1, p_2, γ) C^{12} 2=7979
 N^{13} , near 7 MeV excitation, widths 3=2292
 N^{13} , from proton scattering on carbon 1=10970
 N^{13} , from proton scatt. on C 1=8713
 N^{13} , shell model predictions rel. to expt. 3=635
 N^{13} , transitions between mirror states 0=20353
 N^{13-15} 0=2624
 N^{14} 0=7596
 N^{14} 1=4865
 N^{14} 1=5867
 N^{14} 1=11033
 N^{14} 1=12189
 N^{14} 3=6162
 N^{14} , approx. Hartree-Fock calc. 4=16999
 N^{14} , from C^{12} (α, d) at 47.5 MeV 1=727
 N^{14} , from C^{12} + d at 0.5 to 2 MeV 0=7474
 N^{14} , from C^{12} + d at 1.7-3.1 MeV 1=718
 N^{14} , from C^{13} (p, γ) N^{14} 2=16323
 N^{14} , from C^{13} (p, γ), obs. 4=22012
 N^{14} , at ~ 11 MeV, by proton inelastic scatt. on C^{13} 0=17499
 N^{14} , excitation by inelastic electron scattering 4=22011
 N^{14} , excited states 11-15 MeV 3=17400
 N^{14} , 5.83, 5.10 MeV levels, parity 2=20519
 N^{14} , 5.83 and 6.44 MeV, lifetimes 4=17024
 N^{14} , fine structure in N^{14} (γ, n) N^{13} activation curve 1=2206
 N^{14} , first excited state, lifetime 1=664
 N^{14} , near proton threshold 4=19673
 N^{14} , new level at 11.82 MeV, from proton inelastic scatt. on C^{13} 1=7325
 N^{14} , 9.17 MeV level, decay modes 0=17562
 N^{14} , 9.17 MeV level, γ -ray resonant absorption 0=410
 N^{14} , from O^{16} (d, α) N^{14} at 15 MeV 2=8007
 N^{14} , from proton elastic scatt. on C^{13} 1=7324
 N^{14} , resonance levels from C^{12} (d, p) C^{13} 1=5935
 N^{14} , ~ 7.60 MeV, effect on C^{13} (p, γ) N^{14} , and C^{13}/C^{12} ratio in stars 3=11566
 N^{14} , 6.44, 7.03, 9.17 MeV, shell model 3=8094
 N^{14} , spins and parities 1=13844
 N^{14} , 10.22 MeV level 3=17399
 N^{14} , 2.312 MeV level in (N^{14}, C^{12}) reaction 2=8010
 N^{14} , shell model assignments 0=9531
 N^{14} , shell-model, tensor force effect 4=25291
 N^{14} , by 10.2 MeV proton scatt. 4=9488
 N^{15} 1=12212
 N^{15} , from B^{11} (α, p) C^{14} reaction 3=19770
 N^{15} , from B^{11} (α, p) C^{14} reaction 4=17026
 N^{15} , from C^{14} (p, n) 0=17583
 N^{15} , doublet splitting due to tensor interaction 2=3475
 N^{15} , $\frac{1}{2}^+$ states, reduced widths and isotopic spin impurity 1=8580
 N^{15} , $\frac{1}{2}^+$ states, reduced widths and isotopic spin impurities 1=8624
 N^{15} , near 7 MeV 0=20349
 N^{15} , 6.32 MeV 4=9393
 N^{15} , 6.33 MeV, from N^{14} (d, p) N^{15} 1=7326
 N^{15} , spin-orbit splitting, calc. 1=3385
 $N^{15, 16}$ 2=5800
 N^{16} 1=12212
 N^{16} 3=24862
 N^{16} , from F^{19} (n, α) reaction 1=8577
 N^{16} , 4.3-5.8 MeV, 2 broad single-particle states, shell-model predicted 2=14106
 N^{16} , from N^{14} (t, p) N^{16} 1=12154
 N^{16} , by neutron elastic scatt. on N^{15} at 1.9-3.5 MeV 1=8625
 N^{16} , from neutron scatt. by N^{15} , single-particle levels 1=8590
 N^{16} , spins and parities, from N^{15} + n reson. 4=27961
 N^{17} , and atomic mass 1=8583
 N^{17} , to 4.3 MeV 0=20350
 N^{21} , 1170 keV level width 0=11413
 Na 1=13651
 Na^{21} 1=10972
 Na^{21} 2=381, 10137
 Na^{21} , first excited state 3=2385
 Na^{21} , first excited state, fed by Ne^{20} (p, γ) 4=12225

Nucleus—contd
energy levels—contd

- Na^{21} , 3.56 MeV, deexcitation, spin 4=12143
 $Na^{21, 23}$ 2=1922
 Na^{22} 0=7568, 7585, 20414
 Na^{22} 1=17152
 Na^{22} , from Mg^{24} (d, α) Na^{22} and Na^{23} (He^3, α) Na^{22} 4=15151
 Na^{22} , 0^+ (T=1) state, residual interaction 4=17038
 Na^{22} , 655.5 ± 20 keV from Mg^{26} (p, α) Na^{22} 4=22019
 $Na^{22, 23}$, from $Ne^{21, 22}$ (p, γ) reaction 3=4634
 Na^{23} 0=13206
 Na^{23} 1=13854
 Na^{23} 2=1820, 10137, 14091, 16410
 Na^{23} 3=17467
 Na^{23} 4=22176
 Na^{23} , from α -particle bombardment of F^{19} 4=15153
 Na^{23} , compound (Ne^{22} + p) nucleus 4=9490
 Na^{23} , from F^{19} (α) Na^{23} 4=17041
 Na^{23} , first excited state 3=15103
 Na^{23} , first excited-state lifetime 0=5726
 Na^{23} , first excited state, mean lifetime 3=4564
 Na^{23} , 1st excited state, mean lifetime meas. 1=16995
 Na^{23} , lower excited states, collective model 4=15152
 Na^{23} , rel. to 155 MeV inelastic proton scattering 4=15203
 Na^{23} , rel. to rotational model 4=12267
 Na^{24} , unified model 2=5802
 Na^{24} 2=5800
 Na^{24} , even parity levels, rotational structure 4=12142
 Na^{24} , from Na^{23} (d, p) proton spectrum 1=8572
 Na^{24} , neutron cross-section data, 1.350 keV 0=9534
 Na^{24} , up to 7 MeV 3=19875
 Na^{24} , 630-860 KeV 1=16996
 Na^{24} , 350-630 keV, from neutron scatt. on Na^{23} 1=8626
 Na^{24} , 2.512 MeV excitation energy, from (d, p) reaction 4=25301
 Na^{24m} 0=17523
 Na^{25} 2=12135
 Na^{25} , 29 levels below 5.746 MeV 2=1816
 Nb , by proton bombardment, 100 MeV 3=12591
 Nb^{91} , from Zr^{91} (p, n) 1=9862
 Nb^{92} , calc., n-p interaction 4=25313
 Nb^{92} , isomeric state 2=18262
 Nb^{92} and Nb^{93} , from Nb^{93} (p, d) Nb^{92} obs. 4=12151
 Nb^{92} , fed by Nb^{93} (d, t) 4=12152
 Nb^{93} 0=4121
 Nb^{93} , from n scatt., inelastic, calc. and meas. 3=15110
 Nb^{97} , excited states 3=17436
 Nb^{98} 1=17113
 Nb^{100} 1=17113
 Nd , even-even nuclei 2=13982
 Nd , from γ -emission following neutron capture 4=3680
 Nd , stripping study 3=2390
 Nd^{140m} 2=10018
 Nd^{140m} 3=6173
 Nd^{141m} 0=11336
 Nd^{143} 1=10959
 Nd^{144} 1=3419
 Nd^{144} , by β decay and electron capture 1=16988
 Nd^{144} , from Pm^{144} decay 0=428
 Nd^{144} , 2.18 MeV level, parity 3=12633
 Nd^{146} 2=20652
 Nd^{147} , by orientation in Nd ethylsulphate 1=12147
 Nd^{160} , first rotational level 3=17458
 Ne^{18} , from O^{16} (He^3, n) Ne^{18} 1=5940
 Ne^{19} 3=668
 Ne^{19} , 1st and 2nd excited levels, spin sequence 3=15102
 Ne^{19} , $\frac{1}{2}^+$ + state, from He^3 scatt. on O^{16} 2=493
 Ne^{20} 0=13206
 Ne^{20} 1=10969
 Ne^{20} 1=19534
 Ne^{20} , by α scatt., two new levels 3=2498
 Ne^{20} , from α -scattering by O^{16} 0=9645
 Ne^{20} , from C^{12} (C^{12}, α) Ne^{20} 4=15149
 Ne^{20} , from C^{12} (C^{12}, α) Ne^{20} reaction, at 16.6 MeV 2=1809
 Ne^{20} , from C^{12} (C^{12}, α, γ) Ne^{20} reactions 2=1933
 Ne^{20} , from C^{12} (C^{12}, α) reaction 1=16989-91
 Ne^{20} , calc. from deformed potential wave-functions 2=1815
 Ne^{20} , deformed, analysis using effective interactions 4=6221
 Ne^{20} , 8.71 MeV, O^+ level 3=10242
 Ne^{20} , from F^{19} (d, n) Ne^{20} 4=15232
 Ne^{20} , from F^{19} (d, n) Ne^{20} at 0.5-2 MeV 0=9535
 Ne^{20} , F^{19} (p, α) Ne^{20} resonances 2=1888

Nucleus—contd

energy levels—contd

Ne⁴⁰, first excited level lifetime 1=2243
 Ne⁴⁰, first rotational band, model 3=4565
 Ne²⁰, first 10 excited states 3=19849
 Ne²⁰, 5- and 6+ states 4=15148
 Ne²⁰, 5.63 and 5.8 MeV, de-excitation branching and radiative widths 2=1813
 Ne²⁰, 5.63 and 5.80 MeV, by C¹²(C¹², α)Ne²⁰ 4=25298
 Ne²⁰, 5.63 and 5.80 MeV, spin and parity 2=1807, 7932
 Ne²⁰, 4.97 and 5.63 MeV, spin and parity 2=397
 Ne²⁰, 4.97 MeV, negative parity possibility 2=1811
 Ne⁴⁰, 4.97 MeV, parity 3=10255
 Ne²⁰, 4.97 MeV, props. 2=1814
 Ne²⁰, 4.97 MeV, 2⁻ assignment 2=1808
 Ne⁴⁰, γ radiations from excited states 1=665
 Ne²⁰, ground and 2⁺ first excited state 3=19889
 Ne²⁰, low levels, from F¹⁹(d, n) 1=7398
 Ne²⁰, low levels, by proton inelastic scatt. 1=8578
 Ne⁴⁰, 0.65 MeV, 0⁺ level 3=10242
 Ne²⁰, from O¹⁶(α, γ) 4=22187
 Ne²⁰, 1.63, 4.25 and 4.97 MeV, spin and parity 2=3623
 Ne²⁰ rotational bands 1=13660
 Ne²⁰, rotational bands, overlapping 2=1812
 Ne²⁰, 7.02 MeV 2=1810
 Ne²⁰, 7.20 MeV γ-ray width, and prod. in stars 3=11568
 Ne²⁰, shell model calc. of even parity states 4=27962
 Ne²⁰, 10.31 MeV 4=17040
 Ne²⁰, theoretical analysis 2=22736
 Ne²⁰, third excited state 2=3624
 Ne²⁰, 13.51 MeV state, anomalously weak ground-state transition 0=20442
 Ne²⁰, 13.332 and 13.440 MeV levels 3=15193
 Ne²¹ 2=13993
 Ne²¹, angular correlation measurements 4=25299
 Ne²¹, first excited state lifetime 0=11333
 Ne²¹, lifetimes 4=22017
 Ne²¹, low-lying positive parity states, model 4=3564
 Ne²¹, from study of F¹⁹(He³, p)Ne²¹ reaction 0=7475
 Ne²¹, 27 levels 0=20351
 Ne^{21,20} 1=2172
 Ne^{21,23} 2=5800
 Ne^{21,23}, from Ne^{20,22}(d, p) reaction 1=8579
 Ne²², from O¹⁸(α, n)Ne²¹ 2=22735
 Ne²² 0=20414
 Ne²² 1=19536
 Ne²² 3=2449
 Ne²² 3=2500
 Ne²² 3=4673
 Ne²² 3=10387
 Ne²² 4=22181
 Ne²², anomalous ordering 4=27964
 Ne²², from F¹⁹(α, p) reaction 1=2240
 Ne²², from F¹⁹(He³, p)Ne²² 4=15150
 Ne²², first excited level lifetime 1=2243
 Ne²², 1-9 MeV, from F¹⁹(α, p)Ne²³ 2=374, 22737
 Ne²², 1277 keV transition, internal conversion 3=8031
 Ne^{22,24}, from Ne + t reactions 1=10967
 Ne²³ 2=1821
 Ne²³, 17 levels 0=20351
 Ni, calc., harmonic osc. function 4=17053
 Ni, even nuclei, 2⁺ levels 2=13994
 Ni isotopes 2=1923
 Ni, from Ni^{58,60,62}(n, γ) with pile neutrons 1=4871
 Ni, proton bombarded, nuclear temp. 3=12669
 Ni—Zn, even—even, low-lying, vibr., from p scatt. 4=1001
 Ni⁵⁸ 1=10965
 Ni⁵⁸ 1=19370
 Ni⁵⁸ 2=1914
 Ni⁵⁸, first excited level lifetime 1=2243
 Ni⁵⁸, neutron resonance widths 1=13654
 Ni⁵⁸, rel. to s-state interacts. in two-body forces 4=25308
 Ni^{58,60} 2=18319
 Ni^{58,60}, α-scattering study 0=2620
 Ni^{58,60,62} 3=6281
 Ni^{58,60,62}, two and three-phonon 3=15106
 Ni^{58,60,64}, parity assignment 1=13853
 Ni⁵⁹ 2=12167
 Ni⁵⁹ 3=12667
 Ni⁵⁹, from Co⁵⁹(p, n) 1=9862
 Ni^{59,61}, shell model, single-particle levels 2=10017

Nucleus—contd

energy levels—contd

Ni^{58,61}, single-particle shell-model states 4=12270
 Ni^{58,61,63}, spin and parity 4=22024
 Ni⁶⁰ 1=19370
 Ni⁶⁰ 1=10965
 Ni⁶⁰ 2=1914, 1924
 Ni⁶⁰, first excited level lifetime 1=2243
 Ni⁶⁰, lifetimes, upper limits 1=16979
 Ni⁶⁰, neutron resonance widths 1=13654
 Ni⁶¹ 2=1914
 Ni⁶¹ 3=6297
 Ni⁶¹, Mössbauer spectrum of γ-transitions 1=9807
 Ni⁶² 2=1916
 Ni⁶², collective model 2=18235
 Ni⁶², existence of negative level 0=5790
 Ni⁶², first excited level lifetime 1=2243
 Ni⁶², first four excited states 3=10338
 Ni^{62,63,65}, shell-model states assignation 3=24833
 Ni^{62,64}, from alpha ray scatt., 44 MeV, inelastic, ang. distrib. 4=17194
 Ni^{62,64}, low lying, vibr. from p scatt., 11 MeV 4=1001
 Ni⁶⁴ 2=1916
 Ni⁶⁴ 3=10259
 Ni⁶⁴, excitation energies of 30 levels 4=3567
 Ni⁶⁴, first excited level lifetime 1=2243
 Ni⁶⁵, from γ-ray energies 4=15154
 Np²³⁷ 3=2421
 Np²³⁷ 3=15162
 Np^{237,239} 4=8461
 Np^{237,239}, calc. from α-spectra of Am^{243,241} 4=28004
 O, isotopes, first excited levels 1=618
 O isotopes, shell model, only 1d_{5/2} 4=19678
 O, from n scatt., 14 MeV, n, γ coincidences 3=17476
 O¹⁴, from C¹²(He³, n)O¹⁴ 1=5940
 O¹⁴, ground-state spin and parity 1=3460
 O¹⁵ 0=2624, 5729
 O¹⁵ 2=14133
 O¹⁵, 8.926 and 8.988 MeV, spin and parity 3=12582
 O¹⁵, from N¹⁴(d, n)O¹⁵ 3=2486
 O¹⁵, from O¹⁶(d, t) at 15 MeV 1=2233
 O¹⁵, from O¹⁶(γ, n)O¹⁵ neutrons 2=14078
 O¹⁵, from O¹⁶(He³, α)O¹⁵ 0=7578
 O¹⁵, 7.56 MeV, γ-ray spectra 1=12155
 O¹⁶ 1=9816
 O¹⁶ 1=19387
 O¹⁶ 2=3616, 20590
 O¹⁶ 3=2451
 O¹⁶ 4=15146
 O¹⁶, from C¹²(α, γ) reaction 4=30356
 O¹⁶, rel. to C¹² scattering, 168 MeV 4=22200
 O¹⁶ compound nucleus in N¹⁴(d, α)C¹² reaction 1=17146
 O¹⁶, dipole and octupole states, calc. 1=4830
 O¹⁶, dipole state, calc. 1=3381
 O¹⁶, dipole states, by SU3 coupling scheme 4=12136
 O¹⁶, e.m. transitions 6.92 MeV → 6.13 MeV and 7.12 MeV → 6.13 MeV 2=13996
 O¹⁶, 8.88-6.06 MeV transitions 2=20522
 O¹⁶, electromagnetic transition probabilities, meas. 4=17029
 O¹⁶, 11-14 MeV, by electron inelastic scatt. 4=17028
 O¹⁶, first 0⁺ state, theory 2=20520
 O¹⁶, fourth excited state, search for low-energy γ-rays 0=4078
 O¹⁶, 8.88 MeV (2⁻) state parity-forbidden alpha-decay 1=8634
 O¹⁶(γ, n)O¹⁵, Breit—Wigner shape fit and shell model predictions 4=6323
 O¹⁶, from (γ, n) reaction 0=4034
 O¹⁶, from γ-ray spectrum 0=4077
 O¹⁶, giant dipole states decay, in (γ, n) reaction 4=25374
 O¹⁶, Green's function computation 2=3486
 O¹⁶, ground state correlations 2=12116
 O¹⁸, hole states study 4=1073
 O¹⁸, lifetimes, upper limits 1=16979
 O¹⁸, low excited states, level spacings, transitions 3=15104
 O¹⁸, low excited states in SU3 scheme 3=10253
 O¹⁸, 9.58, 11.52 MeV width calc., in α particle model 4=3552
 O¹⁸, 9.58 MeV 1=9826

Nucleus—contd

energy levels—contd

- O^{16} , O^{16} , calc. hole—nucleon interaction theory 3=19768
 O^{16} , O^{16} , calc., hole—nucleon interaction theory 3=19768
 O^{16} , O^{16} excited state and centre-of-mass effects 2=12139
 O^{16} , the O^{16} states, shell model 4=15147
 O^{16} , O^{16} states, theory 2=16328
 O^{16} , O^{16} and 2^{+} excited states 3=15105
 O^{16} , rel. to $O^{16}(\gamma, n)O^{15}$ reaction 1=5896
 O^{16} , from $O^{16}(\gamma, n)O^{15}$ yield curve fine structure 0=1435
 O^{16} , odd parity states, shell-model calc. 4=19674
 O^{16} , 1^{-} , 2^{+} and 4^{+} states 2=20673
 O^{16} , particle—hole description 4=22010
 O^{16} , particle—hole theory 2=13995
 O^{16} , quadrupole transition 2=20521
 O^{16} , reduced widths, cluster model 0=20345
 O^{16} , 7.12 MeV 1^{-} , rel. to γ -ray branching ratios 2=16326
 O^{16} , Shell model form factors, rel. to electron scattering 3=24927
 O^{16} , from 65 MeV He in inelastic scatt. 4=17201
 O^{16} , 6.05 MeV monopole transition, double γ -emission 4=17031
 O^{16} , 6.05 MeV monopole transition, pair angular correlation 4=17030
 O^{16} , 6.052 MeV, internal conversion line 3=15140
 O^{16} , 6.052 MeV, O^{16} level 3=10242
 O^{16} , 6.92 MeV state 0=20352
 O^{16} , 6.92 and 7.12 MeV 2=16327
 O^{16} , transitions to 6.06 MeV level excited by $N^{15}(p, \gamma)O^{16}$ 4=6222
 O^{16} , 24 states, from $N^{15}(p, p)$ meas. 2=18265
 O^{16} , 2^{+} states, radiation widths 0=5730
 O^{16} , 2^{+} T = 0 states 4=22013
 O^{16} , 2^{+} and O^{16} , and excitation by inelastic p scatt. 4=25294
 O^{17} 1=13854
 O^{17} 2=5803, 14133, 16424
 O^{17} , calc. from deformed potential wave-functions 2=1815
 O^{17} , calc., low-lying, α -particle model 4=1011
 O^{17} , D-state doublet splitting, calc. 1=3386
 O^{17} , deformed, analysis using effective interactions 4=6221
 O^{17} , doublet splitting 0=4026
 O^{17} , excited states, 10.4–13.7 MeV 3=10390
 O^{17} , first excited state, lifetime 0=17551-2
 O^{17} , first excited state, lifetime 3=2383
 O^{17} , lower levels, α -model of nucleus 3=636
 O^{17} , from neutron scatt. on O^{16} 1=8737
 O^{17} , from $O^{16}(d, p)$ at 15 MeV 1=2233
 O^{17} , from O^{16} neutron cross-section 1=11020
 O^{17} , single-particle levels 3=6163
 O^{17} , from stripping reaction 1=17144
 O^{17} , surface diffuseness effects 1=3399
 O^{17} , 3.06 and 3.85 MeV 4=19677
 O^{17} , to Ne^{20} region, interactions in deformed nuclei 4=9370
 $O^{17,18}$, negative parity states 4=12141
 $O^{17,19}$ 2=5800
 O^{17-19} , from (d, p) reactions, 15 MeV 3=12583
 O^{17-19} , from $O^{18} + d$ reactions 1=7399
 O^{17-20} , energy-level spectra 3=15071
 O^{17-20} , shell model, j-j coupling 2=7933
 O^{18} 0=1440
 O^{18} 1=731
 O^{18} , even parity, shell model study 4=19678
 O^{18} , to 5.2 MeV 0=20350
 O^{18} , low-lying levels, lifetimes 3=17402
 O^{18} , O^{20} 3=637
 O^{18} , shell model analysis of T = 1 levels 3=2373
 O^{18} , studied by reaction $H^2(O^{18}, p\gamma)O^{18}$ 1=3465
 O^{18} , theory rel. to free two-nucleon potential 2=16324
 O^{18} , 13 levels below 6.391 MeV 2=1816
 O^{18} , 3.63 MeV, emission of proton pairs from $O^{16}(t, p)O^{18}$ 4=17032
 O^{18} , F^{18} , shell model 2=1817
 $O^{18,20}$, and atomic mass 1=8583
 O^{19} 2=3487
 O^{19} 3=10254
 O^{19} 4=6373
 O^{19} 4=22147
 O^{19} , 1st-excited state 3=24863
 O^{19} , 4 MeV 2=1899
 O^{19} , 4 MeV level 1=17124
 O^{19} , involving two-neutron excitation 4=25296
 $O^{19,20}$, preparation of O^{18} in thin film target 2=4492

Nucleus—contd

energy levels—contd

- O^{20} , to 4.6 MeV 0=20350
 O^{20} , 26 levels below 8.64 MeV 2=1816
 Os , from γ -emission following neutron capture 4=3680
 Os , from (n, γ) spectra 2=469
 Os^{182} 1=13752
 Os^{184} 1=13752
 Os^{186} 3=10313
 Os^{186} , gyromag. ratio of 137 keV level 1=12157
 Os^{186} , 137 keV rotational level 1=8568
 $Os^{186,188}$, 2^{+} , from $Re^{186,188}$ β decay theory 3=22309
 Os^{188} 0=5733
 Os^{188} , gyromag. ratio of 155 keV level 1=12156
 Os^{188} , rel. to intermediate-coupling theory 2=18263
 Os^{188} , 0^{+} levels 0=7477
 Os^{188} , 155 keV 2^{+} state, g-factor meas. 4=15168
 Os^{188} , 789.99 keV level 2=10019
 $Os^{188,190}$, lower excited states 3=17421
 $Os^{188,190,192}$, 2^{+} transition probabilities 0=9536
 Os^{189} 1=3425
 Os^{189} 4=3618
 Os^{190} , from Ir^{190} decay 0=17564
 Os^{190m} 3=10273
 $Os^{191,193}$ 0=13142
 Os^{192} 2=22738
 Os^{192} 4=9458
 P^{28} 1=12159
 P^{29} , excited states, from $Si^{28}(p, \gamma)$ 4=17046
 P^{29} , low levels, from $Si^{28}(p, \gamma)$ 1=9817
 P^{29} , from proton scatt. on Si^{28} 0=4032
 P^{29} , from proton scatt. on Si^{28} 1=7327
 P^{29} , from proton scatt. on Si^{28} 1=9854
 P^{29} , from proton scatt. on Si^{28} 2=18270
 P^{29} , from $Si^{28}(d, n)$ reaction 1=619
 P^{29} , from $Si^{28}(p, \gamma)P^{29}$ 1=12158
 P^{29} , from Si^{28} proton capture 1=8588
 P^{29} , structure of excited states 4=17047
 P^{30} 1=13801
 P^{30} 2=3576, 5800, 5915, 10104, 16424
 P^{30} 3=2456
 P^{30} 3=6246
 P^{30} , fed by $Si^{29}(p, \gamma)$, γ -observations 4=15212
 P^{30} , low-lying levels, from $Al^{27}(\alpha, n)$ 0=5671
 P^{30} , from $Si^{29}(p, \gamma)$ reaction 1=8576
 P^{30} , 708 keV level 0=409
 P^{31} 1=13801
 P^{31} 2=18267
 P^{31} 3=19774
 P^{31} , collective-vibrational model 0=20319
 P^{31} , e.m. transitions 2=22743
 P^{31} , from $Si^{30}(p, \gamma)P^{31}$ 3=8088
 P^{31} , from $Si^{30}(p, \gamma)P^{31}$, γ -ray spectra at reson. between 1 and 2.7 MeV p energy 3=12586
 P^{31} , fed by $Si^{30}(p, \gamma)$ reaction 4=9512
 P^{31} , 4.784 MeV, collective nature 2=3567
 P^{31} , inelastic scatt. of fast electrons 4=17121
 P^{31} , new first excited state, 450 keV 4=22021
 P^{31} , from 9.42 \rightarrow 4.43 MeV γ polarization 4=25303
 P^{31} , rel. to 155 MeV inelastic proton scattering 4=15203
 P^{31} , 1.26 MeV level lifetime 1=2168
 P^{31} , props. of excited states, γ -spectra and decay schemes 2=22742
 P^{31} , from $S^{32}(d, He^3)$ 4=19819
 P^{31} , from $Si^{30}(p, p'\gamma)Si^{30}$ 1=5914
 P^{31} , 3.13 MeV, spin and parity, from 7.77 MeV γ direction—polarization correl. 4=22022
 P^{31} , unified model 2=5802
 P^{32} , average level spacings, strength function 3=19860
 P^{32} , low-lying levels, conflict with jj-coupling theory 0=9537
 P^{32} , up to 6.8 MeV 2=22739
 P^{32} , up to 6.2 MeV, from $P^{31}(d, p)P^{32}$ 0=13147
 P^{39} 1=4867
 Pa^{231} 2=3460
 Pa^{233} 2=3500
 Pa^{233} 3=4605
 Pa^{233} , 87 keV level lifetime 1=13688
 Pa^{234} 3=15158
 Pa^{234} , excited-level scheme 3=2395
 Pa^{234} , excited levels 3=22312
 Pa^{234} , low levels, in terms of unified model 4=17076
 Pa^{234} , 29 keV transition, internal conversion study 2=5805

Nucleus—contd

energy levels—contd

Pb, from electron scatt. at 40 MeV 1=681
 Pb isotopes, (d,p) reaction studies 1=3398
 Pb isotopes, (d,t) reaction studies 1=3397
 Pb, isotopes, first excited levels 1=618
 Pb, isotopic shift (X-ray level), finite nuc. size corr. 3=6182
 Pb region, shell model, calc., diffuse nuclear potential 0=13103
 Pb^{201,203,205}, level spacings and transit. probab. 2=3482
 Pb^{202,204,206}, first levels and quadrupole transit. 2=3483
 Pb²⁰⁴, E4 cross-over transition 3=8018
 Pb²⁰⁴, g-factors meas. of excited states 4=3570
 Pb²⁰⁴, 1.274 MeV, mag. moment 3=19763
 Pb²⁰⁵ 0=5719, 9583-4
 Pb²⁰⁵ 2=1797
 Pb²⁰⁸ 4=3621
 Pb²⁰⁵, calc. 3=10276
 Pb²⁰⁵, isomeric transitions 1=5864
 Pb²⁰⁵, shell model theory 1=9797
 Pb²⁰⁵, vib. states 2=10021
 Po^{205,207}, multipolarity assignments 2=18266
 Pb²⁰⁶ 2=1896
 Pb²⁰⁶, to 3 MeV, calc. 2=1759
 Pb²⁰⁶, transition probabilities 1=13597
 Pb²⁰⁶, 3.403 MeV state, lifetime 1=9832
 Pb²⁰⁶⁻¹⁹⁰ 3=19797
 Pb^{206,204,202}, rel. to pairing models 4=15131
 Pb²⁰⁶⁻⁸, level spacings from neutron spectroscopy 1=13652
 Pb²⁰⁶⁻⁸, neutron resonance widths 1=13654
 Pb²⁰⁷, from Bi²⁰⁷ decay 0=1394
 Pb²⁰⁷, f_{7/2} decay 4=19703
 Pb²⁰⁷, 570 keV $\frac{5}{2}^-$ state, magnetic moment 4=25323
 Pb²⁰⁷, from Pb²⁰⁸(n,2n)Pb²⁰⁷ 1=4834
 Pb^{207,208}, from γ , n reaction, time-of-flight 4=1029
 Pb^{207,209}, above 2 MeV 2=12115
 Pb²⁰⁸ 0=9607
 Pb²⁰⁸ 1=10965
 Pb²⁰⁸ 2=1842
 Pb²⁰⁸, rel. to C¹² inelastic scattering 4=22204
 Pb²⁰⁸, first 4 excited levels, spin, parity 2=14030
 Pb²⁰⁸, 5.2 MeV, from γ scatt. 4=6349
 Pb²⁰⁸, ground transition width, from γ scatt., 7.28 MeV 4=12197
 Pb²⁰⁸, lowest odd-parity excited levels, shell-model calc. 0=17500
 Pb²⁰⁸, particle-hole calc. 4=25324
 Pb²⁰⁸, spins and parities 1=17061
 Pb²⁰⁸, 3- and 4+ on shell theory 2=20517
 Pb²⁰⁸, two-hole two-particle configs. 3=10275
 Pb^{208,209} 2=1935
 Pb²⁰⁹ compound nucleus, virtual states 3=19760
 Pb²⁰⁹, doublet splitting 0=4026
 Pb²¹⁰, from β -decay Tl²¹⁰ 4=17105
 Pb²¹⁰, ground-state model, rel. to Bi²¹⁰ and Po²¹⁰ 0=13144
 Pb²¹⁰, to 3 MeV, calc. 2=1759
 Pb²¹¹, by α -spectroscopy 2=379, 14020
 Pd isotopes, odd-A 3=19783
 Pd nuclides, excited by 36 MeV N¹⁴; α ions, reduced probability 3=10260
 Pd¹⁰⁰ 4=22033
 Pd¹⁰³ 0=4055-6
 Pd¹⁰³, from Ag¹⁰³ decay 2=18293
 Pd¹⁰⁴, from decay of Ag¹⁰⁴ isomers 1=631
 Pd¹⁰⁴, from Rh¹⁰⁴ decay 4=17094
 Pd^{104,106}, low-lying levels 0=13140
 Pd^{104,106}, quadrupole spherical vibrations 3=4563
 Pd¹⁰⁵ 2=3531, 14046
 Pd¹⁰⁵, γ - γ coincidences and modified decay scheme 3=24897
 Pd¹⁰⁶, 319 keV state 3=6169
 Pd¹⁰⁶ 0=11358-9, 15563
 Pd¹⁰⁶ 1=12181
 Pd¹⁰⁶ 2=1819
 Pd¹⁰⁸ 3=17410
 Pd¹⁰⁸, from conversion electrons in Ag¹⁰⁸ and Rh¹⁰⁸ 1=8652
 Pd¹⁰⁸, highest level 2=5872
 Pd¹⁰⁸, low-lying levels 2=22740
 Pd^{108,110} 2=1818
 Pd^{108,110}, collective 2+ and 4+ levels excitation 2=12140
 Pd¹⁰⁹ 2=5849

Nucleus—contd

energy levels—contd

Pd¹⁰⁹, from n absorpt., 1.5-10 eV 3=19859
 Pd-Sm region, collective octupole states 3=12576
 Pm^{141m} 3=6173
 Pm^{144m} 2=10018
 Pm¹⁴⁵, *l*-forbidden transitions, matrix elements 3=4573
 Pm¹⁴⁷ 0=7535
 Pm¹⁴⁷ 1=3413
 Pm¹⁴⁷ 1=8649
 Pm¹⁴⁷, excited states 4=6234
 Pm¹⁴⁷, g-factor of 91 keV state 0=7472
 Pm¹⁴⁷, from Nd¹⁴⁷ decay 1=17040
 Pm¹⁴⁷, 91 keV, half-life 3=4576
 Pm¹⁴⁸ 3=15116
 Po²⁰⁷, hindered E2 ground state transition 3=19798
 Po²¹⁰ 4=6297
 Po²¹⁰, ground-state model, rel. to Pb²¹⁰ and Bi²¹⁰ 0=13144
 Po²¹⁰, 1431 and 1478 keV, half-lives 3=6183
 Po²¹⁰, shell-model residual force calc. 3=24875
 Po²¹⁰, to 3 MeV, calc. 2=1759
 Po²¹¹, by α -spectroscopy 2=379
 Po²¹¹, isomeric state 2=12141
 Po²¹² 0=7509, 9607
 Po²¹² 2=16359
 Po²¹², α and γ data 2=10026
 Po²¹², calc., residual pair interaction 2=13998
 Po²¹², four-nucleon motion correlation 3=640
 Po²¹², four-nucleon motion correl. 2=377
 Po²¹², 1513, 1800, 1680 keV, spins, parities 2=378
 Po²¹²(ThC') 4=3607
 Po²¹⁴, excited states, ang. correl. study 0=6904
 Po²¹⁴, rel. to internal rotation 3=24877
 Po²¹⁴, low-excited levels, K/L, K/M conversion ratios 0=7476
 Po²¹⁴, spin 1=19420
 Po²¹⁵, from Ra^{223m} low background α -spectroscopy 2=14020
 Pr, excited by resonance neutrons, statistics 2=388
 Pr, from γ -emission following neutron capture 4=3680
 Pr¹⁴¹ 0=5727
 Pr¹⁴¹ 1=19392
 Pr¹⁴¹ 2=18267
 Pr¹⁴¹ 3=17441
 Pr¹⁴¹, lifetime of first excited state 0=13180
 Pr¹⁴¹ + n compound nucleus 1=13811
 Pr¹⁴¹, new level, from deuteron inelastic scatt. 1=11030
 Pr¹⁴¹, 145 keV excited level, lifetime 1=18739
 Pr¹⁴¹, 6-12 MeV, radiation parameter 3=24869
 Pr^{142,144}, stripping study 3=2390
 Pr¹⁴³, 57 and 351 keV 4=9410
 Pr¹⁴³, 57 keV level, half-life 4=9377
 Pr¹⁴³, 35, keV state 1=17038
 Pr¹⁴⁴ 0=5698, 11368, 17501
 Pr¹⁴⁴, absolute transit. probab. 2=22741
 Pr¹⁴⁴, γ - γ coincidence data 4=3577
 Pr¹⁴⁴, 133.5, 100 and 80.1 keV 2=16329
 Pr¹⁴⁴, spin, from β - γ correl. 3=22308
 Pr¹⁹⁴, study of decay of Ir¹⁹⁴ 1=654
 Pt, from (n, γ) spectra 2=469
 Pt, by neutron resonances at 2.5 μ sec m⁻¹ resolution 1=17112
 Pt, from neutron scatt. 1=707
 Pt¹⁸⁰ 1=13738
 Pt¹⁸⁰, first excited levels 1=16992
 Pt¹⁹² 2=5804
 Pt¹⁹² 4=9458
 Pt¹⁹² de-excitation, $\bar{\epsilon}$ - γ ang. correls. 3=6181
 Pt¹⁹², first excited state half-lives 2=12146
 Pt¹⁹², quadrupole spherical vibration 3=4563
 Pt¹⁹⁴ 4=27982
 Pt¹⁹⁴, from Au¹⁹⁴ decay 0=7523
 Pt¹⁹⁴, Coulomb excitation study 0=13145
 Pt¹⁹⁴, low-lying levels 0=13140
 Pt¹⁹⁴, 0+ levels 0=7477
 Pt¹⁹⁴ 2+ transition probability 0=9536
 Pt¹⁹⁵, 97 keV level, lifetime 0=407
 Pt¹⁹⁵, Coulomb excitation study 0=1407, 13145
 Pt¹⁹⁵, partial radiation widths 0=2623
 Pt^{195m} 2=18271
 Pt¹⁹⁶ 0=13140, 17556
 Pt¹⁹⁶ 1=13739

Nucleus—contd

energy levels—contd

Pt¹⁹⁶ 2=10022
 Pt¹⁹⁶, γ -ray transitions to 0⁺ and 2⁺ states 2=20524
 Pt¹⁹⁸ 3=10274
 Pu²³⁸ 1=5862
 Pu²³⁸, γ -vibrational and ground state rotat. band mixing 2=5806
 Pu^{238,240} 2=18256
 Pu^{238,240}, from alpha-decay meas. 3=15129
 Pu²³⁹ 0=5700
 Pu²³⁹, excitation functions, allowing for n scattering and fission 3=6184
 Pu²³⁹, from Np²³⁹ internal conversion, compared with unified model 0=2647
 Pu^{239,241} 4=6299
 Pu²⁴⁰, correlation with U²³⁸ 0=7480
 Pu²⁴⁰, from Np²⁴⁰ decay 0=1380
 Pu²⁴¹, rel. to total neutron cross-section 1=11027
 Ra^{222,224,226,228} 2=18256
 Ra²²³, 215 and 310 keV 4=17074
 Ra²²⁴, first excited state lifetime 0=5688
 Ra²²⁶, spins and parities, from conversion electron spectrum, from Th²²⁶ decay 3=8056
 Ra²²⁶, α -spectrography 4=17075
 Ra²²⁶, 253 keV level, octupole deformation parameter 0=20320
 Rb⁸⁵, lifetime of first excited state 0=13180
 Rb⁸⁵, parity conservation 0=17502
 Rb^{85,87}, level spacings from neutron spectroscopy 1=13652
 Rb⁸⁸, γ -ray energies 4=15154
 Rb⁹⁰ 4=22067
 Re^{179,181} 0=15538
 Re¹⁸² 1=12160
 Re¹⁸⁴ 3=8014
 Re^{185,187}, first excited states, lifetimes 3=19794
 Re^{185,187}, lifetime of first excited states 0=20397
 Re^{186,188}, rotational 3=17418
 Re¹⁸⁷ 0=11384, 20388
 Re¹⁸⁷ 1=620
 Re¹⁸⁷ 2=14021
 Re¹⁸⁷, excited by γ -rays, lifetimes of excited states 4=25369
 Re¹⁸⁷, excited, internal conversion spectrum 3=8015
 Re¹⁸⁷, resonance fluorescence meas. 4=22046
 Re¹⁸⁷, 686 keV, nature and half-life 2=3488, 12142
 Re¹⁸⁷, 686 keV, nature and half-life 3=4580
 Re¹⁸⁷, 206 keV level, gyromagnetic ratio 4=9419
 Re¹⁸⁷, 4=6245
 Re¹⁸⁸, isomeric transitions, γ -ray energies 3=6153
 Re¹⁸⁸, rot. levels 2=13987
 Rh, proton bombarded, nuclear temp. 3=12669
 Rh^{101,2}, coincidence nuclear spectroscopy 0=11334
 Rh¹⁰³ 2=22776
 Rh¹⁰³, level spacings, 4 eV–10 keV 2=462
 Rh^{103m} 2=18271
 Rh¹⁰⁴ 3=4570
 Rh¹⁰⁴ 4=17060
 Rh¹⁰⁴, decay, β , γ transitions, coincidence, spectra 4=1045
 Rh¹⁰⁴, isomeric transitions, γ -ray energies 3=6153
 Rh¹⁰⁴, level half-lives 1=10994
 Rh¹⁰⁴, low-energy 2=12211
 Rh¹⁰⁴, low-lying excited states 2=16420
 Rh¹⁰⁴, low-lying excited states 3=6272
 Rh¹⁰⁴, from Rh¹⁰³(n, γ) γ spectra 4=22139
 Rh¹⁰⁴, spacing distrib. and small neutron widths 2=12143
 Rh^{104m}, spins 2=20525
 Rh¹⁰⁵, γ - γ cascades, spins 3=7997
 Rh¹⁰⁵, from Ru¹⁰⁵ decay 0=11357
 Rh^{107,108} 2=20539
 Rh¹¹⁰ 3=24894
 Rn, transitions 0=20356
 Rn²¹⁸, spectrum calc., outer nucleon binding energy 4=21977
 Rn²¹⁸, calc. with self-consist. and pair potentials 4=6247
 Rn^{218,220,222}, from Ra decay 0=13184
 Rn²¹⁸⁻²²², α -spectrography 4=17075
 Rn²¹⁹, by α -spectroscopy 2=379, 14020
 Ru¹⁰⁰ 2=5871
 Ru¹⁰⁰ 4=22032
 Ru¹⁰¹, two levels 4=17059
 Ru¹⁰² 1=13718

Nucleus—contd

energy levels—contd

Ru¹⁰² 2=3512
 Ru^{102,104} 2=1819
 Ru^{102,104}, collective 2⁺ and 4⁺ levels excitation 2=12140
 Ru¹⁰⁵ 2=5849
 Ru^{107,108} 2=20539
 S, from γ -ray spectra after neutron capture 2=10024
 S³² 0=4098
 S³² 1=617
 S³² 1=10969
 S³² 2=1883, 3567
 S³², from (α , γ) and (p, γ) reactions 4=22023
 S³², excited by proton scatt. 3=7988
 S³², 5.80 MeV 4=17121
 S³², inelastic E0 transition 3=10331
 S³², low levels, by proton inelastic scatt. 1=8578
 S³², low levels, proton scatt. 4=19770
 S³², matrix element of transition to second excited state 2=380
 S³², 0⁺ second excited state 1=13661
 S³², 0.41 MeV, 0⁺ level 3=10242
 S³², 0.2, 2.24, 4–5 MeV, angular distrib. of exciting 14.5 MeV neutrons 4=17164
 S³², from P³¹(p, γ)S³², 640–1150 keV 3=22377
 S³², second excited state assigned 0⁺ 1=8591
 S³², spins and parities 3=7989
 S^{32,34}, hole states study 4=1073
 S³³ 2=5800, 18267
 S³³, average level spacings, strength function 3=19860
 S³³, from from proton inelastic scattering 4=19771
 S^{33,37}, from Ar^{36,40}(n,p) 4=28046
 Sb, from (n, γ) spectra 2=469
 Sb, by proton bombardment, 100 MeV 3=12591
 Sb¹¹³ 2=16358
 Sb¹¹⁹ 2=14061, 14066
 Sb¹¹⁹ 4=3573
 Sb¹¹⁹, 1st excited state 3=15151
 Sb¹¹⁹, 155 keV level, lifetime 1=12163
 Sb¹²¹ 0=20416
 Sb¹²¹, excited states 3=10293
 Sb¹²¹, 70 and 576 keV 4=19694
 Sb¹²¹ and 70 keV lifetime 3=17413
 Sb¹²¹, low-lying levels 4=3574
 Sb¹²¹, I^{127,131}, Cs^{131,133} empirical regularity 4=12124
 Sb¹²², 159 keV 3=10263
 Sb¹²², short-lived isomeric state 2=18250
 Sb^{122m} 4=3572
 Sb¹²³, excited by γ -rays, lifetimes of excited states 4=25369
 Sb¹²⁴, from γ -ray energies 4=15154
 Sc⁴¹ 1=9874
 Sc⁴¹, from Ca⁴⁰(d,n) reaction 1=619
 Sc⁴¹, low-lying levels 0=4033
 Sc⁴¹, nuclear band structure, calc. 0=1365
 Sc⁴³ 3=10257
 Sc⁴³ 0=17504
 Sc⁴³, low, from Ca⁴²(p, γ), 780–1420 keV p's 3=17471
 Sc⁴⁴ 4=9400
 Sc⁴⁴, first exc. state, mag. moment 2=12121
 Sc⁴⁴, low-lying 4=17051
 Sc⁴⁴, matrix elements, J–J transitions 0=7513
 Sc⁴⁵, h.f.s. splittings 0=401
 Sc⁴⁵, low, from Ca⁴⁴(p, γ), 800–1400 keV p's 3=17470
 Sc⁴⁵, 1.660 MeV, γ decay scheme 4=6278
 Sc⁴⁵, from Ti⁴⁵ decay 1=9836
 Sc⁴⁶, from γ -ray spectra after neutron capture 2=10024
 Sc⁴⁶, from Sc⁴⁶(d,p), with 6.5 MeV d's 4=12145
 Sc⁴⁷, first excited state, lifetime 1=3406
 Sc⁴⁹, from Ca⁴⁸(p, γ), low energy 4=15156
 Sc⁴⁹, single particle state splitting 4=22026
 Sc^{50m} 3=24894
 Se, even-even nuclei 2=13982
 Se, even nuclei, 2⁺ levels 2=13994
 Se, neutron absorpt. resonances 2=18332
 Se⁷⁶, from As⁷⁶(p,n) 1=9862
 Se⁷⁵, coincidence nuclear spectroscopy 0=11334
 Se⁷⁶ 0=13213
 Se⁷⁶ 1=668
 Se⁷⁶ 1=13809
 Se⁷⁶, from As⁷⁶ and Br⁷⁶ decays 0=4065-6
 Se⁷⁶, excited-state lifetimes 0=13143

Nucleus—contd

energy levels—contd

Se⁷⁶, first excited level lifetime 1=2243
 Se⁷⁶, first excited state 3=10289
 Se⁷⁶, 0.559 MeV level, lifetime 3=10262
 Se⁷⁶, second 2⁺ level, by proton inelastic scatt. 1=19459
 Se^{76,78}, Coulomb excited 4=22029
 Se^{76,78,80}, second 2⁺ state 2=10141
 Se⁷⁷ 4=9404
 Se⁷⁷, from Br⁷⁷ decay 0=4068
 Se⁷⁷, Coulomb excitation 2=5970
 Se⁷⁷, 240 and 442 keV levels 1=5907
 Se⁷⁷, 245 keV level, lifetime 1=12163
 Se⁷⁷, 246 keV, spin, from γ -ray ang. distrib., on Coulomb excitation 4=1016
 Se⁷⁷, 248 keV, g, ang. correl. meas. 4=27968
 Se⁷⁷, width of J = 0 and J = 1 levels 3=4645
 Se^{77m} 2=18271
 Se⁷⁸ 1=13809
 Se⁷⁸ 2=1874
 Se⁷⁸, from Br⁷⁸ decay 0=13174
 Se⁷⁸, from Br⁷⁸ decay 1=8630
 Se⁷⁸, first excited level lifetime 1=2243
 Se⁷⁸, second 2⁺ level, by proton inelastic scatt. 1=19459
 Se⁷⁹ 1=13747
 Se⁸⁰ 0=5697
 Se⁸⁰ 1=13809
 Se⁸⁰ first excited level lifetime 1=2243
 Se⁸², first excited level lifetime 1=2243
 Si, from electron scatt. at 40 MeV 1=681
 Si, 11.3 MeV, width 2=420
 Si, 11.40 MeV level, width, by photon resonant scatt. 0=17621
 Si²⁶ 0=15581
 Si²⁸ 1=2238
 Si²⁷, 18 levels up to 5.51 MeV 2=18272
 Si²⁸ 1=4867
 Si²⁸ 1=10969
 Si²⁸ 2=1805, 1884, 3569
 Si²⁸ 3=10219
 Si²⁸ 3=12668
 Si²⁸ 3=19847
 Si²⁸ 4=9399
 Si²⁸ 4=9510
 Si²⁸ 4=22020
 Si²⁸, from Al²⁷(p, γ) 4=19682
 Si²⁸, from Al²⁷(p, γ)Se²⁸ resonance study 0=17505
 Si²⁸, from Al²⁷(p, γ)Si²⁸ 1=7372
 Si²⁸, from Al²⁷ proton capture 1=8588
 Si²⁸, 8⁺ state 4=12144
 Si²⁸, 11.3-12.8 MeV 3=2499
 Si²⁸, 11.2 MeV level by resonant scattering and absorption 1=16993
 Si²⁸, 11.20 MeV, characts. 2=13999
 Si²⁸, first excited level lifetime 1=2243
 Si²⁸, γ -decay modes 2=5870
 Si²⁸, low levels, proton scatt. 4=19770
 Si²⁸ partial 1=13792
 Si²⁸, resonance levels, decay schemes and branching ratios 4=30311
 Si²⁸, resonance states excited by protons 4=1013
 Si²⁸, 7.80 MeV level 1=17097
 Si²⁸, 6.88 MeV 4=28025
 Si²⁸, 6.88 MeV doublet 3=19844
 Si²⁸, 2⁺ 1.77 MeV level, width 3=22299
 Si^{28,30}, low levels, by proton inelastic scatt. 1=8578
 Si²⁸⁻³⁰, up to 6.5 MeV, by proton scatt. 0=13141
 Si^{28,30,32} 2=1784
 Si²⁹ 2=16424, 20556
 Si²⁹, average level spacings, strength function 3=19860
 Si²⁹, excited states 0=9587
 Si²⁹, low-lying levels, calc. from unified model 0=15505
 Si²⁹, resonance levels in Si²⁸-n scatt. 2=12198
 Si²⁹, from Si²⁸(d, p) 1=7400
 Si²⁹, from stripping reaction 1=17144
 Si^{29,30,31} 2=5800
 Si²⁹⁻³¹, from (d, p) reactions 0=17503
 Si³⁰ 0=1440
 Si³⁰ 1=16994
 Si³⁰ 3=2500
 Si³⁰ 3=24971

Nucleus—contd

energy levels—contd

Si³⁰, collective vibs., weak-coupling unified model 3=6167
 Si³⁰, 8.149 and 8.571 MeV 2=5962
 Si³⁰, 8.149 and 8.571 MeV 3=4667
 Si³⁰, from Mg²⁶(α , n) Si²⁹ 2=22735
 Si³⁰, 3.78 MeV doublet spins, from Al²⁷(α , p)Si³⁰ 4=19683
 Si³¹ 2=5963
 Si³¹ 3=4668
 Sm^{143m} 0=11336
 Sm¹⁴⁶ 0=4060
 Sm¹⁴⁶, rel. to Eu¹⁴⁶ decay scheme 4=22076
 Sm¹⁴⁶, at 749-3464 keV 3=4596
 Sm¹⁴⁷ 3=10298
 Sm¹⁴⁷, from Eu¹⁴⁷ decay 2=5866
 Sm¹⁴⁷, from Eu¹⁴⁷ decay 4=27997
 Sm^{147,148} 2=16373
 Sm¹⁴⁸ 2=16369
 Sm¹⁴⁸ 3=14117
 Sm¹⁴⁸ 3=15116
 Sm¹⁴⁸ 3=19821
 Sm¹⁴⁸, from decay of Pm^{148,148m} and Eu¹⁴⁸ 2=7946
 Sm¹⁴⁸, from Eu¹⁴⁸ decay γ -rays 3=10265
 Sm¹⁴⁸ excited states 4=6291
 Sm¹⁴⁸, 555-3370 keV 2=10023
 Sm^{148,150}, meas. and models 4=9412
 Sm¹⁴⁹ 1=8633
 Sm¹⁴⁹ 4=1024
 Sm¹⁴⁹, from Eu¹⁴⁹ decay 2=5865
 Sm¹⁴⁹, from Pm¹⁴⁹ decay 0=17532
 Sm¹⁴⁹, 22 keV state, resonance absorption expt. 2=22744
 Sm¹⁶⁰ 1=12160
 Sm¹⁶⁰ 3=10353
 Sm¹⁵⁰, from decay of Eu¹⁵⁰ 2=14000
 Sm¹⁵⁰, 1360 keV, spin 4=22041
 Sm¹⁵⁰, thermal neutron capture 3=15118
 Sm¹⁵¹ 2=12144
 Sm¹⁵¹, from β - γ transitions 2=404
 Sm¹⁵¹, 0.0048 MeV level lifetime 3=8042
 Sm¹⁵¹, from Pm¹⁵¹ decay 4=12186
 Sm¹⁵¹, from Pm¹⁵¹ β -decay, int. conversion coefft. 4=17064
 Sm¹⁵² 2=1822
 Sm¹⁵², Coulomb excit. by p and d bombard. 0=11415
 Sm¹⁵², first excited state, mean life 4=17066
 Sm¹⁵², K-L Auger spectrum 0=2642
 Sm¹⁵², 961 keV, lifetime 0=20337
 Sm¹⁵², 0⁺ level 0=7477, 7526
 Sm¹⁵², 1.531 MeV level, lifetime 1=19401
 Sm¹⁵², 1576 keV level 4=6235
 Sm¹⁵², from positron decay of Eu¹⁵² 4=22077
 Sm¹⁵², systematic deviations from simple rotational model 4=22001
 Sm¹⁵², 2⁺ and 4⁺ rotational levels, excitation functions 4=22042
 Sm¹⁵², vib. E1, E2, E3 transition probabilities 3=10241
 Sm¹⁵² vibrational levels 1=9810
 Sm^{152,154}, collective low-lying, proton scatt. meas. 4=27976
 Sm^{152,154}, 4⁺ level energy 3=8134
 Sm¹⁵⁴ 2=1874
 Sm¹⁵⁴, rotational 4⁺ levels, excitation 3=15098
 Sn, odd isotopes, from (d, p) and (d, t) reactions 1=8598
 Sn, odd isotopes, neutron single-particle states, from (d, p) and (d, t) reactions 1=4876
 Sn, pairing props., from model, single interaction, finite range 3=17380
 Sn, various isotopes, spectroscopic calc. 1=5843
 Sn¹¹⁵ 2=5808-9
 Sn¹¹⁵ 3=8098
 Sn¹¹⁵ 4=22035
 Sn¹¹⁵, from Sb¹¹⁵ decay 2=3532
 Sn¹¹⁶ 0=9601
 Sn¹¹⁶ 1=13662
 Sn¹¹⁶ 2=12145
 Sn¹¹⁶ 3=2429
 Sn¹¹⁶, high-lying states from In^{116m} decay 2=5807
 Sn¹¹⁶, production from In¹¹⁶ 3=4568
 Sn¹¹⁶, 2.23 MeV 2=1823
 Sn¹¹⁶, width of first excited state 3=639
 Sn¹¹⁷, 161 keV excited state, lifetime 1=4840
 Sn^{117m} 2=3527, 18271
 Sn¹¹⁸, from γ -ray correl. 1=8608

Nucleus—contd

energy levels—contd

- Sn^{118} , spin and parity, from $\text{Sn}^{117}(\text{d},\text{p})\text{Sn}^{118}$, p. ang. distrib. 3=12592
 $\text{Sn}^{118,120}$, from $\text{Sb}^{118,120}$ decay 1=16997
 $\text{Sn}^{118,120,122}$, from decay of In 4=22071
 Sn^{119} , first, isomer shift, elec. moment and deformation 4=19693
 Sn^{119} , h.f.s. of 23.8 keV state, by Mossbauer effect 0=20788
 Sn^{119} in metallic rigid soln., γ -transition, 23.8 keV isomer shifts rel. to matrix dynamic props. 4=25811
 Sn^{119} , 23.8 keV, γ -transition isomer shifts 2=5810
 Sn^{119} , 23.8 keV, γ -transition isomer shifts 3=4571
 Sn^{119} , Zeeman splittings of two lower levels, Mössbauer effect 1=10961
 Sn^{120} , from decay of $\text{Sb}^{120\text{m}}$ 1=622
 Sn^{120} , revised scheme 2=384
 Sn^{120} , second excited state, directional and polarization-direction correlations 1=16998
 Sn^{120} , spin and parity, from, $\text{Sn}^{119}(\text{d},\text{p})\text{Sn}^{120}$, p ang. distrib. 3=12592
 $\text{Sn}^{122-125}$, from nuclear reaction data 4=25314
 Sn^{124} , neutron resonance widths 1=13654
 Sn^{125} 0=2653
 Sn^{125} , 9.4 min and 9.7 day isomers decay 4=9406
 Sr^{83} 2=3513
 Sr^{85} 2=20554
 Sr^{85-8} 0=20357
 Sr^{86} 2=5855
 Sr^{86} , first excited state 4=1020
 Sr^{86} , from Y^{86} decay 1=8610
 Sr^{86-8} , deuteron inelastic scatt. 3=4662
 $\text{Sr}^{87\text{m}}$ 2=18271
 Sr^{88} 0=20396
 Sr^{88} , neutron resonance widths 1=13654
 Sr^{88} , O^+ excited state, search 3=15108
 Sr^{89} 2=16333
 Sr^{89} , neutron, single-particle levels 2=1824
 Sr^{89} , single quasi-particle levels 2=5964
 Sr^{89} , 13 levels excited by $\text{Sr}^{88}(\text{d},\text{p})\text{Sr}^{89}$ reaction 4=12271
 Sr^{90} 4=22068
 $\text{T} = 0$ levels in shell model, calc. 1=2167
 Ta , proton bombarded, nuclear temp. 3=12669
 Ta^{173-8} 0=15538
 Ta^{176} 3=24872
 Ta^{176} , rel. to W^{176} decay scheme 4=17103
 Ta^{179} , 30.7 keV anomalous electric dipole transition 4=6243
 Ta^{181} 0=20412
 Ta^{181} , branching ratios and mag. dipole transit. probabs. 2=20514
 Ta^{181} , from decay of Hf^{181} and W^{181} 1=8627
 Ta^{181} , first excited state, hindered E1 decay 1=8650
 Ta^{181} , 48 keV level, lifetime 1=12163
 Ta^{181} , 480 keV level, half-life 4=9377
 Ta^{181} , 482 keV level, g-factor and mag. moment 2=14002
 Ta^{181} , lifetime of first excited state 0=20397
 Ta^{181} , proton bombardment study 1=7328
 Ta^{181} , 6.25 keV level 1=17064
 Ta^{182} , band-mixing analysis 4=9561
 Ta^{182} , γ -decay 3=12601
 Ta^{182} , rot. levels 2=13987
 Ta^{182} , rotational 3=17418
 Ta^{182} , transition probabilities 0=9565
 Tb^{159} , conversion electron spectrum 3=10304
 $\text{Tb}^{159,164,166}$ 1=12160
 Tb^{159} , from Dy^{159} decay, conversion electron coincidences 3=17443
 Tb^{159} 3=19823
 Tb^{159} , new level at 880 keV 1=3426
 Tb^{159} , 4 new levels 3=22342
 Tb^{159} 3=2414
 Tb^{159} 3=15120
 Tb^{159} , from Dy^{159} decay 0=1378
 Tb^{159} , deformed, Coulomb excitation and decay 4=22043
 Tb^{159} , E2 and E1 transition probabilities 3=12598
 Tb^{159} , first exc. state, de-excitation 0=4035
 Tb^{159} , first excited states, lifetimes 3=12597
 Tb^{159} , from Gd^{159} decay 4=6292
 Tb^{159} , from Gd^{159} decay, β , γ spectra, γ - γ , β - γ coincidences 3=22340
 Tb^{159} , level density parameter 4=12207

Nucleus—contd

energy levels—contd

- Tb^{159} , low levels 0=7559
 Tb^{159} , 136 keV level, half-life 4=9377
 Tb^{159} , systematic deviations from simple rotational model 4=22001
 Tb^{159} , 364 keV 2=3489
 Tb^{159} , 364 keV 3=4577
 Tb^{159} , 362 keV state lifetime 0=5717
 Tb^{160} , rotational 3=17418
 Tc^{99} , internal conversion coefficients 1=13743
 Te^{119} , isomeric states 2=14001
 Te^{122} , 0.570 MeV level, lifetime 4=3608
 Te^{122} 4=6285
 $\text{Te}^{133,134}$, first excited-state lifetimes, using nuclear resonance fluorescence 4=1023
 Te^{123} 0=4073
 $\text{Te}^{123,125}$, calc. 0=13113
 Te^{124} 0=7438, 20415
 Te^{124} , 2691 keV level, spin and parity 3=15113
 Te^{124} , from γ - γ correlations in Sb^{124} decay 4=17096
 Te^{124} , 1.248, 1.326 MeV spins, from β - γ coincidences in Sb^{124} decay 4=27972
 Te^{124} , 1753 keV excited state 2=20560
 Te^{124} , from Sb^{124} decay 1=3420
 Te^{124} , 608 keV excited state, γ -reson. scatt. 1=16974
 Te^{125} 2=13973
 Te^{126} 3=6145
 Te^{126} 3=19784
 Te^{126} from γ - γ coincidences in Sb^{126} decay 4=19625
 Te^{126} , 35 keV, electric quadrupole moment, from γ -ray splitting 3=19785
 Te^{130} , neutron resonance widths 1=13654
 Te^{131} 0=11386
 $\text{Th}^{226,228,230,232,234}$ 2=18256
 Th^{227} 0=11338
 Th^{227} , alpha-ray spectrum, move complex, 45 energies 4=30330
 Th^{228} 1=4832
 Th^{228} , rotation-vibration model 2=22723
 Th^{229} 0=11372
 Th^{229} 1=19371
 Th^{229} , interaction of levels in α -decay 0=13187
 Th^{230} , from alpha-decay meas. 3=15129
 Th^{231} 2=14081
 Th^{232} , from Coulomb excitation 1=624
 Th^{232} , deformed, Coulomb excitation and decay 4=22043
 Th^{232} , electric monopole enhanced 2^+-2^+ transitions 0=20398
 Th^{232} , first excited state 1=5908
 Th^{232} , rotational levels in high-spin states, calc. 1=8607
 Th^{232} , from scattering and (n, γ) studies 0=5800
 Th^{232} , vib. E1, E2, E3 transition probabilities 3=10241
 Ti , natural, level density and neutron excess 1=13653
 Ti^{44} , T = 2 states, (p, t) reaction search 4=27963
 Ti^{45} 0=17504
 Ti^{45-49} , shell model states and config. mixing 4=25400
 Ti^{46} 3=12665
 Ti^{46} , Coulomb excitation, reorientation effects 3=12588
 Ti^{46} , first excited level lifetime 1=2243
 Ti^{46} , γ - γ correl. attenuation 4=12146
 Ti^{46} , 1.114 and 0.890 MeV, lifetimes, γ -reson. scatt. 4=1019
 Ti^{46-51} 3=19877
 Ti^{47} 1=19372
 Ti^{47} 3=6297
 Ti^{47} , first 160 keV, spin, from γ -ray ang. distrib., on Coulomb excitation 4=1016
 Ti^{47} , 160 keV, 3=12587
 $\text{Ti}^{47,49}$ 0=17605
 Ti^{47-50} 2=16333
 Ti^{48} 2=18319
 Ti^{48} , first excited level lifetime 1=2243
 Ti^{48} , hole states study 4=1073
 Ti^{48} , low excited states 3=19812
 Ti^{48} , neutron resonance widths 1=13654
 Ti^{48} , rel. to 155 MeV inelastic proton scattering 4=15203
 Ti^{49} 1=19372
 Ti^{49} , shell model, single-particle levels 2=10017
 Ti^{50} 1=19372
 Ti^{50} 2=1900
 Ti^{50} 3=10287

Nucleus—contd

energy levels—contd

- Ti⁵⁰ 3=12622
 Ti⁵⁰, lower excited states 3=7992
 Ti⁵⁰, shell model analysis of T = 1 levels 3=2373
 Ti⁵¹ 4=6226
 Ti isotopes, (d,t) reaction studies 1=3397
 Ti isotopes, isomeric levels 3=22310
 Ti¹⁹¹⁻²⁰⁰, produced by heavy ion reactions 4=22048
 Ti^{194m}, 196m, 198m 0=7514
 Ti¹⁹⁶, spins and parities 2=411
 Ti²⁰⁰ 3=6210
 Ti²⁰⁰, first excited state lifetime 0=7478
 Ti²⁰¹ 1=658
 Ti²⁰¹, 330 keV state lifetime 0=11387
 Ti^{201,203}, 279 and 330 keV states, lifetime determ. 4=22047
 Ti²⁰³, first excited state, half-lives 2=12146
 Ti²⁰³, level spacings from neutron spectroscopy 1=13652
 Ti²⁰³, Mössbauer effect. Doppler-broadening 3=629
 Ti²⁰³, from Pb²⁰³ electron capture 0=5713
 Ti²⁰³, 279 keV excited level, lifetime 1=18739
 Ti²⁰³, 279 keV level lifetime 1=5879
 Ti²⁰⁵, level spacings from neutron spectroscopy 1=13652
 Ti²⁰⁵, shell-model calcs. 1=19332
 Ti²⁰⁶ 0=2633, 13137
 Ti²⁰⁶ from B^{210m} α -spectra 3=19824
 Ti²⁰⁶ 1=17013
 Ti²⁰⁶, calc. 2=1760
 Ti²⁰⁷, from Ra^{223m} low background α -spectroscopy 2=14020
 Ti²⁰⁸ 0=9607
 Ti²⁰⁸, α and γ data 2=10026
 Ti²⁰⁸, j-j coupling shell model calc. 4=22049
 Ti²⁰⁸, from Bi²¹³ α -fine structure 4=19738
 Ti²²², by α -spectroscopy 2=379
 Tm¹⁶⁴, hyperfine struct. in ionic crystals. 2=20910
 Tm¹⁶⁸ 1=12160
 Tm¹⁶⁸, hyperfine structure 2=20526
 Tm¹⁶⁸, from Yb¹⁶⁸ decay γ 's 3=24908
 Tm¹⁶⁷, from γ -ray, β conversion spectra 4=1027
 Tm¹⁶⁷, from Yb¹⁶⁷ decay 0=20393
 Tm¹⁶⁹ 2=14040
 Tm¹⁶⁹ 3=15120
 Tm¹⁶⁹ 3=19791
 Tm¹⁶⁹, deformed, Coulomb excitation and decay 4=22043
 Tm¹⁶⁹, E2 and E1 transition probabilities 3=12598
 Tm¹⁶⁹, 8.42 keV, h.f.s. splitting 2=5811
 Tm¹⁶⁹, γ - γ angular correlation 0=20409
 Tm¹⁶⁹, γ -transitions, multipolarities 0=9588
 Tm¹⁶⁹, lifetime of 118 keV level 0=20397
 Tm¹⁶⁹, low levels 0=7559
 Tm¹⁶⁹, measurement 4=17071
 Tm¹⁶⁹, 118 and 139 keV levels, lifetimes 0=407
 Tm¹⁶⁹, 138.9 keV level lifetime meas. 4=19698
 Tm¹⁶⁹, radiative transit. lifetimes 2=13990
 Tm¹⁶⁹, rotational band, e.m. props. 4=19697
 Tm¹⁶⁹, from Yb¹⁶⁹ decay, γ spectra, coincidence, internal conversion 3=22346
 Tm¹⁷³ 1=10976
 Tm¹⁷³ 1=10977
 Tm¹⁷² 1=19394
 Tm¹⁷² 2=10074
 Tm¹⁷⁴ 1=17113
 Tm¹⁷⁶ 1=17113
 Tn²²⁰[Rn²²⁰], 241 keV state 0=9554
 Tu¹⁶⁹ 0=7479
 Tu¹⁶⁹, 379 and 316 keV level lifetimes 0=9586
 U, isotopic shift (X-ray levels) finite nuc. size corr. 2=16322
 U, isotopic shift (X-ray levels), finite nuc. size corr. 3=6182
 U²³⁰, 232, 234, 236, 238 2=18256
 U²³² 2=3490
 U²³³ 3=4581
 U²³³, excited by Pa²³³ β -decay 3=12604
 U²³⁵ 0=15553
 U²³³ 1=17012
 U²³³ 1=19373
 U²³⁵, excitation functions, allowing for n scattering and fission 3=6184

Nucleus—contd

energy levels—contd

- U²³³, from Pa²³³ decay 2=5814
 U²³⁴, elec. monopole transit. meas. 2=22745
 U²³⁴, neutron inelastic scatt. rel. to fission 3=2505
 U²³⁴, 0+ and 1- levels, from Pa²³⁴ β -decay 0=17531
 U²³⁴, from Pa²³⁴ decay 2=7944
 U²³⁴, vibrational levels 0=4063
 U^{234,235}, from alpha-decay meas. 3=15129
 U²³⁵ 2=3503
 U²³⁵ 2=4606
 U²³⁵ 3=10319
 U²³⁵ 3=15160
 U²³⁵, excitation functions, allowing for n scattering and fission 3=6184
 U²³⁵, by neutron resonances 1=17112
 U²³⁶, correlation with Pu²⁴⁰ 0=7480
 U²³⁶, by U²³⁵ + n slow, distrib. 4=17077
 U²³⁶, by U²³⁵ + n, spacing distrib., errata 4=25327
 U²³⁶, from Coulomb excitation 1=624
 U²³⁶, deformed, Coulomb excitation and decay 4=22043
 U²³⁸, electric-monopole-enhanced, 2"-2' transitions 0=20398
 U²³⁸, first excited state 1=5908
 U²³⁸, level density 3=8104
 U²³⁸, octupole state, systematics 2=1789
 U²³⁸, resonance neutron capture 2=3601
 U²³⁸, rotational levels in high-spin states, calc. 1=8607
 U²³⁸, in uranium oxide, resonance, with neutrons, 4,77°K 3=6259
 U²³⁸ vib. E1, E2, E3 transition probabilities 3=10241
 U²³⁹, γ widths, anomalously small fluct., statistics 4=3585
 U²³⁹, partial radiation widths, fluctuations 4=19705
 U²³⁹, transition probab. of neutron-capture γ -rays 1=8667
 V isotopes, from proton bomb. of Ti 1=5844
 V⁴⁶, low-lying, spins and parities, comparison with models 4=1077
 V^{47,49} 0=17504
 V⁴⁸ 2=10105
 V^{48,50}, low energy, from γ -rays on p capture in Ti 3=17406
 V⁴⁹, from Cr⁵²(p, α)V⁴⁹ 0=20435
 V⁵⁰ 0=17504
 V⁵¹ 3=6297
 V⁵¹, first 323 keV, spin, from γ -ray ang. distrib., on Coulomb excitation 4=1016
 V⁵¹, γ -ray cascades 4=1017
 V⁵¹, M1-transition probability, calc., using configuration mixing 1=10988
 V⁵¹, 0.321 MeV level, M1 transition probab., calc. 1=8659
 V⁵¹, from nuclear resonance fluorescence data 2=7955
 V⁵¹, 321 keV level lifetime 0=11389
 V⁵¹, 325 keV level, lifetime 1=12163
 V⁵¹ and Cr⁵⁵, comparison 4=17056
 V⁵¹⁻⁵³, from neutron-capture γ -rays 1=2173-4
 V⁵², from γ -ray energies 4=15154
 W, from γ -emission following neutron capture 4=3680
 W, low-lying levels, excitation 1=13787
 W¹⁸⁰, half-lives 2=20527
 W¹⁸² 0=1392, 11390
 W¹⁸² 1=19421
 W¹⁸² 2=16335, 18303
 W¹⁸² 4=22079
 W¹⁸², collective states energies, perturb. corrections 3=6154
 W¹⁸², gyromag. ratio of first excited level 3=24873
 W¹⁸², internal conversion coefficients 4=15167
 W¹⁸², level diagram from expt. obs. 4=30314
 W¹⁸², nature of highly excited levels 4=6244
 W¹⁸², 100 keV level 1=19348
 W¹⁸², 100 keV level, width, using resonance absorption 0=412
 W¹⁸², rot. levels 2=14003
 W¹⁸², spin by γ - γ directional correlation from Ta¹⁸² decay 3=4599
 W^{182,183}, non-recoil nuc. res. absorp. rel. to velocity 2=8155
 W^{182,183}, non-recoil nuc. res. absorp. rel. to velocity 3=6462
 W^{182,183,184,186}, 2nd rot. levels, cascade excitation 2=16334

Nucleus—contd

energy levels—contd

$W^{182,184,186}$ 4=15217
 $W^{182,184,186}$, rotational 4^+ levels, excitation 3=15088
 W^{183} 3=10225
 W^{183} , partial radiation widths 0=2623
 W^{183m} 1=7359
 W^{183m} 2=18271
 W^{184} 1=12160
 W^{184} 3=8014
 W^{184} , 4^+ level energy 3=8134
 W^{184} , low-lying, deuteron stripping data 3=10270
 W^{184} , 111 keV level half-life 0=7540
 W^{184} , populated by Re^{184} decay 3=10271
 W^{186} 0=20418
 W^{186} , proton excitation study 1=5905
 W^{186} , 2^+ transition probability 0=9536
 $Xe^{127,128}$, calc. 0=13113
 Xe^{128} 1=8637
 Xe^{129} 1=5868
 Xe^{129*} elec. moment, from Mössbauer effect in XeF_4 4=27974
 Xe^{131} 4=19719
 Xe^{131} , low energy transitions, 541.7 keV level 3=651
 Xe^{131} , 638 keV, lifetime 2=387
 Xe^{132} 1=19395
 Xe^{133} 3=2409
 Xe^{132} , from Cs^{132} decay 2=22767
 Xe^{132} , excited levels 2=16336
 Xe^{132} , from I^{132} decay 1=9847
 Xe^{132} , 673 keV, lifetime 2=386
 $Xe^{133,134}$, quadrupole spherical vibration 3=4563
 Xe^{133} , parity mixture, from decay data 0=4030
 Xe^{134} , from I^{134} decay 1=8640
 Xe^{135} , matrix element of M4 transition 1=5865
 Xe^{135m} 0=11336
 Y , by proton bombardment, 100 MeV 3=12591
 Y^{86} , isomeric state 2=10027
 Y^{88} 2=10105
 Y^{88} 3=10363
 Y^{88} , deuteron inelastic scatt. 3=4662
 Y^* , isobaric analogue states meas. 4=17057
 Y^{88} , level spacings from neutron spectroscopy 1=13652
 Y^{88} , neutron resonance widths 1=13654
 Y^{89} , search for 1.5 MeV $9/2^+$ level 2=22746
 Y^{89} to Tc^{89} , effective interaction and identical-nucleon seniority 4=25311
 Y^{89} , width of $J = 0$ and $J = 1$ levels 3=4645
 Y^{89m} 2=18271
 Y^{90} 4=22178
 Y^{90} , isomeric level 1=19375
 Y^{90} , low-lying $j-j$ coupled odd-group model 3=22304
 Y^{90} , splitting due to $n-p$ coupling, from $Y^{89}(d,p)Y^{90}$, ang. distrib. 3=15109
 Y^{90} , theory rel. to expt. 2=390
 Y^{90} , transition $0^+ \rightarrow 0^+$ in Zr^{90} 0=7527-8
 Yb^{188} 1=10975
 Yb^{188} , first rotational level 3=17458
 Yb^{188} , population of ground-state rot. bands 4=3580
 Yb^{188} 2=16367
 $Yb^{188,171}$ 1=649
 Yb^{170} , 84 keV, h.f.s. analysis 2=5812
 Yb^{170} , hyperfine struct. in ionic cryst. 2=20910
 Yb^{170} , from Lu^{170} decay 0=20391
 Yb^{170} , 2^+ , from Tm^{170} β decay theory 3=22309
 Yb^{171} 4=10348
 Yb^{172} 1=8639
 Yb^{172} 1=10976
 Yb^{172} 1=12160
 Yb^{172} , from Lu^{172} decay 0=9570
 Yb^{172} , 2^+ rotational state, g_R -factor 4=27979
 Yb^{173} 4=6295
 Yb^{173} , branching ratios and mag. dipole transit. probab. 2=20514
 Yb^{173} , first excited states, lifetimes 3=12597
 Yb^{173} , γ -transitions to rotational states, Nilsson model 3=6177
 Yb^{173} , from Lu^{173} decay 0=1370, 5725
 Yb^{173} , 351 keV 2=3489
 Yb^{173} , 351 keV 3=4577
 Yb^{174} , 1315 keV 2=3491
 Yb^{174} , spin, parity 4=27980

Nucleus—contd

energy levels—contd

Yb^{176} , 4^+ level energy 3=8134
 Yb^{177} 4=3582
 Yb^{177} , orbit flip mag. transistors 3=2392
 Zn , even nuclei, 2^+ levels 2=13994
 Zn isotopes 2=1923
 Zn , by neutron resonances at 2.5 $\mu\text{sec m}^{-1}$ resolution 1=17112
 Zn^{63} , 7 levels up to 1.697 MeV 2=18272
 Zn^{64} 1=13809
 Zn^{64} 1=17000
 Zn^{64} 2=18319
 Zn^{64} 3=10259
 $Zn^{64,66}$, from $(p, p'\gamma)$ radiations 4=9402
 $Zn^{64,66,68}$, two and three-phonon 3=15106
 $Zn^{64,66}$, low-lying levels 3=2491
 Zn^{64} , second 2^+ level, by proton inelastic scatt. 1=19459
 $Zn^{64,66,68}$, first excited level lifetime 1=2243
 Zn^{66} 0=17504
 Zn^{65} 2=5853
 Zn^{65} 1=13663
 Zn^{65} 1=648
 Zn^{65} , from $Cu^{65}(p,n)$ 1=9862
 Zn^{65} , coincidence nuclear spectroscopy 0=11334
 $Zn^{65,67-68}$, from stripping reaction data 4=6227
 Zn^{66} 0=13173
 Zn^{68} 1=13809
 Zn^{68} , second 2^+ level, by proton inelastic scatt. 1=19459
 Zn^{67} 3=6297
 Zn^{68} 1=13809
 Zn^{68} , second 2^+ level, by proton inelastic scatt. 1=19459
 Zn^{68} , 2320 keV level 3=12590
 Zr , excited by resonance neutrons, statistics 2=388
 Zr , neutron absorpt. resonances 2=18332
 Zr^{64} , from $Ga^{64}\beta^+$ decay 0=5699
 Zr^{90} 0=20357
 Zr^{90} , expt. and theory 0=1363-4
 Zr^{90} , first excited state 2=3529
 Zr^{90} , 4^- , =2.75 MeV, from γ -rays, exciting α scatt. coincidences 4=22031
 Zr^{90} , ground state configuration 4=30299
 Zr^{90} , isobaric analogue states meas. 4=17057
 Zr^{90} , isobaric analogue states from Y^{89} (p, γ) Zr^{90} 4=30313
 Zr^{90} , low-lying levels, calc. 1=625
 Zr^{90} , $0^- \rightarrow 0^+$ transition, double quantum emission 1=17002
 Zr^{90} , 1.75 MeV monopole transition, double γ -emission 4=17031
 Zr^{90} , 1.76 MeV 0^+ level, two-photon decay search 3=2387
 Zr^{90} , $T = 1$ levels in $p_{1/2} - g_{9/2}$ subshells, calc. 1=17001
 Zr^{90} , two-phonon de-excitation of 0^+ level 1=13732
 Zr^{90} , from $Y^{89}(He^3, d)$ ang. distrib. 4=25312
 $Zr^{90,91}$, from deuteron stripping reaction 1=17148
 $Zr^{90,91,92,94,96}$, single-particle states 3=24866
 Zr^{90m} 3=15208
 Zr^{91} , 11 levels from $Zr^{90}(d,p)$ reaction 1=4877
 Zr^{91} , low, $+$ parity, shell model calc. 4=27970
 Zr^{91} , single quasi-particle levels 2=5964
 $Zr^{91,93,95}$, neutron, single-particle levels 2=1824
 Zr^{92} 2=20528
 Zr^{92} , 2.33 MeV 4=9393
 Zr^{92} , from Y^{92} and Nb^{92} decay 2=18292
 Zr^{92} , from Zr^{91} (d, p) at 10.85 MeV 2=3492
 $Zr^{92,94}$, first excited level lifetime 1=2243
 Zr^{93} 2=20528
 Zr^{93} , single quasi-particle levels 2=5964
 Zr^{93} , $3/2^+$ level on shell model 2=13961
 $Zr^{94,96}$, neutron separation energies 3=12627
 Zr^{95} , single quasi-particle levels 2=5964
 Zr^{97} , single quasi-particle levels 2=5964

excitation

See Nuclear excitation

magnetic moment

See also Gyromagnetic ratio; Molecules, nuclear coupling; Nuclear magnetic resonance and relaxation.
 alkaline earths, by atomic beam method 0=9516
 Ampere Colloquium, Eindhoven (1962) 3=20629
 Ampere Colloquium, Leipzig (1961) 3=23198
 atomic level effects of nuclear mag. field 3=700

Nucleus—contd

magnetic moment—contd

calc., from configuration mixing in jj-coupling shell model 0=11300
 calculation, with allowance for nucleon interaction 4=19640
 calculation from h.f.s., intermediate coupling 3=2362
 correction by central and tensor forces 2=13969
 deformed, g_R factor, from Hill-Wheeler integrals 3=12546
 deformed nuclei, odd A, $153 < A < 187$, g_R , g_K ; calc. 3=7970
 deformed nuclei, reduction of effective g s factors 1=8554
 determination methods, from nuclear and e. m. interactions 4=9358
 deviations from Schmidt lines rel. to configuration mixing 2=3463
 dipole, effect on hyperfine structure 4=9361
 distributed magnetization, rel. to h.f.s. of odd-A nuclei 1=12152
 distribution effects on h.f.s. in odd-A nuclei 1=8547
 double irradiation expt., impulse method 0=16187
 effect on bremsstrahlung of electrons 0=15322
 electron-nucleus scatt., effect on radiative tail 4=19758
 electron scatt., elastic, by light nuclei 3=4626
 exchange mag. moments, theory 0=13122
 excited nuclei, g-factors, meas. and theory 4=6208
 excited states, gyromag. ratios, from γ - γ ang. correl. 4=6215
 $f_{7/2}$ shell and beta decay transition probability calc. 4=6270
 free precession, unordered, possible detection 0=1355
 g-factor, collective, of deformed nuclei 4=21988
 g factor, rel. to spin-orbit coupling, calc. 4=12115
 h.f.s. values compared with n.m.r. values, theory and corrections 0=5657
 heavy nuclei, calc. 0=13122
 interaction with elec. and mag. fields, level splitting 2=3474
 light nuclei, on generalized model 2=20490
 low-field nuc. induction, 2nd-harmonics generation 3=24500
 low-lying states, Schmidt diagrams 3=19763
 mag. dipole interact., g-factors, diff. ang. correl. study 3=10224
 meas., atomic beam resonance apparatus 0=17685
 medium nuclei, ground state, collective model 1=13616
 mirror nuclei, calc. 1=16967
 octupole moments of axially symmetric deformed nuclei, calc. 2=3466
 odd-A distrib., systematic features analysis 3=15078
 odd atomic nuclei, collective gyromagnetic ratio 1=19344
 odd atomic nuclei, collective gyromagnetic ratio 2=22710
 odd-mass nuclei, dipole moments 1=13620
 odd-mass nuclei with a $j = \frac{7}{2}$ particle coupled to a vibr. core 4=6184
 odd nuclei, single closed shell, dipole moments 0=17458-9
 odd nuclei, single-configuration model 0=11301
 odd-odd nuclei, rel. to γ -transitions 0=7522
 open shell antishielding of hyperfine interact. 3=25038
 pairing forces, corrections to moments 1=16969
 in paramagnetic materials, method 1=9834
 polarization, methods for ferrites and garnets 0=13825
 quenching of nucleon intrinsic mag. moments in nuclear matter 1=596
 radioactive, meas. using double resonance techniques 0=17682
 radioactive nuclei, rel. to electric field perturbation 1=13624
 rare-earth ions 3=22607
 rare earth metals, theoret. 2=21295
 rare earth region 2=12119
 review 0=20324
 shell model, effect of hard-core correlations 0=5658
 spin-state mixing coeffs. and nucleon polarization 2=13955
 tables, 40 medium and heavy nuclei, g-factors 3=15086
 three-body, due to one and two-meson exchange 4=15050
 transuranic even-even nuclei, quadrupole, calc. 2=1785
 $20 < Z < 28$ and $N = 29$ and 30 , expt. 4=6202
 unified model calc. for 16 nuclei 1=8604
 weakly deformed nucleus, calc. 2=13971
 $Ag^{104, 104m}$ 1=12148
 Ag^{108} 3=8191

Nucleus—contd

magnetic moment—contd

Ag^{108} , meas. by mag. resonance 4=15132
 $Ag^{112, 113}$, from nuclear spin data 4=12116
 Am^{242} (16 hr) 2=1778
 As^{73} , 66 keV state 4=3568
 Au^{190} , mag. dipole moment 4=990
 Au^{197} 0=7459, 9517-18
 Au^{197} , first excited state 3=6458
 Au^{197} , 77 keV isomeric state 4=9811
 B^{11} , from electron mag. fld., rel. to core polarization 4=12117
 Be^8 , electric quadrupole to magnetic dipole ratio 1=635
 Be^9 , α -particle model, effect of α - α dynamics 4=6189
 Bi^{208-6} , dipole 0=7457
 Bi^{210} , ground-state wave function deduction 4=30300
 Bi^{210} (RaE) 2=3465
 Br^{76} , 17 hr, dipole 0=13120
 Br^{82} , dipole 0=1352
 C^{11} , from electron mag. fld., rel. to core polarization 4=12117
 Ca^{41} , nuc. mag. dipole moment 2=22709
 Ca^{42-4} , calc., configuration mixing 1=10954
 Cd^{107} , 6.7 hr, from $(5s5p)^3P_1$ h. f. s. meas. 4=3537
 $Cd^{107, 109}$ ratio 4=3788
 Cd^{111} , 247 keV state, and g-factor 3=17411
 $Cd^{111}-Dd^{113}$ mag. moment ratio, by double resonance 0=2621
 $Cd^{113, 115m}$, $(5s5p)^3P_1$ state 4=15162
 Ce 0=9757
 Ce^{137m} , from nuclear orientation in Nd ethyl sulphate 1=2162
 $Ce^{137, 137m, 138, 141, 143}$, alignment meas. 3=7969
 Ce^{139} 2=22731
 Ce^{140} , 4^+ state, gyromag. ratio 4=19696
 Ce^{140} , 2.083 MeV two-proton level 3=12560
 Co^{55} 0=11307
 Cr^{53} 4=6226
 Cs^{131} , for several deformations 2=20505
 Cs^{134m} 2=16477
 Cu^{66} , meas. by mag. resonance 4=15132
 D , calc. 2=1664
 D , effect of nucleon spin-orbit interaction 1=19180
 Dy 0=9757
 $Dy^{165, 167}$ 1=10958
 Dy^{160} , from γ - γ cascades 1=9834
 Dy^{161} 2=1777
 Er^{168} , 80 keV rotational state, gyromagnetic moment 1=2160
 Er^{168} , $4+$ rotation level, g_R factor 3=17419
 Er^{168} , from γ - γ cascades 1=9834
 Er^{166} , 80.6 keV state, g-factor 4=27978
 Er^{160} , 81 KeV state 4=17333
 Er^{167} 4=4403
 Er^{168} , 2^+ rotation level, g_R factor 3=2391
 Er^{169} , dipole, from atomic h.f.s. meas. 3=22479
 Er^{171} , hyperfine const. atomic beam obs. 4=27944
 Eu^{151} 0=17706
 Eu^{151} , 21.7 keV level 4=1343
 Eu^{151} , 21.7 keV state 3=17631
 $Eu^{151, 153}$, dipole moments 1=804
 Eu^{152} (13 yr) 3=7968
 F^{19} 4=12519
 F^{19} 4=22369
 F^{19} , from electron mag. fld., rel. to core polarization 4=12117
 F^{19} , second excited state 1=13621
 F^{20} , by polarized neutron capture and β -decay anisotropy 4=3541
 Fe^{57} 0=7458, 7465
 Fe^{57} 3=10225
 Fe^{57} , anomalously small, theory 2=22707
 Fe^{57} , calc. from shell-model wave-function 1=716
 Ga^{66} 2=18418
 Ga^{72} , 14 hr, dipole 1=593
 Gd^{184} , 0.123 MeV 2^+ state 1=4826
 $Gd^{184, 186}$, first excited 2^+ states 3=628
 Gd^{155} 2=16298
 $Gd^{186, 187}$ 0=13123, 13420
 Gd^{186} , first 2^+ state 1=4826
 Gd^{157} 2=16298
 Ge^{71} 3=17390

Nucleus—contd

magnetic moment—contd

H^3 , calc. 0=13122
 H^3 , relativistic corrections 2=3464
 H^3 , relativistic corrections 4=4556
 He^3 , e. m. form factor rel. to nucleon form factors 4=9315
 He^3 , effect of nucleon spin-orbit interaction 1=19180
 He^3 , form factors, by electron scatt. 3=17357
 He^3 , polarization by optical pumping of atoms 4=6497
 He^3 , relativistic corrections 2=3464
 He^3 , relativistic corrections 3=4556
 Hg 3=25054
 $Hg^{194,195,199m}$ 3=17529
 Hg^{197*} 1=17259
 Hg^{199} , 412 keV level, meas. in Fe—Au(0.5 wt. %) 4=15170
 Hg^{199} 0=5656-7, 5879-80, 9757
 Hg^{199} , from hyperfine structure 1=19342
 Hg^{199} , 158 keV 5/2-state 2=1775-6
 Hg^{199} , 158 keV level 3=658
 $Hg^{199,201}$, ratio, from nuclear orientation 2=3708
 Hg^{201} 0=5879-80
 Hg^{203} , h. f. s. meas. 4=15133
 Hg^{199}/Hg^{201} ratio, from mag. reson., optical absorpt. detection 4=9359
 Ho 0=9757
 Ho , quadrupole, intrinsic 2=10086
 Ho^{85} , from h. f. s. of Ho atom 4=17003
 Ho^{105} 3=2362
 Ho^{166m} , aligned in Nd ethyl sulphate 0=15561
 I^{31} , by atomic beam method 0=17484
 In^{115m} , dipole 0=15511
 In^{115m} , from atomic h. f. s. meas. 2=18242
 Ir^{193} , 73 keV excited state 1=13632
 K^{39} , using atomic beam passing through 3 r. f. loops 0=17684
 K^{39} , effective moment 1=5822
 K^{40} , effective moment 1=5822
 K^{42} , from h. f. s. separation meas. 4=15134
 K^{43} , 22 hr, by atomic beam resonance 0=1353
 Li^6 , calc. from three-body model 2=9986
 Li^7 , from atomic calc. 3=8187
 Li^7 , rel. to $(1p)^3$ config. 3=24840
 Li^8 0=1357-8
 Li^8 , sign, meas. from Zeeman level transition rates 2=12120
 Lu^{175} 2=12834
 Lu^{175} , from h. f. s. meas. 2=9993
 Lu^{175} , nuclear magnetic and quadrupole 1=16965
 Lu^{176} 2=9992
 Lu^{176} , nuclear magnetic and quadrupole 1=16965
 Lu^{177} 2=9994
 Mn^{52m} 0=20326
 Mn^{54} 0=20326
 Mn^{55} in Ni—Mn alloys, from n. m. r. 4=7353
 Mn^{56} , 2.6 hr, from atomic-beam mag. resonance 1=7315
 N^{13} 1=16968
 N^{14} , calc. 4=16999
 N^{14}/N^{15} ratio 1=13622
 $N^{14,15}$ 0=1482
 $N^{14,15}$ 4=12519
 Na^{23} from hyperfine structure, absorption lines
 D_1, D_2 1=19343
 $Nd^{143,145}$, dipole by atomic beam magnetic resonance 3=4709
 $Nd^{143,145}$ from Nd^{3+} e. s. r. in $CaWO_4$ 4=15677
 Ne^{18} , from β -decay asymmetry with polarized nuclei 3=17427
 Ne^{20} , from atomic beam mag. resonance 0=17669
 Ni^{61} 2=13970
 Ni^{61} 4=3542
 Ni^{61} 4=30298
 Ni^{61} , from e. s. r. of Ni^{2+} in MgO 0=15513
 Ni^{61} , Mössbauer effect with applied magnetic fields 1=9807
 Ni^{61} from n. m. r. of powder at 77°K and room temp. 3=17393
 Ni^{61} , sign meas. attempt, β - γ coincidence 4=15135
 Np^{237} , effect on X-ray h. f. s. 1=8819
 O^{15} dipole 3=19945
 O^{17} , from electron mag. fld., rel. to core polarization 4=12117
 Os^{187} 0=1356

Nucleus—contd

magnetic moment—contd

Os^{187} 2=1779
 Os^{187} 3=10225
 Os^{188} , 155 keV 2^+ state, g-factor 4=15168
 Os^{188} , 2^+ state, gyromagnetic ratio 3=4555
 P^{29} , unified model 0=15505
 Pa^{231} 1=6420
 Pa^{233} from h. f. s. in atomic spectra 1=7434
 Pb^{204} , 1.274 MeV level 3=19763
 Pb^{207} 0=5879
 Pb^{207} , 570 keV $5/2^-$ state 4=25323
 Pd^{105} 0=5879
 Pm^{143} 1=10959
 $Pm^{143,145,149}$ 3=12906
 Pm^{144} 1=3587
 Pm^{147} 1=20223
 Pm^{147} , spectroscopic det. 3=10463
 $Pm^{147,151}$, from atomic h. f. s. data 4=989
 $Po^{205,207}$, from atomic h. f. s. 2=523
 Pr 0=9757
 Pr^{141} 3=2362
 Pr^{142} 2=12295
 Pu 0=9757
 Pu^{239} 0=20589
 Pu^{239} 2=13968
 Pu^{239} 3=10462
 Pu^{239} 3=15289
 $Pu^{239,241}$ 3=2363
 $Pu^{239,241}$ from Pu II ionization potential and spectrum h. f. s. 2=17392
 Pu^{241} , spectroscopic detm. 4=1214
 $Ra^{224,226}$ quadrupole moment 1=13624
 Rb^{85} 2=16478
 Rb^{85-8} 1=12149
 $Re^{186,188}$ from $Re^{185,187}$ spectra mag. h. f. s. 4=28135
 Re^{187} , 206 keV state 3=24839
 $Rn^{220,222}$ quadrupole moment 1=13624
 $^{85}S_{1/2}$ atoms, calc. from hyperfine structure data 2=9995
 Sb^{123} 1=3388
 Sc^{44} , first excited state 2=12121
 $Sc^{44,46m}$ 4=988
 Sc^{45} , dipole 0=401
 Sc^{46} 3=2361
 Sm^{152} , first excited 2^+ state 3=628
 Sm^{152} , first 2^+ state 1=4826
 $Sn^{118,120}$, 5- levels 2=16300
 Sn^{119} 1=2164
 Sn^{119} , first excited state, by Mössbauer effect 1=10961
 Sn^{119} , 23.8 keV state 2=16299
 Sn^{119} , 23.8 keV state 3=6141
 Sn^{119m} , calc. from Mössbauer effect observations 1=9806
 Sn^{119m} , calc. from Zeeman splitting of excited state 0=15519
 T , effect of nucleon spin-orbit interaction 1=19180
 Ta^{181} , 482 keV level 2=14002
 Ta^{181} , from n. m. r. of $KTaO_3$ 1=597
 Ta^{181} , second excited state, gyromag. ratio 4=6215
 Tb^{156} , dipole 2=7922
 Tb^{160} , from orientation in Nd ethyl sulphate 1=623
 Th^{229} , from atomic spectral h. f. s. 4=28139
 Tl , shell-model calc. 1=19332
 $Tl^{199-202,204}$ 1=17261
 $Tl^{199-202,204}$, from optical h. f. s. 1=8567
 Tl^{203} , 297 keV state, meas. from reson. fluoresc. 2=12122
 Tl^{205} 4=22369
 Tm^{166} 2=20526
 Tm^{169} 2=13968
 Tm^{169} 3=6355
 Tm^{169} 4=12600
 Tm^{189} , 8.42 keV state 3=8006
 Tm^{170} , dipole 0=20328
 Tm^{171} , hyperfine const. atomic beam obs. 4=27944
 Tm^{189} , from Zeeman effect h. f. s., by atomic beam mag. reson. 4=12378
 U 0=9757
 U^{234} quadrupole moment 1=13624
 V^{51} , calc. 1=8659
 V^{51} , calc. 1=10988
 V^{51} , first excited state, g factor 3=7994
 V^{51} , and three-particle model 3=19778
 W , average g-factor of first excited 2^+ states 3=19793

Nucleus—contd

magnetic moment—contd

- W¹⁸², first excited state, gyromag. ratio 4=6215
 W¹⁸², 2⁺ rotation level, g_R factor 3=8013
 W¹⁸³ 2=13968
 W¹⁸³ 3=10225
 Xe^{129,131} 3=24838
 Y⁹⁰ (64 hr) 2=3462
 Y⁹¹ 3=2361
 Yb¹⁷¹ 2=13968
 Yb^{171,173}, ratio 0=11938
 Yb¹⁷², 2⁺ rotational state, g_R-factor 4=27979
 Yb¹⁷³ 4=19639
 Zn^{65,67} 4=15294

magnetic resonance

See Nuclear magnetic resonance and relaxation.

models

- (subheading introduced in 1961)
 A = 13 nuclei, nucleon + C¹² model 1=5836
 α clustering, at surface 4=983
 α-clusters in even—even nuclei 1=8562
 α-clusters, geometrical arrangement, directed orbital method 4=3524
 p-α collision, quasielastic using harmonic oscill. model 4=6182
 α-model, lower levels of O¹⁷, F²⁷ calc. 3=636
 α-particle, use in exchange contribution calc. in α-scattering 4=17192
 α-particle, existence in heavy nuclei 4=6178
 alpha-particle model for light nuclei 1=7309
 α-particle model, study using cosmic rays 3=24817
 α particle, reduced α widths calc. 4=3552
 α-particle, use for inelastic electron scatt. 4=6326
 α substructure, from p, 3p3n reaction 3=19852
 anisotropic harmonic oscillator, collective props. 2=13959
 asymmetric rotator, intermed. coupling 3=17383
 asymmetric rotator model, Davydov and Filippov, deformation of even—even nuclei 1=10963
 asymmetric rotator model of odd-mass nuclei 2=12109
 atomic and molecular physics, methods from 2=13939
 axial asymmetry, calc. 4=9345
 axial asymmetry, rel. to photonuc. giant reson. 2=20596
 BCS method comparison with exact solns. 4=27937
 BCS, pairing correl. in excited nuclei with specified ang. momentum 4=27932
 band mixing in deformed nuclei 4=6267
 binding forces, demonstration model, using potential superposition 3=25036
 Bogolyubov quasiparticle, self-energy 4=27409
 Bohr-Mottelson, test using Am²⁴² 2=1778
 Bohr-Mottelson, mag. and quadr. moments calc. 2=13971
 Bohr-Sommerfeld nucleus 2=18228
 boson approx., extended for ground state correl. 4=30296
 boundary condition model of nuclear forces 1=19329
 Brémond-Valatin method for 4-body correl., charge-indep. pairing interact. 4=27931
 Brückner-Goldstone linked cluster expansion formula 4=16992
 Brueckner theory, inclusion of hole motions 1=3144
 classical self-consistent model 1=16957
 cluster model, Be⁹ low-lying levels 2=16290
 cluster model of Li⁷ and Be⁷ 1=7312
 cluster model, for Li⁶, proton momentum distrib. 2=7920
 cluster model, stripping mechanism in (Li⁶,d) and (Li⁷,t) reactions 1=739
 cluster-model study of Li⁶ ions break-up in Coulomb field of target 4=3705
 cluster, shell, collective motion, for light nuclei 3=15072
 cluster structures in light- and medium-weight nuclei 1=3378
 clusters of He⁴ and He⁶ 2=1752
 collective, asymm.-core, for odd-A nuclei 3=17386
 collective, central forces rel. to few-nucleon reactions 2=9933
 collective, dynamic theory 4=16993
 collective effects in odd-mass nuclei 3=19747
 collective, for ground state of medium nuclei 1=13616
 collective, with interparticle interactions, in even—even nuclei 3=10209

Nucleus—contd

models—contd

- collective, rel. to Mg²⁴ and Si²⁸ γ-decay 2=5870
 collective model of deformed nuclei without axial symmetry 1=13647
 collective model of giant dipole resonance 1=3382
 collective model for Ne²⁰ 3=2498
 collective motion, internal parameters, dynamic theory 3=22265
 collective, neutron-proton interaction, rel. to rot. levels 2=10004
 collective, for odd-odd isomeric nuclei 1=13649
 collective, and Rn²¹⁹ and Po²¹⁵ levels 2=14020
 collective, review 4=25247
 collective states excitation by charged particles 3=22290
 collective vibr., Davydov-Filippov, and excitation, 2⁺ states, even—even spherical 4=1003
 collisions, statistical theory 4=25363
 comparison, rel. to direct interactions 1=5881
 compound nucleus, average level width 4=30305
 compound nucleus, rel. to cross-sections 2=466
 compound nucleus-direct interaction interference, calculable model 1=17069
 compound, nucleus formation in N¹⁴ + O¹⁶, O¹⁶ + O¹⁶ reactions 2=3625
 compound nucleus, formation in proton elastic scatt. 2=10097
 compound nucleus, for proton inelastic scatt. polarization 2=18320
 compound nucleus, validity and life time, random phase approximation 4=9465
 conference, Varenna (1960) 4=25244
 correlations between nucleons, from deuteron and triton emission 2=1892
 cranking model, moment of inertia formula, modification 1=2157
 Davydov-Filippov, α-decay of nonaxial nuclei 2=18279
 deformed-core, rel. to β-moments 4=9438
 deformed even—even, Davydov theory, comparison with axisymm. top with vibr. -rot. interaction 4=6198
 deformed nuclei, equilib. shape, Bohr-Mottelson model 4=9376
 deuteron + extra particle, ground state 1=13604
 deviations from current models for scattering and nuclear reactions 1=8668
 diffraction, generalized, parameters at 660 MeV 4=1061
 diffuse-edge charge distrib., multipole moments 4=12118
 dipole excitation by collective and shell models 2=7964
 dipole excitation by collective and shell models 3=6137
 distortion, from isomer shift 4=19667
 drop, equil. states, stability rel. to asymm. variations 4=9354
 drop, fission barrier and fragment energies 2=16441
 drop, fission barrier of rotating nuc. 3=6135
 drop, fission barrier of rotating nucleus 2=16293
 drop, fission threshold and fragment energies 3=6306
 drop model, density distrib. calc. 4=25248
 drop model, zero-point oscillations 4=15123
 drop, quantized liquid, electron scatt. theory 2=10088
 drop, with variable surface tension, equil. shapes 4=9353
 droplet, mass symmetry distrib., rel. to nuclear fission 1=17158
 dynamic collective, and E₀ γ absorpt. 4=12110
 effect of hyperfine structure interaction on choice 4=9361
 effective interacts. between extra-nuclear nucleons 3=15071
 eigenvalues and vectors, statistical props. 3=22262
 elastic scattering, threshold effect in optical model 3=6212
 and elec. monopole transitions on electron scatt. 4=25284
 electron scatt. obs., review 4=25273
 Elliott, rel. to P₂ force and rot. spectra 2=12110
 evaporation theory, level density formula for calc. 1=7365
 even—even, α-emitting, α-distrib. on surface 3=12616
 even—even, collective gyromag. factor 3=19741
 even—even nuclei, branching ratio regularities from higher excited states 1=13641
 even—even nuclei, excitations, theory, review 3=10204
 even—even nuclei, props. 4=30306
 even—even, spherical, and excitation, 2⁺ states, Coulomb 4=1003
 even—even, two-particle states, ang. momenta coupling 2=12112

Nucleus—contd

models—contd

- even—even, $228 \leq A \leq 254$, octupole collective states, on superconducting model 4=1030
- even—even, vibration spectrum, anharmonicity 4=12108
- excitation by slow charged particles 3=22288
- excited levels $0^+ 2=375$
- extended schematic model, for interpretation of vibrational states 4=9369
- $f^{7/2}$ particle, weakly coupled vibrations 4=15128
- Fermi fluid, N-N interact. from electron scatt. data 4=6037
- Fermi fluid, rel. to nucleon scatt. optical pot. 2=20605
- Fermi fluid, rel. to nucleon scatt. optical pot. 3=8083
- Fermi fluid, rel. to π -scatt. in emulsions at 6.5 GeV 2=18345
- Fermi fluid of 2 types of particles 3=15080
- Fermi gas, degenerate, rel. to nucleon scatt. optical pot. 2=20605
- Fermi gas, degenerate, rel. to nucleon scatt. optical pot. 3=8083
- Fermi gas, in nuclear surface theory 2=16287
- Fermi gas, photoabsorption, nucleon interact. 2=20491
- Fermi gas, rel. to (ν , e) nuclear reactions 2=12228
- Fermi systems with equally spaced energy levels, props. 4=5099
- fermion system, odd number, ground state energy, BCS approx. 4=18099
- fermion systems, stability conditions, app. nuclear matter 3=18750
- $50 \leq A \leq 58$, effective p-n interaction 4=6202
- finite nuclei 1=8534
- finite nuclei, energy gap, slab model 4=12109
- finite nuclei, local potentials and proton densities 1=8535
- finite nuclei, statistical model 4=25246
- fractional parentage coeffs. for several shell configurations 1=19325
- fractional parentage coeffs. for several shell configurations 2=22696
- γ -transition rates 2=5856
- generalized, equilibrium form for $A < 16$ 4=12113
- giant dipole resonance, e.m. structure 4=12128
- giant dipole resonance, effect of quadrupole collective motions 4=27935
- giant dipole resonance, rel. to potential depth 4=9389
- Green functions for perturb. response study 4=25250
- gross structure studies, interpretation, comment 2=1790
- Hamiltonian, pairing-force, exact eigenstates 4=15130
- heavier nuclei, unlike pair states, collective excit. 4=19657
- heavy nuclei, large clusters, evidence from level structure 1=16955
- heavy nuclei, and light nuclei prod. in high energy reactions 4=6307
- heavy nuclei, rot. states rel. to tensor of inertia 2=1765
- heavy nuclei, statistical model, repulsive core 1=9803
- high-energy bombardment, density and transparency distributions 4=6177
- independent-pair, rel. to variational principle 4=16997
- independent particle, C^{13} 2=18285
- independent particle and M4 transistors 4=15137
- independent particle model, energy matrices 1=12145
- independent particle, one-electron wave fn. choice, calc. 4=27933
- independent particle, photoabsorption theory 2=20492
- independent particles, and α -decay, spheroidally deformed even—even nuclei 3=12617
- individual-particle with pair interactions, reduced width corrections 3=10205
- interior, optical model 3=2425
- j^a configurations, pairing and quadrupole interactions 4=6185
- j, j and $(p, 2p)$ for light nuclei, residual nucleus states 4=12217
- $K\pi = 0^-$ states, two-quasiparticle, perturbed rotational band spectra 4=27954
- Λ -N potentials from single-particle exchanges 4=25196
- level densities, effect of pairing correl., Fermi gas model 4=12127
- light nuclei up to C^{16} , harmonic oscillator fitted to Gaussian potential, model 4=21996
- light nuclei, shell theory, review 3=7963

Nucleus—contd

models—contd

- light nuclei, surface 3=19745
- liquid drop, electron inelastic scatt. 3=8081
- liquid-drop, energy surface relief 3=15239
- liquid drop, equil. shape derivation 2=20485
- liquid drop, equilibrium shapes 1=13606
- liquid drop, fission, equil. configurations 2=5780
- liquid-drop, with high angular momentum, appl. to heavy-ion-induced reactions 1=3383
- liquid drop, rotating, equil. configs. 3=10211
- liquid drop, sharp surface, equilibrium symmetrical shapes 3=2355
- liquid drop, symmetrical shapes of equilibrium 4=9342
- low-lying levels, independ. of potential shape 4=27957
- M1 transitions, l -forbidden, quadrupole vibr. effect 4=6211
- many-body forces in heavy nuclei, from π -N interaction 4=9339
- many-body problem, boundary condition model 1=19330
- many-body perturbation methods in soluble model 1=586
- many-body problem, effective interaction 1=12070
- many-body problem in one dimension, exact solution 1=8540
- many-fermion system, graphical resummation 4=12101
- many-nucleon system in shell-model potential 4=21977
- many-particle systems, simple soluble models 2=1764
- and mass deviation from Bethe-Weisszacker relation 3=10202
- mass-eight, single excit., classified by SU3 coupling scheme 4=6183
- mass 18, shell model level calc. 2=1817
- mass-12, excited states, shell model in LS coupling 4=19652
- matrix elements for β -transitions 2=3521
- matrix elements for β -transitions 3=2399
- momentum distrib., rel. to independent particle theories 1=19328
- multishell configuration wave-function and transformation permutation group matrix 1=18275
- multishell configuration, wave-function and transformation permutation group matrix 2=21827
- N-particle system, ground state, Monte Carlo calc. 1=19295
- N-N pot., velo. depend, and nuclear matter saturation 3=24830
- neutron hole states, determ., from (d, p) or (d, t) reactions 3=19762
- neutron single particle levels, determ., from (d, p) reactions 3=19762
- Nilsson, β^- and M3- transition probab. calc. 2=7949
- Nilsson model, d-shell nuclei 1=12144
- Nilsson model, rel. to prolate deformation 1=13629
- Nilsson single-particle model, γ -transition probab. 2=18297
- Nilsson single particle, for odd mass nuclei, 1d-2s shell 3=6126
- non-axial nuclei with rotational spectrum 1=4825
- non-axial rotator model, possible exptl. tests 1=9798
- non-axial rotator, possible test of model 1=19355
- non-axially symmetric deformed potential and neutron scatt. s-wave function 4=19632
- nuclear data 2=3457
- nuclear matter, energy gap BCS theory 4=12104
- nuclear matter, energy gap, rel. to density and effective mass 4=6190
- nuclear matter, energy gap, extended theory 4=12103
- nuclear matter, fourth-order diagrams 4=12107
- nuclear matter, $N \neq Z$, collective excitations 4=15125
- nuclear matter, new research 3=24832
- nuclear matter, optical potential, approx. theories 4=12099
- nuclear-matter, pairing correlation 1=13609
- nuclear matter, superfluid, collective excitations 2=13964
- nuclear matter, symm. energy and single-particle potential 4=19633
- nuclear matter, theories of Mohling and Puff, reviews 2=1770
- nuclear matter, uncoupled approx. 4=25255
- nuclear optical potential, symmetry term 3=10217
- nuclear pairing Hamiltonian, eigenvalues 4=982
- nuclear reactions, intermediate energy, resonance model 2=5880
- nuclear reactions, many-body theory 2=5877
- nuclear surface 2=3455

Nucleus—contd
models—contd

nuclear "surface" concept 3=4550
 nuclear surface, optical model analyses 2=1769
 nuclei of $A = 5, 6, 7, 8$, cluster model 2=1763
 nuclei containing a nucleon in excess of a closed shell,
 surface interaction 1=19338
 nuclei containing nucleon in excess of closed shell,
 surface interaction 2=22703
 nuclei with neutrons and protons in $1f_{7/2}$ shell 2=346
 nucleon binding states in anisotropic field 4=9356
 nucleon cluster, rel. to (γ, pt) reaction 4=15124
 nucleon clusters, geometrical positions 4=9344
 nucleon gas, inelastic electron scatt. 3=8080
 nucleon gas, superconducting, rel. to nucleon scatt. optical
 pot. 2=20605
 nucleon gas, superconducting, rel. to nucleon scatt.
 optical pot. 3=8083
 nucleon indistinguishability, effect of 2=9984
 nucleon-nucleon potential for same shell of each
 pair 4=21981
 and nucleon scatt. theory at low energies 4=25383
 nucleons moving in shell model potential, pairing and
 quadrupole-quadrupole interactions 2=1766
 nucleus-nucleus scatt., nucleon transfer 4=12281
 oblate deformed around Ba 4=15127
 octupole deform. in even-even medium-mass
 nuclei 3=24859
 odd-A, nonaxial rotational wave functions 4=995
 odd-group model for heavy nucleus, matrix elements of n - p
 interaction 2=16286
 odd-mass nuclei with a $j = \frac{3}{2}$ particle coupled to a vibr.
 core 4=6184
 odd-odd deformed, 0^+ ($T=1$) state, residual
 interaction 4=17038
 one-particle model, giant resonance theory 2=22788
 optical, for α -particle scatt. 3=17497
 optical, analysis of C^{12} proton scatt. 2=3564
 optical, analysis of fast-neutron scattering 2=13806
 optical, analysis of neutron scatt. by deformed
 nuclei 2=3587
 optical, rel. to average reaction reson. parameters 3=6213
 optical, rel. to Ca^{40} (d, p) Ca^{41} , calc. 2=12217
 optical, calc. of excit. of collective states by inelastic
 scatt. 4=6303
 optical, calc. of (n, p) and (n, α) cross-sections 4=19793
 optical, rel. to closely-coupled-states scatt. 2=11286
 optical, for complex nuclei, rel. to neutron scatt. 2=14101
 optical, complex-potential, rel. to cpd.-elastic
 scatt. 4=9497
 optical, contrib. of interior to direct interactions 4=6187
 optical, and d scatt., ang. distrib. 4=3686
 optical, rel. to direct interaction theory for inelastic
 scatt. 3=2423
 optical, direct photoeffect 2=7965
 optical, direct photoeffect 3=6136
 optical, effect of form-factor distortion 3=22261
 optical, for elast. and inelast. proton scatt. 3=12662
 optical, rel. to elastic neutron scatt. 2=14102
 optical, in elastic neutron scatt. by Mg 2=10112
 optical, rel. to elastic proton scatt. 2=20610
 optical, in elastic scatt. of 15 MeV deuterons 4=17182
 optical, elastic scatt., potential independ. 4=25431
 optical, giant resonance, theory 2=3544
 optical, (He^3, t) reaction anal. 4=17198
 optical, low-energy neutron scatt. 2=3579
 optical-model analysis of 14 MeV neutron scatt. 4=1085
 optical model analysis, N-nucleus scatt. 3=621
 optical model, appl. to elastic scatt. of polarized
 protons at 10 MeV 1=3440
 optical model and bound states 4=6180
 optical model, calc. of proton cross-sections for
 $Cu^{63,65}$ 1=3447
 optical model, cluster expansion of potential 1=5815
 optical model of deuteron scatt., potential
 parameters 4=6366
 optical model, rel. to deuteron stripping 1=5885
 optical model, foundations 1=17066
 optical model, Green's functions 1=15734
 optical model of He^3 elastic scattering, various nuclei,
 at 29 MeV 1=19524
 optical model, at high energies 1=5814

Nucleus—contd
models—contd

optical model, imaginary part of potential for
 nuclear matter 1=5813
 optical model in the interior of the nucleus 3=2425
 optical model of light nuclei, polarization of nucleons in
 high-energy elastic scatt., calc. 1=4861
 optical model, N^{14} scatt. on C and Be at medium
 energy 1=8780
 optical model $90 < A < 130$, neutron force
 function 1=19485
 optical model of neutron scatt. at 2.09 MeV 1=19479
 optical model of nucleon-nucleus scattering 1=17089
 optical model, neutron scatt., elastic and
 inelastic 1=8733
 optical model, nucleon elastic and inelastic scatt. 1=8703
 optical model, one-particle motions 1=3430
 optical model (p, n) cross-sections 3=669
 optical model, parameters and their
 interpretation 1=8543
 optical model with polynomial potential 3=2354
 optical model potential, imaginary part, shape 1=19448
 optical model potl., effect of pairing correl. 3=6122
 optical model, proton cross-sections at
 9.85 MeV 1=8712
 optical model, review, rel. to direct interactions 1=8542
 optical model, shell effects in opt. potential 1=8544
 optical model, surface absorpt. and S-wave neutron
 strength function 3=2349
 optical model, test by double-excitation 3=661
 optical model wave-functions for strongly absorbing
 nuclei 1=19422
 optical, for neutron interact. with spherical
 nuclei 3=24947
 optical, neutron scatt., rel. to obs. values 1=19483
 optical, rel. to neutron scattering 1=13807
 optical, $90 < A < 130$, neutron force function 2=22825
 optical nuclear model 1=16959
 optical, nuclear reactions due to protons, theory
 and expt. 1=19474
 optical, nucleon scatt., calc. from phase shifts 2=10093
 optical, nucleon scatt., rel. to one-pion exchange 2=5896
 optical, rel. to O^{16} - O^{16} scatt. 2=5973
 optical, use for 1.5-14 MeV for neutron scatt. on Li^6 and
 Li^7 3=2469
 optical, parameters for deuteron interactions at inter-
 mediate energy 2=20662
 optical, parameters meas. by deuteron scatt. 4=1100
 optical, phenomenological model, solution 1=4822
 optical, rel. to π^+ absorption and diffraction 2=10125
 optical, for π -nucleus scattering 1=13831
 optical, polarization of neutron scatt. near 1 MeV 3=4644
 optical, for polarized protons scatt. 2=16400
 optical, with polynomial potential 2=3458, 13945
 optical potential for $A \sim 60$ and ~ 100 , imaginary
 part 2=9981
 optical potential for $A \sim 100$, $(n, n'\gamma)$ cross-sect.
 analysis 2=10117
 optical, potential depth, real, symm. depend. 4=9494
 optical potential effects on nucleon momentum distrib.,
 pickup reactions 3=624
 optical potential expression, reactions with heavy
 nuclei 4=3624
 optical potential, imaginary part, shape, rel. to
 reaction cross-sections 1=19447
 optical potential, isotopic spin dependence, calc., $> \sim$ MeV,
 and (p, n) reactions 3=19749
 optical potential, isotopic spin var. in nuclear matter,
 approx. 4=12112
 optical potential, multiple scatt. corrections 2=20483
 optical potential, non-locality 3=12544
 optical potential for a nucleon in infinite nuclear
 matter 1=2156
 optical potential, P-wave neutron strength function
 Tn^{ω}/D 2=22697
 optical potential for π -nucleus scatt. 2=1905
 optical potential, and reaction cross-sections 2=9980
 optical potential, scatt. nucleon waves distortion 2=16415
 optical potential, second order, nucleon scatt. 2=18227
 optical potential, spin-depend., for neutron scatt. 2=16414
 optical potential, spin-orbit, for nucleon scatt. 2=7974
 optical, proton scatt., expt. comparison 1=19475
 optical, rearrangement collisions 2=11287

Nucleus—contd

models—contd

- optical, rearrangement nuclear reactions theory 2=7960
 optical, relationship with interaction theory of inelastic scatt. 3=625
 optical, rel. to resonance theories 4=15126
 optical, review 3=17388
 optical, rel. to S and P wave strength functions 4=9527
 optical, rel. to scattering of 160 MeV protons 1=3444
 optical, symmetry-term surface peaking 4=9350
 optical, threshold effect in elastic scatt. 3=6212
 optical, rel. to triton scatt. by light nuclei 4=12256
 optical, various, strength functions and neutron polariz. 3=22260
 optical, wave-functions, forward scatt. 2=20606
 origin of tensor coupling for deuterons 1=592
 oscillator, quadrupole interaction, rotating states 4=6194
 oscillator shell, potl. energy, light nuclei 3=10200
 p, hard core from p-p scatt., up to 660 MeV, phase shift 3=24723
 p-shell, dipole excit., rel. to supermultiplet and unitary quantum numbers 4=25280
 pair, appl. to five-body problem 2=9982
 pair-correl. function, from (e, 2N) reactions 4=25382
 pair-correlation model, rel. to n-p interact. 2=9846
 pair-correlation model, rel. to n-p interact. 3=6003
 pairing, constant temp. or energy differences 3=19743
 pairing correls., charge symmetrical, light nuclei 4=25253
 with pairing correls., high energy behaviour 3=12550
 pairing force between 2 nucleons, and nuclear spectroscopy approx. 4=12096
 pairing force correls. and collective motion, book 4=16991
 pairing Hamiltonian, separability approx. 4=16996
 pairing interaction, superconduct. approx. 4=16995
 pairing interactions 1=618
 pairing model, conservation of particle number 4=21983
 particle scatt., elastic, strong absorption model 4=6300
 phenomenological theory for low excitation energies 4=15121
 phenomenological, for transitions near Fermi boundary 4=6196
 photodisintegration, unified model 1=13766
 potential diffuseness, from isomer shifts 4=19650
 Puff-Martin, nuclear compressibility and symmetry energy 2=1772
 quadrupole oscillations, collective model, anharmonicity 2=18236
 quantitative evaporation theory for diffuse potential 3=24834
 quasi-particle random phase, accuracy 4=21985
 quasi-spin, collective potential energy 3=10218
 quasistatic fission, equilb. shapes 2=18364
 quasistatic fission, equilb. shapes of nuclei 3=6304
 radiation, high-energy, absorption, Monte Carlo study 4=6177
 radioactive nuclei, rel. to electric field perturbation 1=13624
 rare-earth, even, axial asymmetry 2=5778
 from reaction intermediate energy structure 4=9470
 rectang. well, nonspher., inf. deep, single-part. levels 2=13963
 rectangular well, nonspher., infinitely deep, single-particle levels 3=6138
 reduced width detm., from polarization effects in direct nuclear reactions 3=10378
 repulsive core, d 4=892
 review 4=3525
 review 4=12093
 Roche distribution, n, p energy levels and wave-functions 4=997-8
 rotational band structure, Peierls-Yoccoz theory of collective motion 3=19759
 rotational bands 4=17011
 rotational g-factors, Nilsson model for Tm¹⁶⁹ 1=2163
 rotational model applied to Li⁷ 3=12549
 rotational states in deformed nuc., semiclassical three-dim. theory 4=27956
 rotor model, asymmetric, odd-mass nuclei, rotational energies 2=20505
 sd shell, rotational motion, self-consist. field methods 4=16994
 self-consistent "classical", with Coulomb effects 3=17389
 self-consistent model, using Duerr's Hamiltonian 2=345

Nucleus—contd

models—contd

- semiempirical, appl. of N-N resonance theory 3=19621
 several-nucleon system, symmetric group theory 4=12105
 shape parameters and moments of inertia of nonaxial nuclei 4=21986
 shell, α -decay in Pb²⁰⁸ neighbourhood 2=5839
 shell, α -particle cluster 2=14017
 shell, α reduced widths in heavy nuclei 2=3499
 shell, anomaly for Be¹¹ 2=18232
 shell, applied to Ni⁸⁸ (α , α x N) reactions 4=17196
 shell, Bi²¹¹ ground state 2=5839
 shell, calc. techniques; influence of collective model 4=9340
 shell, centre-of-mass motion, separability 4=21984
 shell, closed, giant dipole resonance 2=3547
 shell, collective motion, spectra calc. 3=10212
 shell, collective nuclear vibrs. 2=16292
 shell, configuration mixing rel. to mag. moments 2=3463
 shell, d-s, structure of low-lying states 3=6128
 shell, deformability of core and quad. moment calc. 2=1780
 shell, deformed region, L forbidden transitions 3=22316
 shell, dipole α -rays absorpt. by n-p pairs 2=20441
 shell, doublet splittings calc. 3=22258
 shell, effect on (n, γ) reactions in odd Z nuclei 3=6273
 shell, elec. dipole giant resonance energy 2=12107
 shell, even-even nuclei, energy levels and transition probs. 2=5796
 shell, f⁷ and f⁸ configs., fractional parentage coeffs. 4=6193
 shell, filled states invest. by (p, d) reactions 2=16407
 shell, $\frac{5}{2}^+$ level in mass-13 nuclei, search 3=8132
 shell, 14.6 MeV, effects 2=5930
 shell, rel. to γ transit. probs. 2=414
 shell, Hg²⁰¹, level spacings and transition probs. 2=3482
 shell, higher random phase approx. and energy spectra 2=13962
 shell, independent particle, book 3=12545
 shell, individual-particle, in direct photodisintegration 4=15197
 shell, interaction matrix element 3=10210
 shell, intermediate coupling, approx. methods for 1p shell 2=358
 shell, intermediate coupling, Li⁶, two nucleon potl. 2=16291
 shell, investigation using deuteron stripping 3=22356
 shell, rel. to isobaric analogue states 4=19648
 shell, isobaric spin 1=13618-19
 shell, rel. to l-forbidden beta-transitions 2=10055
 shell, magic number 126, effect on nuclear temp. 2=5925
 shell, magic number Z = 50, rel. to fission yield 2=12229
 shell, rel. to magnetic quadrupole γ -transitions 2=10069
 shell, mass and level systematics of $lf_{7/2}$ shell nuclei 4=3559
 shell, matrix element evaluation 2=1042
 shell, matrix elements for 0⁺ \rightarrow 0⁺ β -transitions 2=5841
 shell model, analysis of Ca^{42,43} 1=5839
 shell model, rel. to β -decay 1=4844
 shell model, calcs. of α -decay rate near Pb²⁰⁸, from Po²¹² 3=19806
 shell-model calculations, tables of transformation brackets 1=13600
 shell model and collective nuc. vibrs. 3=22264
 shell model, effective interact. 3=15071
 shell model and its effective nuclear forces 1=8546
 shell model, extension for heavy spherical nuclei 1=8548
 shell model, harmonic-oscillator theory 1=5816
 shell model, many-body and single-particle aspects, relation 1=4830
 shell model, μ -meson capture rate, hyperfine effect, calc. 1=3528
 shell model, nuclear interactions 1=9796
 shell model, odd-mass nuclei, pairing and quadrupole force 1=13603
 shell model, pairing and quadrupole forces 1=13605
 shell model, pairing schemes 1=13602
 shell model, pairing theory 1=19333
 shell model, proton polarization calc. in scatt. from Li⁶, Be⁹, and B¹¹ 1=3443
 shell model, reduced widths of nucleon clusters 1=13607
 shell model, spurious states arising from centre-of-mass motion of a nucleus 1=3394

Nucleus—contd

models—contd

- shell-model states, Flowers' classification 1=5834
- shell-model, use for study of spin-orbit splitting among light nuclei 4=6176
- shell model, Talmi transformations 1=19138
- shell model theory of Pb^{205} 1=9797
- shell model, two-nucleon interaction 1=4820
- shell model, 2s-1d shell, intermediate coupling calc. 1=8575
- shell-model, $Z = 50 \pm 1$ or 82 ± 1 , levels 1=19336
- shell, moment of inertia formula 4=6199
- shell, moments of inertia 2=5783-4
- shell, muon captive 2=13838
- shell, (n, γ) reactions in odd Z nuclei, effects 2=14112
- shell, n-p interaction between states of some l 2=18234
- shell, neutron separation energies near 126 4=19638
- shell, neutron states, single-particle, energies obs. 3=10247
- shell, Nilsson, for Au^{192} odd-particle configs. 3=22350
- shell, use of normal coords. 2=3449
- shell, nuclear excitation calc., O^{16} , C^{12} 4=15145
- shell, nuclear shape rel. to filling of shells 2=13954
- shell, O^{16} photon absorp., quasi-deuteron prod. 2=18314
- shell, O^{17-20} energy levels, j-j coupling 2=7933
- shell, occupation number for reaction calcs. 4=25249
- shell, one- and two-hole excitation, rel. to π capture 3=4657
- shell, (1d, 2s) nuclei, rel. to gross structure meas. 2=12111
- shell, $1f_{7/2}$, as core plus Z-20 protons and N-20 neutrons 4=16998
- shell, orbital Young diagrams, and cluster effects in reactions 4=22096
- shell, $Pb^{201, 203, 205}$, level spacings and transition probs. 2=3482
- shell, Pb^{208} , 3- and 4+ levels 2=20517
- shell, Po^{211} ground state 2=5839
- shell, Po^{212m} study 2=18269
- shell, pairing correl. effects in β decay 4=25337
- shell, pairings 2=13958
- shell, particle-hole interaction 4=3528
- shell, π -N interaction 1=13601
- shell, potential, system of fermions 2=12108
- shell, rare-earth region, rotation theory 2=5782
- shell, real potential well, computer code 3=2352
- shell, reduced matrix elements 1=16956
- shell, rel. to neutron strength function 3=22259
- shell, residual interact. and pairing energies 3=10214
- shell, with residual interaction for Fe^{57} 2=22707
- shell, residual potential, effective range 4=6188
- shell, rel. to rotation-vibration model 3=4553
- shell, rel. to rotations and vibrations 2=1771
- shell, s-d, 4-particle wave-function in SU_3 scheme 4=25254
- shell, s-d, vibrations rel. to particle interact. 3=4554
- shell, S-state interaction with pairing props 4=9352
- shell, S-wave residual interaction inclusion, "clustering" effect 4=6192
- shell, self-consistent potential and non-singular two-body interaction, calc. 3=17387
- shell single-particle, rel. to γ -ray scatt. 3=17449
- shell, soln. for particles in Coulomb potential 2=13960
- shell, spin-orbit bond in photonuclear reactions 3=4613
- shell, spin-orbit splittings 2=20487
- shell, stability, higher random phase approx. 2=18230
- shell structure rel. to atoms 4=25245
- shell structure, by electron scattering on nuclear protons 1=19327
- shell structure, rel. to photoprotons 3=10328
- shell, SU_3 classification, matrix elements 3=12552
- shell, subshell effect on neutron spectr. near $A = 50$ 2=10116
- shell, supermultiplet theory, single shell picture 2=10192
- shell, testing with beams from Van de Graaff accel. 3=22268
- shell, 2s, 1d, energy spectra calc. 3=12553
- shell, useful 9-j coeffs. identity 4=21015
- shell, variational methods for deformed orbitals 4=6186
- shell, vibr. levels excitation by particle 3=7985
- simple model for calc. of optical potential 1=3380
- single-nucleon model 3=19744
- single particle bound state widths and optical model potential 3=22280

Nucleus—contd

models—contd

- single particle and collective, bridge between 4=19659
- single-particle, correl. to 7 MeV photon interactions 2=10082
- single particle, Davydov-Filippov, and mixing ratios, even-even nuclei 4=3556
- single-particle, γ -ray branching ratios 2=3530
- single-particle, non-local, rel. to neutron binding energies 4=3534
- single-particle, rel. to retarded elec. dipole transitions 2=14043
- single particle strengths 3=19746
- single-particle, transition probabilities calc. 2=16325
- soluble, many-body perturbation methods 2=1767
- spacing distrib., higher-order, of energy levels 4=18083
- spherical even, collective oscill., "anharmonic" effects 4=27936
- spherical even-even, simple pairing and long-range quadrupole force 3=2371
- spherical heavy nuclei by interacting quasi-particles 4=6179
- spherical nuclei, vibrations 1=8560
- spherical, octupole vibrations, liq. drop model 4=21979
- spherical, two-phonon vibr. states, four quasiparticle excitations 4=19653
- state-mixing coeffs. rel. to nucleon polarization 2=13955
- states $\frac{1}{2} \leq j \leq \frac{13}{2}$, one or two particle separation, parentage coeffs. 4=6247
- statistical, use in anal. of (n, α) reactions 4=15220
- statistical, use in anal. of (n, α) reactions 4=15221
- statistical, application to V^{51} (p, n) Cr^{51} reaction 4=17135
- statistical, approx. by quasistatic drop model 4=6195
- statistical, comparison of predictions with obs. Al^{27} (d, α) Mg^{25} 4=17188
- statistical, distortion, from isotope effects, n number var. 4=986
- statistical, on empirical basis 2=12113
- statistical, including correlations 3=15083
- statistical, isomerism probability 4=27953
- statistical model of compound nucleus, appl. to $Ni(\alpha, p)$ 1=2214
- statistical model with correlation correction 1=10950
- statistical model of level densities 1=10962
- strongly-deformed nuclei, "superfluid nuclear model" 3=10207
- strongly deformed region 4=979
- study by nuclear reactions, review 3=24915
- supercond., in α -decay theory 2=22755
- supercond., in α -decay theory 3=2398
- superconducting, approximation methods 3=17384
- superconducting, self-consistent field separation 3=12547
- superfluid, effect on stripping and pick-up reactions 1=19434
- superfluid, mass surfaces spacing 4=12111
- superfluid model, α reduced widths 4=3592
- superfluid model, for deformed nuclei, pairing forces 1=4823
- superfluid model, properties 1=13614
- superfluid model, u, v-transformation, accuracy estim. 4=6197
- superfluid, pairing energy in Weizsäcker's formula 4=977
- superfluid, partially projected functions 4=19634
- superfluid, props. 2=3456
- superfluid, stripping and pick-up reactions, effect 2=22780
- superfluid, surface layer, pairing correlation 4=19635
- superfluid, and $225 \leq A \leq 255$ props., calc. 3=24829
- superfluidity effects in light nuclei 4=978
- superfluidity and phase transitions in nuclear matter 4=9349
- supermultiplet, validity 4=3529
- surfaces, review 2=20489
- symmetric two-shell, for pairing and monopole-monopole interacts. 3=15075
- Thomas-Fermi model, ang. momentum distrib. 4=17237
- threshold states and rearrangement energy 2=5781
- transuranic, unstable, equil. deformations 3=19752
- two-body cluster states 1=584
- two-body interaction parameters in $(p_{1/2})^2$, $(p_{1/2} 2s_{1/2})$ and $(p_{1/2} d_{3/2})$ configurations 4=17000

Nucleus—contd

models—contd

- two-nucleon interaction in common harmonic oscill. potential 4=12106
- two-particle interact. operators, matrix elements 4=980
- unified, applied to P^{20} levels 4=17047
- unified, applied to Pa^{234} levels 4=17076
- unified, applied to Tm^{169} levels 4=19697
- unified, energy level schemes of distorted nuclei 2=20615
- unified, $I^{127,129}$, energy levels calc. 2=7931
- unified model, appl. to levels in P^{30} 1=8578
- unified model, consistency with Ta^{181} levels 1=8627
- unified model, surface oscillations of weakly deformed nuclei 1=8604
- unified, for structure in $lf-2p$ shell 4=6226
- VKV and DF models of level props., critical tests proposed 1=8603
- vibration-rotation interaction in deformed nuclei 4=27934
- vibration-rotation interaction, microscopic model, deformed nuclei 4=25281
- vibration-rotation, rel. to $Os^{186,188,190}$ 4=25321
- vibrational, α -particle scatt. theory rel. to expt. 2=18356
- vibrational, collective model 2=18235
- for vibrational even nuclei 4=6181
- vibrational quadrupole excitation model and non-axial rotator model, possible exptl. tests 1=9798
- $Z \leq 20$, electron scatt., generalized model 4=9482
- $225 \leq A \leq 255$ props., calc., superfluid model 3=24829
- Al^{27} , shell-model pairing 1=13602
- Al^{28} , shell, gross structure meas. interpret. 2=12111
- Ar^{41} , 40 states, shell model analysis 3=7990
- Au , α clusters from He^3 , He^4 ang. distrib. in p, α reactions 4=19785
- Au^{197} , α substructure, from p, $3p3n$ reaction 3=19852
- B^{11} , shell-model pairing 1=13602
- B^{11} , verification from $B^{11}(p,p')$ data 4=19765
- Be^8 , α - α model 2=5751
- Be^8 , 20 MeV state 2=10147
- Be^9 , α substructures, from $Be^9(p,p\alpha)$ 4=1080
- $Be^9 + \alpha$ system, $Be^9(\alpha,n\gamma)C^{12}$ study 3=10391
- Be^9 , inelastic electron scatt., three models 3=2437
- Be^9 , molecular, in photodisintegration 2=20589
- $Be^9(d,p)Be^{10}$, shell model treatment 2=5960
- Bi , α clusters from He^3 , He^4 ang. distrib. in p, α reactions 4=19785
- Bi , α -particle structure, and emission, on p bombardment 3=17381
- C , optical, integrated, potentials 3=22374
- C , p momentum distrib., from π -p quasi-elastic scatt. 4=25153
- C^{12} , α -cluster model 3=12551
- C^{12} , α -particle collision in nucleus, probability 1=17105
- C^{12} , diffuse-surface optical, proton scatt. 3=6236
- C^{13} , giant dipole resonance, shell and collective models 3=19769
- C^{12} , inelastic electron scatt., three models 3=2437
- C^{12} , nuclear matter distrib. 2=13847
- C^{12} , nuclear matter distrib. 3=6036
- C^{12} , oscillating drop, low-lying states, e.m. props. 2=9985
- C^{12} -p, inelastic colls. at 660 MeV 2=5921
- C^{12} -p inelastic colls. at 660 MeV 3=4643
- C^{12} , quasi-deuteron model 3=7965
- C^{12} , shell-model, by electron-nuclear proton scattering 1=19327
- C^{13} levels, use for obtaining two-body interaction parameters 4=17000
- C^{13} - N^{13} , α -model 1=19364
- C^{13} - N^{13} , α -model 2=22727
- C^{14} , N^{14} , intermediate-coupling, configuration-mixing calc. 3=12557
- Ca , optical, in neutron elastic scatt. 3=672
- Ca^{40} , props., using Brueckner-Gammel-Weitzner theory 1=589
- $Ca^{40,44}$ and μ mesic X-rays, isotope effect on energy 4=3823
- Ce^{140} , 2.083 MeV two-proton level 3=12560
- $Cl^{35,37}$, shell, rel. to muon absorption 3=10368
- Cr^{52} , $f_{7/2}^{14}$ levels, seniorities 2=12134
- Cr^{52} , optical, and excitation by inelastic n scatt. 4=17042
- Cu isotopes, by unified model 2=13956

Nucleus—contd

models—contd

- Dr^{168} , first-excited state, asymmetric rotor 2=13986
- Er^{166} , vibrational, and E2 transition 4=3558
- F^{17} , α -particle and energy level calc., low-lying 4=1011
- F^{17} , configurations rel. to level parameters 2=13991
- F^{18} , shell, tensor force effect on energy levels 4=25291
- Fe^{56} , optical potential, imaginary, shape from p scatt., 19.2 MeV 4=9351
- Fe^{57} rotational model 1=8561
- Fe^{57} , shell, single-particle levels 2=10017
- He^3 , e. m. structure, using S and D states function 4=27911
- He^4 , shell, rel. to elastic nucleon scatt. 2=20329
- Hf^{177} , collective, nuclear g-factor meas. 2=10013
- K^{38} , shell model structure 4=3695
- K^{40} , shell model calc. of energy levels 4=25304
- Li^4 , as $\alpha + d$, and electrodisintegration 3=17455
- Li^4 , α -d model 1=4824
- Li^4 , $\alpha + d$ model 1=5818
- Li^4 , $\alpha + d$ model, rel. to Li^6 reactions 1=17156
- Li^6 , cluster; rel. to $C^{12}(Li^6, \alpha)$ 2=14142
- Li^6 , cluster, rel. to deuteron cluster behaviour 2=13950
- Li^6 , cluster, proton momentum distrib. 2=7920, 13951
- Li^6 , cluster and shell, rel. to electron scatt. 2=9987
- Li^6 , d, α substructures, from $Li^6(p, pd)$ and $(p, p\alpha)$ 4=1080
- Li^6 , from electron excitation 3=22368
- Li^6 , p-proton, rel. to proton scatt. 3=2442
- Li^6 , shell model calc., two nucleon potl. 2=16291
- Li^6 , shell and two-body models, use in anal. of $Li^6 + d$ reaction 4=6370
- Li^6 , three-body model, level inversion 2=20494
- Li^6 , three-body model, n-p- α , detailed study 2=9986
- Li^6 , sub-structure deuterons 2=20617
- $Li^6 + Li^6$ complex, as explanation of $Li^6 + Li^6$ reactions, 2 MeV, product energy and angle distrib. 3=22431
- Li^7 , cluster structure 4=9503
- Li^7 , $J = 5/2$ state on cluster and unified models 2=16288
- Li^7 , from $Li^7(p,n)Be^7$, n polariz., ang. distrib., $E_p = 4.5$ MeV 3=17462
- Mg , optical, and excitation by inelastic n scatt. 4=17042
- Mg^{24} , α -particle model 1=10969
- Mg^{24} , α -particle model 2=22705
- Mg^{24} , rotating, nonaxial, and reduced width calc. 4=1104
- Mg^{25} - Al^{25} , α -model 1=19364
- Mg^{25} - Al^{25} , α -model 2=22727
- Mg^{25} , Bohr-Mottelson collective model appl. 2=5801
- Mg^{27} , shell, gross structure meas. interpret. 2=12111
- Mn^{55} , shell, incl. neutron-proton interact. 3=6129
- Mo , optical, and neutron scatt., 14 MeV 3=673
- N^{13} levels, use for obtaining two-body interaction parameters 4=17000
- N^{13} , shell, energy level predictions rel. to expt. 3=635
- N^{14} , Blair black-nucleus diffraction model, fit to α -scatt. data 1=8775
- N^{14} levels, use for obtaining two-body interaction parameters 4=17000
- N^{14} , shell model of 9.17 MeV state 1=10971
- N^{14} , shell, tensor force effect on energy levels 4=25291
- N^{14} , 6.44, 7.03, 9.17 MeV states, shell 3=8094
- Nb^{91} , pairing force, and nuclear spectroscopy approx. 4=12096
- Nb^{93} , α substructure, from p, $3p3n$ reaction 3=19852
- Nb^{93} , optical, and excitation by inelastic n scatt. 4=17042
- Ne^{20} , α -particle model 1=10969
- Ne^{20} , α -particle model 2=22705
- Ne^{20} , comparisons rel. to $F^{18}(d,n)Ne^{20}$ 4=15232
- Ne^{20} , energy levels of first rotational band 3=4565
- Ne^{20} , shell model calc. of even parity states 4=27962
- Ni shell closure and reduced p cross-section compared with nearby nuclei 4=22138
- $Ni^{58,60}$ optical, and excitation by inelastic n scatt. 4=17042
- $Ni^{59,61}$, shell, single-particle levels 2=10017
- Ni^{62} , three-phonon group 3=6134
- Ni^{62} , vibrational states, collective model 2=18235
- O , optical, rel. to elastic proton scatt. 3=6235
- O^+ , pairing force, and nuclear spectroscopy approx. 4=12096
- O^{15} , Hartree-Fock fields and ionization pot. 4=25251
- O^{16} 4=6220
- O^{16} , α substructure, from p, $3p3n$ reaction 3=19852
- $O^{16}(\gamma,n)O^{15}$ shell model predictions 4=6323
- O^{16} , many-body problem 1=19331

Nucleus—contd
models—contd

- O¹⁶, 0⁺ state by harmonic oscillator shell model 2=12139
 O¹⁶, optical, rel. to elastic deuteron scatt. 4=22166
 O¹⁶, props., using Brueckner—Gammel—Weitzner theory 1=589
 O¹⁶, shell extension and γ , n excitation 4=25292
 O¹⁶, shell, ground state correlations 2=12116
 O¹⁶, shell model, rel. to photoneutron spectrum 4=17116
 O¹⁶, shell-model, wave-function, exchange correlations 1=19444
 O¹⁷, α -particle and energy level calc., low-lying 4=1011
 O¹⁸, shell, velocity-depend. potentials 4=21980
 P³², rotational and shell, rel. to expt. 2=22739
 P³², shell, gross structure meas. interpret. 2=12111
 Pb^{202, 204, 206}, pairing, exact, and energies and excitation spectra 3=19751
 Pb^{206, 204, 202}, pairing models, study by exact eigenstates 4=15131
 Pb²⁰⁷, five levels above 2 MeV 2=12115
 Pb²⁰⁸, 3⁺ state, configuration mixing 3=8020
 Pb²⁰⁹, level above 2 MeV 2=12115
 Po²¹¹, odd-group model 2=16286
 Po^{211, 212}, shell model calc. of isomerism 4=25325
 Po^{212m}, shell-model calc. 2=18269
 Pr¹⁴¹ + p reaction, optical model imaginary potential 1=9855
 Rh¹⁰⁴, shell model configurations 3=4570
 Rh^{104m}, shell model configurations 3=4569
 S³², α -particle model 1=10969
 S³³, shell, gross structure meas. interpret. 2=12111
 Si²⁸, α -particle model 1=10969
 Si³⁰, weak-coupling unified model, energy levels calc. 3=6167
 Sn, single interaction, finite range, and pairing props. 3=17380
 Sn¹¹⁸, deformation, from isomer shift 4=19693
 Su^{108, 118, 124}, n energy gaps, calc. 4=977
 Th, α clusters from He³, He⁴ ang. distrib. in p, α reaction 4=19785
 Ti⁴⁶⁻⁴⁹, shell model states and config. mixing 4=25400
 Ti⁴⁹, shell, single-particle levels 2=10017
 Tl²⁰³, and internal conversion 4=19736
 Tl²⁰³, rel. to mag. moment of 297 keV level 2=12122
 Tl²⁰⁵, two shell-models 1=19332
 U²³⁸, superconductivity, rel. to nuclear temp. determ. 4=3530
 V⁴⁶, shell, rotational, and levels, low-lying 4=1077
 V⁵¹, α substructure, from p, 3p3n reaction 3=19852
 V⁵¹, shell-model calc. of electron inelastic scatt, cross-section 3=664
 V⁵¹, three-particle, from electric quadrupole and mag. dipole data 3=19778
 Y⁸⁹, pairing force, and nuclear spectroscopy approx. 4=12096
 Y⁸⁹ to Tc⁹³, effective interaction and identical-nucleon seniority 4=25311
 Zr, shell, neutron d_{5/2} configs. 2=13961
 Zr⁹⁰, pairing force, and nuclear spectroscopy approx. 4=12096
 Zr⁹⁰, props., using Brueckner—Gammel—Weitzner theory 1=589
 Zr⁹⁰, shell, disagreement with (γ , p), 22, 34 MeV, p spectra, ang. distrib. 4=25376
 Zr⁹¹, shell, and energy level calc., low, + parity 4=27970

size

- (subheading introduced in 1961)
 closed shell nuclei, ratios, Green's independent particle model 4=981
 deformation and rotational spectra 2=12108
 density distrib., Fermi—Thomas K-matrix method 3=15074
 effective mass, rel. to shell model velocity dependence 4=9355
 effects in X-ray spectra of heavy elements 1=8819
 electron—nucleus scatt., effect on radiative tail 4=19758
 EO transitions, collective, rel. to nuc. shape 3=24843
 finite, isotopic shift of atomic energy levels, calc. 2=16322
 finite size effects in β -decay 3=646
 Green's method calc. 4=25265
 heavy, rel. to α -emission data 2=10037
 heavy nuclei, radii, from total fission cross-sections 1=3474
 nuclear charge radii 2=14230

Nucleus—contd
size—contd

- octupole deformation, rel. to fission mechanism 1=5825
 from π^0 photoproduction cross-sections 4=993
 potential, long-range 3=15070
 prolate deformation, rel. to Nilsson model 1=13629
 radii, rel. to Coulomb energies 1=13627
 radius calc., function of neutron and proton nos. 3=22272
 radius parameter re-eval. 3=10385
 radius from small-angle nucleon scatt. 2=436
 shape, self-consistent field theory 1=7316
 spherical, const. surf. thickness, by electron scatt. 2=20600
 surface shape investigation method 3=15087
 uniform sphere model, to const. eval. 2=16433
 X-ray fine structure, effect on 4=1195
 Z = 12-50, 14 elements, from muonic X-rays 3=15311
 zero-point vibs. effect on radius 3=12556
 Au, charge distribution radius 1=13778
 Bi, charge distribution radius 1=13778
 C, from π^- scatt. 1=7394
 C¹² charge distribution radius 3=19841
 Ca⁴⁰, props., using Brueckner—Gammel—Weitzner theory 1=589
 Ca⁴⁰, zero-point vibs. effect on radius 3=12556
 Co, radius, from neutron transmission 1=2218
 Cu, radius, from neutron transmission 1=2218
 F¹⁹ mass calculation 1=9875
 F²⁰ mass calculation 1=9875
 Fe, radius, from neutron transmission 1=2218
 He³ 3=12519
 He⁴, by Irving wave function 2=18240
 He⁴, radius 1=12097
 He⁶, density distrib. 3=7940
 Li⁶ 1=598
 Li⁶, charge distrib. 4=9362
 N¹⁴, r.m.s. radius calc. 4=16999
 Ni, radius, from neutron transmission 1=2218
 O¹⁶, props., using Brueckner—Gammel—Weitzner theory 1=589
 O¹⁶, reaction matrix calc. 3=2357
 O¹⁷ mass calculation 1=9875
 Rh¹⁰³, radius, from neutron reactions 4=17168
 Rh^{104, 107}, mass number 2=20539
 Se, radius, from neutron transmission 1=2218
 U^{233, 235}, radii, from total fission cross-sections 1=3474
 Zn, radius, from neutron transmission 1=2218
 Zr⁹⁰, props., using Brueckner—Gammel—Weitzner theory 1=589
- spin and parity**
 See also Gyromagnetic ratio; Molecules, nuclear coupling. (subheading introduced in 1961)
 alignment, use of Ni zinc fluorosilicate as cooling agent 0=9863
 compound nucleus energy levels in scatt., inelastic, low energy 4=6306
 compound, nucleus in (n, γ) reactions 0=9594
 compound nucleus, by neutron scattering 1=13617
 cooling by paramag. electron spins in lattice 3=19077-8
 det. from γ — γ polarization—directional correlations involving multipole mixtures 1=5866
 determ. from product group intensities in nuclear reaction 0=5650
 determination from γ -ray ang. correl. 1=9846
 effect of acoustic resonant pulses 1=3387
 electromagnetic sum rules 2=5788
 electron coupling of spins, complex periodicities 4=17270
 even—even, Ne²⁰-S³² levels, from γ ang. correl. on p scatt. 3=24852
 even—even nuclei between O¹⁶ and Ca⁴⁰ 2=5401
 even nuclei in rare-earth region 0=7477
 ferromagnet, nuclear interaction, classical deriv. 2=4210
 ground-state, calc. 0=11298
 heavy nuclei, from deuteron inelastic scatt. 1=11030
 heavy nuclei, effect isobaric spin purity on nuclear potentials 3=10223
 heavy nuclei, isotopic spin 2=13967
 interaction with electrons in neighbouring molecules 0=7455
 isobaric spin quantum no., heavier nuclei 3=633
 isobaric spin in shell model 1=13618-19
 isomeric pair formation probabilities, spin dependence 0=20423

Nucleus—contd

spin and parity—contd

isotopic spin, not good quantum no. rel. to isobaric
corresp., regions 2=5789
light nuclei, on generalized model 2=20490
light nuclei, ground state, empirical rules 4=9357
mass-13 nuclei, search for $\frac{1}{2}^-$ level 3=8132
meas., atomic beam resonance apparatus 0=17685
medium nuclei, ground state, collective model 1=13616
medium-weight, spin-parity schemes, using Signell-
Marshak potential 1=13638
"negative levels", spin establishing method 3=12571
nuclear alignment, detection and production 1=8565
octupole deform. in even-even medium-mass
nuclei 3=24859
odd $N = Z$, $A > 40$ nuclei, lowest $T = 0$ states 2=7925
odd nuclei, spin $\frac{1}{2}$, theory rel. to expt. 2=359
odd-odd nuclei, ground states, theory 1=588
odd-odd nuclei, jj coupling model 0=20325
1d-2s shell nuclei, low levels 1=8578
parity non-conservation in β -decay, possible expt. 4=15136
parity nonconservation rel. to weak
interactions 4=9347
and Pauli 1=15591
in perturbation theory, rel. to moment of inertia 1=16963
in perturbation theory, rel. to moment of inertia 2=22702
polarized H, D and T targets, metallic foil
solutions 1=671
radioactive, atomic beam m. r. apparatus for
spin 4=30297
rare earth isotopes, 5, atomic beam obs. 4=27944
rare earths, even-even ($150 \leq A \leq 184$) 1=12160
relaxation, rotating pair of nuclei 3=15951
review 0=20324
from s- and p-wave neutron spectroscopy 0=5785
spin-lattice relaxation for spin 1 and $\frac{1}{2}$ 1=12564
spin-orbit coupling for spin-1 particles 1=592
spin-orbit splitting among light nuclei due to two-body
spin-orbit pot. 4=6176
spin-orbit splitting and tensor force 0=20340-1
spin polarization by deformation cooling 4=18502
spin state in solids, effect on neutron scatt. 1=19687
total, use in molecular term classification 0=11537
 $20 \leq Z \leq 28$ and $N = 29$ and 30 , expt. 4=6202
unidirectional, H atomic beam prod. 0=2722
in Wigner supermultiplets 0=7482
 $Z = 11$ to 20 , compilation of data 2=12131
 A^{36} levels, spin and parity 1=653
 A^{40} , from proton scatt. at 0.8-3.5 MeV 2=3562
 A^{40} , 2nd, 3rd, 9th, 11th states 3=6250
 Ag^{102-4} 0=13171
 Ag^{107} , 10 states up to 1222 keV 2=16330
 Ag^{108} , meas. by mag. resonance 4=15132
Al, from s- and p-wave neutron spectroscopy 0=5785
 Al^{25} , 5.3-6.2 MeV levels 3=22372
 Al^{25} , 7.77 MeV state 0=11383
 Al^{25} , 3.70 MeV level, by $Mg^{24}(p, \gamma)Al^{25}$ at 1.49 MeV
reson. 3=19772
 Al^{26} levels, spin and parity 1=7377
 Al^{26} , from $Mg^{25}(p, \gamma)$ 1=9861
 Al^{26} , spins and parities from $Al^{27}(d, t)Al^{26}$ 0=9638
 Al^{26} , 2.07, 1.85, 1.76 MeV levels 3=19773
 Al^{27} 4=9510
 Al^{27} , 648 keV level spin and parity 1=17099
 Al^{27} , spin and parity of 2.21 MeV level 1=12161
 Al^{27} , spins of 2.21 and 3.00 MeV levels 3=6140
 Al^{27} , 2.21 MeV from γ - γ ang. correl. meas. 4=6223
 Al^{27} , 2.21 MeV level, from ang. distrib. of reson. scatt.
bremsstrahlung 4=6224
 Al^{27} , 2.21 MeV level, rel. to $Mg^{26}(p, \gamma)$ resonance 2=20618
 Al^{27} , 2.21 and 3.0 MeV states 1=8618
 Al^{28} 1=13825
 Al^{30} , ground-state spin and parity 1=12168
 Am^{241} 0=20329
 Am^{242} (16 hr) 2=1778
 Am^{242m} (152 yr) 0=20372
 As^{75} 2=3533
 As^{75} , 199, 280, 574, 810 keV levels 2=10007
 As^{76} 1=8566
 As^{77} , spin of 1.19 MeV level 4=3604
 As^{80} , 1 $^+$, ground state 0=5697
 Au^{180} , ground-state spin 4=990
 Au^{191-6} , by atomic beam mag. resonance 0=20327

Nucleus—contd

spin and parity—contd

Au^{196m} (9.5 hr) 2=18241
 Au^{197} , ground and first excited states, Mössbauer
obs. 4=20158
 Au^{197} , 268 keV level 1=8665
 B^0 , anomalous parity states 4=25288
 B^{10} 1=19533
 B^{10} 3=667
 B^{10} , from $Be^9(p, \gamma)$ 0=1404
 B^{10} , 8.89 MeV and Be^{10} 7.37 MeV mirror
levels 2=14082
 B^{10} , excited states 0=4027
 B^{10} , excited states 4=12135
 B^{10} , 5.11 and 5.16 MeV levels 3=24860
 B^{10} , 5.16 and 7.56 MeV levels 1=5837
 B^{10} , levels up to 5.16 MeV 2=20669
 B^{10} , 930 and 980 keV levels 1=9857
 B^{10} , 7.42, 7.48, 7.56 MeV 2=16315
 B^{10} , spin and parity of levels 1=5838
 B^{11} 0=20467
 B^{11} 2=18232
 B^{11} , 4.46 and 6.76 MeV levels 2=10144
 B^{11} , and parity 0=17483
 B^{11} , 6.76 MeV and 7.30 MeV levels 0=13146
 B^{11} , spin and parity 1=10964
 B^{11} , 2.14 MeV level 2=13980
 B^{11} , 2.14 MeV level, parity 4=6218
 B^{11} , 2.13 MeV first excited state, parity 3=7986
 B^{12} , first excited state at 0.95 MeV 4=6217
 B^{12} , first 4-excited states 3=4664
 B^{12} , 4.31 MeV level 2=5935
 B^{12} , 0.95 MeV level 0=7456
 B^{12} , 1.67 MeV level 3=6278
 B^{13} , nine excited states 4=12259
 B^{13} , ground state 0=20462
 $Ba^{128, 129, 130}$ 4=22038
 Ba^{131m} 3=8001
 Ba^{132} , from Cs^{132} decay 2=22767
 Ba^{134} 3=24903
 Ba^{134} , excited states 4=9408
 Ba^{134} , spins of excited states 3=15114
 Ba^{136} 2=10009
 Ba^{136} 3=4572
 Ba^{136} levels 1=3418
 Ba^{138} , low levels 1=9833
 Ba^{138} 3=2360
 Be^7 3=12522
 Be^7 , positive parity state 3=17460
 Be^8 , parity of 441 keV resonance in $Li^7(p, \gamma)$ 1=9860
 Be^8 , compound nucleus, 19.9 and 22.2 MeV 3=17461
 Be^8 , 18.9 MeV level 3=17480
 Be^8 , 16.93 MeV level, isotopic, from 2α decay 4=22009
 Be^8 , three new proposed levels 1=2212
 Be^9 2=16311
 Be^9 3=12691
 Be^9 4=12274
 Be^9 , on cluster model 2=16290
 Be^9 , level assignments 2=14125
 Be^9 , and parity levels < 15 MeV 0=5651
 Be^{10} , excited states 0=4027
 Be^{10} , 7.37 MeV and B^{10} 8.89 MeV mirror levels 2=14082
 Be^{10} 6.18 MeV level 4=9384
 Be^{10} , 6.18 and 6.26 MeV levels 4=1008
 Be^{10} , 7.37 and 7.54 MeV states 4=9519
 Be^{11} , rel. to anomalous order of levels 0=13135
 Be^{11} , ground-state even parity 1=8581
 Be^{11} , spin and parity 1=10964
 Be^{11} , 319 keV level parity, from $Be^8(t, p)$ p ang.
distrib. 4=19822
 $Bi^{109, 200-2}$, ground-state 0=5652
 Bi^{208} meas. 4=22179
 Bi^{211} , from Pb^{211} decay 2=20549
 Bi^{212} 1=17039
 Bi^{212} levels 1=2197
 Bi^{212} (ThC), spin and parity of first excited level 1=2186
 Bk^{249} , from E^{253} decay 1=8660
 Br^{78} , 17 hr 0=13120
 Br^{78} , ground-state 0=13174
 Br^{78} ground-state spin and parity 1=8630
 Br^{79} levels, from Kr^{79} decay γ 's 4=12148
 Br^{81} 1=13756
 Br^{82} 0=1352

Nucleus—contd

spin and parity—contd

C, 7.66 and 9.63 MeV levels 1=9882
 C^{11} , excited levels 0=20455
 C^{11} , highly excited states, from p elastic scatt. on B^{10} 2=22729
 C^{11} , 9.74 MeV level 1=9856
 C^{11} , spin and parity 1=10964
 $C^{11,12}$, excited states, parity 1=8756
 C^{12} 1=13792
 C^{12} 4=6331
 C^{12} , 15.1 MeV level 0=3950
 C^{12} , 4.43 MeV level, parity 2=3603
 C^{12} , Green's function computation 2=3486
 C^{12} , low-lying states, on drop model 2=9985
 C^{12} , 9.6 MeV state, 3^- assignment 1=11004
 C^{12} , 9.63 MeV state 1=5910
 C^{12} , 9.63 MeV state 2=1799, 5901
 C^{12} , 17.77 and 18.34 MeV levels 3=19850
 C^{12} , spin and parity of levels 1=13639
 C^{12} , T = 1 states 2=3479
 C^{12} , 13.1, 13.27 and 13.88 MeV levels 4=12279
 $C^{12} + C^{12}$ quasi-molecular resonances, spin assignments 1=8784
 C^{13} 1=13854
 C^{13} , anomalous, low-lying states, shell model 4=1010
 C^{13} , first three excited states 2=16317
 C^{13} , ground state 2=18285
 C^{13} , search for $\frac{1}{2}^-$ level 3=8132
 C^{13} , from stripping reaction 1=17144
 C^{14} , from C^{13} total neutron cross-section 1=7387
 C^{14} , excited states 0=4027
 C^{14} levels, spin to parity 1=731
 C^{14} , 6.58 MeV levels 4=1009
 C^{14} , 6.58 MeV level 4=9384
 C^{15} 2=13981
 C^{16} , ground and first excited states 4=12280
 Ca^{40} 2=1873, 10096
 Ca^{40} 3=6237
 Ca^{40} , excited states 0=4027
 Ca^{40} , 4.48 MeV level 2=20510
 Ca^{40} , 9.87 MeV level 2=20620
 Ca^{40} , 10.3 MeV level 2=352
 Ca^{40} , 2, 3, 4th excited states, spins, from $K^{39}(p, \gamma)Ca^{40}$ γ, γ correl. 3=19776
 Ca^{41} 2=16297
 Ca^{41} , three levels, from d, p, γ correl. in (d, p) reactions 3=19777
 Ca^{42} 3=10257
 Ca^{42} , 1.836 MeV state 1=10986
 Ca^{42} , zero-spin excited state 0=1361
 Ca^{44} 1=12170
 Ca^{44} , excited levels 3=12623
 Ca^{44} , 1.16 MeV 2=10049
 Ca^{45} , 2.24 MeV level, from $\gamma-\gamma$ ang. correl. 4=22024
 Ca^{47} , in beta-decay transitions 4=6277
 Ca^{49} levels below 6.1 MeV 4=27966
 Cd^{107} , 6.7 hr, from $(5s5p)^3P_1$ h. f. s. meas. 4=3537
 Cd^{108} , 1473 keV level 2=20555
 Cd^{110} , excited states 0=5665
 Cd^{112} , spins 3=24867
 $Cd^{112,114}$ 2=1819
 Cd^{114} , from Cd^{113} (n, γ), new levels 1=17119
 Cd^{114} , from d, p stripping, p ang. distrib. 3=17405
 $Cd^{115,115m}$, $(5s5p)^3P_1$ state 4=15162
 Ce , zero-spin identification by inelastic neutron scattering, 3 MeV 4=3536
 Ce^{140} levels, from La^{140} decay γ cascades 3=22307
 Ce^{140} , 1.90 MeV level 1=17060
 Ce^{140} , 1596, 2083, 2410, 2520 keV levels 3=24868
 Ce^{141} , from $Ce^{140}(d, p)$ reaction 1=8769
 Cf^{251} 4=9462
 Cl^{33} 0=15574
 $Cl^{36,38}$, from $Cl^{35,37}$ (d, p) 2=22841
 Co^{56} 3=15143
 Co^{59} , indirect coupling through hyperfine interaction 1=9070
 Co^{59} , 1.43 MeV state 0=11378
 Co^{59} 3 levels 4=27991
 Co^{60} , from $Co^{59}(d, p)Co^{60}$ at 6 MeV 0=13238
 Co^{60m} 3=17432
 Cr^{51} 1=12174
 Cr^{51} 3=24972
 Cr^{51} , 325 keV level, nuclear orientation study 1=7518

Nucleus—contd

spin and parity—contd

Cr^{51} , from $V^{51}(p, n)$ 1=9862
 Cr^{52} 1=12175
 Cr^{52} , from decay of Mn^{52} 2=7929
 Cr^{52} , following V^{52} β -decay 4=9448
 Cr^{52} , spin 5 state 2=22708
 Cr^{53} 3=24972
 Cr^{54} 3=24972
 Cr^{54} , first four excited states 3=19866
 Cr^{55} 3=24972
 Cs^{132} 1=13749
 Cs^{133} 0=5667-8, 13170, 17540
 Cs^{133} 1=7351
 Cs^{133} 4=22073
 Cs^{133} levels, from Ba^{133} decay, by e capture 3=19820
 Cs^{135m} 4=17067
 Cu isotopes 2=1916
 Cu^{69} , distribution of partial radiative widths 0=4031
 Cu^{63} , 669 keV state, from resonance fluorescence 1=611
 $Cu^{63,65}$ levels from alpha ray scattering, 44 MeV, in elastic, ang. distrib. 4=17194
 $Cu^{63,65}$, 961, 1115 and 1323 keV levels 4=17055
 Cu^{64} , 0.277 MeV level 1=13825
 Cu^{64} , 0.277 and 0.607 MeV levels 4=9393
 Cu^{65} , from Ni^{65} decay 1=655
 Cu^{66} , meas. by mag. resonance 4=15132
 Dy^{155} ground state 3=19823
 Dy^{158} 3=10307
 Dy^{158} 3=10308
 Dy^{159} 3=4597
 Dy^{159} 2=5857
 Dy^{159} , ground state 0=20390
 Dy^{160} 2=14059
 Dy^{160} , 14 excited states 4=6293
 Dy^{160} , 1.36 MeV level, from Tb^{160} orientation in Nd ethyl sulphate 1=623
 Dy^{160} , 1264 keV level 0=11377
 Dy^{161} 2=9992
 Dy^{161} , 74 keV level 2=10010
 Dy^{163} 2=9992
 Dy^{164} , ground state and γ -vibr. bands 4=9414
 Dy^{165-6} , from atomic beam mag. resonance 1=9900
 Er^{101} 4=9454
 Er^{159} 2=5857
 Er^{161} , ground-state 1=2196
 Er^{165} , ground state 3=2415
 Er^{166} 1=17059
 Er^{168} 3=10269
 Er^{168} , excited states 3=17419
 Er^{166} , first excited state 2=5859
 Er^{166} , spin and parity of levels 1=16984
 Er^{168} , 2134 keV level 4=12188
 Er^{168} , 2137, 2165 MeV levels, from K conversion 4=22044
 Er^{166} , from Tm^{166} decay 0=13172
 $Er^{166,168}$, from $Tm^{166,168}$ electron-capture decay 0=5714
 Er^{167} 1=670
 Er^{167} 2=9992
 Er^{168} , 1543 keV level 4=9455
 $Er^{169,171}$, from atomic beam mag. resonance 1=9900
 Er^{171} 2=1838
 $Eu^{145,147}$, spins 4=6237
 Eu^{150} , ground state 2=14000
 Eu^{151} , 21.7 keV level 4=1343
 Eu^{151} , 21.7 keV state 3=17631
 $Eu^{151,153}$, for various neutron resonances 4=15165
 Eu^{152m} 3=15085
 Eu^{152m} , from $\beta-\gamma$ correl. in 9.2 hr decay to Gd^{152} , 344 keV state 4=3612
 Eu^{153} 1=615
 Eu^{153} 2=3528
 Eu^{153} , $\frac{7}{2}^-, K=\frac{5}{2}$ level 4=17100
 F , from s- and p-wave neutron spectroscopy 0=5785
 F^{17} , excited states 4=9508
 F^{17} , 5.47, 5.67, 5.84 MeV levels 3=2446
 F^{18} , from $O^{18}(He^3, p)$ p- γ coincidences 1=7323
 F^{18} , O^+ , T = 1 level 1=5841
 F^{18} , spins and parities from $F^{19}(d, t)F^{18}$ 0=9638
 F^{19} 1=13854
 F^{19} 2=16398
 F^{19} 3=6289
 F^{19} , from α scatt. on N^{15} 1=7404

Nucleus—contd

spin and parity—contd

F^{19} levels, 9.6-11.2 MeV, from p scatt., by O^{18} 4=1070
 F^{19} , negative parity states 4=17035
 F^{19} , 9.07 MeV level, spin and parity 1=10966
 F^{19} , 9.07 MeV state 2=370
 F^{19} , from $O^{18} + p$ reactions 1=7370
 F^{19} , 1.35 and 1.46 MeV levels 4=12138
 F^{19} , from O^{19} β -decay 0=2635
 F^{19} , from proton inelastic scatt. 2=441, 22807
 F^{19} , spins, 9.07, 2.78, 1.35 MeV levels 3=19843
 F^{20} 2=10136
 F^{20} , ground state 1=5819
 F^{21} , ground state spin 3=12621
 F^{21} levels, from $F^{19}(t, p)F^{21}$ 4=17037
 Fe^{55} 1=13684
 Fe^{55} , 0.413 MeV level, from γ - γ ang. correl. 4=22024
 Fe^{55} , spin sequence in decay 0=11307
 Fe^{56} , 2.65 and 2.98 MeV levels 0=4076, 9515
 Fe^{57} 0=7465
 Fe^{57} 2=10120
 Fe^{57} , ground state anomalous spin, theory 2=22707
 Fe^{57} , 0.365 MeV level 4=9393
 Fm^{255} , ground state 4=9462
 Ga^{64} , ground state 0=5699
 Ga^{68} , 1.88 MeV 2=16345
 Ga^{69} , excited states 4=9403
 Ga^{70} 2=9991
 Ga^{71} 4=19721
 Ga^{72} 14 hr 1=593
 Gd^{153} , from conversion- γ ang. correl. meas. 3=17417
 Gd^{153} , excited levels 1=2200
 Gd^{152} , 1315 keV level 0=4069
 Gd^{154} 3=3173
 Gd^{154} , spin and parity of 2 levels 1=10956
 $Gd^{154,156}$ 2=1822
 Gd^{155} 2=3480
 $Gd^{155,157}$ 0=13123
 $Gd^{155,157}$, for various neutron resonances 4=15165
 Gd^{156} 2=1801, 3481
 Gd^{156} , spin and parity of levels 1=5877
 $Gd^{156,158}$ 2=5799, 7930
 Gd^{156} , from atomic beam mag. resonance 1=9900
 Gd^{159} , 364, 136, 57 keV levels 2=18307
 Ge^{71} 3=17390
 Ge^{74} , first and second excited states 1=8620
 ΛH^3 , hyperfragment 3=22277
 ΛH^4 hypernucleus, spin 4=9365
 He^4 , virtual state 3=2331
 Hf^{176} 4=9456
 Hf^{177} 2=3524, 18259, 20516
 Hf^{177} , from decay of Ta^{177} and Lu^{177} 1=17027
 Hf^{177} , $\frac{21}{2}$, three-particle states 4=9416
 Hf^{178} isomeric state, spin value 1=594
 Hf^{178} , 1.1 and 2.4 eV resonances 2=371
 Hf^{178} , from Ta^{178} decay 1=8621
 Hf^{178} , 20 levels 3=8011
 $Hf^{178,180}$, isomeric states 1=8549
 Hf^{180} isomeric state, spin value 1=594
 Hf^{180m} 3=6179
 Hg , effect on atomic spectrum 2=14201
 Hg^{195} 2=373
 Hg^{197} 2=412
 Hg^{199} , 158 keV state 2=1775
 Hg^{199} , from Tl^{199} and Au^{199} decay 3=658
 Hg^{200} , 1.59 and 2.10 MeV levels 4=9393
 Hg^{203} 4=1053
 Hg^{203} , ground state 0=2649, 20399
 Hg^{203} , ground-state 3=10314
 Hg^{203} , ground state 4=6200
 Hg^{203} , spin in ground state 4=3540
 Hg^{203} , spin, h.f.s. measurement 4=15133
 Hg^{208} , 1885, 1595, 2137 keV levels 0=13114
 Ho^{159} 2=5857
 Ho^{159} 3=4597
 Ho^{161} 3=10308
 Ho^{161} , ground and 211 keV states 1=2196
 Ho^{165} 0=9600
 Ho^{165} 1=12179
 Ho^{165} , 995 and 716 keV levels 4=25319
 Ho^{166} 1=17059
 Ho^{166} , by atomic-beam mag. resonance 1=7314
 Ho^{166} , from atomic beam mag. resonance 1=9900

Nucleus—contd

spin and parity—contd

Ho^{166} , in neutron transmission through Ho^{165} 2=12207
 Ho^{166m} , aligned in Nd ethyl sulphate 0=15561
 Ho^{166} , from Dy^{166} decay 0=13175
 I^{122} 4=6285
 $I^{126,132,133}$, atomic beam meas. 0=17480
 I^{127} , 202.8 and 374.9 keV level spins 4=6286
 I^{131} 1=13757
 I^{131} 3=22334
 In^{112} , ground state, spin 1^+ 0=11382
 In^{113} , from Sn^{113} decay 0=15564
 In^{113m} 0=15511
 In^{115} 3=7999
 In^{115} , excited levels 3=17437
 In^{115} , states associated with first three slow-neutron resonances 0=9678
 In^{115m} , meas. by atomic beam mag. reson. 1=5820
 In^{116} 1=13692
 In^{116} , 1.45 eV resonances 2=371
 In^{117} 4=19726
 In^{117} , 45 min. ground state, spin, by atomic beam mag. reson. 3=17391
 In^{177m} , by atomic beam mag. resonance 2=22706
 Ir^{188} , 15.8 hr 3=10313
 Ir^{188} , excited levels, from Pt^{188} decay 3=8053
 Ir^{192} 4=9458
 $Ir^{192,194}$ 4=9418
 K^{37} , from p scatt. on A^{36} 2=3563
 K^{38} , from $Ca^{40}(d, \alpha)$, violation of selection rule 0=2664
 K^{39} , parities, from d scatt. at 15 MeV 2=22842
 K^{41} compound nucleus 3=7991
 K^{41} levels 4=3565
 K^{41} from $Ar^{40}(p, \gamma)K^{41}$ reaction, spins from γ -ray ang. distrib. 4=6340
 K^{41} , 100 MeV level 2=450
 K^{43} , 22 hr, by atomic beam resonance 0=1353
 K^{45} , negative parity in ground state, from α -particle and d bombard. of $Ca^{48}CO_3$ 4=30321
 Kr^{38} 1=13927
 Kr^{82} , from Br^{82} β decay, 2430 keV level, from γ ang. correls. 4=12150
 La^{139} 1=7341
 $La^{139,137}$ 3=7969
 La^{140} 3=2360
 La^{140} , ground-state spin 2=14026
 Li^7 4=3703
 Li^7 , 8.9 MeV level 1=8699
 Li^7 , 5.7, 6.8 MeV levels 3=19766
 Li^7 , 4.61 MeV level, parity 2=3603
 Li^7 , 4.61 MeV level, spin and parity 0=9644
 Li^7 , low lying negative parity states 2=3568
 ΛLi^8 3=10230
 ΛLi^8 hyperfragment 3=22277
 Li^8 , 0.98 MeV state 2=18349
 Li^9 4=1039
 Li^9 4=12259
 Lu^{172} 3=15122
 Lu^{172} , ground state 0=9570
 Lu^{173} 2=10015
 Lu^{173} , ground state 0=5725
 Lu^{174} 0=4059
 Lu^{176} 1=16965
 Lu^{176} 2=9992
 Lu^{177} 2=9994
 Lu^{177} , ~ 1240 keV level from Yb^{177} 1.9hr β decay 4=12159
 Lu^{177} , $\frac{17}{2}$ and $\frac{23}{2}$, three-particle states 4=9416
 Mg , spin and parity, 10.2, 9.3 MeV levels 2=420
 Mg^{24} 1=13792
 Mg^{24} 2=20612
 Mg^{24} 4=9510
 Mg^{24} , excited levels 3=17468
 Mg^{24} , excited levels 3=19771
 Mg^{24} , 4.12 MeV level, spin and parity 1=13729
 Mg^{24} , 4.24 MeV state 0=11383
 Mg^{24} , high-spin states, possible formation in C^{12} scatt. on C 0=9648
 Mg^{24} , 1.38 MeV level 2=16296
 Mg^{24} , 6.44 MeV level 1=13658
 $Mg^{24,26}$, low levels 1=8578
 Mg^{25} 2=16425
 Mg^{25} , doublet at 3.40 MeV 1=8582
 Mg^{26} , spin and parity of 1.61 MeV level 1=12161

Nucleus—contd

spin and parity—contd

Mg²⁶ 2=1784
 Mg²⁶ levels, spin and parity 1=7377
 Mg²⁶, spins of Mg²⁶ (p, γ) resonance levels 2=7982
 Mg²⁶⁻⁷, from Al²⁷ + n reactions at 14.8 MeV 1=9868
 Mg²⁸ 4=12261
 Mn⁵³, β -symmetry 0=9561
 Mn^{52m, 54} orientation in crystal lattices at low temp. 0=20326
 Mn⁵³, first excited level 2=20646
 Mn⁵⁵ 2=10096
 Mn⁵⁵ 3=6237
 Mn⁵⁵, first 3 excited states 3=22302
 Mn⁵⁵, ground-state 0=11298
 Mn⁵⁶ 1=17145
 Mn⁵⁶, first three excited levels, spins and parities 0=4024
 Mn⁵⁶, 3.4 MeV state 0=9515
 Mn⁵⁶, 2.6 hr, from atomic-beam mag. resonance 1=7315
 Mo isotopes, odd-A 4=27969
 Mo⁹³ 0=17498
 Mo^{93, 95-7}, ground and first excited states 3=22271
 Mo⁹⁴ 2=18301
 Mo⁹⁴, low levels 1=9833
 Mo⁹⁴, 1.57 MeV state 3=6168
 Mo⁹⁴, 1573 and 873 keV levels 2=16351
 Mo⁹⁵ 1=13730
 Mo⁹⁵, 788 and 1042 keV levels 2=18261
 Mo⁹⁵, 762 keV 2=10049
 Mo⁹⁶, spins and parities, 1610-2410 keV levels 3=4591
 Mo⁹⁶, 2730, 2410, 1950, 1850 keV levels 3=22305
 N¹³ 3=635
 N¹³, levels near 7 MeV 3=22292
 N¹³, from proton scatt. on C¹² 0=13232
 N¹³, from proton scattering on C¹² 3=24928
 N¹³, search for $\frac{1}{2}^-$ level 3=8132
 N^{13, 14}, anomalous, low-lying states, shell model 4=1010
 N¹⁴ 0=17499
 N¹⁴ 1=12189
 N¹⁴, 11.74 MeV level, spin and parity, from proton inelastic scatt. on C¹³ 1=7325
 N¹⁴, excited states 0=4027
 N¹⁴, excited states, from proton elastic scatt. on C¹³ 1=7324
 N¹⁴, 5.83 MeV state, parity 3=17401
 N¹⁴, 5 states, 11.05-11.80 MeV 0=7474
 N¹⁴, 5.10 MeV level 4=9384
 N¹⁴, 4.91 and 5.10 MeV levels, parity 1=8775
 N¹⁴, odd-parity states, shell model calc. 3=24861
 N¹⁴, parities for 3.95 and 7.03 MeV levels 3=4566
 N¹⁴, parity of 5.83, 5.10 MeV states 2=20519
 N¹⁴, 10.22 MeV level 3=17399
 N¹⁵ 1=13825
 N¹⁵, from C¹⁵ β -decay 0=2635
 N¹⁵, $\frac{1}{2}^+$ states, isotopic spin impurities 1=8624
 N¹⁵, $\frac{1}{2}^+$ states, spin impurity 1=8580
 N¹⁵, 7.57 MeV level 2=18260
 N¹⁵, single-particle levels 1=8590
 N¹⁵, 6.32 MeV level 4=9393
 N¹⁶, ground and 1st-excited levels 3=24862
 N¹⁶, levels in 4.3-5.8 MeV region 2=14106
 N¹⁶ levels, from N¹⁵ + n reson. 4=27961
 N¹⁷ 1=7362
 Na, from s- and p-wave neutron spectroscopy 0=5785
 Na²¹, spin, 1st excited state 3=10377
 Na²¹, spin and parity of some levels 1=10972
 Na²¹, 3.56 MeV level 4=12143
 Na^{21, 23} 2=1922
 Na²² 1=17152
 Na²³ 0=13206
 Na²³ 1=13854
 Na²³ 2=1820
 Na²³, seven excited states 4=12267
 Na²³, 2.39 and 2.64 MeV levels 2=14107
 Na²³, 2.98 MeV level 4=22176
 Na²⁴ 4=12142
 Na²⁰ 1=7347
 Nb⁹¹, from Zr⁹¹(p,n) 1=9862
 Nb⁹² 2=18292
 Nb⁹³, low-lying levels 4=6348
 Nb⁹³, second to fifth excited states 0=4121
 Nb^{94m} 2=18301
 Nb^{94, 94m} 3=6168

Nucleus—contd

spin and parity—contd

Nb⁹⁵ 2=10049
 Nd^{141m} 0=5728
 Nd¹⁴² 2=1850
 Nd¹⁴³ 2=9992
 Nd¹⁴⁴ 1=16988
 Nd¹⁴⁴, 2.18 MeV level, parity 3=12633
 Nd^{144, 146} 1=650
 Nd¹⁴⁵ 2=9992
 Nd¹⁴⁷ 1=2159
 Nd¹⁴⁷, by orientation in Nd ethylsulphate 1=12147
 Ne^{19, 1/2+} state, from He³ scatt. on O¹⁶ 2=493
 Ne¹⁸, spins of 1st and 2nd excited levels, spin sequency 3=15102
 Ne²⁰ 0=13206
 Ne²⁰ 3=22380
 Ne²⁰, from α -scattering by O¹⁶ 0=9645
 Ne²⁰, from atomic beam mag. resonance 0=17669
 Ne²⁰, from C¹² (C¹², $\alpha\gamma$) Ne²⁰ reactions 2=1933
 Ne²⁰, from F¹⁹(d, n γ) Ne²⁰ at 0.5-2 MeV 0=9535
 Ne²⁰, 5- and 6+ states 4=15148
 Ne²⁰, 5.63 and 5.80 MeV levels 2=1807, 7932
 Ne²⁰, 4.97 MeV level 2=1814
 Ne²⁰, 4.97 MeV level, 2- assignment 2=1808
 Ne²⁰ levels, from F¹⁹(p, α_0) O¹⁸, α ang. distrib. 4=25397
 Ne²⁰, low levels 1=8578
 Ne²⁰, low levels, from F¹⁹(d, n) 1=7398
 Ne²⁰, 9.029 and 10.270 MeV states 4=22187
 Ne²⁰, rel. to overlapping-rotational-band theory 2=1812
 Ne²⁰, 1.63, 4.25 and 4.97 MeV levels 2=3623
 Ne²⁰, parity of 4.97 MeV level 3=10255
 Ne²⁰, parity and low lying levels 2=22736
 Ne²⁰, 13 MeV level 2=5910
 Ne²⁰, 13.91 MeV state 2=1888
 Ne²⁰, 13.332 and 13.440 MeV levels 3=15193
 Ne²¹, 0.345, 1.73 MeV states 3=12621
 Ne²¹, spins and parities for 5 levels 2=16395
 Ne²² 3=2500
 Ne²² 4=22181
 Ne²², 3.34 and 4.47 MeV state spins 4=22018
 Ni⁵⁰, parity change by proton scatt. 1=19370
 Ni^{58, 60, 62} 3=6281
 Ni⁵⁹ 1=9878
 Ni⁵⁹ 2=12167
 Ni⁵⁹, from Co⁵⁹(p,n) 1=9862
 Ni⁵⁹, 0.46 MeV level 1=13825
 Ni^{59, 61, 63}, excited states, from γ - γ ang. correl. 4=22024
 Ni^{59, 61, 63, 65}, ground state, parity assignments 2=10138
 Ni⁶⁰ 2=1924
 Ni⁶⁰, parity change by proton scatt. 1=19370
 Ni⁶¹ 1=9878
 Ni⁶¹, 2.84 keV level 4=15225
 Ni⁶², 2.05 MeV state, zero spin 3=17408
 Ni^{62, 64} levels, from alpha ray scattering, inelastic, 44 MeV ang distrib. inelastic, 4=17194
 Ni⁶⁴, 3.55 MeV level 4=3567
 Np²⁴⁰ 0=1380
 O¹⁵ 3=19945
 O¹⁵, 8.926 and 8.988 MeV levels 3=12582
 O¹⁶ 1=9830
 O¹⁶ 1=19387
 O¹⁶, Green's functions computation 2=3486
 O¹⁶, from N¹⁶ β -decay 0=2635
 O¹⁶, 0+ excited state 2=12139
 O¹⁶, parity of levels, from 65 MeV He ion inelastic scatt. 4=17201
 O¹⁶, selection rules 0=20352
 O¹⁷ 1=13854
 O¹⁷ from stripping reaction 1=17144
 O^{17, 18}, negative parity states 4=12141
 O¹⁷⁻¹⁹, from O¹⁸ + d reactions 1=7399
 O¹⁸, 5.37 MeV level 4=25295
 O¹⁸ levels, spin to parity 1=731
 O¹⁹ 2=3487
 O¹⁹ 4=22147
 O¹⁹, 1st-excited state, parity 3=24863
 O¹⁹, 4 MeV 2=1899
 Os¹⁸⁷ 2=1779
 Os^{188, 190}, lower excited states 3=17421
 Os¹⁹² 4=9458
 P²⁸ 1=8588
 P²⁹ 1=12159

Nucleus—contd

spin and parity—contd

P^{29} , low levels, from $Si^{28}(p,\gamma)$ 1=9817
 P^{29} , from proton scatt. on Si^{28} 1=7327
 P^{30} 1=8576
 P^{30} 1=13801
 P^{30} 2=5915, 10104
 P^{30} 3=6246
 P^{31} 1=13801
 P^{31} 3=15195
 P^{31} ground and 450 keV state 4=22021
 P^{31} , resonance levels 3=19774
 P^{31} resonance levels 4=12224
 P^{31} , from $Si^{30}(p,\gamma)$ P^{31} 2=22742
 P^{31} , 3.13 MeV level, from 7.77 MeV γ direction polarization correl. 4=22022
 P^{110} , 2^+ state 3=24894
 Pa^{29} , from proton scatt. on Si^{28} 0=4032
 Pa^{231} 0=10235
 Pa^{231} 2=3460
 Pa^{233} 2=3500
 Pa^{233} 3=4605
 Pa^{233} , ground state 0=20399
 Pa^{233} , from h.f.s. in atomic spectra 1=7434
 Pa^{234} 0=1386
 Pb^{205} 0=9583-4
 Pb^{206} , zero spin identification by inelastic neutron scattering, 2.5 MeV 4=3536
 Pb^{207} , 2.34 MeV level 0=1394
 Pb^{208} 2=1842
 Pb^{208} , first 4 excited levels 2=14030
 Pb^{208} , 3709 keV level 4=27983
 Pb^{208} , 2-6 MeV state 1=17127
 Pd isotopes, odd-A 3=19783
 Pd^{104} , from decay of Ag^{104} isomers 1=631
 Pd^{105} 2=3531
 Pd^{105} , 319 keV state 3=6169
 Pd^{106} 0=15563
 Pd^{106} 2=1819
 Pd^{106} , from conversion electrons in Ag^{106} and Rh^{106} 1=8652
 $Pd^{108,110}$ 2=1818
 Pm^{144} 1=3587
 Pm^{147} 1=2159
 Pm^{147} 1=5971
 Pm^{147} 1=8649
 Pm^{147} levels 1=3413
 Pm^{147} , from Nd^{147} decay 1=17041
 Pm^{147} , spectroscopic det. 3=10463
 Pm^{148} 3=12906
 Pm^{148} , spins of 3 levels 3=14116
 $Pm^{149,151}$, from atomic beam mag. resonance 1=9900
 $Po^{201-207}$, from atomic h.f.s. 2=347
 $Po^{207,208}$, isomeric states 2=18266
 Po^{210} 4=6297
 Po^{211} 2=12141
 Po^{211} isomer 2=5839
 Po^{212} 0=7509
 Po^{212} , ground state 1=5821
 Po^{212} , isomeric state 3=24889
 Po^{212} , 1513, 1800, 1680 keV levels 2=378
 $Po^{212}(ThC')$ 4=3607
 Po^{212m} 2=18268
 Po^{212m} 3=22311
 Po^{214} levels 1=19420
 Pr^{140} 0=15562
 Pr^{141} 2=3526
 Pr^{141} 3=2410
 Pr^{141} 3=7969
 $Pr^{141,3,5}$, ground-state spins, pairing model 3=12555
 Pr^{142} 3=2360
 Pr^{143} , 57 and 351 keV levels 4=9410
 Pr^{143} , ground, 1st and 2nd excited states 3=10297
 Pr^{144} 4=3577
 Pr^{144} , by β -decay measurements 4=3539
 Pr^{144} , from β, γ circular polarization and correlation 3=22270
 Pr^{144} , ground state 3=12632
 Pr^{144} , ground state, from β decay, β - γ directional correl., energy depend. 3=19753
 Pr^{144} , ground state spin 4=17001
 Pr^{144} ground state, unique spin assignment 4=3538

Nucleus—contd

spin and parity—contd

Pr^{144} levels, from β - γ correl. 3=22308
 Pr^{144} , spin, grown β decay to Nd^{144} , 2.3 MeV 4=3611
 Pt , from neutron scatt. 1=707
 Pt^{192} 2=5804, 10077
 Pt^{192} 4=9458
 Pt^{194} 2=10078
 Pt^{194} , levels from Au^{194} decay 4=27982
 Pt^{194} , 1265 keV state 0=4018
 Pt^{196} , from β -ray spectra 0=20355
 Pt^{196} , spin and parity of 1091 keV level 1=13739
 Pu^{238} 2=5806
 $Pu^{238,240}$ 3=15129
 $Pu^{239,241}$, rel. to fission yields 0=17634
 $Ra^{223}(AcX)$, rel. to $Th^{227}(RdAc)$ α -decay 0=11344
 Ra^{223} , excited states, rel. to γ -ray ang. correlation 1=13754
 Ra^{223} , ground, 50 keV and 286 keV levels 1=13705
 $Re^{186,188}$ 4=9418
 Re^{187} , 206 and 686 keV excited levels 3=22348
 Rh^{102} 3=15146
 Rh^{103} 2=22776
 Rh^{103} , eight levels 4=9537
 Rh^{103} , excited levels 1=4851
 Rh^{104} 3=4570
 Rh^{104} , <900 keV excitation energy 2=16420
 Rh^{104} , <900 keV excitation energy 3=6272
 Rh^{104m} , 4.4 min. isomer 3=4569
 Rh^{105} , ground, 475, 795, 960 keV levels 3=7997
 $Rn^{218,220,222}$, from Ra decay 0=13184
 Ru^{100} 4=22032
 Ru^{102} 1=13718
 Ru^{102} 3=15147
 Ru^{102} levels 1=13755
 $Ru^{102,104}$ 2=1819
 S^{32} , 4.46 MeV level 2=10103
 S^{32} , levels between 1 and 2 MeV 3=7988
 S^{32} , levels; 640-1150 keV, from $P^{31}(p,\gamma)S^{32}$ 3=22377
 S^{32} , low levels 1=8578
 S^{32} , 9.185, 9.267, 9.367 MeV levels 3=6242
 S^{32} , 9.39-4.70 MeV levels 3=7989
 S^{32} , second excited state assigned O^+ 1=8591
 S^{33} , 3.22 MeV level 1=13825
 Sb^{119} , level assignments 2=14061
 Sb^{119} , 1.37 MeV level 4=3573
 Sb^{122} 1=3388
 Sb^{122m} 4=3572
 Sb^{124} 1=3388
 Sc^{44} 2=10049
 Sc^{44} , first and second excited states 4=9400
 Sc^{44} , ground state, isomeric level 3=12623
 Sc^{46} 3=2361
 Sc^{50} 3=7992
 Se^{76} , from $As^{76}(p,n)$ 1=9862
 Se^{77} 2=5970
 Se^{77} 4=9404
 Se^{77} , 240 and 442 keV levels 1=5907
 Se^{77} , 246 keV level, from γ -ray ang. distrib., on Coulomb excitation 4=1016
 Se^{78} , from Br^{78} decay 0=13174
 Si , 11.3 MeV level 2=420
 Si^{28} 1=8588
 Si^{28} 1=13792
 Si^{28} 1=17097
 Si^{28} 2=3569
 Si^{28} 3=2499
 Si^{28} 3=12660
 Si^{28} 3=19847
 Si^{28} 4=22020
 Si^{28} , 8^+ state 4=12144
 Si^{28} excited levels 3=19771
 Si^{28} , excited states 4=9399
 Si^{28} , 504, 506 keV resonances in $Al^{27}+p$ 1=17096
 Si^{28} levels, spin and parity 1=7372
 Si^{28} , selection rules in $Mg^{24}(\alpha,\gamma)Si^{28}$ 1=8772
 Si^{28} , 6.88 MeV level 4=28025
 Si^{28} , 12.75-12.85 MeV resonance states 4=1013
 $Si^{28,30}$, low levels 1=8578
 $Si^{28,30,32}$ 2=1784
 Si^{29} , spin cut-off factor and correlation energy 4=17163
 Si^{29} , from stripping reaction 1=17144
 Si^{30} 3=24971
 Si^{30} , from d, p stripping, p ang. distrib. 3=17405

Nucleus—contd

spin and parity—contd

Si^{30} , 3.78 MeV doublet, from $\text{Al}^{27}(\alpha, p)\text{Si}^{30}$ 4=19683
 Sm^{143m} 0=5728
 Sm^{147} 2=9992
 Sm^{147} , 1060 keV level 4=27997
 Sm^{148} 2=16369
 Sm^{148} 3=12906
 Sm^{148} 3=19821
 Sm^{148} , levels between 555 and 3370 keV 2=10023
 Sm^{148} , 1.46 MeV level, from Pm^{148} decay 4=17099
 Sm^{148} , spins of 15 levels 3=15117
 Sm^{148} , spins of 9 levels 3=15116
 Sm^{148} states, from Eu^{148} decay γ -rays 3=10265
 Sm^{149} 1=8633
 Sm^{149} 2=9992
 Sm^{149} , five excited levels 4=1024
 Sm^{149} , low-energy neutron resonances 3=2468
 Sm^{149} , from Pm^{149} decay 0=17532
 Sm^{149} slow neutron resonances 4=17172
 Sm^{150} , 1360 keV level 4=22041
 Sm^{150} , second-level spin, from γ -ray decay 3=24870
 Sm^{151} , excited levels from Pm^{151} decay 4=12186
 Sm^{151} , levels 0 to 340 keV 2=404
 Sm^{152} 0=17554
 Sm^{152} 2=1822
 Sm^{152} , rel. to γ -ray correl. 1=669
 Sm^{152} , 1511 keV level 0=4069
 Sm^{152} , 1531 keV state 3=3173
 Sm^{152} , 1576 keV level 4=6235
 Sm^{153} , by atomic-beam mag. resonance 0=9514
 Sm^{155} 0=9572
 Sn^{113} , ground state 0=15564
 Sn^{113} , ground state 1=9842
 $\text{Sn}^{113, 113m}$ 2=383
 Sn^{116} , 1.72 MeV level 3=4568
 Sn^{116} , 2.23 MeV level 2=1823
 Sn^{117m} 2=3527
 Sn^{118} 1=2198
 Sn^{118} , from γ -ray correl. 1=8608
 $\text{Sn}^{118, 120}$, from $\text{Sb}^{118, 120}$ decay 1=16997
 Sn^{120} 1=16998
 Sn^{120} , from decay of Sb^{120m} 1=622
 Sn^{120} , revised scheme 2=384
 Sn^{125} , 9.4 min and 9.7 day isomers decay 4=9406
 Sr^{83} 2=3513
 Sr^{86} 2=5855
 Sr^{86} , from Y^{86} decay 1=8610
 T^{160} 1=8643
 Ta^{177} 1=17027
 Ta^{178} , model 2=12153
 Ta^{181} , from decay of Hf^{181} and W^{181} 1=8627
 Ta^{183} 4=9418
 Tb^{155} 3=19823
 $\text{Tb}^{155, 157}$ 1=10958
 Tb^{156} 2=7922
 Tb^{157} , 327 keV level 1=3426
 Tb^{159} 3=2414
 Tb^{159} , neutron resonance spins, determ. with polarized neutrons and Tb target 4=17069
 Tb^{160} 0=5712
 Tb^{160} , from atomic beam mag. resonance 1=9900
 Tb^{160} , β -decay, Dy^{160} 3=19790
 Tb^{160} , from orientation in Nd ethyl sulphate crystal 1=623
 Tc^{94} , spin 3=15145
 $\text{Tc}^{103, 105}$ 4=3606
 $\text{Te}^{116-7, 119, 119m}$ 2=3461
 $\text{Te}^{116-119}$ 2=1851
 Te^{124} , 1.248, 1.326 MeV levels, from $\beta\gamma\gamma$ coincidences in Sb^{124} decay 4=27972
 Te^{124} , 2691 keV level, spin and parity 3=15113
 Te^{126} , high levels, from $\gamma\gamma$ ang. correl. in Sb^{126} decay 4=19695
 Th^{230} 3=15129
 Th^{232} , from Coulomb excitation 1=624
 Ti^{46} , ground state and 377 keV level 3=17429
 Ti^{46} , 2.004 MeV state 2=16332
 Ti^{47} , ground state 0=11298
 Ti^{47} , 160 keV first level, from γ -ray ang. distrib., on Coulomb excitation 4=1016
 Ti^{47} , 160 keV level 3=12587

Nucleus—contd

spin and parity—contd

$\text{Ti}^{47, 49}$ 0=17605
 $\text{Ti}^{47, 49}$, from e.s.r. of Ti(III) complexes 2=3775
 Ti^{48} , 3240 keV level 3=19812
 Ti^{49} , 1.38 and 1.72 MeV levels 1=13825
 Tl isotopes, isomeric levels 3=22310
 $\text{Tl}^{195, 197, 200}$ 4=22048
 Tl^{196} 2=411
 Tl^{203} 4=6200
 Tl^{208} 4=3622
 Tm^{164} 2=14023
 Tm^{166-7} 1=595
 Tm^{167} , 742 keV level, spin and parity 1=2195
 Tm^{170} 0=20328
 Tm^{171} , from atomic beam mag. resonance 1=9900
 Tm^{172} 1=19394
 Tm^{172} 2=10074
 Tm^{172} energy levels, spin and parity 1=10977
 U^{232} 2=3490
 U^{233} 3=4581
 U^{233} , from Pa^{233} decay 2=5814
 U^{234} , 0^+ and 1^- levels populated by Pa^{234} β -decay 0=17531
 U^{234} , vibrational levels 0=4063
 $\text{U}^{234, 235}$ 3=15129
 U^{235} 2=3503
 U^{235} 3=4606
 U^{238} , from Coulomb excitation 1=624
 V^{46} , levels, low-lying, from $\text{Ti}^{46}(p, n)\text{V}^{46}(\beta^+)\text{Ti}^{46}$ 4=1077
 V^{51} 1=2174
 V^{51} 3=6297
 V^{51} , spin sequences 4=1017
 V^{51} , 323 keV first level, from γ -ray ang. distrib., on Coulomb excitation 4=1016
 W^{182} , from $\gamma\gamma$ directional correl. 0=11390
 W^{182} , internal conversion coefficients 4=15167
 W^{184} 3=8014
 W^{184} , 904 and 1006 keV levels 0=7540
 $\text{W}^{185, 187}$ 4=9418
 Xe^{128} , spin sequences 0=5721
 Xe^{129} 1=5868
 Xe^{131} , from I^{131} nuclear orientation study 1=616
 Xe^{132} , from Cs^{132} decay 2=22767
 Xe^{132} , from I^{132} decay 1=9847
 Xe^{132} , six levels, 670-2840 keV range 2=16336
 Xe^{134} , from I^{134} decay 1=8640
 Y^* -type from X(a, b)Y^* reaction 4=11953
 Y^{84} 2=20571
 Y^{85} isomers 4=6281
 Y^{86} 2=5855, 10027
 Y^{88} 2=1773
 Y^{88} , in ground state 0=20396
 Y^{89} 3=10363
 Y^{90} , 0.777 MeV level 1=13825
 Y^{90} , 7^+ isomeric state 2=390
 Y^{90} (64 hr) 2=3462
 Y^{90} , spin and parity 1=10973
 Y^{90} , spin and parity of 0.203 MeV level 1=10974
 Y^{20m} 1=19374
 Y^{91} 3=2361
 Y^{92} 2=18292
 Yb^{169} 2=16367
 $\text{Yb}^{169, 171}$ 1=649
 Yb^{170} , from Lu^{170} decay 0=20391
 Yb^{171} 3=8007
 Yb^{171} , from Tm^{171} decay 1=9831
 Yb^{172} energy levels, spin and parity 1=10976
 Yb^{172} , from Lu^{172} decay 0=9570
 Yb^{174} , 1315 keV level 2=3491
 Yb^{175} levels 4=27980
 Zn^{63} 1=8644
 Zn^{64} , from Ga^{64} β^+ decay 0=5699
 Zn^{65} , from $\text{Cu}^{65}(p, n)$ 1=9862
 $\text{Zn}^{65, 67}$ 4=15294
 Zn^{66} 0=13173
 Zn^{67} 3=6297
 Zn^{68} , 2.3 MeV level, spin and parity 0=11379
 Zr^{90} , 3.47 and 3.61 MeV levels 0=5653
 Zr^{90m} 3=17432
 $\text{Zr}^{90, 91}$, from deuteron stripping reaction 1=17148
 Zr^{91} , 11 levels from $\text{Zr}^{90}(d, p)$ reaction 1=4877
 $\text{Zr}^{91, 92}$, from d, p stripping, p ang. distrib. 3=17405
 Zr^{92} , 2.33 MeV level 4=9393

Nucleus—contd

spin and parity—contd

Zr⁹², from Y⁹² and Nb⁹² decay 2=18292
Zr⁹⁷, ground state 2=5964

theory

See also Nuclear forces.

(α d) stripping reaction, coupling schemes in j-j limit 2=3615
 α -particle binding energy, variational calcs. 3=12558
 α -particle, wave functions, classification 1=557
 α -particles, existence in heavy nuclei 4=6178
asymmetric equilibrium deformation, axial 4=19649
axial asymmetry of medium and heavy even-even nuclei 1=8552
 β - and μ -decays, polar vector coupling constant 4=12175
 β neutron scatt., compound nucleus formation 2=22820
 β -vibration, rel. to spurious zero-frequ. state 3=2351
binding energy 0=1351
binding energy, calc., modified Bethe-Weizsäcker relation 4=987
binding energy, quantum potential approach 1=13360-1
binding energy, self-consistency and definition of t-matrix 0=9511-2
binding-energy, semi-empirical mass formula 2=5787
binding energy, tritons, calc. from Brueckner-Gammel potential, discrepancy from expt. 1=5793
binding energy, Weizsäcker formula 3=15083
bounded isotropic harmonic oscillator, energy levels 0=1362
Brueckner-Goldstone, reaction matrix G calc. 3=4551
Brueckner theory, accuracy, from high-energy nucleon and electron scatt. 1=5901
Brueckner theory, appl. to finite nuclei 0=9511-12
Brueckner theory, inclusion of hole motions 1=583
Brueckner theory, review 1=8532
charge distrib. fluctuations, rel. to electron scatt. 3=8080
charge distrib. and magnetization, rel. to hyperfine splitting 4=9361
charge distribution, non-uniform, effect on spectral isotope shift 0=4169
"closed-shell + one" nuclei, perturbation energies, second-order, due to the tensor force 1=3386
cloudy crystal ball model, for neutron reactions 0=9664
cluster and shell-model wave-functions 0=4012
cluster structure of mirror levels, prediction of excitation energy differences 1=3395
collective coordinates, phenomenological Hamiltonian derivation 0=9501
collective coordinates, structure 2=1084
collective degrees of freedom, purity of sepn. 3=7981
collective excitation of nuclear matter 1=9802
collective excitation of spherical nuclei 1=3384
collective excitations corresponding to quadrupole surface vibrations 1=9799
collective excitations, effect on single particle spectra 2=16289
collective excitations in stripping reactions 1=8757
collective and "extra" nucleon's motion 1=19335
collective mode of internal motion, to be coupled to irrotational surface motion 0=13105
collective model, d-shell nuclei 0=4013
collective model, Mg²⁵ first excited state lifetime calc. 0=17519
collective model wave-functions 0=7454
collective motion, effective two-body potential 0=20310
collective motion, effects on S- and P-wave strength fissions 2=20655
collective motion, in even-even deformed nuclei 2=20488
collective motion in even-even spherical nuclei 1=9801
collective motion example, boson system in 2-dimens. well 0=17471
collective motion in giant photonuclear resonance 1=19334
collective motion of nucleons 2=13959
collective motion, role of effective interactions 0=20314
collective octupole states in shell model 3=12576
collective props., jⁿ configs. 3=620
collective quadrupole effects in light nuclei 0=17552
collective rotation 0=4020
collective vibrations in closed-shell nuclei 0=4019
collective vibrations, using shell model wave functions 2=16292

Nucleus—contd

theory—contd

complex, high energy deuteron scatt. 3=12698
compound nuclei, evaporation 1=734
compound nucleus formation, surface coupling mechanism for approaching statistical equilibrium 0=1395
compound nucleus, lifetime, from cross-section fluctuations in continuum region 1=672
compound nucleus model, shortcomings 0=9609
compressibility, from inelastic electron scattering 1=5824
compressibility, from isotope shift data 0=13393
compressibility and symmetry energy, Puff-Martin model 2=1772
compressible, in unstatic statistical model, proper frequencies 1=587
configuration mixing in odd-A nuclei, effect of magnetization distrib. on h.f.s. 1=8547
core excitations in nondeformed, odd-A nuclei 1=8616
core reconstitution, in heavy deformed nuclei 1=12141
correlations in nucleon motions, effect on level densities 1=8613
Coulomb barrier of excited nuclei 2=1081
Coulomb barrier in highly excited nucleus 1=10948
Coulomb energies of closed-shell nuclei, from shell-model wave-functions 1=591
Coulomb energies and nuclear radii 1=13627
Coulomb excitation, rel. to cpd. nucleus 3=12572
Coulomb scatt., multiple, from finite nuclei, calc. 2=3539
coupling schemes, microscopic description of collective effects 1=8592
coupling schemes with S-state interactions 1=8586
coupling schemes, variation with radius in light nuclei 4=6210
d, amplitude of nucleon current between one nucleon and deuteron states 4=12075
Davydov and Filippov model, criticism 0=11290
decoupling parameter, K = 1/2 rotation bands, very deformed nuclei 2=20497
deformation, axially asymmetric, γ -stability 1=19352
deformation, rel. to β -decay 0=13192
deformation, correlation with moment of inertia 1=8550
deformation effects in semiempirical atomic mass law 1=9804
deformation energies, heavy nuclei 3=15073
deformation in ground state, rare-earth and transuranic nuclei 1=19346-7
deformation, rel. to isotope shift 0=11507
deformation, rel. to β -decay 1=10951-2
deformation parameters, rel. to α -decay of even-even nuclei 0=15542
deformation of rotational nuclei, calc. 1=8537
deformation in spheroidal shell model 0=20318
deformation of surface, from α -particle data 0=13186
deformation, var. with rotation 3=17394
deformation, Y₄₀-type, α -emitting nuclei 4=27946
deformed even nuclei, collective spectra 2=9978
deformed even nuclei, energies of collective states 3=6154
deformed gg nuclei, rotation-vibr. interaction 2=16294
deformed, light nuclei, nucleon motion 3=10203
deformed nuclei, axially symmetric, mag. octupole moments, calc. 2=3466
deformed nuclei, compressibility 3=6159
deformed nuclei, giant E1 resonance 2=16383
deformed nuclei, ground state props. 0=9506
deformed nuclei, multiple Coulomb excitation 3=12574
deformed nuclei, neutron scatt., optical-model analysis 2=3587
deformed nuclei, pair correlation effects on moment of inertia and collective gyromagnetic ratio 1=7313
deformed nuclei, pairing energy 0=20323
deformed nuclei, review 0=12718
deformed potential model for nuclear rotation, moments of inertia calc. 0=15504
delta-function potential in box 3=7117
deuteron, S and D ground state wave-functions 2=18194
diffraction scattering, elastic and inelastic 1=8679
dipole state 0=1429
dipole state, centre-of-mass invariance and energy shift 1=16978
dipole state, production by particle-hole interaction 1=3381
disintegration energy of β -emitters 0=15507-8

Nucleus—contd
theory—contd

dispersion theory and nuclear many-body problem 4=9343

distorted wave theory of stripping, effects of spin-orbit forces 1=2229

E1 peak energies, rel. to shell-model spacings 1=608

effect of non-central forces 0=396

effective Hamiltonian, rel. to energy gap 3=10213

effective interactions, shell-model analysis 3=2373

effective range, vel. depend. pots., 3=623

electric octupole transitions 0=11374

electromagnetic sum rules 2=5788

electromagnetic transitions, effects of parity nonconserving internucleon potentials 0=17461

electron quadrupole transitions of nuclei near O^{16} 0=2617

energy, Brueckner's theory, correction 3=10201

energy, density distrib., Fermi-Thomas K-matrix method 3=15074

energy gap equation soln., hard shell potential, two-nucleon correls. in ^{18}O state 4=984

energy gap equation soln., soft core potentials, various exchanges 4=985

equilibrium shape 0=13124

equilibrium shape 4=25266

evaporation model, appl. to (α ,Be n) reactions 1=729

evaporation processes, Monte Carlo calc. 0=1397, 13217-18

even-even, γ -oscillations, potential energy 2=22704

even-even nuclei, α -cluster formation 1=8562

even-even nuclei, core plus 2N, shape 0=9503

even-even nuclei, large Z, energy level systematics 0=13184

even-even nuclei, new model for vibrational spectra 0=1347

even-even nuclei, non-axial deformation 1=10963

even-even nuclei, pairing energy of nucleons 0=11285

even-even spherical nuclei, collective motion 1=8606

even-even, strongly deformed, quadrupole states, energy 4=25276

even-even, vibr. spectra rel. to interparticle effects 3=10209

even, odd parity states, collective model 2=18231

even, $2^+ \rightarrow 2^+$ transitions, M1 and E2 relative phase 2=10005

excitation, collective, of even axial nuclei 2=7926

excitation of vibr. levels, collective states 3=7985

excited nuclei, shell structure effect on level spacing 1=7317

excited states, transitions, 4 nucleons outside closed shells 2=13998

f-sum, effect of hard core 3=2356

$f_{7/2}$ nuclei, energy levels calc. 3=15092

$1f_{7/2}$ nuclei, seniority mixing 3=626

$1f_{7/2}$ shell nuclei, mass and level systematics 4=3559

Fermi gas model, level density parameters 0=13134

Fermi gas theory of excited nuclei, pairing energy effects 0=5662

Fermi particle system, superfluid state 1=13611

Fermi-Thomas-type approx., from Hartree-Fock eqns. 1=9800

fermion system, with arbitrary interaction, superfluidity 1=16724

fermion system, Brueckner approx., nonsingular formulation 2=19469

fermion system, reaction matrix singularities 0=17270

fine structure of nuclear masses in α -decay 3=6194

finite nuclei, applications of Brueckner-Gammel-Weitzner theory 1=589

finite nucleus, use of superconductor wave-functions 1=10638

five-body problem, pair model appl. 2=9982

forces, ratio of long to short range 2=9979

generalized cluster wave-functions, interpretation 2=13957

geometrical repres. of nuclear structure 1=5817

giant dipole resonance, classical and independent-particle models 0=13127

giant dipole resonance, collective model 1=3382

giant dipole resonance, production by particle-hole interaction 1=3381

giant resonance of deformed nuclei 2=22788

gravitational time effect, Farside-type rocket exper. 0=16581

Green's functions applic. 2=7827

Nucleus—contd
theory—contd

ground state, structure evidence from (d,t) reactions 1=716

hard core simulation by velocity depend. 3=7966

hard-sphere Fermi system, density expansion 0=3921

harmonic oscillator eigenvectors, transformation matrix 4=24068

harmonic oscillator states, transformation brackets 1=10949

harmonic oscillator wave-functions in nuclear spectroscopy 0=4025

Hartree-Fock approximation 4=9368

Hartree-Fock eqns., rotating solns., rel. to rotational nuclear states 1=2157

Hartree-Fock method, modified, for finite nucleus, single-particle energy 0=1345

Hartree-Fock, tensor-force, spin-orbit coupling 3=22254

heavy elements, neutron Fermi energy 4=11118

heavy nuclei, central three-body forces 0=17457

heavy nuclei, meson-theoretical interactions 2=12105

heavy nuclei, neutron pairing energies 1=8563

heavy nuclei, rot. states, rel. to tensor of inertia 2=1765

heavy nuclei, spherical, shell model extension 1=8548

heavy nuclei, spin-orbit coupling, rel. to strong tensor nucleon interaction 0=20312-13

heavy nuclei, superfluid state, shell model 0=11293

heavy nuclei, two nucleon correlation effects in high-energy electron scatt. 0=1426

holes in nuclear matter, rel. wave-function 2=1669

hyperfine structure, μ -mesic atoms 3=10208

impulse approximation, accuracy, from high-energy nucleon and electron scatt. 1=5901

interaction between two light nuclei, quasi-molecular 1=13596

interactions and coupling schemes 3=6123

interactions in deformed nuclei; O^{17} to Ne^{20} 4=9370

internuclear pot. energy shift rel. to nucleon interaction 2=1762

isobaric correspondence persistence in mass regions where spin is not good quantum number 2=5789

isobaric spin quantumno., heavy nuclei 3=633

isobaric states observed in (p,n) reactions, width 2=16295

isomer shifts, effect of polarizability 2=20496

isomeric pair formation probabilities, spin dependence 0=20423

isomeric shift, due to collective deformation of core 1=13691

isotope shift and Fermi-Segrè formula 0=20339

K-capture/ β^+ emission ratios 1=17048

kinematic props. of deformed nuclei 3=12546

Λ binding energy in nuclear matter for 7 Λ -N potentials 4=9366

Lane-Thomas-Wigner model, "second moment" 0=2619

large nuclei of almost entirely neutrons, binding energy 0=9286

level splitting by elec. quadrupole and mag. dipole interaction 2=3474

light mirror nuclei, lower excited levels 3=22284

light nuclei, deformed, on generalized model 2=20490

light nuclei, electron scatt. and deformation parameter 4=3643

light nuclei with large p or n excess 1=19337

light nuclei near O^{16} , collective enhancement of E2 matrix elements 0=2617

light nuclei, neutron-deficient isotopes 1=590

light nuclei, nucleon cluster transitions 4=15124

light nuclei, shell, collective motion, cluster models 3=15072

liquid-drop model, electrostatic self-energy 0=5646

liquid-drop model, preformation factor in complex particle emission 0=20422

long-range correlations and the photoeffect 1=3382

M4 transition probabilities, effect of radial matrix element 4=3557

many-body problem, boundary condition model 1=19330

many-body problem, using boundary condition model 4=9341

many-body problem, general theory 0=397

many-body problem with nonuniform density 3=6131

many-body problem, particle-hole pair interactions 1=13363

Nucleus—contd
theory—contd

many-body problem, regular but vel. depend. forces, perturbation theory 3=7967
 many-body problem, solution using perturbation theory 1=2155
 mass 14 system, configuration mixing 2=18233
 mirror nuclei $A = 19$ to 39, Coulomb-energy differences 0=7505
 mirror nuclei, branching of transitions 0=13181
 mirror nuclei, Coulomb energies 1=5810
 mirror nuclei, direct reaction mechanism for (p, n) test 1=7373
 mirror nuclei, radii, calc. using self-energy term and nonuniform charge distrib. 0=1359
 model with $j = \frac{3}{2}$ particle coupled to quadrupole surface oscils. 0=11287
 models, survey 0=7446, 20316
 moment of inertia, calculation 1=8564
 moment of inertia, collective mode of internal motion 0=13105
 moment of inertia and g_R -factor 0=13117
 moment of inertia of many-body fermion system 0=335
 moment of inertia, review of expressions 0=17475
 moment of inertia of rotating nuclei 1=5826
 moments, determ. methods from nuclear and e. m. interactions 4=9358
 moments of inertia, effect of internal motion 0=15509
 moments of inertia of large systems with pairing forces 2=12114
 moments of inertia of rotating nuclei 0=11297
 momentum distrib., rel. to independent particle theories 1=19328
 momentum distrib., protons in nuclei 2=16401
 momentum of system of n particles for configuration j^n 2=18238
 Mössbauer effect 1=13631
 Mössbauer transmission, quantum mechanical calc. 2=349
 motion of 2 nucleons in oscillator pot. well 0=11283
 μ -meson capture, shell model 1=13468
 multipole mixing in odd-mass spheroidal nuclei 0=11375
 n excess, $A > 40$, due to isobaric spin term in potential, from (p, n) reactions 3=19750
 N-N pot., velo. depend. and nuclear matter saturation 3=24830
 N-particle system, ground state, Monte Carlo calc. 1=19295
 neutron binding energies, rel. to non-local single-particle model 4=3534
 neutron evaporation from excited nucleus 3=7980
 neutron and proton densities, rel. to semi-empirical mass formula 0=17474
 neutron separation energies, rel. to structure 1=7319
 neutron separation energies, systematics, from photo-neutron thresholds 0=11296
 neutron strength function near $A = 55$ 0=5649
 neutron strength functions, s- and p-wave, calc. 2=3586
 neutron strength functions, spin dependence 1=8558
 neutron widths, strength functions 3=19760
 Nilsson model, axial symmetry 0=11289
 nonaxial, comparison with expt. 2=13953
 nonaxial nuclei, comparison with expt. 0=20315
 nonlocal optical model, appl. to nucleon-nuclear interactions 0=13107-8
 non-spherical, collective excitations 3=10238
 non-spherical, even-even, rotational states 3=10206
 non spherical light nuclei, γ -quanta absorpt. 2=10003
 non-spherical nuclei, proton distrib. 1=10953
 normal coordinates, use 2=3449
 nuclear centre, information from extreme-angle reactions 2=1854
 nuclear consisting solely of neutrons 0=13396
 nuclear field with rigid charge distribution 0=17466
 nuclear interaction, phenomenological, derived from binding energies 0=1346
 nuclear matter, antinucleon absorption effects 0=15343
 nuclear matter, binding energy calc. by ref. spectrum 3=12554
 nuclear matter, binding energy, calc. survey 4=27939
 nuclear matter, binding energy of Λ particles 0=15506
 nuclear matter, binding energy, Moszkowski-Scott long range corrections 4=27938

Nucleus—contd
theory—contd

nuclear matter, binding energy, reference-spectrum method, calc. 4=27940
 nuclear matter, Brueckner eqn., with hole-hole interactions 4=9341
 nuclear matter, Brueckner theory 2=20484
 nuclear matter, collective excitation 1=9802
 nuclear matter, collective motion and particle excitation 0=15303
 nuclear matter, critical temp. theory 3=10216
 nuclear matter, deuterons and effect of hole motions 2=13965
 nuclear matter, rel. to different expt. potentials 3=6127
 nuclear matter, direct nucleon-nucleon collisions in, impulse approx. 1=8683
 nuclear matter, effect of velocity depend. forces 3=6132
 nuclear matter, energy-density relation 3=2353
 nuclear matter, energy gap, hard-core effects 1=19339
 nuclear matter, energy gap, magnitude 0=13101
 nuclear matter, rel. to energy gap mechanism 4=30294
 nuclear matter, extension to finite nuclei 1=589
 nuclear matter, ground state 0=20084
 nuclear matter, ground-state density distrib. 2=1080
 nuclear matter, ground-state energy, 2 nucleon interact. contrib. 4=12102
 nuclear matter, ground-state props. 1=13613
 nuclear matter, ground state, quantum statistics 1=16962
 nuclear matter, ground state, surface props. 3=15082
 nuclear matter, ground state, volume props. 3=15081
 nuclear matter, "healing distance" for wave-functions of pair of particles 0=17473
 nuclear matter, hole-hole interactions 0=20308
 nuclear matter, infinite, optical potential for a nucleon 1=2156
 nuclear matter, infinite, appl. of perturbation theory 0=12886
 nuclear matter, infinite, appl. of theory to finite nuclei 0=20322
 nuclear matter, low-density, with attractive and singular interactions 1=19340
 nuclear matter, mesonic Cherenkov radiation in, meson prod. in cosmic-ray jets 0=13095
 nuclear matter N-N interaction, cross-sections, potential, forces calc. 4=27941
 nuclear matter, non-static forces, effect 4=12100
 nuclear matter, nucleon-nucleon scatt. amplitude 1=12143
 nuclear matter, Overhauser model, extension 1=8557
 nuclear matter, pair correlation functions 0=17468
 nuclear matter, perturbation theory application 4=3526
 nuclear matter, potential in 1=10866
 nuclear matter, potential, effect of the one-pion exchange tail 1=3377
 nuclear matter, properties 4=25256
 nuclear matter, quenching of nucleon intrinsic mag. moments 1=596
 nuclear matter, rearrangement energy 0=17272
 nuclear matter, review 0=12718
 nuclear matter, saturation of nuclear forces 0=12884
 nuclear matter, separation method convergence 2=5786
 nuclear matter, short-range repulsion effect 4=27940
 nuclear matter, single-particle energies 0=3920
 nuclear matter, single-particle energies, rel. to giant dipole resonance 0=13127
 nuclear matter, single-particle energies and level structure 0=11123-4
 nuclear matter, single-particle energies, reference spectrum method 3=24831
 nuclear matter, stability for collective excitations 0=4014
 nuclear matter, structure 1=8533
 nuclear matter, structure, periodicity of self-consistent field 0=11125
 nuclear matter, study using state of π -meson field in many-nucleon system 1=8541
 nuclear matter, superfluid behaviour 3=6133
 nuclear matter, superfluid, collective excitations 1=8536
 nuclear matter, superfluidity 0=1348
 nuclear matter, superfluidity 1=13610
 nuclear matter, surface props. calc. 2=20493
 nuclear matter, theories of Jastrow and Brueckner, survey 1=16961

Nucleus—contd**theory—contd**

- nuclear matter, theories of Mohling and Puff.
reviews 2=1770
- nuclear matter, theory of nuclear props. 2=9983
- nuclear matter, three-body effect to all orders 3=19748
- nuclear matter, two-body potential 2=344
- nuclear matter, two nucleons, Bethe—Goldstone
eqn. 3=22266
- nuclear matter, two nucleons, Bethe—Goldstone
eqn. 3=22267
- nuclear matter, velocity-dependent forces 2=13966
- nuclear molecule, consisting of two C^{12} , theory 2=9988
- nuclear surface, optical model analysis 2=1769
- nuclear surface, structure, theory 2=3455
- nuclear two-particle excitations, spectrum 2=1788
- nuclei, many-body and single-particle aspects,
relation 1=4830
- nuclei with neutrons and protons in $1f_{7/2}$ shell 2=346
- nuclei of reflectional asymmetry, mechanism for low-
lying levels 0=7481
- nucleon clustering in light nuclei 0=7452
- nucleon clusters in nuclear surface 0=15500
- nucleon clusters in nuclear surface, rel. to K^- -meson
absorption 0=11294
- nucleon and core model, vibrations of core 0=11292
- nucleon correlations, from K^- -meson absorption 3=4660
- nucleon linear momentum distrib. 2=343
- nucleon momentum distrib., optical potential effects,
pickup reactions 3=624
- nucleon motion in anisotropic oscillator
potential 1=4821
- nucleon motion in anisotropic oscillator potential,
including spin—orbital interaction 1=8555
- nucleon—nucleon correlations, effect on high-energy
nucleon and electron scatt. 1=5901
- nucleon-nucleon potential and saturation in
nuclear matter 4=19631
- nucleon—nucleon potl. of Green, velocity-
dependent 2=22698
- nucleon—nucleon and velocity dependent potls. 2=16283
- nucleon-nucleus vertex part cluster singularities,
closed-shell effects 4=12097
- nucleon separation energies, linear A relation-
ship 0=4017
- nucleon short-range correlation, effect on nucleon
elastic scatt., model 1=9848
- octupole deformation, stability 2=356
- octupole moment effects on neutron scatt. 0=11305
- octupole-type deformation of nuclear surface 0=15516
- odd-A, mag. moment distrib., regularities 3=15078
- odd—even shift, $K = 0$ rot. bands of odd nuclei 3=10243
- odd-mass, asymmetric rotator model 3=17383
- odd-mass, elec. quadrupole transitions calc. 4=9385
- odd-odd nuclei, jj coupling model 0=20325
- odd nuclei, Green's function 0=5641
- odd nuclei, moments of inertia 0=13118
- odd-odd nuclei, ground states, spectrum for $(V_0 + \sigma_1 \cdot \sigma_2 V_1)$
interaction 1=588
- odd-odd nuclei, neutron—proton pairing
interaction 1=2154
- odd-odd spherical nuclei, tensor force effects, n and p
parallel spin 0=13111
- one-pion exchange contrib. to optical potl. 3=622
- optical model 0=398
- optical model, analysis of α - α scatt. data 0=5629
- optical model, analysis of nuclear excitations and
reactions by α -particles 0=1419
- optical model, appl. to neutron elastic scatt. at low
energy 0=15592
- optical model foundations and direct interaction 0=1349
- optical model, rel. to inelastic scattering 0=11288
- optical model for light nuclei 0=7447
- optical model, many-body basis 0=5645
- optical model, rel. to neutron back-angle elastic scatt. at
14.6 MeV 0=458
- optical model, rel. to neutron elastic scatt. at
14 MeV 0=457
- optical model of neutron scatt., adiabatic
approximation 0=11305
- optical model, neutron strength functions 0=7448
- optical model, nonlocal, plausibility 0=1344
- optical model of nucleon—nucleus scattering 0=4036

Nucleus—contd**theory—contd**

- optical model potential, effect of nuclear energy
gap 0=17463
- optical model potential for forward scatt. amplitude, high-
energy limit 0=20428
- optical model potl., effect of pairing correl. 3=6122
- optical model potl. Heisenberg forces 3=621
- optical model, proton parameters, for (p, n)
reactions 0=434
- optical model, scattering amplitude 0=13109
- optical model, spin-orbit part of potential 0=17464
- optical model, total cross-section calc. for 61 MeV protons
on C, A, Fe and Sn 0=7552
- optical potential, effect of exclusion
principle 1=9795
- optical potential, high-energy, surface
corrections 3=10335
- optical potential, imaginary part 0=17580
- optical potential, imaginary part, for low-energy incoming
neutrons 0=2615
- optical potential, isobaric spin depend. 2=16285
- optical potential, polynomial, 2=13945
- optical potential, and reaction cross-sections 2=9980
- optical potential, renormalization due to pairing
correlations 2=13944
- optical potential, shell effects 0=9500
- optical potl., nucleon wave inside nucleus 3=6121
- optical potl., radial distrib. of imaginary part 3=12543
- p-shell nuclei, harmonic oscillator const. 2=7919
- p-wave neutron strength function $\bar{\Gamma}^{(p)}/D$ 2=22697
- pair-correlation effects, near closed shells 1=13608
- pair correlations, effect on electromagnetic transition
probab. 1=8666
- pair correlations, effect of energy gap on optical model
potential 0=17463
- pair correlations near closed shells, effects 1=8599
- pairing correlation, BCS—Bogolyubov and "reaction
matrix" formalisms 2=1768
- pairing correlation, effects in deformed nuclei 2=5793
- pairing correlation, nuclear rotation effects 1=2158
- pairing correlations, charge-independent 4=9346
- pairing correls. of neutrons and protons 3=12542
- pair distrib. functions, scatt. phenomena 2=17374
- pairing energies of neutrons and protons 3=10199
- pairing energies, spherical and deformed nuclei 3=22263
- pairing force Hamiltonian, exact eigenstates, restricted
class 3=7962
- pairing force, new approx. 2=5779
- pairing force, 0^+ state, approx. 2=1761
- pairing force between 2 nucleons, and nuclear
spectroscopy approx. 4=12096
- pairing forces in deformed nuclei 0=17467
- pairing forces and nuclear collective motion 1=7310
- pairing forces, superconductivity approx.,
accuracy 1=16954
- pairing interactions 1=618
- particle—hole interaction, production of dipole state 1=3381
- particle number, effect on nuclear potential 0=13102
- particle number fluctuations, energy gap 4=25252
- particle states in strongly deformed nuclei 1=3593
- periodicity and structural development 3=10202
- peripheral wave-functions, bound-state 2=18229
- perturbed multiple correlations 1=582
- phase shifts for singular-type N—N triplet-even
potls. 3=22255
- phase transition and level density 3=10215
- photoabsorption, nucleon interact. effects 2=20491-2
- π -N interaction, shell model features 1=13601
- π photoprod. cross-section shell model calc. 3=12654
- polarization, modified classical model, rel. to B^{12} 0=1360
- "pole-cap" contributions to quasi-free p-p
scatt. 0=20447
- potential det. from neutron scatt. phase
shifts 1=8737
- potential energy, oscillator shell model 3=10200
- proton density in nucleus with given orbital
momentum 0=9519
- quadrupole correlations in light nuclei 0=17472
- quadrupole—quadrupole interaction, rel. to ang.
momentum and elec. moment 1=13625
- quasi-deuteron model, pair correlation functions 0=17468
- quasi-molecular states in light nuclei 4=19641

Nucleus—contd**theory—contd**

quasi-particles, collective states of spherical nuclei 0=11308
 quasi-particle system, Green function treatment 4=27942
 radii, surface diffuseness, potentials, Green's method calc. 4=25265
 rare-earth alpha-emitters, proton system, BCS theory 4=21982
 rare-earth, deformed, E1 transitions 3=6152
 rare-earth region, rotation, Inglis model 2=5782
 rare-earths, rotation— γ - vibration interaction 3=2381
 reaction matrix calc., separation method 2=3454
 reaction matrix theory, finite nucleus, by separation method 3=2357
 reactions, average resonance parameters, R-matrix theory 3=6213
 rearrangement following separation of a nucleon, barrier at edge of nucleus 1=8538
 repulsive core, from classical relativistic effects 2=18226
 repulsive core potentials, variational calc. 0=20309
 repulsive cores, role in photoneuclear effect 1=5886
 residual interaction and deformation 1=8556
 resonance reactions, Blatt-Biedenharn formalism, extension 0=7543
 review 3=12548
 review 4=12093
 review, rel. to fission 1=8787
 rigidity for octupole-type surface deformation 0=13106
 rotating and deforming, quantum theory 2=11288, 13262
 rotation, rel. to deformation potential well 3=15079
 rotation effects on pairing correlation 1=2158
 rotation, Inglis model, effect of residual interactions 2=5783
 rotation, many-particle treatment 0=7310
 rotation, nucleonic interactions taken into account 2=12104
 rotation, quantum theory 2=18237
 rotation, shell model treatment 2=5784
 rotation, variational approach 2=7923-4
 rotational bands, level shift, selection rules 2=10004
 rotational energies, odd-mass nuclei asymmetric rotor model 2=20505
 rotational light nuclei, deformation, calc. 1=10951-2
 rotational motion, nonaxisymmetric, adiabatic calc. 4=17002
 rotational spectra, deviation from $I(I+1)$ dependence 2=12108
 rotational spectra, exceptions to γ intensity rules 1=661
 rotational states, and Hartree-Fock eqns. 2=9805
 rotational states, intrinsic symmetries 3=2374
 rotational states, for non-axially symm. nuclei 2=13954
 S-wave neutron strength function, effect of surface absorpt. 3=2349
 scattering from odd-mass nuclei 3=19747
 screening effect for forbidden β -spectra 3=8027
 self-consistent field problem, Hartree-type calc. 1=13615
 semi-rigid model, core-to-particle interaction 0=5644
 separable potential model, unstable states 0=5643
 shape, self-consistent field theory 1=7316
 shape, rel. to spin-zero excited states 1=16973
 shell closure rel. to elastic scatt., $Z \approx 50$ nuclei 4=6191
 shell and compound models of nuclear reactions 0=3925
 shell mode, matrix elements, calc. 0=17469
 shell mode, Mo lower levels, explanation 0=9533
 shell model, α -transition probabilities, calc., appl. to Po and At isotopes 0=13185
 shell model, appl. of phase space quasi-probability distrib. 0=17470
 shell model, barycentric and rotational coord., elimination 0=7449
 shell model, Be^{11} spin and order of levels 0=13135
 shell model, calc. of compound nucleus decay 0=9545
 shell model, calc. of triton and He^3 emission 0=15567
 shell model, collective motion 0=20314
 shell model, Coulomb energies of closed-shell nuclei 1=591
 shell model, effect of hard-core correlations on moments 0=5658
 shell model, effective potential and Brueckner theory 0=5642

Nucleus—contd**theory—contd**

shell model, effects of c. of m. motion on scattering problems 1=8559
 shell model, four-fold correlations of nucleons 0=13104
 shell model, group theoretical study, translation-invariant Hamiltonian 0=7451
 shell model, Hartree-Fock approx. with Gammel-Thaler potential 0=11291
 shell model for heavy spherical nuclei, Barden-Bogolyubov Belyaev pairing correlations 0=20317
 shell model, rel. to inelastic scatt. by Be^9 0=446
 shell model, levels from (p, 2p) reactions 0=17581
 shell model, low levels of nuclei in $d_{3/2}$ - $f_{7/2}$ shell 0=11324
 shell model, low levels of nuclei in $2s_{1/2}$ and $1d_{3/2}$ Shells 0=13138
 shell model, mathematical theory of Hamiltonian 0=5647
 shell model, nuclear moments calc. 0=11300
 shell model, octupole-type deformation of nuclear surface 0=15516
 shell model, particle-hole transitions, phase factors 0=9498
 shell model, phenomenological nuclear interaction derived from binding energies 0=1346
 shell model, spheroidal, of nuclear deformation 0=20318
 shell model theory and γ vibrations 1=12146
 shell model wave-functions, short-range correlations 0=17456
 shell, rel. to rotations and vibrations 2=1771
 shell structure and energy levels in bounded isotropic harmonic oscillator potential 0=17491
 single-particle motion in deformed nonlocal potential well 0=7444
 single-particle states in deformed nonlocal diffuse-boundary potentials 0=13108
 spherical nuclei, collective states and quasi-particles 0=7453
 spherical nuclei, vib. states, low-energy 3=2372
 spherical nuclei, vibrations 1=16958
 spin-dependent forces, collective motion 2=13946
 spin-orbit force in bound state 0=4015
 spin-orbit interact. in scatt. problems 3=581
 spin-orbit splitting and tensor force, with several nucleons outside closed shell 0=17465
 spin-orbit splitting due to tensor interaction 1=7320
 spin-orbit splitting, effect of tensor force 1=3385-6
 stability conditions, Hartree-Fock theory 1=3379
 statistical distrib. of energy levels 3=9
 statistical mechanics of superfluid nuclear matter 3=19742
 statistical method with correlation correction 1=10950
 statistical model, evidence from (p,n) spectra on odd-even nuclei 1=696
 statistical, neutron and proton densities 4=21978
 statistical nuclei with repulsive-core interaction 0=17462
 statistical theory 0=13100
 structure calc., use of pairing correlation theory 0=13113
 structure evidence from heavy-ion reactions and scattering 1=8781
 structure evidence from quasi-free proton scatt. 1=8718
 structure, from giant photoresonances 0=13129
 structure, from high-energy nuclear interactions 0=9348
 structure, interrel. with elem. particle physics 3=540
 structure, open problems, role of elementary particles 1=8530-1
 structure, props., of nuclear forces 1=8532
 structure, review 0=2614
 structure, surface and shell effects, rel. to multi-BeV reactions 0=13227
 SU_3 wave-functions, properties 4=30295
 superconducting Fermi fluid, e.m. transitions 3=23795
 superconductivity approx. for nuclear states 2=1758
 superconductor model, appl. to moments of inertia of even-even rare earth nuclei 0=9504
 superfluid Fermi system, with isotopic spin 1=10436
 superfluid model 0=17467, 20330
 superfluid state 0=2616
 superfluid state, at non-zero temp., phase transition 0=15499
 superfluidity of light nuclei 0=13110
 superfluidity and moments of inertia 0=4011, 9505
 superfluidity and phase transitions in nuclear matter 4=9349

Nucleus—contd

theory—contd

surface diffuseness due to zero-point motion 2=18239
 surface diffuseness, from S-wave strength functions 4=992
 surface effects in μ -capture 2=474
 surface energy, linear potl. barrier model 1=13599
 surface of nuclei, thickness estimate 2=13952
 surface, open problems 1=8530-1
 surface oscillation, theory of collective motion 4=3527
 surface oscillations, semi-classical description 3=22264
 surface, penetrability by α -rays in excited nucleus 0=11309
 surface structure, Fermi gas model 2=16287
 surface structure, proton scatt. study 2=14085
 surface thickness and energy for heavy nuclei 1=10950
 surfaces, direct processes 0=7601
 symplectic symmetry 0=7450
 temperature, from 14 MeV neutron results 0=11442
 tensor force effects in odd-odd spherical nuclei 0=13111
 tensor interaction, doublet splitting in 1p shell 2=3475
 tensor interaction, nuclear matter 1=13612
 three-body force between fixed nucleons 4=3521
 three-body problem 2=13943
 three-body problem, rotational functions 1=12142
 three and four-body, ground state, exact calc. 3=2358
 three-nucleon cluster term energy 1=7311
 three-nucleon clusters in nuclear matter 3=4552
 three-nucleon system, bound state 2=22700
 threshold states, props., rel. to (γ, n) and (γ, p) thresholds 1=8571
 transitions, $0^+ - 0^+$, two-photon decay 2=3478
 translational motion 3=627
 transuranic elements, n-p pairing interaction 0=11295
 tritons, wave function for ground state 3=4473
 two-body cluster model 1=585
 two-body force 1=19463
 two-body interaction parameters in $(p_{1/2})^2$, $(p_{1/2}2s_{1/2})$ and $(p_{1/2}d_{5/2})$ configurations 4=17000
 two-nucleon ensemble, with nonlocal potentials 2=22699
 two-nucleon matrix elements, transformation brackets, harmonic oscillator functions 0=7445
 2^+ states, structure, in even-even nuclei 3=7984
 two-quantum processes 3=24850
 two-quasi-particle states in deformed even-mass nuclei 2=18248
 2s-1d shell, transformation between cartesian and ang. momentum osc. basis functions 4=12094
 velocity depend. potl., binding energies 3=17382
 vibrational motions, effective potl. 3=2375
 vibrational nuclei, spherical, spectra, higher random phase approximation 4=19658
 vibrational states, collective motion and use of many-body techniques 4=9369
 vibrational states, random phase approx. 1=3393
 vibrations, introduction of anharmonic terms 2=12106
 vibrations in spherical and nearly spherical nuclei 1=8614
 vibrations of spherical nuclei 1=8560
 wave-functions, single-particle, deriv. 2=20486
 Whittaker functions, tables of 3=13995
 Wigner coeffs. for SU_3 group, p-shell fractional parentage coeffs. 3=6124
 Yukawa potential, phase shifts 1=13595
 zero-point vibs. and nuclear surface 3=12556
 Al^{25} , nonaxisymm. rotational motion calc. 4=17002
 Al^{26} , $0^+(T=1)$ state, residual interaction 4=17038
 Al^{27} 3=6128
 Al^{27} , level density formulae in reaction theory 3=17481
 Al^{27} , μ -mesic atom, nuclear h.f.s. 3=10208
 Al^{27} , rotational collective model 0=20347
 Au^{197} Mössbauer absorption, chemical shifts, theory 1=17391
 B^{11} , shell model and s-doublet levels 0=17492
 B^{11} , unified model of energy level scheme 3=2382
 Be^7 , cluster structure 1=7312
 Be^7 , matrix elements, electron capture rate in stars 3=2404
 Be^9 , test of conserved vector current theory 0=7531
 Be^9 , α -particle model, effect of α - α dynamics 4=6189
 Be^9 , LS-coupling and photonuclear effect 2=22786
 Be^9 , $2\alpha + n$ model 0=13112

Nucleus—contd

theory—contd

Be^{11} , shell model anomaly 2=18232
 Bi^{208} , $J^\pi = 1^+$ states calc. 4=19657
 Bi^{208} , low-lying levels, j-j coupling shell model 4=22049
 Bi^{208} , μ -mesic atom, nuclear h.f.s. 3=10208
 Bi^{210} , energy levels using shell-model 3=24875
 Bi^{210} , stripping reaction data, shell-model analysis 3=24876
 Bi^{210} , tensor forces and energy levels 3=24874
 Br^{79} , neutron strength function 0=5649
 C, "molecular" states formed by two C nuclei 0=13251-3
 C, momentum distrib. of bound protons 0=7443
 C, neutron scatt., compound nucleus formation 2=22820
 C, optical model at low energies, proton polariz. test 0=11401
 C^{10} , cluster model, rel. to β -ray end point 4=3598
 C^{12} , using $C^{12}(p, p')^3\alpha$ 0=9508
 C^{12} , 4.4 MeV level as collective state, from proton scatt. 0=11409
 C^{12} , giant dipole resonance, complete spectrum 4=9389
 C^{12} , internal momentum distrib. 3=7965
 C^{12} , shell model calc. in LS coupling 4=19652
 C^{13} , dipole state 2=16318
 C^{13} levels, use for obtaining two-body interaction parameters 4=17000
 C^{13} , low-lying anomalous parity states 4=1010
 C^{13} , potential, effective-range analysis 3=24954
 C^{14} , ground-state config. using zero-range force 3=12557
 C^{14} , shell model assignments for energy levels 0=9531
 C^{14} , shell model, configuration mixing 0=2618
 Ca^{40} 3=6128
 Ca^{40} , Brueckner charge density 3=22367
 Ca^{40} , Brueckner-Gammel-Weitzner theory 1=8535
 Ca^{40} , Brueckner-Gammel-Weitzner theory 3=6130
 Ca^{40} , dipole state, calc. 1=3381
 Ca^{40} , nucleon binding energies 2=345
 Ca^{40} , optical potential, calc. 1=3380
 Ca^{40} , props., using Brueckner-Gammel-Weitzner theory 1=589
 Ca^{41} , spin-orbit energy splitting 0=4015
 Ca^{42} struct., from $Ca^{40}(t, p)Ca^{42}$ reaction 4=25426
 Ca^{42-4} , ground states, binding energies and mag. moments, theory 1=10954
 $Cd^{110, 112, 114, 116}$, double neutron separation energies 4=3535
 Cd^{114} , low-energy spectrum and γ -decay prob. 4=9405
 Ce^{140} , 4^+ state, shell model config. 4=19696
 Ce^{140} , nucleon binding energies 2=345
 Cl^{35} 3=6128
 Cl^{38} , neutron-proton interactions rel. to j-j coupling 4=9348
 Co^{59} , weak-coupling approx, photon particle interaction 2=368
 Cr^{53} , shell-model calc. 4=22028
 Cs^{131} , collective effects 4=9407
 Cu, optical model at low energies, proton polariz. test 0=11401
 Cu^{63} 3=6128
 Cu^{66} , model for low-lying levels 3=19780
 Dy isotopes, β - and γ -vibrational states, energies 4=25276
 Er isotopes, β - and γ -vibrational states, energies 4=25276
 Er^{168} , moment of inertia, cranking model 4=21986
 $Eu^{147, 149, 151}$, collective motion and l-forbiddenness 2=13989
 $Eu^{147, 149, 151}$, collective motion and l-forbiddenness 3=6175
 F^{15} , quadrupole enhancement 0=4021
 F^{17} , collective description 0=9502
 F^{18} , even parity levels, shell model 4=19676
 F^{18} , $0^+(T=1)$ state, residual interaction 4=17038
 F^{18} , residual pair forces 3=22257
 $F^{18, 19}$, deformed, analysis using effective interactions 4=6221
 F^{19} 3=6128
 F^{20} , ground state, Nilsson model 4=3531
 Fe^{56} , shell-model calc. 4=22028
 $Fe^{55, 58}$, shell-model states assignment 3=24833
 Fe^{57} , spin and mag. moment, p-n interaction 2=22707
 Fe^{57} , structure evidence from (d, t) reactions 1=716
 He, α -scattering 0=1422
 H^3 , mixed symmetry states and nuclear photo-effect 4=9321
 H^3 , ground-state energy and wave-function 2=7832
 He^3 , bare form-factor, wave mech. calc. 4=9314

Nucleus—contd
theory—contd

- He³, charge asymmetry, binding energy diff. with H⁴ 4=30293
 He³, e. m. form factor rel. to nucleon form factors 4=9315
 He³, effect of finite proton size on Coulomb energy 1=2105
 He³, mixed symmetry states and nuclear photo-effect 4=9321
 He³, radius, Coulomb energy 3=12519
 He⁴, binding energy 0=400
 He⁴, and He⁶ clusters 2=1752
 He⁴, Irving wave-function, binding energy 2=18240
 He⁴, optical potential, calc. 1=3380
 He⁵, bound state as 2-body problem 3=2332
 He⁶, fine structure in splitting, two-nucleon L.S. potential 0=17263
 He⁶, spin-orbit splitting, effect of tensor force 1=3385
 Hf¹⁷⁶, moment of inertia, cranking model 4=21986
 Hf¹⁷⁶, orbit flip mag. transitions 3=2392
 Hg¹⁹⁷, isomeric shift 1=13691
 Hg^{197m}, magnetic and quadrupole interactions 1=9839
 In¹¹⁶ 3=7999
 In¹¹⁶ III, isomeric shift 1=13691
 K⁴⁰, neutron-proton interactions rel. to j-j coupling 4=9348
 Kr, optical model, deuteron scatt. data 0=11419
 Li⁶, α + d configuration 4=12282
 Li⁶, charge distrib. 4=9362
 Li⁶, d- α model, no support from photo-disintegration 0=9659
 Li⁶, rel. to electron scattering 1=598
 Li⁶, Gaussian density distrib. for high-energy electron scatt. 1=17086
 Li⁶, ground state, rel. to d-He⁴ interaction 0=13072
 Li⁶, lowest six even parity states calc. 2=18225
 Li⁶, neutron-proton interactions 2=1754
 Li⁶, shell model 0=9499
 Li⁶, structure, repulsive core model 0=20309
 Li⁶, wave-functions 2=13949
 Li⁷, cluster structure 1=7312
 Li⁷, e.m. props., rel. to (1p)³ config. 3=24840
 Li⁷, (Li⁶ + neutron) configuration 1=16986
 Li⁷, rotational model 3=12549
 Li⁸, Coulomb barrier, effect on, by B⁸ fragments 1=11028
 Li⁹ struct., from Li⁷(t,p)Li⁹ reaction 4=25426
 Lu¹⁷², outer nucleon configurations 2=10016
 Lu¹⁷⁵, possible structure effects 2=3459
 Lu¹⁷⁷, collective model for high spin 4=9416
 Mg²⁴, axially asym. deformation, stability 3=24844
 Mg²⁴, collective model, γ -ray data 0=11383
 Mg²⁴, deformation, calc. 1=10951-2
 Mg²⁴, deformation, variational calc. 1=8537
 Mg²⁴, energy spectrum by shell model 3=12553
 Mg²⁴, rotational levels 3=17404
 Mg²⁴, shell, collective motion, spectra 3=10212
 Mg²⁵, even parity levels, rotational structure 4=12142
 Mg²⁵, nonaxisymm. rotational motion calc. 4=17002
 Mn⁵⁵, semiatomistic model 3=15077
 Mo isotopes, odd-A 4=27969
 Mo^{94,96,98}, double neutron separation energies 4=3535
 N¹³, intermediate-coupling shell-model calc. of levels 3=22293
 N¹³ levels, use for obtaining two-body interaction parameters 4=17000
 N^{13,14}, low-lying anomalous parity states 4=1010
 N¹⁴, approx. Hartree-Fock calc. 4=16999
 N¹⁴, ground-state config. using zero-range force 3=12557
 N¹⁴ levels, use for obtaining two-body interaction parameters 4=17000
 N¹⁴, odd-parity states, shell model calc. 3=24861
 N¹⁴, shell model assignments for energy levels 0=9531
 N¹⁴, shell model, configuration mixing 0=2618
 N¹⁴, shell model, lower levels 3=15076
 N¹⁵, shell model, in elastic neutron scatt. 4=17146
 N¹⁶, spin-orbit splitting, effect of tensor force 1=3385
 Na²³, 0⁺(T=1) state, residual interaction 4=17038
 Na²⁴, even parity levels, rotational structure 4=12142
 Na²⁴-Al²⁴, vector interaction with a conserved current, beta-decay theory 0=2637
 Nb⁹¹, pairing force, and nuclear spectroscopy approx. 4=12096

Nucleus—contd
theory—contd

- Nb⁹³, optical model rel. to resonance theories 4=15126
 Ne¹⁹, collective description 0=9202
 Ne²⁰, deformed, analysis using effective interactions 4=6221
 Ne²⁰, energy spectrum by shell model 3=12553
 Ne^{20,22}, axially asym. deformation 3=24844
 Ne²¹, s-d particle coupled to rotational core 4=3564
 Ni, neutron arrangement in outer shells, rel. to spectral isotope shift 1=5974
 Ni⁵⁸ 3=6128
 Ni⁶⁰, energy gap, using effective Hamiltonian 3=10213
 Ni⁶², vibration spectrum, anharmonicity 4=12108
 Ni^{62,63,66}, shell-model states assignation 3=24833
 O⁺, pairing force, and nuclear spectroscopy approx. 4=12096
 O¹⁴, shell model, configuration mixing 0=2618
 O¹⁵, binding energy on shell model 0=11291
 O¹⁶ 3=6128
 O¹⁶, binding energy and radius, for different inter-nucleon potentials 0=9511-12
 O¹⁶, Brueckner-Gammel-Weitzner theory 1=8535
 O¹⁶, cluster structure 4=19817
 O¹⁶, dipole state, calc. 1=3381
 O¹⁶, dipole states, by SU3 coupling scheme 4=12136
 O¹⁶, giant dipole resonance, complete spectrum 4=9389
 O¹⁶, giant resonance, e.m. structure 4=17033
 O¹⁶ ground state, Hartree-Fock calc. 3=6139
 O¹⁶, higher random phase approx. 2=13962
 O¹⁶, low excited states in SU3 scheme 3=10253
 O¹⁶, many-body problem 1=19331
 O¹⁶, nucleon binding energies 2=345
 O¹⁶, O⁺ levels in terms of shell-model 4=15147
 O¹⁶, optical potential, calc. 1=3380
 O¹⁶, props., using Brueckner-Gammel-Weitzner theory 1=589
 O¹⁶, quadrupole and octupole vibrations 0=4019
 O¹⁶, reaction matrix calc. of binding and single particle energies 3=2357
 O¹⁶, self-consistent field calc. 1=13615
 O¹⁶, two-body correlations, perturbation theory 1=3376
 O¹⁶ to Ca⁴⁰, systematics 1=8574
 O¹⁷, deformed, analysis using effective interactions 4=6221
 O¹⁷, quadrupole enhancement 0=4021
 O¹⁷, spin-orbit energy splitting 0=4015
 O¹⁷, surface diffuseness, effects on single-particle level structure 1=3399
 O¹⁷, D-state doublet splitting, calc. 1=3386
 O¹⁷, two-nucleon interact, in common harm. oscill. potential 4=12106
 O¹⁸, deformation parameter, electron scatt. 3=10331
 O¹⁸, even parity levels, shell model 4=19676
 O¹⁸, level spectrum rel. to two-nucleon interact. 2=16324
 O¹⁸, residual pair forces 3=22257
 O¹⁸, wave-function of ground state 3=10381
 O^{18,20} ground state coupling schemes 4=15235
 Os, deformation dependence of moment of inertia 1=8553
 Os^{186,188,190}, ground-state rotation bands 4=25321
 Os¹⁸⁸, as intermediate coupling nucleus 2=18263
 P³¹ 3=6128
 P³¹, collective-vibrational model 0=20319
 P³², low-lying levels, conflict with jj-coupling theory 0=9537
 Pb²⁰⁸, Brueckner-Gammel-Weitzner theory 3=6130
 Pb²⁰⁸, nucleon binding energies 2=345
 Pb²⁰⁸, shell model, lowest odd-parity excited levels, calc. 0=17500
 Pb²⁰⁸, shell theory of 3-, 4+ levels 2=20517
 Pb²⁰⁸, two-hole two-particle configs. 3=10275
 Pm^{147,151}, deformation state and model choice 4=989
 Po²¹⁰, energy levels using shell-model 3=24875
 Po²¹² isomer, configuration 3=24889
 Pr-isotopes, pairing model 3=12555
 Ra²²⁶, equilibrium deformation 0=20320
 Rn, transitions 0=20356
 Rn²¹⁸, using self-consist. and pair potentials 4=6247
 S, neutron scatt., compound nucleus formation 2=22820
 S³² 3=6128
 S³², deformation parameter, electron scatt. 3=10331
 S³³, configuration mixing 0=11300
 Se⁸⁰, neutron strength function 0=5649

Nucleus—contd**theory—contd**

- Si²⁸, quadrupole vibrations 0=4019
 Si²⁹, unified model, low-lying energy-level, calc. 0=15505
 Si³⁰, collective vibs. 3=6167
 Sm¹⁵³, collective gyromag. factor 3=19741
 Sm¹⁵², deformation dependence of moment of inertia 1=8553
 Sn^{117,119}, asymmetric rotator model 3=17383
 Sn¹¹⁸, pair correl. effects on E2 transition 2=384
 Sn¹²⁰, pair correl. effects on E2 transition 2=384
 Ta¹⁷⁸, two-particle states analysis 2=12153
 Ta¹⁸¹, μ -mesic atom, nuclear h.f.s. 3=10208
 Ta¹⁸¹, structure effects, penetration matrix elements 1=9841
 Tb¹⁵⁹, deformation parameters from giant photo-resonances 0=13129
 Te^{123,125}, asymmetric rotator model 3=17383
 Ti⁴⁸, 4⁺ (2310 keV) level 4=9401
 Ti⁵¹, shell-model calc. 4=22028
 Tl²⁰¹, structure effects, penetration matrix elements 1=9838

Nucleus—contd**theory—contd**

- Tl²⁰³, structure effects, penetration matrix elements 1=9837
 Tl²⁰⁸, low-lying levels, j-j coupling shell model 4=22049
 Tm¹⁷¹, unified nuclear model rel. to lifetimes 4=19699
 V⁵¹, nuclear forces 1=2174
 V⁵¹ to Ni⁶⁰ nuclei, neutron shell-model configs. 4=19781
 W, deformation dependence of moment of inertia 1=8553
 Y⁸⁹, pairing force, and nuclear spectroscopy approx. 4=12096
 Xe, optical model, deuteron scatt. data 0=11419
 Xe¹²⁹, asymmetric rotator model 3=17383
 Y⁹⁰, j-j coupled odd-group model 3=22304
 Y⁹¹, shape factor, Y⁹¹-Zr⁹¹ mass difference 0=11364
 Yb¹⁷⁷, orbit flip mag. transitions 3=2392
 Zr⁹⁰, Brueckner-Gammel-Weitzner theory 1=8535
 Zr⁹⁰, pairing force, and nuclear spectroscopy approx. 4=12096
 Zr⁹⁰, props., using Brueckner-Gammel-Weitzner theory 1=589
 Zr^{90,91,92,94,96}, single-particle states 3=24866

Oceanography

- See also Liquid waves; Seawater.
 absorption of sound, rel. to eddy viscosity in ocean 3=9558
 acoustic ambient noise, spectra and sources 3=6951
 acoustic attenuation over RSR paths 4=23718
 acoustic back-scattering cross-sections of short cylinders and fish in water, meas. and calcs. 4=27264
 acoustic instrument platform, flip-floating 4=4748
 acoustic radiation, r. l. f. 4=15862
 acoustic reflection losses at sea surface 4=4751
 acoustic rays, heat source effect 4=23713
 acoustic signals, ocean waves effects 3=11385
 acoustic studies by H_2-O_2 explosions 3=9552
 acoustic wave propag., surface reflection, refraction effects 4=7821
 Arctic, acoustic reverberation from ice layers 4=4749
 arctic deep-water acoustic propag. meas. 4=29263
 Arctic Ocean, sound transmission, long-range 1=20805
 Arctic Ocean, underwater sound propagation 3=13652-3
 arctic pack ice, acoustic backscatt. strengths 4=29259
 artificial harbour design 3=18953
 ASWEPS for automated data collection 3=5186
 β -plane ocean, flow patterns 3=16204
 bottom layer, compressional vel. det., dispersion phenomena 3=6950
 c.w. sound signal propagation 0=10719
 coastal current meter 4=23724
 coastal lagoon, ambient noise. 3=25863
 containers, for tests at great sea depths 3=3443
 currents, stability 4=23739
 currents, stability 4=29273
 deep scattering layer, reverberation, meas. with explosive sound sources 4=10691
 deep-sea bed backscatt. of explosive sound 3=3444
 deep-sea sediments, cosmic dust in 0=6582
 deep-water surface waves 3=1424
 displacement wave propag. 4=23716
 rel. to earth electric currents of deep internal origin 1=20803
 effect of oceans on geomagnetism 1=21099
 exploded underwater charges, energy per unit-area spectrum of shock wave 4=23720
 explosive sounds attenuation in sea water 4=4752
 flat object underwater, irradiance 4=10688
 fluids, stratified, waves, theory 3=21295
 fog over ocean, sound propagation 1=12942
 formation from solar wind 1=20806
 gamma-radiation, origin and intensity 2=23997
 gravity measurement at sea 1=20792
 gravity waves, effect of wind 2=17120
 Gulf of Maine, long-range multiple arrivals at deep hydrophones 4=10692
 heat exchange bet. sea surface and atmos. 2=24005
 IGY, Kelvin lecture 0=754
 infrasound generation by waves 2=7282
 internal waves in oceans 1=12686
 jets, thermocline, stability 2=8946
 Knudsen ambient noise spectra, origin 3=16201
 light scatt. and absorpt., det. using white disks 4=321
 light in the sea 3=6952
 low-velocity layers 0=10386
 lunar gravitational tides, rel. to moon's interior 3=23670
 meteorite impact formation of ocean basins? 3=11384
 meter, for deep water scatt. meas. 4=23723
 motion of fluids, with density stratification 0=12154
 narrow-beam echo-ranger for fishery and geological investigations 1=4415
 noise, acoustic, underwater, review 4=15861
 noise, ambient, in Arctic Ocean 4=23719
 noise, ambient, under arctic-sea ice 4=23715
 noise, ambient directivity, 14 500 ft depth 4=29264
 noise, ambient. l.f., periodic variations 1=2832
 noise, ambient model 4=29265
 noise model, spatial-correl. functions 3=3445
 ocean bottom sound backscattering meas. 4=10690
 optical props. of large bodies of water 0=8766
 origin, from oxidation of H in solar wind 1=11651
 orogeny spreading sea floor theory 4=23695
 oscillations, l. f., trapping in equatorial boundary layer 4=10694
 pile-up and drive-away phenomena, sea-level variations 3=18485

Oceanography--contd

- planetary waves on rotating sphere 4=24138
 pressure meas., dielectric 4=13775
 radiant energy varn. rel. to ocean temp. 3=9010
 reflection and refraction at random moving surface 0=14788-9
 reflection of sound from crystal bottoms 0=2207
 reverberation from bed 1=18525
 reverberation under arctic ice 4=15863
 scattering of e.m. waves by ocean surface, near-vertical, calc. 4=30054
 scattering, light, meas., submersible water, design theory 3=19023
 sea, inhomogeneities, f.m. sound scatt. 2=23996
 sea level at Visakhapatnam, meteorological effects 4=29262
 sea reverberation levels, probability distrib. 4=23712
 sea surface, acoustic back-scatt. 4=23717
 sea surface, scattering and reflection of acoustic waves 3=9559
 sea surface, scattering of sound, rel. to roughness 3=1423
 sea surface, spectrophotometry 2=23998
 sea surface, total heat flow meas. 4=23722
 sea surface waves, eqn. of state where large waves demolish small 3=9013
 sea waves, refraction, numerical calc. 3=13654
 sediments, shear vel. by Stoneley waves 4=29261
 sediments, u.s. velocity and absorption 0=8739
 shock wave, reflection from overlying ice layer 4=15864
 SOFAR studies, long-range, in South Atlantic 3=11386
 sonar pulses attenuation in sea-water 3=21029
 sound attenuation in deep ocean, 20-1000 c/s 4=7818
 sound attenuation, low freq., in deep ocean. 3=25862
 sound backscatter from deep-ocean bottom 4=21247
 sound backscatter from ocean bottom 4=5323
 sound, backscatter from sea bottom 4=23714
 sound fluctuations in upper layer, rel. to inhomogeneities 4=13776
 sound propag., normal-mode, in layer over absorbing bottom 4=10693
 sound propagation, long-range, in stratified media 0=10720
 sound propagation losses 1=18519
 sound refl. from surface, statist. characteristics 3=14269
 sound refraction in seas 1=11814
 sound, refraction by sound channel 2=21617
 sound reverberation at surface and bottom 3=16202
 sound shot signal propag. in deep ocean 2=2826
 sound speed calculations, oceanographic data, precision 3=18487
 sound speed and gravity at great depths 1=12685
 sound speed meas. with bathyscaph Trieste 2=21618
 sound transmission, 90-km test, Arctic Ocean. 3=25864
 sound transmission, short-range, in shallow water 4=23725
 sound velocity, Mediterranean (1959) 1=2820
 sound waves, plane, periodic, finite-amplitude, attenuation 4=14290
 sounds with wide geographical distrib., possibly of biological origin 4=4750
 spectra of light in the sea-depths 3=9011
 Sq, elec. currents in hemispherical ocean 2=21619
 storms, swell, directional recording 3=16203
 surface waves under layer of ice 3=1422
 synthesis with geomorphology, limnology and geo-ecology 3=11373
 temp. microstructures, at sea, thermister probe, fast response 3=14402
 temperature meas., bathythermograph 4=2184
 thermometer, resistance, Pt, deep sea, short time const. 3=19053
 tidal currents, frictional forces calc. 3=16198
 tidal waves, determ. from harmonic const. 3=18484
 tides and internal structure of earth 3=21025
 tides, time-lag and friction 3=21092
 transducers, underwater, open ferroelectric ceramic cylinders, performance 4=14274
 "tsunami" waves, hydrodynamical treatment 0=10387
 turbulence, conference 2=24007
 under-ice acoustics in Barrow Stornit 0=14726
 underwater acoustic reverberation 1=10568
 underwater acoustic transmission meas. 4=7819
 underwater bottoms, acoustic characteristics 4=10689
 underwater noise produced by bullet entry 4=21130
 under-water sound intensity meas. 0=2213

Oceanography—contd

- underwater sound sources using implosions 4=7820
- underwater transducer, power meas. 3=9567
- upwelling natural light, spectral irradiance meas. 1=20804
- velocity of sound, variation with depth of sea 1=5327
- visibility, review 4=23756
- water drops striking surface, energy dissipation 4=21086
- wave atten. with depth, meas. 3=16199
- wave generation by wind, theory, recent developments 3=3446
- wave motion, wind-generated, spectra, analysis 4=13777
- wave scattering, initial, by inhomogeneous medium 3=7272
- wave studies, review 1=11645
- waves breaking at angle with shore line, theory 1=15813
- waves, Hamiltonian method 3=23580
- waves, internal, l.f., rotation effect 4=23721
- waves, wind, crit. height values, calc. 3=18483
- waves, wind-generated, as stochastic process 2=19191
- wind caused wave action, freq. spectrum of energy 3=9012
- Cs¹³⁷ and Sr⁹⁰ vertical distribution 4=2183

Optical activity

See Optical rotation.

Optical constants

See also under individual headings, e.g. Absorption; Reflectivity.

- absorbing materials, deduction from Stokes parameters for reflected light 1=13001
- absorbing materials, selective, meas. using i.r. spectrometer 3=9598
- absorbing materials, simplified calc. formulae 0=5133
- absorbing substance, det. by reflection 2=5139
- alkaline earth platocyanides, meas. 2=18817
- alkanes, mol. anisotropy, solvent effects 4=18201
- anisotropy of cubic crystals with local centres 2=18785
- anthracene, meas. and calc., effect of temp. 0=4263
- antiferromagnetics, and i.r., review 4=22815
- benzene, change by γ -irradiation 0=6416
- beryl, meas. using a reflection method 3=10905
- biaxial crystals, from Drude eqn. 4=30671
- chloroform, from i.r. reflection spectrum 1=7698
- coatings, reln. to spectral emittance 3=25432
- crystals, absorbent, meas. by films in i.r. 4=22822
- crystals, circular optic axes 3=23033
- crystals, diatomic polar, anisotropy effects 2=686
- crystals and films, in X-ray range 4=20439
- crystals, meas., i.r., by reflectivity var. with wavelength 4=7091
- crystals, measurement, review 2=8475
- crystals, spatial dispersion and exciton theory 4=10145
- determination from reflection bands using dispersion relations 3=16790
- determination from 2 transmission values 1=18578
- diamond, u.v., from refl. spectrum 4=13033
- dielectric-conductor interface determination using polarized reflectance 4=18412
- dielectric medium, calc. from model for local field on molecule 4=27322
- double-layer system, from refl. phase meas. 2=17638
- electrets formed from polymers 0=1705
- ferromagnetics, and i.r., review 4=22815
- films, dielectric, optical behaviour 2=2421
- films, in far u.v., meas. 2=7377
- films, meas., review 4=18413
- films, meas. in vacuum u.v. region 1=11836
- films, on Si, ellipsometric meas. 2=19110
- films, solid, meas. in vacuum 3=13147
- films, weakly absorbing, from total refl. meas. 2=11487
- Fresnel formulae for surface of crystal 0=16035
- gas, weakly ionized, rel. to microwave frequency 0=1098
- glass, opal MS14 2=22025
- glasses, γ -ray effects 4=8405
- glasses, rare-earth, spectral transmittance 1=19961
- grease spots 2=14646
- hypochromism, solvent effects and test of theory 4=3948
- i.r. 1-30 μ , various substances 0=14802
- ionized gas, particle orbit theory 4=24549
- laser materials, solid, review 4=27696
- liquids, use to calc. non-linearity parameter 1=10496

Optical constants—contd

- liquids, determination using i.r. reflection spectra 1=7698
- liquids, meas. in strong absorpt. region, use of layers of uneven thickness 4=8208
- meas., low-temp., cryostat 0=14829
- meas., low-temp., cryostat for metals 0=20966
- meas., of optical materials, using vacuum u.v. reflectometer 0=16829
- meas. and review of results 1=1823
- measurement, using coupled laser resonators as amplifiers 4=11335
- measurement by reflection method comparison 1=9467
- metal crystals, undisturbed 0=4390
- metal films and adsorbed gas layers, meas. 0=8802
- metal films, det. method 0=5170
- metal films, unbacked, determ. from transmission factor meas. 4=26164
- metal films in region of anomalous skin effect 0=19424
- metal surfaces, nearly perfect, meas. methods 3=23500
- metallic surface, rel. to thermal emissive power 3=286
- metals and alloys, rel. to energy-band structure 1=19938
- metals, calc. 0=4389
- metals, Cu, Ag, Au, and band struct., review 4=13047
- metals, effects of electron correlation 0=2930
- metals, rel. to elec. conduction 0=6165
- metals, rel. to electron microcharacteristics 3=15467
- metals, by elliptically polarized light refl. 4=28660
- metals, Fermi surface det., effect of electron-phonon interactions 1=8894
- metals, i.r., meas. by reflecting phase compensator 1=6958
- metals, rel. to ion bombardment 4=20472
- metals, low temp. measurements 4=17544
- metals, photographic method for u.v. and visible 0=16031
- metals, plasma frequency determination 1=14233
- metals, polarimetric method 3=11943
- metals, polarization and interference methods 1=16119
- metals, temperature dependence 1=10088
- metals, thin films, vacuum study 4=30672
- modes, planar guided, for lossy system 4=14381
- molecular crystals in exciton absorption region 0=1716
- multilayer stack, alteration methods 2=22046
- multilayers for interferometer mirrors 0=14838
- NBS VUV research programme 3=9591
- noble metals, calc. 0=13669
- oceans and lakes 0=8766
- one-angle reflection technique, evaluation 3=21517
- organic absorbing thin films 4=1702
- organic, films, rel. to structure 4=4241
- oxide films on Si 3=25439
- pentaerythritol, rel. to crystal symmetry 4=2008
- perspex, γ -ray effects 4=8405
- polar crystals, effect of lattice anharmonicity, quantum calc. 2=6556
- polychloroprene, in various solvents, optical anisotropy 4=25788
- polychloropropylene, mol. anisotropy 4=22444
- polymer solns. in H₂O, conc., var. temp., conc. and phase separation 4=24179
- polymethyl methacrylate, stress-optical coefficient 0=4398
- polypropionate, in various solvents, optical anisotropy 4=25788
- polystyrene, γ -ray effects 4=8405
- polystyrene solns., anisotropy, scatt. polarized light study 4=8173
- polythene, mol. anisotropy 4=22444
- polyvinylbutyral, in various solvents, optical anisotropy 4=25788
- polyvinylbutyrate, in various solvents, optical anisotropy 4=25788
- polyvinyl-butylate, -propionate, -acetate, mol. anisotropy 4=22444
- polyvinylene foil 4=12995
- α -quartz, from i.r. lattice bands 1=3845
- quartz, i.r. meas., temp. depend. 2=18788
- racemates and antipodes, rel. to electron irradi. from different sources 3=2996
- from reflectance ratios by geometric construction 3=6640
- from reflection and transmission coeffs. 3=18961
- refractive indexes, complex, from reflectivity graphs 1=11831

Optical constants—contd

refractivities of 36 hydrocarbons 0=8777
 resins, synthetic, non coincidence of optical and mechanical singularities 4=26461
 rock salt, density, spectral depend. 2=18810
 semiconductors, conference 0=570
 semiconductors, IV and III-V groups, u.v. dielec. const. 3=10908
 semiconductors, in i.r. region, free-electron theory 0=6163
 semiconductors, optical and nonradiative transitions, temp. depend., calc. 3=23032
 semiconductors, single crystals, transmission meas. 3=23041
 solids, meas. from reflectivity in high absorption regions 2=681
 solids, nonlinear effects 2=4108
 solids, from optical data using dispersion relations 2=6535
 solids, vacuum u.v., rel. to electron energy loss 3=8578
 solns. and melts, comparison with theory 0=3529
 soot, extinction coefficient 1=10086
 stilbene, meas. and calc., effect of temp. 0=4263
 styrene derivatives and copolymers, photoelastic constants 0=8257
 tetrachloroethane, from i.r. reflection spectrum 1=7698
 tetragermanates of Sr, Pb and Ba, type AB_4O_9 1=15096
 thin films, in far u.v. meas., using reflectivity - thickness curve 1=12994
 thin films, review 1=14569
 thin films, review 4=28659
 ultraviolet, meas. by spectrophotometer 3=18994
 uniaxial crystals, mag. and elec. field effects 1=14567
 wave motion over reefs 0=8628
 wave recorder, long period 0=12410
 Ag 1=6201
 Ag crystals, effect of vacuum annealing, Ar-ion bombard. 3=20435
 Ag films, effects of structure 2=19111
 Ag films, resonance phenomenon 2=8476-7
 Ag, free electron and band theory 3=2986
 Ag, i.r. 2=6538
 Ag, from reflectance at 2-10 eV 1=3815
 Ag rel. to speed of formation 1=19939
 Ag thin films, rel. to heat treatment 3=13146
 Ag, calc. 0=4389
 Ag films, effect of lattice defects 0=4391
 Ag, i.r. in skin effect calc. 0=6078
 Ag liquid, i.r. meas. 0=19154
 Al, complex freqn. - depend. dielec. const. deriv. 4=7108
 Al, rel. to elec. conduction mechanism 0=6077
 Al elimination of oxide film effects 3=15646
 Al layers, 0.4-2 μ region, rel. to quantum absorption 4=20447
 Al, polished, 450-650 m μ 0=9075
 Al, 2500 Å-5 μ 0=11754
 Al, vacuum u.v., Drude-like model 3=914
 AlB_{12} , α and β phases 0=6356
 AlN, and crystal electron forbidden zone width 4=25896
 Au 1=6201
 Au, calc. 0=4389
 Au, colloidal 1=9393
 Au, colloidal, peak at 500-600 m μ 0=666
 Au films 0=18114
 Au films 3=13147
 Au films, absorption and dispersion 2=2891
 Au films, effect of exposure to air 0=1722
 Au films, near i.r. props. 2=14656
 Au films, near-u.v. 0=2248
 Au films, on quartz substrate, phase variations 0=18115
 Au films, variation with rate of formation 0=18409
 Au, i.r. 2=6538
 Au, i.r., in skin effect calc. 0=6078
 Au rel. to speed of formation 1=19939
 Au thin films, rel. to heat treatment 3=13146
 Au-Ni alloys 3=8580
 BP 4=26178
 $BaTiO_3$, anisotropy and opt. dielec. const., calc. 0=1720
 $BaTiO_3$, harmonic generation, by laser, from second order polarization tensor 4=2809
 $BaTiO_3$, low-temp. phase 0=4583
 Be hydroxyacetate, from reflectivity meas. 1=17862

Optical constants—contd

Be, in i.r. spectral region, rel. to free current carriers 2=10569
 Bi films, effect of lattice defects 0=4891
 Bi, liquid 2=5019
 Bi, low temp., i.r. 4=28672
 Bi, 3-36 μ 1=3812
 C, evap. films, opt. density, theory and expt. 2=2890
 CCl_4 , from i.r. reflection spectrum 1=7698
 CCl_4 , liquid, from i.r. reflection meas. 3=16624
 CS_2 , from i.r. reflection spectrum 1=7698
 CS_2 , liquid, from i.r. reflection meas. 3=16624
 Ca crystal, 0.6-5 eV meas. 4=20450
 $CaC_2O_4 \cdot H_2O$, refractive indices, structure 0=6169
 CaF_2 films, rel. to growth, surface mobility and gas occlusion 4=2120
 CaF_2 in i.r. 1=19944
 $Ca_2Sr(C_2H_5CO_2)_6$, optical activity 2=18795
 Cd, liquid 2=5019
 CdO , 0.3 to 0.8 μ 4=10165
 CdS, bound exciton complexes, props. 3=6651
 CdS, harmonic generation, by laser, from second order polarization tensor 4=2809
 CdS, review 1=2436
 CdSe 1=1151
 CdSe films, 0.5-2.5 μ 0=18113
 CdSe single crystals 1=14570
 CdTe 0=10028
 CdTe 1=19943
 CeB_6 , and energy spectra 3=20437
 Ce_2S_3 , γ -phase, meas. rel. to polaron-type corrections 4=13028
 Co films, i.r. meas. 3=10919
 Co films, rel. to magneto-optical effects 3=10918
 Cr films, evaporation effects, prior obs. 4=26185
 Cr films, rel. to evaporation conditions 4=7115
 Cr_2O_3 , ion pair model, Oguchi analysis 3=25503
 Cu 1=6201
 Cu, calc. 0=4389
 Cu, colloidal, peak at 500-600 m μ 0=666
 Cu, films, wavelength depend. 2=12576
 Cu, free electron and band theory 3=2986
 Cu, i.r. rel. to microcharacteristics 2=16624
 Cu, i.r., in skin effect calc. 0=6078
 Cu, liquid 0=19154
 Cu, 0.36-2.5 μ 0=11753
 Cu(I) halides, at low temps. 0=10029
 Cu semitransparent films 1=1142
 Cu thin films, rel. to heat treatment 3=13146
 Cu in vacuum, and surface contamination 4=20452
 Cu-Zn, β' phase, plasma-interband coupling 4=15587
 Fe films, evap., from refl. light analysis 2=12577
 Fe films, i.r. meas. 3=10919
 Fe films, rel. to magneto-optical effects 3=10918
 Fe, meas. 2=16802
 Ga films, effect of lattice defects 0=4391
 Ga films, var. deposition speed 4=17564
 Ga films, visible and near i.r. properties 4=13034
 GaAs 1=17865
 GaAs 1=19945
 GaAs, GaSb, and bandgap, occupancy, calc. 4=28557
 GaP 1=17865
 GaP, 1-40 μ 0=10042-3
 Ge 1=19943
 Ge, compensated heavily doped, meas. 3=2988
 Ge, extreme u.v. 3=20436
 Ge, films 0=7993
 Ge films, 0.35-2.5 μ 0=13668
 Ge, liquid 1=11762
 Ge, liquid, from reflection spectrum 3=14167
 Ge, 0-10 eV 0=7990
 Ge, 0-27 eV 1=8978
 Ge oxide, thin films 2=21864
 Ge, rel. to electron plasma frequ. 3=2987
 Ge, theoretical interpretation 4=7135
 Ge, very impure material 1=17899
 Ge, visible and near-i.r., in 1.2-3.0 eV region, 210°-400°K 2=23511
 dg and Hg-In amalgam, measurement 0=16704
 HgS 4=7142
 HgTe-CdTe, 0.6-2 μ 4=15593
 In layers, 0.4-2 μ region, rel. to quantum absorption 4=20447

Optical constants—contd

In, liquid 2=5019
 In, 0.7-10 μ , evap. mirror coatings 3=22676
 InAs 1=17865
 InAs 1=19945
 InAs_{1-x}Sb_x films, n-type, 1-6 μ 4=15592
 InP, InAs, InSb and bandgap, occupancy, calc. 4=28557
 InSb 1=17865
 InSb 1=19945
 InSb films, Cu doped, p-type, meas. 4=22718
 InSb, review 1=6158
 InSb, visible and near-u.v. regions 4=1737
 InSb-In₂Te₃ alloys, optical props. 1=7652
 K, direct meas. in u.v. 0=16034
 K, Drude theory analysis 3=17975
 K films, 20° to 60°C 3=25437
 K halides, intrinsic, rel. to collective excit. 3=25433
 K halides in phase transition 0=16037
 K, liquid and solid, 0.365-2 μ meas. 3=17974
 KD₂PO₄ 3=17943
 K₄Fe(CN)₆·3H₂O anomalies 1=11351
 KH₂PO₄, harmonic generation, by laser, from second order polarization tensor 4=2809
 KH₂PO₄, harmonic prod., anomaly near transition temp. 4=4269
 KH₂PO₄, optical harmonic generation, temp. depend. 4=28701
 La series ions in solids, for lasers, 35 systems 4=27696
 LaB₆, and energy spectra 3=20437
 Li hydride and deuteride 1=7697
 LiF 1=17865
 LiF, i.r. 0=6182
 LiF, in i.r. eigen-vibration region 2=23512
 LiF, 70°, 200°, 300°K 4=7140
 MgO, i.r. 4=1739
 Mg₃Sb₂, 248-800 m μ 2=2213
 N₂O₃ i.r. transmittance 1=14568
 Na, direct meas. in u.v. 0=16034
 Na, interference fringes on reflection, direct meas. of opt. constants 0=16034
 Na, optical effective mass and interband transitions 4=1750
 Na₃AlF₆, films and growth, surface mobility and gas occlusion 4=2120
 NaBrO₃, n(λ), k(λ), i.r., from reflection spectra 3=20438
 NaCl, i.r. calculation 1=8977
 NaCl, i.r. props. 2=6541
 NaClO₃, n(λ), k(λ), i.r., from reflection spectra 3=20438
 Nb, 1-15 μ 4=26209
 Nb₂O₃ films, on Nb 0=14085
 Ni, evap. films, absorpt. and polariz. 2=23514
 Ni films, i.r. meas. 3=10919
 Ni films, rel. to magneto-optical effects 3=10918
 Ni, i.r., in skin effect calc. 0=6078
 Ni, meas. 2=16802
 Ni nitrate hexahydrate 0=7991
 Pb, liquid 1=11762
 Pb, 0.7-12 μ , rel. to cond. electron data 3=22677
 PbMg_{1/2}Nb_{2/3}O₃, -180 to 100°C props. 2=663
 PbNi_{1/3}Nb_{2/3}O₃, -180 to 100°C props. 2=663
 PbO films, rel. to use in optical filters 2=6537
 PbS 1=17865
 PbS photosensitive films, 0.8-4.0 μ 4=22873
 PbTe 1=17865
 PbTiO₃, anisotropy and opt. dielec. const., calc. 0=1720
 Pb₂V₂O₇ 4=2075
 Pd-Ag solid solutions, n and k rel. to Ag concentration 3=2991
 Pt reflecting films for vacuum u.v. 3=19005
 Pt in Rh, solid solutions, 0.01-1.5 at.% Pt 3=13153
 Rb films 3=18390
 Sb films, in vacuum u.v. 1=19940
 Sb, liquid 1=11762
 Sb, liquid 2=5019
 Sb, low temp., i.r. 4=28672
 Sc₂O[SiO₄] 3=13485
 Sc₂Si₂O₇ 3=13485
 Se crystals, hexagonal form 1=7699
 Se films 0=7992
 Se, 0.4-23 μ 1=2439
 Se, 0.7 to 4.0 μ meas. 2=16801
 Se, polarizers for near i.r. region 0=14853
 Si, in extreme u.v. 2=18787

Optical constants—contd

Si films, evap., pure, 5000-8000 Å meas. 4=13056
 Si, 1-10 eV 0=18116
 Si oxide film on Si 4=4277
 Si oxide, thin films 2=21864
 SiC, 2.5-16 μ 0=6164
 SiO₂ films 2=8458
 Sn films, effect of lattice defects 0=4391
 Sn, grey, 1-25 μ meas. 4=22898
 Sn oxide films, calc. from plasma model 0=1623
 Sn, in 0.9-12 μ range at 4.2°, 78° and 293°K 4=26222
 SnO₂, Sb-doped thin layers, 1.7-2.5 μ 0=16036
 Sr titanate, i.r. transmittance, -187°C to 26°C 1=14571
 Sr(HCOO)₂·2H₂O 4=7165
 Ta oxide, thin films 2=21864
 Te films 0=4396
 Te films, in vacuum u.v. 1=19940
 Te, liq., 4000-23000 cm⁻¹ meas. 3=14168
 Ti 2=7370
 Ti films, in vacuum u.v. 1=19940
 Ti, i.r. meas., rel. to electron groups 3=17977
 TiO₂ film on Ti 2=7370
 TiO₂, rutile, bibliography 3=17963
 V, i.r. meas., rel. to electron groups 3=17977
 Zn crystal, 0.6-5 eV meas. 4=20450
 ZnS, piezo-, elasto-, and electro-optic constants 1=7702
 Zn, polished, 450-650 m μ 0=9075
 ZnS, Ag and Cu activated 0=6161
 ZnS-CdS, Ag and Cu activated 0=6161
 ZnS: Cu, Mn, Cl films 4=20813
 ZnSe 1=17763
 ZrO₂ films meas. 3=8577

Optical films
 See also Filters, optical.
 rel. to absorbent crystal optical const. meas. in i.r. 4=22822
 absorbing antireflection coatings, theory of synthesis 1=2876
 absorbing film on metal, theory of light reflection 2=5175
 absorption and refl. coeffs., abac calc. 2=17583
 alkali and alkaline earth fluorides, optical consts. in far u.v. 4=22820
 alkali metals, absorption light, selective photoelectric effect 3=20466
 alkali metals, properties 3=18385-90
 alloys, prep 0=736
 antireflection coating for Ge photoresistors 1=10068
 antireflection coatings, computed props. 2=7371
 antireflection coatings i.r. 2=98
 antireflection coatings i.r., equivalent films 2=7372
 antireflection coatings, synthesis 1=11843
 anti-reflection, evaporation material with refractive index 1.69 3=11928
 beam dividers, 1, 2, 3 coatings 3=21559
 birefringence combination laws 1=9488
 chromaticity calculations 1=8246
 coating of reference flats for interferometry 2=22048
 conducting, reciprocity of transmission 2=7374
 conducting, reversibility of light paths 2=22044
 conference, thin solid films, Marseille (1963) 4=20438
 constants meas., polarization extreme value method 4=24378
 controlled deposition, apparatus 1=4473
 cross-hatching, removal 2=15753
 cryolite, effect of deposition pressure 2=21566
 dichroic film for visible and u.v. 2=1282
 dielec. mirror coatings for u.v. region 0=16882
 dielec. multilayers, high u.v. reflectivity 3=11315
 dielec., opt. dispersion 0=16885
 dielectric, evap. and optical props. 2=2421
 dielectric evaporated layers, irregularities causing light scattering 1=6959
 dielectric, on metal, reflectivity and zero refl. conditions 4=24380
 dielectric multilayer coatings for metal mirrors 3=11930
 dielectric multilayers, for Fabry-Perot interferometer, absolute wavelength meas. 4=16248
 dielectric multilayers, optical characts. computed 4=21291
 dielectric multilayers, prod. 2=5174, 22043
 dielectric, reflectivity rel. to thickness 4=13004
 dielectric, refractive index determ. by Abelès condition 4=13003

Optical films—contd

dielectric systems, multilayer, spectral reflectance curve 3=14359
 dielectric, very thin, optical absorpt. 4=22830
 double-layer, phase shift on refl. 2=17638
 Drude formulae, experimental verification 3=14358
 electron energy losses, rel. to optical const. 4=22821
 ellipsometry, fundamental eqn. 4=18435
 far u.v. props., meas. 2=7377
 fluoride on UO_2 substrate, surface roughness rel. to refractive index 4=11350
 on glass, oxide layers from org. solns. 2=17639
 on glass, polarimetric meas. 2=15736
 high reflectance coatings for extreme u.v. 2=17641
 high reflecting, assessment, for interometry and monochromatic filters 0=1038
 homogeneous—inhomogeneous systems 1=10597
 inhomogeneous, non-refl. conditions 4=22825
 inhomogeneous, use of Vašiček procedure 3=1826
 interference colour 1=18550
 interference, refractive index meas. 3=11917
 limiting thickness for optical const. detm. 4=323
 low reflecting monolayers, retrograde property 0=8803
 measurement of thickness and refr. index by ellipsometry 3=24062
 measurements, review 4=18413
 metal—dielec. interface, boundary conditions 2=19718
 metal films, reflection and transmission formulae 1=2877
 metal, Fresnel and complex energy amplitudes 3=9602
 metal on glass, reflection at interface, phase change 3=24044
 metal, index and thickness meas. 4=22823
 metal, multi-beam interference, divergence of geom. series 0=2245
 metal, near i.r. props. 2=6536
 metal, optical props. of thin layers 1=10097
 metal oxide, transparent conductive 4=4110
 metal, scatt. factor meas. 4=22837
 metal single-crystal prod. between optically flat surfaces 2=21562
 metal, skin effect on optics in i.r. 4=22834
 on metal surfaces, use of ellipt. polarized light 3=14357
 metal, thin, complex amplitudes 3=3884
 metal, thin, optics by Maxwell's theory 4=22816
 metallic, Airy formulae 3=19006
 metallic foil, structural model of reflection, transmission 0=6392
 metallic, with granular structure, reflection and transmission 2=5177
 metallic, phase change of transmitted light 4=22840
 metallic, transparency increase by blooming 2=7378
 metals, anomalous absorpt. bands 4=22832
 metals, apparatus for vacuum study 0=19422
 metals, calc. of optical props. 0=8801
 metals, optical const. rel. to wavelength 3=10902
 metals, as reflecting phase compensators, opt. const. meas. 1=6958
 metals, reflection reduction 0=3635
 modes, planar guided, optical characts. 4=14381
 multi-dielectric layers, reflecting, chromatic properties 0=16869
 multilayer asymmetric reflectors, theory 2=112
 multi-layer coating, known reflectivity, calculation 3=1827
 multilayer, controlled deposition apparatus 4=23561
 multilayer dielec. antirefl. coatings, deposition and props. 4=24377
 multilayer dielec., exact design method 1=16101
 multilayer, dielec., for Fabry—Perot interferometry in u.v., visible 3=19003
 multilayer dielectric films, theory 3=14360
 multilayer, dielectric, wedge-shaped, interference effects 2=5178
 multilayer films, analogy with 4-terminal network 1=18549
 multilayer, freq. depend. design 4=21292
 multilayer, with periodic structure, Chebyshev polynomials 0=6940
 multilayer, recurrent formulae 0=19425
 multilayer, theory 1=1823
 multilayer, in vac.-u.v. refl. filters 2=22046
 multilayers, theory of ellipsometry 2=17652
 multiple systems, reflectance and transmittance 1=16096
 negative absorption coefficient, theory 2=19717

Optical films—contd

nonabsorbing, Vašiček procedure appl. 3=1825
 optical const. meas., using reflectivity - thickness curve 1=12994
 optical const., and phase-changes, meas. 4=22818
 optical props., surface irregularity effect 4=22819
 optical wedges, varying linearly in thickness, preparation 1=16095
 organic, optical constants, rel. to structure 4=4241
 oxide films on U immersed in refractive media, optical props. 4=13060
 oxide on GaAs, ellipsometric investig. of optical const. 4=22858
 pair, semireflecting, transmission-like refl. fringes 3=9609
 parliodan, transmittance in far u.v. 4=22882
 photoelastic, for plastic deformation obs. 4=23101
 plane-parallel layers, energy resonance calc. 2=15737
 plane-parallel layers, nonlinear theory 3=16787
 polarization rel. to complex refr. index and thickness 4=24379
 polymer films, optical retardation, continuous change meas. 1=19962
 production of films giving specified phase changes 1=5350
 props. in vacuum, alterable in air 2=5176
 protective, for mirrors, evaporated CeO_2 and SiO_2 3=11927
 quarter-wave stacks, transmission and degree of polarization 2=121
 reflectance, inhomogeneous film 1=4472
 reflectance and transmittance calc. using electronic calculator 0=14079
 reflecting coating effect on optical thickness of Fabry—Perot interferometer 4=21312
 reflecting layers, MgO on plastic scintillators 2=19689
 reflecting multilayers, employing mica spacing layers 0=16883
 reflection, appl. of Stokes' principle, metallic or dielectric 4=2845
 reflection coefficients, calc. using nomogram chart 2=17583
 reflection reduction of metal films 1=2875
 reflection and transmission with negative absorpt. coeff. 2=19717
 reflection and transmission of plane-parallel layer 3=9605
 refractive index gradt. perp. to surface 4=8442
 refractive index measurement, Brewster angle method 0=19380
 refractive index and thickness meas., for films on transparent substrate 4=21305
 reversibility of light beam 2=111
 reversibility principle 2=7376
 reversibility principle, Maxwell eqns. theory 2=9397
 reversibility and reciprocity princ. 2=13454
 review 4=28659
 review of props., bibliography 1=1823
 review of recent progress in Japan 4=24400
 review, theory and applics. 2=22041
 semitransparent, absolute phase change on reflection, meas. 4=16244
 spectral emittance rel. to optical props. 3=25432
 summation formulae, for metal and dielectric films 2=6551
 thickness meas. by Savart's plates, auto-collimation 3=21527
 thickness meas., from var. of reflectance and trans. on incidence and polarization 4=16245
 thickness measurement using fluorescence 1=5245
 thickness monitor 0=3481
 thin coatings, basic rels. 2=5133
 thin film appl. in optics discussion 4=22841
 total reflection, use for study of optical props. 2=11487
 transmission, integral eqn. 4=14388
 transmission phase-shifts prodn., meas. 3=14361
 transmittance, appl. of Vašiček reversibility princ. 4=11333
 transparency of insufficiently parallel layer 2=7375
 transparent, thickness and refr. index meas. 4=21004
 two-layer anti-reflection coating for low n glass 0=5154
 u.v., high reflectance 2=17641
 weakly absorbing films, phase changes by total internal reflection 3=5527
 weakly absorbing, total reflection 2=11487

Optical films—contd

Ag, abnormal absorpt. 4=22866
 Ag, Al, optical scatt. 2=13455
 Ag, for Fabry - Perot interferometer in i.r. 3=11934
 Ag, granular layers, light scatt. 4=22892
 Ag, resonance phenom., rel. to pres. 2=16800
 Ag, resonance phenomenon 2=8476-7
 Ag, thin, optical const. theory 4=22868
 Ag, very thin, absorpt., 0.2-0.7 μ 4=22867
 γ -AgI, first kind anomaly in refr. index 4=28710
 Al, abnormal absorpt. 4=22866
 Al, evap. in u.h. vac., i.r. reflectance 3=20443
 Al, oblique reflectance and transmittance 1=6204
 Al, optical const. at less than crit. wavelength 4=22844
 Al, polarization effects, special cleaning 0=178
 Al, preparation and properties 3=9603
 Al, preparation, properties, 2537-5460 Å 1=236
 Al, reflectance increasing coatings for vacuum u.v. 0=8797
 Al, reflectivity 3=23039
 Al, transmittance in far u.v. 4=22882
 Al, u.v. transmission and electron concn. 2=14657
 Al, vacuum u.v. reflectance 3=11883
 Al₂O₃, optical props., 0.2-1.6 μ , rel. to appl. 4=22893
 Au, abnormal absorpt. 4=22866
 Au, absorption and dispersion 2=2891
 Au, evaporated, optical props. determ. 4=22865
 Au, evaporated, optical props., 300-2000 Å 4=22869
 Au, for Fabry - Perot interferometer in i.r. 3=11934
 Au, i.r. absorption and reflection spectra 1=3844
 Au, near i.r., constants meas. 2=14656
 Au, optical constants and phase variations, effect of quartz substrate 0=18115
 Au, phase change, depend. on deposition speed 0=1036
 Au, preparation and properties 3=9603
 Au, resonance phenomenon 2=23513
 Au, thin, optical const. theory 4=22868
 Au, transmittance meas. of phase changes 4=22829
 Au, very thin, absorpt., 0.2-0.7 μ 4=22867
 BaO, evaporated, absorption bands 2=16818
 Bi oxide-Mg fluoride anti-refl. coating deposition 4=23567
 Bi, 2.5-10 μ thick, prep. and optical props. 0=10026
 Bi₂O₃-MgF₂ antirefl. coatings, equireflectance contours 4=21307
 Bi₂O₃-MgF₂ bilayer, antireflection theory 2=7371
 C films, optical density 2=7373
 Ca, optical props. 4=26182
 CaF, variations with press. changes 2=8882
 Cd, optical and photoelec. props. 4=22849
 Cd_{0.6}Hg_{0.4}Te, absorpt., transmission, interference fringes and refractive indices 4=13026
 CdO, absorption and dispersion theory 2=16811
 CdS, transmission from 0.5-0.75 μ 2=12586
 CeF₃-ZnS, as anti-reflection coating 4=7114
 CeO₂-CeF₃, evaporated, refractive indices 3=23035
 Co, abnormal absorpt. 4=22866
 Co, absorption rel. to wavelength 2=11488
 Cr, abrasion resistance meas. 4=23112
 Cr, absolute phase change on reflection 4=27323
 CsI and MgF₂ dielec. multilayers, prep. and props. 0=16881
 Cu, abnormal absorpt. 4=22866
 Cu, optical const. rel. to wavelength 2=12576
 Cu, very thin, absorpt. 0.2-0.7 μ 4=22867
 Fe, abnormal absorpt. 4=22866
 Fe, absorption rel. to wavelength 2=11488
 Fe, complex reproducible refr. index 2=8480
 Fe, optical const. from refl. light analysis 2=12577
 Ga, visible and near i.r. properties 4=13034
 GaAs, prep. and absorpt. edge study 4=22859
 Ge, preparation and properties 3=9603
 Ge-ZnS, i.r. props. 3=10952
 In, optical const. at less than crit. wavelength 4=22844
 In, transmittance in far u.v. 4=22882
 In₂O₃, semicond., i.r. reflectivity 2=2219
 InSb evaporated films, props. 1=10096
 K, interference fringes on reflections, opt. const. det. 0=16034
 KBr, multilayers for interferometric spectrometer 0=16844
 LiF on Al, high reflectance at 1000 Å 2=17641
 LiF, on Al mirrors, extreme u.v. reflectance 1=16070
 Mg, optical const. at less than crit. wavelength 4=22844

Optical films—contd

MgF₂, abrasion resistance meas. 4=23112
 MgF₂ on Al, high reflectance for > 1200 Å 2=17641
 MgF₂, on Al, reflectance, minimum, 17 μ , after heating in vacuo 3=9601
 MgF₂-TiO₂, light-beam splitting 1=16097
 MgO, multi- and single reflection props., 0.45-1.03 μ 1=12992
 MgO surface, for reflectance standard 0.3-2.6 μ 3=1786
 Na salicylate, spectra and luminesc., 1750-5000 Å, room temp. and 80°K 4=28716
 NaCl, multilayers for interferometric spectrometer 0=16844
 Ni, abnormal absorpt. 4=22866
 Ni, absorption rel. to wavelength 2=11488
 Ni, evap., absorpt. and polariz. 2=23514
 PbCl₂ and MgF₂ dielec. multilayers, prep. and props. 0=16881
 PbF₂-Na₃F₆Al coatings, ageing and spectrometric use in u.v. 4=24376
 PbO, for optical filters 2=6537
 PbS, photosensitive, optical const., 0.8-4.0 μ 4=22873
 Pd, optical props., 2000-25 000 Å 4=22881
 Pd, thin, optical const. theory 4=22868
 Pt, high reflectance for < 1000 Å 2=17641
 Pt preparation and properties 3=9603
 Pt, reflecting, for vacuum u.v. 3=19005
 Re on Si, polarized thermal light emission 3=17380
 Rh, high reflectance for < 1000 Å 2=17641
 Sb₂O₃, production of clear films for Fabry-Perot plates 0=16880
 Se, for i.r. polarization, prep. 3=24060
 Se, i.r. transmission 1=18602
 Se, optical constants 3=25438
 Si, ellipsometric study method 2=19110
 Si, optical const. at less than crit. wavelength 4=22844
 Si oxide, optical props., 0.2-1.6 μ , rel. to appl. 4=22893
 Si, pure, optical constants meas. 4=13056
 Si, structure and reflecting power 0=19423
 SiO, abrasion resistance meas. 4=23112
 SiO₂ 2=8884
 SiO oxidized films on Al mirrors, reflectance 1=10095
 SiO on Al mirrors, effect of u.v. irradiation on far u.v. reflectance 3=19004
 Sn, complex refr. index for 0.9-11 μ wavelengths 2=10570
 Ta₂O₅, optical const. meas. 4=22896
 Te, unexposed to air, optical props. 4=22897
 ThO₂, optical props., 0.2-1.6 μ , rel. to appl. 4=22893
 TiO₂, light-beam splitting 1=16097
 TiO₂ on Ti, thickness and optical const. meas. 2=7370
 UF₄ on UO₂, interference, kinetic deriv. 3=24042
 ZnS antireflection films for i.r. detectors 1=9502
 ZnS, blooming of metallic films, use 2=7378
 ZnS, evap., ageing effects 0=3638
 ZnS on glass, in Fresnel zones, axicon 2=1258
 ZnS, for high u.v. reflectance 2=17641
 ZrO₂, optical props., 0.2-1.6 μ , rel. to appl. 4=22893

Optical images
 See also Aberrations, optical; Resolving power, optics.
 Abbe's theory, demonstration apparatus 2=9374
 Abbe theory, elementary approach 3=24009
 aberrated, diffraction theory, at large field-angles 1=1826
 aberrations, best position in presence of 2=7320
 ambiguous image concept, application to diffraction and resolving power 4=18390
 amplifiers, use of elec. image converters 0=6913
 aplantic systems, image field structure 0=8787
 apodization, in amplitude-phase filter 1=2848
 apodization, bright disk radius, rel. to diffr. pattern 1=12971
 apodization, various problems 2=5149-50
 assessment methods 1=5340
 assessment, methods, theory, review 2=19685
 astronomical integration system using orthicon camera 4=23834
 in astronomical spectrometers, band-limitedness 0=18585
 breakdown of one-to-one correspondence bet. image and object 3=1798
 catacaustic, rel. to surfaces of revolution 1=18563
 circular phase objects in partially coherent light 3=14317
 concave gratings at grazing incidence, ray tracing 3=24055

Optical images—contd

- contrast, effect of stop location 3=14321
- contrast, effects of arbitrarily located phase errors 4=14338
- contrast factor, det. and applic. 2=5158
- contrast function for rectangular stria distortion 4=27294
- contrast meas., effect of test grating size 2=17594
- contrast and quality by double star method 1=9468
- contrast transfer calc., eikonal and matrix methods 4=8389
- contrast transfer function, imperfect systems 3=1797
- contrast transfer function, rel. to wave front aberr. 2=7331
- contrast transmission factors, meas. and calc. 1=18570
- coronagraph, effect of boundary diffraction wave 4=29461
- cross-wires, confused colinearity 0=19382
- defects, contrast transmission function 0=19373
- definition, "microcontrast" concept 3=11955
- degradation elimination by subsequent apodization 4=304
- desired distribution, automatic systems design, with orthogonal constraints 4=29735
- diffraction effect on imaging square-wave object in incoherent light 4=5392
- diffraction grating, signal modulated, rel. to strain distrib. meas. 4=24344
- diffraction gratings, microscopic images 2=22004
- diffraction image, of line source, total luminance, meas. 4=29737
- diffraction image structure, analogue calc. 2=5148
- diffraction image, three-dimensional, and generalized aperture 4=11331
- diffraction image, total illuminance meas., theory and expt. correl. 4=5367
- diffraction images of circ. apertures, rel. to coherence 2=7397
- diffraction images of circular self-radiant disks 1=4438
- diffraction images, intensity distribution and total illumination 1=18547
- diffraction, in polarizing microscope 0=16827
- disk in partially coherent light 2=1274
- dispersion relns. for partially coherent light 4=8397
- distortion, surface irregularities meas. 2=19690
- e.m. field in image space of optical system 0=8786-7
- effect of aberrations and detector response 0=10750
- effect of deformation of wave surface 4=27292
- effect of intensity of object and sensitivity of detector 4=18379
- entropy of light distribution, maximum information content 0=19368
- evaluation, contrast transmission theory 0=19367
- evaluation, in photography, isogradient apparatus 1=4483
- evaluation by spot diagram using computer 4=8375
- evaluation, using transfer function, review 3=11887
- eye media, contrast transfer function 3=9303
- eye, transfer function 4=20976
- faint, detection using orthicons and image iconoscopes 0=8784
- from fibre waveguide systems 1=2846
- formation beyond diffraction resolving power limits 4=5366
- formation, Herzberger's work, review 2=1247
- formation, rel. to coherence pattern of objects 3=9582
- formation, rel. to object illumination coherence 2=5143
- formation with a resolving power exceeding the classical limit 4=2818
- formation in terms of entropy transformations 1=12965
- formation, wave and geometric theory 1=18546
- Fourier images, with phase gratings 1=1831
- Fourier space concept 0=19411
- frequency response evaluation, influence of television 4=16213
- frequency response techniques appl. 2=11486
- frequency response techniques appl. 3=16743
- Fresnel zone plate characteristics 4=24390
- general covariant theory using Lie groups 4=8396
- grating, concave, formation conditions 2=2884
- grating image, primary distortions 2=7328
- half-tone transparencies, screen structure removal, by filtering 1=1832

Optical images—contd

- illumination in diffraction image containing spherical aberration 1=4437
- image formation with Fresnel zone plate in far u.v. and X-ray region 1=4448
- image-processing experiments 1=12977
- image-splitting, precise meas. 0=14806
- imaging of extended polychromatic sources, generalized transfer functions 1=4433
- improvement of aberrant images by filtering 1=5338
- improvement of images obtained with apertures 2=1253
- improvement, by spatial frequency filtering 0=19372
- improvement by spatial frequency filtering 2=89
- with incoherent illumination, transmission function, rel. to light peaks 0=19405
- information content, violation of sampling expansion theorems 1=2837
- i.r. lens and mirror systems, review 0=14797
- in i.r. spectrometers, formation 0=6928
- intensification and conversion, technique 2=9383
- intensifiers with electron-optical demagnification 2=1502
- intensifiers rel. to scotoscope 4=24341
- intensity distrib., equi-densitometry 0=5126
- intensity distrib., geometrical and wave optics, applic. photographic images 0=19369
- intensity distrib., observations and contract transmission function 0=19365
- intensity distrib. for point source with striae 4=27293
- intensity distribution, in axial image of point, theory 1=4436
- inverted image space, general relationship with object, plane-mirror optics 0=14792
- laser improvement by placing object inside 4=21283
- lens, phase retrieval in squaring operation 3=7311
- lenses, cemented doublet, optimum conditions 2=7322
- line elements, self-radiant rel. to meas. by method of steepest slopes 4=14335
- linear transformation with partially coherent illumination 2=93
- location, high precision methods 1=5341
- low-contrast, in partly coherent illumination 0=14794
- magnification beyond Rayleigh's limit 3=14316
- magnification beyond Rayleigh's limit, diffr. theory 4=8388
- measurement by Fresnel transformation 3=16742
- microscope, Mach effect 4=18392
- in microscopy, fringes from Mach effect 4=2819
- mirror-image kinematics 0=5137
- by multiple reflection 0=5136
- nomenclature, ICO committee recommendations 2=5147
- nondestructive readout in field mesh orthicon 4=24342
- nonlinear, eulogismographic processing for pattern recognition 4=27346
- in nonuniform atmosphere, transfer function 0=19361
- objectives, photographic, resolving power and image quality 1=9494
- one-dimensional, formation, focal and extra-focal 1=8221
- opaque objects, microphotometric studies 2=22005
- optimum wavelength, uncertainty principle approach 1=18574
- partially coherent, feeble contrast 2=17637
- partially coherent illumination, nonlinear transmission theory 2=9369
- phase changes at focal point 1=16058
- phase-contrast microscope images of unidimen. objects 2=22003
- phase information in squaring operation 3=7310
- photoconductive thermoplastic recording 3=19030
- photographic emulsions, latent image localization 2=15755
- photographic emulsions, latent image specks distrib. 4=21322
- photographic, Fourier spectral analysis 0=19370
- photographic image simulation 4=21319
- photographic, intensity distrib., geometrical and wave optics 0=19369
- photographic, modulation transfer function, meas. 3=21577
- photographic, sharpness meas., diffr. technique 2=17660
- photographic, transparency var., distrib. and correl. functions 4=11375
- plane-grating Ebert spectrograph 0=5164

Optical images—contd

- point spread function, derivation from line spread function 4=18387
- point spread function, rel. to other parameters 3=1800
- position meas. by polarimetry, for small images 3=21572
- quality assessment, review 2=7317
- quality, evaluation, various criteria 0=19371
- quality measurement objectives, photographic 1=9494
- of quasi-symmetrical systems 0=2226
- reflecting cone, diffraction images 2=5137
- from refraction at cone, virtual 4=16206
- resolution increase, by defocusing 2=5146
- Ronchi test, quantitative meas. 1=1807
- rotation by oblique reflection in instruments 4=308
- scanned image systems, degradation statistical analysis 4=27295
- scattered and incident radiation standing waves formation 4=11363
- self-radiant lines, length, critical point criterion 4=16210
- self-radiant lines, resolution of shape 4=16211
- separate linear objects of different type, device 1=16061
- shadow visibility, radiant point method 3=14320
- sharpness meas. 3=11901
- shearing, in two-beam interference 4=29762
- slit, long but narrow, prod. by scanning technique 4=5409
- of spectrometer slit, energy loss by diffraction 1=1825
- spot diag., interpolation and skew ray tracing comp. 4=24348
- spot diagram by skew ray trace, merit functions, calc. 4=24347
- spread function widths 4=11332
- 'spread' functions, internat. nomenclature 2=92
- spread functions, line source and circ. aperture 4=18386
- spurious resolution by image motion 1=10612
- stereoscopic, from plan and elevation 2=7318
- Strehl intensity and contrast transfer 1=16110
- surface-guided waves 4=27324-5
- thick objects in phase-contrast microscope 0=16826
- transfer function for transmission through turbulent media 4=10724
- transfer functions, approx., assessment 3=11890
- transformation of optical functions 1=4432
- of two plano-cylindrical lenses, crossed 0=2228
- two-step process, with reconstruction from hologram 2=19725
- unimodular analytic signal, most general form 0=19359
- volume radiator, maximum energy flow 4=16212
- wavefront reconstruction with continuous-tone objects 4=5393

Optical instrument testing

- aberration coeffs. of higher orders 3=16734
- aberrations meas., with Twyman interferometer 1=1813
- adjustment, indirect, of optical apparatus 4=24349
- astronomical systems, Hartmann test 3=9580
- axial alignment det., 3 methods 0=5141
- binoculars, contrast transfer function and other meas. 2=101
- binoculars, contrast transmission function meas. 1=6950
- centring errors, influence on image quality 0=5144
- common path interferometer, for large optics 3=11935
- comparator screw error determination 1=12979
- contrast factor, det. and applic. 2=5158
- contrast factor, measurement, visual method 0=19399
- contrast and image quality by double star method 1=9468
- contrast transfer function, det. from image of edge 0=1028
- contrast transmission function, meas. using gratings 3=268
- contrast transfer function, meas., with square-wave transparency 1=1811
- contrast transmission factors, effect of number of grating lines 1=16063
- contrast-transmission function, tests with gratings 2=13440
- contrast transfer function, 2 meas. arrangements, for lenses and emulsions 1=1812
- cyclic shearing interferometers, uses 0=16891
- distortion, inverse nodal slide evaluation 0=3610
- distortion, visual goniometric evaluation 0=3611
- figure of optical surfaces, use of interference strioscope 0=19436

Optical instrument testing—contd

- flash intensity, digital pulse integrator 0=8789
- focal length, equivalent, meas. using biprism 3=3866
- focal length, negative or weak positive power 3=18963
- focal setting, using Foucault knife-edge system 2=9378
- focal setting, longitudinal 0=6914
- frequency response evaluation, influence of television 4=16213
- frequency response, value rel. to graph. representation 1=18562
- Fresnel zone plate as test object 2=7396
- glass homogeneity, by Williams' interferometer 4=21285
- glass refractive index variations, interferometric method 4=27300
- with grids, imaged on grids, moiré fringes, applic. objectives 1=2841
- half and quarter-wave plates, using Iceland spar rhomb 4=330
- i.r. materials and systems by Evaporagraph 2=19687
- image assessment methods 1=5340
- instrument function meas. 1=11842
- lens frequency response function, direct meas. 3=7362
- lens quality criterion, moving noise-disk meas. 4=2816
- lens testing, decentring defin. and meas. methods 2=7321, 7326
- lens testing, Ronchi grating method 2=15722
- lenses, contrast reduction and aberrations 1=4443
- lenses, frequency response meas., interferometric method 0=8788
- lenses, longitud. aberr., meas. in extra-axial region 3=237
- lenses, mirrors and prisms, using Jamin interferometer 4=18417
- lenses and optical systems, Twyman interferometer testing 1=5339
- lenses, positive, radii by Foucault knife-edge 4=18384
- lenses, response function, sinusoidal scanning screen 2=9367
- lenses testing with Williams interferometer 4=2848
- levelling, sighting precision meas. 4=16215
- microscope objectives, apertometer 1=11833
- microscope objectives, contrast transmission meas. 1=16067
- mirrors, aspherical, Ronchi test 1=11830
- mirrors, with common-path interferometer 3=14364
- mirrors, parabolic 1=18565
- mirrors, paraboloidal, null corrector 3=7305
- new techniques for optical components 3=16748
- nonlinearities in optical systems, test pattern 2=13436
- optical flat mapping without refl. coating 2=9379
- optical flatness of pre-polished glass surfaces 0=19398
- optical flats by interferometry 1=12980
- parallel plates, errors due to thickness and refractive index variations 4=21286
- photocell linearity tester 2=13432
- photographic objectives, dupligran meth. 2=7419
- photographic objectives, dupligran method, accuracy 0=5143
- photographic objectives, of methods used by Zeiss 1=4444
- photographic systems, sine-wave analysis 0=19397
- planarity, theory of two-beam interference 2=19722
- prisms, fused silica, inhomogeneity compensation 3=21528
- reflecting microscope objectives, contrast transfer function 1=1810
- resolving power criterion, limitations 0=14801
- response function measurement, of 80 mm object 1=4436
- review of modern methods 3=244
- Ronchi, diffraction theory 3=24052
- Ronchi grating test, historical review 2=22049
- Ronchi test charts, for parabolic mirrors 0=3604, 16816
- Ronchi grating test, historical review 4=18414
- semireflecting surfaces, evaporation prep., meas. 4=2813
- using slit-image light distrib., oscilloscope apparatus 0=19400
- spectrophotometer calibration using two filters 0=3624
- square-wave targets, photoelec. scanning of images 0=6908
- star test, limiting sensitivity 0=168
- stray light meas. 4=309
- surface quality, optical contrast transfer theory 2=1256

Optical instrument testing—contd

- surfaces, aspherical, by immersion to reverse spherical wavefronts 4=8400
- telescopes, interferometric meas. of angular magnification 2=13442
- television lenses, transmission meas. 1=12974
- test charts, sinusoidal, by filtering spatial frequencies 0=19396
- transmission function, complex, meas. with grating apparatus 0=19406
- transmission function, meas. with Foucault grating apparatus 0=19404
- transmission function, measuring apparatus, comparative tests on 0=19403
- von Eller optical synthesis machine 1=16066

Optical instruments

- Some instruments are listed separately, e.g. Refractometers.
- Abbe's theory, Czapski's book 2=13441
- for absorption analysis, instrument errors, improved calibration 0=19395
- adaptometer, dark, variable, multidimensional 1=10353
- adaptometer, for study of Troxler's effect 1=1619
- adjusting devices, precision mechanical 0=2233
- afocal, photoelectric and otherwise, error elimination 1=18580
- for alignment 4=18015-6
- alignment devices of two-mirror type 1=16062
- aluminizing technique for u.v. reflection efficiency 0=3402
- amplitude filters 2=1257
- analysis, using perspective drawing 2=95
- angular data converter, amplitude modulated reticle, error response 4=16214
- apertometer, for microscope objectives 1=11833
- atmospheric emissions, upper, technique 3=3509
- for atmospheric optics 0=4783
- attenuator, rotating-sector, for precision spectrophotometry 2=5162
- autocollimator, two-channel, recording 3=16746
- automatic design, computer programmes 4=24339
- axicon, Fresnel conic mirror 2=1258
- beam splitter and intensity controller, continuously variable 4=5373
- beam splitters (50/50%), dielectric-film type 3=7321
- binocular eyepieces, wide-field large-pupil 3=16739
- binocular telescopes, parallelism tolerances 0=6921
- binoculars, military 0=6922
- for bubble chambers 1=3097
- for bubble chambers, stereoscopy, refraction correction 0=1232
- cascade intensifiers, image fluctuations 0=8785
- centring, mounting error effect 3=11885
- chopper disk, precision 4=8399
- comparator, with automatic readout 4=11010
- conference 1=18585
- conference, London (1961) 3=14308
- contrast transfer, rel. to vision 2=21996
- corner reflectors and cavities, polarization props. 2=5190
- course grating for line intensity meas. 0=2251
- cross-wires, incorrect setting, due to optical illusions 0=19382
- daylight factor meter 0=14784
- decentring tolerances, computation 3=1791
- deflector, electro-optic 4=16226
- deflector, fast, digital, for laser, using double refraction of CaCO_3 4=16228
- design, automatic computation 0=14804
- design and production problems 2=21989
- dichroic beam splitters 1=10583
- diffraction resonator, reflection grating 2=19723
- diffraction, theoretical represent. 3=265
- diffractional light modulator 0=12494
- diffusing screens of high efficiency 0=8782
- dilatometer, high temp. rotor bore 0=3480
- discriminator, balanced, for light beam angle modulation 4=18368
- for dust nuisance emitted by chimneys 1=1623
- "effective source" concept and partial coherence 3=21530
- elastic constants, rods 3=6776
- electro-optical distance meter 1=12838
- electro-optical light modulator, the stressed-plate shutter 4=2821

Optical instruments—contd

- energy flux, improper integral of cylindrical functions 4=24352
- Evaporograph, for infrared imaging 2=15726
- exit pupils, optimum diameters 0=6914
- Fabry-Perot etalon, displacement of a flat 0=16851
- far i.r., review of research in Japan 4=24351
- fibre bundles, optical transfer properties 4=18395
- fibre optics duodenoscope and ureteroscope 1=8226
- fibre optics, visible spectrum dielectric waveguide modes 1=8225
- fibres, i.r., As_2S_3 4=11336
- filter photometer for reflection measurements 0=2223
- filter, rotating, three-step, variable 3=16756
- finite collimating aperture measurement error in scatt., geometrical calc. 4=16252
- fluorometer, for lifetimes, 10^{-5} – 10^{-8} sec, by modulated light 3=5514
- focometer, accuracy rel. to parameters 3=9585
- frequency response measurement, scanner 1=9473
- Fresnel zone plate for far u.v. and X-ray region 1=4448
- for gas diffusion study, diffusion coeff. meas. 0=8697
- graticule, metal evaporation technique 2=2871
- guide, large, core in medium of slightly smaller dielectric const. 4=14345
- haploscope, for vision studies 0=816
- Hough-Powell digitizer, slit source illumination 4=5371
- i.r. 4=8364
- i.r. absorptiometer, using interference filters 0=4754
- i.r., classification of materials 4=2810
- i.r. gas analysers, increasing sensitivity 0=12489
- i.r. image tube, electron scanned, small-target detection 0=167
- i.r. tracking systems 1=12983
- image amplifiers, use of elec. image convertors 0=6913
- image intensifier 0=3617
- image intensifier using secondary electron emission 0=10757
- image intensifier, transmission type 0=7142
- image intensifiers and the scotoscope 4=24341
- image reducer-immersed detector system for i.r. 3=7314
- image rotation by oblique reflection 4=308
- information unit proposal, and resolving power 1=18581
- interference-modulation, resolution, relationship with res. of diffraction grating 0=10771
- ionization chamber for vacuum u. v., 1050-1500 Å 4=27303
- lens bench, with flat-field relation device, 0=8779
- lens mounting, large, high-precision, strain-free 2=17588
- lever gauge, for thickness meas. 3=14035
- light amplification device 1=12981
- light amplifier 0=3795
- light chopper, high frequency 2=19693
- light probe for turbulent concn. fluctuations meas. 4=2638
- light sources, of intensity decreasing in geom. succession 1=18582
- longitudinal positioning, precision method 0=6915
- for luminescence spectra studies, in microscopy 0=14805
- luminescent fibre chambers and intensifier screens 9=18150
- maser, quantum oscillators in multimode cavity, theory 1=10789
- micrometer eyepiece, coincidence split image 3=18971
- microspectrofluorimeter 0=14826
- mirror and prism angle-meas. instruments, adjustment 0=12397
- mirror-prism optical elements, wide angle tracking 0=8781
- mirror system selecting field of view 3=16745
- modulator, electro-optic light, strain effects 4=18369
- modulator, interferometric optical 4=24386
- modulator, light, rel. to electro-optical effects in crystals 4=21268
- modulator, using microwave ferrimag. resonance 3=14325
- modulator, microwave, using Kerr cell 2=87
- modulators or demodulators, Foster-Seeley prisms, for doubled intensity 4=5372
- moiré fringe reading head for use with fine grating 0=14844

Optical instruments—contd

- monoculars, overlapping, ultrawide-field viewing system 2=17596
- "movialas", rotating prism system 0=166
- nephelometer 3=6963
- nephelometer, visual, for high molec. wt. solutions 0=12495
- for night vision, aberration tolerances, for low spatial frequencies 0=19401
- object detector, for in-focus objects 4=29745
- optical emission line profile analyser 2=22034
- optical engineering, review 1=17593
- optical lever, review of development and applications 1=2854
- optico-acoustic non-selective receiver 1=12984
- optico-acoustic radiation receivers 0=8714
- for particle-size anal. multichannel photoelec. scanning 0=4682
- performance of windows with axial temp. gradients 2=97
- phase analyser, with progressive u.s. wave 1=18611
- photo-contact tube for weak source study 0=6957
- photoelectric image-sharpness meas. 3=11901
- pipe transfer between high refr. index media 4=24350
- polarization effects, theory and practice 4=8459
- prism scanner 0=8780
- production of components, new techniques 3=16748
- pupil, parallel subdivision principle, applics. 2=22002
- quantum efficiency meas. for phosphors 0=19393
- quarter-wave compensator, calibration 0=14855
- quarter-wave plate, composite, theory 3=9627
- radioactivity in, due to KBr components 0=19409
- range finder, auto-focus 0=14859
- recognition using vibrating fibres 4=18394
- recording optical lever 0=5150
- reflectivity meas., auto-collimation adjustment 0=12475
- reflectivity meas., method 0=10754
- reflectometer, absolute, for use with Cary 14 spectrophotometer, at low temps. 4=11339
- reflectometer for vacuum u.v. 0=1484
- reflectometer for vacuum u.v. using $\text{CaSO}_4\text{:Mn}$ phosphor 0=16829
- resolving power, ambiguous image concept and diffraction 4=18390
- resolving power, calculated and detected images, various criteria 1=12978
- resonator, mode meas., using afterglow and laser 4=16221
- retardation plate for polarized light 3=14379
- rocket tracking systems 3=18666
- Ronchi ruling, angular meas. 3=9583
- ruling engine control by interferometer, modulated 2=19724
- scanner, automatic, for electrophoresis and chromatography paper strips 0=4759
- seal for optical windows 1=5311
- sextant, space, coaxial dual-field optics 4=7994
- shadow graph slits, manufacture 0=6916
- shutter, high-frequency, using electro-optical effect in ADP 0=20973
- shutter for square-wave exposures for vision expts. 3=14326
- spectral comparator image inverter 3=24021
- spectrophone with a multiple passage of radiation 0=137
- specular reflectance precision meas. 0=164
- spot light image rotating in circle, device 3=18970
- stereo-image prod., from plan and elevation 2=7318
- stray light meas., theory and expt. 3=9581
- sun-tracking device 2=17597
- superposed crystal plates between crossed polars, applications 0=3653
- for surface texture meas. 4=30875
- suspensions, scattering, continuous meas. circuit 2=2454
- television, optimum viewing conditions 3=7312
- tensiometer, photoelectric 0=10644
- tests, Hartmann combined with spot diaphragm 3=11489
- theodolite, sighting precision 3=18973
- theodolites, survey 0=5147
- thickness gauge 0=6722
- for thin film, property measurements 1=7700
- tracing of skew rays through toric surfaces 1=16052
- tracking, wide-angle 0=8781, 19388
- transfer function, Japanese work 2=13429

Optical instruments—contd

- transistors as high-speed light pulsers 1=6957
- 2-mirror system with 140° field 1=16069
- u.v., progress review 3=9187
- u.v. radiation detector 3=18974
- use of variable retardation plate 3=21571
- vacuum-stage for crystallographic obs., low temp. 4=16222
- vacuum u.v. radiation of mag. compressed plasma 3=7505
- vibration pickup, optical calibration 1=9454
- for vision, aniseikonia, meas. and corr. 4=4985
- wave height in hydraulic models by stereoscopy 1=18381
- CuCl light modulators 4=10171

Optical materials

- See also Filters, optical.
- calcite optical flats, polishing technique 1=10229
- conference 1=18586
- crystals, i.r. and Raman processes, theory 3=23061
- diffraction gratings, below 2=1000A 2=116
- films, antireflection, on Ge 2=98
- glass for bubble chamber windows, props. 4=5906
- glass for bubble chamber windows, specification and testing 4=5911
- glass, for cemented doublet aplanats 1=4441
- glass, dispersive properties 2=22000
- glass, grinding, rate of material removal 1=12727
- glass, prepolished, flatness testing 0=19398
- glasses, i.r. transmission and dispersion 1=18579
- glasses, i.r. transmitting, high temp. 4=306
- glasses, meas. by recording refractometer 1=18587
- glasses, rare-earth, spectral transmittance 1=19961
- glasses, silicate, Ag halide sensitized, photochromic, reversible 4=29202
- for i.r., KRS5, CsBr, NaCl, AgCl 1=1814
- for i.r., opt., thermal and mechanical props. 0=14808
- i.r. radiation absorption, bibliography 3=9652
- i.r., recent advances 2=22001
- i.r., refractive index calc. 2=7344
- for i.r. systems 0=19498
- i.r. windows emittance meas. 2=22084
- infrared, 15, refl. and transmission 2-50 μ 3=16749
- infrared, forty-eight, classification and props. 4=2811
- infrared instrumentation, materials classification 4=2810
- infrared, refl. and transmission, bibliography 3=16750
- interference filters, layer prep. and props. 0=3639
- Irtran-1, absorption, compared with MgF_2 3=20480
- Jena glasses, elastic constants, temp. var. 3=5058
- for light guides, "Silicoloid 201", use on scintillation counters 4=29746
- parallel active layer, self-excitation, for total reflection 4=16259
- polytrifluoroethylene, i.r. properties 0=12473-4
- preparation, and props., review 4=14347
- prism glasses, V values calc., modification 4=28661
- quartz, fused, refractive index 0=2229
- radiation resistant glasses 4=8405
- Ronchi grating test, historical review 2=22049
- salt windows, fogged, i.r. transmission 4=8438
- Schott glasses, old and new melt numbers 0=5156
- silica, testing 2=7330
- silicone oils, refractive index 0=2230
- solids, nonlinear props., energy considerations 3=13155
- synthetic crystals scattering of light 4=22884
- testing with Twyman interferometer 2=22050
- transmission coeffs. using vacuum u.v. reflectometer 0=16829
- transmittances, 1900-3400 A 4=14346
- u.v. transmitting glass 1=12982
- As_2S_3 glass, 15-25 μ transmittance 0=6904
- CaF_2 , SrF_2 and BaF_2 crystals, transparency 2=6555
- CaF_2 - SrF_2 and SrF_2 - BaF_2 single crystals, transmittance 2=690
- CdS, far i.r. 0=2236
- LiF as optical filter in far u.v. 1=19964
- LiF, refractive index 0=2229
- PbF_2 , as high- μ u.v. material 0=2237
- PbMoO_4 , possibility, i.r. 3=20479
- Si, n-type, for i.r., props. 0=14809
- Th glass, radioactivity 1=9820
- TlBr-TlI mixed crystal, i.r. use, antireflection coating 0=5155

Optical pumping

- alkali metal vapour lamps 2=11479

Optical pumping—contd

- alkali-metal vapour, polarization 4=3801
- alkali metal vapour spectral lamp 1=10585
- alkali metal vapours, spin relaxation and line-width 0=10701
- alkali metals, D-doublet, rate eqns. 2=1962
- alkali metals, 0-0 hyperfine res. shifts 2=524
- alkali metals, Zeeman D-doublet, collision allowance 4=6468
- alkaline atoms, spin distribution 0=17694
- applied to chemical reactions 4=17853
- atom-wall collision study 3=17537
- atomic energy level displacement by light 3=17539
- atomic spin relax., in gas phase and on surface, comparison 3=17538
- atomic systems interact. with very intense radiation field 4=22315
- atoms inside Fabry-Perot interferometer 3=7352
- atoms, optically oriented, mag. rotatory power 3=4714
- coherence of maser resonant modes, effect of optical path periodic structure 4=5840
- crystal electronic transitions, mass-action law eqns., use of neg. temp. 4=22526
- crystals, second harmonic generation 3=25429
- cycle, quantum theory, experimental verification of new predicted effects 3=10464-5
- density matrix formalism 1=13963
- density matrix study 1=7441
- disorientation cross-sections, Rb 3=8200
- e.s.r. in crystals at low temp., optical detection 0=4508-9
- effect on magnetic resonance lines 1=7442
- electronic and mutual components of stimulated emission 4=8972
- exfol pumping of optical masers in elliptical mirrors 4=11831
- fibre cavities for optical masers 1=2852
- films, refl. and transmission with negative absorpt. coefft. 2=19717
- fine structure obs., by polarized light 4=3804
- fluorescence, resonance, due to pulsed or modulated light, theory 4=9661
- 4-level system 3=22490
- in gases, review 1=11079
- harmonic generation in nonlinear crystal, coherent interaction length 4=5353
- induced emission wave-function calc. 4=3204
- inert-gas masers, mechanism 3=22005
- ions, paramagnetic, in solids 0=18121
- laser crystal, pumping radiation density distrib. calc. 4=30087
- laser mode interaction with atoms 3=12361
- laser, sun-powered, with condenser 3=21534
- lasers, review 4=24878
- laser, ruby, conditions effecting energy of beam 4=14954
- lasers, threshold power 4=14931
- layer, plane parallel with total refl., self-excitation 4=24887
- light source, Rb, high-intensity, low-noise 2=1261
- magnetic field effect, weak 4=28140
- magneto-optical double resonance detector 2=17977
- maser, quantum oscillators in multimode cavity, theory 1=10789
- maser, ruby, by laser, for mm wave generation 4=3205
- microwave-gas interaction cavity 2=9709
- molecular crystals, organic, coherent stimulated emission 1=12489
- molecular system, two-level, quantum electro-dynamics 4=12417
- multiple quantum transitions in stimulated emission 2=11782
- β -naphthol soln., laser action possibility 4=14166
- negative temp., possible prod. 0=1109
- neon, stimulated emission of new i.r. transitions 4=12383
- nuclear orientation prod., theory 4=15296
- optical maser design 0=1202
- optical masers, use of fluorescent materials with F-centres 2=692
- optical masers, relax. oscill. 2=3158
- organic mols., stimulated light emission 2=6195
- organic solutions with different ground and excited dissociation constns. 4=14166
- particle system with 3 energy levels 3=17070
- plasma with population inversion, tensor dielec. suscept. 3=8202

Optical pumping—contd

- power for laser threshold, rel. to output and reflectivity 4=5873
- power systems, theoretical efficiency 3=7733
- quantum electronics, conference 2=11241
- α -quartz, optical phonons, quantum electronics 3=9966
- α -quartz, by u.v., phonon-maser postulated 4=6718
- radiation transfer by elliptical cyl. reflectors 3=14332
- radiative transitions in resonance systems of two-level molecules 4=30419
- Raman effect, third-order radiation process 4=17272
- as relaxation process in ground state 1=13964
- and resonance radiation narrowing 4=12329
- resonant and nonresonant cavities, steady-state stimulated emission 4=24888
- resource letter on teaching 4=27010
- review 2=14225
- review, microwave interact. with matter 2=17952
- review of phenomenon and its applications 2=8068
- ruby 0=20988
- ruby, coherence, narrowing, directionality and relaxation oscillations 0=21007
- ruby, continuous operation arrangement 2=11783
- ruby, cooling effect, application 3=15660
- ruby, e.s.r. detection 0=1833
- ruby laser, by Ar discharge tube 4=14955
- ruby laser, by exploding wires 3=22011
- ruby laser, power output characteristics, theory 1=16556
- ruby laser, by short arc, high pres. Hg lamp 3=14800
- ruby, level pop. inversion rel. to cross-relax. 2=21239
- ruby, level pop. inversion rel. to cross-relax. 3=9983
- ruby maser, thermal tuning 1=12488
- ruby, pulsation of fluorescence, theory 1=3859
- ruby, rel. to refractive index change 4=10189
- ruby rod, pumping energy distrib. 4=28705
- ruby rod, side-pumped, absorbed power distrib. 4=28704
- ruby, stimulated emission (4-300°K) 3=2143
- ruby, stimulated optical emission from exchange-coupled Cr^{3+} ions 1=6245-6
- semiconductors, mechanism 2=2137
- solid state, high intensity monochromatic source 0=2975
- solid-state i.r. quantum counters 0=12529
- solids, nonlinear effects 2=4108
- spin-exchange atomic collision, density matrices theory 4=9654
- spin-polarization meas. 1=17274
- spin precession in alkali metal vapours 1=8821
- spin relaxation in Rb 2=1963
- theories, quantum and classical 4=14440
- theory and teaching apparatus 0=17693
- three-level systems, one and two-photon transitions 3=9967
- vapours, mag. resonance theory 4=11812
- weak magnetic field measurement method 1=13148
- Al_2O_3 , e.s.r. of Cr^{3+} excited state, optical detection 0=4508-9
- $\text{CaF}_2:\text{Er}^{3+}$, stimulated emission 4=17555
- $\text{CaF}_2:\text{Sm}^{2+}$, optical maser effects 1=11597
- $\text{CaF}_2:\text{U}$, stimulated i.r. emission from U^{3+} 1=3873
- $\text{CaF}_2:\text{U}^{3+}$, laser, injection luminescent, with GaAs diode lasers 4=14942
- CaF_2 , U^{3+} trigonal site, 2.24 μ emission 2=16812
- Cd, vapour, resonance light scatt., modulation 4=6499
- $\text{Cd}^{111,113}$, nuclear orientation prod., theory 4=15296
- Cr^{3+} in ruby, microwave generation 2=20144
- Cr^{3+} in ruby, rel. to energy level populations 2=10586
- Cs atoms, microwave emission 0=19918
- Cs atoms, relaxation in buffer gases 4=28142
- Cs atoms, spin relaxation, rel. to N_2 pressure 4=6498
- Cs, coherent light amplification 2=6101
- Cs-e collision study, spin exchange 4=30391
- Cs lamp 3=16761
- Cs, liq., field emission mixer proposal 2=3159
- Cs, spin precession 1=8821
- Cs, spin relax. rel. to buffer gas pressure 4=25537
- Cs, transition probabilities 1=11074
- Cs^{133} , for atomic frequency standard 2=16486
- Cs^{133} vapour, e.s.r., fine structure 4=6471
- Eu^{2+} in CaF_2 and SrCl_2 crystals 0=1829
- $\text{Gd}_2\text{O}_3:\text{Nd}^{3+}$, stimulated emission at room temp. and 77°K 4=17602
- H, quenching of metastable state by laser beam 4=1223

Optical pumping—contd

- He, forbidden resonances 1=12257
 He, 1.055 μ emission 4=767
 He-Ne gas discharge, maser oscillations and population inversion 1=7440
 He, population inversion investigation 0=7212
 He, spin precession 1=8821
 He³ atoms, metastability exchange with ground-state atoms 2=22896
 He³ gas, nuclear polarization 1=1772
 He³ gas, and nuclear polarization 3=12523
 He³ nuclear polarization 4=6497
 He³, 2³S₁, and polarized He³ target prod. 3=15050
 He, ³S₁ state, energy shifts of mag. sublevels 2=16490
 He⁴ atoms in ³S₁ metastable state 0=13415
 Hg¹⁹⁹, coherence partial conservation 2=6100
 Hg¹⁹⁹, n.m.r. line shift 1=7443
 Hg¹⁹⁹, n.m.r. line shift 2=20739
 Hg^{199,201}, nuclear orientation, mag. moments 2=3708
 Hg²⁰¹, n.m.r., optical detection 0=17660
 K^{39,41}, h.f.s. det. 0=17712
 K⁴⁰ detection, by optical alignment 3=15296
 KBr, F-centres 4=10000
 KBr, strained, pure or Tl doped, by i.r. 3=18054
 KCl, strained, pure or Tl doped, by i.r. 3=18054
 KH₂PO₄, optical harmonic generation 3=20453
 KI, strained, pure or Tl doped, by i.r. 3=18054
 N atoms in radiation field, time depend., analysis 4=19973
 N, in Na vapour, N¹⁴-N¹⁵ hyperfine anomaly 0=1482
 N¹⁴ and N¹⁵, h.f.s. meas. with spin exchange 2=14202
 N^{14,15}, by Cs, h.f.s. det. 1=12256
 NH₄H₂PO₄, optical harmonic generation 3=20453
 Na, orientation, effects of spin-exchange collisions 2=1964
 Na vapour, to produce spin polariz., techniques 2=14226
 Na vapour, thermal electron scatt., limit 3=12771
 Na D-lines, differential filter 1=11075
 with Na D₁ line, spin polarization det. from transparency 1=12255
 Nd, relaxation processes, resonance coupling, under pulsed excitation 4=17604
 Nd⁸⁺, in barium crown glass 2=6562
 Ne, double interaction with both laser modes 4=25541
 Ne, in He-Ne, 1.269 μ emission 4=767
 PrCl₃, i.r. quantum counter 1=6978
 Rb alignment, isotopic temp. var. 3=15295
 Rb atoms, spin-exchange with electrons, theory 4=9654
 Rb atoms, spin relaxation in molecular buffer gases 4=15308
 Rb, spin precession 1=8821
 Rb vapour, as frequency standard 3=13991
 Rb vapour, use in magnetic field meas. 2=5430
 Rb vapour, spin relaxation study of optically aligned atoms 0=482
 Rb⁸⁵—Rb⁸⁷ collisions, spin-exchange cross-section meas. 4=9676
 Rb⁸⁷, for atomic frequency standard 2=16486
 Rb⁸⁷, efficiency of Rb⁸⁵ filter 4=22313
 Rb⁸⁷ and electron g factor 4=30382
 Rb^{87,89} vapour, e.s.r., fine structure 4=6471
 Xe, Doppler broadening and atomic temp. 3=22493
 Xe lamps used, characteristics 3=21532

Optical rotation

- See also Magneto-optical effects; Optical constants; Polarimeters; Polarized light.
 absorbing plate, isotropic, passage of light 3=16788
 activity of crystallized heteropolyacid salts 2=8782
 alanine, d- and l-, effects of irradiation by 2 MeV electrons 1=11355
 benzene, γ -irrad., induced rotation discounted 1=1007
 benzil 1=16122
 bimesityl derivatives, theory 0=17843
 cholesterols, theory 4=29628
 cinchonine, and cinchonidine, effects of irradiation by 2 MeV electrons 1=11355
 cinnabar 1=16122
 cobaltous salts, rotary dispersion 0=4399
 complexes of trigonal symm., model and data analysis 4=12419
 compound semiconductors, Faraday rotation 1=17741
 correlation with ellipticity in e.s.r. 4=20096
 coupled oscillators model 4=21317

Optical rotation—contd

- crystal symmetry changes producing specific rotation 0=19456
 crystals, biaxial, interference ambiguity removal with monochromator 3=3897
 crystals, rel. to exciton bands 0=20782
 crystals, natural, or polarization plane rel. to dielectric dispersion 2=23509
 dispersion curves, analysis 0=17842
 dispersion, effect of paramag. enhanced singlet-triplet transitions 3=19971
 dispersion, measurement, in visible and u. v. regions 4=29778
 dispersion, nature and origin 2=22063
 dispersion of transition-metal cpds 1=5992
 dissolved ethyl sulphates, rotativities 1=12880
 dosimeter for Co⁶⁰ γ -facilities 3=19799
 e.m. wave transmission by optically active crystals 1=16118
 electron, free, constrained to move on helix 4=12544
 Faraday effect in semiconductors 2=18797
 at ferrimagnetic resonance, in YFe garnet 3=6644
 fluids, review 2=13342
 garnet in r.f. field, Faraday effect 1=1145
 gases and molecular crystals, rel. to resonance fluorescence 3=14219
 gyroelectric and hypogyroelec. crystals, definition 4=13012
 gyroelectric media, plane-wave propag. 3=3896
 helical structure, polarizability theory 2=8484
 irradiation effects of 2 MeV electrons 1=11355
 Kerr cell, helical 0=2256
 Kerr mag.-opt. effect, increase by means of interference films 1=19956
 light modulation by electro-optical devices 1=8223
 liquids and solns., rel. to intermolecular interaction 0=3542
 macromolecules, oriented helices 0=6000
 magneto-optical Kerr effect used to reveal mag. domains 1=1224
 magneto-optical res., double, meas. device 2=7412
 meas. by photoelectric method 0=19457
 meas., solutions, highly-scatt. 3=16807
 measurement apparatus, for solns. at high press. 4=29631
 3-methylcyclopentanone, optical activity calc. 1=2344
 3-methylcyclopentanone, optical activity, one-electron theory, variational calc. 4=22407
 middle-group crystals, planar classes activity meas. 3=20447
 molecular crystals, weak exciton-phonon interaction 1=11348
 molecular theory 4=14408
 molecules, polymer chains, and crystals, polarizability theory 1=9487
 polymers, effect of chain length 3=10916
 polymers, effect of vitrification 0=8258
 polymers, exciton contribution 4=9800
 polymers, theory 0=20704
 polypeptides, helical, Cotton effect, origin 3=2681
 quantum mechanical treatment 4=12328
 quartz 1=16122
 quartz, d- and l-, effects of irradiation by 2 MeV electrons 1=11355
 quartz, rotatory dispersion 0=2257
 quinine and quinidine, effects of irradiation by 2 MeV electrons 1=11355
 racemates and optical antipodes, rel. to irradiation 3=10920
 resonance, quantum theory of radiation field 4=11370
 self-excitation of a parallel layer, for total reflection 4=16259
 singlet-triplet transitions in magnetic rotation spectra 3=2594
 solvent effects and dipole moment 2=1147
 solvent field corrections, quantum theory 4=27176
 tartaric acid, d- and l-, effects of irradiation by 2 MeV electrons 1=11355
 theory, application of classical dispersion theory 0=19455
 theory, rel. to electronic props. of trigonal dihedral cpds. 4=25622
 transition metal compounds, ligand field approx. 3=23046
 trigonal coordination cpds., theory 2=23524
 triplet states in optical activity 2=20781
 trisoxalatometallates, one-electron rotatory strengths 2=18796

Optical rotation—contd

- two-component system, isotropic 4=21316
 uniaxial optically active crystals 2=22066
 verdet, for inert gases 1=8164
 Werner complexes, rotary dispersion 1=2756
 $\text{Ca}_2\text{Sr}(\text{C}_2\text{H}_3\text{CO}_2)_6$, optical activity 2=18795
 $\text{Ce}_2\text{O}_3 \cdot 2.67\text{P}_2\text{O}_5$ glass, comparison with mag. susceptibility 4=22851
 CO_2 , aq. soln., effect of circularly polarized light 3=1688
 $\text{Co}(\text{ethylenediamine})_3^{3+}$ ion, rotatory dispersion 3=730
 Co III complexes, dispersion 4=22398
 Co^{3+} , $^1\text{T}_{1g}$ state 3=8271
 Cr^{3+} , $^4\text{T}_{2g}$ state 3=8271
 CrBr_3 , magnetic 3=919
 Dy ethyl sulphate, theory 0=13734
 GaAs , Faraday rotation at photon frequencies below energy gap 1=17740
 GaSb , Faraday rotation at photon frequencies below energy gap 1=17740
 InAs , i.r., effective electron mass, 293-603° K, n-type 3=20333
 InSb , Faraday rotation at photon frequencies below energy gap 1=17740
 $\text{K}(\text{Cr, Al})$ alums, effect of Al content 1=7710
 $\text{LiH}_2(\text{SeO}_3)_2$, ferroelec. 2=23523
 NaBrO_3 , rotatory power, rel. to configuration 4=23479
 NaClO_3 , 1=16122
 NaClO_3 , rotatory power, rel. to configuration 4=23479
 NH_4 tartrate, d-, effects of irradiation by 2 MeV electrons 1=11355
 Si , Faraday rotatn. near band edge 2=23534
 Te , at 5μ 1=5044
 Te , relationship between etch pits and optical activity 1=11534

Optical systems

See also Aberrations, optical; Lenses; Optical images; Optical instruments; Optical materials; Resolving power, optics.

- Abbe resolution limit, exceeding 3=14322
 Abbe sine law generalization 4=27287
 aberration coeffs. of higher orders 3=16734
 aberration corrections, optimum 3=14319
 aberration synthesizer 0=1029
 aberration tolerance, rel. to low contrast resolving power 4=8393
 aberrations, monochromatic 2=1249-50
 achromatic beam shifter, focusing props. 1=12973
 for acoustic field representation 3=18908
 "active" contrast-transfer theory 1=229
 alignment, ang., by elastic deform., to 0.01" 3=21523
 alignment device, electrical read-out 4=18017
 amplitude-phase objectives for resolution of two non-monochromatic light sources 0=16866
 analysis, using perspective drawing 2=95
 anamorphic, diffr. theory treatment of aberrations 1=18575
 anamorphic systems, third-order aberrations 1=18576
 annular apertures, use for increasing focal depth 0=14795
 antireflection coatings, triple-layer, for visible and near i.r. 2=19678
 aplanatic points, refracting surface 4=14339
 aplanatic systems, image field structure 0=8787
 aplanatic, with two surfaces, approx. soln. 0=19363
 apochromatic catadioptric, equiv. to parabolic mirror 4=24345
 apodisation, review 4=18388
 apodizing diaphragms and diaphragms increasing resolving power 4=27291
 with aspheric surface 1=2843
 aspherical surfaces, fabrication 4=2814
 astigmatic, having rotating, rectangular apertures, diffraction 4=11360
 astigmatic, response 0=16819
 astronomical instruments vignetting, graphical analysis 2=932
 automatic computation 0=14804
 automatic design, weighting of image errors 4=29735
 axicons and their uses 0=2232
 binoculars, contrast transmission function meas. 1=6950
 breakdown of one-to-one correspondence bet. image and object 3=1798

Optical systems—contd

- bubble chamber, (liquid H_2), for photographic tracking 3=4300
 bubble chambers, review 4=5904
 calculation, differential meth. 2=2861-4
 cameras, high speed, combined with schlieren systems 2=19738
 cavities, optic and quasi-optic, stationary modes 4=19265
 centred system, skew ray, sine reln. 3=239
 coaxial photocells for recording radiation from shock waves 2=21935
 collection of light from scintillation counters 0=11971
 colour correction, use of dispersion formula 0=19381
 combined optical-microwave detecting system 0=14812
 computer elements operating on optical basis 1=6690
 concentric, perfect, calc. 3=11893
 concentric, of refl. surfaces, spherical aberr. 4=8394
 concentric, spherical aberr. theory 3=14313
 concentric, with spherical symmetry, variable n core 0=6907
 concentric systems of two glasses 1=16059
 condenser for sun-powered laser 3=21534
 contact bonds, production and use 4=24361
 contrast transfer calc., eikonal and matrix methods 4=8389
 contrast transfer functions, computer calc. 3=11891
 contrast transfer, rel. to vision 2=21996
 contrast transmission factors, meas. and calc. 1=18570
 contrast transmission (frequency response) function, use 1=18562
 contrast transmission function, effect of aberrations 3=7308
 contrast transmission function, meas. using gratings 3=268
 contrast transmission function meas. by polarized light interference 3=21522
 contrast transmission functions, at low spatial frequencies 0=19366
 contrast transmission functions, wave and ray theories 1=1806
 control methods, theory, review 2=19685
 coronagraph, 200/3000/4000 3=11490
 correction, quadratic semi-automatic model 4=27299
 curvature variations, effect on basic parameters 0=3606
 cylindrical, ray-tracing eqns. 2=9373
 decentration and centring state defin. 3=16740
 deflection disk as vision-influencing phenomenon 2=7073
 design check by electronic computer 1=16060
 design and evaluation, by modulation transfer function targets 3=18968
 design, using opt. aberration coeffs. 0=5145
 design, optimum, use of contrast transfer function 2=7331
 design, optimum, entropy of light distribution 0=19368
 design, role of optical transfer function 3=16732
 design without ray tracing, analysis from spot diagrams 3=14309
 detection recognition review 4=14410
 determinant, basic 3=3864
 diagonal plate modification for combining two sources 4=21287
 diamond-shaped mirror geometry, confined beam 1=16502
 diaphragm theory, nomenclature 2=21997
 dielectric rod focuser 3=18967
 distortion, radial, objective, meas., Moire fringe 3=21580
 e.m. field in image space 0=8786-7
 Ebert spect., for Fraunhofer diffr. study 2=2895
 "effective source" concept and partial coherence 3=21530
 eye location for wide-field large-exit-pupil system 1=2849
 eyepieces, double-doublet type aberration calc. 2=17586
 fibre bundles, dynamic frequency response 2=2868
 fibre optics, development and application 3=241
 fibre optics, the "focon" 1=2844-5
 fibre optics, image transfer from Lambertian emitters 1=2844
 fibre optics, waveguide effects 1=12975
 fibres, in electro-optical systems 1=2846
 fine correction, use of differential method 3=14318
 first-order design with paraxial skew ray 4=8390
 flexible light pipes 4=18393
 focal length meas. using auxiliary system 3=1802
 focal lengths, precision determ. method 2=7334
 focusing, precise, with photoelec. detection 2=19686
 frequency response, with grating at exit pupil 2=15723

Optical systems—contd

frequency response measurement, scanner 1=9473
 frequency response, techniques, appl. 2=11486
 frequency response techniques appl. 3=16743
 gas lens, using counter-flowing gases, of different refractive index 4=29732
 gas lens and light guide, using thermally-excited refractive index gradients 4=29731
 Gaussian optics, matrix calc. 3=240
 Gaussian properties, thickness variation 0=1027
 glass fibre use in point target autocollimator 3=11898
 with gratings in the pupil, transfer function 3=11892
 grid method for studying diffraction of water waves 0=8633
 guides for scintillation counters 4=16738
 heating system for high-vac. annealing studies 0=14900
 high numerical aperture, obeying sine condition, transfer functions 3=5512
 high resolving power systems 1=2847
 horizon scanner, inside-out 2=9131
 horizon sensor, linear output, wide-angle 4=10938
 in i.r. detectors 0=19498
 i.r. focusing on to small receiver 0=3607
 i.r. immersion lenses, gain calc. 3=16736
 i.r. lens and mirror systems, review 0=14797
 i.r. missile-seekers 0=16831
 i.r., non-image forming, circuit details 0=14885
 i.r. search system, design 0=14810
 i.r., temperature image, theory and structure 3=1864
 i.r. tracking systems 1=12983
 i.r., with and without auxiliary lenses, theory 4=14340
 illuminance, total, from design data for rotationally symmetric aberrations 4=11330
 illumination systems for spectrographs 1=16079
 image contrast meas., effect of test grating size 2=17594
 image convertors, photometry 1=6947
 image-forming, charact. functions 4=18382
 image position meas. by polarimetry 3=21572
 imaging of separate linear objects 1=16061
 incoherent light, non-negative signals transmission 3=3892
 incoherent Sparrow resolution limit, increase by apodization 3=5511
 infrared fast systems 2=11475
 interference, simple, for use in microscopy 3=3887
 intersection length rel. to constructional data 2=9372
 isosceles total internal reflectors as optical elements 4=2812
 large telescope system 1=4445
 laser rotation rate sensor using ring cavity 4=21007
 lens bench, flat-field relation device 0=8779
 lens-photographic material, image formation 0=3601
 lens systems for telescope adjustment to photo-detector 4=16218
 lens waveguide with curved axis 4=18389
 lever for galvanometer Brownian motion obs. 4=5369
 light gathering props. of systems with extended sources 4=27297
 light pipe for large-area scintillator 3=11896
 line scanning, one- and two-dimensional 3=11894
 longitudinal positioning, precision method 0=6915
 lossless network, of equal-length birefringent crystals 4=29736
 magnification beyond Rayleigh's limit 3=14315-16
 magnification derivative 3=24008
 Maksutov-Cassegrain flat-field optical systems 1=4446
 maser, optical, gaseous, external concave mirrors 3=7318
 measurement of absorption band widths, optimum conditions 1=2874
 mechanical assembly for optical meas. 2=11233
 Millikan condenser, particle localization 2=9375
 mirror and grating, ray tracing formulae 1=2842
 mirror systems, dielectric, layer materials 2=1251
 mirror systems, noncentred, aberrations theory 2=7339
 modulation of light by microwaves in paramag. crystals 1=1149
 modulation transfer functions, Lansraux's series 4=14337
 modulation transfer functions, in presence of astigmatism, meas. 4=14336
 modulation transfer meas., test objects 3=18966
 for monochromators, anastigmatic, for arc imaging 3=11920
 mounted, centring meas. standards 2=7324

Optical systems—contd

multi-image, using pipes, and applications 4=27296
 multi-lens, Gaussian optics design 3=16738
 multistage, transmission theory for partial coherence 2=9370
 nonlinearities, theory and expt. testing 2=13436
 object in wave field, optical properties 3=7304
 objective doublet, aplanatic, insensitive to centring 3=18583
 for obtaining integral and fractional multiples of a given radiance 4=8372
 optical computer, spectra of 2-dim. functions 2=7113
 optical fibre, circular, light collecting props. 3=5513
 optical fibres, transmission properties 1=12976
 optical paths, very small, meas. 2=7342
 orbiting astronomical observatory 2=9117
 parallax correction, at best focus for definition 0=8770
 paraxial back focus and transverse magnification, rel. to focal length and refr. index 4=24346
 partially coherent illumination, use, theory 2=5143
 pattern information, sideband interpret. 2=19669
 phase contrast function for partial coherence, meas. 4=11334
 phase contrast microscopy, effect of object thickness 1=12972
 use of phase Fresnel lens 1=2840
 photographic, image quality evaluation 2=7416
 pipe, curled, for thin organic scintillators 4=24353
 power derivatives 2=2867
 power limiter, using nonlinear crystal props. 3=7319
 propagation modes in sequences of lenses 2=5140
 pupil, parallel subdivision principle applcs. 2=22002
 quality criterion, moving noise-disk meas. 4=2816
 quasi-invariants in ray tracing, applications 3=1801
 quasi-parallel light concept and appls. 4=24343
 quasi-symmetrical, Gaussian image formation 0=2226
 radiation transfer by pipe between high refr. index media 4=24350
 range finder systems, performance prediction 3=18773
 raster illuminators with cylindrical lenses 0=3615
 ray tracing with cylindrical and tonic surfaces 2=13435
 ray tracing formulae for trig. tables 2=21998
 ray tracing scheme 0=8768
 refracting system for u.v. spectrum 3=16741
 resolving power, ambiguous image concept and diffraction 4=18390
 for resolving two sources with different intensities 0=8776
 resonators, theory 4=19264
 response function, meas. using diffr. grating 2=2869
 response functions, influence of coma 0=10749
 for retinal image stabilization 0=18565
 reversibility princ., Vašček's, for metal film transmittance 4=11333
 reversible, theory, aberration coefficients 1=8215
 rotationally symmetric, brightness and diaphragm coma 0=19374
 scanning techniques, optical-mechanical 0=14811
 Schmidt system 0=16818
 Schwarzschild two-reflector system, parametric soln. of eqn. 4=27298
 for scintillation chambers, coupling to image intensifier 1=2851
 in scintillation counters, light-gathering efficiency 1=4746
 selection of field of view, mirror system 3=16745
 self-luminous objects, shadowgraph 3=9579
 for spark chamber, in mag. field, stereo 3=17149
 spark chamber viewing, for magnet economy 3=17147
 stray light meas., theory and expt. 3=9581
 for surface irregularities examination and photographic recording 4=8398
 surface topography obs. by frustrated total internal refl. and interference 4=30876
 symmetrical, brightness coma and diaphragm coma 3=7307
 system between two media, aberrations 0=14800
 target detection, space filter for improved efficiency 0=14813
 telecentric, for entrance slit illumination 2=13445
 telescopes, Kitt Peak, auxiliary systems 3=9143
 for television, transmission meas. 1=12974
 test objects, variable transmittance, sinusoidal, prod. 3=18966

Optical systems—contd

- testing of components, Twyman type interferometer 2=7330
- three-lens system, achromatism 1=16056
- Tiros satellite 2=11200
- tracking, reticles, a.m. and f.m., comparison 3=18965
- transfer function calc. for rot.-symm. aberr. 2=19683
- transfer function, from lens-design data 3=11888
- transfer function, measurement 3=11889
- transfer function and total illuminance, reciprocity relations 4=2817
- transmission functions for partially coherent illumination and spherical aberr. 4=16209
- transmission meas., from source brightness change 4=21284
- two plano-cylindrical lenses, crossed, paraxial props. 0=2228
- Twyman interferometer testing 1=5339
- u.v. absorption for Phywé ultracentrifuge 1=11835
- with variable focal length, parameters calc., Gaussian optics 0=2227
- varifocal, optically compensated, theory 2=7336
- variosystem with optical balance, calc. 4=8395
- waveguides, dielectric, cut-off modes 4=5377
- waveguides, diffraction at exit 0=10756
- waveguides, field distrib. 0=10755
- waveguides, passage of light 0=14807
- zoom, linearly compensated, design theory 2=17590
- 120° field mirror system for photometry of extended celestial sources 1=5122

Optics

- See also Aberrations, optical; Atmospheric optics; Lenses; Mirrors, etc.; Optical images.
- Alfred Kastler, C.E.K. Mees Medalist, 1962 3=16477
- Allvar Gullstrand, an appreciation 1=225
- apparatus, for low-temp. high press. work 2=7094
- atmosphere, tropospheric propagation, visible and i.r. 4=7845
- azimuth modulation, optical analogue to r.f. modulation 4=8453
- beat-frequency production, using Raman maser 4=27277
- in Canada, history and current research 2=13423
- use in chemistry 4=17850
- cloud chamber for meas. of aerosols 3=9584
- coherence time and bandwidth measures 3=233
- coherent light beam deflection by u.s. cell 4=16227
- coherent radiation systems 2=9396
- computing machines in optical design 2=2865
- conference on instruments and techniques, London (1961) 3=14308
- conference, Jena (Nov., 1958) 1=224
- conference, Jena (Nov., 1958) 1=9464
- coordinate transformation, Huggens' principle 0=19351
- correlation experiments, linear and quadratic 3=21512
- correlation expts., coincidence counting technique appls. 3=21511
- crystal, low-temp., included in conference, Kiev, Oct. 1961 3=24124
- crystal triplet from singlet level radiationless transitions 4=20475
- crystals, incl. dispersion, rel. to exciton theory 2=14414
- crystals, non-active, non-magnetic 0=2936
- crystals, spatial dispersion effects, exciton theory, review 4=26163
- demonstration experiments, use of laser 4=18378
- difference freq. obs., laser and lamp, in KDP crystal 3=18955
- distortion, apparent, of relativistically moving objects 2=2857
- e. m. boundary value problem, uniqueness proof 2=13673
- far i.r., review of research in Japan 4=24351
- fibre optics, review 2=15720
- fibre optics, waveguide effects 1=12975
- fibre, uses 1=2844-5
- films, metallic, by Maxwell's theory 4=22816
- films, reversibility and reciprocity 2=13454
- flat surfaces, interferometric testing 2=17636
- fluorides, Pr^{3+} doped, i. r. quantum counteraction 4=7132
- Fourier transform techniques 1=18553
- in France, current research 2=13427
- fundamental concepts, critique, physiological and psychological approach 1=1802
- Gabor's expansion theorem, from information theory 0=14791

Optics—contd

- gases, non-linear effects, calc. 4=240-1
- geometrical, in space-time, from Sommerfeld-Runge law 4=2806
- German Democratic Republic, Catalogue Summary 4=5352
- in Germany, current research 2=13430
- Graham, Edgar D. Tillyer medalist 3=21184
- in Great Britain, current research 2=13426
- Hamiltonian, modern development 1=18545
- harmonic generation, continuous, using laser, gas 3=21506
- harmonic generation, continuous, using maser, gas 3=21507
- harmonic prod. on reflection from piezoelectric crystals, obs., GaAs, Te 3=18956
- Helmholtz eqn., vector potential deriv. 2=17580
- high pressure cell 4=28658
- i.r. spectral region, history 0=154
- i.r. technology, recent advances 2=22001
- i.r. windows, emittance meas. 2=22084
- images, use of information theory 1=4423
- incoherent radiation, mutual coherence 3=9574
- and information theory 1=18548
- information theory, review 2=11460
- Institute of Optics, Paris, survey of work and organization 1=1803
- in Italy, current research 2=13428
- in Japan, current research 2=13429
- light pipes, aluminized polystyrene 4=16223
- liquids, acoustic Debye-Sears effect, refraction and diffr. allowance 4=14385
- low-temperature work, metal cryostat 2=7484
- microwave demonstration of wave effects 4=8004
- modulation by Ge p-n junction absorpt. edge shift by elec. field 4=26193
- in Netherlands, history and current research 2=13424
- nonlinear media, light waves at boundary 3=231
- nonlinear processes in semiconductors and insulators 3=927
- observation of transparent isotropic objects 3=3872
- observations in general relativity 1=8045
- optical and electronic information, analogues and differences 1=18549
- optical fibres, transmission properties 1=12976
- optical paths, very small, meas. 2=2718
- optical storage and retrieval of information 3=11910-11
- passage from geometrical to wave optics 1=1700
- pressure of light, demonstration device 1=12959
- progress, book of reviews 1=18544
- propagation, guided, very low attenuation 4=8439
- quartz, fused, ultrasonic-opt. effect 2=2718
- ray paths in inhomogeneous anisotropic media 2=9362
- receivers near sources, collection efficiency 4=2820
- relativity, general, effects 4=11057
- research programme in a small college 4=5351
- resonance, isolated, in dielec. medium, with natural or collision broadening 4=27322
- resonators, acoustic, for modulated light 4=11312
- response data, vector analysis application 3=16723
- reversibility principle, uniqueness 2=7314
- review articles, six 4=14374-5
- and scientific manpower problem 4=14323
- solid state physics conference 0=6002
- spectroscopic, in Japan, far u.v., review 4=24363
- spectroscopy, conference, Jena (1960) 2=17579
- and spectroscopy, Conference, Jena 1960 3=11875
- statistical, foundations 2=7313
- Stokes, Sir George, brief biography 2=5132
- superlight-velocity optics 0=7326
- in Sweden, history and current research 2=13422
- teaching, demonstration apparatus 1=2675
- terminology, meaning of "optics" 1=2835
- thin film applications 4=22841
- transmission of optical energy along surfaces 4=27324-5
- Vavilov's work 3=16479
- Vavilov's work 3=16480
- wave front measurement by interferometer 2=5180
- wave, in optical design 1=18546
- In Yugoslavia, short review 4=24333
- BaF_2 : Er, i.r. quantum counter action 4=22872
- CaF_2 : Er, i.r. quantum counter action 4=22872
- LaF_3 : Er, i.r. quantum counter action 4=22872
- SrF_2 : Er, i.r. quantum counter action 4=22872
- geometrical**
- Abbe sine law generalization 4=27287

Optics—contd**geometrical—contd**

- aberrations 3=257
- absorbing lens, equiv. plate thickness 0=5138
- aplanatism, equivalence of definitions 2=1252
- application to ionosphere 2=15226
- book review 0=151
- caustic locus of primary rainbow 3=9577
- centreing, mounting error effect 3=11885
- concentration of light flux, at focus 0=8767
- conjugate use 4=24337
- contrast transfer theory rel. to surface quality 2=1256
- differential meth. of calc. 2=2861-4
- diffraction, geometrical theory 2=2894
- e.m. theory 2=7729
- eikonal eqn., from Fermat's principle and dynamical programming theory 1=16051
- Gabor's expansion theorem, extension to optics 1=12966
- Gaussian, matrix calc. 3=240
- Gaussian, matrix representation 4=11328
- Helmholtz equation for systems of revolution, fourth order finite difference equation 1=2838
- Herberger's work, review 2=1247
- Huyghen's principle, relationships with, isotropic medium 3=16496
- imaging of extended polychromatic sources 1=4433
- intersection length rel. to constructional data 2=9372
- l.f. and v.l.f. propag. between ionosphere and ground 4=16665
- light propag. in isotropic heterogen. media 2=15721
- object in wave field, optical properties 3=7304
- in optical design 1=18546
- optical design and prod. problems 2=21989
- parallax correction, at best focus for definition 0=8770
- path difference meas., two interferometer methods compared 4=2849
- plane-mirror optics, relation between object and image space 0=3603
- plane-parallel layers, nonlinear theory 3=16787
- ray-tracing, choice of rays 0=5146
- ray-tracing formulae for uniaxial crystals 2=2901
- ray-tracing by line coordinates 1=8213
- ray-tracing scheme 0=8768
- refractive index tolerances, for system with arbitrary number of surfaces 1=1809
- rotating mirror, reflection theory 0=2224
- Seidel eikonal, isoplanatic condition 0=3605
- Sommerfeld-Runge law in 3 and 4 dimensions 3=21
- tandem principle appl. to lenses for photocopying 3=11958
- thick lenses, convergent, axial achromatism 0=3609
- toric surfaces 0=16815
- toroidal surfaces 0=14796
- tracing of skew rays through toric surfaces 1=16052
- transformation of optical functions 1=4432
- transformations, two types, group props. 2=11467
- v.l.f. radio propag., connections 4=16666
- wave props., discussion 2=4917
- wavefront in an optical system, local curvature, calc. 4=11327
- wavefront reconstruction technique 3=11895
- wavefronts, calc., from aberration power series 1=228
- waveguides, passage of light 0=14807

Orbital calculation methods

(Heading introduced in 1961)

- adiabatic energy surfaces using "atomic associations" method 4=15320
- ALGOL compiler use for auxiliary functions and mol. integrals 4=20033
- allyl ions, Hartree-Fock calcs., unrestricted, spin props., computation by improved method 4=28174
- alternant MO approximation, correlation effects 3=19966
- alternant MO, generalization to states with different multiplicities 3=8242
- alternant MO method 4=3889
- alternant mol. orbital method (AMO); closed-shell struct., many-parameter energy expression 3=2602
- alternant mol., overlap integral occurrence 4=22341-2
- alternant molecular orbital, cyclic closed shell structure systems 4=9695
- alternant molecular orbital method, general 2=14306
- alternant orbitals calc. for allyl 1=3560
- ambiguity in determination of self-consistent bond orders 1=870

Orbital calculation methods—contd

- analytic wave-functions, inclusion of correlation 3=6345
- angular momentum quantum theory, review 4=19921
- approx. radial functions for first-row transition-metal atoms 3=10435
- approximation of zero differential overlap 1=11108
- aromatic mol., ring current effects calc. 2=16539
- atom, statistical model, with electron gas effects 4=3770
- atomic electrons, importance of ang. correl. 2=12279
- atomic orbital configuration wavefunctions for small molecules 3=12806
- atomic orbitals with angularly dependent Z eff. 1=19649
- atomic orbitals, arbitrary angular peakedness 1=12302
- atomic polarizabilities 3=22483
- atomic screening consts. from SCF functions 3=17521
- atoms, electrostatic interactions calc. 2=16465
- atoms and molecules, several quanta reson. 4=28098
- atoms and mols., electron correl. problem 3=12743
- atoms, neutral, electronegativity eval. 2=10960
- atoms, spin-orbit coupling det. 2=22884
- atoms, two-electron, quasi-stationary states 3=2554
- benzene, multi-centre pi-electron integrals 3=12847
- benzene, Pariser-Parr theory, bandwidths and transition intensities 4=25703
- benzene spectrum, quantum mechanical integrals, Pariser-Parr theory 4=22390
- benzene, spin-spin interaction, correction 3=8290
- bond orders, Hall's method, generalization 3=10496
- bond orders, by SCF MO and simple MO methods 1=7480
- bonding in cubic complexes 1=4946
- bonding in icosahedral complexes 1=3564
- bonds in molecules 1=19647
- Brillouin-Wigner perturbation differential eqns., variational solns. 4=28101
- carbon ground state and negative ion wave functions 1=5963
- central potentials and modified boundary conditions for H_2 1=3559
- centrifugal distortion effects in asymm. rotator 3=2595
- chain mols., HMO calc., exact solns. of secular eqns. 3=25157
- charged particle in Coulomb field, circularity tendency 2=7557
- Clebsch-Gordan coeffs. calc. 4=21039
- Clebsch-Gordan coeffs., formulae deriv. 4=66
- Clebsch-Gordan coeffs. of group D' 4=21040
- Clebsch-Gordan coeffs. of SU , group 4=67
- Clebsch-Gordan coeffs., sums of products 4=65
- Clebsch-Gordan coeffs., sums of products, diagram operations 4=64
- Clebsch-Gordan coeffs., sums of products, graphs 4=63
- complex configs., electrostatic interact 3=12746
- complex ion states in crystal field, group theory 4=20175
- conference on quantum mechanics, Sanibel Island (1963) 4=6449
- configuration interaction effects on intensities and phase shifts 2=1952
- configuration-interaction method 4=9694
- configuration interaction method, appl. to He 2^3S state 2=22393
- configuration p^2 , vector coupling schemes 4=1181
- conformation stability, for degenerate states 3=19955
- conformational stability, for nondegenerate states 3=19956
- conjugated systems, bond order matrix 3=8237
- conjugated systems, open- and closed-shell SCF method 1=9935
- constant and minimum energy orthogonalization 4=30366
- Coulomb wave functions at low energies 4=25470
- correl. of electrons in same shell, exchange polarization, in-out effect 3=8175
- correlation effects in two and three-electron systems 3=19922
- criteria for construction of SCF MO wave-functions 2=16497
- crystal field approximation 1=4963
- crystal field theory, covalency 4=20151
- crystals, orbital harmonicity, coordination 1=3618
- cuboctahedral bonding 1=19648
- cyclic systems, alternant mol. orbital method 2=1430
- d^5 configuration, spin-orbit matrices 3=2545
- d-electron systems, weak-field coupling 3=22526
- Debye-Hückel potential, bound states 4=18791

Orbital calculation methods—contd

- density matrix, first-order, for spin-projected single determinant, natural expansion 4=20028
 diatomic homonuclear mol., dipole moment induction 2=20792
 diatomic homonuclear mols., forces operative 3=25079
 diatomic, Hulbert-Hirschfelder potential reliability 4=25618
 diatomic molecules, for small internuclear separations 2=18443
 diatomic mols., spectroscopic consts. from Hartree-Fock wavefunctions 4=15326
 diatomic mols., use of two-centre functions 4=1249
 diatomic, multi-configurations calc. 3=15318
 different orbitals for different spins 4=15319
 for dihedral cpds 4=25622
 dipole velocity integrals, calc. 4=6547
 Dirac-Coulomb Hamiltonian with two vector invariants 4=12331
 Dirac-Coulomb spherical solns., new represent. 2=11866
 Dirac density matrix, approximations 4=12347
 Dirac and Schröd. eqns. for Coulomb potential 3=16525
 effective potential approx. method 4=19926
 eigenfunctions of both S^2 and S_z operators, Slater determinants 4=20020
 electron correlation in atoms and molecules 1=13912
 electron, in Coulomb-correl. many-electron systems 2=6077
 electron density function, effective, three-dim. 2=22876
 electron interaction with e.m. field, nuclear Coulomb field effects 1=19576
 electron MO theory of diamagnetism, use in calc. C chemical shifts 4=12518
 electron systems, Heitler-London approach, cluster expansion 4=17629
 electronic wave-functions, computer programme 4=12334
 electrostatic calc., two and three-centre integrals 3=6374
 elliptical coordinate wave-functions, nonintegral exponents 2=8117
 energy eigen values, lower bound procedure 4=29530
 energy levels of particle in screened Debye field 3=18732
 energy matrix of particle system in given spin state 4=2558
 equivalent electrons, orbit-orbit interact. effect 4=19929
 ethylene, Pariser-Parr theory, bandwidths and transition intensities 4=25703
 exact wave-functions, natural expansions 2=19427
 excited states, variation-perturbation method 1=7422
 f^3 config., eigenfunctions 4=3764
 FE method derivs., bonding condition 4=20025
 FEMO calculations for pyridine and pyrimidine 1=9936
 Fermi surfaces in form of net 3=12943
 fermions, correl. effects, many-particle excit. expansion 4=5100
 flight analysis in field of one attracting centre 4=15911
 fluorescein, spectra, by LCAO MO method 3=2647
 Fock-Dirac density matrix, perturbation theory 2=12275
 formaldehyde, deuteron field gradient calc. 4=30462
 four-dim. electron density function 2=18391
 four-electron, generalized product functions 3=10449
 free-electron theory appl. to three-dimensional networks 1=4977
 free-free transitions of electron in ion field 3=22497
 g-tensor, gauge-invariant theory 3=6384
 for g-value 4=24868
 Gauss integral transform method 1=17250
 Gaussian, for atom-in-molecule calculations 1=8849
 Gaussian correlation functions, two-electron systems 4=28100
 Gaussian functions in wavefunction calc. for small molecules 3=19964-5
 Gaussian orbitals, atomic, quantum mech. integrals 2=12278
 Gaussian orbitals, for many-electron mol. wave functions 2=18438
 Gaussian wave functions for polyatomic mols. 4=25621
 Gaussian wave-functions for 10-electron systems 4=25504
 Gaussian wave-functions of 10-electron systems 4=25650
 general SCF theory corrections 4=20022
 Green's field functions method 4=19920
 group theory and aromatic mols. 2=3757

Orbital calculation methods—contd

- guanine-cytosine base pair, semiempirical SCF-LCAO-MO calc. of electronic structure 4=20086
 H-type one-electron Hartree parameters 4=1300
 halomethanes, C^{13} -H coupling consts. substituent effects, max. overlap orbital treatment 4=22405
 Hamiltonian relativistic terms, closed-shell-plus-one structure 4=3765
 Hamiltonian, rigid asymm. rotator-type, trace formulae 3=14029
 Hartree-Fock approx., perturb. method 3=3754
 Hartree-Fock approximation, stationary properties 1=8806
 Hartree-Fock calc. of mag. field at Fe nucleus 1=3628-9
 Hartree-Fock calcs., unrestricted, spin props., computation by improved method 4=28174
 Hartree-Fock, electron correl. effects 2=10193
 Hartree-Fock eqn. in terms of localized orbitals 1=4890
 Hartree-Fock eqns., perturbation treatment 1=2272
 Hartree-Fock, errors involved 2=1954
 Hartree-Fock functions with limited basis 3=8239
 Hartree and Fock generalized methods 1=4895
 Hartree and Fock generalized methods 1=11061
 Hartree-Fock Hamiltonians and separable nonlocal potentials 4=29531
 Hartree-Fock method generalized for fermion system 1=8070
 Hartree-Fock method for solids, generalized Koopman's theorem 1=11175
 Hartree-Fock SCF functions, computer programme 1=13909
 Hartree-Fock SCF theory, analytical methods 1=7421
 Hartree-Fock, stability 2=22879
 Hartree-Fock, unrestricted, validity, correlation effects 4=6453
 Hartree-Fock, unrestricted, $Z^{-1/2}$ expansion 4=19936
 Hartree-Fock wave functions, Z expansion 4=1198
 Hartree and Hartree-Fock approx., coordinate and momentum matrix elements interrel. 4=19933
 Heisenberg exchange interaction, molecular model 1=8854
 Hellmann-Feynman, wave functions 2=20772
 heteroatom radicals, SCF calc. of spin-density distrib. 3=10530
 hole config. rel. to electron config., coeffs. 4=28104
 horizontal and vertical correlation in π -electron systems 4=25619
 Hückel MOLCAO, Hartmann approx. 4=22331
 hybridization, rel. to heat of hydrogenation 2=545
 hydrocarbon, conjugated, π orbital, doubly occupied, correl. energy 3=22576
 hydrocarbons, conjugated, nonalternant, electronic spectra, calc. by limited configuration interaction method 4=20087
 hydrocarbons, extended Hückel theory 4=1243
 hydrogenic functions, diatomic, generalized radial integrals 4=22276
 hydrogen-like analytic wave functions, parameters calc. 2=171
 hydrogenlike radial functions, orthogonality 3=6341
 Hylleraas expansions, half-integral 3=12750
 hyperfine interactions, core-electron contribs., theory 4=17235
 hypervirial theorems 2=6210
 ionic crystals, d-electron covalency theory 4=12557
 independent-particle model, self-consistent field theory 3=6340
 induction and dispersion energies at finite distances 2=3714
 integrals, 2-centre Coulomb and hybrid types 4=6549
 integrals with functions of $\vec{r}_{12}, \vec{r}_{13}, \vec{r}_{23}$, calc. 4=1177
 interaction of degenerate configurations 2=20777
 interaction of two electrons, operator matrix element 4=1186
 isochronous derivs. matrix 4=15912
 LCAO inclusion of atomic functions overlap 4=20021
 LCAO-MO, general theory, diophantic uncertainty parameters 1=7479
 LCAO-MO ω -technique for molecules 2=16498

Orbital calculation methods—contd

- LCAO theory of nuclear spin coupling consts. 4=25737
 LCAO wave-functions for F-centres from ENDOR data 2=2104
 1^N configs., configuration interact. effects 4=1174
 1^n config., term energies variance, Moszkowski's formula proof 4=6454
 ligand field theory, hybrid orbitals 2=20774
 ligand field theory, spin-orbit coupling 3=25161
 limited configuration interaction for diatomic molecules 2=6196
 limits of error at arbitrary point in theory 3=10436
 linear combinations of atomic associations (LCAA) 4=6539
 localised, calc. 4=12433
 long-chain conjugated mols., LCAO-SCF theory 4=1328
 long-chain polyenes, LCAO-MO calc. 2=3768
 macromolecules with conjugated double bonds 2=23020
 magnetic multipole radiative transitions, $\Delta S = \pm 1$ 4=17236
 magnetic screening consts., H_2 mol. 2=10272
 magnetic shielding consts., integrals 2=12342
 many-electron problem, statistical approx. 4=12332
 many-electron quantum mechanics, density matrix 1=13911
 many-electron theory of atoms and molecules, effect of correlation on orbitals 3=12744
 matrices which anticommute with Hamiltonian 2=12274
 matrix components of Hamiltonian w.r.t. correl. wave functions 3=6344
 matrix elements of operators for almost closed shells 4=1187
 maximum overlap atomic and molecular orbitals 1=11057
 maximum-overlap directed-hybrid orbitals 1=11106
 maximum overlap method, comparison 3=10497
 metals, coupled orbits, two dimensional, theory and appl. 4=28299
 metals, perturbation due to impurity, tight-binding approx. 2=3910
 methane, ground-state wavefunctions, calc. using SCF MO method 4=20088
 methane, LCAO-MO-SCF wavefunctions, octopole moment calc. 4=22408
 use of method of fractional parentage coeff. 4=20024
 MO LCAO method, local and total symmetry 4=1247
 molecular diamagnetic susceptibility tensor, approx. method 1=7483
 molecular integrals, numerical calc. 1=12303
 molecular, new method, esp. for cyclic systems 3=2601
 molecular orbital distortion by perturbing molecule 4=9790
 molecular orbital and localized valence bond methods, criterion 4=1248
 molecular two-centre hybrid and exchange integrals 1=14068-9
 molecular wavefunctions containing 1st- and 2nd-row atoms, simple basis set 4=17275
 molecular wave-functions, new approx. method 3=2603
 molecules, rel. to C_6H_6 vibr. freqs. calc. 4=22392
 molecules, diamagnetic, Faraday effect, theory 3=6383
 molecules, diatomic, dissociation error reduction 4=12432
 Molecules, use of Gaussian functions 4=12434
 molecules, hybridized valence states, calc. 2=6211
 molecules, large, semiempirical methods 2=8119
 molecules, lower bound for energy levels 3=25084
 molecules, normal co-ordinate analysis, theory 4=17297
 molecules, and solids, exchange, correl. and spin effects, review 2=14319
 molecules, 3-centre exchange and 4-centre integrals over 1s atomic orbitals 4=25632
 molecules, transition probabs. calc. 3=12803
 molecules, zero-point energies, perturb. methods 3=12795
 multiple-centre integrals, dipolar interaction, in matrix element over LCAO orbitals 4=3843
 nI config. interactions, spin-orbit and mag. hyperfine 4=6484
 $n \rightarrow \pi^*$ transitions, comparison of exciton and MO calc. 3=12804
 naphthalene ions, Hartree-Fock calcs., unrestricted, spin props., computation by improved method 4=28174

Orbital calculation methods—contd

- natural orbital expansion, for calc. K-shell energy shifts in perturbation theory 4=15264
 natural orbitals in the geminal product approx., direct determ. 4=22275
 N-electron system, energy, Bopp's approx. 4=22288
 non-adiabatic theory, diatomic molecules 4=15334
 numerical self-consist. field calcs., total energies 4=28103
 one-centre integrals, computer programmes 3=8225
 one-centre integrals of extraordinary functions 3=6339
 one-centre two-electron integrals, general soln. 2=14183
 organic aromatic and olefinic, open shell SCF field 4=25627
 organic cpds., Kuhn's electron repulsion addition 4=25620
 orthogonal, rel. to generalized Wannier functions 3=6452
 orthogonal many-electron group orbitals 3=6338
 overlap integrals, using Slater functions 2=10271
 overlapping, partial, infinite energy values interpret. 2=6217
 π -electron systems, split p-orbital method 2=10268
 pair correlations in closed-shell systems 4=12330
 Pariser-Parr approx. validity, polyatomic conjugated mols. 4=15323
 Pariser-Parr theory, bandwidths and transition intensities 4=25703
 parity impurities due to weak electron interact. 4=5957
 parity-unfavoured transitions not in forward scatt. 4=27074
 partitioning of Hamiltonians and molec. energies 4=30417
 pentadienyl ions, Hartree-Fock calcs., unrestricted, spin props., computation by improved method 4=28174
 permutation groups for molecular integrals, tables 3=22525
 perturbation eqns., iteration-variation procedures 4=1246
 perturbation theory, calcs. 2=3680-1
 perturbation theory, chemical bonds theory 3=1614
 perturbation theory of many-electron systems 1=7423
 perturbation theory, reduction of many-electron problems 2=6079
 pI and p^I configs. for different coupling schemes 4=1189
 p^I config., electrostatic energy rel. to coupling schemes 4=1185
 p^I config., spin-orbit interact., coupling schemes 4=1190
 phase mechanics velo. potential, calc. 4=12357
 π -electron correl., analogy methods 2=18441-2
 π -electron ionization 2=2011-12
 π -electron, perturb. calc. for aromatic hydrocarbons 2=6213
 π -electron systems, higher p orbitals, effects of overlapping 2=14309
 Poisson transform, of

$$\sum_{j=1}^N F(\cos 2\pi j/N) \cos 2\pi jN 3=21196$$
 polarizabilities and Sternheimer shielding factors 3=17518
 polarized orbitals method for electron scatt. by H atoms 1=4298
 polyatom system, MIT programmes for mechanized calc. 4=12435
 polygon conditions in 18j coeffs. 4=1191
 polymethine chains, LCAO-MO method 4=6636
 polynucleotides, Hückel approx. in energy band structure calc. 4=20140
 polyphenyls, SCF-LCAO-MO theory, mobile bond order calc. 4=22413
 potential-energy surfaces, local approx. by surfaces permitting separation of variables 4=28158
 quadrivalent max. overlap hybrid orbitals 2=16496
 quantum theory, polycentric integrals eval. 3=8221
 rare earth ions, spectroscopic and mag. props. Hartree-Fock calc. 4=30504
 reduced density matrix and natural spin orbitals and geminals symm. props. 4=6455
 relation to classical wave functions $\sqrt{p} \exp(iS/\hbar)$ 4=5061
 rotor mol. of orthorhombic symm., fourth-order Hamiltonian 3=25083
 Runge-Lenz vector in presence of elec. field 4=11763
 SCF-CI calcs., unlinked clusters, appearance 4=28102
 SCF eqns., numerical solns. 4=1194
 SCF theory, LCAO approx., excited states 4=22272-4
 SCF-LCAO-MO wave-functions appl. to
 HF_2 2=6201

Orbital calculation methods—contd

- Schrödinger eqn., approx. solns., review 4=5058
 Schrödinger eqn. for one electron, det. of eigenvalues and eigenfunctions 2=22883
 Schrödinger H atom in n-dimensions 3=7105
 self-consistent field eqns. with correlations 1=1702
 self-consistent field eqns. soln. 2=14185
 self-consistent-field theory, general treatment 3=17563
 semiempirical one-centre Coulomb repulsion integrals 3=17560
 shell theory, creation and annihil. operator methods 4=30365
 Shockley surface states, delta function potentials 2=6310
 Sinanoğlu's "exact-pair" theory, comp. with separated-pair theory 4=6450
 single-centre expansion method 3=22554
 single-determinant wavefunctions, spin-component analysis 3=23785
 single substitution configurations 2=18439
 Slater atomic orbitals, cal. of 2-centre integrals 3=22532
 Slater orbital, one-electron operator expectation value 2=20773
 Slater terms, graphical calc. 4=25617
 spin Hamiltonian for even electron number and even multiplicity 4=1197
 spin-orbit matrix elements for configuration f^n , selection rules 1=3497
 spin properties of π -electrons 4=25629
 spin-spin coupling across several bonds 3=719
 spin-spin coupling const., geminal, hyperconjugation effect 3=22520
 split p-orbital, Dewar's method, evaluation 3=17561
 split-p-orbital method 2=2009
 split-p-orbital method, difficulties 3=8238
 square of radial integral for transitions in H-like atoms 1=2276
 statistical density matrix, analysis 2=514
 statistical theory, continuous bases of represent. 4=1173
 strain birefringence meas. using tensile testing machine 1=7703
 supermultiplet theory and harmonic oscillator 2=10192
 symmetry projections in group theory 4=2567
 Thomas-Fermi theory, classical approx. 3=697
 Thomas-Fermi theory of excited states 4=28105
 three-body problem, higher ang. momentum eigenfunctions 1=12242
 transformation matrices of six ang. momenta, rel. to j-coeffts. 4=1182
 transformation matrices of six ang. momenta, simplification 4=1183
 transformation matrix elements for p^l, p^3l, p^5l configs. 4=1188
 transition-ion complexes in crystals 1=14152
 transition metal cyano complexes, overlap integrals 3=10529
 transitions, SCF approx. 1=4891
 triarylborons, pi-electron energy calc. 4=12511
 triethylammonium-(tetracyanoquinodimethane)₂, rel. to elec. conduction and charge transfer in crystals 4=22729
 truncated reactive operator formalism, appl. 4=2553
 2lj coeff. classification and diagrams 4=19927
 two-centre Coulomb and hybrid integrals 4=1255
 two-centre Coulomb potl. approx. 3=22610
 two-centre exchange integrals, calc. scheme 4=28178
 two-centre integral eval. 2=8055
 two-centre integrals between orbitals 1=19650
 two-centre integrals over solid spherical harmonics 3=19967
 two-centre one-electron integrals 3=12792
 two-centre overlap integrals eval. 2=12340
 two-electron atoms, exponential correlation functions 4=15269
 two-electron exchange between colliding nuclei, T-matrix theory 4=9633
 two-electron integrals, one- and two-centre, Fourier convolution calc. 4=3763
 two-electron matrix elements of orbit-orbit interaction operator 4=22282
 two-electron systems, real wave-function natural calc. 4=12333

Orbital calculation methods—contd

- unrestricted Hartree-Fock method for equal azimuthal quantum numbers 4=1184
 valence bond wave-functions, population analysis 3=6375
 variational calc. for ethylene 2=3772
 varying orbital exponents in MO theory 3=4738
 vector coupling schemes, electrostatic interaction operator 4=1193
 Waller-Hartree and Debye-Ehrenfest methods, X-ray and electron intensities scattered by NH_3 and H_2O mols. 4=6522
 wave-function for free electron near an atom 1=12239
 wave-function from many-electron group orbitals 2=8054
 wavefunctions, optimization by scaling 4=20027
 wave-functions of single determinant type 1=15679
 zincblende lattice, orthog. plane wave method 3=10625
 AB_2 mols., MO-LCAO approx., Walsh rules 3=22519
 AB_n molecules, one-centre perturb. method 4=1244
 B_{10}H_4 , mol. orbitals, LCAO calc. 2=20795
 BeO ground state, MO approx. 4=20037
 CH bond, LCAO-MO 4=30424
 CH₄ 4=12507
 C_2N_2 , ground state wave-function 2=6199
 CO, Rydberg excited levels of $^1\Sigma^+, ^3\Sigma^+, ^1\Pi, ^3\Pi$ symmetry 4=30425
 H atom, nonrelativistic Schrödinger eqn., boundary conditions 3=10444
 H, electron scattering, elastic, polarized orbital method 4=28149
 H molecule-ion, statistical theory 4=12451
 H, off-centre calcs. using Coulson-Barnett and Slater-orbital radial factors 4=22291
 H_2 , B state, valence bond function transformation 4=6567
 H_2 , natural orbital representation 4=15335
 H_2 , Schrödinger wave eqn. solution 4=30433
 H_2 , spatial correl. of two electrons 2=16511
 H_2 wavefunctions, optimization by scaling 4=20027
 H_3 complex, "different orbitals for different spins" 4=28215
 H_2^+ , three excited states 4=15332
 H_2^+ , atomic polarization 2=14315
 H_2^+ , exact function, rel. to variational functions 4=25641
 H_2 and H_2^+ , many-centre wavefunctions 4=12356
 H_2 and H_2^+ , SCF-LCAO-MO calc. 2=16512
 $\text{H}_3^+, \text{H}_3, \text{H}_3^-$, electronic wave-functions 4=25675
 H_8 ring, in MO and alternant MO approx. 3=8243
 HCl, electronic structure calc. 4=25649
 HF, charge distributions, analysis 4=12453
 HI, Morse oscillator matrix elements for vibration-rotation lines 4=9710
 He atom, Hartree-Fock, from many-electron trial wave function 4=1202
 He, ground state 4=22297
 He ions, electron scattering, elastic, polarized orbital method 4=28149
 He, SCF theory, LCAO approx. 4=22272-4
 He wave-functions from Slater orbitals 1=2278
 HeH⁺ ground state, one-centre wavefunction 4=28187
 Ho^{3+} , free ion, 4f configuration calc. 1=19584
 I_2 , crystalline, space group treatment 4=17335
 K ferricyanide, mag. d-wave functions 2=18509
 KNiF_3 , covalency, LC^ΔO -MO model 3=12893
 KNiF_3 , optical and mag. props. 3=933
 LiF wavefunctions, optimization by scaling 4=20027
 LiH, valence-bond wave functs. analysis 2=12338
 N, Hartree-Fock-Slater wave-functions 4=12370
 NH_2 radical, H^+ and N^{14} coupling, theory 2=3767
 O, Hartree-Fock-Slater wave functions 4=12370
 Pr IV $4f^2$ ions, orbit-orbit interactions 4=15262
 S_{12} electrons interval factor, relativistic corr. 2=18399
 SO_4^{2-} and SO_3^{2-} , normal co-ordinate analysis, theory 4=17297
 TiO molecule, SCF-LCAO-MO calc. of low-lying electron states 4=9729
 XH_n mols., one centre expansion method 3=6386
 Xe fluorides, rel. to chemical shifts 4=20074
 XeF_2 , strengths of vibronic transitions, calc. 4=17298
 XeF_4 , strengths of vibronic transitions, calc. 4=17298
 XeF_4 , MO treatment of electronic structure and spectrum 4=17299

Order-disorder transformations

See Phase transformations.

Organic compounds

See also Plastics; Polymers; Waxes.
 absorbed dose calculations for various radiations 1=11656
 absorption spectra, of impurities, in crystals 2=23567
 absorptn., phosphorescence, of 35 cpds. 3=958
 acenaphthene, charge-transfer complexes, intersystem crossing 4=13100
 acenaphthene crystals, mol. vibrations analysis 4=1757
 acenaphthene, fluorescence quantum yields 0=16098
 acenaphthene-ion, e.s.r., h.f.s. hyperconjugation mechanism 3=22591
 acenaphthene, low temp. phosphorescence 1=11400
 acenaphthene, molecules, vibration symmetry types 3=17605
 acenaphthene, in sat. hydrocarbon phosphorescence, 77°K 4=20499
 acenaphthene, soln. in solid pentane, luminescence spectra 1=17917
 acenaphthene in solns., phosphoresc. meas. 4=11206
 acepleiadylene, crystal structure 0=8240
 acetaldehyde, gaseous, ultrasonic relaxation 1=8162
 acetaldehyde and propionaldehyde vapours, I₂-catalysis of decomposition 4=10642
 acetaldehyde, molec. J-coupling and internal motion 3=737
 acetaldehyde, n.m.r., J coupling theory 3=14790
 acetaldehyde vapour, fluorescence 1=12929
 acetaldehyde, vapour pressure curve, calc. 4=2892
 acetaldehyde-water mixtures, n.m.r. studies 0=6819
 acetamide-nitrophenol complexes in benzene, from i.r. spectrum 4=20077
 acetamide, Raman spectra and phase changes 0=5948
 acetate solutions, ultrasonic absorption, compressibility 1=6858
 acetic acid, adsorption by Ge surfaces 0=12115
 acetic acid, aq. solns., ultrasonic studies 4=18196
 acetic acid and chloro derivatives, n.m.r. of solid 1=8856
 acetic acid, interfacial phenomena with toluene 1=2742-4
 acetic acid, monomeric and dimeric, Urey-Bradley force consts., normal coordinate analysis calc. 4=28244-5
 acetic acid, n.m.r. study of structure 0=18231
 acetic acid, paramagnetic resonance detection 1=10799
 acetic acid, proton mag. res. study 1=12902
 acetic acid, r.f. absorption spectra, dielectric constant 1=12894
 acetic acid, in Si etchants, contribution to etching 0=4600
 acetic acid, solid, effect of water on diel. props. 1=17826
 acetic acid, u.s. absorption at 450 kc/s 0=5096
 acetic acid, ultrasonic props. of binary mixtures 1=6859
 acetic acid in very dilute solutions, dielectric polarizations 3=21394
 acetic acid-water-butane, 3 coexisting phases, critical phenomena 4=24442
 acetic acid and water equimolecular solutions, Raman spectra 1=146
 aceto-acetic ester, n.m.r. long-range chemical shifts 1=12309
 acetone, acetyl radical decomposition 2=12980
 acetone and acetone-d₆, r.f. spectra, dipole moments and rotational consts. 0=4212
 acetone, adsorption by Ge surfaces 0=12115
 acetone, aq. solns., density fluctuations, study by Rayleigh light scatt. and hypersound dispersion 1=4341
 acetone-chloroform, light scatt. 2=21909
 acetone, conduction elec., fluctuations, freq. var. 4=21151
 acetone, in diffusion chamber, effect on tracks 2=1639
 acetone, double refraction in strong shock waves 3=7205
 acetone, effect on fluorescence of acetylanthracene in hexane 1=9400
 acetone, effect on thermal cond. of ZnSO₄·7H₂O 1=14192
 acetone, far-u.v. photolysis 4=29231
 acetone, flash photolysis. 3=25835
 acetone, flash photolysis with filtered light 1=6574
 acetone, with HI, photolysis 2=12980
 acetone, ionic solutions, i.r. spectra 4=18203
 acetone-isooctane system, vapour press., and activation coeffs. 4=16143
 acetone, light scatt., orientational interaction and rotation of molecules 4=24162
 acetone, light scattering, Brillouin compts. 0=14847

Organic compounds—contd

acetone, liquid, lack of orientational ordering 1=11747
 acetone, liquid, spec. ht. 2=11356
 acetone, luminescence 2=15609
 acetone, mixtures with isopropanol, boiling pt. and surface tension 1=15858
 acetone mols., excitation modulation spectroscopy 3=12802
 acetone, n.m.r. of proton complexes at -75°C 1=11767
 acetone nitril, light scatt., orientational interaction and rotation of molecules 4=24162
 acetone nitril, in soln., i. r. absorption, temp. depend. 4=27182
 acetone, paramagnetic resonance 1=15907
 acetone, phosphorescence decay time, calc. 0=506
 acetone, Raman spectra temp. dependence 1=9395
 acetone, Rayleigh scattering depolarization factor meas. 0=19450
 acetone, relaxation times at 3 cm 1=6870
 acetone, rotation-internal torsion levels, calc. 0=15696
 acetone, saturated, vapour pressure meas. apparatus 3=19071
 acetone, self-diffusion coeff. 0=3513
 acetone solutions, dissolved ion interaction, formation of complexes, i. r. absorption 4=26749
 acetone, Sumoto effect, as electrolytic liquid 1=15893
 acetone, superheat, measurement 1=15850
 acetone, torsional vibration of methyl groups 0=20602
 acetone, u.s. dispersion, at 180 Mc/s 1=18405
 acetone, u.s. wave diffraction, angular width 3=21356
 acetone, ultrasonic waveform distortion, det. of nonlinear parameters 1=4337
 acetonitrile-d₃, microwave spectrum 3=6408
 acetonitrile, elec. discharge, CN band system 2=18452
 acetonitrile, elec. discharge, spectrographic study 3=12846
 acetonitrile, i. r. absorpt., temp. depend. 3=8286
 acetonitrile, i. r. absorption bands, width and profile 0=20614
 acetonitrile, microwave electrolysis, dinitrobenzene ion formation 0=17776
 acetonitrile, phase transition between 77-195°K, study by N¹⁴ pure quadrupole resonance, 0=6283
 acetonitrile, Raman spectra temp. dependence 1=9395
 acetonitrile, u.v. O₂ absorption spectra 2=5020
 acetophenone anion radicals, e.s.r. spectra 4=12513
 acetophenone, phosphorescence, stimulated 3=2610
 acetyl chloride, hydrolysis kinetics 0=3307
 acetyl cyanide, r.f. spectrum, structure and dipole moment 0=2763
 acetyl-d, l-alanine, γ-irrad., e.s.r. 2=12815
 acetyl fluoride, r.f. spectrum, structure and dipole moment 0=2762
 acetyl-L-glutamic acid, γ-irrad., e.s.r. 3=3164
 acetyl iodide, reaction with HI 2=19142
 N-acetyl methionine, γ-irrad., e.s.r. of free radicals 2=16550
 acetyl radical, thermodynamic props. 4=25759
 acetylacetonates, sign of electron spin density on methyl protons 0=2743
 acetylacetonates of Zr, Ce, Th, and U; dimorphism and isomorphism 0=3246
 acetylacetone, keto-enol system, proton exchange, study using nucl. mag. multiple resonance 4=13702
 acetylacetone, n.m.r. long-range chemical shifts 1=12309
 1-2-acetylanthracene dissolved in hexane, fluorescence, rel. to second solvent 1=9400
 acetylanthracene, fluorescence rel. to solvents 2=15600
 2-acetylanthracene, fluorescence spectra 2=56
 acetylanthracenes, in solvents, fluorescence spectra 0=10675
 acetylene, absorption and photoionization coeffs., 1050-2000A 4=8616
 acetylene acid, and D-substitution product, electro-optical parameters 3=15366
 acetylene, adsorption on Ir 2=15099
 acetylene-air flame with high-freq. torch, temp. meas. 3=3913
 acetylene-air flames, elec. cond. at microwave frequency 0=1098
 acetylene-air or oxygen flame, electron temp., near to gas temp. 4=16274
 acetylene, catalysis of polymerization and hydrogenation, by ion exchange resins 4=7759

Organic compounds—contd

- acetylene, charge distribution, hybridization and bonding 0=17802
 acetylene, chemi-ionization by O atoms 3=16904
 acetylene, Cl induced polymerization 2=8910
 acetylene, compared with isoelectronic molecule N_2 3=12837
 acetylene cpds., n.m.r. study of H bonds 4=29648
 acetylene, cyclotron resonance in flames 1=20738
 acetylene- d_1 , i.r. spectrum, 1900-3400 cm^{-1} 3=2637
 acetylene decomposition by electron impact, H-D isotope effects 4=25754
 acetylene, decomposition flame, reaction mechanism 3=25827
 acetylene and derivatives, adsorption on alumina and silica 1=11601
 acetylene derivatives containing gp IV elements, i.r. study 4=20075
 acetylene destruction in flames with O_2 4=2153
 acetylene destruction rate in flame gases 4=30897
 acetylene, diamag. anisotropy by n.m.r. 2=13698
 acetylene, dideutero, i.r. spectrum 2=14279
 acetylene, diffusion of ethane and self, meas. 4=11238
 acetylene, dissociation of mol. ions formed by charge exchange with positive ions, mass spectra 4=12523
 acetylene, effect of deuteration on flame band spectra 0=5937
 acetylene, electron density distrib. 2=20849
 acetylene flame; added Na and Sr concentration and temperature calc. 3=3393
 acetylene, flame study, dissociation and ionization processes 3=23542
 acetylene, flame study, reaction zone excitation 3=23543
 acetylene, flames 1=8842
 acetylene, flames, short u.v. emission 2=16535
 acetylene formation in liq. hydrocarbon arcs, rel. to temp. detm. 3=7484
 acetylene, gas-phase vibr. relax. 2=3726
 acetylene, Hg-photosensitized decomp. 4=4708
 acetylene, ion-molecule reacts. 2=8135
 acetylene, ion-molecule reactions 4=12523
 acetylene, ioniz. prod. during oxidation in shock waves 2=23959
 acetylene, ionization by ions and electrons 4=16439
 acetylene, ionization by ions of 200-1200 keV energies 4=27488
 acetylene, ionization, by protons, 2.25 MeV 3=20024
 acetylene, loss of energy of an electron beam traversing gas 0=19764
 acetylene, mag. screening const. calc. 2=23002
 acetylene mol., rot-vib. consts. 3=10531
 acetylene, mol. structure det. from moments of inertia 3=2597
 acetylene, molecular vibration-rotation levels, perturbation by Kr and Xe 0=15726-7
 acetylene molecule, excited states, ASMO calc. 1=14062
 acetylene, n.m.r., nuclear spin state 2=14847
 acetylene- O_2 -argon, free radicals in shock waves, flash absorption spectroscopy 0=17760
 acetylene- O_2 , burning-detonation transition 0=12105
 acetylene- O_2 , detonation, CH formation 1=12677
 acetylene- O_2 , detonation waves 0=12103
 acetylene- O_2 mixture, combustion, effect of shock waves and bubbles 1=4500
 acetylene- O_3 reaction, delayed appearance of OH 4=20830
 acetylene, optico-acoustic effect 0=8715
 acetylene, oxidation, $C_3H_3^+$ ion formation 4=13713
 acetylene-oxygen reactions, induction times 2=4531
 acetylene-oxygen reactions in shock tubes 2=12963
 acetylene, photoionization, continuous absorpt., and fluorescence 4=25690
 acetylene, polymerization and oxidation in shock waves 1=11618
 acetylene, radiation-induced polymerization 0=6418
 acetylene, Raman spectra and mol. collisions 3=7247
 acetylene, reaction with methyl free radicals 0=4710
 acetylene, solid, effect of nuclear spin on neutron scatt. 1=19687
 acetylene solns., i.r. spectra 0=9802
 acetylene, split-p-orbital calc. 2=2009
 acetylene, transport props. meas., rotational relax. 4=5241

Organic compounds—contd

- acetylene-water, deuterium exchange equilib. 4=30894
 acetylene-Xe ionic complexes, by electron irradi. 2=6893
 acetylenes, fluoro-, chloro-, molecular vibr., bond lengths, dipole moment 4=9735
 acetylenes, n.m.r. chemical shifts, 1-butyne to 1-nonyne 1=9953
 acetylenes, substituted, microwave spectra 1=3537
 acids, magnetic anisotropy meas. 4=7212
 acids, u.s. velocity, relationship with latent heat of vaporization 0=16768
 aconitine hydrochloride, hydrobromide, and hydroiodide, unit cell and space group 0=8244
 acoustic properties, liquid-polycrystal transition region 3=21355
 acridine dyes, effect of formic, acetic acids 2=15605
 acridine orange, phosphorescence, anti-Stokes 1=6235
 acridine orange in Plexiglas, fluorescence polarization 1=7723
 acridine yellow, fluorescence decay period 0=3538
 acridine yellow, in gelatine, fluorescence and phosphorescence, pre-excited state 1=2451
 acridine yellow in gelatin, pre-excited, phosphorescence decay 0=13719
 acridine yellow, luminescence, in alcohols, polarization, effect of "initial shock" 4=8215
 acridine yellow and orange, effect of pressure on optical props. 1=20019
 acridine yellow in Plexiglas, fluorescence polarization 1=7723
 acridone solns., absorption and luminescence, rel. to association 3=141
 acriflavine, delayed fluorescence in rigid media 2=2255
 acriflavine, luminescence, in alcohols, polarization, effect of "initial shock" 4=8215
 acriflavine solns., fluorescence lifetimes 4=29636
 acrylic acid NMR, spectra analysis 1=20254
 acrylonitrile, isotopically substituted, n.m.r. spectrum 4=22424
 acrylonitrile and methyl acrylonitrile, γ -irradi. at 77°K, free radicals, e.s.r. 1=14107
 acrylonitrile, n.m.r. unique parameters calc. 4=3910
 acrylonitrile, polymerization, effect of ionising radiations 3=6925
 acyl-phenols, spectra, in cyclohexane and ethanol 4=25691
 adamantane, n.m.r. lines, second moments 1=17352
 adamantane, solid, proton resonance, rotational transitional at -130°C 0=16192
 adenosine-5'-phosphate, crystal structure 3=8871
 adipic acid, absorpt. and luminescence spectra 2=14749
 adsorbed on Ge, effect on carrier recomb. 2=8329, 10466
 adsorption, from soln., onto metal, under potential 2=4499
 adsorption, thermodynamic quantities correl. 2=2432
 agar solution, acoustic impedance in circular tubes 1=11758
 alanine, irradi. single crystals, free radical p-d exchange reaction, e.s.r. study 4=23043
 alanine, irradiation of single crystal 0=3128
 alanine, optical rotation, effect of irradiation by 2 MeV electrons 1=11355
 alanines, e.s.r., 9 kMc/s 2=14821
 alcohol-amine molec. interaction at second triplet level rel. to radical formation 4=10647
 alcohol, benzyl, binary mixtures, ultrasonic velocities 1=8116
 alcohol, boiling from Hg surface 4=24447
 alcohol-glycerol mixtures, ultrasonic studies, conc. depend. 0=10658
 alcohol- H_2O_2 mixtures, u.v.-irradi., free radical formation, e.s.r. study 0=20662
 alcohol, methyl, superheat, measurement 1=15850
 alcohol vapours, ionization potls. meas. 3=7745
 alcohol-water soln., $NdCl_3$, absorption spectra, -87°C 3=1691
 alcohols, adhesion to alkali halide crystals 2=9250
 alcohols, aliphatic, dielec. polariz. 2=5025
 alcohols, aliphatic, dielec. sat. 2=13349
 alcohols, aliphatic, dielectric polarization, relaxation regions 0=19140
 alcohols, aliphatic, long-chain, dielectric const. 0=2171

Organic compounds—contd

- alcohols, aliphatic, OH stretching vibr. band shape, and intramolecular interaction 4=25692
 alcohols, antifoaming action 2=15168
 alcohols, aqueous, nuclear magnetic resonance due to proton exchange 1=8144
 alcohols, aqueous, sound characts. 2=19559
 alcohols and binary solns., sound vel. and compressibility 1=12879
 alcohols, boiling point, effect of strong electric fields 1=10629
 alcohols, C-H bonds, valency vibrations, temp. depend. 2=22986
 alcohols, compressibility and shear viscosity, temp. depend. 3=21309
 alcohols, crystals grown from cooled aqueous solutions 1=20417
 alcohols, dielec. props. 4=21142
 alcohols, dielectric permittivities in 8mm band 4=2700
 alcohols, dielectric relaxation, rel. to viscosity 3=21398
 alcohols, with dissolved alkali metals, property fluctuations, light scatt. study 4=24174
 alcohols and esters, relaxation times 0=19144
 alcohols, fourteen, dielec. absorption meas. 2=17478
 alcohols, H bonding, OH proton reson. shifts 1=14081
 alcohols, H_3O^+ formation, in mass spectra 4=9780
 alcohols, higher, surface tension in H_2O 0=71
 alcohols, hydrogen bonding and dielectric saturation 1=12891
 alcohols, ion formation, negative, by electron beams 4=16438
 alcohols, mixture, microwave dielec. absorpt. 2=19576
 alcohols, n-primary, anomalous dielec. dispersion 0=20960
 alcohols, negative ion mass spectra, sensitivity for I ion formation 0=3740
 alcohols, polyvinyl, containing dyes, luminescence 3=7213
 alcohols, Raman intensities of bonds 2=11375
 alcohols, secondary, solid, H bonding, dielectric effects of flaws 4=25803
 alcohols, and solns., dielec. relaxation 0=19139
 alcohols in solution, n.m.r. study of intermolecular H bonds 1=11113
 alcohols, superheated, (hydrogen bonded), dielectric consts. 4=18213
 alcohols, ten, Raman spectra, depolarization 3=22579
 alcohols, ten, Raman spectra, solvent effects 3=25115
 alcohols, tertiary, intermolec. association, rel. to dielectric polarization 3=21396
 alcohols, twelve, Raman spectra 3=22578
 alcohols, u.s. velocity, relationship with latent heat of vaporization 0=16768
 alcohols, various, molecular polarizabilities 1=4351
 n-alcohols, Rayleigh line-width, orientational relax. times 3=21366
 n-alcohols, thermal cond. meas., -100° + 200°C 4=24204
 n-aldehyde liqs., thermal cond. meas., -100° + 200°C 4=24204
 aldehydes, C-H vibr. rel. to spectral doublet 2=10248
 aldehydes, Raman spectra, relative line intensities 0=85
 aliphatic alcohols in polar solvents hydrogen bond, electrostatic model 4=30449
 aliphatic alcohols, pulse radiolysis, electron solvation 4=29232
 aliphatic aldehydes and ketones, luminescence 1=6908
 aliphatic amines, ultrasound velocity and molec. structure 1=18409
 aliphatic carbonyl cpds, bond dissociation energies 4=25759
 aliphatic hydrocarbons, C-C bonds, magnetic shielding const 4=1253
 aliphatic hydrocarbons, Cl-subst., in benzene and n-heptane, dielec. relaxation 1=4553
 aliphatic liquids, electron diffraction examination 3=21305
 aliphatic liquids, relation btw. ht. cond., molec. wt., and freezing pt. 0=5015
 aliphatic long-chain cpds., dielec. absorption in microwave region 2=12557
 aliphatic, molecular C ions formed in spark source, mass spectrographic study 4=9782
 aliphatic primary alcohol- CS_2 binary system, miscibility gaps 3=23875
 aliphatic, steric effects on reactivity 0=1954

Organic compounds—contd

- alkaloid—manganese chloride complexes, fluorescence 4=13092
 alkane chain, hindered, mean square length 0=17858
 n-alkane mixtures, principle of congruence 0=3518
 n-alkane mixtures, V^F , H^F , G^F dependence on composition 4=24199
 alkanes, diamagnetic susceptibilities 1=9948
 alkanes, formulation of corresponding states principle 1=9379
 alkanes, heats of mixing, congruence, validity 3=23535
 alkanes, kinetics of crystal nucleation 1=5272
 alkanes, liq., γ -ray induced elec. cond. 4=5205
 alkanes, mol. electronic bonding levels calc. 4=20076
 alkanes, molar diamag. susceptibility 1=14074
 alkanes, optical anisotropy, mol., solvent effects 4=18201
 alkanes, photoionization and dissociation 1=7494
 alkanes, reactions with recoil tritium atoms, rel. to C-H bond type 4=7776
 n-alkanes, diffusion in CCl_4 , hydrodyn. interaction 4=166
 n-alkanes, and mixtures, second virial coeffs. 2=11415
 n-alkanes, mobility of ions due to X-rays 2=15612
 n-alkanes, Townsend coeffs., rel. to molecular structure 1=1890
 alkenes, molar diamag. susceptibility 1=14074
 alkenes, straight chain, radicals formed by u.v. irradi., e.s.r. study at 77°K 4=20583
 n-alkenes, molecular length and excitation and ionization calc. 4=28234
 alkyl ammonium salts in solution, n.m.r. unusual spin-spin couplings 3=21410
 alkyl benzenes, fluorescence efficiencies, wavelength depend. 2=19569
 alkyl bromides, Rayleigh line-width, orientational relax. times 3=21366
 alkyl chlorides, dilute solutions, dielectric relaxation 1=12896
 alkyl cyanides, dielec. relax. meas. 4=25693
 alkyl enamels, light-scattering 0=6939
 alkyl free radicals, elimination of molecular hydrogen 1=7916
 alkyl halides, dissociation by momentum transfer, calc. 2=6129
 alkyl halides, microwave dielec. consts. 2=5026
 alkyl halides, (n, γ) activation, failure to bond rupture and nuclear recoil 2=6130
 alkyl halides, and solns., dielec. relaxation 0=19139
 alkyl halides, vapour-phase reactions 4=7742
 alkyl hydroperoxides, photodissociation 0=8314
 alkyl hydroperoxides, pyrolysis kinetics and O-O bond dissociation energies 4=13704
 alkyl iodide vapours, interaction with C surface, desorption and activation energy 0=3304
 alkyl iodide vapours, interaction with red phosphor surfaces, desorption 0=3305
 alkyl iodides, reactions with HI 1=5108
 alkyl nitrites, dielectric properties 1=1753
 alkyl phenols, dielec. absorpt. at 3 cm 4=29642
 alkyl radical reactions, disproportionation mechanism 1=17362
 alkyl radicals, disproportionation mech. 2=23009
 alkyl radicals, transient, e.s.r. 4=3925
 n-alkyl bromides, dielectric relaxation and molecular structure 1=14113
 n-alkyl chlorides, Townsend coeffs., rel. to molecular structure 1=1890
 n-alkyl disulphides, γ -irradi., e.s.r. 2=18480
 alkylbenzenes, crystallization process 4=17782
 alkylbenzenes, u.v. absorpt., oscill. strengths 2=8107
 alkylcyanides in benzene soln., dipole moments and relaxation time 4=12494
 alkylboranes, i.r. spectra 0=7760, 20634
 N-alkyldithiocarbamate complexes with metals, i.r. spectra, normal coordinate analysis 3=25120
 alkynes, molar diamag. susceptibility 1=14074
 allene, diamag. anisotropy by n.m.r. 2=13698
 allene, i.r. spectrum 4=30450
 allene, i.r. spectrum and structure 2=14684
 allene molecule, shrinkage effect by thermal vibrations 2=6124
 allene, Raman and i.r., integrated intensities and polarizations 4=6609
 allene, Urey-Bradley force field 3=20004
 allokinic acid, structure 0=3253

Organic compounds—contd

- allyl cation, radical, anion, wave functions of excited states 4=6610
 allyl ions, Hartree-Fock calcs., unrestricted, spin props., computation by improved method 4=28174
 allyl radical, MO calcs., partial overlapping 2=6217
 allylic chlorides, isomerism, rot., from i. r. spectra 4=28235
 alpechin (olive juice), microscopic and electron diffraction studies 1=9177-8
 aluminium naphthenate gel, elastic relaxation and deformation 1=12579
 amides, long-range proton interactions 2=16560
 amides, secondary and tertiary, N.M.R. 1=12308
 amido cpds., N^{14} quadrupole spectra, coupling and asymmetry const. 0=21087
 amine-chloranil complexes, absorption spectra 3=1694
 amines, absorpt. on Ge, effect on surface charge 4=20364
 amines, adsorpt. on Ge, effects 4=20399
 amines, aliphatic, in active N flames, emission spectra 1=13942-3
 amines, aliphatic, in organic soln., Kerr effect 2=17656
 amines, intra-molecular flexibility and rotation 0=7735
 amines, refractive index at 6 mm, press. depend 0=14697
 amino acid prep. by N fixation by u.s. waves 1=20759
 amino acids, complex formation with O_2 2=6881
 amino acids, effect of molec. wt on luminescence 0=20995
 amino acids, γ -irradiated, e.s.r. spectra, temp. depend. 3=20019
 amino-acids, interaction with riboflavin 3=8954
 amino acids, microwave saturation in radiation-induced free radicals 2=4239
 amino acids, and protein paramagnetic resonance and semiconductor theory 1=1115
 amino acids, protolysis kinetics 2=17083
 amino acids, semiconductivity 1=7654
 2-amino azulene, crystal structure 0=21203
 amino cpds., N^{14} quadrupole spectra, coupling and asymmetry const. 0=21087
 4-amino phthalimide, molecular excited dipole moment μ 's 4=15321
 p-amino-acetophenone, Raman and i. r. spectra 2=7219
 2-aminoacridine, fluorescence yield 1=12887
 1-aminoanthraquinone derivatives, radiationless transitions, potential barrier 4=1284
 3-aminophthalimide, with chlorophyll impurity, optical props. 2=22944
 3-aminophthalimide, fluorescence spectra 2=56
 3-aminophthalimide, luminescence, active and nonactive absorption separation 3=18822
 4-aminophthalimide in polymethylmethacrylate, luminescence 4=22937
 p-amino-salicylic acid, tritium labelling by micro-waves 0=15527
 aminotroponimine chelates of Ni, nuclear and spin resonance 0=15762
 amyl acetate flames, temp. distrib. 0=1059
 amyl benzoate, dielec. dispersion, at 1000, 2000 and 9200 Mc/s 1=1748
 n-amyl acetate, viscoelectric effect 3=18808
 n-amyl alcohol, scattering of neutrons 0=12940
 n-amyl disulphide, γ -irrad., ionic paramag. species prod., e.s.r. and pot. bleaching studies 4=20319
 n-amylamine, dipole moment and mol. polariz. 3=2638
 aniline, C^{13} nuclear magnetic resonance 3=10544
 aniline-cyclohexane mixtures, u.s. propagation 0=19131
 aniline, electron structure cal. c., MO approx. 2=10275
 aniline hydrobromide, optical props. 1=19942
 aniline hydrobromide, orthorhombic, domain structure 2=19063
 aniline hydrobromide, twinning structure 3=3259
 aniline hydrobromide, u.v. pleochroism 3=4965
 aniline hydroiodide, u.v. pleochroism 3=4965
 aniline, luminescence 2=6629
 aniline, multiple proton mag. resonance relaxation 1=15910
 aniline, photoionization, electron energy distrib. 1=16263
 aniline, photoionization, electron energy distrib. 1=18763
 aniline, pi-orbital charge distribution, valence-bond theory 4=6611
 aniline-cyclohexane crit. system, u.s. light diff. 2=2939
 aniline-cyclohexane mixtures, critical opalescence 2=17450

Organic compounds—contd

- aniline-cyclohexane soln., u. s. wave, light diff. 2=15592
 aniline, photodissociation 1=6053
 anilines, band intensity and structural factors 0=7750
 anilines, dilute solutions, dielectric relaxation 1=12895
 anilines, o-substit., first-overtone NH band splitting 4=15362
 anilines, para-substituted, C-N stretching freqs. 3=2639
 anilinium salt soln. ion pair structure, from n. m. r. 4=2714
 anils, thermochromy, time constants 3=20979
 anils, transient species in photolysis 4=15847
 anisal-para-amino-azobenzol, investigation using ruby laser 4=2841
 anisaldazine, liquid crystal, dielec. const. 3=11803
 o-, m-, and p- anisidines, dipole moments in solvents and in vapour state 4=12495
 anthracene, α irrad., scintillation light yield 1=5057
 anthracene, α part. penetration depth 4=25981
 anthracene, α -particle scintillation 3=18045
 anthracene, α -particle scintillation anisotropy, low-temp. 2=727
 anthracene, α -scintillation response, directional depend. 0=1754
 anthracene, anomalous light waves in exciton-absorption region 0=6176
 anthracene and anthracene- d_{10} , i. r. spectra in polarized light 2=6164
 anthracene, anthracene- d_{10} , molecular vibrs., in plane, calc. 3=22580
 anthracene, band structure and hole transport 1=17451
 anthracene, band structure, transport of electrons and holes 2=8186
 anthracene, band theory, anomalous Hall effect predicted 4=6993
 anthracene-benzene soln., cathodoluminescence, rise-time charac. 1=2765
 anthracene, C-H bond, planar bending, anomalous, -180 to 20°C 3=22577
 anthracene, charge carrier mobility and production 4=22528
 anthracene, charge carrier prod. and mobility 0=13620
 anthracene, charge injection, effect of electrodes 2=14579
 anthracene coal, mag. susceptibility 3=11023
 anthracene, conduction rel. to hole injection theory 2=14521
 anthracene, crystal growth 2=4386
 anthracene, crystal structure and thermal expansion, 95° and 290°K 4=23501
 anthracene crystals, anomalous dispersion 0=4403
 anthracene crystals, electroluminescence 3=18051
 anthracene crystals, energy migration bet. impurity mols. 3=2691
 anthracene crystals, luminescence 3=20533
 anthracene crystals, luminescence decay times 2=18869
 anthracene crystals, photocurrents, ruby-laser excited 4=20433
 anthracene crystals, thermally stimulated currents and carrier trapping 4=20437
 anthracene + cyclohexane solns., irradiation 0=3322
 anthracene, dark currents, temp. depend. 3=15584
 anthracene, Davydov splitting, polariz. ratio 2=694
 anthracene, decay of triplet state in fluid media 2=1159
 anthracene, defect electron mobility meas. 2=8353
 anthracene derivative vapours, absorption and fluorescence spectra intensity and shape rel. to temp. 4=6607
 anthracene derivatives, crystal structures 0=4658
 anthracene derivatives, spectra and fluoresc., effect of isopentane 4=6608
 anthracene and derivs. absorpt., luminescence spectra 2=18823
 anthracene and derivs., radiationless conversion in solns. 2=15610
 anthracene and derivs., vapours., absorpt. and fluoresc. 2=21947
 anthracene, dielectric polarization calc. from mol. elec. struct. 4=22770
 anthracene, diffuse electron-diffraction spots 1=6521
 anthracene, dil. solutions, Kramers-Kronig relation 3=16627
 anthracene doped with anthraquinone, anthrone or naphthacene, photocarrier trapping 4=15448

Organic compounds—contd

anthracene, double refraction, absorpt. coeffs. 2=6546
 anthracene, e.s.r., Bloch eqns. 3=6744
 anthracene, effect of 60 kV electrons on crystals 1=2400
 anthracene, effect of thickness on absorption curves at 20°K 0=4409
 anthracene, elec. cond., anisotropy 4=28579
 anthracene, elec. cond., electrode effect 2=8295
 anthracene, elec. cond., of films 2=6424
 anthracene, elec. cond., impurity effect 4=26064
 anthracene, elec. cond., space-charge-limited 2=2130
 anthracene, with electrolyte contact, photoelectrolysis 3=23549
 anthracene, electron and hole mobility 4=22529
 anthracene, electron transport tunnelling model 2=14510
 anthracene, evap. films, semicond. and cryst. props. 2=2441
 anthracene, excess defect electrons, density of states 3=4844
 anthracene, excess electron and hole band structures 4=1430
 anthracene, exciton—exciton interaction, photoconductivity 4=15572
 anthracene, exciton—exciton interactions and photoconductivity 3=8568
 anthracene, exciton production 0=9999
 anthracene, exciton transfer, continuity eqn. 1=17473
 anthracene films, secondary electron emission, and inelastic scattering 0=15058
 anthracene films, structure, spectra, absorpt. and luminescence 4=10610
 anthracene, fluoresc. by α -rays, polarization 4=20503
 anthracene, fluorescence 2=11483
 anthracene, fluorescence, double photon excitation 3=18040
 anthracene, fluorescence, excited by ruby giant-pulse laser 4=7199
 anthracene, fluorescence response to heavy ions 1=8404
 anthracene, fluorescence and scintillation decay times 2=8582
 anthracene, fluorescence of vapour 1=181
 anthracene, fluorescence of vapour at 2652 Å, benzene—sensitization 1=6909
 anthracene, fluorescent singlet—triplet absorption, indirect obs. 4=4313
 anthracene, free-carrier generation via exciton—exciton interactions 3=10887
 anthracene, hole and electron drift mobilities 0=15997
 anthracene, in hydrated derivs. absorption and luminescence spectra 2=18835
 anthracene impurities in 9, 10-dihydroanthracene, luminescence at 20°K 1=20020
 anthracene, ionization potential and mass spectra 0=3738
 anthracene, light transmission, exciton absorption region 0=13678
 anthracene, light yield rotation under α -rays 4=13094
 anthracene in liquid soln., obs. of triplet—triplet absorpt. spectra 4=2842
 anthracene, luminescence 3=6628
 anthracene, luminescence and absorption at 4°K, rel. to purity 1=14644
 anthracene, luminescence decay law 3=8626
 anthracene, luminescence, delayed, and radiationless transition meas. 4=15621
 anthracene, luminescence, effect of tritium β -rays 4=28751
 anthracene, luminescence excited by α , p, e, decay law 3=11005
 anthracene, luminescence, laser-induced, intensity var. 4=15620
 anthracene, luminescence, low. temp., mechanisms 4=7200
 anthracene, luminescence and photocond. 2=14744
 anthracene, luminescence polarization, under β -ray excitation 1=20025
 anthracene, luminescence quenching in Plexiglas 1=14645
 anthracene, luminescence reabsorption 1=11399
 anthracene, luminescence of solid solns. 2=14743
 anthracene, luminescence, temp. effects 4=17611
 anthracene, luminescence, two-photon, laser excitation 3=11002
 anthracene, mixed with light gas, intermolec. interact. rel. to temp. 2=16567
 anthracene, molec. vibrs., in solns. and crysts. 2=14374

Organic compounds — contd

anthracene, molecular excitation temp. and vibr. specific heat calc. 4=12493
 anthracene, monocrystal growing technique 0=12008
 anthracene, with naphthalene, photoluminescence rel. to β -radiation 2=16864
 anthracene, near u.s. absorption spectra 2=8525
 anthracene, negative ion soln., e.s.r. 3=6744
 anthracene, neutron irradi., positron annihilation 2=9827
 anthracene, 9, 10 dihalogen, i.r. spectra 4=15363
 anthracene, nuclear quadrupole resonance in solid solution 1=20277
 anthracene, in octahydroanthracene, absorption and luminescence spectra 2=18838
 anthracene, optical consts, meas. and calc. 0=4263
 anthracene, pairing theorem, e.s.r. study, C¹³ splitting in positive and negative ions 4=22385
 anthracene, particle discrimination rel. to temp. and energy 4=5887
 anthracene, persistent internal polarization, theory 2=4089
 anthracene in Perspex, luminescence depolarization 1=15888
 anthracene, phenazine and acridine doped, quantum luminescence yield 4=4312
 anthracene, photo and radioluminescence 2=6628
 anthracene, photocond. 2=8428
 anthracene, photocond., carrier density 2=23449
 anthracene, photocond., exciton—exciton interaction 2=14580
 anthracene, photocond., gases effect 2=6494
 anthracene, photocond. and luminescence, wavelength depend. 1=6175
 anthracene, photocond. and spectral absorpt. 3=2970
 anthracene, photocond., voltage, illumination and electrode separation depend. 0=18065
 anthracene, photoconducting, carrier generation 4=22530
 anthracene, photoconducting, carrier trapping 4=22531
 anthracene, photoconductivity 4=7078
 anthracene, photoconductivity, exciton processes 4=1439
 anthracene, photoconductivity, generation of free carriers 1=2424
 anthracene, photoconductivity, hole-injection energy—balance 0=10000
 anthracene, photoconductivity, positive hole injection 0=4371
 anthracene, photoconductivity, and trap energy distrib. 4=1690
 anthracene, photoconductivity, X-ray and u.v. 3=6628
 anthracene, photocurrents, space-charge-limited 2=14578
 anthracene, photodepolarization, nonlinear 3=20399
 anthracene, photodepolarization, polarity, in fundamental absorpt. band 3=17908
 anthracene, photoelectricity, laser induced, carrier release mechanism 4=7077
 anthracene, photoelectricity, var. wavelength, and traps 4=15571
 anthracene, photogeneration of carriers, single exciton process 4=15463
 anthracene, photo polarization, two decay components, ohmic and non-ohmic 4=7076
 anthracene, photovoltaic effect, in modulated light, temp. depend. 1=2423
 anthracene, piezoelectric effect 0=11747
 anthracene, in polyphenyls, absorption and luminescence 2=6567
 anthracene in polystyrene, concentration-depolarization of fluorescence 0=4423
 anthracene-polystyrene solid solutions, fluorescence 0=20998
 anthracene, positron annihilation in, disorder effects 1=17524
 anthracene, positron lifetime in, near melting pt. 0=5549
 anthracene, radiation damage of scintillation props. 2=6636
 anthracene, radiationless transitions between states of different multiplicity 1=6058
 anthracene, reabsorption of light rel. to photocond. 2=6491
 anthracene, reaction with styrene during polymerization 0=8316-17
 anthracene, red-excited fluorescence, rel. to parity and temp. 4=28750
 anthracene, refractive index, thickness depend. 2=18794

Organic compounds—contd

- anthracene, scintill. by energetic α -rays, deuterons and electrons at low temps. 4=26254
 anthracene, scintill. light yield under deuterons and α -rays 4=26255
 anthracene, scintillation anisotropy at low temps. 2=18879
 anthracene, scintillation kinetics 2=13703
 anthracene, scintillation light yield for α and β -rays 4=13093
 anthracene, scintillation pulse shape 2=6637
 anthracene, scintillation pulses, temp. dependence 1=17918
 anthracene, scintillation response to β -rays 1=20021
 anthracene, scintillation response, to positrons and electrons 0=8023
 anthracene, self-diffusion, 150-190°C, C^{14} tracer study 0=17977
 anthracene, semiconducting props. 2=23304
 anthracene, semiconducting props., review 4=10610
 anthracene, semiconducting props. review 4=28578
 anthracene, semiconductivity, surface, H_2O vapour effects 4=12921
 anthracene, sensitized photoconductivity 3=13129
 anthracene, shock excitation, CN, C_2 and CH spectra 1=2310
 anthracene, simultaneous X-ray diffraction 4=7652
 anthracene, sol. in CCl_4 , molecular rotation 3=13143
 anthracene, soln., fluorescence displacement 2=7221
 anthracene, soln. in solid pentane, luminescence spectra 1=17917
 anthracene, solutions, delayed fluorescence 3=142
 anthracene solutions, fluorescence, effect of u.v. and β -irrad. 1=18419
 anthracene, solutions, spectra, changes on addition of ferric acetylacetonate 3=15359
 anthracene, space charge det. for excess hole current 2=16715
 anthracene, structural absorption and fluorescence 4=30452
 anthracene, structure at low temperatures 0=18337
 anthracene, surface impurities, effect on photocond. 2=4059
 anthracene-sym-trinitrobenzene complex luminescence 0=4434
 anthracene, temp. and elec. field effect on free carrier photo-generation 4=22809
 anthracene-tetracene, energy transfer rel. to temp. 2=4182
 anthracene-tetracene, fluorescence, temp. depend. 1=6231
 anthracene, thermal vibration ellipsoids, ambiguous interpretation 1=19697
 anthracene, thermoluminescence, adsorbed and trapping 4=20497
 anthracene thin layers, elec. cond., photocond., impurities effect 4=30630
 anthracene, thin layers, elec. and photoconductivity 1=17631
 anthracene, 3800 Å band system, crystal splitting 1=19639
 anthracene, transparency, thickness depend., spectral distrib. 2=18809
 anthracene, trapping centres, conductivity glow-curve study 1=2422
 anthracene, triplet excitons and delayed fluorescence 3=18041
 anthracene, triplet state, first-order decay, viscosity depend. 4=3884
 anthracene, vapour, photoluminescence, conc. and temp. depend. 4=243
 anthracene vapour, triplet state decay 4=22409
 anthracene whiskers, growth 4=7568
 anthracene-trinitrobenzene complex crystals, evidence for localized excitons 4=28749
 anthracene, X-ray diffr. patterns 3=20859-60
 anthracene, X-ray temp. diffuse, scatt. 2=17009
 anthracene, X-ray temp. diffuse scattering 1=9969
 anthracenes, substituted, electronic spectra, 1L_b transition 1=19640
 9-anthraldehyde, crystal structure 0=4658
 anthraquinone halogen derivatives in frozen solns., luminescence 4=1786
 anthraquinones, substituted, crystal structure 3=23462
 β -anthrol, electronic spectrum, 1L_b transition 1=19640
 anthrols, electronic spectra and H bonding 3=8287
 anthrone, crystal structure, 2-dimens. Fourier synthesis 0=18366

Organic compounds—contd

- anthrone, statistical structure 1=9143
 arabinose, X-irrad., paramag. centre prodn. and decay 2=12823
 araldite, photoelasticity under dynamic loads 1=3821
 aromatic acids, photochemistry, u. v. attack, eosin sensitized 4=7770
 aromatic aldehydes, luminescence 3=961
 aromatic anion lifetimes in aliphatic alcohols pulse radiolysis study 4=30908
 aromatic anion radicals, nitrosubstituted, e.s.r., hyperfine splittings 3=22593
 aromatic, aq. solns., luminescence due to X-rays 2=7222
 aromatic boro-organic, use as nuclear reactor poisons 4=22267
 aromatic- CCl_4 complex formation 3=25814
 aromatic C, N-ring systems, bond angle calc., agreement with expt. 4=6541
 17 aromatic cpds, dipole moments, rel. to molec. structure 4=18212
 aromatic cpds. in nonpolar solns., electronic spectral shifts 4=2688
 aromatic compounds, Raman spectra, intensities and depolarization degrees rel. to metallic molec. model 4=6612
 aromatic, condensed-ring, absorption spectra, effect of high pressure and low temp. 0=15733
 aromatic crystal excitons, triplet band calc. 4=6805
 aromatic, crystal triplet-triplet annihilation mechanism 4=9880
 aromatic crystals, electronic absorption spectra, theor. and exper. study 1=1155
 aromatic crystals, energy transfer from triplet state, review 4=17391
 aromatic, electron spin density on methyl protons, sign 0=2743
 aromatic free-radical solutions, nuclear-electron spin relax. and Overhauser polarization 3=23909
 aromatic, free radicals, electronic relaxation 3=14183
 aromatic, free radicals, paramag. excitons 2=14413
 aromatic free radicals, unpaired-electron coupling with nuclear motion 3=8309
 aromatic, fused-ring, ionization potential calc. 0=3738
 aromatic halide scintillator solns., quenching 3=1699
 aromatic and heterocyclic compounds, intermolecular π effect 1=11118
 aromatic hydrocarbon crystals, luminescence, var. with doping 4=1787
 aromatic hydrocarbon ions, free-electron model and doublet splitting 4=28236
 aromatic hydrocarbon positive ions in solids, semiconduction 1=19866
 aromatic hydrocarbons, capacitative energy and ionization 1=5424
 aromatic hydrocarbons, complexes with iodine 0=11545
 aromatic hydrocarbons and other cpds., scintillation yield under Sr^{90} radiation 1=1746
 aromatic hydrocarbons dissolved in plastics, luminescence 3=7213
 aromatic hydrocarbons, elec. conduction 0=6071
 aromatic hydrocarbons, fluorescence decay time 2=6631
 aromatic hydrocarbons, liq. scintillators, quantum yield 2=13347
 aromatic hydrocarbons, phosphorescence spectra and decay times 0=662
 aromatic hydrocarbons, π -electron energy calc. 4=20025
 aromatic hydrocarbons, polycyclic, elec. cond., impurity effect 4=26064
 aromatic hydrocarbons, polynuclear, with condensed benzene rings, fluorescence line spectra 1=3860
 aromatic hydrocarbons, Raman molecular spectra, effect of adsorption 3=8932
 aromatic ketones, luminescence 3=961
 aromatic, large conjugated, in host matrix, Raman, i. r. and u. v. spectra 4=17547
 aromatic, for lasers 4=27703
 aromatic liquids, with methoxy groups, dielec. props., 2.2 mm. 20-80°C 3=21389
 aromatic liquids, mol. alignment, electron diffr. exam. 4=2649

Organic compounds — contd

aromatic liquids, relation btw. heat conductivity, molecular weight and freezing pt. 0=5015
 aromatic molec. crystals, charge resonance states, location 4=28407
 aromatic, molecular C ions formed in spark source, mass spectrographic study 4=9782
 aromatic molecules, deactivation rel. to phosphorescence 3=11789
 aromatic molecules, excited state, proton dissociation 1=827
 aromatic molecules, mag. susceptibility 1=3558
 aromatic molecules, phosphorescence, stimulated 3=2610
 aromatic molecules, substitution reactions, pi localization energies, LCAO—MO—SCF approx. 4=12430
 aromatic, proton resonance, effects of electron delocalization 1=2351
 aromatic ring cpds., F^{19} n.m.r. 1=11127
 aromatic, solid-state ionization potential 1=10676
 aromatic mols., dipole moments det. 3=2605
 aromatic mols., ring currents, quantum calc. 2=14297
 aromatic mols., inductive resonance energy transfer, triplet to singlet levels 4=1283
 aromatic mols., in triplet state, e.s.r. line shape, $\Delta m = 2$ transition 3=25135
 aromatic, n.q.r. of Cl^{35} , effect of elec. field due to nitro-, amino- substituted 4=20105
 aromatic nitro-cpds., freq. depend. of Raman intensity outside absorpt. band 4=21135
 aromatic nonionic crystals, photoconductivity and inter-molec. interaction 4=22810
 aromatic, polar, in organic solvents, dielec. props at 1000-10000 Mc/s 0=5021
 aromatic, polycyclic, luminescence, two-photon, laser excitation 3=11002
 aromatic radicals, hyperfine interactions, theory 0=15680
 aromatic, Raman spectra 0=9817
 aromatic, reactions with CS_2^+ , products obs. 2=8912
 aromatic, resonance energies from Pauling bond orders 4=6544
 aromatic, ring current effects, MO calc. 2=16539
 aromatic, triplet-state, zero-field splittings 4=3885
 aromatics in boric acid glass, free radicals, e.s.r. 4=13742
 aromatics, fluorescence self-quenching in vapours 1=15962
 aromatics, irradiated, e.s.r. 3=15372
 aromatics in solution, fluorescence decay 1=12888
 aromatics in solution, fluorescence decay 1=15889
 aromatics, tritium-labelled, distribution of radioactive atoms 1=15206
 aromatics, vapour, adsorption on water surface 4=29616
 aryl boron cpds, spectra, intramolecular charge-transfer bands 1=19641
 aryl derivatives of oxadiazole in polystyrene, luminescence and absorption spectra 0=10073
 arylsulphenyl radicals, e.s.r., g-value anisotropy 3=25137
 di-aspartic acid, X-irrad. damage e.s.r. study 2=14482
 asphalt deuterated solutions, n.m.r., surface proton 4=5213
 asphalt, solns., Overhauser effect 0=3545
 asphalt solns., paramag. reson. 2=2734
 asphaltene, solns., electron-proton double resonance 3=7221
 associated liquids, dielec. and mechanical relaxation 3=21390
 associated solutions, dielectric constants and heats of mixing 4=8217
 atomic polarization, temp. depend. of vibr. polarization 2=8073
 auramine, phosphorescence, anti-Stokes 1=6235
 automatic zone refiner 3=8809
 azine-quinone complexes, i.r. spectra 4=28242
 azines, emission spectra, T-S polariz. 2=14265
 azines, molecular excitation, ground by triplet perturbation 4=12496
 azines, monocyclic, $n \rightarrow \pi^*$ transitions 2=16503
 azobenzene crystals, absorpt. spectra, polariz. 2=18816
 azobenzene, freezing nucleus, by u.s. velo. anomalous increase 3=18251
 azobenzene liquid state, u.s. velocity and compressibility 1=18406
 azobenzene, π -electronic u.v. spectra 3=25133
 azo benzene, u.s. velocity rel. to molecular parameters 1=18403

Organic compounds — contd

azobenzenes, dielectric props. 1=12892
 azoethane, flash photolysis 2=19156
 azoxyanisole, Raman spectra, investigation using ruby laser 4=2841
 p-azoxyanisole, dielec. loss, 0.9-24 kMc/s 2=17477
 p-azoxyanisole, liquid, anisotropic dielec. loss 4=196
 p-azoxyanisole, liquid crystal, with and without phenanthrene, near freezing 4=11181
 p-azoxyanisole, liquid crystals, domains in 3000 V/cm electric field 4=2653
 pp'-azoxyanisole, liquid crystals, degree of order 2=49
 p-azoxyanisole, liquid crystals, structure rel. to u.s. waves 3=18798
 azoxyanisole, nematic phase, flexional-elasticity 1=14847
 azoxybenzene liquid state, u.s. velocity and compressibility 1=18406
 azoxybenzene, π -electronic u.v. spectra 3=25133
 azoxy benzene, u.s. velocity rel. to molecular parameters 1=18403
 azoxybenzenes, dielectric props. 1=12892
 p-azoxybenzoate, liquid crystal, smectic, drop and rod growth 3=21313
 p-azoxyphenetol, liquid crystals, structure rel. to u.s. waves 3=18798
 azoxyphenol-di-p-n-amy ether, proton mag. resonance 1=5076
 azulene, absorption spectra, separation of overlapping transitions 1=11763
 azulene anion, anomalous effects in e.p.r. spectra 4=25724
 azulene anion, e.s.r. spectrum, erratum 3=8310
 azulene anion free radicals e.s.r. 2=23006
 azulene anion radicals, e.s.r. 2=23007
 azulene in frozen cryst. solns., fluorescence and absorpt. spectra 4=10229
 azulene molecule, lowest triplet level location 2=22984
 azulene, pi electron localization energies, ZDO calc. 4=12430
 azulene, spectral solvent shifts 0=16707
 azulene, spectral solvent shifts 2=21910
 BDPA radical, mag. exchange-lattice relax. theory 2=549
 Bakelite epoxide, photoelastic props. 2=2662
 barbituric acids, free radical stabilization 1=9173
 barium ethyl sulphate, rotativity 1=12880
 benzaniline, π -electronic u.v. spectra 3=25133
 benzaldehyde- α -t, oxidation 0=1953
 benzaldehyde anion radicals, e.s.r. spectra 4=12513
 benzaldehyde, phosphorescence quenching by naphthalenes 0=944
 benzaldehyde, phosphorescence, stimulated 3=2610
 benzaldehydes, ortho-substituted, n.m.r. 2=20873
 1,2-benzanthracene crystals, anomalous dispersion 0=4403
 1,2-benzanthracene derivs., "excimer" fluorescence 3=21383
 1:2-benzanthracene and methyl derivs., excimer fluoresc. 2=11376
 1,2-benzanthracene, n.m.r., high-resolution 3=17614
 p-benzasemiquinone ion, e.s.r., C^{13} h.f.s. 2=3776
 benzene, absorption on graphitized carbon blacks 2=10944-5
 benzene, absorption at 20°K, exciton doublet 4=7098
 benzene, absorption spectra, 4°K, H-like levels 4=1758
 benzene, adsorbed on chars, n.m.r., enhancement due to e.s.r. irradiation 4=1308
 benzene, adsorbed, electronic spectrum data 2=15100
 benzene, adsorbed on graphite, specific heat calc. 4=2132
 benzene, adsorbed on graphite, thermodynamic functions, calc. 3=18398
 benzene, adsorbed on Vycor glass, freezing 0=12118
 benzene, adsorption on carbon, enhancement of nuclear polarization 0=16717
 benzene, adsorption on charact. silicas 3=1382
 benzene-AgClO₄ complex, mol. motion, n.m.r. 4=1901
 benzene-air mixtures, detonation wave pressure 0=10351
 benzene and alkyl derivs., fluorescence quenching by diacetyl in hexane soln., 28°C 4=14174
 benzene, aqueous, as gamma-dosimeter 2=5533
 benzene, aqueous, pulse radiolysis 2=15161
 benzene, $^3B_{1u}$ state, radiationless transitions and radiative lifetime 2=20845
 benzene, C^{13} n.m.r. 3=22601
 benzene, C—C mean vibration amplitudes 0=5909

Organic compounds—contd

- benzene-CCl₄ solns., refractive index 0=10667
 benzene, and C₆D₆, solutions in cyclohexane, luminescence at 77°K 0=11774
 benzene and C₆D₆ u.v. absorption spectra 0=7800
 benzene, Cherenkov radiation by γ rays 3=2239
 benzene-chloroform-hexanol-1 mixtures, dielec. saturation 3=23895
 benzene, compressibility, temp. depend., X-ray study 3=21322
 benzene, conductivity induced by electron injection 1=12899
 benzene, conductivity induced by injected electrons 2=9288
 benzene, cryometry 0=3676
 benzene, cryst., low-temp. luminescence 3=11003
 benzene, crystal epitaxial growth and surface texture 4=26612
 benzene, crystal fields 0=2939
 benzene, crystalline, absolute i.r. intensities 2=23576
 benzene, crystalline, exciton-phonon interaction 3=10586
 benzene, crystalline, films, i.r. spectrum 3=13191
 benzene, crystalline, i.r. spectrum 0=8003
 benzene, crystalline, triplet exciton interactions 3=25492
 benzene crystals, luminesc. at 20.4° and 4.2°K 4=28752
 benzene crystals, phase-changes, first-order, study using positron annihilation 4=23300
 benzene crystals at -209°C, Raman spectra, bonding effect 4=30691
 benzene, Debye approx. 3=15440
 benzene, density, near critical point 3=21323
 benzene, and derivatives, dissociation, in glow discharges 0=485
 benzene and derivatives, free radicals prod. by irradiation 3=2670
 benzene derivatives, halogenated disubstituted, dipole moments and relaxation times 0=15780
 benzene derivatives, i.r. absorption 50-350μ 0=6927
 benzene derivatives, luminescence 3=21380
 benzene and derivatives, phosphorescent, e.s.r. 3=21417
 benzene derivs., i.r. absorption and H-bonding 4=30454
 benzene derivs., p.m.r. meas. in nematic solvents 4=18180
 benzene, derivs., photoionization rel. to photon energy 2=156, 9528
 benzene and deuterated benzene, crystal absorption spectra at 20°K 2=695
 benzene, deuterated, specific heat 2=13324
 benzene-deutero benzene mixed crystals, i.r. absorption spectra 3=23081
 benzene, diamag. anisotropy by n.m.r. 2=13698
 benzene diazonium salts, 11 substituted, crystal struct., atomic 4=23503
 benzene, dielec. const. near 9000 Mc/s 2=21916
 benzene, dielec. constant, rel. to purity 2=17769, 17771
 benzene, ³F_{4u}-¹A_{1g} intercombination, lifetime and oscillator strength 1=14052
 benzene, elec. cond., rel. to moisture content 1=18421
 benzene electrolytic conductivity, conditions for obeying Ohm's law 4=27192
 benzene, electronic spin-spin interaction, correction 3=8290
 benzene, electrostriction 0=934
 benzene, energy of multiple states 4=3889
 benzene, excited state vibrational energy transfer in collisions 4=3898
 benzene, fast electron diffraction, energy analyser 0=9090
 benzene, flame-front propag. and compression waves in air 0=14895
 benzene, fluctuational formations, temp. depend. 4=24169
 benzene, fluorescence 2=11483
 benzene, forbidden molecular transitions 1=14065
 benzene, forbidden spectral bands, effect of mol. vibr. 2=12341
 benzene, γ-irrad., induced optical activity dis-counted 1=1007
 benzene, γ-irradiation change 0=6416
 benzene, gas ionization by electrons 2=15883
 benzene, gaseous, ultrasonic relaxation 1=8162
 benzene, glow discharge 0=9017
 benzene, glow discharge, chemical reactions 0=10891
 benzene-H₂O-Hg system, contact angles, interfacial tensions 4=144
 benzene halides, melting, excess free energy 0=19502

Organic compounds—contd

- benzene halogen derivs., positronium annihilation 2=3324
 δ-benzene hexachloride, bond angles, nucl. quadrupole resonance study 3=8872
 benzene-I complex, enhanced i.r. intensity 2=6165
 benzene, i.r. absorption bands, width and profile 0=20614
 benzene, i.r. absorption, pressure influence 3=25116
 benzene, i.r. dispersion and absorption 0=5028
 benzene, i.r. reflection spectra 1=4343
 benzene, i.r. spectrum of crystal 2=4149
 benzene, internal conversion, upper electronic—first excited singlet states 4=1286
 benzene-iodine complex, charge-transfer forces 0=20685
 benzene-iodine complex, geometrical structure 0=15779
 benzene, ionization potential and mass spectra 0=3738
 benzene, ionization potentials from Rydberg series observations 1=7478
 benzene-iso-octane mixtures, vapour-liquid equilibrium 0=6781
 benzene, isotopically substituted, zero-point energy 3=12794
 benzene, lifetime of first excited ¹B_{2u} state 1=17330
 benzene, light scatt., Rayleigh factor 1=6966
 benzene, light scattering const. 3=7208
 benzene, liquid, atomic structure 2=15564
 benzene, liquid, elec. cond. 2=21922
 benzene, liquid, i.r. reflection spectrum 0=12426
 benzene, liquid order study 2=9257
 benzene, light scatt., absolute intensity, exper. determ. 4=24211
 benzene, light scatt., orientational interaction and rotation of molecules 4=24162
 benzene, lower electronic states 4=3888
 benzene, mag. susceptibility calc. 1=19657
 benzene, mechanical analogue to determine absorption maximum 0=5901
 benzene-methanol solns., refractive index 0=10668
 benzene-methanol-toluene system, u.s. velocity 4=14160
 benzene-methyl alcohol and benzene-dioxane mixtures, Rayleigh consts., by light scattering 3=5442
 benzene-methyl alcohol, light scattering 2=21909
 benzene-methyl alcohol, u.s. velocity 2=15584
 benzene and methylcyclohexane, low-temp. soln. spectra 2=14674
 benzene, molecular convex-core model 1=14142
 benzene, molecular structure by electron diffraction 0=10791
 benzene, molecular wt. determination 1=10288
 benzene molecule, π-electron system 0=9302
 benzene, molecule study by electron diffraction 0=15782
 benzene molecules, gaseous state, charge exchange from Rb atom 4=14580
 benzene, and mono- and divalent ions, electronic spectra, correlations 0=20648
 benzene monohalides, emission spectra in glow discharge 2=7257
 benzene, monotrinitated, dissociation 0=8322
 benzene, multi-centre π-electron integrals 3=12847
 benzene, multiple proton mag. resonance relaxation 1=15910
 benzene, n.m.r., p₁ in paramag. C, diffusion effects 3=21406
 benzene, n.m.r., proton chemical shifts 1=8140
 benzene, near-u.v. absorpt. spectrum, 690°-1900°K 4=3887
 benzene, near u.v. absorption spectra below -259°C 2=8525
 benzene, neutron inelastic scattering investigation, 20°C 4=5153
 benzene, neutron scatt., slow, per proton, ang. distrib. 4=9755
 benzene, neutron total cross-section of H, meas. 4=28238
 benzene and nitrobenzene, halogenated, nuc. Br⁷⁹, I¹²⁷ quadrupole res. 4=1312
 benzene, nuclear spin-lattice relax. meas. 3=23912
 benzene, oxygen effect on u.v. spectra 2=5020, 12333
 benzene, p.m.r. meas. in nematic solvents 4=18180
 benzene, Pariser-Parr calc. and electro-optical effects 4=12497
 benzene, Pariser-Parr theory, bandwidths and transition intensities 4=25703

Organic compounds—contd

- benzene, phosphorescence decay times, calc. 0=506
 benzene, phosphorescence lifetime 0=18141
 benzene, photoionization, electron energy distrib. 1=16263
 benzene, photoionization, electron energy distrib. 1=18763
 benzene, pi-electron sextet, AMO analysis 3=2602
 benzene, π -electron suscept., calc. 2=6215
 benzene, π -electronic structure calc. 4=1285
 benzene, π -electrons, electron impact excit. 4=3890
 benzene, polarizability, effect of π -electron electrostatic interaction 0=20652
 benzene, polarization, dynamic by porous paramagnetic surfaces 4=27198
 benzene, polymerization in films, in glow discharge 1=20664
 benzene, prod. from reaction of acetylene with methyl free radicals 0=4710
 benzene—propyl alcohol, density distrib., near critical point of liquid-vapour system 4=24184
 benzene, proton spin lattice relax. time, -1.3-80°C, 28Mc/s 3=11809
 benzene, pure crystalline, S-S luminescence at 4°K 4=7201
 benzene, radiation-induced polymerization 0=6418
 benzene, Raman and electronic abs. spectra 3=15319
 benzene, Raman intensity, temp. depend. 2=8098
 benzene, Raman light intensities, ang. distrib. 4=16118
 benzene, in Raman resonator, laser beam excitation 4=21675
 benzene, Raman scattering cross-sections 4=17300
 benzene, Raman spectra, depolarization factors 0=86
 benzene, Raman spectra temp. dependence 1=9395
 benzene, Raman spectrum, using ruby laser, light source 4=14372
 benzene, range of ions (Z=2 to 13) 2=7674
 benzene, Rayleigh line study rel. to temp. 1=18417
 benzene, Rayleigh scattering depolarization factor meas. 0=19450
 benzene, refined AMO treatment of ground state 3=12848
 benzene, ring distortion 3=2640
 benzene ring, vibrational bands, temp. effects 1=12288
 benzene, rotational kinetic effect 0=8648
 benzene, Rydberg spectrum, Jahn-Teller interactions 1=17309
 benzene, scattering of neutrons 0=12940
 benzene scintillator, neutron detect. efficiency 3=2278
 benzene scintillator solns., X-rirad., luminescence decay times and energy transfer 0=19159
 benzene, second virial coeff. at low pressures 0=8699
 benzene, self-complexes, charge-transfer forces 0=13456
 benzene, self-diffusion coeff. 0=3513
 benzene, sensitization of fluorescence in anthracene vapour 1=6909
 benzene, shock excitation, CN, C₂ and CH spectra 1=2310
 benzene, single-crystal, elastic consts., determ. from sound vel. meas. 4=20645
 benzene, sol. in CCl₄, molecular rotation 3=14143
 benzene, solid, i.r. absorption 0=13690-1
 benzene, solid-liquid interface tension 0=3505
 benzene, solid sphere, in liquid, convection during melting 0=12520
 benzene soln. in CS₂ and CCl₄, proton spin-lattice relaxation 0=14664
 benzene, soln. in solid pentane, luminescence spectra 1=17917
 benzene, solutions, fluorescence, effect of u.v. and β -irrad. 1=18420
 benzene, sound absorption in solid and liquid 4=16109
 benzene, spectral symmetry reduction 1500-2000A 2=6176
 benzene, spectrum, liquid and solid, high press. effects 4=22391
 benzene spectrum, quantum mechanical integrals, Pariser-Parr theory 4=22390
 benzene, stimulated Raman effect, amplification meas. 4=16687
 benzene substituents, abnormal n.m.r. saturation behaviour 0=19170
 benzene, superheat, measurement 1=15850
 benzene, surface tension, rotation effects, temp. depend. 0=73, 19087
 benzene, surface tension, rotation effects 0=8640
 benzene, thermal ionization in flames, 1100°-1700°K 3=5623
 benzene, thermodynamic props. 0=1064

Organic compounds—contd

- benzene—toluene—PBD—POPOP scintillation mixture 3=4292
 benzene, transmission in far i.r. 2=5023
 benzene, triplet-singlet emission intensity and polariz. 2=20843
 benzene, triplet state 3=16630
 benzene, triplet state, photosensitization 2=20844
 benzene, 2.8 MeV electron beam, energy loss 1=18935
 benzene 2,4,6-trideuterated monoderivatives, n. m. r. meta proton chemical shifts 4=3908
 benzene, u.s. absorption 0=3525, 14743
 benzene, ultrasonic waveform distortion, det. of nonlinear parameters 1=4337
 benzene, vaporization, forced, at 25°C 0=14908
 benzene vapour ionization, isotope effect in energy transfer from metastable noble-gas atom 4=29866
 benzene, vapour isothermals 0=8698-9
 benzene, vapour, singlet \rightarrow triplet absorption in u.v. 1=14054
 benzene, vapour and solid, absorption spectra 3=20493
 benzene, vibrational—electronic interactions 1=17309
 benzene, vibrn. and rot. spectrum, neutron scatt. obs. 4=28237
 benzene, vibronic calculations 0=15748
 benzene, vibronic-spin-orbit perturbations and assignment of lowest triplet state 3=8289
 benzene, virial coeffs. and intermolecular mechanics 0=11544
 benzene, viscosity rel. to press. at const. temp., Doolittle free vol. eqn. analysis 4=8180
 benzene—water, du Noüy ring, interface profiles and areas 0=2163
 benzene, zero-point vibr. 2=3731
 benzenes, disubstituted, relaxation times, at 3.15 cm 1=1747
 benzenes, hexa-halogen substituted, steric forces 0=20683
 benzenes in hexane soln., dielectric relaxation times 4=18214
 benzenes, methyl-substituted, proton exchange of carbonium ions 1=11126
 benzenes, monosubstituted, electronically excited, vibration perturb. 1=12278
 benzenes, nonadditive substituent effects, orbital study 4=1287
 benzenes, p-disubstituted, forbidden character in allowed electronic transitions 0=15747
 benzenes, para-disubstituted, charac. vibration spectra 2=16537
 benzenes, polysubstituted, proton chem. shifts 4=1316
 benzenes, substituted, dipole moments 0=5985-6
 benzenes, substituted, field effects and C-H out-of-plane vibrs. 4=30453
 benzenes, substituted, proton resonance, solvent effects 0=7805
 benzenes, tri-substituted, dipole moments 0=5987
 benzenes, trisubstituted, dipole moment and relaxation time 1=14116
 benzenes, trisubstituted, Raman, i.r. and luminescence spectra 1=14035
 benzenesulphonic acid, ethers, substituted, spectra 4=12498
 benzenocarboxylic acids, i.r. absorption spectra 0=9803
 benzidine complexes, e.s.r. in weak fields 2=2019
 benzidine: I₂, Br₂, tetranitromethane electrical conductivity 1=17718
 benzidine-iodine crystals complex, elec. and mag. props. 4=26063
 benzil, heats of combustion and formation 2=21585
 benzil, optical rotatory dispersion 1=16122
 benzimidazole semiconducting properties 4=26065
 benzoic acid, heat capacity determ. using isothermal calorimeter 4=21350
 benzoic acid, heat of combustion 0=19524
 benzoic acid, molec. vibr., X-ray meas. 4=30511
 benzoic acid, in nonane, phosphorescence spectra, liq. O₂ temp. 2=18877
 benzoic acid and o-halogen derivs., i.r. spectra 3=733
 benzoic acid solns., monomer-dimer equilib., u.s. obs. 4=25745
 benzoic acids, substituted, lattice parameters and space groups 0=3249
 benzoin, heats of combustion and formation 2=21585
 with 2 benzol rings, mol. rot. mobility and rigidity 4=25694

Organic compounds—contd

- benzonitrile, electronic structure and spectra 2=3756
benzonitrile, structural detm. by microwave spectra 3=2640
benzonitriles, band intensity and structural factors 0=7750
benzophenone-benzene, dielec. losses 0=10664
benzophenone containing aromatic hydrocarbons, polarized emission and triplet-triplet absorption 4=13096
benzophenone crystals, triplet energy migration efficiency determ. 4=13095
benzophenone crystals, triplet excitation energy transfer rel. to impurity conc. 4=7202
benzophenone derivs., paramag. resonance 2=18476
benzophenone-diphenylamine, mixing enthalpy 2=7205
1;1 benzophenone-diphenylamine, heat of fusion 4=5450
benzophenone, e.s.r., energy transfer to other molecules 1=7502
benzophenone, heat of fusion 4=5450
benzophenone, luminescence characteristics 4=1788
benzophenone, microwave relaxation 2=2726
benzophenone molecule, modified FEMO calc. 1=14080
benzophenone-naphthalene mixed crystals, energy transfer and T-S spectrum 2=12592
benzophenone, optically pumped 2=6195
benzophenone, phosphorescence quenching by naphthalenes 0=944
benzophenone, phosphorescence, stimulated 3=2610
benzophenone, photoreduction, quantum yield 0=14130
benzophenone, in 3 non-polar solvents, dielectric absorption meas., mm wavelengths 0=5026
benzophenone solutions, stimulated light emission, -170°C 3=23886
benzophenone, supercooled liquid, u.s. velocity discontinuity at melting point 1=12876
3,4-benzopyrene, fluoresc. extinction by ozone 3=1696
3,4-benzopyrene, sensitized, luminescence 3=8627
3,4-benzopyrene soln. in hexane, luminescence 2=17472
3,4-benzopyrene, delayed fluorescence 3=13212
3,4-benzopyrene, luminescence, two-photon, laser excitation 3=11002
benzoquinone, mag. rotation spectrum, singlet-triplet transitions 1=14038
benzosemiquinone soln. in alcohol, nuclear polarization in 78 G fields 1=18432
benzoquinone, visible absorption spectra 0=17757
p-benzoquinone, crystal structure 0=8231
p-benzoquinone, in ethanol and methanol, e.s.r. study 1=12306
benzosulphochlorides, i. r. spectra, effect of substitutes 2=22987
benzoylacetate rare-earth complexes, in polymethylmethacrylate, luminescence, energy states 4=17612
benzoylpyridine ions, paramag. res. spectra 2=16551
1;12-benzperylene, crystal structure refinement 0=4656
1;12 benz-perylene crystals, absorption spectra 2=6572
1,12-benzperylene, polarized fluorescence and absorption spectra, 300°K 4=10230
1;2- and 3;4-benzpyrene, excimer fluoresc. 2=11376
benzpyrene, two-photon capture cross-sections, SCF-MO calc. 4=28250
3,4 benzotetraphene, delayed fluorescence 3=13212
benzyl alcohol, effect on fluorescence of acetylanthracene in hexane 1=9400
benzyl- α -t alcohol, oxidation by chromic acid, isotope effect 0=4712
benzyl alcohol, relaxation times at 3 cm 1=6870
benzylamine, relaxation times at 3 cm 1=6870
benzyl chloride, relaxation time rel. to Debye eqn. 2=7195
benzyl glutamate, proton mag. resonance 2=12838
benzyl radical, spin density, calc. 1=6055
betaine hydrochloride, e. s. r. of N^{14} 4=13308
betol, crystal growth in u. s. field 2=4388
biacetyl, energy-transfer studies by spectrophotofluorometric method 3=23890
biacetyl, luminescence, in cyclohexane solution, benzene sensitization, by triplet-triplet transfer 3=18820
biacetyl, phosphorescence quantum yield, fluid and rigid solns, radiative lifetime 3=25489
biacetyl, photolysis 0=14129
biacetyl, photo-oxidation 0=14127
biacetyl, sensitized fluorescence in soln. 3=16631
biacetyl vapour, phosphorescence quenching 2=7260
biacetyl vapour, photochemical primary process 2=6890
biacetyl vapour, photodecomposition 1=7917

Organic compounds—contd

- bimesityl derivatives, optical activity, theory 0=17843
binary gas mixtures, adsorption on C 4=15827
binary solutions, molec. scatt. power, in Raman scatt. 3=21372
biochemicals, thermoluminescence after γ -irradiation 2=14758
biphenyl, crystalline, vibrations, low-frequency 4=22476
biphenyl ions, e. s. r., K h. f. s. 4=15378
biphenyl negative ion in soln., e. s. r., exchange effects and anisotropy broadening 1=15906
biphenyl, radiolysis 0=4731
biphenyl ether anions, spin and charge exchange 1=10183
biphenyls, hydrogen yield on γ -irradiation 3=3411
bipyridyl radical, biquaternary, spin densities 3=2654
biradicals, ground-state singlet-triplet splittings, paradox 1=6026
biradicals, spin exchange in 0=17722
biradicals of two triphenylmethyl groups, singlet-triplet splittings, calc. 0=15771
bis-acetylacetone beryllium, crystal structure 0=8238
Bis (2,2' biphenylene)methane, electronic interactions, from e. s. r. 3=15362
bis (cyclopentadienyl) Fe ions, n.m.r. study of electron transfer 3=12866
bis-(cyclopentadienylmolybdenum tricarbonyl), barrier to internal rotation 0=5911
bis-cyclopentadienyl vanadium, paramagnetic resonance 1=9058
bis (N, N-diethyldithiocarbamate)-Cu, crystal and molecular structure 1=20568
bis (N, N-diethyldithiocarbamate)-Ni(II) molecular structure 1=17372
1,3-bisdiphenylene-allyl in CS_2 , e. s. r. high resolution 2=11390
1,3-bisdiphenylene-2-phenyl allyl, antiferromag. props. 4=4391
1-3-bisdiphenylene-2-phenyl allyl, exchange-ordering and forbidden spin resonance transitions 1=11483
1,3-bisdiphenylene-2-phenyl allyl, proton resonance 1=19668
1-3-bis-diphenylene-2-phenyl, n.m.r. Overhauser effect 1=17358
bis-ethylenethiourea-Cd thiocyanate, crystal structure 0=6367
1,4-bis-(p-isopropylstyryl)-benzene, secondary solute in p-terphenyl soln. in xylene, scintill. and fluorescence 2=17471
bis-N-methyl-salicylaldiminato-copper (II), crystal spectra 1=19975
bis(p-nitrophenyl) anions, intramolec. electron transfer, e. s. r. h. f. s. 3=22597
bis-salicylaldihydrato-nickel, anhydrous, cell size and space group 0=3247
bis-salicylaldiminato-copper (II), crystal spectra 1=19975
bis-salicylaldiminato-nickel (II) and -copper (II), crystal structure 0=4653
bis-(triarylphosphine) complexes of Co(II) and Ni(II) dihalides, isotropic n. m. r. line shifts 4=30477
bond energy calc., saturated hydrocarbons, from σ -electron charges 4=15324
bonds, C-H, vibrations, stretching and planar bending, -180 to 20°C 3=22577
bonds, H, cpds. with π -electrons, effect on p.m.r. 3=15383
bonds, H, vibration, by i. r. spectroscopy, proposed study 3=6378
borazine, π -electron suscept., calc. 2=6215
boro-fluorescein phosphors, phosphorescence quenching, -183° to +140°C 4=1763
boron acid-alcohol complexes, spectra, i. r. absorpt., and bonds 4=10201
boron-glycerine-fluorescein phosphor, transitions to metastable states 1=14643
boron-glycerine phosphors, concentration depolarization of phosphorescence 0=16100
boron phthalic phosphors, phosphorescence, -183° to +160°C 3=23113
brassylic acid, absorpt. and luminescence spectra 2=14749
bromanil, crystal structure 1=15111
1 bromo-2-chloroethane, far i. r. absorption 3=24031

Organic compounds—contd

- p-bromoaniline absorption ground and excited states 4=25696
 o-bromoaniline, proton resonance, effect of added acetone 0=20669
 bromobenzaldehyde, o-, m-, and p-, electronic spectra 4=28239
 bromobenzene, dissociative electron capture cross-sections, swarm meas. 4=25753
 bromobenzene, liquid, lack of orientational ordering 1=11747
 bromobenzene, multiple proton mag. resonance relaxation 1=15910
 bromochlorobenzene, m- and p-, near u.v. absorption 4=26227
 2-bromo-5-chloro-thiophene, nuclear magnetic resonance 1=5287
 bromocyclobutane, microwave spectrum 2=14266
 bromocyclohexane, u.s. studies of isomerization 1=4340
 bromodichlorofluoromethane (CBrCl₂F), vibrational spectrum, molecular and thermodynamic props. 0=4207
 bromoethane and CS₂, photoionization and Lyman- α detection 3=14416
 p-bromo-fluorobenzene, proton resonance spectrum 1=1757
 bromoform, i.r. reflection spectra 1=4343
 bromoform, liquid, i.r. dispersion, 630-800 cm⁻¹ 3=18817
 bromomethanes, force constants 1=7453
 α -bromonaphthalene, mol. dipole-dipole interaction, from dielectric relaxation 3=23897
 α -bromonaphthalene, phosphorescence, stimulated 3=2610
 bromonitrobenzene, i.r. absorption spectrum 1=6952
 p-bromophenol, near-u.v. absorption spectrum 4=22387
 p-bromotoluene crystals, phase-changes, first-order, study using positron annihilation 4=23300
 o-bromotoluene, singlet \rightarrow triplet absorption in u.v. 1=14054
 1,3-butadiene anion in liq. NH₃, e. s. r. 4=28254
 butadiene, electronic structure calc., Pariser-Parr approx. validity 4=15323
 butadiene, longitudinal polarizability of π -electrons 1=17338
 1,3 butadiene, photolysis, primary processes and photopolymerization mechanism 4=17868
 butadiene, pi electron localization energies, ZDO calc. 4=12430
 butadiene, π -electrons, valence bond theory 3=6375
 butadiene, polarizability calc. 0=17770
 butadiene, quantum-mech. model of molecule 1=2343
 1,3-butadiene vapour, u.v. absorption and ionization cross-sections, 9-25 eV 3=1932
 butadiene polymerization spectra, with Li, Na, K, in solns. 4=25796
 butane sol., diffusion coeff. of polystyrene 0=10654
 n-butane adsorbed on porous Vycor glass 2=2779
 butane-bromine mixture, luminescent discharges 2=6883
 n-butane, dissociation, ratios of small whole numbers 4=25755
 n-butane, electric discharge decomp. 0=975
 n-butane, excited, elementary processes 3=12873
 n-butane, fragmentation by electron impact 2=2030
 n-butane, gas-phase radiolysis 3=23550
 butane-He mixtures, in GM counters 0=12721
 n-butane, Hg photosensitized decomposition 1=20753
 butane, high-freq. discharge effect 2=21588
 butane ions, dissociation, after charge exchange formation, from mass spectrum 4=9779
 n-butane, negative ion mass spectra 0=3740
 butane, photolysis 1=12681
 n-butane, photolysis in vacuum u.v. 4=4709
 butane, photosensitized isomerization, reaction kinetics 4=13739
 n-butane, thermal decomposition 1=1469
 n-butane, thermodynamic props. 0=1064
 butane, unimolecular reactions of excited molecules 3=4786
 n-butane vapour ionization, isotope effect in energy transfer from metastable noble-gas atom 4=29866
 n-butane vapour, u.v. absorption and ionization cross-sections, 9-25 eV 3=1932
 butanediol 1,3, dielec. relax. rel. to assoc. 3=1704
 butanediol 1,3-n-propanol mixtures, dielec. relax. times distrib. 4=195
 butanediols, dielec. relax. 2=13351

Organic compounds — contd

- butanol, adsorption from aq. soln. 4=29610
 n-butanol, dielec. relax. 2=13351
 butanol, diffusion in water, trajectories, finite cell 3=18806
 butanol, Rayleigh scattering depolarization factor meas. 0=19450
 n-butanol, self-diffusion at 25°C 0=14632
 1-butene, catalytic decomposition 1=20733
 butene-2, cis-trans isomerism, benzene-photosensitized 3=25828
 butene-2, cis-trans isomerization in shock tube 3=16160
 butene-1, Hg-photosensitized reaction 2=19158
 butene-1, photoionization and vac. u.v. absorption 2=6178
 1-butene, thermodynamic props. 0=1064
 butene-2, gas-phase addition of HI 4=26750
 butene-2, Hg-photosensitized decomp. at low press. 3=8971
 t-butoxy radical, decomposition rel. to pressure 3=3385
 butter, rheology and thixotropy 1=14889
 butyl acetylene, tertiary, *l*-type doubling and resonance 3=19960
 n-butyl alcohol, Raman spectra 2=8099
 butyl alcohol, soln. in water, proton relax., conc. depend. 4=21159
 n-butyl alcohol, sound velocity meas. 4=8206
 butyl alcohol, surface tension, rotation effects, temp. depend. 0=73
 butyl alcohol, tertiary, in solvents, n.m.r. 2=10283
 n-butyl alcohol, vaporization, forced, at 25°C 0=14908
 butyl alcohols, proton spin-lattice relaxation 1=4362
 t-butyl chloride, nuclear quadrupole relaxation and its temp. dependence 3=25598
 butyl cyanide, tertiary, microwave structure det. 2=6127
 butyl elastomers, rolling friction 6=5472
 butyl ether, of ethylene glycol, in water, light scatt., 4=24214
 butyl iodide, tertiary, -HI-isobutylene equil. 2=19139
 di-t-butyl nitroxide dissolved in methylcyclohexane, e. s. r. linewidths, effects of hydrostatic press., anisotropic region 4=24242
 di-t-butyl peroxide, pyrolysis in presence of propylene 2=15136
 butyl phenols, spectral shift 1=14018
 di-butyl-phthalate as vacuum diffusion pump fluid 4=8260
 butyl peroxide, di-tertiary, pyrolysis 2=6872
 butyl stearate, dielectric absorpt., two position model 4=12965
 butyl stearate, dielectric relaxation 0=19145
 butyle acetylene, tertiary, microwave structure det. 2=6127
 di-n-butylether, dielec. const. near 9000 Mc/s 2=21916
 di-n-butylether, dielec. const., rel. to purity 2=17769, 17771
 1-butyne, absorption and photoionization coeffs., 1050-2000A 4=8616
 butyne, Hg-photosensitized decomp. 4=4708
 butyronitrile, microwave spectrum 3=6409
 butyronitrile, N¹⁴ n.q.r. 2=14861
 CR 39, photoelasticity under dynamic loads 1=3821
 cadmium bromide dipyrindate, crystal structure 3=6854
 caffeine, arrangement of water molecules 0=6369
 camphor, cryoscopic const., by micro-melting point method 4=362
 camphor, molec. tumbling in solid solutions, n. m. relax. study 4=30741
 d-camphor, n.m.r. and spin-lattice relax., -138° to +18° C 3=20679
 d-camphor, phase transition, II-III at high press. 4=13510
 camphor on quartz, epitaxy 3=20805
 caproic acid, antifoaming action 2=15168
 ϵ -caprolactam, irradiated single crystals, e. s. r. studies 4=4400
 ϵ -caprolactam, irradi. single crystal e. s. r. 4=23044
 caprylic acid, surface tension in HCl 0=71
 N-carbamyl glycine, e. s. r. of irradiated crystal 2=18942
 carbazole-chloranil charge transfer complex, e. s. r. 3=8708
 carbazole donor diphenyl acceptor mixtures, e.p.r., in irradi. ether-ethanol glasses, 77°K 3=22595
 carbazole, luminescence 2=6629
 carbazole, phosphorescence and vibr. structure 4=7203
 carbazole, in sat. hydrocarbon phosphorescence, 77°K 4=20499
 carbohydrates, charred, dynamic nuclear polariz. 2=14329

Organic compounds—contd

- carbon disulphide, i.r. absorption, high-resolution study 2=16525
 carbon disulphide, i.r. reflection spectra 1=4343
 carbon disulphide, light scatt., orientational interaction and rotation of molecules 4=24162
 carbon disulphide, optical absorption, intensity-induced 4=5181
 carbon disulphide, Raman intensity, temp. depend. 2=8098
 carbon disulphide, Raman overtone intensities 2=18447
 carbon tetrabromide, absorption edge, press. depend. 0=4407
 carbon tetrabromide p-xylene complex, crystal structure 2=17027
 carbon tetrachloride, α -particle stopping power 2=326
 carbon tetrachloride-benzene solns., refractive index 0=10667
 carbon tetrachloride on C substrate, adsorption isotherms, 200° to 300°K 2=4498
 carbon tetrachloride, compressibility 0=12400
 carbon tetrachloride-cyclohexane, liquid diffusion 3=7201
 carbon tetrachloride, decomposition by γ -rays 0=18441
 carbon tetrachloride, dielec. constant 2=17769, 17771
 carbon tetrachloride, elec. cond., rel. to moisture content 1=18421
 carbon tetrachloride, electrostriction 0=934
 carbon tetrachloride, fast electron diffraction, energy analyser 0=9090
 carbon tetrachloride, Fermi resonance in liq. and gas 1=19629
 carbon tetrachloride, flow anisotropy, friction const. 3=21316
 carbon tetrachloride, force constants 0=5897
 carbon tetrachloride-HCl* exchange reaction 0=8300
 carbon tetrachloride, i.r. reflection spectra 1=4343
 carbon tetrachloride, light scatt., absolute intensity, exper. determ. 4=24211
 carbon tetrachloride, N-H stretching freqs. 2=7219
 carbon tetrachloride, Raman and electronic abs. spectra 3=15319
 carbon tetrachloride, Raman intensity, temp. depend. 2=8098
 carbon tetrachloride, Raman overtone intensities 2=18447
 carbon tetrachloride, Raman spectra, depolarization factors 0=86
 carbon tetrachloride, Raman spectra temp. dependence 1=9395
 carbon tetrachloride, solid, n. q. r. spectrum 2=4295
 carbon tetrachloride, solid, nuclear quad. resonance 2=790
 carbon tetrachloride, transmission in far i.r. 2=5023
 carbon tetrachloride, u.s. absorption 0=14743
 carbon tetrachloride, u.s. absorption and viscosity 2=7208
 carbon tetrachloride, ultrasonic waveform distortion, det. of nonlinear parameters 1=4357
 carbon tetrachloride, vaporization, forced, at 25°C 0=14908
 carbon tetrachloride, vaporization, forced, thermodynamics 0=3694
 carbon tetrachloride vapour, u.s. absorpt., dispersion 2=2772
 carbon tetrachloride, viscosity rel. to press. at const. temp., Doolittle free vol. eqn. analysis 4=8180
 carbon tetrachloride, liquid, critical consts., calc. from quasi-f.c.c. lattice model with vacancies 1=1739
 carbon tetrachloride, Raman spectrum 1=847
 carbon tetrafluoride, γ -irradiation at low temp. 3=12874
 carbon tetrafluoride, gaseous, Raman spectrum, vibrational lines 1=6019
 carbon tetrafluoride, isothermal PV curves, to 20 000 kg/cm² 0=14042
 carbon tetrafluoride, refractivity, press. depend. 0=6839
 carbon tetra-halides, molecular rotation 2=8075
 carbon tetraiodide, absorption edge, press. depend. 0=4407
 carbonate Co(III) complexes, i.r. spectra 2=3747
 carbonyl derivatives of biphenyl and naphthalene, luminescence 1=3576
 carbonyl fluoride, molecular structure 3=6410
 carbonyl group, vibration band shifts in solvents 2=15598
 carbonyl, i.r. bands, splitting due to water 3=8283
 carbonyl sulphide, power saturation of J = 1 \rightarrow 2 rotational transition 0=1500
 carbonyl sulphide, r.f. spectra 0=20642

Organic compounds—contd

- carbonyl, 3000 Å absorption, mag. dipole character and rotatory power 3=728
 carbonyl, vacuum u.v. spectrum, electronic transitions, correl. 3=22583
 carboxyhydroxymethyl radical e.s.r. line shape 1=17341
 carboxyl phosphate, electron distribution calc. 0=7736
 carboxyl, vacuum u.v. spectrum, electronic transitions, correl. 3=22583
 carboxylate hydroxy methyl radical ion (HOCHCO₂⁻), e.s.r. study 1=2346
 carboxylic acids, fluorescence and absorption spectra 0=18140
 carboxylic acids, long wavelength i.r. absorpt. spectra, 20° and -175°C 4=25697
 carboxylic acids, molecular potential energy curves 1=5998
 carboxylic acids, Raman spectra intensities 1=14033
 carcinogens, crystal fluorescence 0=8014
 carnauba wax, electret formation 2=18782, 23507
 carnauba wax electrets, rectifying props. 1=6198
 β -carotene, anomalous dispersion 2=2720
 β -carotene cis-trans isomers, photoconductivity 1=3787
 β -carotene photocond. cell, colour response 4=28653
 β -carotene, photoconductive properties 1=8965
 β -carotene, photo- and semiconduction 1=6180
 β -carotene, resonance Raman effect 0=2175
 carotenoids, absorpt. spectra and π -electronic struct. 4=22400
 p- and 1-carboxime mixture, melting, excess free energy 0=19502
 casein hydrate, dielectric permittivity at hyperfrequencies 3=22988
 castor oil, luminescence, under a.c. voltage 3=16634
 castor oil, permittivity and dielectric losses in electric field 0=20950
 cellophane, electroluminescence 1=14660
 celluloid, film thickness measurement by photometry 1=9358
 cellulose acetate, conductivity, elec., induced by γ -rays and neutrons, time var. 4=20402
 cellulose acetate film, refractive index meas. 0=6941
 cellulose, carboxymethyl-, frozen aq. soln., concentration profiles 0=6048
 cellulose, crystal prep. and structure 1=7836
 cellulose, dry, conduction and electrolysis 3=20377
 cellulose fibres, electron diffraction 0=18337
 cellulose fibres, orientation 2=15082
 cellulose fibres, orientation, theory, 1=20653
 cellulose fibres, structure and chemical stability 1=20652
 cellulose, moiré fringes under X-ray microscopy 3=13578
 cellulose nitrate, nuclear track registration, energy-loss rate 4=11866
 cellulose, sorbed water, NMR study 1=11602
 cellulose of Valonia, electron diffraction, structure 0=18337
 cellulose, X-ray diffr. study of structural changes on heating 2=14980
 cellulosic materials, self-heating and ignition 1=7906
 cellulosic materials, thermal diffusivity 0=10796
 cetyl alcohol films, water evaporation reduction 0=14890
 cetyl alcohol, monolayers, viscosity studies 1=15782
 cetyl alcohol, n.m.r., mol. rotation 3=15958
 cetyl alcohol, solid, orient. in d.c. field 2=14644
 cetyl alcohol, on water, damping out ripples 0=12411
 cetyl-stearyl alcohol mixtures, evap. 2=13491
 charge-transfer complexes, resistivity rel. to press. 4=22730
 charge-transfer complexes in soln., effect of high press. 4=2686
 charge transfer complexes in solns., photodissociation, from e.s.r. 4=4706
 chelates of quinoxaline 2,3-dithiol with Ni, Co and Pd spectra and structure 0=20631
 Chichibabin's hydrocarbon, association, e.s.r. meas. 4=12535
 chinoxalin derivs., u.v. absorpt. spectra 2=22996
 chloral and chloral hydrate, u.s. absorpt. 2=17460
 chloral hydrate, n. q. r., orientational melting processes 2=791, 8688
 chloranil, anomalous dispersion in i.r., meas. 2=12578
 chloranil, crystal structure 1=15111
 p-chloranil, crystal traps, from current-voltage char. 4=10101
 chloranil, electronic structure calc. 2=8115

Organic compounds—contd

- chloranil, i.r. absorptivity molar, effect of particle size 3=14346
 chloranil and its hexamethylbenzene complex, nuclear quadrupole resonance 0=16193
 chloranil-n-phenylenediamine complex, elec. and mag. props. 4=26063
 chloranil, nuclear quadrupole resonance 3=8743
 chloresteryl caprate, liquid crystals, structure 4=24171
 chlorobenzene, absorption frequency shifts 0=1508
 chlorobenzene + bromobenzene, mol. interactn. 3=296
 chlorobenzene in carbon tetrachloride, n. m. r. relaxation time 4=28263
 chlorobenzene, dielectric absorption meas., mm wavelengths 0=5026
 chlorobenzene, dissociative electron capture cross-sections, swarm meas. 4=25753
 chlorobenzene, glow discharge in vapour 0=9017
 chlorobenzene, liquid, lack of orientational ordering 1=11747
 chlorobenzene, microwave relaxation 2=2726
 chlorobenzene, microwave spectrum and moments 4=1288
 chlorobenzene, multiple proton mag. resonance relaxation 1=15910
 chlorobenzene-nitrobenzene, dielectric relaxation phenomena 3=21392
 chlorobenzene soln. in CS₂ and CCl₄, proton spin-lattice relaxation 0=14664
 chlorobenzene solutions, fluorescence, effect of u.v. and β -irrad. 1=18420
 4-chlorobenzoic acid, p. m. r. meas. in nematic solvents 4=18180
 p-chlorobenzoic acid, Zeeman quadrupole spectra 1=8857
 p-chlorobromobenzene, Raman linewidths meas. 4=6618
 1-chloro-2-butyne, r.f. spectrum, internal rotation consts. 0=1528
 chlorocyclohexane, u.s. studies of isomerization 1=4340
 chlorodifluoromethane, molecular consts. 3=6411
 chlorodifluoromethane, vibrational collision lifetimes in A and He, intermolec. potential 0=15787
 chlorofluoroethylenes, ionization potentials 0=3735
 chloroform, adsorption isotherms on C substrate, 200° to 300°K 2=4498
 chloroform, CHCl₃⁻ ions, prodn. by charge exchange 3=7444
 chloroform-carbon tetrachloride, dipole interactions 0=935
 chloroform, deuterio- (CDCl₃), Raman spectra, H-bonding effects on CD band 1=6020
 chloroform and deuteriochloroform mixed crystals, Raman and i. r. spectra 4=10203
 chloroform, diffusion of polybutyl methacrylate 0=14636
 chloroform, e. m. wave propag. meas. 4=3145
 chloroform, gaseous, Raman spectra 1=7473
 chloroform, i.r. dispersion 0=83
 chloroform, i.r. reflection spectra 1=4343
 chloroform, light scatt. rel. to depolarization ratio 4=24394
 chloroform, liq. and crystalline, Raman and i. r. spectra 4=10203
 chloroform, liquid, lack of orientational ordering 1=11747
 chloroform, microwave spectrum 0=15737
 chloroform, mol. struct. 2=16542
 chloroform, N-H stretching freqs. 2=7219
 chloroform, optical anisotropy, calc. 0=14618
 chloroform, optical constants from i.r. reflection spectrum 1=7698
 chloroform, proton relaxation time 1=6872
 chloroform, Raman intensity, temp. depend. 2=8098
 chloroform, Raman overtone intensities 2=18447
 chloroform, Raman spectra, depolarization factors 0=86
 chloroform, Raman spectra intensities 3=20006
 chloroform, Raman spectra temp. dependence 1=9395
 chloroform, Raman spectrum rel. to change of state 3=731
 chloroform, self-association const., from n. m. r. 2=2703
 chloroform, Smoluchowski eqn. treatment 1=10499
 chloroform, in soln. with dioxane, ethylether, ethyl alcohol, acetene, phosphorylchloride, intermol. interacts. 4=25784
 chloroform solutions, n. m. r. study of intermolecular H bonds 1=11113
 chloroform, superheat, measurement 1=15850
 chloroform, transmission in far i. r. 2=5023
 chloroform, u.s. absorption 0=127

Organic compounds—contd

- chloroform, u. s. absorption and viscosity 2=7208
 chloroform, ultrasonic waveform distortion, det of nonlinear parameters 1=4337
 chloromethane, absorption frequency shifts 0=1508
 chloromethanes, force constants 1=7453
 chloromethanes, gaseous, ultrasonic relaxation 1=8162
 chloromethanes, polycryst., Raman spectra, liq. N₂ temp. 4=22905
 chloromethylsilane, microwave spectrum and structure 2=6151
 α -chloronaphthalene-benzene, dielec. losses 0=10664
 α -chloronaphthalene, mol. dipole-dipole interaction, from dielectric relaxation 3=23897
 chloronitrobenzene, i.r. absorption spectrum 1=6952
 m-chloronitrobenzene, normal and supercooled, u.s. velocity, temp. depend. 0=6789
 o-chloronitrobenzene, u.s. velocity 0=10659
 2-chloro-2-nitropropane, molecular rotational relaxation 1=12898
 o-chlorophenol, n. m. r. solvent effects 0=91
 p-chlorophenol, n. m. r. solvent effects 0=91
 o-chlorophenol solns., microwave absorption 0=5027
 chlorophyll pigments, chemical exchange, H-D, with deuterium cpds. 4=26751
 chlorophyll A, diffusion model of localized exciton 2=16633
 chlorophyll a, electrical conductivity and photo-conductivity 3=20401
 chlorophyll-a and fatty alcohols, interaction in monomolecular films 4=25792
 chlorophyll a, monolayers on aqueous surfaces, fluorescence 4=20078
 chlorophyll a, spectral distribution rel. to layer thickness 3=20400
 chlorophyll, absorption and lumin. spectra of solns. 2=15601
 chlorophyll, aggregation state, optical study 1=6863
 chlorophyll and analogues, on ZnO, CdS, Pt, photo-e. m. f. 0=1676
 chlorophyll, anti-Stokes fluorescence yield 1=9399
 chlorophyll, chemiluminescence 1=3872
 chlorophyll, fluorescence of monolayers 4=28295
 chlorophyll, fluorescence spectra 1=7707
 chlorophyll, fluorescence spectra 1=11361
 chlorophyll, luminescence efficiency of solutions 2=15602
 chlorophyll molecule with Mg atom in centre, polarization and fluorescence symmetry 3=2635
 chlorophyll, monomolec. films, fluorescence quenching and energy transfer 4=30456
 chlorophyll a, monomolecular films 4=3942
 chlorophyll, in soln. and cellulose butyrate films, luminescence 0=2177
 chlorophyll a in 3-methoxy-1-butanol, fluorescence yield, influence of β carotene 4=25782
 chlorophylls a and b and their pheophytins, metastable state 4=15364
 chlorophylls a and b, photo- and semiconduction 1=14513
 2-chloropropane, microwave spectrum, molec. struct. and quadrupole coupling consts 4=12499
 p-chlorotoluene, dielectric relaxation 0=19145
 p-chlorotoluene, singlet \rightarrow triplet transition 0=16099
 chlorotoluenes, Cl³⁵ nuclear quad. resonance 2=10279
 chlorotrifluoromethane, dipole moment 2=3721
 chlorpromazine, conductivity rel. to phase transformations 3=10873
 chlorpromazine, semicond. props. 2=14552
 chlorpromazine, semiconducting props. rel. to temp. 1=19875
 cholesterol acetate, positronium decay times, temp. depend. 4=2652
 cholesterol esters, liquid crystals, transparency 3=21370
 cholesterol, optical rotation 4=29628
 choline halides, structure 0=8245
 chrysene in alcohol, delayed fluoresc., mech., temp. var. 4=30700
 chrysene, delayed fluorescence 3=13212
 chrysene, ionization-dissociation processes caused by electron impact 4=28248
 chrysene monocrystals, polarized light absorption, 20°K 1=11364
 chrysene, phosphor.-fluor. ratio 2=10628
 chrysene, phosphorescence at low temp. 3=13211

Organic compounds—contd

- chrysene, n.m.r. spectrum, ring current assumption 4=6644
 chrysene, polymerization of styrene 0=8317
 cinchonine and cinchonidine, optical rotation, effect of irradiation by 2 MeV electrons 1=11355
 cis-butene-2 vapour, u.v. absorption and ionization cross-sections, 9-25 eV 3=1932
 cis-crotononitrile, microwave spectrum, barrier to rotation, dipole moment 3=17594
 cis-1-chloropropylene, microwave spectrum, internal rotation barrier, quadrupole coupling const., and dipole moments 4=20079
 cis 1, 2-difluoroethylene and trans 1, 2-difluoroethylene, i.r. spectra and vibrations 2=1996
 cis-1-fluoropropylene, microwave spectrum 2=20846
 cis-, gem-, and trans-dideuteroethylenes, vapour pressures 3=8247
 cis and trans 1,2-difluoroethylene, n.m.r., gas phase 3=15385
 clathrate hydrates, structure 1=20569
 clathrates containing Kr⁸⁵, preparation 1=13683
 clathrates, nitrogen molecule pot. energy 2=8076
 coal-tar pitch, parallel plate viscometer meas. 0=6733
 coals, e.s.r., effect of O 2=18481
 collidine-water solns., conc. fluctuations, light scatt. study 3=21365
 collodion, Bi and Sn films on, nucleation texture 1=15176
 collodion, as electrolytic cell membrane, Na Cl-KCl 4=26757
 collodion films, 0.5-16 keV electron penetration 0=7163
 collodion films, on polished Ag, colour in white light 0=12492
 collodion membranes, electro-osmosis 2=11612
 collodion thin films, electron microscopy image contrasts 4=23574
 colophane resin, use in swelling of nuclear emulsions 0=12757
 complex cpds., in solution, effect of solvent on spectra 2=15595
 complex molecules, polarization of luminescence 0=10055
 complex mols., luminescence polariz. 2=2007
 complex mols., -180°C luminescence yield 2=14740-1
 complex, viscous solns., reversible orientation dichroism 3=23881
 complexes of aromatic hydrocarbons with iodine, electron spin resonance 1=3938
 complexes of aromatic hydrocarbons with iodine, electronic conduction 1=3775
 complexes, dipole moments, effect of H acid-base bonding 4=25623
 complexes, photoionization, by vacuum u.v. bibliography 4=27469
 compounds between graphite and polycyclic aromatics, electronic properties 1=3763-4
 conjugated systems, steric effect on Π - Π^* transition 4=9752
 copper benzoate, e.s.r. line width, temp. var. 4=10318
 copper phthalocyanine, crystals, resistance, effect of halogens 3=6593
 coronene, in boric acid glasses, photo-ionization by u.v. 0=21290
 coronene, delayed fluorescence 3=13212
 coronene, e.s.r. obs. of $\Delta m = 1$ transitions 3=1186
 coronene in ethyl tetrahydrofuran, frozen, luminescence 2=6627
 coronene, luminescence, u.v. 4=22932
 coronene, molecular C ions formed in spark source, mass spectrographic study 4=9782
 coronene, and mono- and divalent ions, electronic spectra correlations 0=20648
 coronene in n-heptane, luminescence linewidth temp. var. 4=25698
 coronene, in perhydrocoronene, phosphorescence, u.v. excitation 1=1178
 coronene in polymethylmethacrylate host, e.s.r. triplet state, effect of temp. 4=23054
 coronene, spectra, quasi-linear, true line-width 4=25699
 cotton, crystal structure 2=15086
 coumarine, nuclear spin-spin coupling of protons 1=2499
 creatine, X-irrad., e.s.r. of radicals 4=13311
 cresole, rotational mobility, orientational relax., temp. depend. 4=25700
 croconate ion, config. and dimension, Mo calc. 4=29149

Organic compounds—contd

- crude oil, in situ combustion criteria 0=14105-7
 cryptocyanine, soln. in methanol, use as Q-switch in ruby laser 4=24930
 crystal-violet, photoelectromotive forces 3=25418
 crystal violet, polarization of fluorescence 2=6630
 crystals, band theory and Hall effect prediction 4=6993
 crystals, C-H...O bonds 2=20900
 crystals, with H bonds, far i.r. absorption 4=22828
 crystals, mixed and surface films, rot. transitions 2=8765
 crystals, phase-changes, first-order, study using positron annihilation 4=23300
 crystals, SO₂ free radicals in, e.s.r. and optical spectra 2=16565
 cumol, cracking, on Al₂O₃ or zeolites, effect of additives 3=20996
 cupric acetate monohydrate, mag. studies 3=25505
 cupric benzoate trihydrate, crystal structure 3=11273
 cupric formate tetrahydrate, antiferromagnetism, two-dimensional 4=10298
 cyameluric acid derivs., aq. solns., u.v. 2=17466
 cyanamide, HDNCN and D₂NCN, spectra 17-57 Gc/s 3=10532
 cyanamide, molec. rotational consts., corrected 3=2649
 cyanamide, rotational spectrum 2=1990, 14267
 cyanamide, vibrational spectra calc. 3=4764
 cyanides, complex, metal-ligand bonds 1=17333
 cyanine dyes, adsorbed on Ag halides, spectrographic props. 2=9411
 cyanine dyes, electronic spectra, press. effects 2=22988
 9-cyano-anthracene, crystal structure 0=4657
 cyanoacetylene, liquid, dielec. const. 3=7216
 cyanocarbons, thermochemistry 3=18439
 cyanogen absorpt. rel. to components of space vel. 3=7037
 cyanogen, crystalline, i.r. spectrum 4=4280
 cyanogen, dissociation 2=12349
 cyanogen, dissociation energy in shock waves 1=11131
 cyanogen, free-radical, e.s.r. detect. 2=12351
 cyanogen, ground state wave-function 2=6199
 cyanogen, lattice consts., space group, arrangement of mols. in unit cell 3=25729
 cyanogen-oxygen flames, plasma stream prod. 2=3036
 cyanogen, rotational analysis of 3000 Å absorpt. system 3=22582
 cyanogen, transient species in radiolytic polymerization 0=21291
 cyanuric and formaldehyde resins, fluorescence, on addition of aromatic ring compounds 3=15715
 cyanuric chloride, N¹⁴ quadrupole resonance 1=10198
 cyclic cpds., ice nucleation 3=3267
 cyclic peroxides, proton resonance, intramolecular hindering potential 1=17359
 cyclobutadiene, vibrational-electronic interactions 1=17309
 cyclobutane, C₄H₆ and C₄D₆, Raman spectra 2=16543
 cyclobutane, isotope effects in pyrolysis 3=8961
 cyclobutane, normal vibrations, potential consts. and vibration-rotation interaction 4=6614
 cyclobutane, photolysis 2=4551
 cyclobutane, solid, molecular motion, p.m.r. meas. 4=20611
 cyclobutane, vibr. spectra and structure 4=30457
 cyclobutanes, proton spin-spin coupling consts., relative sign 3=8296
 cycloheptatriene cycloheptatrienyl radical, e.s.r. spectrum 3=4778
 cycloheptatrienyl, e.s.r. in naphthalene crystals 3=1184
 1,3-cyclohexadiene, vapour phase photochemistry 3=11355
 cyclohexadienyl radical, e.s.r. 3=12859
 cyclohexadienyl radical, spin densities 2=18493
 cyclohexadienyl radicals, formation by reaction of H with solid benzene 3=1388
 cyclohexane, absorption, acoustic waves, reson. 3=8352
 cyclohexane, adhesion to alkali halide crystals 2=9250
 cyclohexane-benzene binary mixtures, radiolysis 4=23677
 cyclohexane-benzene soln., irradiated, benzene consumption 4=13743
 cyclohexane binary liq. mixtures, thermodynamic props. 4=18191
 cyclohexane, complex refractive index, below 5 mm 0=81

Organic compounds—contd

- cyclohexane crystals, phase-changes, first-order, study using positron annihilation 4=23300
 cyclohexane derivatives, dielectric and molec. props. 0=15708
 cyclohexane, dielec. const. near 9000 Mc/s 2=21916
 cyclohexane, dielec. const. rel. to purity 2=17769, 17771
 cyclohexane, deuterocyclohexane, Raman spectra, intensity and depolarization calc 4=12501
 cyclohexane-1, 2-dione radical anion, e. s. r., h. f. s. 4=30472
 cyclohexane, electron inelastic scattering 4=12394
 cyclohexane, elementary dissociation processes 2=20880
 cyclohexane, enthalpy change calc. for isomeric reaction 0=10662
 cyclohexane, excited, dissociation 3=25149
 cyclohexane, γ -irrad. at 77°K, free radicals, e. s. r. 1=14107
 cyclohexane, heat transfer, electrical conductivity and ion mobilities 3=14148
 cyclohexane hexahalides, crystal structure 1=12348
 cyclohexane, i. r. absorpt., temp. depend. 3=8286
 cyclohexane, i. r. absorption bands, width and profile 0=20614
 cyclohexane, ion pair average energy loss 4=24252
 cyclohexane, liquid, atomic struct. 2=15564
 cyclohexane, liquid order study 2=9257
 cyclohexane liquid, ion mobility rel. to temp. 4=14180
 cyclohexane, liquid radiolysis 1=9175
 cyclohexane mixed crystals, with naphthalene and methyl derivatives 0=11777
 cyclohexane, monocrystalline, u. s. absorption 0=11572
 cyclohexane-O₂ system, free radical kinetics 1=20727
 cis-4-cyclohexane-1, 2-dicarboxylic anhydride, n. m. r., multiple reson. analysis 4=9774
 cyclohexane, props. as solvent of polar molecules, dielec. relaxation effects 4=197
 cyclohexane radicals, e. s. r. spectra 0=5969
 cyclohexane, radiolysis of pure liquid and benzene soln. 0=14134
 cyclohexane, radiothermoluminescence 0=21018
 cyclohexane, Raman spectra, temp. depend. 2=703
 cyclohexane, self-diffusion coeff. 0=3513
 cyclohexane, single crystals growth 3=11229
 cyclohexane, solid, molecular resonance acoustic absorption 0=17887
 cyclohexane, solid, positron annihil., temp. var. 3=2774
 cyclohexane, solid, resonance absorption 2=12376
 cyclohexane soln. in CS₂ and CCl₄, proton spin-lattice relaxation 0=14664
 cyclohexane, sound absorption in solid and liquid 4=16109
 cyclohexane vapour, i. r. spectrum intensities 4=6619
 cyclohexane, vapour phase radiolysis 1=9176
 cyclohexanes, 9-methyl-substit., Raman spectra meas. 4=6632
 cyclohexanone, space group at -180°C 0=18367
 cyclohexatriene, formation from benzene, mech. 2=3731
 cyclohexylaminomaleinimide, fluorescence yield 1=12887
 cyclohexyl derivatives, n. m. r. spectra 3=8297
 cyclohexyl fluoride, rotational barriers and conformational preferences, n. m. r. study 4=20103
 cyclohexyl halides, γ -irrad. at 77°K, free radicals, e. s. r. 1=14107
 cyclohexyl radical, ring inversion 4=28278
 cyclooctatetraene, C¹³ hyperfine splitting in e. s. r. spectrum 1=19663
 cyclo-octatetraene complex with Fe tricarbonyl, molec. and valence structure 3=2643
 cyclooctatetraenyl radical, electron-spin resonance, h. f. s. 0=15734
 cyclo-paraffins, luminescence 3=21380
 cyclopentadiene, n. m. r. spectra 0=1505
 cyclopentadienide ion, vibrational—electronic interactions 1=17309
 cyclopentadienyl and cyclohexenyl free radicals, e. s. r. study 4=6640
 cyclopentadienyl-metal cpds., n. m. r. spectra 0=1506
 cyclopentadienyl radicals, e. s. r., above 800° C 4=12534
 cyclopentane derivatives, rotational isomers 1=19674
 cyclopentane radicals, e. s. r. spectra 0=5969
 cyclopentane vapour, i. r. spectrum intensities 4=6619
 cyclopentane vapour, u. v. absorption and ionization cross-sections, 9-25 eV 3=1932

Organic compounds—contd

- cyclopentene molecule, microwave study 2=14268
 cyclopropane, deactivation, collisional transition probabilities 4=17324
 cyclopropane, highly vibrationally excited, collisional deactivation with ethylene, He, Ar and N₂ 4=25783
 cyclopropane-iodine system, thermodynamics 2=17080
 cyclopropane, ion mobility in argon 1=2945
 cyclopropane isomerization and reaction with iodine 1=7903
 cyclopropane, isotope effects in pyrolysis 3=8961
 cyclopropane, rate of decomposition 3=16158
 cyclopropane reaction, unimolecular, statistical complex ion calc. 4=13707
 cyclopropane, reactions initiated by β -decay of tritium 0=14132
 cyclopropane, slow electron diffusion meas. 2=13381
 cyclopropane, structure, from electron-diffraction sector-microphotometer data 4=20036
 cyclopropane, unimolec. decomp. 0=8302
 cyclopropane vapour, use in Geiger counters 1=13197
 cyclopropane, viscothermal and thermal relaxation 4=24271
 cyclopropanes, chlorinated, pure n. q. r. 3=25142
 cyclopropanes, photosensitized reaction 1=20754
 cyclopropyl chloride, molec. structure 4=12800
 cyclotadienyl radical, vibrational—electronic interactions 1=17309
 cysteine and cystine, effect on radiolysis of NiSO₄ 4=7775
 cysteine, formation of S radicals by irradiation 2=6231
 L-cystine dihydrobromide, crystal structure 0=8234
 L-cystine hydrobromide, crystal structure 4=20767
 L-cystine dihydrochloride, irradiated, e. s. r. meas. 4=13310
 L-cystine dihydrochloride, irrad. at low temp., free radical prod., e. s. r. study 4=20591
 cytosine irrad. with u. s. waves, fluorescent material formation 4=7772
 cytosine monohydrate (C₄H₈N₃O₃·H₂O), crystal structure 3=8868
 DL-serine, γ -irradiated, paramagnetic resonance 1=14800
 DL-tartaric acid, e. s. r. of irradiated crystal 2=6691
 DNA, elastic modulus 2=2663
 DNA irradiated, e. s. r. 4=3903
 DPANO free radical, double quantum transit. 2=4247
 DPPH (diphenylpicrylhydrazyl), double quantum transition 1=14092
 DPPH, double magnetic resonance of free radical 1=12312
 DPPH, e. s. r., g-tensor anisotropy 3=23227
 DPPH, e. s. r. in soln. 2=7232
 DPPH free radical, double quantum transit. 2=4247
 DPPH, gyromagnetic ratio apparent change in weak field, 4=17311
 DPPH, h. f. s. and coupling consts., from e. s. r. 3=14183
 DPPH—hydro peroxide solutions, e. s. r. 4=202
 DPPH, powder and solid, e. s. r. and double resonance, rel. to appd. fld. 4=28890
 DPPH, proton mag. reson., dielec. const. 1=14829
 DPPH radical, mag. exchange-lattice relax. theory 2=549
 DPPH solutions, dynamic polarization of nuclei 1=12311
 dark conductivity, temp. depend. 1=14388
 decaborane, electronic spectrum 2=14300
 n-decane- β , β' -dichloroethyl ether liquid mixture, opalescence, critical, light scattering 4=24212
 1, 10-decanediol, heats of combustion and formation 2=21585
 decanoic acid, aqueous soln., surface tension 2=1123
 decyl alcohol, aqueous soln., surface tension 2=1123
 n-decyl alcohol solns., dipole relaxation and association 4=5210
 deoxybenzoin, heats of combustion and formation 2=21585
 deoxyribonucleic acid, dielectric props. 0=6802
 deoxyribonucleic acid, irrad., free radicals, e. s. r. 1=9952
 deoxyribonucleic acids, molec. wt. det., methods compared 0=7822
 desoxyribonucleic acid, polycondensation 0=21276
 desoxyribonucleic acid, reduplication, solvent and nucleotide addn. 0=15794
 deuterated acenaphthene, soln. in solid pentane, luminescence spectra 1=17917

Organic compounds—contd

- deuterated naphthalene, soln. in solid pentane, luminescence spectra 1=17917
- deutero naphthalene in deutero durene, triplet state e.s.r. 3=1181
- deuteriochloroform, liq. and crystalline, Raman and i.r. spectra 4=10203
- deuterodiboranes, vibrational freq. calc., Average Rule and Complete Isotopic Rule 1=13996
- deuteroethane, molec. secondary isotope effects 2=20762
- deuteroethylenes, vibrational freq. calc., Average Rule and Complete Isotopic Rule 1=13996
- deuteromethane, liquid, viscosity 3=11762
- dextrose, charred, paramagnetic resonance standard 0=16159
- dextrose, charring study 0=3310
- n-di and N-phenylmethacrylamide, polymerisation, crystal shapes 4=15842
- 1,4-diacetobenzene, hindered rotation of acetyl groups 4=18212
- diamagnetism and mol. struct., 26 cpds. 4=28774
- diamine-quinone complexes, i. r. spectra 4=28242
- diamine-quinone complexes, optical absorpt. edges 4=26229
- diamines, and diammonium ions, Raman spectra, effects of ionization on C-H stretching freqs. 4=22403
- 1,b-diaminopyrene solid complexes, ionic components 4=13062
- diarylethyl acetates, reaction rates, det. 1=10293
- diazanaphthalene (1,4 and 1,5), e.s.r., N^{14} h.f.s. 3=8295
- diazenes, singlet-triplet transitions 2=6185
- diazines, $n \rightarrow \pi^*$ transitions, excitation transfer splitting 1=12292
- diazirine, infrared spectrum 4=17301
- diazirine, mass spectra and appearance potl. 3=24216
- diazocarbonyl cpds., mass spectra, ionization 4=1291
- diazomethane, gaseous, i. r. spectra 4=9756
- diazomethane, i. r. spectra, reassignment of molecular constants 4=10204
- diazomethane, mass spectra and appearance potl. 3=24216
- diazomethane, n. m. r., -50°C and scarcity of izodiazomethane 4=28260
- diazomethane, out-of-plane CH_2 bending 4=15365
- diazomethane, perpendicular bending modes meas. 4=1290
- diazomethane, photolysis in solid matrix, chemiluminescence of ethylene 0=13723
- diazomethane, vacuum u.v. absorpt. spectrum 4=22401
- dibenzene chromium mol., symmetry assessments 4=22389
- dibenzene chromium, u. v. spectrum of vapour 2=2003
- dibenzene vanadium, e. s. r. 2=12343
- dibenzenechromium cations, hyperfine interaction, mag. susceptibility 4=15383
- dibenzenechromium, molecular symmetry 3=729
- dibenzo-p-dioxin, radical, e.s.r., h.f.s., p and C^{13} 3=20017
- dibenzyl, frozen cryst. solns., absorpt. and emission spectra 4=10205
- dibenzyl, luminescence, effect of second impurity 2=16865
- dibenzyl-stilbene, absorption and luminescence, 4.2° and 20.4°K 4=17587
- dibenzyl-stilbene with naphthacene impurities, absorpt. and luminescence 2=6568
- dibenzyl-tolane with naphthacene impurities, absorpt. and luminesc. 2=6568
- 9,10-dibromanthracene in various solns., fluorescence displacement 2=7221
- α - ω dibromo alkanes, dielectric properties 1=12897
- 9,10-dibromoanthracene, first order triplet decay, rate consts. 3=3811
- p-dibromobenzene, Zeeman study, quadrupole resonance 0=8094
- dibromochlorofluoromethane (CBr_2ClF), vibrational spectrum, molecular and thermodynamic props. 0=4207
- dibromomethane (gaseous), multiple vibrational relaxation 1=12280
- dibromomethane, gaseous, multiple vibrational relaxation, u.s. study 0=14695
- 3,5-dibromo para-amino benzoic acid, crystal structure 3=13490
- α , ω -dibromoparaffins, dipole moments 1=12333
- 2,3-dibromopropionic acid, proton spin coupling consts. 3=736

Organic compounds—contd

- dibutyl phthalate, mol. dipole-dipole interaction, from dielectric relaxation 3=23897
- dibutylphthalate-water emulsion formation, disperse phase changes 4=7791
- dibutyl-phthalate-water emulsion, u.s. effect on particle size distrib. 4=13751
- dibutylphthalate/water mixtures, emulsification by ultrasonics 1=20774
- dicarboxylic acids, radical prod. by β rays, e.s.r. obs. 4=29234
- dichloroacetaldehyde, proton mag. resonance in molecules 2=10284
- 2:4- and 2:5-dichloroaniline, n.m.r. of vinyl group, calc. 0=1507
- 9,10-dichloroanthracene, sub-threshold photocurrents of high quantum yield 1=10062
- p-dichlorobenzene, Cl spin-lattice relaxation 0=4532
- p-dichlorobenzene, Cl^{35} n.m.r., T_1 temp. depend. 1=10195
- p-dichlorobenzene, Cl^{35} quadrupole resonance, solvent shifts 0=4589
- p-dichlorobenzene, $Cl^{35,37}$ nuclear quad. lines 2=9724
- p-dichlorobenzene, dynamic proton polarization 1=20273
- p-dichlorobenzene, irradiation effects 0=6282
- p-dichlorobenzene liquid state, u.s. velocity and compressibility 1=18406
- o-dichlorobenzene, n. m. r. spectra, high-resolution analysis by computer 2=14325
- p-dichlorobenzene, n. q. r., Cl^{35} spin-lattice relax. 2=8695
- p-dichlorobenzene, n. q. r., orientational melting processes 2=791, 8688
- p-dichlorobenzene, n. q. r., spin-lattice relax. 2=788
- n-dichlorobenzene, nuclear resonance, effect of electron bomb. 0=21088
- p-dichlorobenzene, planar normal vibrations, calc. 0=5910
- p-dichlorobenzene, nuclear quadrupole resonance 1=17350
- p-dichlorobenzene, quadrupole resonance, relax. time meas. 4=13356
- p-dichlorobenzene, Raman spectrum, wave numbers and intensities 0=14817
- p-dichlorobenzene, Raman spectra, temp. depend. 2=703
- p-dichlorobenzene single crystals, u. s. absorpt. meas. 4=20206
- p-dichlorobenzene, 6 solid solns. of, n. q. r. spectra 1=20281
- p-dichlorobenzene, u.s. velocity rel. to molecular parameters 1=18403
- p-dichlorobenzene, Zeeman quadrupole spectra 1=8857
- dichloroborane and dichloroborane-d i. r. spectrum 4=17302
- 1,2,1,2-dichlorodifluoroethane, internal rotation isomers 3=25082
- dichlorodifluoromethane, refrigerant, specification tests 0=5041
- 4,4'-dichlorodiphenyl sulphone, crystal and molec. structure 0=4659-60
- 1,2-dichloroethane, HOH n.m.r. second moment, exptl. verification of calc. 3=10538
- 1,2-dichloroethane-d, pure quadrupole resonance 3=8745
- 1,2-dichloroethane, solids, molecular motion 4=22477
- 1,2-dichloroethane, ultrasonic waveform distortion, det. of nonlinear parameters 1=4337
- dichloroethylenes, simple MO theory 2=6209
- dichlorofluorescein, effect of pressure on optical props. 1=20019
- dichlorofluoromethane, microwave spectrum 4=20080
- dichloromethane, i. r. spectra and force constants rel. to deuteration 2=12311
- 1,1-dichloro-2-propanone, Cl^{35} nuclear quad. resonance 2=3787
- 2,2-dichloropropane, nuclear quadrupole relaxation and its temp. dependence 3=25598
- 1,2-dichlorotetrafluoroethane, dielec. const. at 400 Mc/s dipole moment det. 0=5988
- 2,7-dichlorothianthrene, e.p.r., in conc. H_2SO_4 3=20013
- dichlorotoluenes, Raman, i. r. and luminescence spectra 1=14035
- dicyandiamide, electronic struct., config. and dimensions 4=20084
- dicyandiamide, solid, structure and H atom positions 4=23504
- dicyandiamide, 25 MeV X-irradiation 0=2679

Organic compounds—contd

- dicyclopentadienylberyllium, $(C_5H_5)_2Be$, molecular structure from electron-scattering data 4=22402
- dielectric absorption mechanisms, review 1=7683
- dielectric const., in intense elec. field 0=8663
- dielectric liquids, elec. cond., effect of H_2O impurity 0=19136
- dielectric liquids, irradiation effects, elec. cond. and related props. 4=27191
- dielectric permittivity of liquids, effect of electric field 4=14177
- 1, 3-dienic silicohydrocarbons, vibr. spectra and struct. 4=30458
- 2, 5-diethoxyquinone, n.m.r. spectrum, electron transfer effects 4=17313
- diethylamine liquid state, u.s. velocity and compressibility 1=18406
- diethyl amine, microwave absorption 0=19210
- diethylamine, u.s. velocity rel. to molecular parameters 1=18403
- diethylaniline, luminescence 2=6629
- 1, 2-diethylborane, i.r. spectra 0=20634
- diethyl ether, diffusion in NH_3 , 3=9492
- diethyl ether, heat transfer in nucleate boiling 4=27170
- diethyl ether, ion mobility, bubble chamber study 2=22182
- diethyl ether solutions of organic halides, photo-conductivity 0=19151
- diethyl ether, spectrum vacuum u.v. 4=3891
- diethyl ether, superheat, measurement 1=15850
- diethyl ketone- CCl_4 mixtures, photolysis 3=18455
- diethyl sulphate liquid state, u.s. velocity and compressibility 1=18406
- diethyl sulphate, u.s. velocity rel. to molecular parameters 1=18403
- 3, 3'-diethylthiocarbocyanin chloride, crystal structure model 4=10563
- 1, 1-difluorethylene, n.m.r. in gas phase 3=8298
- difluoroacetic acid, proton mag. res. study 1=12902
- 1, 2-difluorobenzene, thermodynamic props. and vibrational assignment 3=8291
- difluorodichloromethane, ionization and attachment coeff. 4=5551
- 1, 1-difluoroethane, sound dispersion 0=17737
- difluoroethylenes, microwave spectra and structures 3=17595
- diglycine barium chloride monohydrate single crystals, Raman spectrum 4=13063
- diglycine nitrate, crystal structure and phase transform. 4=7653
- diglycolic acid monohydrate, e.s.r. of γ -irrad. crystal 2=6689
- dihalogen acridines, luminescence meas. 2=13348
- dihalogen fluoresceins, luminescence meas. 2=13348
- 1, 3-dihaloidopropane type, dielec. saturation theory 2=3797
- 9, 10-dihydroacridine, luminescence 2=6629
- 9, 10-dihydroanthracene-anthracene, optical props. 2=18824
- 2, 7-dihydrodibenz- [c, e] oxepin and thiepin, n.m.r., temp. var., and inversion 4=22422
- 1, 8-dihydroxy anthraquinone, crystal structure 3=13491
- dihydrophenanthrenes, as scintillators, u.v. props. 0=16710
- dihydropyrazine cation radical, e.s.r. spectrum, isotropic hyperfine splittings, signs 4=25728
- dihydropyrazine, methyl substituted, and related radicals, e.s.r. 4=28256
- 6, 7-dihydroxynaphthalene-2-sulphonic acid metal chelates, Stokes shift rel. to stability const. 4=5194
- 2, 2'-dihydroxy-1, 1' naphthalidiazine, (liumogen), optical and physical props. 4=13099
- diketene, proton mag. res. spectrum 1=11121
- diketopiperazine (2, 5-piperazinedione), crystal structure 0=3251
- diketopiperazyl radical, spin densities from molecular orbital calcs. 4=1289
- 4, 4'-dimethoxyazoxybenzol, diel. and molecular props. 1=18425
- dimethyl acetylene as moderator for cold neutron sources 3=6010
- dimethyl benzene ion radicals, spin and charge densities, temp. depend. 3=25151
- dimethyl carbonate, decomposition on quartz, 147-257°C 1=12674
- dimethyl ether, microwave spectra and structure 3=17596

Organic compounds—contd

- dimethyl ether, pyrolysis 0=1949
- dimethyl ether, pyrolysis, HCl catalysis 4=2157
- dimethyl ether, pyrolysis, termination processes 2=15126
- dimethyl ether + SO_2 , HCl of fluoroform, association, from dielectric const. and density, press. var. 4=11258
- dimethyl ether, vac. u.v. spectrum 3=12851
- dimethyl ether, temp. dependence of vap. press., viscosity and heat of vapourization 0=5215
- dimethyl formamide, Raman spectra 2=7218
- dimethyl oxalate, critical properties 3=306
- dimethyl phosphine, spectrum, microwave, mol. structure and dipole moment 4=6620
- dimethyl styrene scintillators 0=19969
- dimethyl sulphate liquid state, u.s. velocity and compressibility 1=18406
- dimethyl sulphate, u.s. velocity rel. to molecular parameters 1=18403
- dimethyl sulphide, centrifugal correction to rot. 2=14257
- dimethyl sulphide, microwave spectrum and structure 1=9691
- dimethyl sulphide, microwave spectrum, structure and rotation barrier 0=20627
- dimethyl sulphide, torsional fine structure 3=2644
- dimethylacetylene, perpendicular vibrational bands, internal rotation fine structure, theory 4=25701
- dimethylacetylene, rotational-torsional energy levels 4=25612
- dimethylacetylene vapour, liq. and solid, far i.r. spectrum, internal rot. and symmetry evidence 4=28243
- dimethylamine, thermal cond., press. and temp. depend. 0=19202
- 3-dimethylamino-6-amino phthalimide, collision stabilization 2=14260
- p-dimethylaminobenzonitrile, adsorption 2=15097
- p-dimethylamino-p'-cyanostilbene, molecular moment, from luminescence, polarization 4=192
- N,N-dimethylaniline, C^{13} nuclear magnetic resonance 3=10544
- dimethylaniline, luminescence 2=6629
- dimethylaniline, photoionization, electron energy distrib. 1=16263
- dimethylaniline, photoionization, electron energy distrib. 1=18763
- 2, 6-, and 3, 5- dimethylanisole in benzene solution, dielectric relaxation, interpretation 4=18212
- dimethylbutanes, solid, proton resonance, methyl group reorientation 1=10197
- dimethylcyclohexanes, anomalous chem. shifts in proton mag. resonances 2=23001
- dimethylcyclopropane, deactivation, collisional transition probabilities 4=17324
- dimethyldiacetylene molecule, shrinkage effect by thermal vibrations 2=6124
- 1, 2-dimethylborane, i.r. spectra 0=20634
- dimethyl-9:10-dihydroanthracene-9:10-dicarboxylate, unit cells and space groups of cis and trans isomers 0=8243
- 2, 2'-dimethyldiphenyl ether; methyl and ring protons spin-spin interaction 3=2645
- 2, 2'-dimethyldiphenylether, proton resonance, molec. structure 1=12325
- dimethylinitramine, gas, thermal decomp. 2=10976
- 2, 6-dimethylnaphthalene in liquid He , fluorescence 2=18870
- 2, 6 dimethylnaphthalene molecules, vibration symmetry types 3=17605
- 1, 4-dimethylnaphthalene, nuclear quadrupole resonance in solid solution 1=20277
- 2, 6-dimethylnaphthalene solution, absorption and luminescence spectra 4=5188
- dimethylnaphtharhodine, fluorescence yield 1=12887
- 2, 5-dimethylpyrazine, in hydrocarbon and EPA glasses, solvent effects on $n \rightarrow \pi^*$ transitions 0=15742
- dimethylsiloxanes, self-diffusion 1=5273
- dimethylsulphoxide, $(CD_3)_2SO$, spectrum, rot., and bonds, moments 4=22404
- 3, 3-dimethyl-2-thiabutane, thermodynamic props. and barriers to rotation 2=3732
- 2, 7-dimethylthianthrene, e.p.r., in conc. H_2SO_4 3=20013
- dinitrobenzene anion radicals, e.s.r. linewidth alteration 3=4776
- dinitrobenzene ions, isomeric, e.s.r., nuclear coupling consts. 0=17776

Organic compounds—contd

- m-dinitrobenzene, signs of coupling consts., n.m.r. 4=3909
 o-and p-dinitrobenzene anions, e.s.r. spectra, linewidths 4=17310
 α -and γ -(2, 4-dinitrobenzyl) pyridine, flash photolysis 2=19160
 γ -(2, 4-dinitrobenzyl) pyridine, photochemistry 2=8925
 γ -(2, 4-dinitrobenzyl)-pyridine, photochromotropism 0=16381
 dinitrochlorobenzene, permittivity and dielectric losses in electric field 0=20950
 1,5-dinitronaphthalene, crystal structure 0=8232
 2,2-dinitropropane, gas, thermal decomp. 2=10977
 1,4-dinitrotetramethylbenzene anion radical, e.s.r. 3=2653
 dinitrotoluene, permittivity and dielectric losses in electric field 0=20950
 2-4-dinitrotoluene, photoisomerized, acid catal. of fading. 3=25836
 dioctyl phthalate aerosol droplets, light scattering 1=9486
 dioctyl phthalate aerosol droplets, light scattering 1=11844
 dioctyl phthalate, a charged aerosol, coagulation 4=4717
 dioctylphthalate, monodisperse aerosols, generator 0=10364
 diols, with branched chains, dielec. props. 3=21397
 dioxane addition rare earth hydrated perchlorates, crystal structure 3=20861
 p-dioxane, adsorption by Ge surfaces 0=12115
 dioxane, complex refractive index, below 5 mm 0=81
 dioxane in diethyl ether, solvent dielec. const. rel. to solute u.v. spectra 2=17440, 19550
 dioxane, effect on fluorescence of acetylanthracene in hexane 1=9400
 dioxane, luminescence 2=15609
 dioxane, N-H stretching freqs. 2=7219
 dioxane in phenol, C=O freq. 2=7218
 dioxane, transmission in far i.r. 2=5023
 dioxane, vac. u.v. absorption spectra 2=8104
 dioxane-water and dioxane-heavy water, dielec. props. rel. to molec. structure 4=18211
 dioxane-water mixtures, n.m.r. of added electrolytes 4=203
 dioxane-water system, light scatt. 2=13345
 diphenyl acceptor carbazole donor mixtures, e.p.r., in irradi. ether-ethanol glasses, 77°K 3=22595
 diphenylamine crystals, phase-changes, first-order, study using positron annihilation 4=23300
 diphenylamine, diffusion in CO₂, 32.3°C, 77 to 130.5 atm. 2=17502
 diphenylamine, free radicals, e.s.r. study 1=9951
 diphenylamine in frozen solutions, 77°K, e.s.r. of photo-oxidation products 4=7325
 diphenylamine, heat of fusion 4=5450
 diphenylamine, luminescence 2=6629
 diphenylamine, supercooled liquid, u.s. velocity discontinuity at melting point 1=12876
 diphenylanthracene/o-xylene solns, quenching and energy transfer 3=1702
 9,10-diphenylanthracene-polystyrene solid solution, fluorescence 0=20998
 9,10-diphenylanthracene, structural absorption and fluorescence 4=30452
 p-diphenylbenzene, crystal structure 2=827
 diphenylbenzidine, free radicals, e.s.r. study 1=9951
 diphenyl, in boric acid glasses, photo-ionization by u.v. 0=21290
 diphenyl-butadiene, frozen cryst. solns., absorpt. and emission spectra 4=10205
 diphenylbutadiene mxd. with light gas, intermolec. interact. rel. to temp. 2=16567
 1,4-diphenylbutadiene-1,3, structural absorption and fluorescence 4=30452
 diphenyl, chlorinated (Aroclor 1260), dielec. relaxation, press. depend. 0=16702
 diphenyl cpds., in benzene, CCl₄ and heptane, microwave absorption 0=19149
 diphenyl cpds., in benzene soln. dielect. absorption 2=11382
 diphenyl, crystal growth 2=4386
 diphenyl decapentene, Raman spectrum rel. to excited state lifetime 4=6621

Organic compounds—contd

- diphenyldiazomethane in benzophenone, solid soln., e.s.r., triplet state, 77°K 3=4775
 diphenyl, diphenyl oxide, counter scintillation efficiency 4=3240
 diphenyl-diphenyl oxide, as reactor moderator and coolant 0=5825
 diphenyl-dipicrylhydrazyl, elec. cond. in benzene soln. 4=27196
 diphenyl dodecapentene, Raman spectrum rel. to excited state lifetime 4=6621
 diphenyl, electron transitions, branched electron gas model 4=1292
 diphenylene oxide, scintillation light yield for α and β -rays 4=13093
 diphenyl ether, dielectric relaxation and molecular structure 1=14113
 diphenyl ethers, relaxation mechanism 4=12422
 diphenylether, normal and supercooled, u.s. velocity, temp. depend. 0=6789
 diphenylether and similar molecules, anomalous dielectric relaxation 0=16700
 diphenylethers, mol. struct. by n.m.r., correction 3=10546
 diphenylethers, proton resonance, molec. structure 1=1325
 diphenyl hexachloride, viscoelasticity 2=1146
 diphenyl iodonium nitrate, use in photog. development 0=12756
 diphenyl liquid state, u.s. velocity and compressibility 1=18406
 diphenyl, melting, 45° change in angle between ring planes, Raman spectrum 4=6635
 diphenyl metachloride, relaxation data from pressure generator meas. 0=3586
 diphenyl, neutron age 0=12979
 diphenyl, neutron diffusion 3=2271
 diphenyl, neutron diffusion parameters 4=3758
 diphenyl, neutron inelastic scattering investigation, 20°C 4=5153
 diphenyl, neutron thermal diffusion 2=9857
 diphenyl, neutron total cross-section of H, meas. 4=28238
 2,5-diphenyl-1,3-oxazole, fluorescence quantum yields 0=16098
 2,5-diphenyloxazole (PPO) scintillation solutions 1=4347
 diphenyloxazole soln. in cyclohexane, fluorescence 2=7223
 2,5-diphenyloxazole solns., luminescence 3=1701
 2,5-diphenyloxazole, transient dimer formation 1=8131
 2,5-diphenyl-1,3,4-oxdiazole, fluorescence quantum yields 0=16098
 diphenyloxazole in xylene soln., energy transfer 0=19161
 $\alpha\alpha$ -diphenyl- β -picryl-hydrazyl, antiferromagnetism 4=4390
 diphenyl picryl hydrazil, n.m.r., double, solid and in benzene solutions 4=1904
 diphenylpicrylhydrazyl, BDPA and Wurster's blue, e.s.r. relaxation times 0=3123
 1,1-diphenyl-2-picrylhydrazyl (DPPH), e.s.r., g-tensor 2=14828
 diphenylpicrylhydrazyl, dynamic proton polarization 0=4534
 diphenylpicrylhydrazyl, e.s.r. 0=16178
 α,α -diphenyl- β -picryl hydrazine, e.s.r. absorpt. 3=15371
 diphenylpicrylhydrazyl free radical, multiquantum transitions in radio wave region 4=25604
 diphenylpicrylhydrazyl, e.s.r. line at r.f. at liq. H temp. 0=10225
 diphenylpicrylhydrazyl, e.s.r. lines, moments 0=12671
 diphenyl picryl hydrazil, e.s.r. line width, effect of external mag. field, 12-53 500 Mc/s 1=1271
 diphenylpicrylhydrazyl, e.s.r. and n.m.r. at 4°K 0=15773
 diphenylpicrylhydrazyl, partial microwave saturation, susceptibility along polarizing field 0=16179
 diphenylpicrylhydrazyl, proton hyperfine spectra 0=10680
 diphenyl picryl hydrazyl, proton polarization by electron resonance saturation 1=10196
 diphenylpicrylhydrazyl, proton resonance, spin densities 0=17778
 diphenylpicrylhydrazil radical, mag. susceptibility, 294°-1.2°K, Curie constants 4=10250
 $\alpha\alpha$ -diphenyl- β -picrylhydrazyl, relax. time var. down to 1.5°K 4=30730

Organic compounds—contd

- diphenylpicrylhydrazyl, e.s.r., r.f. susceptibility along polarizing field 0=16179
- diphenyl-picryl-hydrazyl solns., ordinary and super-cooled glassy solid, e.s.r. 4=2710
- 1,1-diphenyl-2-picrylhydrazyl, spin-lattice relax. 4=28884
- diphenyl picryl hydrazyl, spin-spin relaxation, field depend. 1=882
- diphenylpicrylhydrazyl, e.s.r. study of hyperfine interactions in single crystals of the hydrazine 0=13881
- diphenylpicrylhydrazyls, substituted, e.s.r. 4=15377
- diphenylpolyenes, frozen cryst. solns., absorpt. and emission spectra 4=10205
- 1,3-diphenyl-1,3-propanedione, heats of combustion and formation 2=21585
- diphenyl, in sat. hydrocarbon phosphorescence, 77°K 4=20499
- diphenyl, scintillation light yield for α and β -rays 4=13093
- diphenyl in solns., phosphoresc. meas. 4=11206
- diphenyl, thermal neutron diffusion 1=13445
- diphenyl, u.s. velocity rel. to molecular parameters 1=18403
- 2,2'-dipyridyl anion, e.s.r., h.f.s., effect of reducing agent 3=20020
- dipyridyl complexes, Eu (III), Sm (III), Tb (III) and Dy (III), fluorescence 4=20501
- $\gamma\gamma$ -dipyridyl, e.s.r., N^1 h.f.s. 3=8295
- $\gamma\gamma$ -dipyridil, ions, spin density and hyperfine coupling 2=22995
- 2,2'-dipyridyl-Na complex, e.s.r. spectrum 2=20862
- di-p-xylylene, structure, thermal expansion and molec. vibrations 0=8248
- diquinone anion e.s.r. 4=28257
- discharges, electric, in vapours, Townsend, effect of space charge on current growth 3=21756
- disubstituted benzenes, high-resolution n.m.r. 3=8301
- disubstituted benzenes, proton n.m.r. 3=4779
- 1,2-disubstituted ethanes, A_2B_2 n.m.r. spectra, analysis 4=17314
- disubstituted nitric oxides in benzene soln., ESR spectra 2=2733
- 1,2-disubstituted propanes, n.m.r. studies 4=28266
- disubstituted 3-cyano, 2,5-pyrrolidiones and derivatives, i.r. spectra and vibr. 4=15603
- distyrylbenzene derivatives, scintillation props., absorpt. and fluorescence 4=18209
- disulphides, meas. of appearance pot. prod. by electron impact 4=8623
- di-tertiary butyl peroxide, gas phase HCl-catalysed decomp. 3=5164
- di-tetramethyl ammonium uranium hexachloride, vibrations, space-group theory calc. 3=8343
- dithiocarbamate complexes with metals, i.r. spectra, normal coordinate analysis 3=25120
- ditoluenechromium cations, hyperfine interaction, mag. susceptibility 4=15383
- divinylamine, improved LCAO method 3=4774
- djenkolic acid, formation of S radicals by irradiation 2=6231
- dodecane, liquid, PVT relations 1=8108
- dodecylpyridinium iodide-KI solution, scattering of light 1=4477
- durene, absorption and luminescence spectra 2=12594
- durene, green fluorescence, polarization 3=23114
- durene, growth from melt 4=17784
- durene, luminescence, lifetime var. solvent 4=20496
- durene, luminescences, true and parasitic 4=13098
- durene, naphthalene-doped, phosphoresc. 3=15712
- durene, phosphorescence at low temp. 3=13211
- durene, in solid phase, triplet-singlet luminesc. 4=13097
- dye mols., colour rel. to polarizability 2=14345
- dye photoconductors, e.s.r. 3=23021
- dye-polyelectrolyte complex, colour change by elec. field 3=3804
- dye sensitization of photoconductivity 1=17798
- dye sensitization of photoconductivity of CdS 1=17797
- dye solns., luminescence and absorpt. spectra diff. 4=14171
- dye solution, primary and secondary fluorescence 1=8126-7
- dye solutions, adsorption effects on reflection spectrum 4=16119
- dye solutions, luminescence quenching and absorption spectra 1=15891

Organic compounds—contd

- dyes, absorption spectrum, effect of weak coupling between chromophores 2=22985
- dyes adsorbed on cellophane, absorpt. anisotropy 3=20492
- dyes adsorbed on light scattering materials, spectra 3=21515
- dyes, azo, assignment of electronic transitions 2=6186
- dyes, cationic, dark conductivity 3=25416
- dyes, colour shift by electric field 1=6004
- dyes, condenser photoeffect, effect on, in Ge and Cu_2O 2=8437
- dyes, crystal structure rel. to deposition 2=6815
- dyes, dark conductivity, temp. depend. 1=14388
- dyes dissolved in polyvinyl alcohols, luminescence 3=7213
- dyes, e.s.r. spectra 3=15936
- dyes, effect of light on contact potential 0=1626
- dyes, electronic spectra, temp. depend. 2=14291
- dyes, external photo-effect 2=5371, 11695
- dyes in films, double refraction, on polarized light irradi. 4=17586
- dyes, films and solns., absorpt. spectra osc. strengths, luminescence quenching and spectra overlap 4=11200
- dyes, fluorescence quantum yield and absorption decay time 0=11772
- dyes, fluorescent polarization spectrum, fine structure 4=27185
- dyes, frozen aq. solns., concentration profiles 0=6048
- dyes, luminescence, metastable states 0=3537
- dyes, luminescence, quenching, dipole moment intermol. interaction 4=22442
- dyes, mol. transits., polariz. meas. 2=10277
- dyes, optical, sensitization of semiconds. 2=6488
- dyes, photocond., effect of H_2 0=1685
- dyes, photoconductivity theory 2=6492
- dyes, props. of photographic sensitizers 0=10358
- dyes, resonance Raman spectroscopy 0=7765
- dyes, in rigid media, delayed fluorescence 4=1789
- dyes, sensitization of photoconductivity in glass 0=20926
- dyes, solid films, photoelec. emission, freq. depend. 0=17028
- dyes, solid films, photo-emission 1=5491
- dyes in soln., luminescence 3=11800
- dyes, in spectral sensitization of photographic materials 3=11950
- dyes, triphenylmethane, paramagnetic resonance 1=5072
- e.s.r. in glassy solns. 4=7198
- e.s.r. studies, tritium as an internal radiation source 1=12307
- egg albumin, paramagnetic resonance and semiconductor theory 1=11115
- 8-cicosanol, proton resonance, rel. to dielec. relaxation 0=13894
- electroluminescence, d.c., of solid and liquid phosphors 4=20495
- entropy of melting, classification 2=10306
- eosin, B,6G, in polymethyl methacrylate, fluorescence polarization 3=15713
- eosin-phenol system, flash photolysis 0=4725
- eosin, photoluminescence quenching 1=12886
- eosin, solutions in collodion and glucose, fluorescence yield 1=1179
- eosin, spectra of solns. in mono- and PMMA 2=9281
- eosin, spectrum, influence of solvent mixture of MAM or ethanol 3=21378
- eosin, yellow, in glycerine and polymethyl methacrylate, reflection symmetry 2=19566
- eosin, in ZnO, sensitization of photoconduction 4=15570
- epichlorohydrin, n.m.r., spin-spin coupling 1=19662
- epoxide resins as vacuum-tight materials 2=21958
- epoxide splitting, base catalysis mechanism 3=20997
- epoxides, substituted, spin-spin coupling rel. to electronegativity 4=28262
- epoxy resin, as cement for cryogenic apparatus 1=11867
- epoxy resin, n.m.r. of water content 3=6768
- epoxy resin, thermal boundary resist. with liq. He^3 below 1°K 4=27404
- epoxy resins, elec. breakdown 1=17850
- epoxy resins, replica mirror production 0=19389
- epoxy-reson joints for high-vacuum tubes 0=10705
- equations of state, virial coeffs., and intermolecular forces 3=25154
- erbium ethyl sulphate, spectrum, absorpt. 4=10173
- esculin, phosphorescence, anti-Stokes 1=6235

Organic compounds—contd

- ester—urea inclusion cpds., X-ray produced free radicals 4=28277
 esters, adiabatic compressibility, u.s. vel. 3=11795
 esters, decomposition, criticism 3=25822
 esters, formate, in mass spectra, H_3O^+ formation in mass spectra 4=9780
 esters, liquid, 24, absorption of acoustic waves, u.s., var. with freq. (3-20 Mc/s) and temp. 3=14159
 esters, Raman spectra intensities 1=14033
 esters, Raman spectra, relative line intensities 0=85
 ethane, adsorption on Ir 2=15099
 ethane ($C^{13}C^{12}H_6$), $\nu_2 + \nu_6$ band 3=20007
 ethane, C^{13} -H and H-H nuclear spin coupling 1=17346
 ethane- d_6 , Raman spectrum analysis 3=4765
 ethane, diffusion of ethylene, acetylene and self, meas. 4=11238
 ethane, diffusion in polyethylene 4=28481
 ethane, electro-optical parameters rel. to dipole moments 4=15367-9
 ethane, electron inelastic scattering 4=12394
 ethane and ethane- d_6 , i.r. spectrum and c-c bond length 0=1513
 ethane, ethyl, chemical decomposition 4=26752
 ethane—ethylene gas mixtures, u.s. dispersion 2=2773
 ethane, H^{+2+} ions interact. energies 2=12354
 ethane, hexadeuteroethane, Raman spectra, electro-optical, depolariz. consts., calc. 4=25702
 ethane, int. rot. rel. to steric repulsion of H atoms 2=1978
 ethane, internal rotation barrier calc. 4=1293
 ethane, internal rotation barrier, valence bond calc. 0=4185
 ethane, ion—molecule reactions 4=11538
 ethane, ionization by ions of 200-1200 keV energies 4=27488
 ethane, liquid, proton spin—lattice relaxation 3=18835
 ethane, liquid, self-diffusion and proton relax. 2=21924
 ethane, microwave absorption in compound gas 2=13380
 ethane, molec. secondary isotope effects 2=20762
 ethane, molecular beam techniques 0=2758
 ethane molecular, classical calc. 3=20008
 ethane, molecular parameters 3=4766
 ethane, molecular yields in radiolysis 0=16385
 ethane, oxygen explosions, within gas boundary 2=4542
 ethane, photochemistry at wavelengths below 900Å 3=13618
 ethane, photochlorination, isotope effect 3=11356
 ethane, photoionization, continuous absorpt., and fluorescence 4=25690
 ethane, photolysis at low conversions 4=13740
 ethane, pure and with O_2 , proton spin—lattice relax. 1=18476
 ethane-1, 1, 1- d_3 , radiolysis 2=15160
 ethane, radiolysis, e.s.r. obs. of ethyl radical concn. 0=18439
 ethane, reaction with T_2 , mechanism 0=745
 ethane, solid, vacuum photolysis at 77°K 2=19154
 ethane, sound dispersion 0=17737
 ethane, structure, rel. to rotational Raman spectra 2=10260
 ethane, substituted, proton—proton coupling const. in H-C-C'-H' bonds, temp. depend. 0=17784
 ethane, thermodynamic props. 0=1064
 ethane, transport props. meas., rotational relax. 4=5241
 ethane-type mols., perpendicular vibrational bands, internal rotation fine structure, theory 4=25701
 ethane, u.v. photolysis 1=6573
 ethane, unimolec. decomp. 0=8302
 ethane vapour, u.v. absorption and ionization cross-sections, 9-25 eV 3=1932
 ethane, vibrationally-excited, decomposition 2=14335
 ethanes, deuterated, vapour press. 4=24440
 ethanes, geminal HH coupling constants 3=8294
 ethanes, substituted, n.m.r. study of conformational equilibria 2=16562
 ethanes, substituted, u.s. relaxation, rotational isomerism, -70°C to +100°C, 10-110 Mc/s 0=19125
 ethanol—A mixtures, in proportional counters 0=12722
 ethanol adsorbed on Al_2O_3 surfaces, i.r. spectral study 3=3362
 ethanol, dissociation 3=12870
 ethanol, with dissolved water, dielectric const., 2.1 mm 4=2703
 ethanol—argon filling for Geiger counters 1=13186

Organic compounds—contd

- ethanol, effect on fluorescence of acetylanthracene in hexane 1=9400
 ethanol glass, e.s.r. of irradiation-induced electrons trapped at 77°K 4=4399
 ethanol, with KI, u.s. vel. and compressibility 1=11759
 ethanol, paramagnetic resonance 1=15907
 ethanol, proton-transfer ion—molecule reactions 4=23623
 ethanolamine complexes, mono-, di- and tri-, of Fe, Ni, and Cu, dichroism 0=13693
 ethylene vapour ionization, isotope effect in energy transfer from metastable noble-gas atom 4=29866
 ethene, isotopically substituted, zero-point energy 3=12794
 ether, compressibility, temp. depend., X-ray study 3=21322
 ether—acetic acid soln./water, interface mixing zone, non-stationary effects 0=19085
 ether, cyclic, fluorinated, electron attachment 0=5273
 ether, electron avalanches, carrier multiplication 0=2349
 ether, fluctuational formations, temp. depend., 4=24169
 ether, liquid, lack of orientational ordering 1=11747
 ether mols., adsorpt. on Ge, effect on recomb. centres parameters 4=20361
 ether solutions of K metal and naphthalene dianion, flash photolysis 3=16180
 ether solutions, photocond., red edge 2=17482
 ethers, CH vibr. spectra and harmonics, perturbation by free orbitals of O 4=3882
 n-ethers, thermal cond. meas., -100° — +200°C 4=24204
 ethers, vinyl alkyl, vib. spectra, theory 2=16548
 ethyl acetate, absorption and diffraction of ultrasonics 1=2823
 ethyl acetate, light scatt., absolute intensity, exper. determ. 4=24211
 ethyl acetate, rotational isomeric relax. 4=178
 ethyl acetate, u.s. absorption 0=6788
 ethyl acetate, u.s. velocity and absorption coeff. 0=8652
 ethyl acetate—water system, boiling 2=19785
 ethyl acetylene, proton resonance, proton—proton coupling consts. 0=17783
 ethyl acrylate, γ -ray induced polymerization 0=1516
 ethyl acrylate NMR, spectra analysis 1=20254
 ethyl adipate, dielec. relaxation, effect of temp. 0=5022
 ethyl adipate, dielectric relaxation 0=19145
 ethyl alcohol, acoustic streaming, viscosity ratio 0=6880
 ethyl alcohol, α -particle stopping power 2=326
 ethyl alcohol, aq., viscosity, steps in intermolecular activation energy 1=15781
 ethyl alcohol, b.p. and strong elec. field 2=7472
 ethyl alcohol, catalytic action of LiF rel. to dislocations 4=6841
 ethyl alcohol, cavitation erosion, dependence on dissolved gases 1=10489
 ethyl alcohol, critical heat load at boiling 2=15818
 ethyl alcohol—cyclohexane, dielec. relax. 2=13351
 ethyl alcohol, deuterated, specific heat 2=13324
 ethyl alcohol, dielec. const. near critical temp. 2=19575
 ethyl alcohol for diffractive light modulator 0=12494
 ethyl alcohol, dispersion at mm wavelengths rel. to dielec. props. 3=1706
 ethyl alcohol, entropy of boiling, calc. 1=8265
 ethyl alcohol, fog droplets growth and condensation coeffs. 4=5467
 ethyl alcohol, frozen aq. soln., concentration profiles 0=6048
 ethyl alcohol, n.m.r. of proton complexes at -75°C 1=11767
 ethyl alcohol—NaI system, elec. cond. near critical temp. 2=17481
 ethyl alcohol, nuclear magnetic resonance 1=5287
 ethyl alcohol, O_2 absorption spectra 2=5020
 ethyl alcohol, Raman spectra 2=8099
 ethyl alcohol, scattering of neutrons 0=12940
 ethyl alcohol, sound velocity meas. 4=8206
 ethyl alcohol, sound velocity, temp. coeffs. 4=8207
 ethyl alcohol, spectrum, 20.7-31.7 kMc/s, dipole moment 3=20002
 ethyl alcohol, surface tension 0=14613
 ethyl alcohol, trapped Au e.s.r., liq. N, temp. 4=13317
 ethyl alcohol, u.s. absorption 2=15707
 ethyl alcohol, ultrasonic waveform distortion, det. of nonlinear parameters 1=4337

Organic compounds—contd

- ethyl alcohol-water mixtures, heat and mass transfer 2=15768
 ethyl alcohol-water mixtures, u.s. relax. 2=53
 ethyl ammonium ions, proton spectra rel to long-range N^{14} coupling 3=12864
 ethyl anisol p-amimocinnamate, polymesomorphic, dielec. loss at 1.2 cm 0=5018
 ethyl p-azoxybenzoate, liquid crystals, structure rel. to u.s. waves 3=18798
 ethyl p-azoxycinnamate, liquid crystals, structure rel. to u.s. waves 3=18798
 ethyl benzene, nuclear spin-lattice relax. meas. 3=23912
 ethyl benzene, relaxation time at 8.7 mm 0=18090
 ethyl benzoate, dielec. dispersion, at 1000, 2000 and 9200 Mc/s 1=1748
 ethyl benzoate, mol. dipole-dipole interaction, from dielectric relaxation 3=23897
 ethyl bromide, catalysis from ethylene + HBr, by Co^{80} 4=10650
 ethyl bromide, γ -irrad., e.s.r. 2=8125
 ethyl bromide, superheat, measurement 1=15850
 ethyl bromide, u.v. absorption in gas and solid 1=855
 ethyl butyl ketone, relaxation time at 3 cm 1=6870
 ethyl chloride, adsorbed on porous Vycor glass 2=2779
 ethyl chloride adsorbed on Vycor glass, complex dielec. constant 1=9423
 ethyl chloride, adsorption of activated C 4=23553
 ethyl chloride, dielectric dispersion 0=14696
 ethyl chloride-hydrogen, thermal diffusion, 300-480°K 0=959
 ethyl chloride, press. dependence of microwave absorption 0=5920
 ethyl chloride, thermal cond., press. and temp. dependence 0=19202
 ethyl chloride, unimolecular decomp. 0=8302
 ethyl cinnamate, dielec. dispersion, at 1000, 2000 and 9200 Mc/s 1=1748
 ethyl cyanide, r.f. spectrum and internal rotation 0=4211
 ethyl cyanide sources at 0.34 mm wavelength 4=24904
 ethyl-d₁ radicals, decomposition 4=10639
 ethyl-d₃ chem. activated radicals, decomposition 3=11347
 ethyl-d₃ radicals, excited vibr., collisional deactivation by D₂, He 4=22441
 ethyl esters in α -phase, dielectric absorption, anomalous behaviour 4=10102
 ethyl ether, critical state, study in Tepler's apparatus 1=13020
 ethyl ether, density, near critical state, γ -absorption study 1=13027
 ethyl ether, of ethylene glycol, in water, light scatt., 4=24214
 ethyl ethers, i.r. spectra, effect of substitutes 2=22987
 ethyl fluoride, for i.r. spectrum, barrier to internal rotation 3=25121
 ethyl formate, microwave absorption 0=19210
 ethyl glycol, elec. strength, under pulse conditions 4=27188
 ethyl iodide, microwave spectrum 1=7463
 ethyl iodide, microwave spectrum 1=9928
 ethyl iodide, microwave spectrum, rotational consts. 1=838
 ethyl iodide, pyrolysis 3=6915
 ethyl iodide, reaction with HI 3=20978
 ethyl iodide, u.v. absorption in gas and solid 1=855
 ethyl lactate, dielec. dispersion, at cm wavelength 1=1749
 ethyl malonate, n.m.r., CH_2 proton line-width, effect of adding piperidine and its benzoate 4=208
 ethyl mercaptan, proton resonance, proton-proton coupling consts. 0=17783
 ethyl methacrylate, u.s. velocity rel. to molecular parameters 1=18403
 ethyl $NH_2B_2H_4NH$ ethyl, crystal and mol. structure 4=2096
 ethyl phosphate liquid state, u.s. velocity and compressibility 1=18406
 ethyl phosphate, n.m.r., in earth's field 3=20021
 ethyl phthalate, dielectric relaxation 0=19145
 ethyl radicals, reaction kinetics in liq. ethane 4=25721
 ethyl radicals, reactions with I atoms 3=8972
 ethyl-d radicals, unimolecular decomposition 3=18154
 ethyl stearate and behenate, dielectric absorpt., two position model 4=12965

Organic compounds—contd

- ethyl stearate, crystalline transitions and mechanical dispersion 0=6299
 ethyl stearate, dielec. const. and crystal structure 0=13647
 ethyl stearate-heneicosane mixtures, dielec. const. and relaxation theory 0=13647-8
 ethyl sulphate crystals, Nd^{3+} ions in, harmonic cross relaxation 2=10707
 ethyl sulphates, electron spin resonance 0=3124
 ethyl sulphates, nuclear orientation 1=14153
 ethyl sulphuric acid, rotativity 1=12880
 N-ethylacridone, triplet states study by luminescence and e.s.r. 3=962
 o-ethylaniline vapour, near u.v. absorpt. spectrum 4=17303
 ethylbenzene, multiple proton mag. resonance relaxation 1=15910
 ethyl-9-bromo 10-anthracene, crystal structure 0=8233
 ethylenediamine, N^{14} nuclear quad. reson. 2=18487
 ethylene acid, and D-substitution product, electro-optical parameters 3=15366
 ethylene, adsorption on Ir 2=15099
 ethylene alcohol derivs., free ν (OH) vibrations 2=1985
 ethylene, α -radiolysis 0=8321
 ethylene and C_2D_4 , absolute i.r. intensities of cryst. 3=6656
 ethylene and C_2D_4 , acoustic dispersion, catalysis of energy transfer 1=19675
 ethylene, and C_2D_4 , i.r. spectra of crystals 2=14686
 ethylene, C^{13} or D substit., proton reson. 2=16561
 ethylene, C^{13} -H and H-H nuclear spin coupling 1=17346
 ethylene, chemiluminescence, from photolysis of diazomethane in solid matrix 0=13723
 ethylene chloride, ratio of gauche to trans. form in soln. 0=2770
 ethylene, crystal struct. 2=15040
 ethylene diamine copper (II) nitrate, e.s.r. 3=8706
 ethylene, diffusion of Kr^{85} in dense gas 3=1720
 ethylene, diffusion of N_2 , ethane and self, meas. 4=11238
 ethylene, electron density distrib. 2=20849
 ethylene, electron impact spectra 4=6520
 ethylene, electron inelastic scattering 4=12394
 ethylene, electron-pair bond, time-dependent Hartree-fock theory 4=20026
 ethylene, electron transport, time-of-flight meas. 3=23940
 ethylene, excit. of molec. vibr. modes 2=6140
 ethylene, force parameters, calc. using exp. 6-8 model 0=1515
 ethylene, γ -radiolysis 2=2453
 ethylene glycol, deuterated, specific heat 2=13324
 ethylene glycol dinitrate, boiling pt. lowering on thermal decomposition 2=2450
 ethylene glycol, frozen aq. solution, concentration profiles 0=6048
 ethylene glycol mono-isobutyl ether, critical solution in water 1=2754
 ethylene glycol, mutual potential energy of molecules, periodic discontinuities 1=4324
 ethylene glycol, sonoluminescence 0=2178
 ethylene glycol, sonoluminescence and cavitation bubble implosions 2=19571
 ethylene glycol synthesis in chemonuclear reactions 1=11056
 ethylene glycol, viscosity 0=19045
 ethylene glycol, viscous flow, intermolec. activation energy 2=15567
 ethylene, Hg-photosensitized reaction at high temp. 3=8970
 ethylene, i.r. spectrum, Coriolis perturbations 4=20081
 ethylene, interaction between two molecules 2=6236
 ethylene-iodine system, thermodynamics 2=17080
 ethylene, ionization by α -rays, energy depend. of W 1=8310
 ethylene, ionization by ions of 200-1200 keV energies 4=27488
 ethylene, ionization by Po α -particles 0=19613
 ethylene, isotopically substituted, zero-point energy 3=12794
 α -ethylene ketones, i.r. absorption 4=3892
 ethylene, lowest triplet states 1=850
 ethylene, microwave absorption in compressed gas 2=13380
 ethylene, molecular convex-core model 1=14142
 ethylene, molecular π electron states, calc., analogue 4=9757
 ethylene, molecular yields in radiolysis 0=16385
 ethylene, non-empirical MO calcs 0=5971

Organic compounds—contd

- ethylene, ν_s vibration mode 1=7467
 ethylene, orbital calc. of $^3B_{1u}$ and $^1B_{1u}$ states 0=13452
 ethylene oxide, first addition to phenol, base catalysis mechanism 3=20997
 ethylene oxide hydrate, Structure I, dielectric absorption 4=22771
 ethylene oxide, pyrolysis, hot molecule reaction 4=13722
 ethylene oxide, thermal cond., press. and temp. depend. 0=19202
 ethylene-oxygen flame, electron temp., near to gas temp. 4=16274
 ethylene, Pariser—Parr theory, transition band-widths 4=25703
 ethylene, photochemistry at wavelengths below 900 Å 3=13618
 ethylene, photoionization, continuous absorpt., and fluorescence 4=25690
 ethylene, photolysis 1=12681
 ethylene, photolysis 2=4549
 ethylene, planar vibr., perturb. analysis 4=25709
 ethylene, polarizability, effect of π -electron electrostatic interaction 0=20652
 1-2-di-(1-naphthyl)-ethylene, in polystyrene, γ -scintillation yield 2=2258
 ethylene, potential function calc. 3=4767
 ethylene, pure and with O_2 , proton spin-lattice relax. 1=18476
 ethylene, reaction with methyl radicals 0=746
 ethylene, reaction with T_2 , initiation by T decay 0=3321
 ethylene-SF₆, vibration energy transfer 3=6434
 ethylene, slow electron diffusion meas. 2=13381
 ethylene, solid-state vibr. spectra 2=2237
 ethylene, spectrum meas., by electron scatt., agreement with u. v. 4=3828
 ethylene, split p-orbital calc. method 2=10268
 ethylene, thermal relaxation absorption 0=19209
 ethylene, transfer of vibrational energy 0=7817
 ethylene, transport props. meas., rotational relax. 4=5241
 ethylene vapour, u. v. absorption and ionization cross-sections, 9-25 eV 3=1932
 ethylene, variational calc. 2=3772
 ethylene, viscothermal and thermal relaxation 4=24271
 ethylene-water vapour mix., electron trapping 2=22170
 ethylenes, fluorinated, force consts. calc. 4=30459
 ethylenes, isotopic effects on vapour pressures 4=5151
 ethylenes, monosubstituted, spin-spin coupling constants 1=17347
 ethylenes, subst. n.m.r., C¹³-H spin-spin couplings 3=10547
 ethylenes, substituted, proton n.m.r. shifts 1=7489
 ethylenediamine complexes of Cu(II)SO₄, e. s. r. 4=4401
 ethylenediamine, solvated electrons and water reaction rates 4=7746
 ethylenediaminetetra-acetic acid complex ions, thermodynamics of formation 0=21277
 ethylenediammonium sulphate, crystal structure 1=15112
 α -ethylenic ketones, aliphatic, magnetic rotation and electronic structure 4=15366
 ethylenic mol. exciton trapping when coupled with nuclear vibr. 4=20127
 ethylmethacrylate liquid state, u. s. velocity and compressibility 1=18406
 ethylsulphate:Ce, Pr, Pr spectrum and Zeeman effect 1=1164
 ethylvinylketone, proton mag. res. spectra 3=2657
 ethynyl free radical, e. s. r. meas. 4=12532
 europium benzoylacetate in polymethylmethacrylate, luminescence, as in pure crystal 4=10233
 europium benzoylacetate soln., fluorescence spectrum 4=30461
 europium dibenzoylmethide and Lewis base complexes, luminescence 4=22934
 excess-kinetic energy ions, in mass spectra 4=18688
 excimers, luminescence due to 2-stage charge transfer 4=21141
 factor V 1a (aquo cyanide of vitamin B₁₂ nucleus), crystal structure 4=23505
 n-fatty acid liqs., thermal cond. meas., -100° — + 200°C 4=24204
 fatty acids, adsorption and dislocation locking in LiF 2=23182

Organic compounds—contd

- fatty acids, aq., LiF soln. and etching 2=12886
 fatty acids, solid, 700-900 cm⁻¹ absorption spectra 1=17901
 fatty and perfluoro-acids, long-chain, as etchants 2=8229
 ferric acetylacetonate, spectrum changes on addition to polyacene solutions 3=15359
 ferric acetylacetonate, zero-field energy levels 3=23228
 ferrihaemoglobin derivatives, e. s. r., MO calc. of bonding 1=873
 ferrocene, cond., elec., dark and photo- 4=17532
 ferrocene derivatives, Fe⁵⁷ Mössbauer effect 3=15425
 ferrocene derivatives, Mössbauer effect of Fe⁵⁷, substituent effects 4=22466
 ferrocene, electronic spectra 2=6183
 ferrocene and ferricinium cation, γ -ray absorption 2=3773
 ferrocene, hole drift mobility, meas. by photoconductivity method 4=26154
 ferrocene and related cpds, covalent bonds, Mössbauer study 4=12585
 ferrocene, rotational-torsional energy levels 4=25612
 films, optical props. rel. to structure 4=1702
 films, solid, refractive index, rel. to struct. 4=10200
 films, thin, optical props., rel. to structure 4=4241
 fish-glue, nuclear relaxation processes 1=12900
 fluorocarbon metallic cpds., F¹⁹ mag. resonance 2=2021
 fluorene, absorpt. and fluorenc. spectra at 4°K 2=18826
 fluorene in biphenyl fluorene, triplet state e. s. r. 3=1181
 fluorene, in heptane and hexane, phosphoresc. 4=11205
 fluorene, luminescence 2=6629
 fluorene, scintillation light yield for α and β -rays 4=13093
 fluorene, soln. in solid pentane, luminescence spectra 1=17917
 fluorenc., solns., mol. reson. interactions 3=7215
 fluorescein, absorption spectra, rel. to solute concentration 1=15887
 fluorescein, adsorbed on Al₂O₃ films, luminescence 1=20022
 fluorescein, in Al₂O₃, luminescence 2=4184
 fluorescein, on Al₂O₃, luminescence rel. to -OH groups 2=4183
 fluorescein anions in solns., fluorescence lifetime 2=7225
 fluorescein, aq. soln., effect of light on ions 3=3809
 fluorescein aq. soln., rel. to anti-Stokes excitation 2=22941
 fluorescein in boric acid, α -phosphoresc. and fluorenc. maxima 4=20502
 fluorescein-boric acid, luminescence spectra, conc. depend. 1=2762
 fluorescein cation, absorption spectrum 1=14013
 fluorescein dyes, luminescence 2=15608
 fluorescein, effect of pressure on optical props. 1=20019
 fluorescein, fluorescence in methyl methacrylate 1=9398
 fluorescein, fluorescence and phosphorescence, in boric acid, different temps. 3=15714
 fluorescein, fluorescence, solvent effects 4=29637
 fluorescein in frozen solvents, phosphoresc. 4=7204
 fluorescein in glycerin, concentration-depolarization of fluorescence 0=4423
 fluorescein, in glycerine, kinetics of concentration depolarization of luminescence 1=2761
 fluorescein in glycerol, luminescence depolarization 1=15888
 fluorescein, in glycerol, polarization of fluorescence 0=14661
 fluorescein, ionic forms, luminescence 3=7212
 fluorescein luminescence, active and nonactive absorption separation 3=18822
 fluorescein, luminescence det. 2=2457
 fluorescein, luminescence of ionic form 2=15606
 fluorescein in PMAM, absorpt., fluorescence spectra 2=12631
 fluorescein, photoluminescence 1=148
 fluorescein, photoluminescence quenching - 1=12886
 fluorescein in Plexiglas, fluorescence polarization 1=7723
 fluorescein, polarization of fluorescence 1=8128-30
 fluorescein primary and secondary fluorescence 1=8126-7
 fluorescein soln., absorption and luminescence spectra, effect of pH medium 2=19565
 fluorescein, soln., luminescence rel. to pH value 2=2724
 fluorescein, spectra, by quantum chemistry 3=2647
 fluorescein, spectra of solns. in mono- and PMMA 2=9281
 fluorescein-tripalflavin, phosphorescence, temp. extinction 2=18875

Organic compounds—contd

- fluorescein and tryptavine solid solns., luminescence, decay var. with wavelength 4=10232
 fluorescein, viscous solns., fluorescence 3=1697
 fluorescence and absorption properties, relation 3=23892
 fluorescence maxima, effect of solvents 0=10677
 fluorescence quantum efficiencies 1=15890
 fluorethylenes, C-F reson. integral calc. 4=25704
 fluorinated esters, carbonyl stretching frequencies 2=8088
 o-fluoroasinoile vapour, near u.v. absorpt. spectrum 4=17304
 fluorobenzene, dielec. const. near 9000 Mc/s 2=21916
 fluorobenzene, Earth's field proton free-precession signal 2=14331
 fluorobenzene, multiple proton mag. resonance relaxation 1=15910
 fluorobenzene, n.m.r., J coupling theory 3=14790
 fluorobenzene, nuclear spin-lattice relax. meas. 3=23912
 fluorobenzene, nuclear spin-rotation resonance 3=6421
 fluorobenzene, pi-orbital charge distribution, valence-bond theory 4=6611
 fluorobenzene, Raman spectra of solid and liquid 1=14034
 2-fluorobenzotrifluorides, J_{FF} in CF_3 group 3=25143
 fluorocarbons, F coupling consts., relative signs 3=15377
 fluorocarbon gases, bond strength and ionization pot. determ., agreement for 3 gases 4=5559
 fluorochloroethylenes, vibrational freq. calc., Average Rule and Complete Isotopic Rule 1=13996
 2-fluoro-3-chloropropane-2, cis and trans., n.m.r. parameters 2=20874
 1-fluoro, 2, 4-dinitrobenzene, n.m.r. spectra 1=17357
 fluoroform, nonresonant absorption spectra 0=10700
 fluoroform, vibr. states, pure rotational anomalies 3=2646
 α and β -fluoronaphthalenes, u.v. absorption spectra 0=5956
 fluoro-organic cpds., $\text{F}^{18}(\text{n}, 2\text{n})\text{F}^{18}$, F^{18} retention 3=5171
 fluoro-organic, F^{18} labelling by $\text{F}^{18}(\text{n}, 2\text{n})$ reaction 3=6928
 fluoroprene, 8-35 kMc/s spectrum 3=2641
 fluoropropenes, chem. shifts and spin-spin coupling const. temp. dependence 4=20107
 m-fluorotoluene crystals, luminescence 1=14053
 4-fluorotoluene, thermodynamic props., vibr. and rot. 2=20847
 fluorotrichloromethane, on C substrate, adsorption, 200° to 300°K 2=4498
 fluorotrichloromethane, microwave spectrum 0=15737
 fluorophosphates, fluorophosphonates, n.m.r., two radical contribs. 4=25742
 formaldehyde and CHDO, rotational fine structure 0=5921-2
 formaldehyde, deuteron field gradient calc. 4=30462
 formaldehyde, dipole moment of $^1\text{A}_2$ excited electronic state 4=12504
 formaldehyde, excited states, lifetime meas. 4=28197
 formaldehyde, field gradient at the deuteron, expt. 4=25705
 formaldehyde, H-atom reaction, isotope effect 0=14114
 formaldehyde, mag. rotation spectrum, singlet-triplet transitions 1=14038
 formaldehyde, magnetic h.f.s. in rotational spectrum 1=12281
 formaldehyde, maser characteristics, meas. 4=764
 formaldehyde, maser, using Fabry-Perot reson., 4 mm 4=14921
 formaldehyde, microwave spectrum, vibration-rotation interaction 1=14021
 formaldehyde, microwave Zeeman effect 1=7464
 formaldehyde, rotational spectra, computer programme 0=7747
 formaldehyde, (6, 3) rotational spectrum 3=25122
 formaldehyde, Stark-Zeeman effects in microwave spectrum 1=7465
 formaldehyde, 3000 A absorption, mag. dipole character and rotatory power 3=728
 formaldehyde, $2\nu_2$ -0 band analysis 3=12852
 formaldehyde, u.h.f. spectrum, rotational transitions and centrifugal distortion 3=25124
 formaldoxime, structure 3=17598
 formamide, microwave spectrum 0=4239
 formamide, proton relaxation times in r.f. field 0=5035
 formamide, structure and force consts., calc. 3=2648
 formate dihydrates, monoclinic, crystal structure 3=25730
 formic acid, dipole moment 3=6412
 formic acid, effect on crystallization of caprone 0=1885

Organic compounds—contd

- formic acid, field ionization at metal surfaces 4=456
 formic acid, mag. hyperfine spectrum 0=20668
 formic acid; maser, three-level action, study 1=19020
 formic acid, monomeric and dimeric, Urey-Bradley force consts., normal coordinate analysis calc. 4=28244-5
 formic acid- O^{18} , microwave spectrum 0=13439
 formic acid, photochem. reaction with chlorine 1=7918
 formic acid, proton mag. res. study 1=12902
 formic acid, Raman spectrum rel. to change of state 3=731
 formic acid, structure 0=13439
 formic acid, vibration frequency, rel. to H-H intermolec. bonds 3=25152
 formic acid-water mixtures, u. s. velocity and absorption 4=27174
 formyl cpds., C^{13} splittings in n.m.r. 2=3786
 formyl fluoride, microwave spectrum, structure and dipole moment 0=15738
 formyl fluoride, molec. structure, rotational constants of HCO^{18}F 1=12287
 free hydrocarbon chains, structure and rotational isomerization in gaseous state 4=6623
 free radical solutions, Overhauser effect and relaxation in weak fields 3=23910
 free radicals, interaction with silica gel surface, e.s.r. study 4=1321
 freon, in bubble chambers 1=3098
 Freon, mechanism of boiling under electric field 1=2912
 Freon, orthopositronium lifetime 3=2252
 Freon, thermodynamic props. 2=5057
 Freon-12, bubble chamber appl., bubble density 2=248-9
 Freon-12, ionization, electron avalanches analysis 2=3003
 fructose, X-irrad., paramag. centre prodn. and decay 2=12823
 fulvene, electronic structure calc., Pariser-Parr approx. validity 4=15323
 furan, acoustic and mech. props. 2=15586
 furan, electronic structure 0=17852
 furan, high-resolution n.m.r. 3=8301
 furan, proton resonance spectra analysis 2=6220
 furan, semiempirical SCF-LCAO-MO treatment 3=17599
 furan, thermodynamic functions calc. from spectroscopic data 0=13433
 furan, u.s. dispersion, molecular structure 3=21354
 gambodge sols, specific heat 0=18443-5
 gases, breakdown, electric, mechanism, effect of coeff. of secondary ionization 3=21756
 gases, ionization by ions and electrons 4=16439
 gases, mixtures with air, ignition by sparks 0=7109
 gases, proton mag. reson. spectra 0=16712
 gases and vapours, absolute Raman intensities and depolarization ratios 4=12502
 gelatin, conductivity 1=8927
 gelatin-glycerin, as a photoelastic material 0=907
 gelatin as model and photoelastic material 0=16194
 gelatin-resorcin interfacial surface tension meas. 0=14614
 gelatine, blasting, heat and rate of combustion 3=3394
 glasses, double refraction on cooling in stretched state 4=22863
 glutamic acid hydrochloride, irradiated, paramagnetic resonance 1=14797
 "globular", solid-state transitions, neutron scattering 3=13393
 glucose-rhoduline orange, luminescence 1=14647
 glucose, X-irrad., paramag. centre prodn. and decay 2=12823
 glutaronitrile, i.r. spectra and mol. configuration 1=17317
 glutathione, formation of S radicals by irrad. 2=6231
 glycerides, melting and freezing investig. by n.m.r. 2=22098
 glycerin, effect of temperature on Raman spectrum 1=14043
 glycerine containing H_2O or gelatine, dielectric const., 100 Mc/s-15 Gc/s 3=21391
 glycerine, deuterated, specific heat 2=13324
 glycerine diffusion of Fe^{57} and Mössbauer line broadening 4=21119
 glycerine, dispersion of hypersound 0=5011

Organic compounds—contd

- glycerine, elec. strength, under pulse conditions 4=27188
 glycerine, with KI, u.s. vel. and compressibility 1=11759
 glycerine-paraffin oil, dielec. props. rel. to ultra-sound 3=9471
 glycerine, sonoluminescence, single-bubble cavitation 1=134
 glycerine, spark excitation temp. 3=381
 glycerine, surface tension by drop-weight, viscosity effect 0=19082
 glycerine, velocity of hypersound 1=8183
 glycerine, velocity of hypersound 1=10570
 glycerine, viscosity, reduction at high shear stress 3=9422
 glycerine-water mixtures, viscosity meas. 0=14575
 glycerol, acoustic impedance in circular tubes 1=11758
 glycerol, dielec. dispersion, microwave and u.h.f., 28°C 1=1750
 glycerol, dielec. relax. rel. to assoc. 3=1704
 glycerol, dielec. relaxation, press. depend. 0=16702
 glycerol, diffusion of Fe^{2+} , Fe^{3+} , from Mössbauer effect 4=185
 glycerol, dissolution of NaCl 2=15581
 glycerol, glassy and crystalline, proton mag. spin relaxation 3=23250
 glycerol, liquid, molec. motion 0=6779
 glycerol-n-propanol mixtures, dielec. relax. times distrib. 4=195
 glycerol, oscillating cylinder viscometer theory 0=12401
 glycerol, relaxation data from pressure generator meas. 0=3586
 glycerol solns., fluorescence, max. polarization 0=8018
 glycerol, sonoluminescence and cavitation bubble implosions 2=19571
 glycerol, surface tension meas. by interferometric means 4=16098
 glycerol, viscosity 1=20349
 glycerol-water mixture, u.s. studies, conc. depend. 0=10658
 glycerol-water mixture, water drop falling into 0=8644
 glycerol-water mixtures, dielectric props. 2=19574
 glycine and addition cpds., i.r. and Raman spectra 4=22907
 glycine anhydride, crystal structure 0=3251
 (glycine), BeF_4 , ferroelectric, BeF_4 ion hindered rot., from F^{19} n.m.r. 4=10115
 β -glycine, crystal structure 0=4661
 glycine crystals, n.m.r. 77° - 293°K 2=10721
 α -glycine, crystalline, Raman spectrum 0=4421
 glycine, e.s.r., γ or X-irrad., h.f.s., temp. var. 3=18132
 glycine, γ -irrad., formation of $\text{NH}_2\text{-CH-CO}_2^-$ radical, e.s.r. orientation study 0=20665
 glycine, γ -irradiated, e.s.r. 1=20210
 glycine, γ -irradiated, e.s.r. hyperfine structure low-temp. variation 1=11484
 glycine [glycocol] sulphate, 85% deuterated, ferroelec. props. 0=4378
 glycine, paramag. res. at 9000 Mc/s 2=12822
 glycine and polyglycine, semiconductivity 1=7654
 glycine silver nitrate, ferroelec. transit. 4=20423
 glycine sulphate, dislocations and ferroelec. domains 1=17543
 glycine sulphate, dislocations and ferroelectric domains by X-ray topography 4=25943
 glycine sulphate, domain wall, dislocation catching 3=6618
 glycine sulphate, ferroelec. domain growth 2=4094
 glycine sulphate, ferroelec. growth and props. 2=6520
 glycine sulphate, i.r. absorption, O-H...O vibrations 1=14027
 glycine sulphate, scattering of light by ultrasonics 0=9845
 glycine, X-irradiated, e.s.r. spectra 0=499
 glycol, effect of 60 kV electrons on crystals 1=2400
 glycol, with KI, u.s. vel. and compressibility 1=11759
 glycol, permittivity and viscosity, H-bond mechanism 1=15896
 glycol soln., refractive index matching with heptane 0=3612
 glycol, surface tension, rotation effects, temp. depend. 0=73, 19087
 glycolic acid, free radicals formed by x-irradiation 0=20666
 glycyglycine HCl, irradiated crystals, e.s.r. 3=15942
 glyoxal, mag. rotation spectrum, singlet-triplet transitions 1=14038

Organic compounds—contd

- glyoxal, photochemical processes, primary at 4358A 4=25755
 glyoxime metal complexes, structures 0=3252
 gramicidin C, amorphism prod. by electron beam 0=1609
 gramicidin S iodomercurate crystal structure, refractive indices and density 4=30858
 guanadine Al sulphate hexahydrate, Cr^{3+} absorption spectrum 3=936
 guanidine Al sulphate hexahydrate, dielectric const., up to 23 kMc/s 3=23005
 guanidine Al sulphate hexahydrate, elec. cond. 0=13578
 guanidine Al sulphate hexahydrate, optical harmonic generation 4=10206
 guanidine Al sulphate hexahydrate, spontaneous polarization reversal 0=18097
 guanidine aluminium sulphate hexahydrate, γ -irrad., thermoluminescence 2=14759
 guanidine aluminium sulphate hexahydrate, hysteresis losses 2=16782
 guanidine aluminium sulphate hexahydrate, reorientation of $[\text{C}(\text{NH}_2)_3]^+$ 1=19923
 guanidine aluminium sulphate hexahydrate reorientation of $[\text{C}(\text{NH}_2)_3]^+$ 3=4941
 guanidine aluminium sulphate, piezoelectricity, inverse 3=23008
 guanidine Cr sulphate hexahydrate, polarized light absorpt., 1.7° , 4° , 20°K 3=13192
 guanidine iodide, crystal growth, rel. to ion binding energies on faces 4=10473
 guanidine sulphate, i.r. spectrum and H_2O vibrations 2=14681
 guanidinium Al sulphate hexahydrate, n.m.r., H positions 1=4059
 guanidinium Al sulphate hexahydrate, e.s.r. of Fe^{3+} 3=6747
 guanidinium Al sulphate hexahydrate, etch pits, dislocations 0=20818
 guanidinium aluminium sulphate hexahydrate, crystal growth and dissolution 1=14971
 guanidinium aluminium sulphate hexahydrate, etch pit dislocations 1=11533
 guanidinium iodide, morphology, orientation of merohedral forms 4=2006
 guanidinium sulphate, ferroelec. parameters, γ -ray effects 3=17937
 guanine-cytosine base pair, electronic structure, semi-empirical SCF-LCAO-MO calc. 4=20086
 guanine, dielec. props., semiconductivity 3=866
 guanine hydrochloride dihydrate, crystal structure 4=4633
 gumdanmar sols, specific heat 0=18443-5
 halides, with alkali metals, diffusion flames, chemiluminescence and radical reactions 4=22406
 halides, positron annihilation 2=15158
 halo-ethane gases, u.s. dispersion 2=2773
 halogen-containing, induction studies by C^{13} , Br^{79} , pure quadrupole resonance 0=15761
 halogen fluorobenzenes, n.m.r., F^{19} shielding with π -electron distrib. 4=30480
 halomethane gas mixtures, sound velocity dispersion 0=19206
 halomethane-inert gas mixtures, ultrasonic dispersion 4=5246
 halomethanes, C^{13} -H coupling consts., substituent effects, max. overlap orbital treatment 4=22405
 halomethanes, reaction with Na, activation energy and number of CH and CF bonds 3=18440
 1-halonaphthalenes, external spin-orbit coupling in soln. 3=2608
 α and β halonaphthalenes in 4:1 isopentane-butanol glass, phosphorescence polarization, 77°K 4=4314
 halopicrins, molec. structure 2=14234
 halotrimethylplatinum cpds, infrared spectra, similarity to methyl halides 4=30693
 14-heptacosanol, proton resonance, rel. to dielec. relaxation 0=13894
 n-heptane, adsorption on quartz, Van der Waals forces present between the two mols. 4=23603
 n-heptane-air mixtures, ignition 3=20991
 heptane, diffusion of small solute molecules 1=10509
 n-heptane, double refraction in strong shock waves 3=7205
 n-heptane gas stream, electron scatt. 3=15397
 n-heptane, ion pair average energy load 4=24252
 heptane, liquid, PVT relations 1=8108

Organic compounds—contd

- heptane, luminescence 2=15609
 n-heptane, molecular structure 0=15778
 n-heptane, neutron diffusion parameters 3=22143
 heptane, nuclear spin-lattice relaxation time 1=8136
 heptane, refractive index matching with aqueous glycol soln. 0=3612
 heptane, 2.8 MeV electron beam, energy loss 1=18935
 heptane ultrasonic vibration potentials 0=6787
 heterocyclic cpds., proton resonance, solvent effects 0=7806
 N-heterocyclics, $\pi^* \rightarrow \pi$ and $\pi^* \rightarrow n$ phosphoresc. polarization 4=1296
 hexa-antipyrène iodides, e. s. r. of lanthanon ions 2=4257
 hexachlorobenzene, phosphorescence at 77°K. 2=4185
 hexachlorobenzene, quadrupole resonance study 0=18234
 hexachlorobiphenyl, liquid, shear relaxation times 2=11340
 hexachloroacetone, u.v. absorption spectra 1=8846
 hexachloroethane, magnetic anisotropy meas. 4=7212
 hexadecane-1- C_{14} emission and glycogen light-scattering source, comparison 4=5357
 hexadecane, liquid, PVT relations 1=8108
 hexadecyl and octadecyl bromide, dipole orientation 0=18087
 hexadeuterobenzene, ionization potentials from Rydberg series observations 1=7478
 hexaethyldisiloxane, i. r. spectrum rel. to temp. 2=17467
 hexafluoroacetone, u.v. absorption spectra 1=8846
 hexafluoropropylene-tetra fluoroethylene copolymers, relaxations 2=23903
 hexahelicene molecule, triplet states in optical activity 2=20781
 hexahelicene, phosphor-fluor. ratio 2=10628
 hexamethylbenzene, conductivity rel. to crystalline transition 3=10873
 hexamethylbenzene, luminescence, lifetime var. solvent 4=20496
 hexamethylbenzene, phosphorescence at low temp. 3=13211
 hexamethylbenzene, proton resonance at low temps. 2=8684
 hexamethylbenzene, in solid phase, triplet-singlet luminesc. 4=13097
 hexamethylene amine-water, stratifying system, light scatt. indicatrices 4=24215
 hexamethylenediammonium adipate, X-irrad., e. s. r. spectra 4=12531
 hexamethylenetetramine, crystal lattice vibr. 4=3978
 hexamethylene-tetramine, crystal structure 1=12348
 hexamethylene tetramine crystals, X-ray reflection study 4=23379
 hexamethylenetetramine, Debye approx. 3=15440
 hexamethylenetetramine, electro-optical effect, advantages 3=23049
 hexamethylenetetramine, growth from vapour 3=23400
 hexamethylene tetramine, N^{14} resonance meas. 2=9724
 hexamethylenetetramine, X-ray diffuse scattering, theory 4=26171
 hexamethylenimine-water solns., conc. fluctuations, light scatt. study 3=21365
 hexamethylenetriramine, frequency distrib. of crystals 2=18519
 hexamine, vibrn. spectrum, calc., elastic constants comp. to Li, Fe 4=28358
 hexamine Ni halides, low-temp. magnetic transitions 1=7775
 hexa-m-phenylene radical anion, e. s. r. and optical spectra 4=25731
 n-hexane, absorption on graphitized carbon blacks 2=10944-5
 hexane, adsorption in quartz 2=15098
 n-hexane-air flame, temp. meas., from double probe ion current 4=18460
 n-hexane-air mixture, flames, electron temp. 4=29221
 n-hexane-air mixtures, detonation in shockwaves 1=9170
 n-hexane conduction currents under polar conditions 0=6800
 n-hexane, conductivity induced by electron injection 1=12899
 n-hexane, conductivity induced by injected electrons 2=9288
 hexane, density, temp. depend., near crit. pt. 1=13021

Organic compounds—contd

- hexane, diffusion coeff. of positive and negative ions, meas. 4=14154
 n-hexane, elec. conduction, ionic mech. 2=11383
 n-hexane, elec. strength, effect of dissolved gases 4=5201
 n-hexane, electric strength 3=14180
 n-hexane, electrical breakdown study 1=6869
 hexane electron conduction under pulse conditions 0=3527
 n-hexane, glow emission spectrum, analysis of four regions 1=14044
 n-hexane, ion-molecule reactions, in radiolysis at low temps. 3=6927
 n-hexane, ion pair average energy loss 4=24252
 n-hexane, liq., ion and self-diffusion coeffs., meas. 4=24194
 hexane, liquid, elec. cond. 3=23900
 n-hexane, liquid, elec. cond., in pulsed fields 0=12418
 n-hexane, liquid, electrical conductivity rel. to γ -irradiation 3=11804
 n-hexane, molecular structure 0=15778
 hexane, neutral decomposition products, mass-spectra analysis 1=9963
 hexane, nuclear spin-lattice relaxation time 1=8136
 n-hexane, photocurrent 1=15903
 n-hexane, photo-injection of charge 0=16699
 hexane, polarization phenomena 4=2704
 n-hexane, pulse elec. cond. 4=8221
 n-hexane, refractive index changes near electrical breakdown 1=10518
 hexane-silicone mixture, electron drift mobility 1=18427
 n-hexane, solid, radiation chemistry. 3=25838
 n-hexane, surface tension, effect of N_2 and Ar, 1-120 atm 3=18795
 hexane-water, du Nöy ring, interface profiles and areas 0=2163
 hexanediamine, nuc. quadrupolar coupling 3=2656
 hexanetriol 1,2,6, dielec. relax. rel. to assoc. 3=1704
 hexanetriol 1,2,6, elastic relax. time distrib. 2=7196
 hexanol, adsorption from aq. soln. 4=29610
 n-hexanol, dielectric, orientation polarization, rel. to solvent 3=21395
 n-hexanol in hexane and benzene, polarization data 2=2729
 n-hexanol, solutions in octane, dielectric losses 1=12893
 1,3,5-hexatriene, vapour phase photochemistry 3=11355
 hexogene crystals, shocks-wave velocities and effects 0=16776
 holmium ethyl sulphate, zero field splitting 3=8600
 homologous series decomposition kinetics 4=30484
 hydrate of tetra iso-amyl ammonium fluoride 1=20569
 hydrazine synthesis in chemonuclear reactions 1=11056
 hydrazyl-type radicals in viscous media, e. s. r. 3=21418
 hydrozyls, h.f.s. in e. s. r. 1=14106
 hydrocarbon acids and alcohols, straight-chain, adsorption in water surface 0=14615
 hydrocarbon-air flames, max. temp. meas. 2=2915
 hydrocarbon-air mixtures, self ignition in shock waves 1=12916
 hydrocarbon chains, unsaturated, spin-spin coupling 3=4783
 hydrocarbon films, structure invest. 2=12920
 hydrocarbon gas mixtures, thermal diffusion, stream direction and "forgotten effect" 4=2630
 hydrocarbon gases, diamagnetic susceptibility 2=1209
 hydrocarbon gases, γ -radiolysis, abs. yields of H_2 2=19164
 hydrocarbon gases, ion-pair formation energy by X-rays 2=15886
 hydrocarbon gases, ionization, by beta-rays, H isotope effect 3=19171-2
 hydrocarbon gases, stopping of protons and He ions 3=22133
 hydrocarbon- H_2 mixtures, virial coeffs. 2=1196
 hydrocarbon ions, g-values, structure depend. 1=14090
 hydrocarbon liquids, elec. breakdown, statistical theory 0=12425
 hydrocarbon liquids, elec. strength, molec. structure 0=12424
 hydrocarbon liquids, saturated, ion mobilities 2=13545
 hydrocarbon liquids, stopping power for 5.3 MeV α -rays 2=3423
 hydrocarbon mixtures, Raman spectral analysis 4=10673
 hydrocarbon molecules, I-I coupling 2=14316

Organic compounds—contd

- hydrocarbon oil, elec. breakdown, theory 4=5204
 hydrocarbon-quinone complexes, e.s.r. 2=8669
 hydrocarbons, adsorpt. by metal films 3=20939
 hydrocarbons, alkylated ring, eqn. of state 2=7199
 hydrocarbons, α -radiolysis 0=4734
 hydrocarbons, alternant, different orbitals for different spins 4=15319
 hydrocarbons, alternant, and mono- and divalent ions, electronic spectra, correlations 0=20648
 hydrocarbons, alternant, pairing of electronic states 0=20649
 hydrocarbons, appearance potentials of pos. and neg. ions 4=24546
 hydrocarbons, aromatic, band length 2=6213
 hydrocarbons, aromatic, catacondensed, assignment of triplet states 2=8111
 hydrocarbons, aromatic, nonbenzenoid, molecular diagrams 2=2015
 hydrocarbons, aromatic, phosphorescent, e.s.r. study 0=21080
 hydrocarbons, aromatic, polycyclic, p-band positions calc. 2=16538
 hydrocarbons, aromatic polynuclear, out-of-plane CH vibrations 0=17738
 hydrocarbons, aromatic polynuclear, spectral shifts in solution in paraffin hydrocarbons 0=16707
 hydrocarbons, aromatic, two-quantum statistics in phosphorescent state 4=6641
 hydrocarbons, aromatic, zero-field splitting theory 4=3901
 hydrocarbons, C—C bond refractivities 1=14076
 hydrocarbons, C—H bond moment 3=15334
 hydrocarbons, charge-transfer reactions rel. to dissociation 2=161
 hydrocarbons, conjugated, electron affinities 2=2012
 hydrocarbons, conjugated, nonalternant, electronic spectra, calc. by limited configuration interaction method 4=20087
 hydrocarbons, conjugated, π -electron ionization energies 2=2011
 hydrocarbons, critical volume and molecular dimensions 1=7499
 hydrocarbons, double bonds rel. to Raman spectra 2=20848, 22990
 hydrocarbons, effect of molecular bonding on ionization coeffs. 3=9721
 hydrocarbons, entropy of vaporization 1=8264
 hydrocarbons, extended Hückel theory 4=1243
 hydrocarbons, flame bands, deuterium substitution 4=25706
 hydrocarbons, γ -irradiated, "free ion" yield 4=2187
 hydrocarbons, glow emission spectra, analysis of four regions 1=14044
 hydrocarbons, heat of wetting of Al in solution 3=16131
 hydrocarbons, heats of hydrogenation, rel. to hybridization 2=545
 hydrocarbons, ion formation, negative, by electron beams 4=16438
 hydrocarbons, ionization by electrons meas. 4=2942
 hydrocarbons LCAO treatment of conjugated molecules 0=9825
 hydrocarbons, liquid, d.c. cond., hopping model 4=16123
 hydrocarbons, liquid, γ -induced conductance 4=14181
 hydrocarbons, long saturated chains, theory of attractive forces 4=6659
 hydrocarbons, mass spectra from high-energy electron impact 3=4013
 hydrocarbons, mass spectra, temp. depend., effects of electron bombard. 0=20711
 hydrocarbons, model for thermodynamic props. of aq. solns. 2=17444
 hydrocarbons, negative ion mass spectra, sensitivity for $^+$ ion formation 0=3740
 hydrocarbons, nuclear coupling 2=6208
 hydrocarbons, polycyclic, mol. orbital, π electron and atomic localization energies 4=3894
 hydrocarbons, polymer film prod., in discharge 1=20664
 hydrocarbons, pyrolyzation by flash illumination 0=1962
 hydrocarbons, ring condensed p.m.r. shifts 2=14328
 hydrocarbons, sat., molec. interaction, critical consts. rel. to chain length 2=6233
 hydrocarbons, saturated, additivity of binding energies 1=17337
 hydrocarbons, saturated, bond energies and next-nearest-neighbour interactions 0=1512
 hydrocarbons, saturated, polymerization 1=20766

Organic compounds—contd

- hydrocarbons, saturated and unsaturated, elec. conductivity 4=11214
 hydrocarbons, saturated gaseous, n.m.r. screening constants 4=1311
 hydrocarbons, saturated, ionization current after irradiat. 4=27186
 hydrocarbons, 2nd virial coeffs. of mixed vapours 3=14205
 hydrocarbons, in solid A matrix, i.r. spectra, liq. He and H temp. 1=6213
 hydrocarbons, unsat., Raman and electronic abs. spectra 3=15319
 hydrocarbons, unsaturated, dipole moments, hyperconjugation effects 1=4954
 hydrocarbons, unsaturated, gaseous, sparking potential rel. to molecular structure 0=14999
 hydrocyanic acid, and D-substitution product, electro-optical parameters 3=15366
 hydrocyanic acid, gas maser, emission at 88.6 kMc/s 1=9684
 hydrocyanic acid, phase transition, study by N^{14} pure quadrupole resonance 0=5283
 hydroquinone, whiskers, mechanical strength 1=20371
 hydroxy-benzenes, proton chem. shifts and π -electron distrib. 3=4781
 hydroxycyclohexadienyl, by OH reaction with benzene in water 2=10965
 imidazol, crystal struct., atomic 3=18329
 imidazole, effect of purification on semiconducting props. 3=10826
 imidazole, electrophilic substances present, u.v. spectrum 4=15370
 imidazole, energy gap calc. 1=17745
 imidazole, semiconducting properties 4=26065
 indene, molecular orbital theory 0=5973
 indene, n.m.r. study by proton-proton decoupling 2=14327
 indigo carmine radical, aq. soln., e.s.r. hyperfine structure lines 2=23010
 indigo, effect of 60 kV electrons on crystals 1=2400
 indole, luminescence 2=6629
 indophenol, molecules, apparent asymmetry, by n.m.r. 3=20003
 i.r. absorption, absolute intensity measurement 1=7716
 i.r. absorption spectra and n.m.r. of H_2O in various subs. 0=16719
 i.r. dispersion of several liquids 0=84
 insulating liquids, conduction current pulses under elec. stress 4=16120
 insulating oil, elec. breakdown, effect of gas press. 1=1755
 insulating oil, elec. props., effect of dissolved gases 1=4354
 insulators, conductivity and photoconductivity, radiation induced 4=17513
 insulin sulphate, crystal props. and structure 0=4663
 iodides, pyrolysis kinetics 3=16157
 iodoacetylene, pure rot. Raman spectrum 4=6624
 iodobenzene, C^{13} nuclear magnetic resonance 3=10543
 iodobenzene, dielectric relaxation 0=19145
 iodoform, absorption edge, press. depend. 0=4407
 iodoform, crystal epitaxial growth and surface texture 4=26612
 iodoform, magnetic anisotropy meas. 4=7212
 ion-exchange resins, percolation of water under pressure 0=12067
 ion radical salts, e.p.r. study of spin correlation 1=14804
 ion radical salts, triplet spin exchange 3=11109
 ions, mass spectra 4=29999
 ionic photoconductive dyes, charge carrier sign 3=8531
 β -ionylidene crotonic acid, trans isomer, crystal structure 0=4654
 isoamyl alcohol film, influence on water drop evaporation 1=10494
 isoamyl bromide, dielectric relaxation, -75 to 25°C 0=16701
 isoamyl lactate, dielec. dispersion, at cm wavelength 1=1749
 isoamyl phthalate, mol. dipole-dipole interaction, from dielectric relaxation 3=23897
 iso-amylol-water boundary, mass transport, hydrodynamic stability effects 4=24193

Organic compounds—contd

- isobutane, chemical displacement reaction with H, steric effect 4=26753
 isobutane, gas-phase radiolysis 3=8978
 isobutane, molecular beam techniques 0=2758
 isobutane, proton resonance spectra 4=30073
 isobutane, reaction with O atoms 3=11340
 isobutene, kinetics of HI addition 3=11338
 isobutyl bromide, proton resonance in crystals and super-cooled liquid 0=3139
 isobutyl bromide, proton resonance in liquid 0=5039
 isobutyl bromide, u.s. meas. of vibrational, rotational isomeric, structural and shear relaxation 0=17736
 isobutyl radicals, isomerization 3=8948
 isobutylamine, adsorption by Ge surfaces 0=12115
 isobutylene, photocond. and photoionization 4=27189
 isobutylene, structure from microwave spectrum 4=1297
 isomers, Mossbauer effect, cis- and trans- equal shifts 4=15360
 isonitriles, long-range N^4-H^1 coupling 1=19669
 iso-octane-benzene mixtures, vapour-liquid equilibrium 0=6781
 isopentane, elec. discharge, Townsend and streamer theory 1=1897
 isopentane, interaction with excited molecules 4=6608
 isopentane, photocond. and photoionization 4=27189
 isopentane, self-diffusion coeff. 0=3513
 isopentane, spectral dispersion curves 3=17592
 isoprene, anisotropy by scatt. of light 2=6239
 isoprene, molecular configuration 4=15371
 isoprene polymerization spectra, with Li, Na, K, in solns. 4=25796
 isopropanol, i.r. spectra and H-bonding 3=12853
 isopropanol, mixtures with acetone, boiling pt. and surface tension 1=15858
 isopropanol, superheated, nucleation by elec. field 3=14420
 isopropyl alcohol, b.p. and strong elec. field 2=7472
 isopropyl iodide, pyrolysis, kinetics 4=23631
 isopropyl, n.m.r. spectra, types A^B, A^BX 3=10542
 isopropyl radicals, thermal isomerization 2=14236
 isopropylamine liquid state, u.s. velocity and compressibility 1=18406
 isopropylamine, u.s. velocity rel. to molecular parameters 1=18403
 isopropylquinone, n.m.r. spectrum, electron transfer effects 4=17313
 di-isovaline, γ -irradiated, free radical det. 2=8126
 itaconic acid, irradi., e.s.r. study of radical formed 4=1886
 jet engine fuels, flame temp., visible emission spectra 0=8852-3
 β -keratin, amorphism prod. by electron beam 0=1609
 keratin fibres, elec. cond., relative humidity depend. 0=11655
 α -keratin, X-ray diffraction of six forms 0=10296
 kerosene, compressibility measurement 1=9365
 kerosene, neutron age to In reson., from Na-Be source 1=16802
 ketene and deuteroketenes, fundamental vibrational frequencies 3=12854
 ketene, i.r. spectrum and vibrational potential function 3=17600
 ketene, molecular potential energy and rotational distortion consts. 0=11524
 ketene, out-of-plane CH_2 bending 4=15365
 ketene, photochemical dissociation 0=15683
 ketene, unimolecular dissociation 2=6230
 n-ketone liqs., thermal cond. meas., -100° — $+200^\circ C$ 4=24204
 ketones, aliphatic, photoionization 4=21466
 ketones, dipole moments and relaxation times 0=20692
 ketones, magnet optical, rot. dispersion, near $n \rightarrow \pi^*$ transition 4=17305
 ketones, $n-\pi^*$ u.v. absorpt. and i.r. $C=O$ band, correl. 0=7791
 ketones, Raman spectra, relative line intensities 0=85
 ketonic carbonyl groups, vibrational bands, temp. effects 1=12288
 ketyls, cyclic, spin densities from e.s.r. meas. 4=1305
 ketyls, e.s.r. spectra rel. to coupling consts. and spin densities 3=4777
 Keynon-Banfield radical, photocond. and semicond. 2=14584
 kryptocyanine dye for laser giant pulse operation by bleaching 4=27710

Organic compounds—contd

- labelling, catalytic tritium method 3=19800
 lac, sp. ht., meas. calorimeter for bad conductors 0=7008
 lactose crystallization rate as combination of matter and heat transport 4=26584
 lactose, irradiated, e.s.s. spectra 0=500
 lemongrass oil, C^{14} activity, world data (1954-59) 0=7499
 leucine, paramagnetic resonance and semiconductor theory 1=11115
 liq. hydrocarbons, γ -irradiated, energy transfer 0=18442
 liquid binary mixtures, thermal cond., dimensionless presentation 4=8202
 liquid binary mixtures, u.s. velocity 3=9455
 liquid crystal phases, rel. to dielectric states 1=17831
 liquid film, Na-montmorillonite expanded in NaCl solns. 4=16091
 liquid hydrocarbon, dynamic contact angle with water between parallel plates 3=1672
 liquid mixtures, binary, dielec. const., meas. 0=19137
 liquid mixtures, binary, sonic velocity, conc. depend. 0=6786, 16695
 liquid pairs, coord. numbers and diffusion coeff., temp. depend. 3=21329
 liquid paraffin in water, changes in rheological props. on ageing 4=10662
 liquid, ring compounds, Raman scatt., stimulated emission 3=5445
 liquid scintillators, effect of solvent and solute structure on pulse heights 1=5281
 liquid scintillators, emission spectra 3=9464
 liquid scintillators, pulse height distrib. for fast neutrons 2=5524
 liquid semiconductors, u.v. photocond., elec. field depend. 1=5280
 liquid and solid, radioluminesc. specific quenching 4=28748
 liquids, associated, u.s. viscoelastic props. 0=8651
 liquids, binary, light scatt. 2=17462
 liquids containing D, nuclear quadrupole relax. 4=24248
 liquids, correl. of energies of molec. orientation and of viscous flow 0=19100
 liquids, degassed, proton spin-lattice relaxation, press. depend. 0=16720
 liquids, 5- and 6-membered ring cpds., molar sound velocity 0=19134
 liquids, i.r. spectra, absolute intensities 4=5382
 liquids, internal press. rel. to temp. 2=4981
 liquids, luminescence and Cherenkov radiation, X- and γ -ray excited 0=19158
 liquids, mag. rotatory power and rotativity 0=3543
 liquids, mixtures, u.s. dispersion 4=21132
 liquids, molec. orientation distrib., Rayleigh light scatt. 3=21369
 liquids, multiple proton mag. resonance relaxation 1=15910
 liquids, nuclear relax., study using spin-echo spectrometer 4=16127
 liquids, paraffins, bromine substituted, dipole orientation relaxation 3=7207
 liquids, polar, de-ionization 4=23663
 liquids, polar, dielec. relaxation, temp. variation 0=19138
 liquids, polar, with high dielec. permittivity and resistivity 0=2172
 liquids, proton mag. reson. spectra 0=16712
 liquids, proton spin-lattice relaxation, temp. depend. 1=9409
 liquids, Raman spectra, overtone lines 0=87
 liquids scintillators, luminescence, primary-secondary mixtures 4=14175
 liquids, speed of sound 4=8205
 liquids, surface tension props. 4=18167
 liquids, temp. variation of u.s. vel. and adiabatic compressibility 3=7204
 liquids, u.s. propagation under pressure 1=15873
 liquids, u.s. velocity, rel. to molar refraction and internal pressure 0=19130
 liquids, viscosity, structural data 3=21312
 long linear conjugated molecules, one-dimensional collective oscillation of π electron 0=17859
 lubricating greases, capillary viscometer 0=8595
 lubricating greases, flow in plunger viscometers 0=14577
 luminescence, crystal exciton, imperfection effects 4=10228
 luminescence, of impurities, in crystals 2=23567
 luminescence reabsorption, exciton diffusion mechanism 1=11399

Organic compounds—contd

- luminescence, in single crystals, exciton contrib., review 1=3850
 luminescence, solns., dilute, laser induced, double photon mechanism 4=5193
 luminescence, triplet, in glassy solns 4=7198
 lycopodium spores, deposition on glass slides in wind tunnel 1=164
 magneto-optical rotation spectra 4=25605
 Makrofol, fission fragment track registration and neutron detection 4=19344
 malachite green, polarization of fluorescence 2=6630
 maleic acid, diamagnetic susceptibility 1=14073
 maleic anhydride liquid state, u.s. velocity and compressibility 1=18406
 maleic anhydride, u.s. velocity rel. to molecular parameters 1=18403
 malonic acid, decarboxylation, C isotope effects 4=13703
 malonic acid, e.s.r. hyperfine splitting due to C^{13} 1=9059
 malonic acid, radiation damage 0=13571
 malonic acid, X-ray irradiat. 2=6892
 malononitrile, i.r. absorption spectrum in Ar matrix 3=10527
 maltose, X-irradiat., paramag. centre prodn. and decay 2=12823
 mellitic acid, crystal structure 0=10319
 melts, molar sound velocity, temp. coeff. 2=5015
 melts, u.s. velocity 1=6857
 mesitylene, internal conversion, upper electronic—first excited singlet states 4=1286
 mesitylene, liquid, atomic structure 2=15564
 mesitylene, multiple proton mag. resonance relaxation 1=15910
 mesitylene, in solid phase, triplet—singlet luminesc. 4=13097
 mesonaphthodanthrene and mesonaphthodanthrone, semiconducting props. 0=18056
 mesonaphthodanthrene, photo-oxidation 0=21289
 (2,2) metacyclopentane, proton resonance, relative signs of J^H 2=16563
 meta dioxanes, substituted, geminal and vicinal coupling consts. 4=28261
 meta-fluorochlorobenzene, spectra, 10.5–26.3 Gc/s 4=4768
 metal—ammine complexes, NH_3 exchange reaction 2=4525
 metal carbonyls, low-frequency fundamentals 2=16530
 metal chelate salts, crystal growth and symmetry 0=4589
 methane—A gas mixture, 2nd virial coeff. 2=15640
 methane, abs. Raman intensities rel. to polarizability 2=7258
 methane, absorpt. band, test of theoretical model approx. 4=9743
 methane, absorption spectrum, 2470–3200 cm^{-1} 0=15735
 methane, abundance in atmosphere 4=17878
 methane, abundance in ground level air 3=13664
 methane, adsorption on Ba films, in thermionic current presence 2=843
 methane, adsorption from H_2 , 76°K, partial press. and effective ads. press. 4=13687
 methane, adsorption on Hg surface 2=1126
 methane, adsorptn. on carbon black 3=1377
 methane—air flames, elec. cond. 2=17513
 methane—air flames, interaction with pressure waves 1=11854
 methane—air and methane— O_2 with K addition, combustion, elec. cond. of products 4=18250
 methane—air, methane—oxygen mixtures, viscosity variations under mag. field influence 1=158
 methane—air mixtures, detonation wave pressure 0=10351
 methane, in atmosphere, tritium content 2=2466
 methane, atmospheric distrib., spectral obs. 2=8951
 methane boiling and triple points, detm. 3=9659
 methane and CD_4 , i.r. spectra 2=14683
 methane and CD_4 , liq. and solid, ν_3 fundamental, i.r. absorption 4=12506
 methane and $CHCl_3$, photochlorination, isotope effect 3=11356
 methane, charge transfer reactions with A^+ and Kr^+ 0=16976
 methane, compressibility meas. by n.m.r. 1=8146
 methane in condensed O_2 , N_2 and Ar, solvent shift and half-width of i.r. absorpt. band 4=5183
 methane- d_1 , vibr. analysis by perturb. method 4=25709
 methane- d_2 , analysis of two i.r. bands 3=12855
 methane- D_2 mixtures, n-irrad., failure of T elastic collision model 3=18460

Organic compounds—contd

- methane- d_4 , vibr.—rot. energy transfer 3=6414
 methane- d_4 , $2\nu_2$, vibr.—rot. interact. 3=6413
 methane, density matrices for wave functions 0=9823
 methane, density, 20×10^6 atmospheres 3=21100
 methane, detection of free methyl radicals in electrical discharge 1=1477
 methane, deut. forms, n. m. r. studies using pulse techniques 2=14852
 methane, deut. forms, solid and liq., proton spin—lattice relax. 2=10709
 methane, deuterated (CH_3D), spectrum, 400–6000 cm^{-1} vibr., rot. 3=22587
 methane and deuterioforms, mass spectra, metastable transitions 3=25148
 methane and deuteromethane, anharmonic vibrations, theory 2=22959
 methane and deuteromethane, electric strength 0=19634
 methane, diamagnetism, calc. 0=17795
 methane, dielectric constant 0=19204
 methane diffusion in CCl_4 4=18189
 methane, diffusion of CO , N_2 , CF_4 and self, meas. 4=11238
 methane, diffusion in O_2 , and intermol. potentials 2=2764
 methane, effect on Ta solid films 4=13685
 methane, elec. discharge, light emission, time depend. 0=2330
 methane, electric moments and molecular orbitals 4=3895
 methane, electro-optical parameters rel. to dipole moments 4=15367-9
 methane, electron avalanches, carrier amplific. 3=9761
 methane, electron avalanches, mean energy and drift velocities 4=11546
 methane, electron drift velocity, avalanche meas. 4=11253
 methane, electron inelastic scattering 4=12394
 methane in electron tubes, pressure changes rel. to cathode emission 4=21576
 methane, electronic structure, Hartree—Fock approx. 3=10534
 methane, electronic wavefunction 4=1298
 methane, eqns. of state and thermodynamic props. 2=9311
 methane, equation of state, 0°–150°C 4=21175
 methane, equilibrium and mean C—H distance 0=17856
 methane, far-u. v. spectrum 2=14284
 methane, freq. distrib. at 6.5°K, neutron scatt. meas. 4=22479
 methane, γ -irradiat. at 4.2°K, H atom free radicals, e. s. r. 2=3791
 methane, γ -irradiated at low temp. 3=12874
 methane gas, slow-neutron scatt., interference scatt. effects 2=18475
 methane, gaseous, ultrasonic relaxation 1=8162
 methane, ground-state wave-function 0=7811
 methane, ground-state wavefunctions, calc. using SCF MO method 4=20088
 methane- H^{+2+} ions, interact. energies 2=12354
 methane- H_2 —air flame, probe characteristics 3=4154
 methane- H_2 equilibrium of gaseous and solid phases 0=8710
 methane, in H_2 and N_2 , detection by thermal conductivity 0=16402
 methane, high-density, vibr. relax., binary collision theory 4=2731
 methane, indirect p—C spin coupling meas. 4=15382
 methane, inelastic scatt. of slow neutrons, diff. cross-sections 1=15945
 methane, intensity of ν_2 i. r. band 2=1995
 methane, i. r. absorption line broadening 2=14272
 methane, i. r. spectrum in liq. A 2=17464
 methane, interaction with H atom 4=25583
 methane, ion—molecule reactions 4=11538
 methane ions, dissociation due to collisions with mols., 3.5–100 keV 4=9783
 methane, ionization coeffs., 9.7–52.6 mm Hg 3=24214
 methane, ionization by electron impact 3=1929
 methane, ionization by ions of 200–1200 keV energies 4=27488
 methane and its isotopic forms, absolute Raman intensities and depolarizations, calc. 4=9758
 methane, isotopically substituted, zero-point energy 3=12794
 methane, K—LL spectrum, fine structure 0=17715
 methane—Kr solid solns., excess free energy 2=574
 methane, λ -point transition 1=8993
 methane liq., electrode influence on elec. strength 4=21144

Organic compounds—contd

- methane, liq., slow neutron scatt. 3=14142
 methane, liquid, dielec. consts. 4=11209
 methane, liquid, eqn. of state at low temp. 3=18801
 methane, liquid mixture with Ar and Kr, viscosity 3=7185
 methane, liquid mixtures with A and N₂, surface tension 2=1125
 methane, liquid, neutron scatt. rel. to mol. interaction 2=5002
 methane, liquid, self-diffusion 2=13328
 methane, liquid, self-diffusion and impurity-controlled proton relaxation 3=7202
 methane, liquid, thermal cond., and theory 4=169
 methane, liquid, viscosity and mol. interaction 3=9423
 methane, loss of energy of an electron beam traversing gas 0=19764
 methane, mol. structure det. from moments of inertia 3=2597
 methane, mag. screening constant of protons 2=6222
 methane, mag. susceptibility, calc. 0=9826
 methane, major i.r. bands, total absorptance 2=20800
 methane, in metals, chromatographic gas analysis 2=21603
 methane and methane-A mixture, in proportional counters 0=12722
 methane and methane-d₄, Raman intensities 3=22559
 methane and methyl halides, ionization-efficiency curves for molecular and fragment ions 4=24600
 methane, microwave absorption in compressed gas 2=13380
 methane, mol. polarizability, orbital calc. 4=3870
 methane, molecular electronic structure 4=1299
 methane, molecular rotation 2=8075
 methane, molecular wave-function 0=15769
 methane, molecular yields in radiolysis 0=16385
 methane molecule, correlation energy, estimation 4=3896
 methane molecule, electron distribution 4=17306
 methane molecule, equil. bond lengths 2=14244
 methane, n scatt. vibr. excitation 4=30464
 methane-N₂ mixture, discharge current rise due to single electron 4=5578
 methane-N₂ system, solid-liquid equilib. 2=9461
 methane-Ne, cosmic ray muons in, energy-loss-rate 3=24821
 methane, negative ion mass spectra 0=3740
 methane, ν_1 Raman band, rot. structure 3=22586
 methane, nuclear coupling rel. to π electrons 2=3784
 methane-O₂, burning-detonation transition 0=12105
 methane-O₂ ionized mixture, electron-neutral atom collisions, meas. 4=17261
 methane, octupole moment calc. 4=20031
 methane, octopole moment, calc. using LCAO-MO-SCF wavefunctions 4=22408
 methane, one-centre S.C.F. wave-function 1=19659
 methane, one-centre wave functions 3=17577
 methane, oxidation, C₂H₅⁺ ion formation 4=13713
 methane oxidation in shock waves, mechanism 4=17859
 methane-oxygen mixtures, combustion product parameters 2=19145
 methane-oxygen mixtures, explosions, within gas boundary 2=4542
 methane-oxygen mixtures, nuclear relax. 2=1210
 methane-oxygen mixtures, reactions in shock tube 2=12963
 methane, photochemistry at wavelengths below 900Å 3=13618
 methane, photo-ionization 3=3404
 methane, photoionization, continuous absorpt., and fluorescence 4=25690
 methane, photolysis, by vacuum u.v. 3=25834
 methane-propane mixtures, selective solubility in liquids 0=6782
 methane, proton affinity 2=20850
 methane, proton spin-lattice and spin-spin relax. 4=6651
 methane, pure and with O₂, proton spin-lattice relax. 1=18476
 methane, radiolysis 3=16182
 methane radiolysis, effect of additives 4=7774
 methane, radiolysis and photolysis, effect of pressure 4=17870
 methane, Raman scatt. at 15-250 atm. 3=176
 methane, Raman spectra 0=17746, 17752
 methane, Raman spectrum, laser stimulated, four photon 4=9704

Organic compounds—contd

- methane-d₄, Raman spectrum, rotational analysis 1=6018
 methane, range of ions (Z=2 to 13) 2=7674
 methane, Rayleigh scatt., depolarization. 3=175
 methane, reaction with hot H atoms 2=4561
 methane, reaction with (n, γ) activated I¹²⁸ 1=10298
 methane, reaction rates with mixtures of (O + O₂) 4=4693
 methane, refractivity, second virial coeff. 3=3835
 methane, SCF MO one-centre basis set 4=20046
 methane, second virial coeff. 0=19199
 methane, second virial coeff. estim. 2=11414
 methane, shock excited, in granular pressings, temp., calc. 4=2774
 methane, shock-front structure and reflectivity 1=167
 methane, slow electron diffusion meas. 2=13381
 methane, slow-neutron scatt., effect of rotational levels 1=19624
 methane, solid, absorption spectrum, vac. u.v. 0=13696
 methane, solid, intermolecular potential, cohesive energy and crystal structure 4=22456
 methane, solid, phase transitions and compressibilities 0=12055
 methane, solid, second transition 2=14379
 methane, sorption rate on chabazite 4=15830
 methane, spectr. det. of C-H bond moment 2=12339
 methane, spectra, emission, excited by protons and H atoms 3=15338
 methane, substituted, chem shift, rel. to C¹³-H, spin-spin coupling 3=20022
 methane, test for Lennard-Jones potential 1=15847
 methane, thermal conductivity of condensed films 0=6390
 methane, thermal transpiration at high temps. and 3×10^{-3} -2.5 mm Hg press. 4=5224
 methane, thermodynamic props. 0=1064
 methane, Townsend discharge, and in N₂-CH₄ 0=12595
 methane, Townsend ionization coeff. α 0=2316
 methane, transport props. meas., rotational relax. 4=5241
 methane, transport properties in terms of Morse potential 4=8241
 methane, turbulent wakes 3=164
 methane, $2\nu_3$ band, fine structure 0=17751
 methane, $2\nu_3$ and $2\nu_4$, vibr.-rot. interact. 3=6413
 methane, vac. u.v. photolysis 2=19155
 methane, vibr.-rotational energy transfer 3=6414
 methane, viscosity, -50° to 150°C, below 200 atm. 4=24264
 methane, viscothermal and thermal relaxation 4=24271
 methane, wave-functions 1=14088
 methanes, deuterated, vibrational intensities, bond moments 0=17740
 methanes, geminal HH coupling consts. 3=8294
 methanes, isotopic, force constants, i.r. spectra and thermodynam. functions 0=5898
 methanes, isotopic, 2nd virial coeff. 2=15641
 methanes, substituted, C¹³ splittings in proton resonance spectra, bond study 0=4224
 methanes, substituted, geminal spin-spin coupling consts. 2=14301
 methanes, substituted, vibrational spectra, molecular and thermodynamic props. 0=4207
 methanes, T-substituted, mass spectra 4=3921
 methanes, X-substit., rel. to atomic interacts. 2=18490
 methanethiol, p.m.r., spin-lattice relax. and chem. shift 4=18220
 methanol, absorption band shift, rel. to anion radius 4=2683
 methanol adsorbed on Al₂O₃ surfaces, i.r. spectral study 3=3362
 methanol, adsorption by Ge surfaces 0=12115
 methanol, aq. solns., density fluctuations, study by Rayleigh light scatt. and hypersound dispersion 1=4341
 methanol-benzene solns., refractive index 0=10668
 methanol, rel. to contact ion pairs of tetra-n-butyl ammonium iodide in CCl₄ 3=13612
 methanol, crystal structure, -180°C 0=21204
 methanol, dielectric const., 2.1 mm 4=2703
 methanol, double refraction in strong shock waves 3=7205
 methanol, effect on fluorescence of acetylanthracene in hexane 1=9400
 methanol, exchange between solvated cations and solvent 3=8944
 methanol, higher ionization potentials, meas. by electron impact 4=24601

Organic compounds—contd

- methanol, γ -irrad., e.p.r. spectrum of free radicals formed 4=15379
 methanol and methanol-water mixtures, Co^{++} n.m.r. rel. to solvation 4=14189
 methanol and methanol-water mixtures, Ni^{++} n.m.r. 4=14190
 methanol, microwave K-doublet, Stark effect 1=3539
 methanol, oxidation using photosensitized ZnO 4=23652
 methanol, p.m.r., spin-lattice relax. and chem. shift 4=18220
 methanol, paramagnetic resonance 1=15907
 methanol, proton-transfer ion-molecule reactions 4=23623
 methanol, radiolysis by recoils from $\text{B}^{10}(\text{n}, \alpha)\text{Li}^7$ 0=14133
 methanol, superheated, nucleation by elec. field 3=14420
 methanol, surface tension, effect of Ar, 1-120 atm 3=18795
 methanol, temp. dependence of vap. press., viscosity and heat of vaporization 0=5215
 methanol, Urey-Bradley force consts. 3=8292
 methanol, vaporization, forced, at 25°C 0=14908
 methanol-water solution, u.s. velocity, rel. to cavitation 0=19129
 methinophosphide, HCP, microwave spectrum 4=15372
 methol, normal and supercooled, u.s. velocity, temp. depend. 0=6789
 1-methoxyvinyl esters, proton resonance, effect of substitutional R. COO-groups 0=6276
 methyl acetate, microwave absorption 0=19210
 methyl acetylene, *l*-type doubling and resonance 3=19960
 methyl acrylate and methacrylate, γ -irrad. at 77°K, free radicals, e.s.r. 1=14107
 methyl alcohol, in acetonitrile, absorpt. band of O-H bond 3=8285
 methyl alcohol-air flames, OH bands 3=12830
 methyl alcohol, b. p. and strong elec. field 2=7472
 methyl alcohol-chloroform, light scatt. 2=21909
 methyl alcohol-cyclohexane mixtures, critical opalescence 2=17450
 methyl alcohol, dispersion at mm wavelengths rel. to dielec. props. 3=1706
 methyl alcohol, effect on crystallization of caprone 0=1885
 methyl alcohol, flowing along solid surf., CO_2 absorption 2=9267
 methyl alcohol, fog droplets growth and condensation coeffs. 4=5467
 methyl alcohol, gaseous, Raman spectra 1=7473
 methyl alcohol, glycerol with KCl, Debye effect 2=7211
 methyl alcohol, microwave spectrum 2=14269
 methyl alcohol microwave spectrum, σ -Stark effect 3=734
 methyl alcohol, multiple proton mag. resonance relaxation 1=15910
 methyl alcohol, n.m.r., J coupling theory 3=14790
 methyl alcohol, NO u.v. absorption spectra 2=5020
 methyl alcohol, nuclear magnetic resonance 1=5287
 methyl alcohol, O_2 u.v. absorption spectra 2=5020
 methyl alcohol, Raman spectra 2=8099
 methyl alcohol, Raman spectrum rel. to change of state 3=731
 methyl alcohol, reactions with slow positive ions 2=6870
 methyl alcohol solns. of Mn^{2+} ions, proton resonance 1=157
 methyl alcohol, solvation number of Mg^{2+} 3=1685
 methyl alcohol, sound velocity meas. 4=8206
 methyl alcohol, thermal cond., 20°C 2=15571
 methyl alcohol, transient n.m.r. signals 4=29647
 methyl alcohol, 2.8 MeV electron beam, energy loss 1=18935
 methyl alcohol, u.s. absorption 2=15707
 methyl alcohol, ultrasonic waveform distortion, det. of nonlinear parameters 1=4337
 methyl ammonium alum, crystalline dimorphism 3=1342
 methyl ammonium alum dielectric properties 1=11337
 methyl ammonium alum, low temp. phase, crystal structure, atomic 4=13616
 methyl anilines, C^{13} nuclear magnetic resonance 3=10544
 methyl azide, photolysis in solid A and CO_2 1=20755
 methyl benzoate, nuclear spin-lattice relax. meas. 3=23912
 methyl borate, Raman spectra 2=8100
 methyl bromide, adsorbed on porous glass, i.r. band shapes, rotational freedom 0=15731

Organic compounds—contd

- methyl bromide, dielectric dispersion 0=14696
 methyl bromide, dissociation by nuclear isomeric transition of $\text{Br}^{80\text{m}}$ 0=16388
 methyl bromide, i.r. spectrum 2=20853
 methyl bromide, thermal cond., press. and temp. depend. 0=19202
 methyl cellulose, flow birefringence, ageing effect 1=15876
 methyl chloride dielectric dispersion 0=14696
 methyl chloride, refractive index 10 Gc/s, and susceptibility 4=239
 methyl chloride, refractivity, press. depend. 0=6839
 methyl chloroform, molecular rotational relaxation 1=12898
 methyl cyanide, *l*-type doubling and resonance in r.f. 3=19960
 methyl cyanide sources at 0.34 mm wavelength 4=24904
 methyl cyclohexane, u.s. studies of isomerization 1=4340
 methyl derivs., of benzene, photoionization 2=9527
 methyl and deuteromethyl halide solns., i.r. absorpt. bands and mol. rot. 4=24219
 methyl ether- CCl_2F_2 and $-\text{SF}_6$, vibr. energy transfer 3=6434
 methyl and ethyl alcohols, dispersion in mm range 4=2701-2
 methyl ethyl ketone, superheated, nucleation by elec. field 3=14420
 methyl ether-methyl chloride, vibr. energy transfer 3=6434
 methyl fluoride, absorption spectra, nonresonant 0=10760
 methyl fluoride, refractivity, press. depend. 0=6839
 methyl fluoride, Stark effect and dipole moment 3=17601
 N-methyl formamide, Raman spectra 2=7218
 methyl formamides, n.m.r., J coupling theory 3=14790
 methyl formate, site of protonation 1=11120
 methyl formate, u.s. velocity rel. to temp. 1=18408
 methyl groups, nonbonded, repulsive potential 1=828
 methyl halides, and deuterated, bond polar properties, 1-872
 methyl halides, i.r. spectra, errata 4=20091
 methyl halides, solid, far i.r. spectra 2=4150
 methyl halides, Urey-Bradley force consts. 0=15685
 methyl hypochlorite, microwave spectrum 4=20090
 methyl iodide, cryst., Raman spectrum 4=28715
 methyl iodide, gas-phase photolysis, reactions of hot methyl radicals with added organic cpds. 4=28271
 methyl iodide, gas-phase reaction with HI 3=11339
 methyl iodide, I pure quad. res., temp. depend. 2=10727
 methyl iodide, i.r. spectrum 2=20854
 methyl iodide, ionization by photon impact, efficiency 0=17720
 methyl iodide, liquid, spec. ht. 2=11356
 methyl iodide, reactions with alkali atoms 3=5160
 methyl iodide, u.v. absorption in gas and solid 1=855
 methyl isocyanate, microwave spectrum 4=6629
 methyl isopropyl ketone, photolysis 1=20757
 methyl isothiocyanate, molal thermodynamic props., ideal gas state. 273-1000°K 3=14210
 methyl ketone, light scatt., absolute intensity, exper. determ. 4=24211
 methyl malonic acid, free radicals in X-irradiated crystals 2=2299
 methyl mercaptan (CH_3SH), liquid and vapour, density, temp. var. 1=15837
 methyl mercaptan, microwave spectrum 1=9929
 methyl methacrylate, u.s. velocity rel. to molecular parameters 1=18403
 methyl and methane groups, in paraffin-naphthene fraction, i.r. anal. 2=19176
 9-methyl-10-methoxy-methylanthracene, fluorescence 2=14745
 N-methyl methylenimine, microwave spectrum 4=25710
 β -methyl naphthalene, stepped surface in crystal growth 4=20732-3
 methyl 1:2 benzantraquinones, structure 0=10318
 methyl orange dye, use as spectrophotometric dosimeter in range 500-5000 rad 4=5894
 methyl orange dyes on silica and silica-alumina gels, absorption spectra recording meth. 2=19705
 2-methyl pentanediol 2,4, dielec. relax. rel. to assoc. 3=1704
 methyl radical, orbital following 4=17323
 methyl salicylate, n.m.r. 3=8302

Organic compounds—contd

- methyl silane, i. r. spectrum 2=16545
 methyl siloxanes, compressibility and shear viscosity, temp. depend. 3=21309
 methyl stannane, microwave spectrum, barrier to int. rot. 2=3740
 methyl-substit. mols., hyperconjugation, rel. to proton hyperfine splitting 3=739
 methyl-substituted benzenes, elec. conductivity 4=11213
 methyl sulphide-BF₃ complex, B isotope separation 0=17676
 methyl thionitrite, force const. and vibr. modes 4=6630
 methyl violet, polarization of fluorescence 2=6630
 methylchlorophyllide a, photocond., temp. var. 4=17533
 methyldifluoroarsine, microwave spectrum 2=20852
 N-methylacetamide, solvent effect on i. r., absorption 0=9805
 methylacetylene, i. r. spectrum, ν , band 3=4770
 methylacetylenes, molecular consts. 2=20851
 9-methyladenine, crystal structure 4=20769
 methylal, elec. discharge, light emission, time depend. 0=2330
 methylamide, liq., thermal neutron scatt. 3=2652
 methylamine alum, Fe³⁺ zero-field e. s. r. 2=770
 methylamine chrome alum, metamagnetism 0=21030
 methylamine, dissolved Cs and Rb e. s. r. 3=16640
 methylamine, normal vibrations and force consts. 2=1989
 3-methylaminophthalimide, optical props. 3=1703
 methylaniline, photoionization, electron energy distrib. 1=16263
 methylaniline, photoionization, electron energy distrib. 1=18763
 9-methylanthracene, fluorescence 2=14745
 9-methylanthracene and perylene, excitation energy transfer, effect of solvent viscosity 3=23887
 methylbenzenes, hindrance to rot. of methyl groups 2=18460
 1-methyl-cis-4-cyclohexene-1, 2-dicarboxylic anhydride, n. m. r., multiple reson. analysis 4=9774
 methylcyclohexane and benzene, low-temp. soln. spectra 2=14674
 methylcyclohexane, enthalpy change calc. for isomeric reaction 0=10662
 methylcyclohexane, fluorinated, spectral dispersion curves 3=17591
 methylcyclohexane-perfluoromethylcyclohexane system, nucleation theory tests 2=13489
 methylcyclohexane, radiolysis 2=8928
 methylcyclohexane, ultrasonic absorption 2=5014
 3-methylcyclopentanone, optical activity calc. 1=2344
 3-methylcyclopentanone, optical activity, one-electron theory, variational calc. 4=22407
 methyldiboranes, vibrational freq. calc., Average Rule and Complete Isotopic Rule 1=13996
 methyldichlorosilane, n. m. r. spectrometer resolution detm. 3=19471
 methyl-N,N-dimethylaniline, C¹³ nuclear magnetic resonance 3=10544
 methylene blue and green, liquid crystal spectrum 4=24220
 methylene-blue, polarization measurements of absorption spectrum 1=11099
 methylene bromide, u. s. absorption 0=127
 methylene chloride, liquid, spec. heat relaxation 0=6791
 methylene chloride, nuclear quadrupole relaxation and its temp. dependence 3=25598
 methylene chloride, reaction with active N₂, quenching by CH₂Cl₂ 3=11344
 methylene derivs., electron spin-spin interact., bond angle effect 3=25126
 methylene, far-u. v. spectrum 2=14284
 methylene, heat of formation 3=18438
 methylene imino free-radicals, e. s. r. detect. 2=12351
 methylene, triplet ground state, chemical evidence 0=15711
 methylenes, substituted, C¹³ e. s. r. h. f. s., and struct. 4=24240
 methylether in soln., microwave absorpt. and mobility 2=7229
 methylethylketone, aq. soln., boiling, bubble growth rate 2=5217
 methyl-fluoro-silane molecules, potential functions 3=20011
 methylgermane, i. r. spectra 3=17603
 4-methyl-2-hexanone, photolysis 2=23968

Organic compounds—contd

- methyliodobenzenes, C¹³ nuclear magnetic resonance 3=10543
 methylmethacrylate, γ -irradiated, dielectric properties 0=6803
 methylmethacrylate liquid state, u. s. velocity and compressibility 1=18406
 β -methyl-naphthalene, from ethyl alcohol soln., growth spiral-soln. spiral transition 0=13957
 2-methyl-naphthalene, fluoresc. in micelle soln. 4=14176
 α -methynaphthalene layers, photoconductivity 4=22811
 1-methynaphthalene, in liq. scintillators 4=14964
 1 and 2 methynaphthalene molecules, vibration symmetry types 3=17605
 β -methyl-naphthalene, step growth in supersat. vapour 1=14977
 α - and β -methyl-naphthenyl radical, spin density, calc. 1=6055
 methylnitrobenzenes, C¹³ nuclear magnetic resonance 3=10545
 methyl-1, 2-benzanthracenes, out-of-plane CH vibrations 0=17738
 methylphosphine, microwave spectrum and internal barrier 2=1992
 methylphosphoryl chlorofluoride, heat capacity meas. and thermodynamic props. from 15° to 335°K 4=30521
 methylphosphonyl dichloride, heat capacity meas. and thermodynamic props. from 15° to 335°K 4=30521
 methylphosphoryl difluoride, heat capacity meas. and thermodynamic props. from 15° to 335°K 4=30521
 methylphthalimide derivatives, fluorescence, effect of halogens 0=13718
 methylsilylacetylene, i. r. spectrum 3=4771
 methylsilyl-d₃-acetylene, far and near i. r. spectrum 4=28246
 4-methyl-7-oxycumarine in polymethylmethacrylate, luminescence 4=22937
 2-methyl-2-nitropropanediol-1, 3 solutions n. m. r. of methylene and hydroxyl protons 4=24249
 methyl-2-pentene-1, photocond. and photoionization 4=27189
 methylstannanes and related cpds., proton mag. resonance 3=22602
 1-methylthymine, crystal structure 3=8869
 methyltrichlorosilane, i. r. spectra intensity 2=22991
 methyltrideuterosilane, i. r. spectrum 2=16545
 methyltrifluorosilane, potential energy coeffs. calc. 4=6631
 methyltrivinylsilane, proton energy levels, by nuc. mag. double resonance 3=2658
 methylvinylketone, proton mag. res. spectra 3=2657
 Mexicanin-E, crystal structure meas. 2=19084
 milk gels, rheology 0=4746
 milks, fat-free and renneted, viscosity meas. 0=14575
 milling yellow solution, acoustic impedance in circular tubes 1=11758
 mineral oils, fluorescence meas. 2=9285
 mixtures with N₂ (or N₂ + H₂), luminescence 1=15961
 molec. crystals in triplet state, photocond. 3=4951-2
 molecular complex form., by electron transfer 3=21003
 molecular complexes, solid, semiconducting props. 2=23305
 molecular crystals, doped, radiationless transition probabilities 4=12686
 molecular crystals, e. s. r. of radical impurity, spin-lattice relax. 2=777, 23713
 molecular crystals, magneto-optical effects, weak exciton-phonon interaction 1=11349
 molecular crystals, nuclear spin-lattice relaxation 4=23063
 molecular crystals, sensitized fluorescence 1=1771
 molecular environment of carbonyl group, effect on i. r. intensity 3=6405
 molecular nuclear spin-spin coupling consts., J_X-C-H and J_X-H 4=20099-100
 molecular structure correlations for 25 cpds. 0=15776
 molecule conjugated, π orbital, doubly occupied, correl. energy 3=22576
 molecules with 50 to 100 atoms, quantum theory 4=12436
 molecules, O¹⁷ n. m. r. linewidths, rel. to quadrupole coupling consts. 3=22599
 molecules in soln., triplet state decay 4=11198
 molecules with two equivalent methyl groups, rotation-internal torsion levels 0=15696
 monoalkylbenzene, absorption spectra 2700 Å, rel. to substituent radicals, 20°K 4=7141

Organic compounds—contd

- monoalkylbenzols, absorption spectra, 20°K 2=18464
 monocarboxylic acids, crystal structure by PMR 1=20276
 monochloroacetic acid, crystal structure by PMR 1=20276
 monochloroacetic acid crystals, 3 polymorphous phases, C1 n. q. r. 4=13353
 monochloroacetonitrile, N¹⁴ n. q. r. 2=14861
 monochloroacetonitrile, nuc. quadrupolar coupling 3=2656
 monochlorobenzene—paraffin oil, props. rel. to ultrasound 3=9471
 monochloroethyl and trichloromethyl radicals, recombination and disproportionation 3=8974
 monochloromethane, h.f.s., using beam spectroscopy 4=6617
 monodeutero benzene, in hexadeutero benzene, vibronic spectrum 4=15605
 monodeuteroethylene, vapour pressure, isotope effect 3=8248
 monofluoroacetonitrile, microwave spectrum 3=4772
 monoisopropyl diphenyl, neutron absorption 2=18127
 monoisopropyl diphenyl, neutron diffusion 3=2271
 monoisopropyl biphenyl, neutron diffusion parameters 4=3758
 monomethyl aromatic compounds, i.r. band assignments for 2900 cm⁻¹ vibrations 1=845
 monomethyl benzene ion radicals, spin and charge densities, temp. depend. 3=25151
 mononitrophenols adsorbed in solution and on solid surfaces, spectral reflectance 4=25711
 mono-olefins, analogue of $n \rightarrow \pi^*$ transitions 3=15367
 on moon 0=8487
 morpholinium⁺ tetracyanoquinodimethane⁻, e.s.r. 1 to 600 atm 4=28878
 mustard oil, dielectric properties at 8.7 mm 0=18090
 myoglobin crystals, magnetic susceptibility 1=14673
 n.m.r., chemical shifts, theory 3=15375
 N.M.R. natural line width det. 1=12024
 n.m.r. techniques, survey 3=17065
 naphthacene, in dibenzyl and diphenyl, absorption and luminescence spectra, impurity conc. depend. 1=11374
 naphthacene, in dibenzyl stilbene crystals, absorpt. and luminesc. spectra 2=23568
 naphthacene, ionization-dissociation processes caused by electron impact 4=28248
 naphthacene, in organic crystals, absorpt. spectra and luminesc. 2=6568
 naphthacene segregation coeff. in anthracene, luminescence meas. 4=29057
 naphthacene solns., fluoresc., anthracene-sensitized 4=191
 naphthacene, solutions, spectra, changes on addition of ferric acetylacetonate 3=15359
 naphthacene, spectral solvent shifts 2=21910
 naphthacene, in tolan, stilbene and p-ditolyl, absorption and luminescence 1=11375
 naphthacene vapour, absorption and fluoresc. 4=1300
 naphthalene, absorption bands, various props. 2=18837
 naphthalene—anthracene, impurity luminescence, reabsorption 1=14646
 naphthalene with anthracene, luminescence, retarded, mechanism 4=22936
 naphthalene, with anthracene and methyl naphthalene, fluorescence, temp. depend. 1=6231
 naphthalene with benzophenone donor, phosphorescent triplet-triplet transfer, 298° and 77°K 4=4315
 naphthalene, binary liq. systems, densities 4=11177
 naphthalene, binary liq. systems, u.s. velocity and compress. 4=11178
 naphthalene and C₁₀D₈, fluoresc. spectrum at 20°K 0=6811-12
 naphthalene, charge-transfer complexes, intersystem crossing 4=13100
 naphthalene, Costa Ribeiro effect 1=1119
 naphthalene, counter scintillation efficiency 4=3240
 naphthalene, coupling between π, π^* states 2=18469
 naphthalene, crystal excitons, capture by anthracene impurity, mechanism 3=20139
 naphthalene, crystal growth 2=4386
 naphthalene crystals, elastic consts. 4=1957
 naphthalene crystals, exciton absorption linewidth 4=9916
 naphthalene crystals, impurities rel. to scintillation props. 2=14748
 naphthalene crystals, luminescence decay times 2=18869

Organic compounds—contd

- naphthalene crystals, phase-changed, first-order, study using positron annihilation 4=23300
 naphthalene, Debye approx. 3=15440
 naphthalene derivatives, absorption and phosphorescence spectra 0=5949
 naphthalene derivatives in solution, luminescence, effect of pH value 1=2764
 naphthalene derivs., luminescence 2=14746
 naphthalene derivs., luminescence, hydrogen-bonding effect 2=19568
 naphthalene derivs., radiationless conversion in solns. 2=15610
 naphthalene and deuterio naphthalenes, vibr. spectra 4=30465
 naphthalene and dihydroxy derivs., absorption spectra comparison 2=20855
 naphthalene- $\alpha\alpha'$ -dinaphthyl ethylene mixed crystals, luminescence rel. to impurities 2=14748
 naphthalene, doped with anthracene, direct fluorescence 1=20024
 naphthalene, in durene, e.s.r., triplet state h.f.s. 1=14799
 naphthalene, in durene, radiationless triplet-singlet transitions 3=23115
 naphthalene, ESR, line broadening rel. to electron transfer processes 1=14803
 naphthalene, e.s.r. obs. of $\Delta m = 1$ transitions 3=1186
 naphthalene, elec. cond., impurity effect 4=26064
 naphthalene, electret formation, effect of alternating fields 0=635
 naphthalene, electret state, i.r. irradiat. effect 4=1669
 naphthalene, electron absorpt. spectra 2=18821
 naphthalene, electron state, zero-field splitting 1=12361
 naphthalene, electronic structure, calc. 0=11531
 naphthalene, electronic structure, LCAO method 2=22992
 naphthalene, evaporation, etch-pit formation 3=3934
 naphthalene, excess electron and hole band structures 4=1430
 naphthalene, excited state vibrational energy transfer in collisions 4=3898
 naphthalene, exciton diffusion and capture by anthracene impurity 1=14227
 naphthalene, fluoresc. by α -rays, polarization 4=20503
 naphthalene, fluoresc. spectrum, 2°-100°K 3=25493
 naphthalene, fluorescence 2=11483
 naphthalene, fluorescence quenching by diacetyl in hexane soln., 28°C 4=14174
 naphthalene, fluorescence spectra, solid soln. in pentane and vapour 4=13102
 naphthalene, fluorescence spectrum & decay time 3=138
 naphthalene, fluorescence spectrum of frozen solns., interpretation 0=4446
 naphthalene; fluorinated, electric shifts 0=5957
 naphthalene, freezing nucleus size, by u.s. velo. anomalous increase 3=18251
 naphthalene, in glassy media, phosphorescence-fluorescence quantum field 4=10231
 naphthalene, glow-discharge, triplet-triplet transition 2=3015
 naphthalene h-8 and d-8, absorpt. spectra 2=16817
 naphthalene h-8 and d-8 mixed crystals, exciton luminescence 2=21276
 naphthalene and halogen derivs., luminesc. anisotropies 4=13101
 naphthalene, hole mobility, calc. 3=20339
 naphthalene, impure, anomalous absorpt. of light near exciton bands 2=2234, 4157
 naphthalene, impurity luminescence rel. to temp. 2=21275
 naphthalene, i.r. absorption bands, width and profile 0=20614
 naphthalene, intrinsic luminescence 0=10063
 naphthalene, ionization-dissociation processes caused by electron impact 4=28248
 naphthalene, ionization potential and mass spectra 0=3738
 naphthalene ions, Hartree-Fock calcs., unrestricted, spin props., computation by improved method 4=28174
 naphthalene, ions, open-shell wave-functions 1=12294
 naphthalene, kinking mechanism 1=14891
 naphthalene liquid state, u.s. velocity and compressibility 1=18406
 naphthalene, luminescence 2=14747

Organic compounds—contd

- naphthalene, luminescence, effect of D substitution 0=10231
- naphthalene, luminescence, γ -excited, yield rel. to impurity concn. 3=963
- naphthalene, luminescence, lifetime var. solvent 4=20496
- naphthalene, luminescence, soln., conc., in pentane, transfers, analogy with excitons 4=187
- naphthalene, with methylnaphthalenes and naphthols, luminescence and absorption spectra 0=21003
- naphthalene mixed with light gas, intermolec. interaction rel. to temp. 2=16567
- naphthalene, modified Urey-Bradley force field 2=16536
- naphthalene, molecules, vibration symmetry types 3=17605
- naphthalene mols., excitation modulation spectroscopy 3=12802
- naphthalene and monoderivatives, phosphorescence and fluorescence 0=10070
- naphthalene, monohalogen derivatives, singlet-triplet emission polarization 4=4317
- naphthalene, multiple-centre dipolar interaction integrals 4=3843
- naphthalene- β -naphthol and naphthalene-benzoic acid, zone refining, effect of free convection 4=29058
- naphthalene, near u.s. absorption spectra 2=8525
- naphthalene neg. ion, C^{13} hyperfine structure in e.s.r. spectra 1=17345
- naphthalene negative ion, C^{13} coupling const. 3=15384
- naphthalene, as neutron detector 3=4411
- naphthalene, nuclear quadrupole resonance in solid solution 1=20277
- naphthalene and octodeuterated naphthalene mixture, absorption spectra 2=6566
- naphthalene, optical dispersion and reflection, 20°K 2=23541
- naphthalene, paramagnetic resonance of phosphorescent crystal 1=6234
- naphthalene, in para-polyphenyls, absorption and luminescence spectra 1=14648
- naphthalene, phase charges, charge formation 0=16005
- naphthalene-phenanthrene, optically excited, energy transfer, e.s.r. study 2=21370
- naphthalene-phenyl biphenyl ethylene mixed crystals, luminescence rel. to impurities 2=14748
- naphthalene, phosphorescence lifetime, effect of deuteration 0=16101
- naphthalene, phosphorescence at low temp. 3=13211
- naphthalene, phosphorescence polarization, 77°K 4=4314
- naphthalene phosphors, e.s.r. study 0=21080
- naphthalene, photo and radioluminescence 2=6628
- naphthalene, photo- and thermoelectrets 0=13660
- naphthalene, photodepolarization 3=17908
- naphthalene, pi electron localization energies, ZDO calc. 4=12430
- naphthalene, polarization of luminescence 0=11778
- naphthalene, in polymer solution, decayed fluorescence obs. 1=20023
- naphthalene in polymethylmethacrylate host, e.s.r. triplet state, effect of temp. 4=23054
- naphthalene quenching of liquid scintillation solns. 3=11801
- naphthalene, radiationless transitions between states of different multiplicity 1=6058
- naphthalene, Raman shifts, l.f. 4=4281
- naphthalene, Raman spectrum, wave numbers and intensities 0=14817
- naphthalene-salicylamide mixed crystals, luminescence rel. to impurities 2=14748
- naphthalene, scintill. by energetic α -rays, deuterons and electrons at low temps. 4=26254
- naphthalene, scintillation light yield for α and β -rays 4=13093
- naphthalene, self-absorption band, 20-290°K 2=8526
- naphthalene, self-fluorescence at 4.2°K, effect of contaminant eliminated 1=10125
- naphthalene, semiconducting props. review 4=28578
- naphthalene, semiconductivity 2=8369
- naphthalene, sensitized fluoresc., 2°-100°K 4=1791
- naphthalene, shock excitation, CN, C₂ and CH spectra 1=2310
- naphthalene single crystals, refractive index meas. 2=17591
- naphthalene single crystals, u.s. absorpt. meas. 4=20206
- naphthalene, skeleton, out-of-plane molec. vibrations and "shrinkage effect" 2=22993

Organic compounds—contd

- naphthalene, sol. in CCl₄, molecular rotation 3=14143
- naphthalene, solid, absorption spectrum 2=12595
- naphthalene, solid and liquid, with soluble impurities, thermal expansion near m.p. 3=21324
- naphthalene, soln. in solid pentane, luminescence spectra 1=17917
- naphthalene, solubility in compressed gases 3=304
- naphthalene, solubility in compressed nonpolar gases, rel. to spectral shifts 4=6633
- naphthalene, solutions, spectra, changes on addition of ferric acetylacetonate 3=15359
- naphthalene solvent, soln. scintillators 3=18821
- naphthalene, spectral solvent shifts 0=16707
- naphthalene, spectral solvent shifts 2=21910
- naphthalene, spectral term scheme 4=20473
- naphthalene, structure of 5 derivatives 0=8242
- naphthalene, sublimation, heat exchange, nature 3=16841
- naphthalene-tetracene solid solns., energy transfer 4=1792
- naphthalene-tetrachlorophthalic anhydride, phosphorescence and fluorescence, 2-photon excitation 3=25490
- naphthalene, thermally stressed films, absorption spectra, 20°K 4=15606
- naphthalene, triplet-state, electron spin distrib. and hyperfine interactions 4=23053
- naphthalene, u.s. dispersion, molecular structure 3=21354
- naphthalene, u.s. velocity 0=10659
- naphthalene, u.s. velocity rel. to molecular parameters 1=18403
- naphthalene, u.v. spectra 3200-2200 Å, absolute intensity 3=934
- naphthalene, vapour fluorescence spectrum 2=20856
- naphthalene vapour, triplet state decay 4=22409
- naphthalene vapour, u.v. emission, r.f. excited 1=7476
- naphthalene, vibrationally excited excitons 2=23122
- naphthalene, X-ray diffuse scatt., temp. depend. 2=8160
- naphthalenes, disubstituted, dipole moments, calc. 4=12508
- naphthalenes, D-substituted, Rashba effect 4=1714
- naphthalenes, phosphorescence quenching of benzophenone and benzaldehyde 0=944
- naphthazarin, bond lengths and orders, π electron distrib., calc. 0=13453
- naphthazarin, radical, anion, e.s.r. and H-bonds 3=17610
- naphthazarin, Renninger effect 0=16297
- β -naphthol soln., laser action possibility 4=14166
- naphthols, electronic spectra 2=18470
- β -naphthylamine, non-radiative transitions 1=6034
- β -naphthylamine, molecular excitation temp. and vibr. specific heat calc. 4=12493
- nematic and cholesteric liquid crystals, order and flow 3=9441-2
- neopentane-C₂H₆, neopentane-C₂H₁₂ mixtures, velo., acoustic waves, var. 3=16622
- neopentane pyrolysis, catalytic transfer by HCl 4=23633
- neopentane, self-diffusion 1=4350
- neopentane, self-diffusion coeff. 0=3513
- neopentane, symmetry groups, character tables, computation 4=28180
- neopentyl chloride, pyrolysis mechanism 4=2148
- nickelocene, electronic spectra 2=6183
- nitrenes in glass, e.s.r. ground-state triplet spectra 4=13326
- α -nitriles, aliphatic unsat., electronic struct., from Faraday rot. 4=17307
- nitriles, C \equiv N vibrations and isotope effects 2=18471
- nitriles, N¹⁴ pure quadrupole resonances 1=4950
- nitriles, π -electron bonds and density calc. 4=25712
- nitriles, Raman spectra intensities 1=14033
- n-nitroaniline in benzol, Raman spectrum, absorption and line intensity 1=12291
- nitroanisole, effect of molec. assoc. on velocity of sound 1=2755
- nitroaromatic amines, in soln., n.m.r. 4=28247
- nitrobenzene anions, p-substituted, e.s.r. spectra, solvent effects 4=11218
- nitrobenzene, C¹³ nuclear magnetic resonance 3=10545
- nitrobenzene, crystal structure at -30°C 0=4655
- nitrobenzene, dielec. const., elec. field effects at 3 cm 4=21145
- nitrobenzene, dielec. const. in strong elec. fields 0=19141
- nitrobenzene, dielectric const., in intense elec. field 0=8663

Organic compounds—contd

- nitrobenzene-heptane soln., light scatt., Krislman effect 2=9409
 nitrobenzene-heptane, stratifying system, light scatt. indicatrices 4=24215
 nitrobenzene-hexane, stratifying system, light scattering indicatrices 4=24215
 nitrobenzene, i.r. transmittance and Kerr effect 1=12883
 nitrobenzene, liquid, lack of orientational ordering 1=11747
 nitrobenzene, meas. of Kerr constant 1=4480
 nitrobenzene molecule, electronic structure and spectrum, calc. 1=14064
 nitrobenzene--n-heptane, X-ray low angle scatt., crit. opalescence 4=16113
 nitrobenzene, n.m.r. 3=739
 nitrobenzene, pre-breakdown phenomena 1=5437
 nitrobenzene, Raman scattering cross-sections 4=17300
 nitrobenzene, Raman spectrum, from laser, two-step process 4=5191
 nitrobenzene solns. in n-hexane, diffusion coeff. 0=19109
 nitrobenzene, space charge phenomena 0=1106
 nitrobenzene, stimulated Raman effect, amplification meas. 4=16687
 nitrobenzene-trimethylpentane, dielec. dispersion near critical soln. temp. 4=5206
 nitrobenzol, soln. in n-heptane, optical extinction and light scatt. 3=21367
 nitrobenzol, solns. in hexane, dielec. props., structure 3=21386
 t-nitrobutane, molecular rotational relaxation 1=12898
 nitrocellulose, anisotropy by scatt. of light 2=6239
 nitrofuranes, powder, with naphthalene, Raman spectra 4=26170
 nitrogen heterocyclics, spin-orbit coupling and radiationless processes 3=17604
 nitrogen-organic cpds, $B^2\Sigma^+ \rightarrow X^2\Sigma^+$ transition spectra in discharges 3=12850
 nitromethane, in benzene and water, light scatt. 4=24214
 nitromethane, detonation 3=8962
 nitromethane, dipole moments of bonds 4=3897
 nitromethane, liquid, detonation, hypervelocity wave phenomena 0=16378
 nitromethane, self-diffusion coeff. 0=3513
 nitromethane, shock-wave velocities and effects 0=16776
 α -nitro-naphthalene, dielec. relaxation, effect of temp. 0=5022
 p-nitrophenol, cond., elec., surface anisotropy meas. 4=17465
 nitrophenol, effect of molec. assoc. on velocity of sound 1=2755
 p-nitrophenol, phase transform., $\beta \rightarrow \alpha$, lattice reconstitution 4=17779
 p-nitrophenol reaction with triethylamine in aprotic solvents, three types of complex form. 4=29209
 o- and m-nitrophenol, u.s. velocity 0=10659
 nitrosoderivatives, aromatic, i.r. spectra 1=6017
 nitrosohydroxylaminesulphonate ion, decomposition, acid catalysed, kinetics 3=20980
 nitroso-methane and dimers, mol. SCF bonds, calc. 4=15373
 nitro-substituted benzene anions, e.s.r. spectra, alternating linewidths 4=25729
 p-nitrotoluene, heat of fusion 4=5450
 nitrotoluene, meas. of Kerr constant 1=4480
 nonane, liquid, PVT relations 1=8108
 noncyclic molecules, Pascal consts., calc. 2=16501
 n, n'-nonoxybenzaltoluidene, liquid crystals, structure 4=24171
 novomethylene blue, liquid crystal spectrum 4=24220
 nuclear reactors, moderators 1=17245
 nucleic acid, ferromag. inclusions 2=8647
 nucleic acids, effect of molec. wt. on luminescence 0=20995
 nucleic acids, thermal and elec. props. 1=6129
 nucleic acids, two-stranded, helix-coil equil. 4=3943
 nucleotides and nucleic acids, phosphorescence 4=22933
 octacyanide complexes, electronic structure and spectra 3=725
 n-octadecane, spectral dispersion curves 3=17592
 octadecanol monolayers, effect of benzene and hexane spreading solvents 0=10371
 n-octadecyl disulphide, γ -irradiated, e.s.r. 3=6416

Organic compounds—contd

- octamethyltrisiloxane, liquid and crystalline, i.r. spectra rel. to temperature 3=14169
 octane-hexane soln., density, temp. depend. near critical pt. 2=7478
 i-octane-perfluorooheptane solns., cluster formation 0=3519
 n-octane, surface tension, effect of Ar, 1-120 atm 3=18795
 n-octane, virial coeffs. and intermolecular mechanics 0=11544
 n-octanol, effect on fluorescence of acetylanthracene in hexane 1=9400
 n-octanol, self-diffusion at 25°C 0=14632
 octodeuteronaphthalene, thionaphthene doped, luminescence, 20.4-77°K 4=4316
 n-octyl alcohol-diethylene glycol, u.h.f. dielec. props. 1=1751
 n-octyl bromide, proton resonance, motion of C-Br bond 0=14667
 oil between electrodes as insulator, luminescence 0=3541
 oil decomposition, in vacuum pumps, effect of operating conditions 2=9323
 oil film on metal, thickness meas. 4=16087
 oil film, thickness meas., for elasto-hydrodynamic lubrication 4=16086
 oil, heat transfer, transient phenomena 3=11865
 oil, mineral, compressibility, negative press. 4=21107
 oil, in paraffins, det. by i.r. absorption 2=21602
 oil, photonutron emission rel. to water 2=18317
 oil, transformer, electric breakdown, quenching effect of oxygen 4=2705
 oil, ultrasonic and visco-elastic relaxation 1=5277
 oil-vapour flow in piping, low conductance 3=16647
 oil-water interface, oil drop coalescence 0=14610
 oils, dielectric losses 1=18426
 oils, halogenated, trace water content 0=4766
 oils, NBS, for viscometer calibration 3=9421
 oils, n.m.r. of 6 types 3=23913
 oils, very viscous, effect of u.s. radiation 0=14131
 olefines, addition of H atoms 1=20732
 olefines, O atom addition 0=21273
 olefinic cpds., n.m.r. spectra 1=15911
 olefins, ion-molecule reacts. 2=8135
 olefins, proton magnetic resonance 1=14105
 olefins, reactions with O atoms 3=11341
 1:1 charge-transfer complex crystal growth of 1,4-diaminodurene in contact with p-chloranil 3=11228
 orbital open shell SC field calc. method for aromatic and olefinic cpds 4=25627
 organic halide-alkali metal flame spectra 4=7755
 organic species in amorphous media, laser action 4=19297
 organometallic content in plastic scintillators for improved γ -counting 4=21826
 organometallic cpds. scintillator solns., quenching 3=1700
 organo-phosphorus cpds., n.m.r., in earth's field 4=3915
 ortho-dichlorobenzene, C^{13} n.q.r., Zeeman effect 4=13355
 ortho-semiquinones, spin densities from e.s.r. meas. 4=1305
 ovalbumin, photochemistry, u. v. attack, eosin sensitized 4=7770
 1,3,4-oxadiazole derivatives, scintillation efficiencies, chem. structure relationship 0=10676
 oxadiazole derivatives, in various solvents, scintillation activating props. 4=11207
 1,3,4-oxadiazole in polystyrene, photoluminesc. and fluoresc. 2=1160
 oxadiazoles, absorption spectra, rel. to 1-methylnaphthalene 3=18815
 oxalato metal complexes, i.r. spectra 2=3745-6
 oxalic acid, Al, electrolysis, luminescence, flash spectra 3=10984
 oxalic acid dihydrate, diamagnetic susceptibility 1=14073
 oxalic acid, i.r. spectrum, effect of pressure 4=22908
 oxalyl chloridefluoride, C^{13} satellites in n.m.r. spectra 3=15374
 oxalyl fluoride, C^{13} satellites in n.m.r. spectra 3=15374
 oxalylchloride, u. v. absorption spectrum 2=14289
 oxazine dye crystals, absorption spectra 1=14595-6
 oxazine dye radicals, e. s. r. study 2=23008
 oxazoles, absorption spectra, rel. to 1-methylnaphthalene 3=18815
 oxime prep. by N fixation by u.s. waves 1=20759
 5-oxiphenazine, crystal structure 0=4662

Organic compounds—contd

oxy-amines, tertiary, as photog. hypersensitizers 0=12744
oxydiazole-series cpds., opt. and scintillation props. 0=4447
oxygen cpd., H-bond with H halide 3=2629
oxygen quinol clathrates, mol. rot. 2=8075
PBD, luminescence, scintillation 0=4447
PETN, b.p. lowering on thermal decomposition 2=2450
PETN, detonation, hypervelocity wave phenomena 0=16378
PETN low-density pressings, initiation by plane shock wave 1=11621
palmitic acid-stearic acid binary system, structure 0=18369
palmitic acid, u.s. velocity 0=10659
papaverine-Zn[Cd] halides, fluorescence emission spectra 4=13103
paper, varnished, elec. strength at low temp. 2=4101
paracumol, cracking, on Al_2O_3 or zeolites, effect of additives 3=20996
2,2'-paracyclophane, electronic spectrum 3=4773
paradichlorobenzene, n.m.r., dynamic proton polarization 1=11497
paradichlorobenzene, n.m.r., effect of mechanical treatment 4=15680
para-dichlorobenzene, nuclear quadrupole relaxation 4=28908
paradichlorobenzene, nuclear quadrupole relaxation and its temp. dependence 3=25598
paradichlorobenzole crystals, n.q.r. signals 3=6769
paraffin, with Al powder, dielectric anisotropy 1=14544
paraffin, with Cu powder suspended, elec. and mag. props. 1=10074
paraffin, with Cu powder suspended, elec. and mag. props. 1=12470
paraffin, dielectric strength and conduction, effect of aromatics 4=14179
paraffin, as electrolytic cell membrane, NaCl-KCl 4=26757
paraffin, γ -rays backscattering 1=13373
n-paraffin liqs., thermal cond. meas., -100°- +200°C 4=24204
n-paraffin, melting props. 2=14391
paraffin molecules dissolved in CCl_4 , Brownian rotation 4=11160
paraffin, neutron moderation 3=19648
paraffin oils, various viscosities, ion mobility meas. 4=27190
paraffin, p. m. r. in liquid and solid meas. 4=24250
paraffin particles with fatty acids, amines etc., colloids prepn. 3=3417
paraffin, recoilless Rayleigh scattering in, using Mössbauer effect 0=11560
paraffin, rheological study, mechanism of interactions with detergents 0=3158
paraffin, scattering of neutrons 0=12940
paraffin (solid), electron-irradiated, thermally stimulated e.m.f. 1=17642
n-paraffin, spectr. det. of C-H bond moment 2=12339
paraffin, use in γ -radiation protection 4=21823
paraffin wax, effect of 60 kV electrons on crystals 1=2400
paraffin wax, elec. cond. in strong shock waves 0=6073
paraffin wax, electret effects meas. 3=8566
paraffin wax, formation of electrets, effect of alternating fields 0=635
paraffin wax, freezing nucleus size, by u.s. velo. anomalous increase 3=18251
n-paraffinic alcohols, long-chain, mixed monolayers, ideal surface behaviour 4=8518
paraffins, anisotropy by scattering of light 2=6239
n-paraffins, bond polarizability and internal fields 1=12236
paraffins from C_1 to C_{10} , mass spectra, field ionized 3=14524
paraffins, C-H distance 0=14036
paraffins, compressibility and shear viscosity, temp. depend. 3=21309
n-paraffins, crystalline, vibrational spectra, methylene rocking and wagging modes 0=13697
paraffins, density, near meniscus vanishing point 3=21323
n-paraffins in dil. solution, self-diffusion 3=16606
paraffins, e.s.r. of Ag atoms at 77°K 3=15948
n-paraffins, fragmentation model 3=16903
paraffins, ion-molecule reacts. 2=8135
paraffins, long chain, crystals, new habit features 1=7840

Organic compounds—contd

n-paraffins, low-frequency motions, study by neutron scattering 4=12551
paraffins, molecular refractivities at 25°C 2=22989
paraffins, negative ions, by mass spectra 3=11372
paraffins, normal, and dil. solns., molec. optical anisotropy 3=136
n-paraffins, phase transitions at high pressures 1=2747
n-paraffins, quantitative relations in mass spectra 0=20710
paraffins, Raman spectra, relative line intensities 0=85
n-paraffins, Rayleigh line-width, orientational relax. times 3=21366
paraffins, self-diffusion, activation volume 1=4331
n-paraffins, solid phase behaviour, analysis 2=16978
n-paraffins in soln., proton spin-lattice relaxation 4=24251
para-halogeno-styrene, thin films, amorphous, electron diffraction study 3=1368
para- and meta-xylene, liquid, structure, from viscosity meas. 4=11179
para-nitrosodimethylaniline, freq. depend. of scatt. intensity in electronic absorpt. band 4=25713
para-substituted fluorobenzenes, π -electron distrib. and F^{19} n.m.r. shielding 3=8300
para-terphenyl, α -particle scintillation 3=18045
paratoluidine, step growth in supersat. vapour 1=14977
parlodion thin films, transmittance in far u.v. 4=22882
patulin, chromone derivatives, infrared spectra 4=30466
pectin, effect on crystallization of NH_4Cl 0=16262
pentacene, bond lengths 3=1341
pentacene, effect of press. on elec. resist. 2=18701
pentacene-pyrene mixed crystals, emission props 4=30692
pentachloroethane, far i.r. absorption 3=24031
pentacyclic hydrocarbons, ring currents 3=10536
pentadienyl ions, Hartree-Fock calcs., unrestricted, spin props., computation by improved method 4=28174
pentaerythritol, crystal symmetry 4=2008
pentaerythritol, effect of high press. on crystal structure 2=21459
pentaerythritol, effect of high press. on crystal structure 3=3252
pentaerythritol, elastic constants 3=8749
pentaerythritol, electro-optical effect 3=23048
pentafluoropropionamide, e.s.r. of irradiated crystals 4=26395
n-pentane, molecular structure 0=15778
pentane, nuclear spin-lattice relaxation time 1=8136
n-pentane, pool-boiling heat-transfer 3=298
n-pentane, spectral dispersion curves 3=17592
n-pentane, superheat, measurement 1=15850
n-pentane, temp. dependence of vap. press., viscosity and heat of vaporization 0=5215
n-pentane vapour, u.v. absorption and ionization cross-sections, 9-25 eV 3=1932
pentaphenylcyclopentadienyl, proton hyperfine splittings and spin densities 1=7487
 Δ^{α} -pentaenoic acid, isomerization, entropy prod. 0=14098
pentobarbital, γ -rays effects 1=20762
peralkyl ammonium, phosphonium, and sulphonium hydrates, structure 4=7656
perchloryl fluoride, Raman spectra 0=17754
perdeuterobenzene, liquid, molec. reorientation rel. to dielec. relax and n.q. relax. 4=18221
perfluoro and fatty acids, long-chain as etchants 2=8229
perfluoroacetone, reactions with CF_3 radical 2=6880
perfluorobenzene, near-u.v. absorpt. spectrum, 690°-1900°K 4=3887
perfluorocyclobutane, thermal decomposition 4=1318
perfluorodimethyl ether, microwave study 4=22394
perfluoroheptane-i-octane solns., cluster formation 0=3519
n-perfluoroheptane, spectral dispersion curves 3=17591
perfluorohexane, n. m. r., 25° to 130°C, rel. to rot. transition 4=30743
perinaphthene free radical identification by e.s.r. 1=8135
perinaphthyl radical, orbital calc. 2=12274
peroxo-dicobalt ethylenediamine complexes, e.s.r. 4=26424
perylene, absorption and fluorescence at low temps. 2=16867
perylene, in boric acid glasses, photo-ionization by u.v. 0=21290

Organic compounds—contd

- perylene in 2,3 dimethyl naphthalene, fluorescence 3=16042
 perylene-iodine complex, nucl. polariz. 2=16965
 perylene-iodine complex, semicond. props. 2=23304
 perylene, for laser 4=27703
 perylene, lowest electronic transition, strong exciton coupling 4=20249
 perylene, luminescence, dispersed in n-heptane, polarization, electric field effects, 77°K 3=16043
 perylene in 2 methyl naphthalene, fluorescence 3=16042
 perylene, molecular excitation temp. and vibr. specific heat, calc. 4=12493
 perylene-quinone complexes, e.s.r. 2=3669
 petrol, electromagnetophoresis 3=16901
 petrol, flame-front propag. and compression waves in air 0=14696
 petroleum asphalt, glass transition phenomena and rheological properties 1=11589
 petroleum deposits, meteors as sources 3=9165
 petroleum, effect of dissolved O₂ on paramagnetic resonance 1=3571
 petroleum ether, elec. cond., rel. to moisture content 1=18421
 petroleum oil, acoustic impedance in circular tubes 1=11755
 petroleum products, white, flowing, space density of elec. charge 0=14653
 phase transformation, liquid-gas, equation of state 4=367
 phenanthrene with anthracene, luminescence, retarded, mechanism 4=22936
 phenanthrene in biphenyl & fluorene, triplet state e.s.r. 3=1181
 phenanthrene, in boric acid glasses, photo-ionization by u.v. 0=21290
 phenanthrene, charge-transfer complexes, intersystem crossing 4=13100
 phenanthrene and derivs., radiationless conversion in solns. 2=15610
 phenanthrene, e.s.r. of neg. ion 2=14322
 phenanthrene, in heptane and MgO, phosphorescence spectra 4=4319
 phenanthrene, ionization potential and mass spectra 0=3738
 phenanthrene, luminescence, lifetime var. solvent 4=20496
 phenanthrene-naphthalene, optically excited, energy transfer, e.s.r. study 2=21370
 phenanthrene, optical properties, in exciton absorption band region 3=20494
 phenanthrene, phosphorescence at low temp. 3=13211
 phenanthrene, photodepolarization, polarity, in fundamental absorpt. band 3=17906
 phenanthrene, from photolysis of cis-stilbene 3=23551
 phenanthrene, polarization of luminescence 3=3062
 phenanthrene, quasilinear phosphoresc. spectra 4=15374
 phenanthrene, soln. in solid pentane, luminescence spectra 1=17917
 phenanthrene solns., phosphorescence in spectra, at low temp. 2=18876
 phenanthrene, solution in alcohol, luminescence 4=190
 phenanthrene, solutions, delayed fluorescence 3=142
 phenanthrene, spectral solvent shifts 0=16707
 phenanthrene, spectral solvent shifts 2=21910
 phenanthrenes, aryl substituted, as scintillators, u.v. props 0=16710
 o-phenanthroline, phosphorescence spectrum rel. to acid strength 4=8216
 phenazine, absorp. spectrum, 77° to 4.2°K in n→π* transit. region 2=10601
 phenazine, electrical resistance rel. to temperature 1=10037
 phenazine radical ions, e.s.r. 4=12514
 phenazine, semiconducting properties 4=26065
 phenazine semiquinone ion, e.s.r. fine structure 2=15618
 phenol in carbon tetrachloride, n. m. r. relaxation time 4=26263
 phenol crystals, phase-changes, first-order, study using positron annihilation 4=23300
 phenol, first addition of ethylene oxide, base catalysis mechanism 3=20997
 phenol, fluorescence 2=11483
 phenol-formaldehyde resins, improved thermal and dielectric props., by addition of quartz 3=8544
 phenol, free radicals from flash photolysis 0=6413

Organic compounds—contd

- phenol, freezing, nucleus size, by u.s. velo. anomalous increase 3=16851
 phenol, i.r. spectrum 4=12496
 phenol, n.m.r. solvent effects 4=91
 phenol, pi-orbital charge distribution, valence-bond theory 4=6611
 phenol and substituted phenols in polar solvents hydrogen bond, electrostatic model 4=30449
 phenol, water activity coeffs., calc. 4=4721
 phenol red, with membrane blue or Cu oxalate complex, colour changes 4=16377
 phenol, supercooled liquid, u.s. velocity discontinuity at melting point 1=12674
 phenol, u.s. velocity rel. to molecular parameters 1=16403
 phenolic resin-paper laminate I-V characteristics 1=6130
 phenolic resins, dielectric dispersions, freq. and temp. variation 1=17824
 phenolphthalein, vitrification under high press. and temp. 0=10600-1
 phenols, band intensities and structural factors 0=7750
 phenols hindered solvent effects in i.r. spectra 0=8667
 phenolphthalein, absorption, acoustic waves, wedges 3=16717
 phenothiazine elec. cond. rel. to temp. 50°-150°K 3=10446
 phenothiazine oxidation products, e.s.r. 1=16905
 phenothiazine peroxide (quinone), e.s.r. d.f.s., 0=17774
 phenothiazine perchlorate (semiquinone), e.s.r. h.f.s. 0=17774
 phenoxy benzenes, vacuum pump fluids 0=16740
 phenoxy radical in nitrogen matrix, photolysis, 4.2°K 3=2403
 phenyl acetate, nuclear spin-lattice relax. meas. 3=33912
 phenylacetylenes, intensities of C≡C and C=C-H bands 3=10637
 phenyl alcohols, dielec. relaxation, -60 to -20°C 1=9405
 phenyl derivatives, with internal electron transfer, e.s.r. 4=1303
 phenyl ether, microwave relax. 2=6726
 phenyl isocyanate-diethylamine mixtures, nuclear magnetic relaxation 0=16711
 phenyl salicylate liquid state, u.s. velocity and compressibility 1=16406
 phenyl salicylate, u.s. velocity 0=10659
 phenyl salicylate, u.s. velocity rel. to molecular parameters 1=16406
 l-phenylalanine hydrochloride 4=10660
 N-phenylbenzylamine crystals, phase-changes, first-order, study using positron annihilation 4=23500
 phenylpyreneoxazine scintillator, neutron detect. efficiency 3=2276
 m-phenylenediamine absorpt. and luminesc. spectra 0=14749
 p-phenylenediamine-chloranil complex, semiconducting properties 0=16621
 p-phenylenediamine, electronic structure calc. 1=6115
 n-phenylenediamine, Raman spectra and phase changes 0=5946
 l-phenylhydantoin, crystal study 4=4346
 phenylpropionic acid and derivs., spectra, C=C, C=O bands 4=26714
 pheophytin a, monomolecular films 4=3447
 pheophytin absorption and luminesc. spectra of solutions 0=16640
 pheophytin, absorption spectrum and polarization of fluorescence 1=5065
 phosphorescence, anti-Stokes 1=6036
 phosphors, activated with fluorescein, tryptamine, auramine, n-phosphorescence 3=1663
 phosphors, energy transport 0=1570
 phosphors, phosphorescence quenching, -163° to -140°C 4=1683
 phosphors, in scintillation counting 1=7179
 phosphors, triplet states, e.s.r. invest. 3=5065
 photochemical formation, in simple gas mixtures 3=1615
 photoconductivity, hole mobility in molecular crystals 4=3686
 photoconductivity of polymer films 1μ thick 3=25420
 photofluorescence, decay times and quantum efficiencies 2=720

Organic compounds—contd

- phthalic acid, in alums, phosphorescence, -183° to $+125^{\circ}\text{C}$ 3=23116
 phthalic acid, powder, reflection spectra, rel. to absorbed layer 3=23062
 phthalimide-activated boron phosphors, transitions to meta-stable states 1=14643
 phthalimide cpds., limiting polarization rel. to electronic transition frequency 3=2635
 phthalimide derivatives, dipole moments in first excited singlet state 3=20010
 phthalimide derivatives, radiationless transitions, potential barrier 4=1284
 phthalimide derivatives, solid sol., polarization of fluorescence 0=10054
 phthalimide derivs., first and second excited states 3=4739
 phthalimide derivs. in liq. soln. spectra rel. to molec. interacts. 2=18472
 phthalimide mixed with light gas, intermolec. interact. rel. to temp. 2=16567
 phthalimide, spectrum, u.v., in alkaline solns 4=9759
 phthalimides, in different solvents, luminescence 2=17474
 phthalimides, electronic spectra 2=14291
 phthalimides, polarization of fluorescence 2=57
 phthalocyanine, charge carrier diffusivity 1=11307
 phthalocyanine, α and β , photoconductivity 4=1891
 phthalocyanine, carrier transport, applicability of band model 3=22680
 phthalocyanine complexes, spectra and photoconduction 2=18751
 phthalocyanine, conductivity rel. to phase transformations 3=10873
 phthalocyanine crystals, photoconductivity 3=23019
 phthalocyanine crystals, spectra, absorpt., polarization 3=20495-6
 phthalocyanine dyes, e.p.r., impurity $g = 2$ lines 3=20653
 phthalocyanine, effect of 60 kV electrons on crystals 1=2400
 phthalocyanine, elec. cond. of α and β forms, 10^5 ratio 1=14393
 phthalocyanine, elec. conductivity at high freq. and press. 4=26067
 phthalocyanine, frozen crystalline solution, emission and absorption spectra 4=7163
 phthalocyanine, mechanism of photoconductivity 0=6144-5
 phthalocyanine and metal derivs., electron diffraction lattice image problem 4=23508
 phthalocyanine, metal-free crystals, bulk currents 3=8528
 phthalocyanine, metal-free, elec. and thermoelec. props. 4=12923
 phthalocyanine, metal-free, Hall effect meas. 2=16730
 phthalocyanine, optical absorption of metal-free crystals 3=10971
 phthalocyanine, optical and photoelec. props. 2=16825, 18829
 phthalocyanine, photocond., rel. to temp. 2=21197
 phthalocyanine, photoconductivity of metal-free crystals 3=10890
 phthalocyanine with uranyl complex, luminescence 3=20534
 phthalocyanines, absorption and fluorescence spectra 1=7707
 phthalocyanines, absorption and fluorescence spectra 1=11361
 phthalocyanines, absorption spectra 3=18013
 phthalocyanines, e. s. r. rel. to semiconducting props. 4=10335
 phthalocyanines, pressure effect on optical absorption 1=17889
 phthalocyanines, rectification props. 3=17916
 phthalocyanines, evaporated films, photoconductivity kinetics 0=20936
 phthalocyanines, rectifiers 4=20394
 phyllochlorine ester, crystal struct. 0=4617
 π -electron crystals, rapid triplet excitn. migration 3=3058
 4-picoline, N^{14} n.g.r. 2=14861
 2-picoline N-oxide, photolysis 2=15156
 4-picoline, nuc. quadrupole coupling 3=2656
 4-picoline, nuclear quadrupole resonance 1=12575
 β -picoline-water, non-stratifying system, anomalous light scatt. 4=24216
 β -picoline-water, non-stratifying system, scatt. indicatrices 4=24215
 β -picoline-water solns., conc. fluctuations, light scatt. study 3=21365

Organic compounds—contd

- picryl-N-aminocarbazyl 4=28884
 picryl-N-amino-carbazyl, e.s.r. linewidth rel. to temp. 2=10703
 picryl-n-amino carbazyl, exchange-ordering and forbidden spin resonance transitions 1=11483
 picryl amino carbazyl, free radicals, magnetic transitions 1=17364
 picryl amino carbazyl, n.m.r. Overhauser effect 1=17358
 pigments, mixture data 0=14857
 pinacryptol, films on Ni, photoelec. emission 0=19718
 pinacyanol, films on Ni, photoelec. emission 0=19718
 pinacyanol, films, photocond., surface recomb. 1=3783
 pinacyanol, photoconductivity 0=1684
 piperidine hydrochloride, crystal structure 0=6366
 in planetary atmospheres 2=17259
 plastic crystals, crystallographic transition, thermal 2=10901
 plastic scintill., scintillation light yield for α and β -rays 4=13093
 plastic scintillator with anthracene derivatives, photoluminescent characteristics 0=9235
 plastic scintillator solns, efficiency and spectra 4=16735
 plastic scintillators, effect of solvent and solute structure on pulse heights 1=6236
 plastic sheets, u. s. absorpt. 4=2787
 polar liquids, permittivity, temp. depend. 1=8133
 polar molecules in non-polar solvents, relaxation times 0=5009
 polar soln. mixtures, mol. interactions, from dielectric const. and refractive index 4=10637
 polyacene mono- and dinegative ions, electronic transitions 4=20093
 polyacenes, electronic structure, self-consistent field calc. 4=15375
 polyacenes, triplet-singlet transits., polariz. 2=20857
 polyacrylonitrile-AgNO₃ complex, i. r. spectra 4=12509
 poly-DL-alanine, proton magnetic resonance, 250°K , rel. to side-chain reaction 4=3913
 poly-DL-alanine, 250°K , rel. to side-chain reaction 4=3913
 polyalcohols, r.f. absorption spectra 1=2768
 polyatomic molecules in solutions, electronic spectra 2=14294
 polyazine anion radicals, e.s.r. meas. 4=1304
 polycarbonate resins, dielec. props., α -, β - and γ -absorption peaks meas. and origin 4=30648
 polycarboxylic acid, hydration-dehydration 1=15865
 polycyclic aromatic hydrocarbons, bond order calculations 1=7480
 polyene compounds, resonance Raman effect 0=2175
 polyene, Raman spectra 0=9816-17
 polyenes, cyclic, bond alternation 2=8121
 polyethylene, crystallization kinetics, influence of prep. 1=20423
 polyethylene, evaporation, mass spectrometric study 1=13025
 polyethylene, extension of Eyring-Ree theory of flow 1=18367
 polyethylene single crystals, recryst. rate in hot liqs. 1=20424
 polyethylene, use in megarad dosimetry 1=4837
 polyglycine ($N^{14} \rightarrow N^{15}$), vibrational freq. shifts, isotope effects 4=23213
 polymers, long chain, crystals, new habit features 1=7841
 polymethyl methacrylate, β -relaxation, stress relax. and creep, activation energies, theory 4=28922
 polymethylmethacrylate, crack growth, kinetics 1=20387
 polymethyl methacrylate plates, rel. to electron beam ($> 1 \text{ MeV}$) meas. 4=29975
 polynitroalkanes, vibrational spectra, analysis 4=9760
 polynucleotides, energy band structure calc. in Hückel approx. 4=20140
 polypeptides, synthetic, solid, dielectric studies 4=12966
 polyphenols, excess electron and hole band structures 4=1430
 polyphenyl acetylenes, effect of molec. wt. on luminescence 0=20995
 polyphenyl ethers, as vacuum pump fluids 0=16740
 polyphenyls, bond orders, mobile, calc. using SCF-LCAO-MO theory 4=22413
 polyphenyls, reactor coolants, nucleate boiling 0=13359
 polyphenyls, frozen cryst. solns., absorpt. and emission spectra 4=10205

Organic compounds—contd

- poly (4-vinyl pyridine), quaternization with n-butyl bromide, steric hindrance 4=7741
 polysiloxanes, isoviscous, various props. 2=11350
 polysiloxanes, and mutual solns., u.s. vel. and compressibility 1=15872
 polysiloxanes, viscosity, density, u.s. vel., compress. 2=11351
 polystyrene, isotactic, characteristic bands in i.r. spectrum 1=17902
 polystyrene, optical properties, orientation functions 1=10093
 polystyrene, solution in benzene, u.s. absorption 1=6938
 polystyrol, crack growth, kinetics 1=20387
 polyvinyl chloride, dynamic mechanical props. during gelation 1=18349
 polyvinyl chloride, e.s.r. 1=20200
 polyvinylalcohol, irradiated, paramagnetic resonance spectra 1=20226
 polyvinylalcohol-rhoduline orange, luminescence 1=14647
 porphyrin complexes, Kuhn electron gas model, ring form 0=9814
 porphyrin, absorption spectrum and polarization of fluorescence 1=5053
 porphyrin charge-transfer complexes with sym-trinitrobenzene 3=2651
 porphyrin cpds., limiting polarization rel. to electronic transition frequency 3=2635
 porphyrins, fluorescence polarization 3=2650
 porphyrins, luminescence 0=10064
 porphyrins, luminescence 3=9467
 porphyrins, molec. symmetry and fluoresc. polarization 0=9829
 porphyrins, nuclear magnetic resonance 0=4222
 porphyrins, spectroscopy 3=25129
 potassium ethyl sulphate, rotativity 1=12880
 powders mixed with naphthalene, Raman spectra 4=26170
 product of N₂-chlorinated hydrocarbon reaction, light emission 1=20731
 L-proline monohydrate, cell size and space group 0=3250
 propane, absorption of slowed-down π^- , data analysis 4=19568
 propane, adsorption on Hg surface 2=1126
 propane-air flame, sparking potential 4=16454
 propane-argon mixtures, electron cascades 0=7248
 propane, breakdown, between plane electrodes, rel. to press. 3=4091
 propane, bubble chamber appl., bubble density 2=248-9
 propane-d₂, vapour-phase radiolysis 2=19166
 propane-d₈, radiolysis 3=18457
 propane, dependence of mass spectrum on electron voltage 1=3575
 propane, dissociative charge exchange with rare-gas ions 4=3920
 propane, flames, recombination of ions 1=11914
 propane, fragmentation by electron impact 2=2030
 propane, γ -radiolysis 0=16387
 propane, γ -radiolysis, effect of elec. fields 4=29233
 propane, gas-phase radiolysis 2=17097
 propane gas, slow-neutron scatt. 2=3764
 propane, in H₂ and N₂, detection by thermal cond. 0=16402
 propane, ion dissociation cross-sects., for Ne atom collisions 4=28274
 propane, ionization by electron impact 2=13533
 propane, ions formed at different temperatures 1=9525
 propane, mass spectrum 0=3741
 propane, mass-spectrum, fragment ions, initial energy 2=9655
 propane, mixtures with H₂, potential parameters, from viscosity 1=14122
 propane, molecular yields in radiolysis 0=16385
 propane, neutral decomposition products, mass-spectra analysis 1=9963
 propane-O₂-N₂ mixtures, speed of detonation 3=3395
 propane, oxygen explosions, within gas boundary 2=4542
 propane, photocond. and photoionization 4=27189
 propane, proton magnetic resonance 0=4227
 propane, proton resonance spectra 4=30073
 propane, radiolysis, inhibition of Ar-sensitizing by H 3=8977
 propane, radiolysis, rare-gas sensitized 3=3409

Organic compounds—contd

- propane, ranges of protons and mesons 1=19201
 1-C¹³-propane, reaction with H atoms 3=20989
 propane, reactions with Hg(¹⁹⁹Pt), D isotope effect 3=8973
 propane, 24 litre bubble chamber 0=3898
 propane, vac. u.v. photolysis 2=23969
 propane vapour, u.v. absorption and ionization cross-sections, 9-25 eV 3=1932
 propanol, diffusion of polybutylmethacrylate 0=14636
 n-propanol mol., dissociation and mass-spectra 4=6652
 propanol, Rayleigh scattering depolarization factor meas. 0=19450
 n-propanol, self-diffusion at 25°C 0=14632
 1-propanol-2-methylpentane, dielec. relaxation 3=23898
 propargyl bromide, second-order quadrupole effect in r.f. spectrum 0=2744
 propargyl halides, force consts. and normal vibrations 4=25716
 propene, thermodynamic props. 0=1064
 propionaldehyde, microwave spectrum 4=17308
 propionic acid, n.m.r. study of structure 0=18231
 propionic acid, r.f. absorption spectra, dielectric constant 1=12804
 propionitrile, thermal props. 2=5222
 n-propyl alcohol, acoustic streaming, viscosity ratio 0=6880
 n-propyl alcohol-glycerol, u.h.f. dielec. props. 1=1751
 n-propyl alcohol, Raman spectra 2=8099
 n-propyl alcohol, sound velocity meas. 4=8206
 n-propyl, of Cd, Sn, Hg, Pb, n.m.r., 25 Mc/s satellite line analysis 3=22598
 n-propyl chloride, microwave spectrum, 2 rotational isomers 3=25130
 propyl fluoride, rotational isomerism and microwave spectrum 2=18473
 9, 10-di-n-propylanthracene, fluorescence and photo-oxidation quenching 2=721
 propylene-argon system, liq.-vapour equil. 4=11410
 propylene, incandescent reaction with Nb 3=13605
 propylene-iodine system, thermodynamics 2=17080
 propylene oxide, heat capacity, at low temp., and rel. thermodynamic functions 4=22496
 propylene, photoionization and vac. u.v. absorption 2=6178
 propylene, r_g structure, bond lengths 1=17371
 propylene, reaction with HI 2=21582
 propylene, sulphide microwave spectrum 3=20009
 propylene sulphide, n.m.r. spectrum 2=18486
 propylene vapour, u.v. absorption and ionization cross-sections, 9-25 eV 3=1932
 4, 4-di-n-propyloxy-azoxybenzyl, dielectric dispersion 2=7226
 propynal, vibration and rotation 2=539
 propyne, absorption and photoionization coeffs., 1050-2000 Å 4=8616
 propyne, Hg-photosensitized decomp. 4=4708
 proto naphthalene in durene and biphenyl, triplet state e.s.r. 3=1181
 protoporphyrin, absorption and fluorescence spectra 1=7707
 protoporphyrin, absorption and fluorescence spectra 1=11361
 pseudo-ferromagnetism 2=14766, 16896
 pump oil, effect on ZnS film adhesion to glass and silica 0=14087
 purification by zone refining 0=6329
 purines, single crystals, polarized absorption spectra 3=25131
 purity determinations using adiabatic calorimeter 0=16924
 pyracene, e.s.r., 2nd order splitting and coupling const. 2=20861
 pyracene ions, e.s.r., h.f.s., hyperconjugation mechanism 3=22591
 pyrazine, e.s.r., N¹⁴ h.f.s. 3=8295
 pyrazine, elec. dipole nature of 3700 band 4=20092
 pyrazine, in hydrocarbon and EPA glasses, solvent effects on n → π^* transitions 0=15742
 pyrazine, ions, spin density from e.s.r. spectrum 2=3777
 pyrazine, ions, spin density and hyperfine coupling 2=22995

Organic compounds—contd

pyrazine, $n \rightarrow \pi^*$ transitions, excitation transfer splitting 1=12292
 pyrazine, single-triplet transitions, role of ground state 3=8245
 pyrazine, spectrum, ground-triplet transitions and mixing 3=22588
 pyrazine, vibr. freqs. rel. to spectrum 4=22411
 pyrene anion, e.s.r. spectra 3=8310
 pyrene, in boric acid glasses, photo-ionization by u.v. 0=21290
 pyrene, cryst. and liq., electronic transport 2=23256
 pyrene, delayed fluorescence 3=13212
 pyrene, derivs. in frozen solns., luminescence 2=18871
 pyrene in ethanol, luminescence, delayed and normal, spectra 3=14174
 pyrene, fluorescence and absorpt. spectra at 20° and 4°K 4=10235
 pyrene, fluoresc. in micelle soln. 4=14176
 pyrene, ionization-dissociation processes caused by electron impact 4=28248
 pyrene, luminescence, in isopentane, 77°K, delayed, and excimers 4=10234
 pyrene, luminescence, two-photon, laser excitation 3=11002
 pyrene monocrystals, polarized light absorption, 20°K 1=11384
 pyrene-perylene, fluorescence 2=8584
 pyrene, polarization of first two electronic transitions 0=15755
 pyrene, polymerization of styrene 0=8317
 pyrene in solid hydrocarbons, fluorescence 1=10127
 pyrene solid molecular complexes, photo-conductivity 4=7079
 pyrene, in soln., excimer fluorescence 2=11376
 pyrene, soln. in solid pentane, luminescence spectra 1=17917
 pyrene, solutions, spectra, changes on addition of ferric acetylacetonate 3=15359
 pyrene, spectra, 4000-400 cm^{-1} 3=25468
 pyrene, spectrum, in fluorene lattice, and polarization of first two singlet states 4=22410
 pyrene-tetracyanoethylene complex, polarized absorption spectrum 4=22909
 pyrene, two-photon capture cross-sections, SCF-MO calc. 4=28250
 pyrene in 2,3 and 2,6 dimethyl naphthalene, fluorescence 3=18042
 pyridazine, i.r. spectra, solvent shift 1=8123
 pyridazine, $n \rightarrow \pi^*$ transitions, excitation transfer splitting 1=12292
 pyridazine, single-triplet transitions, role of ground state 3=8245
 2-pyridenes, proton n.m.r., strong coupled AA'KL system 3=4780
 pyridine, acoustic and mech. props. 2=15586
 pyridine, adsorption by Ge surfaces 0=12115
 pyridine derivatives, n.m.r. chemical shift measurements 1=12903
 pyridine and deuteropyridines, vibr. spectra, calc. and interpretation 4=9761
 pyridine, and deuterioisomers, coordinates of planar vibrations 3=8293
 pyridine in diff. solvents, Raman spectra 0=942
 pyridine, effect on fluorescence of acetylanthracene in hexane 1=9400
 pyridine, electronic structure calc., Pariser-Parr approx. validity 4=15323
 pyridine, FEMO calculations 1=9936
 pyridine, frozen, X-ray anal. 0=6370
 pyridine, i.r. absorption bands, widths and profile 0=20614
 pyridine, ionization potentials from Rydberg series observations 1=7478
 pyridine-Mn halogenated complexes, fluorescence 0=16088
 pyridine, N-H stretching and deformation freqs. 2=7219
 pyridine, N¹⁴ n.q.r. 2=3687, 14861
 pyridine N-oxide, photolysis 2=15156
 pyridine, nuc. quadrupolar coupling 3=2656
 pyridine, π -electron suscept., calc. 2=6215
 3-pyridine, proton magnetic resonance 2=2023
 pyridine, pyrrole, and other N cpds., N electro-negativity parameter, LCAO calc. 0=20682

Organic compounds—contd

pyridine, single-triplet transitions, role of ground state 3=8245
 pyridine, spectral symmetry, 1500-2000A 2=6176
 pyridine, spectrum, ground-triplet transitions and mixing 3=22588
 pyridine type mols. complexed with paramag. Ni(II) and Co(II) acetylacetonates, n.m.r. 3=25144
 pyridine, u.s. dispersion, molecular structure 3=21354
 pyridine, u.v. absorption spectra 0=6804
 pyridines, dipole moments 0=5985-6
 N-3-pyridylsydrone, photochromism 2=2452
 pyrimidine, crystal and molec. structure 0=8230
 pyrimidine, FEMO calculations 1=9936
 pyrimidine, $n \rightarrow \pi^*$ transitions, excitation transfer splitting 1=12292
 pyrimidine, spectral symmetry reduction, 1500-2000A 2=6176
 pyrimidines, single crystals, polarized absorption spectra 3=25131
 pyrocarbons, e.s.r. 3=13305
 pyrrol, thermodynamic functions calc. from spectroscopic data 0=13433
 pyrrole, electronic structure calc., Pariser-Parr approx. validity 4=15323
 pyrrole, improved LCAO method 3=4774
 pyrrole, proton resonance spectra analysis 2=6220
 p-quaterphenyl, elect. conduct., space-charge-limited 2=2130
 quaterphenyl, fluoresc. by α -rays, polarization 4=20503
 p-quaterphenyl, prep. of thin single crystals 2=4386
 quaterphenyl in scintillation chamber 3=4296
 p-quaterphenyls, as scintillators, u.v. props. 0=16710
 quinhdrone, intermolecular forces, nature 1=14089
 quinidine salts, luminescence and ionization 0=6198
 quinine bisulphate, fluoresc. quantum efficiency 1=15890
 quinine and quinidine, optical rotation, effect of irradiation by 2 MeV electrons 1=11355
 quinine salts, luminescence and ionization 0=6198
 quinine sulphate, electron emission -100° to 300° C 1=18915
 quinine sulphate, fluorescence decay time measurement 1=11834
 quinine sulphate, light scattering by fluorescence 1=5282
 quinine sulphate solutions, light scattering 1=145
 quinizarin, radical, anion, e.s.r. and H-bond 3=17610
 β -quinol clathrate with occluded CO, thermodynamics and hindered rotation 4=15376
 β -quinol clathrate, paramag. res. trapped O₂ 1=19664
 β -quinol clathrate, quadrupole resonance of trapped N₂⁴ 0=11961
 quinol clathrate, trapped Kr⁸⁵ as β source 0=4051
 β -quinol clathrates of N₂, CO and CH₄, N₂, CO, CH₄ motion, 15-100°K 3=8284
 quinoline, acoustic and mech. props. 2=15586
 quinoline phosphomolybdate, decomposition, thermogravimetric anal. 0=14574
 quinoline solns., absorption and phosphorescence spectra 0=5949
 quinoline, u.s. dispersion, molecular structure 3=21354
 quinonemethide, molecules, apparent asymmetry, by n.m.r. 3=20003
 quinones, effect of pressure on resistance 2=18701
 quinoxaline, phosphorescent state, e.s.r. study 4=7335
 quinoxaline solns., absorption and phosphorescence spectra 0=5949
 RDX, explosion growth 1=11620
 radicals, bond dissociation energy rel. to ionization potential 4=9777
 radicals, bond dissociation energy rel. to (ionization potential-electron affinity) 4=9777
 radicals by h.f. discharge in aromatic vapours, absorption and fluorescence spectra 0=6199
 radicals, in liquids, spin-lattice relax. 2=60
 radicals, in liquids, spin-lattice relaxation 3=3817
 radiolysis, inhibition 2=4558, 8927
 Raman effect relationship with elect. band spectra 0=4209
 Raman resonance effect, 73 substances 0=2175
 Raman spectra of C = O, C \equiv N and C \equiv C groups 2=15596-7
 Raman spectra, conjugation effects on intensity 1=14032
 Raman spectra, crystalline powders, compared with solutions 3=6650

Organic compounds—contd

- rare earth ($\text{C}_2\text{H}_3\text{SO}_4$), $\cdot 9\text{H}_2\text{O}$, paramag. relax., low temp. var. 4=17677
 rare earth org. chelates, in solution, 77°K, nonexponential decay of luminescence 4=28754
 refractivities of covalent bonds 1=14075
 resins, ion-exchange, pore size 2=8873
 resins, synthetic, non coincidence of optical and mechanical singularities 4=26461
 resorcin-gelatin, interfacial tension 0=14614
 resorcinol, elec. and elastic props. 0=633
 L-rhamnose monohydrate, growing, dielec., piezoelec. and elastic props. 0=13650
 rhodamine B in glycerin, concentration-depolarization of fluorescence 0=4423
 rhodamine B, decoloration by pH changes 3=23536
 rhodamine B, photoluminescence quenching 1=12886
 rhodamine B in Plexiglas, fluorescence polarization 1=7723
 rhodamine B, sensitized fluorescence 1=2763
 rhodamine B and 6G in glycerine and polymethyl methacrylate, reflection symmetry 2=19566
 rhodamine B, 6G, in polymethyl methacrylate, fluorescence polarization 3=15713
 rhodamine B solns., quenching of sensitized fluorescence 1=4350
 rhodamine B, spectrum, influence of solvent mixture of MAM or ethanol 3=21378
 rhodamine B and 6G, spectra of solns., in mono- and PMMA 2=9281
 rhodamine B solns., fluorescence quenching 2=9283
 rhodamine B and uranin, anti-Stokes excitation of fluorescence 0=88
 rhodamine dye, luminescence, active and nonactive absorption separation 3=18822
 rhodamine 6G in aniline, optical consts. meas. in strong absorpt. region, use of layers 4=8208
 rhodamine, solutions in glycerine, depolarization of fluorescence 1=9397
 riboflavin, absorption spectra change on addition of amino-acids 3=8954
 riboflavin, interaction with amino-acids 3=8954
 Rochelle salt, dielec. const. at 10 Gc/s rel. to temp. 4=26127
 Rochelle salt, ferroelec. crystal structure, radiation effects 4=7050
 rod-like mols., sedimentation in ultracentrifuge 3=11361
 rosin, dielec. props 0=6153
 rosin, dielectric properties at 8.7 mm 0=18090
 rosin, vitrification under high press. and temp. 0=12060-1
 ruthenocene- Ru^{103} synthesis by ferrocene + U fission 1=20736
 S-containing cyclic cpds., molecular structure 1=14115
 saccharose, X-irrad., paramag. centre prodn. and decay 2=12823
 salicylaldehyde-ethylenediimine copper (II) complex, crystal spectra 1=11373
 salicylic acid, molec. vibr., X-ray meas. 4=30511
 salicylidene aniline crystals, piezoelectricity 4=22781
 salol, crystal growth from melt, mechanism 4=26605
 salol, supercooled liquid, u.s. velocity discontinuity at melting point 1=12876
 salol, u.s. propagation constants 0=10723
 salol, u.s. velocity, normal and super-cooled, temp. depend. 0=6789
 sarcosine hydrochloride, and ester, protolysis kinetics 2=17083
 saturated hydrocarbons, indirect nuclear spin-spin couplings 1=7491
 saturated hydrocarbons, photolysis, theory 4=29230
 saturated hydrocarbons, proton-transfer reactions with H_3^+ 4=23622
 saturated ring ketones, carbonyl stretching vibrations 1=14009
 scintillation process, in crystals and solutions 1=2459
 scintillation process, energy origins 1=2460
 scintillation in pure crystals, theory 4=26232
 for scintillation counters, new 4=3240
 scintillators, liquid, quenching kinetics 2=15667
 scintillators, luminescence time meas. 4=14961
 scintillators, mode of action, theory 0=13702
 scintillators, monocryst., anisotropy rel. to α -rays 2=726

Organic compounds—contd

- scintillators, 1-12 keV electron response, meas. and energy depend. 1=1185
 sec-butyl acetate, photolysis 2=23968
 sec-butyl radicals, collisional energy transfer with molecules 3=12879
 sec-butyl radicals, collisional energy transfer in rare gases 3=12878
 sec-butyl radicals, produced by chem. activation 3=8965
 Sec-butyl radicals, vibr. deactivation 4=3929
 sec-butyl systems, D substituted, chemically activated, isotope effects, secondary 4=22432
 sec-butyl-d, radicals, vibrationally excited, collisional deactivation 0=17739
 sec-propyl ions, hydride and proton transfer 4=13712
 seedlac, dielectric properties at 8.7 mm 0=18090
 semiconducting, photoelectric emission 4=574
 semiconductivity 1=7654
 semiconductivity 1=7655
 semiconductor dyes, dark elec. cond. and long-wave absorption 0=13619
 semiconductors, conference, Chicago (1961) 4=22727
 semiconductors, elec. cond. cell for cond.: temp. meas. 4=28577
 semiconductors, electron mobilities, calc. from band and hopping models 4=15445
 semiconductors, impurity effects, theory 4=26066
 semiconductors, management appraisal 4=26061
 semiconductors, narrow-band, transport coeffs. 4=12920
 semiconductors, resistivities of 30 complexes 0=15969
 semiquinone radicals, g -values, structure depend. 1=14090
 semiquinone solutions, dynamic nuclear polarization 3=23908
 semiquinone-type molecular complexes, semiconductivity 1=7655
 semiquinones, in aprotic solvents, e.s.r. 2=17486
 semiquinones, C^{13} e.s.r. hyperfine interactions 3=22589
 semiquinones, C^{13} hyperfine splitting in e.s.r. spectrum 1=19663
 serum albumin, elec. props. 0=15970
 shellacs, dielec. props. meas. at 3 cm and 8 mm 4=26110
 short-lived transients in radiation chemistry 0=16383
 silica gel, small- and intermediate-angle X-ray scatt. 2=6862
 silicone dielectrics, γ -irradiated 0=2173
 silicone, dimethylpolysiloxamic, elastic rebound of steel balls 4=147
 silicone, liquid scintillant 0=5032
 silicone oil films, 350-5000 Å, insulation 3=21388
 silicone oils, X-ray induced elec. cond. 4=29640
 silicone, rolling friction 0=4572
 silicone, vacuum apparatus, contaminant 3=14229
 silicone varnish films, elec. cond. equilibrium approach 4=20413
 silicones, proton magnetic resonance 0=5998
 siloxanes, density and short-range coordination 2=21893
 siloxanes, liquid, surface tension and intermolec. interaction 2=23016
 siloxanes, 2-component solns., density 2=21906
 silyl acetylene, microwave spectrum and structure 3=25132
 soap films, damping of oscillatory motion 1=4318
 soap films, scattering, light, due to thermal corrugations, interfacial correlation effects 4=11171
 soap solutions, elasticity and surface tension of films 1=15828
 soaps, film formation and rupture 0=931
 soaps and resins, effect on elec. breakdown of liquids 1=15898
 sodium acrylate, polymerisation, crystal shapes 4=15842
 sodium lauryl sulphate, monolayers, viscosity studies 1=15782
 sodium salicylate, films, u. v. fluorescence, thickness depend. 4=29756
 sodium salicylate, layers, preparation method 4=13675
 sodium salicylate, fatigue effects on luminescent yield 4=20506
 sodium salicylate, luminescence, u.v. 4=22932
 solid solutions, solubility, structure 1=14934
 solids containing methyl groups, proton resonance, methyl group reorientation 1=10197
 solids, irradiated, dissolution in dosimetric liqs. obs. 1=20760
 solids, irradiated, luminescence in fluorescent liqs. 1=18415

Organic compounds—contd

solids, irradiated, photoluminescence excitation spectra, 77°K 4=1416
 solids, u.s. velocity 1=6857
 solution charge-transfer complexes, microwave relax. and structure 4=2699
 solutions, aq., dielec. const., temp. and conc. depend., calc. 0=3528
 solutions in CS₂, dilute, dielectric constants and loss factors, -30° to 20°C, rel. to relaxation 4=198
 solutions, energy transfer, solute-solute 1=8401
 solutions, energy transfer, spectral effects 1=9402
 solutions, fluorescence depolarization, by Brownian motion and molec. vibr. 1=2760
 solutions, intermolecular free lengths 4=18195
 solutions, luminescence and Cherenkov radiation, X- and γ -ray excited 0=19158
 solutions, luminescence quenching, "sphere of influence" 1=18416
 solutions, luminescence quenching, "sphere of influence" 2=1155
 solutions, luminescence, u.v., ionizing rad. excited, quenching 4=24221
 solutions, luminescent, for scintillators, non-radiative transfer 3=10001
 solutions, phosphorescence duration, at -196°C 1=3866
 solutions, resonance fluorescence, diffusion theory 0=53
 specific heat and enthalpy, 8 subst., 1-300°K 1=910
 spectra, electro-optical parameter theory, H-D isotope effects 3=25114
 spectra, quasilinear, obtained at low temp. and in paraffin solid solutions 3=18012
 spectra, triplet state absorption in solutions 4=8214
 spindle oil soln., viscosity study 0=916
 spiropyran, photo-isomerization to merocyanine 1=10297
 squalene, radiolysis 0=6417
 stannohydrocarbons, ene-yne, vibration 2=16547
 starch-iodine complex, metallic nature 1=19670
 starch-iodine complex, model, (HI₃·2C₆H₅CONH₂), crystal structure 4=13619
 stearic acid adsorbed on stressed metal surfaces, birefringence 3=4962
 stearic acid, adsorption by mica, Fe, Cu, Au 3=8931
 stearic acid, B- and C-forms, thermal expansion, X-ray study 0=18368
 stearic acid, molecular motion in film separating sliding steel surfaces 1=1354
 stearic acid, monolayer orientation on Ag crystal 0=10372
 stearic acid monolayers, effect of benzene and hexane spreading solvents 0=10371
 stearic acid, oleophobic monolayers on mica 0=1947
 stearic acid-palmitic acid binary system, structure 0=18369
 stearic acid u.s. velocity 0=10659
 stearic acid, X-ray temp. diffuse scattering 1=9969
 stearyl alcohol films coating water surfaces, evaporation 0=16922
 steatites, dielectric properties at 3.15 cm and 8.7 mm 0=18090
 stilbene, α -irrad., scintillation light yield 1=5057
 stilbene, cis, luminescence, u.v. excited 4=10236
 stilbene crystals, α -particles and protons, space charge discrimination 4=9323
 stilbene and derivs., absorpt. and fluoresc. spectra 3=735
 stilbene, for fast neutron spectrometry 4=6084
 stilbene, fluoresc. by α -rays, polarization 4=20503
 stilbene, frozen cryst. solns., absorpt. and emission spectra 4=10205
 stilbene, γ -scintillation luminescence yield 0=4451
 stilbene, i.r. dispersion and absorption 1=11382
 stilbene, luminescence excited by α -particles, intensity of slowly decaying component 1=6238
 stilbene, luminescence, particle discrimination 2=22360
 stilbene, luminescence polarization 0=656
 stilbene, luminescence polarization, under β -ray excitation 1=20025
 stilbene, luminescence polarization, rel. to excitation-energy migration 3=11000
 stilbene, luminescence at 20°K 0=4450
 stilbene, molecular vibr., from spectrum, in CCl₄ 4=12510
 stilbene, as neutron detector 3=4411
 stilbene, in octane, fluoresc. and absorpt. spectra 2=23609

Organic compounds—contd

stilbene, 1-17 μ absorption, frequencies and intensities 4=15607
 stilbene, optical consts. meas. and calc. 0=4263
 stilbene, particle discrimination rel. to temp. and energy 4=5887
 stilbene, photodepolarization, polarity, in fundamental absorpt. band 3=17908
 stilbene, π -electronic u.v. spectra 3=25133
 stilbene, scintillation crystal as fast neutron spectrometer 0=20161
 stilbene, scintillation light yield for α and β -rays 4=13093
 stilbene scintillator, γ -ray spectrum, in high elec. field 4=10227
 stilbene soln. in n-octane at liq. H₂ temp., absorpt. and luminescence spectra 4=5187
 stilbenequinone, molecules, apparent asymmetry, by n.m.r. 3=20003
 stilbene-tolan crystals, luminescence and absorption, 20°K 1=11376
 stilbene-tolane with naphthacene impurity, absorpt. and luminesc. 2=6568
 strychnine, diamag. susceptibility 1=20052
 styrene, ionic polymerization by γ -irradiation 1=15203
 styrene, n.m.r. of vinyl group, calc. 0=1507
 styrene, nuclear spin-spin coupling of protons 1=2499
 styrene, polymerization, n.m.r. invest 2=4544
 styrene polymerization spectra, with Li, Na, K, in solns. 4=25796
 styrene, Raman spectrum, stimulated, combination lines 4=20094
 styrene, u.s. dispersion, molecular structure 3=21354
 4-styrylstilbene, fluorescence quantum yields 0=16098
 substituted benzaldehyde an ions, rotational, e.s.r. study 3=15373
 substituted cyclobutane anions, e.s.r. 4=25726
 succinic acid, diamagnetic susceptibility 1=14073
 succinic acid, free radicals by irradiation, e.s.r. study 2=3180
 succinic acid, irradiated, e.s.r. hyperfine structure 1=10184
 β -succinic acid, radiation damage 0=13572
 succinic acid, temp. depend. of diamag. anisotropy 4=7213
 succinimide, diamagnetic susceptibility 1=14073
 succinonitrile, dielectric dispersion and relaxation in liquid and solid 0=4385
 succinonitrile, molecular rotational relaxation 1=12898
 succinonitrile, polycryst., rotational transitions meas. 4=1898
 sucrose, crystal growth 2=10788
 sucrose crystal growth 3=8803
 sucrose, e.s.r. of γ -irradiated single crystals 1=20230
 sucrose soln., surface tension, temp. depend. 2=21883
 sucrose, X-irrad., e.s.r. study 2=18946
 sugar-aeridine orange phosphor, transitions to metastable states 1=14643
 sugar-esculin phosphor, transitions to metastable states 1=14643
 sugar solutions, light scattering, turbidity meas. 0=6951
 sugar solutions, mixing with solvent 0=10639
 sugar-tryptaflavine phosphor, transitions to metastable states 1=14643
 sugar, X-irrad., centre prodn. and decay 2=12823
 sulphides, meas. of appearance pot. prod. by electron impact 4=8623
 sulphobenzoic acid, in nonane, phosphorescence spectra, liq. O₂ temp. 2=18877
 sulphur cpds., magnetic susceptibilities 1=1192
 supercooled, dielectric spectra, two dispersion regions 4=14178
 sym-trinitrobenzene, electronic structure and spectrum 4=15361
 sym-trinitrobenzene and related radicals, e.s.r. study 4=30474
 TNT, pressed, detonation vel., charge diam. depend. 1=4099
 TPPAP radical, proton resonance, spin densities 0=17778
 tar, elastic props., meas. under dynamic loading 1=3956
 tartaric acid, Al, electrolysis, luminescence, flash spectra 3=10984
 tartaric acid, optical rotation, effect of irradiation by 2 MeV electrons 1=11355
 tartaric acid, quenching of dye solutions 1=15891

Organic compounds—contd

- terbium ion chelate in vinylic resin matrix, laser action 4=5875
 terephthaldehyde anion, rotational isomerism by ESR spectra 1=17368
 terephthalic acid, convective diffusion, in turbulent flow 0=78
 ternary mixtures, static polarization, association consts. 2=2728
 p-terphenyl in benzene and cyclohexane, luminescence quenching by CCl_4 4=18208
 p-terphenyl, crystal growth 2=4386
 p-terphenyl crystals, luminescence decay times 2=18869
 terphenyl in cyclohexane-benzene, luminescence quenching 1=6867
 terphenyl, effect of adsorption on fluoresc. spectrum 3=8932
 p-terphenyl, electrical conductivity, space-charge-limited 2=2130
 terphenyl, fluoresc. by α -rays, polarization 4=20503
 n-terphenyl, fluorescence quantum yields 0=16098
 terphenyl, σ -, m- and p-, e.s.r. meas. 4=25730
 p-terphenyl, light yield rotation under α -rays 4=13094
 terphenyl, liq. and solid, slow neutron scatt. 2=9854
 p-terphenyl, luminescence in quenching solns. 2=7224
 terphenyl and other phosphors, dissolved in polymers, luminescence 1=14649
 terphenyl, photoelec. fluorescence props., u.v. 3=21865
 p-terphenyl + POPOP, in polystyrene, scintillation efficiency 1=16815
 terphenyl salicylate, films, u. v. fluorescence, thickness depend. 4=29756
 terphenyl, scintill. light yield under deuterons and α -rays 4=26255
 n-terphenyl, scintillation 0=4447
 terphenyl, scintillation light yield for α and β -rays 4=13093
 terphenyl soln. in toluene, energy transfer, spectral effects 1=9402
 terphenyl, solns., in dioxane, radioluminescence quenching 2=14750
 p-terphenyl solns., luminescence and spectra 3=1701
 p-terphenyl, solution in xylene, luminescence 0=14662
 p-terphenyls, as scintillators, u.v. props. 0=16710
 p-terphenyl-tetraphenylbutadiene soln. in toluene, solute-solute energy transfer 1=9401
 p-terphenyl-toluene soln., cathodoluminescence, rise-time charac. 1=2765
 terpine monohydrate crystals, growth, elastic and piezoelectric props. 0=13952
 tert-butyl bromide, decomposition rate, comparative meas. with single-pulse shock tube 4=15838
 tert-butyl chloride decomposition rate, comparative meas. with single-pulse shock tube 4=15838
 tert-butyl cpds, thermal decomposition at high temp. 4=15839
 tetrabromobenzene, molec. structure, X-ray anal. 0=1922
 1,1,2,2 tetrabromoethane, C^{13} n.m.r. 3=22594
 tetracene, bond lengths 3=1341
 tetracene, in boric acid glasses, photo-ionization by u.v. 0=21290
 tetracene, e.p.r. of positive ion 2=18477
 tetracene microcrystals, surface excitons, from visible absorption 1=6090
 tetracene, press. effect on elec. resistance 2=18701
 tetracene-pyrene mixed crystals, emission props. 4=30692
 tetracene, soln. in solid pentane, luminescence spectra 1=17917
 tetrachloroethane, far i.r. absorption 3=24031
 tetrachloroethane, optical constants from i.r. reflection spectrum 1=7698
 tetrachloroketo-naphthalene, crystal struct. 0=4617
 tetrachloromethane sol., diffusion coeff. of polystyrene 0=10654
 tetrachlorosemiquinone, polycrystalline derivs., anisotropic g-factor 4=10334
 tetracyanoethylene complexes, semiconduction and absorption spectra 2=4040
 tetracyanoquinodimethan ion radical salts, e.s.r. 1=9056
 tetracyanoquinodimethan radical ion, high elec. cond. 4=25995
 tetracyanoquinodimethan salts, high elec. conductivity, exchange interaction 1=2402

Organic compounds—contd

- tetracyanoquinodimethan salts, highly conductive solids 4=6912
 tetracyanoquinodimethan salts, mag. props. 4=7223
 tetracyanoquinodimethane ion radical salts, e.s.r. 3=11109
 tetracyanoquinodimethane, pressure effect on properties 4=30602
 tetracyclic hydrocarbons and alkyl-substituted derivatives, spectra and state assignments 3=15360
 tetradecanoic acid coating to suppress neutron total refl. 3=7867
 tetraaduterioallene, Raman and i.r., integrated intensities and polarizations 4=6609
 tetraaduteriomethane, absorp. on carbon black 3=1377
 tetraaduteriomethane, viscothermal and thermal relaxation 4=24271
 tetrafluoroethane, F-F spin-decoupling 2=18482
 tetrafluoroethylene-hexafluoropropylene copolymers, relaxations 2=23903
 tetrafluoromethane, virial coeff., intermolec. potl. 1=15052
 tetrahydrofuran hydrate, Structure II, dielectric absorption 4=22771
 tetrahydrofuran-Na reaction product e.s.r. spectrum 2=10278
 tetrahydrofuran, vac. u.v. absorption spectrum 3=15365
 tetrahydropyran, vac. u.v. absorption spectrum 3=15365
 tetraiodoethylene, magnetic anisotropy meas. 4=7212
 tetrakis-thiourea-nickel chloride, crystal spectrum and magnetism 4=13064
 tetramethyl ammonium chloride, irradiated crystal, e.s.r. 3=8716
 1, 2, 4, 5-tetramethyl benzene, nuclear quadrupole resonance in solid solution 1=20277
 tetramethyl silane, self-diffusion 1=4330
 tetramethylammonium bromide, thermodyn. props. 2=14381
 tetramethylammonium chloride, thermodyn. props. 2=14381
 tetramethylammonium, crystal struct. 4=26682
 tetramethylammonium dichromate, spectrum 3=15671
 tetramethylammonium hydrogen dichloride, thermal props. and bonds 2=14303
 tetramethylammonium mercury tribromide $[\text{N}(\text{CH}_3)_4\text{HgBr}_3]$ crystal structure and ferroelec. props. 3=13488
 tetramethylammonium tetrachlorocobaltate, crystal structure 0=3243
 tetramethylammonium tetrachlorozincate, crystal structure 0=3243
 tetramethylammonium-trichloro-mercurate, switching time 1=3807
 tetramethylammonium-trihalo-mercurates, ferroelec. props. 2=4093
 N, N'-tetramethylbenzidine, positive ion, e.s.r. 2=23000
 tetramethylbenzidine: I_2 , Br_2 , tetranitromethane electrical conductivity 1=17718
 tetramethyl-1, 3-cyclobutane-dione ketyl, e.s.r. 2=18479
 tetramethyl-1, 3-cyclobutanedione, u.v. absorption spectrum 3=17606
 1, 1, 4, 4-tetramethylcyclohexyl-cis-2, 6 diaetate relative signs of geminal and vicinal coupling const. 3=2663
 3, 6-tetramethyldiamino and 3-aminophthalimide, luminescence, gases, liquids, anti-Stokes 4=22415
 3, 3, 6, 6-tetramethyl-1, 2-dioxo-cyclohexane, intramolecular hindering potential 1=17359
 tetramethylparaphenylenediamine 2-methyl pentane, stimulated emission 3=959
 tetramethyl-paraphenylenediamine in 2-methylpentane, u.v. irradi., e.s.r. 3=5041
 tetramethyl-pentamethylene oxide of nitrogen solns., ordinary and supercooled glassy solid, e.s.r. 4=2710
 tetra-n-butyl ammonium fluoride hydrate, structure 4=7655
 tetra-n-butyl ammonium halides, electron irradiation 0=7797
 tetra-n-butyl ammonium iodide in CCl_4 , contact ion pairs, rel. to added methanol 3=13612
 tetra-n-butyl and tetra i-amyl quaternary ammonium salts, hydrates 0=3255
 tetra-n-hexylammonium iodide in carbon tetrachloride, u.v. absorption spectrum 4=184

Organic compounds—contd

n-tetranonacontane ($n\text{-C}_{94}\text{H}_{190}$), crystal growth and habits 3=11236
 tetraphenanthroline dihydroxyl diferric chloride, paramagnetism 1=17934
 1,1,4,4-tetraphenyl-1,3-butadiene, fluorescence quantum yields 0=16098
 tetraphenylbutadiene, photoelec. fluorescence props., u.v. 3=21865
 tetraphenyl-1:3-butadiene + polystyrene solutions, fluorescence, energy transfer mechanism 1=6865
 tetraphenylhydrazine, free radicals, e.s.r. study 1=9951
 tetraphenylporphyrin with Mg and Zn, D_{4h} symmetry structure and limiting polarization 3=2635
 tetravinylsilane, n.m.r. unique parameters calc. 4=3810
 tetravinylsilicon, proton mag. res. spectra 3=2657
 S-tetrazine, fluorescence 2=4186
 s-tetrazine, nature of emission spectra 3=18044
 s-tetrazine, vibr. freqs. rel. to spectrum 4=22411
 tetrolaldehyde, near-u.v. spectrum analysis 2=14290
 thalic acid in NaOH, response to 14 MeV neutrons 4=25118
 thalidomide, spectrum, u.v., in alkaline solns. 4=9759
 thiazine dye crystals, absorption spectra 1=14595-6
 thiazine dye radicals, e.s.r. study 2=23008
 thiazine-iodine complexes, semiconducting and optical props. 4=6995
 thioindigo-chlorobenzene system, molar extinction coeffs., determ. by graphical method 4=16114
 thio-indigo and derivs., free radicals, e.s.r. study 2=16552
 thio-indigo and di-derivs., luminescence 2=17473
 thiolacetic acid, molal thermodynamic props., ideal gas, state, 273-1000°K 3=14210
 thionaphthalene, near u.v. spectra 3=15368
 thionine violet, liquid crystal spectrum 4=24220
 thiophene, acoustic and mech. props. 2=15586
 thiophene in benzene, spectrochem. analysis by i.r. absorption 4=30912
 thiophene, diamag. anisotropy by n.m.r. 2=13698
 thiophene, high-resolution n.m.r. 3=8301
 thiophene, light scatt., orientational interaction and rotation of molecules 4=24162
 thiophene, proton resonance spectra analysis 2=6220
 thiophene, thermodynamic functions calc. from spectroscopic data 0=13433
 thiophene, u.s. dispersion, molecular structure 3=21354
 thiosalicylic acid, monoclinic crystals, twinning 4=29033
 thiourea, adsorption onto Ni electrode 2=4499
 thiourea, crystal structure and ferroelec. props. 2=667
 thiourea, ferroelec. props. 0=2921
 thiourea, ferroelec. props. under high press. 4=26130
 thiourea, ferroelec.-switching time rel. to applied field 2=21213
 thiourea, ferroelec. transits. 2=12566
 thiourea, low-temp. ferroelectric phase, electron diffraction crystallography 3=18330
 thiourea, molal thermodynamic props., ideal gas state, 273-1000°K 3=14210
 thiourea, N^{14} n.q.r. 2=14861
 thiourea, nature of dielectric anomalies 1=2431
 thioxanthone S, S-dioxide, e.s.r. of mononegative ion 3=2655
 36 hydrocarbons, refractivities 0=8777
 thymol, supercooled liquid, u.s. velocity discontinuity at melting point 1=12876
 tin cpds., Sn^{119} 23.8 keV Mössbauer spectra 3=15415
 tobacco mosaic virus, orientation in flow birefringence 1=15875
 tolan, frozen cryst. solns., absorpt. and emission spectra 4=10205
 tolan, i.r. dispersion and absorption 1=11382
 tolan, vapour, soln. and crystals, u.v. absorption, luminescence 1=14056
 tolane, absorption bands, rel. to temp. 2=21243
 tolane-Hg diphenyl, mutual solubility 4=10408
 tolane-Hg diphenyl, mutual solubility in solid state 4=10408
 tolane, i.r. spectrum, freqn. and intensities 3=25469
 tolane, luminescence polarization 0=656
 tolane, as neutron detector 3=4411

Organic compounds—contd

tolane, oscillator strengths from i.r. dispersion data 4=4282
 tolane, photodepolarization, polarity, in fundamental absorpt. band 3=17908
 toluene, adsorption on carbon, enhancement of nuclear polarization 0=16717
 toluene- α , α , α - d_3 , radiolysis, thermal-spike model 4=26762
 toluene anion, e.s.r. 2=2018
 toluene, carried in N_2 , as pyrolytic coating for zone-melting vessels 0=21167
 toluene and chlorobenzene, weak dipolar interaction 2=17455
 toluene, complex refractive index, below 5 mm 0=81
 toluene containing organic scintillators, excitation energy transfer from toluene 4=11202
 toluene, cross stresses in laminar flow 0=10637
 toluene, D-substituted, proton chemical shift 1=12317
 toluene- d_8 , dissoci. by electron impact, preferential H loss 4=20116
 toluene, electroluminescence 4=22938
 toluene, electrostriction 0=934
 toluene, glow discharge in vapour 0=9017
 toluene, i.r. absorpt., temp. depend. 3=8286
 toluene, interfacial phenomena with acetic acid 1=2742-4
 toluene, internal conversion, upper electronic—first excited singlet states 4=1286
 toluene, liquid, molecular motion, by proton relaxation 1=9408
 toluene, methyl and ring protons, n.m. relax. 3=4282
 toluene, neutron moderation, pulsed source 4=25113
 toluene, nuclear spin-lattice relax. meas. 3=23912
 toluene, Raman light intensities, ang. distrib. 4=16118
 toluene, Raman scattering cross-sections 4=17300
 toluene soln., with various aromatic activators, scintillation efficiency 1=4348
 toluene, thermal conductivity, -20° to +112°C 2=2709
 toluene, thermodyn. and mol. props. 2=15822
 toluene, 2.8 MeV electron beam, energy loss 1=18935
 toluene, u.s. absorption in kc/s region 2=9274
 toluene, u.s. absorption and mol. structure 2=13335
 toluene vapour, h.f. resistance 3=9515
 toluene vapour ionization, isotope effect in energy transfer from metastable noble-gas atom 4=29866
 toluenes, halogen-substituted, singlet \rightarrow triplet absorption in near u.v. 1=14053
 p-toluidine crystals, growth and evaporation 0=13956
 toluidene, fluorescence quenching mechanism 2=14745
 toluidenes, Raman and i.r. spectra 2=7219
 p-toluidine, heat of fusion 4=5450
 toluidine, para, crystal structure, atomic 4=13618
 toluidine, rotational mobility, orientational relax., temp. depend. 4=25700
 di-o-tolyl ether, mol. struct., by n.m.r., correction 3=10546
 Tony blue (4,4'-dipyridyl radical) e.s.r. spectrum 2=15619
 trans-butadiene, electronic structure, SCF calc. 1=9935
 trans-butane-2, effect of atomic T irradiation 2=4562
 trans-butene, reaction with H and D atoms 2=21586
 trans-1-chloropropylene, microwave spectra 3=2642
 trans-cinnamic aldehyde, nuclear spin-spin coupling of protons 1=2499
 trans-cinnamic acid, heats of combustion and formation 2=21585
 trans-1,2-dichloroethane, effect of hindered rotation on n.q.r. 4=26457
 trans-dichlorotetrammine Co III, spectrum, tetragonal splittings 4=22399
 trans-hexatriene, secondary Raman effect 4=3899
 trans-hexene-2, effect of atomic T irradiation 2=4562
 trans-stilbene, α -particle scintillation 3=18045
 trans-stilbene, crystals, luminescence decay times 2=18869
 trans-stilbene, hole drift mobility, meas. by photoconductivity method 4=26154
 trans-stilbene, p-monohalogen substituted, luminescence 2=722
 transformer oil, compressibility measurement 1=9365
 transformer oil, conduction current and breakdown rel. to organic additives 4=5203

Organic compounds—contd

- transformer oil, kinetic theory of viscosity 1=8094
transformer oil, potential distrib. between high-voltage electrodes, coating effects 4=21146
transition metal cyano cpds. overlap integral calculation 3=10529
transition-metal pentacyanonitrosyl complexes, optical spectra 2=6570
transition metal porphyrins and phthalocyanines, electronic structure, theory of e.s.r. and mag. susceptibility 1=865
triacetin, velocity of hypersound 1=8183
triacetin, velocity of hypersound 1=10570
trialkylboranes, B¹⁰ pure quadrupole resonance spectra rel. to α C-H bonds 4=6645
triarylborons, molec. configurations, theory 4=12511
1, 3, 5-triaryl-2-pyrazoline, fluorescence, wavelength shifting in scintillators 3=25491
s-triazine, $n \rightarrow \pi^*$ absorption spectrum 1=17322
triazine, symmetrical, potential constants 4=1301
s-triazine and trimethyl-s-triazine, phosphorescence and absorption 1=10126
s-triazine, vibr. freqs. rel. to spectrum 4=22411
1,3,5-tribromobenzene, diamag. anisotropy 0=2978
1,3,5-tribromobenzene, structure at 20°C 0=8246
trichloroacetic acid, crystal structure by PMR 1=20276
trichloroacetic acid, polycryst., n.q.r. of Cl^{35,37} 4=10350
trichloroacetic acid, proton resonance 0=8093
1,3,5-trichlorobenzene, diamag. anisotropy 0=2978
1,3,5-trichlorobenzene, intra-molecular vibrations 0=4622
1,3,5-trichlorobenzene, polarity of substituents 0=3256
1,3,5-trichlorobenzene, quadrupole resonance frequencies 2=4293
1,2,3-trichlorobenzene, quadrupole resonance study 0=18234
1,2,4-trichlorobenzene, Raman, i.r. and luminescence spectra 1=14035
1,3,5-trichlorobenzene, space group 0=18370
1,3,5-trichlorobenzene, structure at -183 and 20°C 0=8246
1,3,5-trichlorobenzene, Zeeman effect of nuclear quadrupole resonance 1=9076
trichlorobromomethane, fragmentation by Br nuclear decay 2=12981
1,1,2-trichloro-2,2-difluoroethane (CHCl₂-CF₂Cl), spin-spin splitting, temp. depend. 2=22999
3,3,3-trichloropropene, n.m.r. spectrum 2=6224
tricosanol, electron diff. intensities rel. to structure amplitudes 4=10521
tricyanomethanide ion, i.r. and Raman spectra 3=6407
tricyclodecane, crystal lattice vibr. 4=3978
triethanolamine, nuclear emulsion hypersensitization 0=12735, 12738, 12744
triethylamine, nuclear emulsion hypersensitization 0=12744
triethylamine, u.s. relaxation studies 1=1741
triethylamine-water solns., conc. fluctuations, light scatt. study 3=21365
triethylamine-water, u.s. propagation 1=12878
triethylammonium-(tetracyanoquinodimethane)₂, elec. conduction and charge transfer 4=22729
triethylborane-d₁₅, i.r. spectrum 0=1532
triethylscarphane, crystal and mol. structure 2=15039
trifluorethylene derivs., relative signs of F n.m.r. spin coupling constants 2=11392
trifluoroacetamide, e.s.r. of γ -irradiated crystal 2=23707
trifluoroacetamide, e.s.r. of irradiated crystals 4=26395
trifluoroacetonitrile, thermodynamic props. 1=11861
trifluorobromoethylene, F-F spin-decoupling 2=18482
trifluoromethanethiol (CF₃SH), i.r. spectrum and fundamental freq. assignment 0=4205
trifluoromethanethiol, i.r. spectrum and internal rotation 3=6401
trifluoromethanethiol, thermodynamic props. 0=5017
triglycine sulphate, critical-pt. polarization fluctuations 3=893
triglycine fluoborerylolate, elec. conductivity nr. phase-transition pt. 3=17924
triglycine fluoborerylolate, ferroelec. transition, nature 1=17833
triglycine selenate, ferroelec. transition, nature 1=17833
triglycine selenate, ferroelectric props., pressure effects 0=4379

Organic compounds—contd

- triglycine sulphate, charged powder study of growth features 1=12613
triglycine sulphate, coercive field frequency dependence 4=4217
triglycine sulphate, corrosion by domain boundaries 3=8563
triglycine sulphate, deuterated, pulsed polarization reversal 1=3804
triglycine sulphate, dielec. const. and loss tangents at 3.3 kMc/s 1=14551
triglycine sulphate, dielec. props. 100 c/s to 3 Gc/s 3=20386
triglycine sulphate, dielec. props. rel. to γ -irrad. 3=25406
triglycine sulphate, dielectric const., up to 23 kMc/s 3=23005
triglycine sulphate, dielectric constant charge during switching 1=11338
triglycine sulphate, deuterated, dielec. props. 3=13122
triglycine sulphate, deuterated, domain walls 2=18770
triglycine sulphate, deuterated, prep. and dielec. props. 2=16775
triglycine sulphate, dielec. consts. and loss tangents at 3.3 kMc/s 2=16768
triglycine sulphate, use as dielectric element 4=22788
triglycine sulphate, dielectric props. 0=16011
triglycine sulphate, domains, nucleation sites 0=640
triglycine sulphate, effect of γ -irrad. on ferroelec. props. 2=14622
triglycine sulphate, effect of γ -radiation on diel. props. 1=17832
triglycine sulphate, effect of u.v. on ferroelectric props. 1=12476
triglycine sulphate, elastic props. and internal friction 3=13323
triglycine sulphate, electrostriction 4=20426
triglycine sulphate, electrostrictive constants 3=15624
triglycine sulphate, etch patterns 0=4601
triglycine sulphate, external habit and ferroelec. props. 4=15767
triglycine sulphate, far i.r. dielec. props. 3=15687
triglycine sulphate, ferroelec. domain delineation, arrays prod. by thermal shocks 1=17834
triglycine sulphate, ferroelec., e.s.r. analysis 2=2208
triglycine sulphate, ferroelec. hysteresis and pyroelec. 0=1703
triglycine sulphate, ferroelec. phase transition 2=6521
triglycine sulphate, ferroelec. polarization reversal 2=10554
triglycine sulphate, ferroelec. props. 1=17835
triglycine sulphate, ferroelec. props. 3=6619
triglycine sulphate, ferroelec. props., ageing 1=8930
triglycine sulphate, ferroelec. props., ageing process and rejuvenation 0=18100
triglycine sulphate, ferroelec. props. at 0.01-50 c/s 2=668, 14624
tri-glycine sulphate, ferroelec. statistical theory 4=17523
triglycine sulphate, ferroelec. switching mechanism 0=1694
triglycine sulphate, ferroelec. transition, nature 1=17833
triglycine sulphate, ferroelectric domains, structure and motion 0=20956
triglycine sulphate, ferroelectric, high pressures, hysteresis 3=23004
triglycine sulphate, ferroelectric non-linearity, var. with r.f., temp. 4=7052
triglycine sulphate, ferroelectric properties, rel. to γ -irradiation 3=20387
triglycine sulphate, ferroelectric props., γ -induced changes 4=15561
triglycine sulphate, ferroelectric props., pressure effects 0=4379
triglycine sulphate, ferroelectric transition temp., press. depend. 3=17938
triglycine sulphate, γ -irrad., ferroelec. switching mechanism 2=8673
triglycine sulphate, h.f. ferroelec. props. 2=14608
triglycine sulphate, h.f. ferroelec. props. 4=4218
triglycine sulphate, hysteresis loop, effect of X-rays 4=26131
triglycine sulphate, hysteresis losses 2=16782
triglycine sulphate, inverse piezoelectric effect, various dependences 3=20391

Organic compounds—contd

- triglycine sulphate, light detection using pyroelec. effect 2=18768
 triglycine sulphate, matrices for information storage 2=16779
 triglycine sulphate monocrystals, elec. conductivity 1=6194
 triglycine sulphate, optical harmonic generation 4=10206
 triglycine sulphate, optical harmonics meas. 2=17605
 triglycine sulphate, optical mixing of laser beams 2=9388
 triglycine sulphate, permittivity increase during slow switching 3=2960
 triglycine sulphate, permittivity and $\tan \delta$ at 9600 Mc/s 1=1135
 triglycine sulphate, phase transitions 1=14556
 triglycine sulphate, piezoelec. and elastic props., effect of γ -radiation 3=17949
 triglycine sulphate, piezoelec. and electrostrict. consts. 4=7051
 triglycine sulphate, piezoelec. oscill. damping 2=16797
 triglycine sulphate, piezoelec. props. 2=679, 6531, 23508
 triglycine sulphate, piezoelec. props. and elastic consts. 2=14623
 triglycine sulphate plates, dielectric properties 1=11339
 triglycine sulphate, polarization relaxation above Curie temp. 3=2961
 triglycine sulphate, polarization reversal 2=16778
 triglycine sulphate, polarization reversal, antiparallel domains 4=15560
 triglycine sulphate, proton mag. resonance 2=6710
 triglycine sulphate, pulsed polarization reversal, asymmetry 1=3803
 triglycine sulphate, pyroelectric response 3=25414
 triglycine sulphate, pyroelectricity, internal domains, and interface charges 0=6160
 triglycine sulphate-selenate, ferroelec. props., composition depend., Devonshire coeff. 0=4380
 triglycine sulphate, switching, dielec. const. 2=16783
 triglycine sulphate, thermal expansion 0=7856
 triglycine sulphate, thermal expansion 3=6481
 triglycine sulphate, thermal expansion anomaly at Curie pt. 2=10335
 triglycine sulphate, twins and dislocations, etching 3=22790
 triglycine sulphate, u. s. relax. near Curie temp. 4=6728
 triglycinfluoroberylate, ferroelectric impedance during switching in pulsed elec. fld. 4=1865
 triglycylsulphate, internal friction, ampl. depend. 4=15716
 trimethoxyboroxine, B^{11} quadrupole coupling constants 1=17348
 trimethyl aluminium, chemiluminescence in upper atmosphere 4=7876
 trimethyl phosphorus, reaction with BF_3 1=6569
 trimethyl silane, microwave spectrum, structure, dipole moment and int. rotation 0=17744
 trimethylacetic acid, n.m.r. study 3=13313
 trimethylamine oxide, molecular and crystal structure 4=10561
 trimethylaminoxid hydrochloride, crystal structure 0=6365
 trimethylammonium ion in aq. soln., proton-transfer study by n.m.r. 3=25812
 trimethylbenzenes, solid, proton resonance, methyl group reorientation 1=10197
 trimethylborane- d_9 , i.r. spectrum 0=1532
 N-trimethylborazole, B^{11} quadrupole coupling constants 1=17348
 trimethylcarbinol, liquid-solid phase boundary 2=19772
 trimethylene oxide, vac. u.v. absorption spectrum 3=15365
 tri-1-(2-methylnaphthyl) boron, rotational isomerism, n.m.r. study 4=12511
 2, 2, 4-trimethylpentane, double refraction in strong shock waves 3=7205
 2, 2, 4-trimethylpentane, ion pair average energy loss 4=24252
 trimethylplatinum cpds, infrared spectra 4=30693
 tri-1-naphthylboron, spectrum, intramolecular charge-transfer bands 1=19641
 tri-n-butyl sulphonium fluoride hydrate, monoclinic, crystal structure 4=23502
 tri-n-butyl sulphonium fluoride, monoclinic, structure 4=13620

Organic compounds—contd

- s-trinitrobenzene, e.s.r., photo induced, line splitting 3=18831
 trinitrotoluene, liquid, detonation pressure 0=6399
 trinitrotoluene (trotyl), cast, shock-wave velocities and effects 0=16776
 trioxane, polymerization growth, BF_3 catalyst 4=23659
 tripalmitrin, proton mag. reson. and crystal structure 2=2308
 triphenyl derivatives of group IV elements, ring proton shifts 3=16637
 triphenyl methane dyes, photoconductivity 0=1684
 triphenyl-phenoxyl in benzene, O_2 electron spin relaxation 4=2711
 triphenyl phosphate liquid state, u.s. velocity and compressibility 1=18406
 triphenyl phosphate, u.s. velocity rel. to molecular parameters 1=18403
 1, 3, 4-triphenyl- Δ^2 -pyrazoline, fluorescence quantum yields 0=16098
 triphenylamine, e.s.r., photo induced 4=26437
 triphenylamine, hole drift mobility, meas. by photoconductivity method 4=26154
 triphenylamine, luminescence 2=6629
 1, 3, 5-triphenylbenzene, e.s.r. obs. of $\Delta m = 1$ transitions 3=1186
 1, 3, 5-triphenylbenzene, X-ray diffuse scattering 0=21206
 triphenylchlorostrannane, Mössbauer spectra peak anisotropy 4=25812
 triphenylene, in boric acid glasses, photo-ionization by u.v. 0=21290
 triphenylene, e.s.r. obs. of $\Delta m = 1$ transitions 3=1186
 triphenylene, ionization-dissociation processes caused by electron impact 4=28248
 triphenylene, luminescence, u.v. 4=22932
 triphenylene, and mono- and divalent ions, electronic spectra, correlations 0=20648
 triphenylene, π -electron calc. 4=1250
 triphenylene in polymethylmethacrylate host, e.s.r. triplet state, effect of temp. 4=23054
 triphenylmethane dye halides, dark conductivity 3=25416
 triphenylmethane, unstable luminescence centres 2=21277
 triphenylmethane dyes, photoconductivity, carrier "sticking" levels 4=26155
 triphenylmethyl, absorption and fluoresc. spectra at 4.2° K 3=4976
 triphenylmethyl, paramag. resonance absorption 0=17773
 triphenylmethyl radical, e.s.r., spin densities, corrections 3=20018
 triphenylphosphine anion, e.s.r. 2=20863
 triptycene, u.v. absorption, calc. 1=6023
 tris-acetylacetonates of Cr, Mn, Fe, and Al, i.r. spectra, Jahn-Teller effect in Mn cpd. 0=20636
 tris (2,2'-dipyridyl) Os ions, n.m.r. study of electron transfer 3=12866
 tris-p-nitrophenylmethyl radical, e.s.r. absorption 1=17342
 tris (1,10-phenanthroline) Fe ions, n.m.r. study of electron transfer 3=12866
 tristearin, proton mag. reson. and crystal struct. 2=2308
 tris(trimethylene)benzene, $C_{15}H_{18}$, crystal structure and molecular statics 4=10562
 trivinylmethyl radical, spin density, calc. 1=6055
 trivinylphosphate, n.m.r. spectrum analysis 4=1315
 tropaeolin phosphor, use in polymer adhesion study 0=3162
 tropylium ion, vibrational-electronic interactions 1=17309
 tryptaflavin in frozen solvents, phosphoresc. 4=7204
 tryptaflavine cation, absorption spectrum 1=14013
 tryptaflavine, films, photocond., surface recomb. 1=3783
 tryptaflavine, fluorescence, solvent effects 4=29637
 tryptaflavine in gelatine, phosphorescence and absorption 1=6866
 tryptaflavine, luminescence 3=9469
 tryptaflavine, luminescence, in alcohols, polarization, effect of "initial shock" 4=8215
 tryptaflavin luminescence quenching by rhodamin-6G in methanol by intermol. energy transfer 4=28287
 tryptaflavine, phosphorescence, anti-Stokes 1=6235
 tryptaflavine in Plexiglas, fluorescence polarization 1=7723

Organic compounds—contd

- tryptaflavine in poly and monomethylmethacrylate, absorpt., light, conc. var. 4=22416
 tryptaflavine, sensitized fluorescence 1=2763
 tryptaflavine, solutions in glycerine, depolarization of fluorescence 1=9397
 22 liquids, thermal cond., 20°C 0=8660
 L-tyrosine hydrochloride, crystal struct. 2=10860
 tyrosine, paramagnetic resonance and semiconductor theory 1=11115
 tyrosine thermoluminescence, rel. to surf. area and gas press. 3=18052
 u.v. spectrophotometry, sample disks compacted with KCl 1=18593
 ultramarine free radical, double quantum transition 2=4247
 undecane, trapped Au and Ag e.s.r., liq. N₂ temp. 4=13317
 unsaturated hydrocarbons, d-hybridization in π molecular orbitals 3=10533
 unsaturated, proton resonance, effects of electron delocalization 1=2351
 uracil, crystal study of three derivatives 0=6368
 uranin dye solns., luminescence polariz. and decay 3=23893
 uranin, ionic forms, luminescence 2=9284, 15606
 uranin, soln., fluoresc. depolariz. by mol. rotation 3=139
 uranin solns., fluorescence quenching 2=9283
 uranyl acetate, absorption bands analysis 3=8282
 uranyl phthalocyanine soln., luminescence 4=5199
 urea ammonium bromide, crystal structure 3=13487
 urea cpds., radiation damage, e.s.r. study 2=2106
 urea, electron diffrn. study 3=3310
 urea, n.m.r. of H¹, analysis by lattice harmonics 3=5047
 urea, N¹⁴ n.q.r. 2=14861
 urea, N¹⁴ nuclear quadrupole reson. spectrum, temp. depend. 0=6271
 1:2 urea-phenol, heat of fusion 4=5450
 urea single crystals, n.q.r. 2=2309
 urea, temp. vibrations 2=10249
 urotropine, electro-optical effect 4=15604
 urotropine molecules, rotation in solid state 4=1894
 valence refractivities for 150 cpds. 2=11372
 d, l-valine, γ -irrad., e.p.r., free radical structure and orientation, 77° and 293°K 4=17685
 vanadyl ion complexes, electronic structure, e. s. r. studies 4=30468
 vapours, complex mols., fluorescence 2=15654
 vapours, electron ionization coeff. 0=2316
 vaseline, electroluminescence 4=22938
 vaseline, electromagnetophoresis 3=16901
 vinyl acetate liquid state, u.s. velocity and compressibility 1=18406
 vinyl acetate, polymerization, effect of ionising radiations 3=6925
 vinyl acetate, u.s. velocity rel. to molecular parameters 1=18403
 vinyl acetylene, rotational Raman spectra 4=9762
 vinyl bromides, rotation spectra, quadrupole coupling and structure 4=6638
 vinyl chloride-acetate films, electric breakdown strengths 1=10082
 vinyl chloride, kinetics of HI addition 3=11338
 vinyl chlorides, i.r. spectral bands at 1.6, 1.1, 0.8 μ 2=14280
 vinyl cpds, polymerization, molecular motion 3=23545
 vinyl, far-u.v. spectrum 2=14284
 vinyl formate, microwave spectrum 4=22417
 vinyl formate, proton-proton couplings 2=14242
 vinyl free radical, e.s.r. meas. 4=12532
 vinyl group, n.m.r. spectra, analysis 2=3186
 vinyl radical, β -proton hyperfine splittings 4=25732
 vinyl silanes, substituted, p-p coupling, solvent var. 4=20109
 vinyl stearate, crystalline transitions and mechanical dispersion 0=6299
 vinyl stearate, dielec. const. and crystal structure 0=13647
 vinylamine, improved LCAO method 3=4774
 9-vinylanthracene, scintillation props. 2=1158
 vinylidene fluoride, microwave spectrum and structure 3=17595
 vinylmethylsilanes, proton magnetic resonance 2=3782

Organic compounds—contd

- viologen free radicals, e.s.r. spectra 3=20028
 vitamin-A acid, triclinic, crystal structure 3=8870
 vitrinite, absorption of u.v. and visible light 0=20992
 VYNS, energy loss of 4-30 keV H¹ and He⁴ 3=4394
 VYNS resin films, for 4π β -counting 2=18030
 water-acetone mixtures, proton mag. res. study 1=12902
 water-dioxane mixtures, proton mag. res. study 1=12902
 in water, effect of chain length and structure on surface ageing of interface 0=2159
 Werner complexes, rotary dispersion 1=2756
 wool fibres, surface replication by rolling 0=8263
 Wurster salts, anomalous bathochromic shift 4=6639
 Wurster's blue perchlorate, exchange-ordering and forbidden spin resonance transitions 1=11483
 Wurster's blue perchlorate, free radicals, magnetic transitions 1=17364
 Wurster's blue perchlorate, n.m.r. Overhauser effect 1=17358
 Wurster's blue perchlorate, solid free radical, e.s.r., and ferromagnetism 4=6657
 xylene, adhesion to alkali halide crystals 2=9250
 xylene anions, m- and p-, e.s.r. 2=2018
 xylene, amplitude factor determ., X-ray method 4=24167
 xylene-based liquid scintillators, intermediate transfer of excitation 3=16629
 p-xylene complex with carbon tetrabromide, crystal structure 2=17027
 xylene crystals, o-, m- and p-, space groups 1=15113
 p-xylene, D-substituted, proton chemical shift 1=12317
 xylene for diffractational light modulator 0=12494
 p-xylene- α , α' -diol, heats of combustion and formation 2=21585
 p-xylene, i.r. intensity calculation 3=15369
 p-xylene, internal conversion, upper electronic-first excited singlet states 4=1286
 p-xylene, irradiation effects 2=19570
 xylene, m- and p- liquid structure 2=7193
 p-xylene, multiple proton mag. resonance relaxation 1=15910
 xylene, ortho-, para-, meta-, neutron scatt. meas. 4=28251
 p-xylene, Raman spectra, temp. depend. 2=703
 xylene solns., dynamic polarization 2=13353
 m-xylene, u.s. wave propag., nonlinearity parameter 2=9275
 xylene, ultrasonic absorption 0=3525
 xylenes, luminescence in crystalline state 0=10067
 m-xylo crystals, electron spectra 2=18822
 ytterbium ethyl sulphate, spectrum, absorpt. 4=10173
 AgClO₄·3C₆H₆O₂, p.m.r., -66 to +25° C, dioxane rot. 4=1900
 AlH₃ and AlD₃, trimethylamine and tetrahydrofuran complexes, i. r. spectra rel. to coordination bonds 4=3869
 (ϕ_3 AsCH₃)⁺(TCNQ)₂⁻ solid free radical, exciton mag. reson., zero-field 4=20584
 (ϕ_3 AsCH₃)⁺(TCNQ)₂⁻ spin-lattice relax. rel. to temp. 4=17684
 BF₃·diethyl ether, Raman and i.r. spectra 3=15361
 BF₃ + dimethyl and diethyl ether addition compounds, spectra, i.r., valence vibrs., gas, solid 4=25695
 BF₃, tetrahydrofuran, Raman and i.r. spectra 3=15361
 B₁₀H₁₃C₂H₅, ionization potential 0=14963
 Ba stearate, molecular films, thickness meas. 2=17069
 Be hydroxyacetate, optical constants from reflectivity meas. 1=17862
 Br₂, benzene, charge transfer lack, p.q.r. investigation 4=25802
 C chemical shifts from electron molec. orbital theory of diamagnetism 4=12518
 C disulphide, superheat, measurement 1=15850
 C tetrachloride, superheat, measurement 1=15850
 C₂ hydrocarbons, ionization processes 2=19895
 C₃ hydrocarbons, γ -radiolysis, ion-molecule reactions 0=16386
 C₆ hydrocarbons, C¹¹ recoil reactions 3=11359
 C₂B₂H₂, structure 4=28240
 CBr₄, p-xylene, charge transfer lack, p.q.r. investigation 4=25802
 C-C bond lengths and radii of C hybrid orbitals 0=1510
 C-C and C-H bonds, diamag. anisotropy 3=22585
 (C(CH₃)₂CH)₂, internal rotation isomers 3=25082
 CCl₄, dielectric losses 1=18426

Organic compounds—contd

- CCl₄, elec. breakdown, effect of dielec. layer on electrodes 4=29641
 CCl₄, force const., isotopic structure of $\nu_1 + \nu_4$ band 1=13987
 CCl₄, force consts. from vibr. data 3=6376
 CCl₄, i.r. band intensities, temp. depend. 1=11791
 CCl₄, i.r. bands, intensity and structure, Fermi reson., aggregate state 1=14031
 CCl₄, ionization by electron impact 1=8309
 CCl₄, ionization by H⁺ and O⁻ 1=16269
 CCl₄, liquid, i.r. absorption spectrum, 740-810 cm⁻¹ 3=23884
 CCl₄, liquid, mol. theory 3=21317
 CCl₄, liquid, optical constants from i.r. reflection 3=16624
 CCl₄, optical constants from i.r. reflection spectrum 1=7698
 CCl₄, Raman line intensities, calc. 1=2759
 CCl₄, p-xylene, charge transfer lack, p.q.r. investigation 4=25802
 CCl₄-C₆H₆, CCl₄-C₆H₁₂ mixtures, velo., acoustic waves, var. 3=16622
 CCl₃CH(OH)₂, neutron diff. crystal structure meas. 4=29147
 CCl₃C(OH)₂C₂H₅, Cl³⁵ nucl. quadrupole resonance 3=15964
 CClF₃, centrifugal stretching 2=8089
 CClF₃, microwave absorpt. in compressed He mixtures 4=24273
 CCl₃F, microwave spectrum, structure 2=14271
 CClF₃, nonresonant absorption spectra 0=10700
 CClF₃, u.s. cavitation, neutron induced 3=14122
 CCl₂F₂, ionization and attachment coeffs. 4=5550
 CCl₂F₂, ionization, by Li positive ions 1=4565
 CCl₃F, positive and negative ion formation 1=10668
 CDCl₃ in non-polar—proton-acceptor solvents, i.r. spectra, rel. to H-bond formation 4=28208
 CD₃, abstraction of primary, secondary and tertiary H atoms 3=3384
 CD₄, i.r. absorption spectrum at 4500 cm⁻¹ 2=16544
 CD₄, liquid and solid, thermodynamic props. 3=22658
 CD₄ reaction, unimolecular, statistical complexion calc. 4=13707
 CD₄, solid, phase transitions and compressibilities 0=12055
 C₂D₂, ionization, photo, mass spectrometer study 4=16440
 C₂D₆, vibr. spectrum, second order lines 4=22393
 C₁₀D₈, fluorescent props. 2=12630
 (CD₃)₂CCl, microwave spectra 2=8093
 CD₄ and CH₄, second virial coeff. below 0°C, meas. of small differences 0=14682
 CD₃H, spectrum, vibrational—rotational bands 0=7761
 CF⁺, spectrum 1=17321
 CF₄, force consts. from vibr. data 3=6376
 CF₄, i.r. spectrum, 1850-3100cm⁻¹ 3=6406
 CF₄, liquid, n.m.r. and diffusion 3=21412
 C₆F₁₂, crystal struct., atomic 4=29151
 CF₄-Ar, liquid, n.m.r. and diffusion 3=21412
 CF₃Br-CCl₂Br, i.r. and Raman spectra 1=14026
 CF₃=CCl₂, n.s.r., C¹³ isotope effect 1=12316
 CF₃CCl₃, n.s.r., C¹³ isotope effect 1=12316
 C₇F₁₆-C₈H₁₈ solns., X-ray exam. near critical region 4=27155
 (CFCl)₂, n.m.r., C¹³ satellites and F-F coupling consts. 4=1314
 CFClBr-CFClBr, potential energy det. by n.m.r. 2=18483
 CFCl=CCl₂, n.s.r., C¹³ isotope effect 1=12316
 CF₃CO₂H, n.s.r., C¹³ isotope effect 1=12316
 C¹³F₃COOH and CF₃C¹³OOH, INDOR spectra, spin decoupling 2=23004
 CF₃COOH-HCOOH double mol., hydrogen bonding 2=3739
 CF₃COOH-HCOOH, CF₃COOH-CH₃COOH, and CF₃COOH-CH₂FCOOH, microwave rotation spectra 4=28241
 CF₃SF₆, i.r. spectra 1=17318
 CH bond, anisotropic proton hyperfine interaction 4=30424
 CH, far-u.v. spectrum 2=14284
 CH group, Raman spectra, intensity, var. with excitation freq., 5461-3021A 3=25117
 CH, in halogenated hydrocarbons, molec. interacts. by n.m.r. 2=14339
 C-H, and methyl group, magnetic screening constants 4=3849

Organic compounds—contd

- CH radical, electronic structure 1=7477
 CH radical, ²π state, dissociation energy 4=12527
 CH radical in polycrystalline state, e.s.r. 1=11116
 CH⁺, transition probabilities 0=11518
 CH₂, far-u.v. spectrum 2=14284
 CH₂ radical, ionization potential 3=360
 CH₂, spectra, i.r., and vibr. assignments and excitation energies 3=15363
 CH₂, spectrum and ioniz. potential 3=7328
 CH₂, spectrum and ioniz. potential 3=7328
 CH₄, with A and N₂, condensed state, density 1=12873
 CH₄, adsorption on graphite 2=4497
 CH₄, absorption spectra, cross-sections, 600-170A 4=15272
 CH₄, absorption spectra, 1850 to 4000 A 4=11249
 CH₄, BH₄⁻, NH₄⁺, isoelectronic systems, electronic props. 3=22554
 CH₄β-quinol clathrate, CH₄ motion, 15°-100°K, free heat capacity 3=8284
 CH₄, CH₂D₂ and CD₄, heat of vaporization 4=18494
 C₂H₂, C₂HD and C₂D₂, crystalline, i.r. absorpt. spectra 4=17585
 CH₄, correlation energy 4=12507
 CH₄, decomposition, in d.c. glow, at low temp. 1=2952
 CH₄, diamag. susceptibility 1=8870
 CH₄ electron avalanche components, temporal growth meas. 3=4086
 CH₄, fundamental ν₃, fine structure freq. 1=6002
 CH₄ gas, electron drift velocities in inert gas-CO₂ mixtures 4=24274
 CH₄ gas, Joule-Thompson zero press. coeff., exptl. and theoret. 4=27208
 CH₄ gas, 7.6 and 3.3 μ band absorpt., correl. with CO₂ 4=27221
 CH₄, intermolecular potential functions, 2nd virial coeff. 1=7503
 CH₄, ionization, by Li positive ions 1=4565
 CH₄, liquid, n.m.r. and diffusion 3=21412
 CH₄, liquid and solid, thermodynamic props. 3=22658
 CH₄, melting temp. at 300 atm 1=919
 CH₄, in mixtures with H₂, O₂, CO₂ and air, viscosity 1=4364
 CH₄, n.m.r., proton chemical shifts 1=8139
 CH₄, solid, density, 77°-174°K 4=26497
 CH₄, synthesis for radiocarbon dating 1=7914
 CH₄, molecular Jahn-Teller distortions 2=22983
 C₂H₂, i.r. spectrum 1=17316
 C₂H₂, ionization, photo, mass spectrometer study 4=16440
 C₂H₂, ionization, photochemical 4=23671
 C₂H₄ molecule metastable states by electron bombardment 3=4742
 C₂H₄ molecule metastable states by electron bombardment 3=4742
 C₂H₄, rate of reaction with N 1=1471
 C₂H₅ ion, in mass spectra, paraffins from C₁ to C₈, field ionized 3=14524
 C₃H₃⁺ ion formation 4=13714
 C₃H₆, H ion prod. in, by proton beams 2=1386
 C₆H₆⁺, Jahn-Teller effect 2=6194
 C₆H₆ mols., vibr. freqs. 4=22392
 C₆H₆, neutron scattering, 0.2-2.7 × 10⁻³ eV, -100° to +200°C 1=13429
 C₆H₆, Raman line intensities, calc. 1=2759
 C₆H₆, vibr. spectrum, second order lines 4=22393
 (C₆H₆)_n, transmission of electrons, energy loss 0=11146
 C₁₀H₁₂, electronic energy levels, absorption line calc. 0=11533
 n-C₉H₂₀, radiothermoluminescence 0=21018
 C₁₂H₁₁⁺ ion-molecule complex formation and activation 2=8913
 C¹³-H coupling, from n.m.r., non-additivity of electroneg. substituents 4=20108
 C₁₂H₁₄, crystal structure 0=16332
 n-C₁₆H₃₄, radiothermoluminescence 0=21018
 C₁₆H₃₈, triclinic form, crystal structure 2=10900
 C₂₉H₆₀, structure at low temperatures 0=18337
 CH₄-A, CH₄-CO systems, thermodynamic props., ~ 90°K 3=14140
 CH₄-Ar, liquid, n.m.r. and diffusion 3=21412
 CH₄-Ar and CH₄-CO solutions, heat of mixing and volume change 3=1682

Organic compounds—contd

- $C_6H_5Br_2$, energy levels and wave functions, calc. using metallic model 1=2342
 $CHBr_3$ (liquid), proton spin-lattice relaxation, temp. depend. 1=9409
 C_6H_5Br , n.m.r. spectra, analysis 1=3569
 CH_3Br^{82} , β^- -decay, fragment ion abundances 4=2168
 $(CH_3)_3CCl$, microwave spectra 2=8093
 $(CH_3)_3C^{35}Cl$, microwave spectrum and quadrupole coupling constant 3=4769
 $C_6H_5-CCl_4$, $C_6H_5-C_6H_{12}$, C_6H_5 -neopentane, $C_6H_{12}-CCl_4$, C_6H_{12} -neopentane mixtures, velo., acoustic waves, var. 3=16622
 CH_2 and CH_3 , Rydberg levels 4=3883
 $C_7H_{16}-i-C_6H_{14}$, solution, crit. region, X-ray scatt. obs. 2=9269
 C_2H_2 , CH_3 stream, electronic excitation 2=8138
 $CH_3-(CH_3)_3=CH_2$, radical, C atom spin densities 3=15393
 $m-C_6H_4(CH_3)_m(CH_2)_n$ [$m+n=2$], electron spin-spin interact. 4=1245
 $(CH_2)_2$, $(C_6H_4)_2$, $(CH_2)_2$, intra-molecular vibrations 0=4622
 $C_6H_5CH(CH_3)NH_2$, $C_6H_5O_8$, unit cell and space group 0=14037
 CH_3CHF , n.m.r. and double resonance in gas phase 3=6420
 CH_3CH_2HgX , nuclear spin coupling H^1-Hg^{199} 3=25145
 $(CH_3CH_2)_2TiX$ $Ti^{203}-H^1$ nuclear spin-spin coupling 4=12521
 $CHCl_3$, absorpt. and dispersion, i.r. 4=22397
 $CHCl_3$, anomalous dispersion 1=2757
 $CHCl_3$, liquid, i.r. absorption spectrum, 740-810 cm^{-1} 3=23884
 $CHCl_3$ (liquid), proton spin-lattice relaxation, temp. depend. 1=9409
 $CHCl_3$, refractivity, second virial coeff. 3=3835
 CH_2Cl_2 , H-H distance calc., appl. of inertial defects 4=22338
 CH_2Cl_2 (liquid), proton spin-lattice relaxation, temp. depend. 1=9409
 CH_2Cl_2 , in ultrasonic field 0=1964
 CH_2Cl (liquid), proton spin-lattice relaxation temp. depend. 1=9409
 CH_3Cl , nonresonant absorpt. and collision diameters in foreign gas broadening 4=25785
 $C_6H_5Cl_3$, energy levels and wave functions, calc. using metallic model 1=2342
 $C_{12}H_5Cl_4$, $C_{12}H_5Cl_5$, $C_{12}H_4Cl_6$, viscosity, temp. var. 4=14148
 CH_2Cl_2 , $CHDCl_2$ and CD_2Cl_2 , Raman and i.r. spectral data, thermodynamic props. 4=22396
 $CH_3Cl_{3-n}CN$ ($n=0-3$), electro-optical parameters 4=6634
 $CHClF_2$, microwave absorpt. in compressed He mixtures 4=24273
 $CHCl_2F$, dielectric dispersion 0=14696
 $CH_2Cl_2-N_2$ reaction 2=4537
 CH_3CN , gas, virial coeff. and light scattering 1=11788
 CH_3CN , n.m.r., proton chemical shifts 1=8139
 $C_{11}H_{23}.CO.C_{11}H_{23}$, molecular torsional oscillations 1=19626
 $(CH_2)_nCR$ cpds., quasi-spherical molec. rots. 2=8871
 CH_3CXO , ($X=H, F, Cl, Br$), H-H distance calc., appl. of inertial defects 4=22338
 CH_3D , Coriolis interaction, effect on heat capacity 4=12426
 CH_3D , spectrum, vibrational-rotational bands 0=7761
 CH_3DOH , CD_3COH , analysis of microwave rotational spectrum 3=8288
 $CHDO$, n.m.r. [J_{HD}] value 4=9773
 CHF_3 , dielectric virial coeff. calc. 4=27211
 CHF_3 , gaseous, proton magnetic resonance, medium effects 3=9517
 CHF_3 , microwave absorpt. in compressed He mixtures 4=24273
 CHF_3 , nonresonant absorpt. and collision diameters in foreign gas broadening 4=25785
 CH_3F , n.m.r. and double resonance in gas phase 3=6420
 CH_3F , gas, virial coeff. and light scattering 1=11788
 CHF_3 , liquid, nuclear mag. spin-lattice relaxation, mechanism 1=8138
 CHF_3 , nuclear relaxation mechanism 1=17349
 CH_3F , refractivity, second virial coeff. 3=3835
 CH_3F , vibration-rotation spectra 4=1295
 CH_3F^{18} , β^+ -decay, fragment ion abundances 4=2168
 $CHFCl_2$, liquid, nuclear mag. spin-lattice relaxation, mechanism 1=8138
 $CHFCl_2$, nuclear spin relaxation in liquids 3=7220

Organic compounds—contd

- CHF_2Cl , liquid, nuclear mag. spin-lattice relaxation, mechanism 1=8138
 CHF_2Cl , microwave spectrum, structure 2=3738
 CH_2FCl , liquid, nuclear mag. spin-lattice relaxation, mechanism 1=8138
 $[C_3H_5FeCOAs(CH_3)_2]_2$, Mossbauer effect, cis- and trans-equal shifts 4=15360
 $[C_3H_5FeCOP(C_6H_5)_2]_2$, Mossbauer effect, cis- and trans-equal shifts 4=15360
 $(CH_3)_nGeCl_{4-n}$, stretching vibr. i. r. absorption 4=30463
 CH_3GeF_3 , v.h.f. absorption 1=2323
 $\alpha-C_{10}H_7HgI$ 4=23507
 C_2H_4-He gases at high press., interface tension 1=4317
 CH_3HgX , nuclear spin coupling H^1-Hg^{199} 3=25145
 CH_3I , reactive scattering of K beam in, KI formation 1=12336
 CH_3I^{131} , charged fragments due to nuclear decay 2=15159
 C_2H_5I , reactive scattering of K beam in, KI formation 1=12336
 CH_2N_2 , photolysis in solid CO_2 2=15157
 $C_6H_5N_2^+$, ion-molecule complex formation and activation 2=8913
 $C_{11}H_9N_2$ (Norharmon), 9H-pyrido [3, 4-b] indole, crystal structure 1=20570
 $CH_3NH_3Al(SO_4)_2.12H_2O$, specific heat anomalies, rel. to ferroelec. phase transition points 4=22497
 $CH_3NH_3^+ + OH^- + NH_2CH_3$ reactions in aq. acid, proton transfer study by n.m.r. 0=14118
 $C_6H_4(NO_2)_2$, energy levels and wave functions, calc. using metallic model 1=2342
 CH_3NO_2-Ar , shockwaves, emission and dissociation of NO_2 4=3919
 $C_6H_5NO_2-C_6H_{14}$, frequency dispersion of dielec. const. 2=15611
 $(CH_3)_2NP$ group, n.m.r. 3=4782
 $(C_6H_5)_2NP$ group, n.m.r. 3=4782
 CH_2O , n.m.r. [J_{RH}] value 4=9773
 CH_2O , neutron scattering, $0.2-2.7 \times 10^{-3}$ eV, -100° to $+200^\circ C$ 1=13429
 CH_2O , $1_{01}-0_{00}$ transition, in beam maser 4=3206
 CH_3O radical spectrum, u.v. absorpt., from photolysis of CH_3NO_2 4=22435
 C_2H_2 and O_2 explosions, shock waves, microwave obs. 4=27522
 $(C_6H_5)_3O$, n.m.r. spectra, analysis 1=3569
 $(C_6H_5O)_n$, transmission of electrons, energy loss 0=11146
 $C_{12}H_{22}O_{11}$, neutron diff. crystal structure meas. 4=29147
 $C_{12}H_{22}O_{11}$, OH bond orientation 3=4968
 CH_3O and $CHDO$, h.f.s. of microwave spectra 4=9733
 $(CH_3O-C_6H_5)_2NO$, h.f.s. and coupling consts., from e.s.r. 3=14183
 $C_{13}H_{10}O$, $C_9H_{10}O_2$, dielec. relaxation, effect of temp. 0=5022
 CH_3OH , ionization potential, higher, using electron impact Foxgun 3=14520
 $C_2H_5OH-\alpha$ -bromonaphthalene, dielec. props., 900-2000 Mc/s 1=1752
 C_2H_5OH , e.s.r. of trapped Ag , $77^\circ K$ 3=25575
 C_2H_5OH , ionization potential, higher, using electron impact Foxgun 3=14520-
 C_2H_5OH-o -cresol, dielec. props., 900-2000 Mc/s 1=1752
 $C_{14}H_{26}OH$, i.r. bands, temp. depend. 1=12289
 $C_{16}H_{33}OH$, i.r. bands, temp. depend. 1=12289
 C_6H_5OH , i.r. bands, temp. depend. 1=12289
 CH_3OH and $CHOD$, intermolecular potentials 1=8837
 $C_6H_5O.H_2O$, OH bond orientation 3=4968
 CH_3OCH_3D , analysis of microwave rotational spectrum 3=8288
 $(CH_3)_2S$, microwave spectrum 2=5494
 CH_3SH , hindered rotation potential barrier, neutron scatt. study 0=5912
 $(CH_3)_4Si^{29}$, INDOR spectra, spin decoupling 2=23004
 $(CH_3)_2TiX$, $Ti^{203}-H^1$ nuclear spin-spin coupling 4=12521
 $(CH_3)_2X$ type mols., torsion vibr. theory 3=2598
 CH_3X , Q-branch separations, rel. to quantum nos. 2=1994
 $C_3N_3F_3$, i.r. and Raman spectra 4=22376
 $C(NH_2)_3Al(SO_4)_2.6H_2O$, n.q.r. and e.s.r. 1=12573
 $C(NH_2)_3Cr(SO_4)_2.6H_2O$, Zeeman effect, 2 fine red lines 4=1759
 CNH_2N and CND_2N , vibrational spectra 4=3872

Organic compounds—contd

- Co β -quinol clathrate, CO motion, 15°-100°K, from heat capacity 3=8284
 C₆O₈H₈, OH bond orientation 3=4968
 C₆O₈H₈·2H₂O, OH bond orientation 3=4968
 Ca benzoate in NaOH response to 14 MeV neutrons 4=25118
 Ca₂Sr(C₂H₃CO₂)₈, optical birefringence 3=20445
 Cd(CH₃)₂, Raman spectra, rotational anal. 1=844
 Ce ethylsulphate, n.m.r. below 1°K 0=10245
 Ce tetrakis-dibenzoylmethane, crystal structure 0=3248
 Cl₂ in 6-chloro-2-nitrotoluene, n.q.r. Zeeman spectrum 4=17704
 Co ammines, mag. susceptibility, interaction and crystalline field 0=21027
 Co(ethylenediamine)₃³⁺, optical rotatory dispersion 3=730
 Co, molecules, electric field gradient at O nucleus, dipole moment, calc. 3=19977
 Co phthalocyanine crystals, spectra, absorpt. polarization 3=20495-6
 Co III complexes, rot. dispersion, circular dichroism 4=22398
 Co, vibration, fourth positive system, Franck-Condon factors, calc. 3=17571
 Co(CH₃COO)₂·4H₂O, paramagnetism, 0.35-4.2°K 4=13114
 Co₂(CO)₈, metal-metal bonding, and structure 1=11573
 Co₂(CO)₈·C₂H₂, metal-metal bonding, and structure 1=11573
 Co-Cl complex formation in methanol, n. m. r., optical spectra, and kinetics of methanol exchange of solvation shell, -80° to +80°C 4=27201
 [Co(MeOH)₅Cl]⁺ in methanol, n. m. r. and optical spectroscopy, and kinetics of methanol exchange of solvation shell, -60° to -80°C 4=27200
 Cr acetylacetonate, crystal spectrum 2=16836
 Cr-acetylacetonate crystals and derivatives, inter-combination spectra, 4° and 77°K 4=10170
 Cr acetylacetonate, magnetization and molec. field 0=10091
 Cr trisethylxanthate, mol. electronic struct., ligand field theory 4=22412
 [Cr₃(CH₃COO)₆(OH)₂]Cl·8H₂O, paramagnetism, 0.35-4.2°K 4=13114
 (CrMn)B, Curie points and magnetic moments 3=8637
 CS₂, optical constants from i.r. reflection spectrum 1=7698
 Cs polycyclic aromatic cpds., photoelectric emission 3=16975
 (Cs⁺)₂(TCNQ)₂⁻, props. and structure 2=14827
 (Cs⁺)₂(TCNQ)₂⁻, spin-lattice relax. rel. to temp. 4=17684
 Cu acetylacetonate, polarized absorption spectrum, 11000 to 22000 cm⁻¹, 30° to 300°K 3=3027
 Cu dihydroxy-para-quinone, mag. susceptibility at low temps. 3=1060
 Cu dipyrindine dichloride and dibromide, lattice consts., effect of size of halogen atom 0=3257
 Cu formate 4H₂O, mag. susceptibility at low temps. 3=1060
 Cu malonate, e.s.r., splitting factor 2=21361
 Cu oxinate, crystal growth and dimorphic transformations 3=18257
 Cu phthalocyanine, crystal growth and dimorphic transformation 3=18257
 Cu phthalocyanine crystals, spectra, absorpt., polarization 3=20495-6
 Cu phthalocyanine, e.s.r. 4=26392
 Cu phthalocyanine, elec. props. and charge carriers 4=6994
 α-Cu phthalocyanine, field effects and surface photovoltage 4=28422
 Cu phthalocyanine, Hall effect and carrier mobility 3=2911
 Cu phthalocyanine, surface ionization energy 2=17793
 Cu quinone complex salts, mag. susceptibilities 3=11103
 Cu salicylate tetrahydrate, crystals structure 0=8247
 Cu salt-quinoline complexes, i.r. absorption 4=22414
 Cu II acetylacetonate, thermodynamic and mag. props. 1-20°K 0=10093
 Cu(II) monoethylenediamine chloride, e.s.r. 4=7323
 Cu triethylenediamine, crystal structure 2=21526
 Dy ethyl sulphate, demagnetization expts. 3=1056
 Dy ethyl sulphate, spin-lattice relaxation 3=1194
 Dy ethylsulphate, dipolar ferromagnetism 0=8040
 Dy ethylsulphate, susceptibility and sp. ht. below 1°K 0=10094
 Dy³⁺ ethyl sulphate, cryst. field, parameters, calc. 2=552

Organic compounds—contd

- Eu benzoylacetate chelate, eightfold dodecahedral arrangement of O round Eu ion 4=29150
 Eu benzoylacetate chelates, ligand field spectra 4=28753
 Eu benzoylacetate, laser, in alcohol soln. in capillary 4=5858
 Eu benzoylacetate, laser characteristics 4=27698
 Eu benzoylacetate, optical maser action 3=17084
 Eu benzoylacetate, spectroscopic props., fluorescence kinetics and optical pumping 4=20082-3
 Eu chelate and benzophenone, soln., Eu luminescence, by inter and intra mol. energy transfer 4=2694
 Eu chelates, fluorescence rise and decay times 4=26256
 Eu chelates, fluorescent lifetimes 3=20513
 Eu chelates, luminescence, non-exponential decay mechanism 4=20500
 Eu dibenzoylmethide chelate, eightfold dodecahedral arrangement of O round Eu ion 4=29150
 Eu dibenzoyl-methide, stimulated light emission 3=23886
 Eu dibenzoylmethides, fluorescence lifetime 4=1790
 Eu β -diketone chelate in PMMA, absorption and fluoresc. spectra 4=22906
 Eu hexafluoroacetylacetonate, luminescence 4=20085
 Eu salicylaldehyde, as laser material 3=9980
 Eu tris-dibenzoylmethide, fluorescence spectra, lifetimes 3=8628
 Eu³⁺ in organic matrix solid solution, optical maser action 3=25443
 EuR₃ (R is organic radical), for possible maser, optical, by internal energy transfer 3=17072
 F₂DC-CDHF, absorption spectra, 7000-25000 Mc/s 4=1294
 F₂HC-CH₂F, molecule, spectra, 7-30 kMc/s 4=3893
 Fe acetylacetonate, magnetization and molec. field 0=10091
 Fe-nitrosyl complexes, Mössbauer effect interpretation 3=25125
 Fe(α 'dipyridyl)₃(ClO₄)₃·3H₂O, magnetic suscept. 2=4200
 Fe(o-phenanthroline)₃(ClO₄)₃·3H₂O, magnetic suscept. 2=4200
 Gd hexa-antipyrene iodide, e.s.r. of Gd³⁺ 2=4256
 Ge⁷³(C¹³H)₄, nuclear coupling, Ge⁷³-p, C¹³H, 4=22425
 HCN, π and σ Stark components 0=13441
 HC¹⁵N, vibration-rotation bands 1=829
 HCO₂ radical, electronic structure and spectrum 4=6622
 H₂CO K-type doubling spectra, microwave 1=12285
 H₂CO¹⁸ K-type doubling spectra, microwave 1=12285
 H₂C¹⁸O K-type doubling spectra, microwave 1=12285
 HDCO K-type doubling spectra, microwave 1=12285
 Hg methylmercaptide, crystal structure 4=20768
 Hg(CH₃)₂, Raman spectra, rotational anal. 1=844
 2HgCl₂·(C₂H₅)₂S, crystal structure, atomic 4=13617
 Hg/Na-decane sulphate/H₂ system, contact angles and surface tension 2=4995
 Ho ethyl sulphate, i.r. absorption spectrum and Zeeman effect 2=12605
 InC₃H₅, molecular structure and bonding 4=25707
 K acetate, u.s. vel. 2=15589
 K acid phthalate, cleavage plane grating spacing 4=4583
 K amine disulphate, e.s.r. of N(SO₃)₂⁻ radicals 2=16566
 K hydrogen succinate, temp. depend. of diamag, anisotropy 4=7213
 K methane disulphonate, e.s.r. of CH(SO₃)₂⁻ radicals 2=16566
 K squarate monohydrate, crystal structure analysis 4=23509
 K₂ tartrate (DKT), piezoelec. oscillations, effect of d.c. field 1=17855
 K vanadyl oxalate, e.s.r. study 3=1189
 KF·2Al(C₂H₅)₃, crystal structure 3=11272
 KHC₄H₄O₆, unit cell and space group 0=14037
 La ethyl sulphate, Nd gnd. state pop. changes, direct optical meth. 2=21238
 La ethyl sulphate, Pr-doped, absorption and fluorescence spectra, Pr bond covalence 3=23072
 La ethyl sulphate, single crystal growth, dielec. props. 2=19057
 La fluorenone, e.s.r., dimers 2=23012
 La hexa-antipyrene iodide e.s.r. of Gd³⁺ 2=4256
 Li-alkylated amines, e.s.r. absorpt. spectra 4=18216
 Li oxalate electron density in C-C bonds 4=4595
 Mg phthalate, luminescence rel. to temp. 2=8583
 Mg phthalocyanine, surface ionization energy 2=17793

Organic compounds—contd

- Mg phthalocyanine: $\text{VO}_2(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$, luminescence, and H bonding 4=22935
 Mg $(\text{HCOO})_2 \cdot 2\text{H}_2\text{O}$, crystal struct. 4=23506
 Mn amines, mag. susceptibility, interaction and crystalline field 0=21027
 Mn formate $\cdot 2\text{H}_2\text{O}$, mag. props., and two kinds of Mn ion 4=26266
 MnBr $_2[\text{OP}(\text{C}_2\text{H}_5)_2]$ in acetonitrile soln., spectrum, and Mn $^{2+}$ electronic struct. 4=15349
 Mn $(\text{CH}_3\text{COO})_2 \cdot 4\text{H}_2\text{O}$, Cotton—Monton—Voigt effect 4=29777
 MnCl $_2 \cdot 2\text{C}_2\text{H}_5$, HCl, fluorescence lifetime and intensity 3=8613
 Mn $(\text{HCOO})_2 \cdot 2\text{H}_2\text{O}$, crystal struct. 4=23506
 Mn $(\text{HCOO})_2 \cdot 2\text{H}_2\text{O}$, paramagnetism, exchange interactions 4=13114
 N-containing heteronuclear molecules, N electro-negativity parameter, LCAO calc. 0=20682
 N 14 in ethylenediamine, n. q. r. temp. depend. from 77-280°K 4=7359
 N $(\text{C}_2\text{H}_5)_4\text{Cl}$, in water, osmotic coeff. from integral-equation theory 2=12353
 $(\text{NH}_4\text{CH}_2\text{COOH})_2 \cdot \text{H}_2(\text{SO}_4, \text{PO}_4, \text{F})$, ferroelectric props. 1=5038
 $(\text{NH}_4)_2\text{C}_2\text{O}_8$, crystal struct., atomic 4=29149
 $\text{NH}_4\text{HC}_2\text{H}_4\text{O}_6$, unit cell and space group 0=14037
 $\text{NH}_4\text{H}_2\text{PO}_4$, elastic resonances, optical observation 4=15562
 $(\text{NO}_2\text{C}_2\text{H}_5)_2\text{NO}$, h.f.s. and coupling consts., from e.s.r. 3=14183
 Na acetate, u.s. vel. 2=15589
 Na acetate, u.s. velocity rel. to molecular parameters 1=18403
 Na benzo-acetate, salicylate, luminescence, temp. var. and dosimetry 3=17117
 Na carboxymethyl cellulose, aq. soln., relaxation phenomena 2=2727
 Na carboxymethyl cellulose gel, diffusion of water 3=1403
 Na decyl sulphate, micelles 2=4569
 Na dodecyl sulphate, micelles 2=4569
 Na fluorescein aq., luminesc., KI quenching 3=3807
 Na-fluorescein, lumin. quenching in aq. and glycerin solutions 3=14173
 Na formate, chemical decomposition, by u.s., no change in H isotope ratio 4=13745
 Na metadinitrobenzene, spin distrib. 2=10280
 Na oleate, boiling heat transfer at coexistence of nucleate and film regions 4=27379
 Na perfluorosuccinate, X-irrad., e.s.r. spectra of free radical formed 3=20601
 Na salicylate films, spectra and luminesc., 1750-5000Å, room temp. and 80°K 4=28716
 Na salicylate, fluorescence, 2500-3200Å, as u.v. detector 1=2863
 Na salicylate, luminescence of coatings 4=17613
 Na soap films, electron diffraction patterns 3=16145
 Na uranyl acetate, exciton absorption spectrum 2=18849
 Nd ethyl sulphate, spin—lattice relax. and heating, low temps 4=17681
 Nd ethylsulphate, Faraday effect, influence of paramag. res. saturation 0=10216
 Nd ethyl sulphate, gnd. state pop. changes, dir. optical meth. 2=21238
 Ni amines, mag. susceptibility, interaction and crystalline field 0=21027
 Ni β -alanine dihydrate, crystal structure 4=7654
 Ni hexamine halides, motional and exchange effects in e.s.r. 4=26418
 Ni phthalocyanine crystals, spectra, absorpt., polarization 3=20495-6
 Ni $(\text{CH}_3\text{COO})_2 \cdot 4\text{H}_2\text{O}$, paramagnetism, 0.35-4.2°K 4=13114
 OH $^-$ ions, low-energy collision cross-sections in O_2 3=4012
 $(\phi_3\text{PCH}_3)^+(\text{TCNQ})_2^-$, spin—lattice relax. rel. to temp. 4=17684
 PPD, luminescence, scintillation 0=4447
 Pr ethyl sulphate, paramag. suscept. 2=16892
 Pt-dimethyl-glyoxime, structure 0=3252
 Pt ethanolamine compounds, luminescence 1=3855
 Pt phthalocyanine, dislocation dipoles rel. to fission fragments 3=20253
 Pt phthalocyanine, electron micrograph "lattice image" 4=26638
 trans-[Pt $(\text{C}_2\text{H}_4)(\text{NH}(\text{CH}_3)_2\text{Cl}_2]$, crystal structure 0=8235
 [Pt $(\text{C}_2\text{H}_5)_3\text{P}_2\text{HBr}]$, crystal structure 0=8236

Organic compounds—contd

- α -[Pt $(\text{SCN})_2\text{Cl}_2(\text{P}(\text{C}_2\text{H}_5)_3)_2]$, crystal structure 0=8237
 Pt(IV) and Th(IV) acetylacetonates, probable isomerism 0=8239
 Pu oxalates, decomp. by own α -particles 0=4735
 Rb tetraphenylboranate, crystal structure 3=20862
 S cpds., bond energies and next-nearest-neighbour interactions 0=1512
 SP $(\text{C}_2\text{H}_5)_3$, structure 0=3254
 S and Se cpds, u. v.-irrad, e. s. r. free-radical comparison 4=30473
 SeP $(\text{C}_2\text{H}_5)_3$, structure 0=3254
 SiH $_2\text{C}\equiv\text{CH}$ and SiD $_2\text{C}\equiv\text{CH}$, i. r. spectra 4=12492
 SiH $_2\text{F}_2$, H—H distance calc., appl. of inertial defects 4=22338
 SiR $_3\text{H}$, where R is alkyl and X halogen, mag. props. and bond interactions 4=30467
 Sm ethylsulphate, Sm $^{3+}$ spectrum anal., term diagrams, mag. sp. ht. 0=10047
 Sm $(\text{C}_2\text{H}_5\text{SO}_4)_3 \cdot 9\text{H}_2\text{O}$, Zeeman effect 1=6207
 SmR $_2$ (R is organic radical), for possible maser, optical, by internal energy transfer 3=17072
 Sn cpds, Mössbauer effect, Sn—Sn and Sn—C bonds 4=25717
 Sn—organic cpds., Mössbauer effect rel. to γ -irrad. 3=17633
 Sn—organic, Mössbauer spectra anomalies, rel. to chemical bonds 3=744
 Sn tetraethyl, paramagnetic proton resonance spectra 1=12310
 Sn $(\text{C}_2\text{H}_5)_4$, Mössbauer effect 3=8340
 Sn $(\text{C}_4\text{H}_9)_2\text{X}_{1-2}$, X = O, S, halogen, SO_4 or SO_3 , Mössbauer obs. 4=28332
 SnCl $_4$ -ester complex solution, Raman spectra 4=5189
 SnCl $_4$ -ester complexes, Raman spectra 2=18468
 SnCl $_4$.CH $_3\text{CN}$ molecular force const. calc. 4=6606
 Sr $(\text{HCOO})_2 \cdot 2\text{H}_2\text{O}$, i. r. reflection spectrum 4=7165
 Tb hexa-antipyryne tri-iodide, fluorescence, effect of substitution 1=11401
 Tb tri-anthranilate, fluorescence spectra, lifetimes 3=8628
 Th(IV) and Pt(IV) acetylacetonates, probable isomerism 0=8239
 Ti(III) acetylacetonate, e.s.r. 3=8715
 Ti $^{3+}$ in alcohol and glycerol, e.s.r. and absorption spectra 3=1712
 Tm ethyl sulphate, Mossbauer effect and electronic shielding 4=20171
 Tm $^{169}(\text{C}_2\text{H}_5\text{SO}_4)_3 \cdot 9\text{H}_2\text{O}$, Mossbauer effect, and n. q. r. temp. var. 4=3965
 V tri-dipyridyl 3,5 tetrahydrofuran, space group 2=23859
 V(dipy) $_2$, mol. electronic struct., ligand field theory 4=22412
 X $(\text{CH}_3)_4$, C 13 —H and X—H coupling consts. 4=1317
 Zn $(\text{CH}_3)_2$, Raman spectra, rotational anal. 1=844

Oscillations

- See also Electromagnetic oscillations; Liquid oscillations; Piezoelectric oscillations; Vibrations.
 adiabatic, motion of one-dim. nonlinear oscillator 4=5111
 ammonia N $^{14}\text{H}_3$ maser, travelling wave frequency shift 3=6116
 amplitude meas., two interference methods 3=23957
 anharmonic oscillator, Schrödinger's eqn., eigenvalues 1=15686
 betatron, rel. to particle loss in accelerators 2=5421
 in cavitation, similarity approach 1=125
 conducting fluid layer in mag. field, resonance effects 3=24455
 core in solenoid electromagnet 3=5628
 coupled, complex frequency analysis 3=5476
 coupled, one-dim., anharmonicity 4=20187
 coupled oscillators, power flow 2=13389
 criteria of oscillations of dynamic systems 2=15665
 current, tunnelling, through insul. film in mag. field 4=7025
 cylinder, compressible, non-radial vibs. 3=21086
 cylinder, finite, circular, torsional oscillations 4=14242
 cylinder in viscous liquid 0=8598
 cylindrical atmosphere, forced, vertical propag. 4=17879
 differential eqns., linear, damping coeff. variations 4=14011
 disk in He II 0=10825
 disk, in rotating He II 0=7024
 drops, organic liquid, falling through water 3=7196
 earth, study of interior 2=4586
 elastic tube, incompressible, axially symmetric free oscillations 0=14712

Oscillations—contd

- electric discharge, low-press., d.c., review 2=5324
 electrochemical cell with series resistor, 3.9 c/s 4=13729
 electron gas, long-range density effects 3=9371
 flexural, in immersed strip, use in meas.
 liquid level 1=2723
 fluid, incompressible, gravitational oscill. 2=15557
 fluid sphere, incompressible, of varying density 0=14601
 fluid sphere, m.h.d., about equipartition state 3=9912
 forced frictional, overall stability 0=6846
 forced oscillation in self-rotating system 1=10461
 forced oscillations in self-rotating system 1=5244
 freq.-modulated by noise, energy spectrum 0=14522
 free, classical and quantum radiation
 damping 4=2560
 frictional, between solid and elastic solid 2=11309
 gaseous masses, radial and nonradial, general variational
 principle 4=10781
 gaseous masses, radial and nonradial, variational
 princ. 4=17971
 harmonic, addition, simple demonstration 4=8283
 harmonic, classical, Brownian motion 0=18994
 harmonic, demonstrations 4=8003
 harmonic oscillator, adiabatic invariants 2=4919
 harmonic oscillator, complex poles of S-matrix 0=14520
 harmonic oscillator with dissipation, quantum
 mechanics 1=18277
 harmonic oscillator, quantum mechanics of
 dissipation 0=14519
 harmonic oscillator, semi-classical theory 2=2600-2
 harmonic oscillator, slow-neutron scatt., effect of
 ergodic behaviour 1=4799
 harmonic oscillator, transition probabilities, quantum
 calc. for 3-dimens. collisions 2=16461
 harmonic oscillators, adiabatic relaxation 4=1323
 harmonic oscillators, non-linearly coupled, equipartition
 of energy 1=6807
 harmonic oscillators, with statistical energy
 exchange, collisions 2=3679
 inviscid flow between rotating cylinders, non-rotationally
 symm. disturbances 3=1714
 Jacobi, Maclaurin and Jeans spheroids,
 stability 3=16681-4
 liquid columns, viscous damping 4=138
 magnetron, plasma-filled; analysis 3=6290
 nearly linear, harmonically forced van der Pol eqn.,
 general perturbational soln. techniques 2=7
 nonlinear, use of method of averaging 4=16165
 nonlinear sampled-data systems, method of deter-
 mination 3=6500
 nonlinear systems, principal mode def. 2=4
 nonlinear systems, transitional processes, differential
 eqns. 4=8018
 non-linear theory 0=11037
 non-linear, in weak external fields 0=16602
 operational amplifiers, relation to computer errors 3=6564
 oscillator, hard-spring, randomly excited 1=15995-6
 parametron, amplitude limiting and hysteresis 3=4985-8
 particle, in fluid wave 2=13317
 particle, nonlinear, in a long wave in rotating
 fluid 0=10642
 pendulum with viscous liq. filling the cavities,
 calc. 4=8122
 periodic classical systems, adiabatic
 invariants 0=50
 piston in shallow fluid-filled cavity 2=13398
 plates, in non-Newtonian fluid flows 0=14602
 quartic oscillator, energy levels and matrix
 elements 3=14030
 quasi-discontinuous, model 3=1743
 relativistic oscillator with natural forcing
 functions 1=10408
 relativistic oscillator, nonlinear, damping effects 4=8041
 Roche stellar model, non-radial oscillations 0=18862
 self-excited, in closed pipe 4=5281
 self-sustained, in relay sampled-data systems 3=6501
 in solids, small-amplitude, theory 1=14860
 space charge in semiconductors 0=6086
 subharmonic, in Melde's expt. 0=6847
 subharmonic, nonlinear system 2=13390
 theorems for finite degrees of freedom 3=7086
 thermal-mechanical coupling 3=9380

Oscillations—contd

- thermally stratified fluid under gravity, stability 4=24134
 thermoelastic, isentropic motion, finite deform. 3=18883
 threshold, atomic hydrogen maser 3=6106
 torsion pendulum, meas., carrier freq. device 4=4997
 torsional, in rods 2=15670
 in transport process systematization 3=5392
 two-dimensional, pendulum analogue for accelerator
 particle oscillations 0=19835
 two solids in friction 1=5320
 two-superposed fluids, classification of possible
 oscillations 0=18860
 viscoelastic fluid normal stresses 4=14124
 viscoelastic fluid in pipe 4=29598
 in viscoelastic medium, between parallel
 planes 0=3502
 weakly coupled nonlinear systems, beating 0=19242
 Al rods, torsional, temp. generated 2=23741
 Al tubes, torsional, heat generation meas. 2=21417
 He gas, spontaneous vibrations in 0.3 mm tube,
 10-20°K 0=19203
 He-Ne laser, 0.63-3.39 μ m, behaviour and reciprocal
 action 4=16700

Osmium

- atomic spectrum, isotope shift meas. 2=16482
 cathodic sputtering, thin films prep. 2=9648
 crystal structure and occurrence in minerals 2=2397
 electron emission, field, meas. 4=11691
 in iron meteorites, meas. 0=12273
 radioactive dating, isotope and Os/Re ratios 2=4758
 spectral structure, neutral and ionised 1=8816
 superconducting, isotope effect meas. 3=19121
 vaporization data and boiling pt. 2=17694
 vapour pressure and heat of sublimation meas. 4=24459
 Os I, atomic hyperfine str. quadrupole
 coupling 2=16484
 Os I, II, energy levels, spectral data, Zeeman
 effect 0=20588
 Os I and II, structure and Zeeman effect 1=2293
 Os⁷⁶, L-emission spectrum, quad. and forbidden
 lines 2=12293
 Os¹⁸⁴, spectrum, relative isotope shift 2=3705
 Os¹⁸⁶, relative isotope position 2=22910
 Os¹⁸⁷, spectrum, relative isotope shift 2=1779

Osmium compounds

- complexes, charge and type of chem. bonds 0=20672
 with rare earth, Curie points and mag. moments 0=1776
 semiconductors, resistivity and diamagnetic
 measurements 4=1618
 superconductivity 3=24148
 Os(IV) cryst. hexag. complexes, neutron-irrad., nuclear
 recoil defects annealing 2=21006
 Os hexabromo-complexes, Br⁸⁰%-separation 2=17101
 Os hexahalide complexes, electron transfer
 spectra 0=20650
 Os oxide, use as shadowcasting material in electron
 microscopy 1=2553
 Os-As or Sb-S, Se or Te, semicond. props., crystal struct.,
 atomic 4=26056
 Os-B, orthorhombic phase (probably OsB₂)
 structure 2=23866
 Os-B system, crystallography 1=10260
 OsC, preparation and crystal structure 1=1399
 OsF₆, absorption spectrum and magnetic
 properties 1=3543
 Os-Ir, crystal structure and occurrence in
 minerals 2=2397
 Os-Ir equilibrium diagram 4=26563
 Os-Ir, superconductivity 3=3962
 [Os(NH₃)₆]Br₃, charge and bond detm. by L_{III}
 absorpt spectrum 2=14693
 Os-O system, ionic species formed at high
 temp. 0=14971
 OsSb₂, structure 1=4049

Osmosis

- aqueous solutions, osmotic coeffs. using thermoelectric
 differential v.p. method 4=8196
 binary systems, thermodynamic limit 3=14151
 electrolytes, symmetrical, osmotic term in relaxation
 field 4=10643
 electro-osmosis, a.c. 0=2313
 electro-osmosis, effect on electrodiffusion 2=1141
 electro-osmosis, in electrophoresis 2=15147

Osmosis—contd

- electro-osmosis through collodion membranes 2=11612
 flow through charged membranes 4=23668-9
 gas thermo-osmosis through polymers, press. difference approach to steady state 4=29172
 ion-exchange membrane systems, diffusion-exchange of exchange ions and nonexchange electrolyte 0=4714
 osmotic press. rel. to solvent conc. 2=17454
 polymer membranes 1=15848
 polymer solns., osmotic press. calc. 0=14641
 polymer solns., second virial coeffs., rel. to mol. weight 3=3802
 polymer solutions, second virial coeff., light scatt. meas. 4=2669
 polymers, second virial coeff. 2=6242
 polystyrene solns., second virial coeff. calc. 3=16615
 solute-permeable membranes 0=8659
 solute permeation through membranes, invest 2=11363
 solvent and ion transport through membranes 2=5007
 system of charged particles, osmotic coeff. by statistical mech. 2=12353
 He³, in liq. He⁴, refrigerator for <1°K 3=5565
 Hg, electro-osmosis, temp. depend. 0=5269

Oxidation

- acetylene, chemi-ionization by O atoms 3=16904
 acetylene, in shock waves 1=11618
 acetylene in shock waves, ionization produced 2=23959
 anodes, ion transport mechanism 3=13616
 benzaldehyde- α -t with aqueous acid chromate 0=1953
 beryllides, "pest" degradation 4=29169
 carbonized anthracite aggregates, contact resistance 3=8545
 carbons, formation of spin centres 2=12816
 electric field effects, proposed obs. in triode 4=20829
 electron microprobe examin. 3=3377
 getters 0=3572
 graphite, effect on rhombohedral modification, by X-ray diffr. 3=18309
 graphite, electron microscope study 0=21260
 graphite, by gases, theory 2=23956
 graphite, imperfections as active sites 2=3925
 graphite, in O and air under flow conditions, 1000°-1400°C 4=29211
 graphite, structural aspects, study 3=20985
 graphite, thermal 3=25821
 growth kinetics of oxide films, discontinuous 4=29041
 ionization, mass spectrometer shock tube study 4=13713
 kinetics, gas, 1-100 msec, by adiabatic compression 3=20981
 magnesiowustite single crystals 3=20986
 magnetite, rel. to elec. resist. and temp. above Curie pt. 2=12499
 mesonaphthodanthrene, photo-oxidation 0=21289
 metal films, layer formation, 1.5°-100°K meas. 4=7754
 metal oxide films, space-charge distrib. 1=11593
 metal thin film surfaces, emission microscope obs. 2=21565
 metallic films, rel. to optical transmission and resistance 4=20801
 metals 3=20984
 metals, rel. to adsorption rate 1=2546
 metals and alloys, at low press., gravimetric determ. apparatus 4=13711
 metals, films, and absorption, light 3=17991
 metals, oxide film growth, homog. field approx. 4=7753
 metals, oxide film growth, kinetics 3=25775
 metals, during vaporization in Ar + O₂ 3=24120
 metals, X-ray diffraction examination 4=13623
 methane, acetylene, C₂H₂⁺ ion formation 4=13713
 methane, in shock waves, mechanism 4=17859
 methanol, using photosensitized ZnO 4=23652
 oxidation-reduction reactions in solutions, electron-transfer processes 0=19171
 oxide films, growing, space charge, rate effects deduced by averaging technique 4=23563
 parabolic growth law for oxide films 4=26745
 photosensitized oxidation of phenol by dyes 1=7919
 polymers, i. r. spectroscopic study 4=4697
 positronium, in chloride solns. 1=18436
 rubber, stress effects, cyclic, smoked-sheet 4=23619
 semiconductor formation, effect of equilibrium conditions 3=25824
 steel, during mild wear 2=4349
 sulphate radicals, conc. meas. by chemiluminescence 4=2151

Oxidation—contd

- transition-group complexes, oxidation-reduction reactions 0=21280
 transition metal oxides, prep., use of CO-CO₂ atmospheres 4=15640
 water, to H₂O₂, by X-rays 1=15360
 wüstite, O/Fe ratio rel. to oxygen press. 3=5076
 Zircalloy and Zr, at high temp., in O₂ and H₂O 4=15254
 Ag films, by heating or irradi., electron diffr. study 2=12959
 Ag liquid surface, and surface tension 4=11190
 Al alloys, anodic oxide films, microanalysis 4=7711
 Al, direct electron-microscope obs. 3=11336
 Al, effect on electron energy loss spectrum 0=9880
 Al, films 0=8335
 Al films 2=12944
 Al, films, reflectivity decrease 3=23039
 Al, growth kinetics of oxide films, discontinuous 4=29041
 Al, oxide film formation, electron microscope study 1=4080
 Al, small crystals, ~0.025 μ diameter, rel. to melting anomalies 4=9861
 Al-Fe alloys 1=15129
 Al₂O₃ film formation 2=10938
 Bi, anodic oxide film formation 2=15151
 CO, catalytic, elec. cond. of catalyst MnO₂ 1=5111
 CO, on NiO catalyst, mechanism 4=17862
 Co, films, and absorption, light 3=17991
 Co submicron whiskers 3=23412
 Co, ZnO photosensitized, kinetics, activation energy 4=17869
 Co-Al alloys, around Curie point 3=11337
 Co-Pd, reactivity, anomaly, at Co Curie point 3=20982
 Cu, for Cu₂O crystal growth 4=13531
 Cu, to Cu₂O, crystallite growth 2=16986
 Cu, effect on elec. cond. and chemoemission, up to 600°C 3=2012
 Cu, effect on mag. props. 2=12756
 Cu, electron-diffraction study 3=13417
 Cu, electron microscope obs. 3=18435
 Cu, electron microscope study 1=2554
 Cu, and film growth mechanism 3=23516
 Cu, films, and absorption, light 3=17991
 Cu films, X-ray reflection study 0=14089
 Cu, using gas reactor for transmission electron microscopy 4=29220
 Cu, high temperature 4=23639
 Cu, kinetics 4=23526
 Cu, needle growth 0=6331, 13960
 Cu, 250-450°C, CuO whiskers 1=6502
 Cu, whisker growth of CuO is of no importance 4=29212
 Cu-Bi alloys 3=18221
 CuCo, CuFe, CuMn, dilute alloys, internal, effect on elec. resistivity 0=17996
 Cu-N, alloys, under various conditions 0=16375
 Cu-Ni, oxide film formation 3=18432
 Cu-O soln. and Cu₂O after annealing, 750°-1050°C 2=12962
 Cu₂O, pulverized, to CuO 0=16371
 Cu-S, scale formation, causes and mechanisms 4=23640
 Cu-Si alloys 3=18221
 Dy³⁺ in CaF₂, Dy³⁺ → Dy²⁺ photo-reduction by γ -rays and thermal reoxidation 4=23679
 Fe, Armco, diffusion of Fe ions 1=6112
 Fe, in atmosphere of Ar + 10% water vapour 3=3268
 Fe, Fe-C submicron whiskers 3=23412
 Fe, films, and absorption, light 3=17991
 Fe, by O₂ and water vapour, rel. to imperfections, electron microscope study 1=4077
 Fe oxide films on Fe single crystals, electron diffraction study 4=26711
 Fe oxide growths, rel. to surrounding gas 3=18433
 Fe, using gas reactor for transmission electron microscopy 4=29220
 Fe whiskers, resistance to 2=12960
 Fe-Al alloys, around Curie point 3=11337
 Fe(NH₄)₂(SO₄)₂, aq. soln., radiation-induced 1=1490
 GaAs wafers in oxygen stream 3=2943
 Ge films, at low temp. 1=1481
 Ge films, X-ray reflection study 0=14089
 Ge, nucleation of oxide, dislocation effects 3=25276
 Ge, rel. to orientation, temp., and O₂ pressure 0=12097
 Ge, surface, kinetics 1=5102

Oxidation—contd

Ge surface, selective 4=30896
 Ge thin films 2=23957
 H_2 , catalytic, by Ni-on-CrO₃, simultaneous isotopic exchange between H_2 and steam 4=7758
 H_2 , combustion delay surfaces 4=17858
 KI solns., effect of relax. due to u.s. 2=11370
 Mg crystal faces, oxide film growth 3=23512-13
 Mg, effect on electron energy loss spectrum 0=9880
 Mg, single crystals and films 3=11335
 Mn ferrite solid solns., effects on structure and mag. props. 2=4232
 Mo, by dissociated O, kinetics 4=26743
 Mo, 1500°-2600°K, mass-spectr. study 4=4695
 Mo oxides, 230-350°C 0=18345
 MoSi₂, 1400°-1700°C meas. 4=13716
 MoSi₂, "pest" degradation 4=29169
 Mo-Si-Be system, at 1000°-1200°C 4=10638
 Nb, anodic film structure 3=23507
 Nb-Sn diffusion specimens, superconducting, anodic oxidation, intermetallic compound existence 4=27430
 Ni, films, and absorption, light 3=17991
 Ni films, by ion bombard. 0=10988
 Ni films, rel. to magnetic properties 3=15823
 Ni films, X-ray reflection study 0=14089
 Ni, mechanism 4=13710
 Ni, O₂ interaction with clear (111) surface 4=7702
 Ni particle catalysts, electron diffraction study 0=4764
 Ni, surface temp. increase 4=23641
 Ni, temp., effects on water boiling on wire 4=11423
 Ni, using gas reactor for transmission electron microscopy 4=29200
 NiAl, "pest" degradation 4=29169
 Ni₃CO, ordering detected at 773°C 0=16355
 Ni-Si alloys, 1000°-1200°C 4=23642
 O¹⁸ atoms with NO₂ 3=13598
 P³² produced in Cl³⁵ (n, α) P³² processes in KCl crystals 4=7777
 Pd-Fe alloys, at 1200-1460°C 2=15140
 Pd-H soln. in constant current, anodic 3=5166
 ReSi, resistance to 3=872
 Se films, X-ray reflection study 0=14089
 Se, polycrystalline, rel. to conductivity ratio 3=17893
 Si, rel. to Al-dopant redistribution 3=17866
 Si, by boiling water, rate 2=21583
 Si, effect on B distribution 2=21071
 Si, effect of electric field 2=19143
 Si, and film growth mechanism 3=23516
 Si films 2=23957
 Si oxide films on Si surface, growth versus time, parabolic relation 4=7564
 Si, oxide films on surface, 300°-1000°C 3=25439
 Si with oxide film, oxidation rate determ. 4=4277
 Si, at 600-1000°C 2=15141
 Si surface, p- to n-type conversion, min. resistivity 4=12911
 Si, thermal 2=21584
 Si, thermal, rel. to acceptor and donor impurity redistrib. 4=28572
 Si, thermal oxid. mechanism 3=13600
 Ta, anodic, film structure 3=23507
 Ta, 500°-700°C 2=10970
 Ta₂O₅ film formation, effect of Frenkel defects 1=20675
 Ti, effect of O₂ formed during TiO₂ reduction 4=23643
 Ti, 500°C, electron microscope study 3=18434
 Ti, surface film structure meas. 4=15808
 Ti, Ti oxides scale, structure 1=12661
 TiB₂, "pest" degradation 4=29169
 Ti-Fe alloys, dilute 2=10975
 TiO₂ growth on Ti at 482°C 2=7370
 U, oxidized in air at increasing temps. 3=3250-1
 U, from X-ray M_V emission, spectrum last lines 3=23558
 W, 1500°-2600°K, mass-spectr. study 4=4695
 W, pure and carbon-containing 1=5109
 WS₂, 650-1500°C, weight var. 4=13715
 Zn films, atmosphere corrosion, kinetics 4=26748
 ZnF₂, by air, growth of ZnO crystals 2=4383
 Zr, anodic film structure 3=23507
 Zr films 4=4696
 Zr films, oriented 4=26715
 Zr, surface temp. increase 4=23641

Oxide cathodes

See Cathodes, oxide.

Oxygen

absorption coeffs. at high temp. 0=7120
 absorption coeffs., 1060-580 Å, rel. to dissociation and ionization 4=9723
 absorption line, 2.53mm wavelength, shape, intensity and pressure broadening 4=17288
 absorption spectrum, visible and u.v. 0=1533
 with admixtures, thermal relaxation 4=5244
 adsorbed, on Fe, i.r. spectrum 2=23963
 adsorbed on metals, effect on elec. cond. and superconductivity 3=16872
 adsorption on CdS single crystals, surface states 4=28421
 adsorption on Cu₂O, mag. susceptibility changes 4=23596
 adsorption on GaSb 4=4673
 adsorption on Ge, effect of water vapour 0=16395
 adsorption on Ge, effect on work function 0=9059
 adsorption on Ge, influence on free charge carriers 1=17684
 adsorption on Ge, kinetics and mechanism 3=3365
 adsorption, on Ge and Si, sticking probab. regeneration of clean surfaces 1=11597
 absorption on Ge, surface electron energy distrib. 1=1045
 adsorption, on Hg surface 2=1126
 adsorption, on ice, effect on mag. props. 2=16895
 adsorption, on Ni, (110) face, O-Ni structures 2=23921
 adsorption, on Ni films, effect on elec. resist. 3=20271
 adsorption on Ni oxide, crystal field effects 3=13573
 adsorption on NiO, neutron effects 3=13567
 adsorption on Pt and C-supported Pt, partial molal enthalpies of adsorption 4=26721
 adsorption on Pt, electron diffr. study 4=23602
 adsorption on semiconductors, rel. to eye melanin free radical kinetics 4=20975
 adsorption on Si 0=12116
 adsorption on Si, e.s.r. obs. 4=26723
 adsorption on Si and Ge, elec. diffraction study 4=20824
 adsorption on W 0=21297
 afterglow and night airglow, 3350-4500 Å 0=5954
 airglow, auroral green line, prod. 2=4659
 in airglow, day and twilight, (0,0) band obs. at 1.27 μ 3=18553
 analyser for O₂, by gas-phase polarography at low press., -20° to 80° C 4=26774
 analysis in biological materials, polarographic microelectrode 1=12683
 analysis of > 0.3 p.p.m. in transistor-grade Si, by α -activation 1=6581
 arc plasma, Stark-broadened spectral lines, shifts and widths 3=24277
 atmosphere content, rel. to positive ion variations 2=8989
 atmosphere, O/O₂, 100-135 km, by mass spectrometer, rocket-borne 3=18522
 atmospheric, absorption of e.m. waves 0=12717
 atmospheric microwave spectra 3=13679
 atmospheric, origin 2=15181
 atmospheric, origin, rel. to solar "wind" 1=20811
 atmospheric oxygen, hypothesis on origin 1=20810
 atmospheric, solar rad. absorpt. 2=17143
 atom charge transfer with O⁺, H⁺ 4=24593
 atom concentration, e.s.r. meas. 2=3792
 atom, electron capture by protons 3=15303
 atom, 5577 Å line, by α -radiation of N₂-O₂ 4=15287
 atom, free-free continuum spectrum, rel. to polarization and exchange 3=17531
 atom and O₂, excited, electron impact ionization meas. 4=11537
 atom, O III, emission spectrum, asymmetric auto ionized lines 4=15285
 atom, O II and III lines, relative oscill. strengths 4=15284
 atom, 1s²2s^m2pⁿ states, self-consist. field functions 3=19942
 atom, radiative recombination coeffs., into low-lying excited states 4=19942
 atom reaction with CO 3=5159
 atom reaction with olefins, rate meas. 3=11341
 atom recombination 0=2728, 18430
 atom recombination by Ar catalysts 3=13595
 atom recombination in inert gases 3=13597

Oxygen—contd

atom recombination on Pt surface 0=6402
 atom, recombination rate constants, three-body 4=17852
 atom recombination rates 0=6405
 atom recombination, surface catalyzed 0=18428
 atomic, chemiluminescence, in O and N reactions 3=25819
 atomic, reaction with NO₂ 2=20891
 atomic, recomb. to O₂, e.s.r. study 2=16494
 atomic recombination, by e.s.r. 3=25068-9
 atomic, recombination on surfaces 1=20743
 atomic, scatt. factor for X-rays 2=15010
 atomic scattering factor of O²⁻ 0=8197
 atomic system, continuous absorption coeff., rel. to stellar atmospheres 3=3599
 atomic, thermal cond. and viscosity calc. 2=9316
 atomic, wave-functions 2=8059
 atoms, appearance potential and scattering cross-section 2=20890
 atoms, aspherical scatt. factors in sp³, sp² and sp valence state 4=26626
 atoms, charge exchange cross-sect. with N₂ molecules, at low-energy 2=22173
 atoms, charge transfer with atmospheric ions 3=14531
 atoms, diffusion in O₂, using tubular flow reactor 1=12920
 atoms, electron scatt. bremsstrahlung-elastic cross. rel. 4=15299
 atoms, electron scatt., low-energy, cross-sect. abs. meas. 4=25568
 atoms, electron scatt. total cross-section, 2.3-11.6 eV, using O₂ beams 1=11079
 atoms, excited, quenching abilities of Xe, Co₂, H₂, Kr, SF₆, C₂F₆ 4=6491
 atoms, gaseous, transport coeffs., calc. 0=3565
 atoms, ionization by electron impact 2=3001
 atoms in lightning stroke near peak temp. 4=23765
 atoms, O¹⁷, h.f.s., calc. 0=20550
 atoms, O¹⁷, hyperfine consts., calc. 2=22898
 atoms, photoionization 1=1888
 atoms, photoionization cross-sections 4=19978
 atoms, polarizability, dipole, calc. 0=9736
 atoms, reaction with simple mols. in matrix 4=25757
 atoms, reactions with isobutane 3=11340
 atoms, reactions with NO and NO₂ 4=29215
 atoms, three-body reaction discounted as airglow 5577 Å line mechanism 1=1552
 atoms, wave-functions, analytic 0=15637
 attachment coeff. meas. 2=5300
 attachment coefficient data 0=2316
 attachment coeffs., for slow electrons 0=8995
 auroral spectra, lines excited by particles 2=2513
 β-phase solid, neutron diffn., structure, consts. 4=29127
 breakdown, microwave, meas. 3=14560
 charge transfer cross-sections 3=14530
 chemical analysis, by thermal cond. var. in mag. field 4=29245
 chemical reaction O + NO₂ = NO + O₂, via NO₃, isotope exchange 3=18436
 chemical reactions, in upper atmosphere, bimolecular, rates 4=13719
 chemi-ionization in atomic mixtures with N 3=25820
 chemisorption on CdS, elec. cond., contact potential obs. 4=29194
 chemisorption on and diffusion in MnO₂ 4=20823
 chemisorption, on Ge 0=10368
 chemisorption on Ni, mechanism 1=20687
 chemisorption on NiO after neutron irradiat. 3=3366
 chemisorption on semiconductors 4=20832
 chemisorption on W filament, detector using work function prop. of W 4=10683
 chemisorption on W, 20° and 300°K 3=3396
 chemisorption on Zn oxide 2=6693
 compressibility coefficients, law 1=9417
 concentration determ. in fluids, galvanic cell 4=7806
 concentration in gases, electrochemical meas. 2=4579
 condensed film at low temp., optical props. 0=740
 content in liquid metals, meas. 1=16209
 content, rapidly changing, in gas mixtures, absorption spectroscopy meas. 0=4755
 crystal struct., atomic, γ, 50°K 4=23441
 cyanogen flame, seeded, plasma stream prod. 2=3036
 d.c. glow discharge, ion balance 1=16288

Oxygen—contd

detonation of H₂-O₂ mixtures 1=11623
 detonation, marginal, of mixtures with H₂, effects of additives 2=19147
 detonation, with 2H₂ + 2CO 1=7908
 diamagnetic susceptibility calc. 2=3682
 dielectric constants, audio frequency meas. 4=27227
 diffusion, in CO₂, CH₄, H₂, CO and H₂O 2=2764
 diffusion in CaF₂, meas. 4=12786
 diffusion in calcium aluminoborate and aluminosilicate glasses 4=28610
 diffusion and configuration in Si and Ge 4=28485
 diffusion in gas mixtures at high temp. 0=3563
 diffusion in GeO₂, liquid and solid 3=20224
 diffusion in Ge and Si, calc. 1=17560
 diffusion, in Nb, 2145-2350°K 4=22620
 diffusion, in NiO crystals 2=2100
 diffusion in Si during thermal oxidation 3=13600
 diffusion, thermal, in Zr 1=14326
 diffusion in TiO₂, quartz and quartz glass 3=2831
 diffusion, in UO₂, mech. 2=3944
 diffusion in W, activation energy determ. by internal friction 4=17446
 diffusion, self, in BeO, 1500-2000°K 4=12784
 dipole moment induction, orbital calc. 2=20792
 discharge, electric, positive column oscills, freq. var. with dimensions, voltage 4=8650
 discharge, glow, ions, mass spectrometry 3=14552
 discharge, point-to-plane 2=9545
 discharge, positive column fields, 10⁻⁶-10⁻² Å 3=19213
 discharge positive column, low-gradient form, connection with moving striations 1=16285
 dissociated, viscosity, heat transfer 1=6878
 from dissociating CO, adsorbed on Ta, field emission patterns 4=26726-7
 dissociating, gas, high-temp. transport props. 2=13372
 dissociation, A, Kr, Xe catalysis efficiencies 2=10981
 dissociation by electron impact, O⁻ prod. 3=361
 dissociation in ionosphere rel. to comp. 4=23803
 dissociation in microwave discharges, catalytic effects of foreign gases 0=7737
 dissociation of O₂-A in shock tubes 2=23005
 dissociation rates, shock tube determination 1=10295
 dissolved in aqueous solns., meas. using temp. compensated electrodes 4=10645
 dissolved in V, mobility, effect of pressure 1=2396
 e.s.r. in solution, influence of dissolved O 0=14663
 effect, on e.s.r. line widths of solutions, of dissolved oxygen 10521
 effect on fatigue life of Pb 4=13421
 effect on photoelec. emission of Ni films 0=19720
 effect on precipitation of Li in Ge 0=12078
 effect on surface mobility of Sn atoms 4=13684
 effect on Ta solid films 4=13685
 effect on vitreous silica crystallization 4=23348
 effect on work function of Ba-coated W 0=9064
 effects, on Se, polycryst., elec. cond. 2=8278
 effects on surface props. of Ge and Si 4=20795
 elec. breakdown, current increase 0=9021
 elec. discharge, gas-ionizing radiation 2=17795
 elec. discharge, O atom conc., time depend. 0=2332
 elec. discharge, r.f., in Ne-O₂ and A-O₂, optical maser action 2=22908
 elec. discharge, spatial expansion 2=3013
 electric sparks in, channel expansion 1=18790
 electrodeless discharge, electron mobility meas. 0=7094
 electron affinity 0=8996
 electron affinity, review 0=1504
 electron attachment coeff. 0=5277, 8480-1
 electron attachment and ionization meas. 4=5556
 electron attachment, at low-energy 2=13536
 electron avalanches, in uniform elec. fields, electron component 1=272
 electron beam energy losses in 0=19764
 electron capture, from fast alkali-metal atoms 2=11618
 electron conductivity after weak ioniz. 3=3839
 electron interchange, with H atom beam 2=14182
 electron irradi., free electron loss 3=14598
 electron mobility, in O₂ 2=7562
 electron scatt., elastic and inelast., from electron transport 4=11509
 electron scatt., multiple, 40-130 keV, spatial distrib. 4=887

Oxygen—contd

electron stopping power 0=352
 electron trapping by impurity in liquid argon 3=19175
 energy of solution in Ag 2=12928
 enriched water, O^{17} , n.m.r. 2=1170
 equation of state and thermodynamic props. 4=2723
 equilibrium props. behind shock waves 3=21493
 ether- O_2 mixtures, onset of detonations 2=12965
 exchanges, chemical, O^{18} with O_2 , NO, NO_2 , mass spectrometry obs. 4=23645
 excit., of 8446 and 7774 Å lines in chromosphere 0=8507
 excited atoms and molecules, reactions, from flash photolysis of O_3 0=8319
 Faraday effect, anomalous 0=7772
 Faraday effect, theory 3=5468
 fluorescence quenching, organic solns., diffusion 2=9282
 flow, two-phase, idealized solutions 4=11152
 γ -irradiated, gaseous and liquid, reaction products, rel. to space flight 0=18440
 γ -ray absorption 2=5599
 gas, absorption and velocity of sound 3=9506
 gas, Aston bands, rel. to ionization 3=4020
 gas, discharge detector 3=8993
 gas, ionized, e. m. wave absorption, parabolic law 2=17950
 gas, microwave ionization, net frequency 3=9723
 gas, microwave (3 cm) breakdown in flowing gases 3=9516
 gas, permeability of Ag 3=13549
 gas release from glass, on electron bombardment 3=16124
 gas, second virial coefft. estim. 2=11414
 gas, sound velocity and absorption 3=9509
 gaseous, nucleation temp. 3=303
 gettering, electrical in low-pres. discharge in steel vessel 3=7461
 glow discharges, electron energy distrib. in plasma 1=16317
 glow discharges, ion emission, mass spectrometer study 0=9005
 h.f. electrical discharges, effect on coupled circuit 1=5425
 heat of solution, in Ag 2=20999
 heat of solution in Mg uranate 4=20714
 i.r. absorption, collision-induced 2=2775
 i.r. and red atmospheric absorpt. band systems, effect of high press. 4=6578
 impurity in NaCl, KCl, KBr, optical absorption and fluorescence 1=11563
 interaction with CdSe surfaces, meas. 3=11326
 interaction with incandescent filaments 0=1950
 intermolecular, Morse potential force consts. from viscosity 4=9787
 intermolecular repulsion, from intramol. oscill. relax., temp. var., from shock wave propag. 3=12881
 ion-atom interchange in upper atmosphere 0=14200
 ion-electron recombination in afterglow 2=3008
 ion emission, field 3=19371
 ion mass, discharge glow, O_3^+ , O^- , O_3^- 3=19183
 ion mass identification with wire filter 4=11510
 ion, O^{18} , charge distrib. at high velocities 3=7447
 ion-pair formation, by 100-300 kV X-rays 2=7560
 ion recomb. and electron capture, meas. from plasma density 4=21495
 ion scatt. by C, Mg and Al, elastic 3=19891
 ionic radius, calculation 1=11562
 ionization, attachment and breakdown meas. 4=8622
 ionization electron affinity meas. by beam, thermal motion effects 4=21454
 ionization, electron avalanches analysis 2=3003
 ionization, by electrons and protons, Born approx. 2=9529
 ionization and excitation, in hot stars 1=1653
 ionization by H^- and O^- 1=16269
 ionization potential-refractivity relation 0=2321
 ionization, in pulsed discharge 2=1387
 ionization by 10-50 keV H^- and O^- ions 0=12579
 ionization, by X-rays at 100-300 kV, ion-pair formation energy 2=15886
 ionized, slightly, cyclotron reson., collision freq. det. 4=461
 ionospheric, rel. to height and latitude 2=8987
 ions, bombard. of W-Ge and W-Si contacts, V-I curves 1=17771
 ions, electron attachment and detachment, simultaneous determ. 4=24592

Oxygen—contd

ions, electron capture from N_2 0=8997
 ions, energy loss and range in C, Al, Ni, Ag and Au 1=4668
 ions formed in mass spectrometer 0=10875
 ions, mobility, in O_2 and O_2-H_2O mixtures 3=12080
 ions, negative, source 0=12640
 ions, O^- , in Ca fluorophosphate, e.s.r. 2=23700
 ions, O^- , electron photodetach. and atomic electron scatt. 2=12298
 ions, O^- and O^{2-} , electron affinity and stability calc. 4=9643
 ions, O^- , photodetachment, final state effects 4=22317
 ions, O^- , prod. cross-sections and electron affinity 3=361
 ions, O^- , atmosph. concn., rel. to solar time 2=8981
 ions, O^+ , bomb. of metals, secondary emission 0=9078
 ions, O^+ , double charge exchange in inert gases 0=14978
 ions, O^+ , high-energy, in CO , mass spectra 0=19615
 ions, O^+ , resonance charge transfer with H atom 2=16492
 ions, O^+ , ^{45}S state, dielectronic recomb. 2=15889
 ions, O^{2+} , atomic parameters calc. 4=6482
 ions, O^{2+} , n.m.r. shielding constant 2=1970
 ions, O^{16} , energy loss in Ni, O_2 and nuclear emulsions 0=17051
 ions, O^{16} , tracks in nuclear emulsions 0=12777
 ions, O_2 , collision freq. with mols., var. with pressure 4=8626
 ions, O_2^- , energy absorption and emission, model 2=5306
 ions, O_2^- , in prep. of large Langevin ions 2=15167
 ions, O_2 , in atmos. at 400 km, formation 2=8990
 ions, O_2 , formation mechanism in ionosphere 2=15212
 ions, O_2 , line in nightglow 2=11074
 ions, O_2^+ , near i.r. spectrum meas. 2=16518
 ions, O_2^+ , O^- , O_2^- , O_3^- in pure gas, by mobility meas. 3=7438
 ions, O_2^+ , O^+ , O^{2+} , prodn. in atmosphere 2=19241
 ions, O_2^+ , 4I_1 multiplet anomalous splitting 2=18458
 ions, O_2^+ , 4I_1 multiplet splitting, spin-spin interactions 0=5965
 ions, O_2^{3+} , potential curves eval. 2=20816
 ions, O_3^+ clusters, bonding 4=17319
 ions, range and ionization in emulsions 0=12772
 ions, range in solids and gases 2=7674
 ions, scatt. from A and Xe meas. 2=16489
 ions, single, exosphere, distrib., 1500, 2000°K 3=16240
 isotope, O^{13} , predicted existence 0=13396
 isotopes, relative abundance, mass-spectra 3=12785
 isotopic analysis 2=20061
 K-LL spectrum, fine structure 0=17715
 laser action in atoms from mol. dissociation 4=11828
 liquid, absorption bands rel. to pressure (to 7000 atm), temp. (78°-300°K) and density 3=1692
 liquid, boiling, bulk density meas. 4=11432
 liquid, boiling point, absolute meas. 0=1086
 liquid, boiling temp. increase in mag. fld. 2=9456
 liquid, boiling, temperature grad. and convection processes 1=16144
 liquid, breakdown, electric, mechanism, impurity effects 4=5200
 liquid, cool-down conditions, in contact with various materials 4=11436
 liquid, density, rel. to press. 2=7190
 liquid, density, -190° to -120°C 2=2702
 liquid, density on saturation curve 1=4327
 liquid, diffusion of N_2 , gas phase method 4=5168
 liquid, elec. strength, electrode surface effects 0=12423
 liquid, miscibility with ozone and F 2=21904
 liquid, and mixtures with N_2 , X-ray diff. meas. 4=24170
 liquid N_2 diffusion in, meas. 2=9266
 liquid, Rayleigh line study rel. to temp. 1=18417
 liquid, structure, neutron diff. study, possible existence of O_4 0=12414
 liquid systems, binary, with N and A 3=132
 liquid, ultrasonic velocity 2=21908
 liquid, velocity of sound 0=124
 liquid, viscosity meas. 2=15541
 liquid, viscosity and mol. interaction 3=9423
 luminescence, chemi, in $H_2O_2-NaOCl$ solns. 4=24223
 luminescence in $NaOCl + H_2O_2$ solns., chemi- 4=5195
 in mesosphere, density 0=14199
 meteors, i.r. spectra 2=4757
 microwave dispersion, calc., 0.25 to 50 atm 1=12930

Oxygen—contd

- mixtures, binary, with N_2 and CO, sound absorption, relaxation, composition depend. 4=28285
 in mixtures with CH_4 , viscosity 1=4364
 mixtures, with H_2 , thermal and ordinary diffusion, u.s. velocity meas. 0=5049
 molecular absorpt. spectra, press. 2-35 atm, 12600-3600 Å 4=25677
 molecular beam techniques 0=2758
 molecular bond length by neutron diffraction 2=22960
 molecular excitation by electron impact 2=22974
 molecular pleochroism in O_2^{16} , rel. to parity nonconserv. 2=16517
 molecule, dissociation by Ar, statist. study 3=6423
 molecule, dissociation and vibr. rates meas. 3=7274
 molecule, ground state, parity impurity, upper limit 4=5957
 molecule, H_2O line width from collision 4=22439
 molecule, microwave absorption, pressure effect calc. 4=6579
 molecule, neutron scatt., quantum states transition 3=25074
 molecule, O_2 , Schumann-Runge band system, electronic transition moment 4=15339
 molecule, O_2 , vibr. de-excitation, in collisions, light impurity effects 4=20059
 molecule, proton scatt., two-state and multistate 3=25104
 molecule, rotational const. Bo, precise det. from microwave absorption 1=837
 molecule, rotational transitions due to He 3=6431
 molecule, Schumann-Runge band system, Franck-Condon factors 4=9721
 molecule, Schumann-Runge bands, electronic transition moments 4=15340
 molecule, Schumann-Runge bands, electronic transition moments, determ. 4=9722
 molecule, vibr. relax., in He and Ar mixtures 4=1269
 molecule, vibrational relax., 600°-2600°K 4=1268
 molecules, adsorption on W 2=23919
 molecules, adsorption on W 3=6887
 molecules, $B^2\Sigma_u^-$ state, pot. energy curves 2=12316
 molecules, collisional detachment and attachment coeffs. 1=5420
 molecules, dissociation and excitation of oscillations 2=12350, 14334
 molecules, dissociative charge transfer from He^+ 3=24224
 molecules, electron attachment coeff. at low energy 3=362
 molecules, electronic transition moment for Schumann-Runge bands 3=724
 molecules, far-u. v. spectrum 2=14284
 molecules, Franck-Condon factors and vibrational wavefunctions 4=6577
 molecules, nightglow spectrum, near i.r. 4=23779
 molecules, O_2 , 6300-3000 Å absorption spectrum 3=6395
 molecules, O_2^+ , vibrational spectrum 3=8266
 molecules, photo-ionization efficiency curves, 9-14 eV 3=24211
 molecules, Schumann-Runge system, emission intensities 2=543
 molecules, vibration, excitation by impurities, high temp. 3=17581
 molecules, vibrational relaxation 2=8079
 mutual diffusion with A, Xe, He 2=5050
 nightglow forbidden spectra, variations 1=21030
 nightglow, (0, 1) 8645 Å bands 2=15251
 nuclear relaxation in methane- O_2 mixtures 2=1210
 nuclei, O^{17-20} , energy levels in shell model 2=7933
 optico-acoustic effect 0=8715
 in organic solns., u. v. absorption spectra 2=5020
 oxide cathodes, influence on 1=16364
 oxygen-gas mixtures, paramag. effects due to viscous flow in mag. field 1=5297
 oxygen + inert gas, combustion and flow in boundary layer 1=4369
 paramag. resonance absorption, $O^{16}O^{16}$ and $O^{16}O^{18}$, g values 0=9821
 paramag. resonance in alkali halides 0=3127
 partial pressure gauge 1=9361
 peak electron density, curvature 1=15064
 photodesorption, in ZnO, temp. depend. 0=18074
 photodissociation, electronic transition moment calc. 4=28273

Oxygen—contd

- photodissociation in Schumann-Runge system 0=17721
 photoionization by solar Lyman- α radiation 1=11649
 photosorption and desorption on ZnO 1=4082
 plasma, isothermal, ambipolar diffusion at high temps. 4=14642
 positive ions, 5-25 keV, sputtering of Cu 1=8363
 positron annihil. in liq. and solid 3=17254
 positron annihil. mean life in liq. and solid 4=4031
 positronium formation and quenching meas. 4=19495
 positronium formation and quenching meas. 4=19496
 potential energy curves 0=17734
 props. at 1-30 atm., 1000=3000°K 0=7129
 proton beam, fast, discrete energy losses 4=11517
 quenching of luminescence, solute mols. in cyclohexane soln. 3=3810
 Raman spectra 0=17746
 Raman spectrum of liquid, laser stimulated 4=8210
 Raman spectrum, rotational and rotational-vibrational, gas at 1 atm 0=7763
 Raman spectrum at 7-125 atm 0=7764
 range-energy rel. to heavy ions in gaseous O_2 0=17051
 reaction with acetylene, induction times 2=4531
 reaction with H, i.r. emission 0=19221
 reaction $H + O_2 + M = HO_2 + M$, third-body efficiency 0=21272
 reaction with orthopositronium 0=3292
 reaction with sulphur in h. f. discharge 2=23958
 reactions at ZnO surfaces, $O_2^{18} + O_2^{16} = 2O^{18}O^{16}$, effect of u. v. irradiat. 0=8303
 recombination in elec. discharges, role of excited molecules 4=21464
 Redhead vacuum gauge sensitivity, pumping rate 2=21954
 refractivity, second virial coeff. 3=3835
 reversible poisoning of oxide-coated cathodes 0=5333
 saturated vapour pressure, exper. data., anal. and correl. 4=29803
 saturation, reflection oximeter design 0=8435
 scattering, $O^{16}-O^{16}$, rel. to nuc. interactions and surface 2=5973
 second negative system, new bands 1942-6532 Å 2=2001
 second virial coeff. and vel. of sound 0=16764
 self-diffusion in Al_2O_3 , temp. depend. 0=13562
 self-diffusion in MgO (periclase), 1300-1750°C 0=15873
 self-diffusion in PbO, oxidation process 3=20230
 shock-front structure and reflectivity 1=167
 shock fronts, non-equil. region, radiation 2=2757
 shock wave temp. 0=14732
 shock waves, attenuating, temp. variation, theory and expt. 4=18344
 shock waves, rate of dissociation 2=19597
 solid, absorpt. band at 1550 cm^{-1} 3=3010
 solid, α -phase, absorption spectra, 2300-8800 Å, electron irradiat. effects 0=5945
 solid, β -phase, structure 2=21509
 solid, crystal structure, atomic, mag. props., neutron diff. obs. 4=7633
 solid films, electron energy loss 2=1514
 in solid N_2 , spectrum, under electron bombard. 1=6221
 solid, phase transitions and compressibilities 0=12055
 solid, reaction with Cu, in microwave discharges at low temp. 0=14982
 solid, solubility meas. in 27°-33°K liq. H 2=11365
 solubility in Be, X-ray diffrac. study 3=20908
 solubility in distilled water 4=11184
 solubility in Ge, GeO_2 phase, i.r. determination 1=3662
 solubility in H_2O , heat and entropies 4=159
 solubility in H_2O , isotope effect 3=9450
 solubility in liquid H_2 , 20-33°K, 35 atm 0=75
 sorption coeff., Ti droplet getter-ion pump 0=16742
 sorption, on Fe films 1=1482
 sorption on NiO, MgO, neutron irradiated 3=13604
 sorption on NiO, 20-400°C 3=13603
 sorption by PrO_x , irregular press. var. 4=23601
 sound absorption and dispersion 0=19287
 sound absorption, pressure depend. 0=16737
 sound absorption, water vapour effects 3=18860
 sound propagation, low frequency 1=18521
 sound velocity, at b. pt. as temp. meas. 0=216
 sound velocity, sp. ht. calc. 0=5052
 specific heat, near critical point 4=5480

Oxygen—contd

- spectra, afterglow, rel. to atmos. spectra 2=15252
 spectra, airglow, synthetic 3=6989
 spectra, emission, excited by protons and H atoms 3=15338
 spectra excitation by reaction with active He 4=11533
 spectra of glow discharges 0=1520
 spectra in highly ionized state, meas. 3=10448
 spectra, O_2 and O, excited by 0.5-1 MeV protons 0=5942
 spectrum, atomic, fine Zeeman level transitions, e. s. r. 4=6481
 spectrum, O V, O III, 8000-480 Å 4=15286
 spectrum, O I, forbidden doublet, intensity ratio 0=15663
 spectrum, OI, 6 multiplet transitions, arc meas. 4=28134
 spectrum, O_2^+ , in hollow cathode discharge and aurora 4=22366
 spectrum, plasma, Stark effect of local fields 4=9646
 spectrum, Schumann-Runge system, Franck-Condon factors 3=10521
 spectrum, in Si, electron irradi., 1.5 MeV, new i. r. bands 4=28707
 surface-catalyzed excitation 1=11094
 target, heating by proton beams 2=3338
 in tektites, isotope ratio 3=9014
 temperature measurement after shock heating 2=2917
 thermal cond. rel. to viscosity 2=11423
 thermal conductivity of binary gas mixtures 0=3562
 thermal conductivity at 23° by bialorimeter 1=10550
 thermodynamic props., 20-100° K 4=11431
 thermosphere and exosphere, O^+ content, calc. 2=4682
 thin films containing O^{18} for nuclear spectroscopy 2=4492
 transition probabilities, O, and O_2^+ 0=11518
 transitions, 8.88-6.06 MeV, O^{18} 2=20522
 transport props. meas., rotational relax. 4=5241
 $2p^4\ ^1P-2p^33s\ ^5S$ transition, oscillator strengths 4=12372-3
 u. s. absorpt., relaxation time 3=18857
 u. s. absorption 0=14739
 ultrasonic absorption, relaxation time 4=5245
 vapour pressure above boiling pt. 2=13490
 vapour pressure of isotopic liquid 0=2168
 vibrational relaxation, effect of H_2 , D_2 and He 1=8163
 viscosity, mag. field depend. 1=1760
 viscosity meas. 0=16723
 viscosity, 200° to -100°C at 400 atm. 2=9291
 X-ray yield, on electron bomb. 2=14697
 Zeeman spectra, rotational fine structure 0=3869
 A-O system, vapour-liquid equilibrium 2=22097
 CdS, effect of heat treatment in O_2 2=4060
 in Cr, effect on ductile-brittle fracture temp. 4=30770
 on Ge, effect on surface levels 2=8343
 H-O system, solid-gas equil. meas. 2=11541
 and H_2O vapour mixtures, sound absorption 4=21185
 H_2-O_2 and acetylene- O_2 mixtures, combustion, effect of shock waves and bubbles 1=4500
 H_2-O_2 flame, emission absorpt., and temp. 3=5162
 In CdS, effect on photocond. 0=9992
 N_2 discharge, O_2 tracing by ionizing radiation from N_2 2=7570
 N_2-O_2 mixtures, pulsed discharges 2=5301
 O atom conc., quantitative meas. by e. s. r. 4=23687
 O VIII, impurity in deuterium plasma, X-ray spectra 3=7581
 O V cross-section due to electron impact 1=18767
 O VI, excitation by electron collisions 2=14224
 O green line intensity in nightglow, solar cycle variation 4=23786
 O I, 5577 Å, auroral linewidth rel. to temp. 2=4677
 O I 5577 Å emission in upper atm. 1=21017
 O I, 5577 Å in nightglow, height of layer 2=4665
 O I, intensity in solar chromosphere 2=15353
 O I lines in aurora, time delay 1=10334
 O I lines 6300-6364 Å in upper atmosphere 1=15300
 O I, quintet, triplet terms, below ionization limit 3=22487
 O I 6157 Å multiplet, transition probability 1=12251
 O I, 6300 Å airglow 2=15247
 O I 6300 Å emission of nightglow 4=26828
 O I, $2p^33s$ config., energy levels, oscill. strengths, mutual mag. interactions 1=810
 O I, visible spectrum, transition probability, meas. 2=3704
 O, spectral line intensities, oscillation, in toroidal discharge with mag. field 4=14651

Oxygen—contd

- O, transition probabilities, from Hartree-Fock-Slater wave-functions 4=12370
 O^* , isotope exchange and collisional deactivation 4=10634
 O^- , collisions in O_2 , CCl_4 and SF_6 , neg. ion formation 1=16269
 O^- , ionization of various gases 1=4558
 O^- , photodetachment spectrum 3=4003
 O^- recombination, on exposure to Ag surface 3=18442
 O^- and O_2^- collisional detachment cross-sect. on Ar, N_2 , 1-10 keV 4=27492
 O^+ and O_2^+ , atm. distrib., 130-430 km 4=26839
 O^+ , supra thermal, in upper atm., study 4=26863
 O^+ , $2p^44f$ config., vector coupling schemes 4=1181
 O^+-O collisions, charge-exchange and diffusion cross-sections, and interaction energies 4=22438
 O VIII Lyman spectrum from transient plasma 4=19963
 O^{4+} , electron impact ionization cross-section 3=5619
 O^{6+} , electron impact ionization cross-section 3=5619
 O^{6+} excitation cross-section 3=4713
 O^{6+} , 2^3s state, 20-parameter calc. 3=2561
 O^{15} atom, 3P_1 hyperfine splitting, rel. to nuclear mag. dipole moment and spin 3=19945
 O^{18} -ions, use for $Se^{76,78}$ Coulomb excitation 4=19689
 $(O^{18}\ O^{17})^{2+}$, ionization potential 4=2945
 O^{17} , hyperfine structure, by electron paramagnetic resonance 3=6353
 O^{17} n.m.r. in MgO 3=20682
 O^{17} n.m.r. shifts caused by Cr^{3+} in aq. solns. 3=9481
 O^{17} nuclear bombardment targets, preparation, improved technique 4=30099
 O^{17}/O^{18} abundance ratio, accurate formula 3=25071
 O^{18} , rain water content. 3=25897
 O_2 , adsorbed on Au, surface potential meas. 4=23598
 O_2 adsorbed strongly on C, interaction with free spin centres in C, paramag. res. study 4=20822
 O_2 , absorpt. cross-sections in 1050-1800 Å region 4=12466
 O_2 , absorpt. spectrum in far u. v. 4=15341
 O_2 , absorption lines, microwave frequency 3=22548
 O_2 , adsorption on metal films 1=1459
 O_2 adsorption on ZnO 4=10623
 O_2 afterglow, electron removal 3=4064
 O_2 auroral red spectral line, polarization 1=6638
 O_2 band excitation in nightglow 3=9103
 O_2 band spectra 3=10503
 O_2 breakdown formative time lags in pressurized spark gap 4=18759
 O_2^+ charge transfer cross-sect. measurements, rel. to ion beam excitation 4=24590
 O_2 collisions of He^+ 3=21707
 O_2 , corona, positive burst pulse formation, theory 3=372
 O_2 diffusion in Hf, 800° and 950°C 4=6872
 O_2 diffusion in rutile 4=1505
 O_2 discharge afterglow, ionic charge-exchange 1=277
 O_2 dissociation in auroral polar mesosphere 3=11450
 O_2 dissociation rates in O_2 -Ar mixtures 1=4926
 O_2 , dissociation, theory and expt. 4=25744
 O_2 , dissolved, emission spectrum, ligand-field splitting of antibonding orbitals 4=20058
 O_2^* , distrib. and relaxation in O_2 photolysis 4=10648
 O_2 , $(b^1\Sigma_g^+ - a^1\Sigma_g^+)$ transition 1=17312
 O_2 , effect of pressure on cation distrib. in spinel 1=20450
 O_2 , electron attachment coeff. 3=19174
 O_2 , electron interchange with H atom beam 3=6342
 O_2 , electron photoemission, retarding potential meas. 4=16435
 O_2 , electron scattering, collision cross-sections, oscillator strengths 4=20057
 O_2 , electronic collision cross-section and oscillator strengths in Schumann-Runge region 4=12467
 O_2 , excitation and dissociation by shock waves 1=2778
 O_2 flow-discharge, stratified, negative ion extraction 3=4063
 O_2^- , fluorescence spectrum in alkali halides 4=17605
 O_2 , Franck-Condon factors 4=27480
 O_2 , Franck-Condon factors of the Schumann-Runge band system 1=3552
 O_2 gas, fluorescence, possibility 3=9513
 O_2 gas, breakdown and ionization 1=7026
 O_2 gas, ionization by H^- and O^- ions 1=4558
 O_2 gas, thermal conductivity, 300° to 1100° K 3=16655

Oxygen—contd

- O_2 , glow, discharge, two forms, differences 4=2958
 O_2 high-temp., kinetic and transport parameters 1=18466
 O_2 , Hopfield's emission bands 3=8267
 O_2^- ion, characteristic frequencies, conditions of meas. 4=9688
 O_2 , interaction with Ge films at low temp. 1=1481
 O_2 interaction with Ni (100) face, struct. 4=23556
 O_2 , ionization, mass spectrometric meas. 3=12070
 O_2 , ionization by "monoenergetic" electrons 4=18684
 O_2 ionization by protons, 0.15-1.1 MeV 3=4006
 O_2 in liq. and crystalline Ar and N_2 , vac. u.v. absorpt. spectra 4=16116
 O_2 magnetoplasma, microwave gyro-interaction 4=18879
 O_2 , microwave absorption, freq. rel. to pressure 3=23938
 O_2 molecule metastable states by electron bombardment 3=4742
 O_2 molecules, electronic transition moments, 4000° to 9000°K 4=9700
 O_2^+ negative system excitation by proton beam in air 1=9927
 O_2 outgassing of glass, by electron bombardment 4=21204
 O_2 , photoionization and absorption at 600-1000 Å 4=25662
 O_2 positive ion production, by energetic He^+ impact 4=24569
 O_2 , Schumann—Runge band, Franck—Condon factor 1=7454
 O_2 , Schumann—Runge band system, transition moments, detm. 3=19987
 O_2 , shock front structure at high Mach numbers 4=18341
 O_2 , 6340 and 7030 Å emission bands 4=20056
 O_2 solubility in Nb alloys, rel. to magnetic susceptibility 1=20040
 O_2 , thermal conductivity, theory and expt. 4=21182
 O_2 in upper atmosphere, absorption spectroscopy data 1=6586
 O_2 vibration relaxation in O_2 —Ar mixtures 1=4925
 O_2 vibrational relaxation, in O_2 — H_2 mixtures 4=3928
 O_2 , vibrational relaxation times 4=28181
 O_2 , vibrationally excited by flash photolysis of NO_2 4=23675
 O_2^- , vibr., dissoc., from Raman spectrum of K_2O_2 , Na_2O_2 4=25661
 O_2^+ , u.v. excited, fluorescence 3=4753
 O_2 , atmospheric, in jet streams 3=21035
 O_2 dil. soln. in liquid N_2 , photolysis in u.v. 3=3408
 O_2 —A at 86°K, liquid, excess thermodynamic properties 1=8109
 O_2 — C_2H_2 —argon, free radicals in shock waves, flash absorption spectroscopy 0=17760
 O_2 —CO photolysis in solutions, 77°K 4=13734
 O_2 — CO_2 mixtures, detonation front motion 0=994
 O_2 — CO_2 , phase equilibria 0=8709
 $O(^1D)$ —CO photolysis, 77°K 4=13735
 O —H gas mixture, transport coeffs. at high temp. 4=3860
 O —H mixtures, gaseous predetonation 0=18436
 O —H, O —methane mixtures, viscosity variations under mag. field influence 1=158
 $2O_2 + H_2$ mixtures, explosions in tubes, heat loss 0=14110
 $O_2 + H_2 + N_2$ flames, ionization 0=19616
 $O + N$ atomic mixtures, chemiluminescence 4=29217
 O_2 and O_2 — N_2 gases, exo-electron emission by liquid Al 0=15049
 O_2 — N_2 mixtures, electron irradiation effects 0=4729
 O_2 — N_2 at 77°K, liquid, excess thermodynamic properties 1=8109
 O_2 — N_2 —Ar discharges, forbidden auroral radiation 4=18708
 O_2 — N_2 — CO_2 , phase equilibria 0=8709
 O_2 — O_2 ionization collisions meas. 3=4015
 O_2 and O_2 — N_2 discharge afterglows, free electron attachment 3=4009
 O —O and N—O interactions, Morse potl. parameters 1=7447
 O —O and O_2 — O_2 ground state interactions 0=4245
 O_2 —Xe mixtures, excitation of spectra by electron beams 0=15657
in Si, diffusion, solubility, light absorpt. and other effects 3=15579
in Si, effect on surface cond. of dried O_2 2=6459
in Si, n-type, effect on trapping 3=22935
in V targets, deuteron interactions 4=22167

Oxygen compounds

- bonds, Cl—O, P—O, Si—O, correlation between stretching freqs., force consts. and lengths 4=9697
chemical reactions in upper atmosphere, OH, HO_2 , NO_2 , O_3 with H_2 , review 4=13718
containing O—N or O—P bonds, bond nature rel. to diamag. susceptibility 4=30460
diatomic, Franck—Condon factors 3=22536
e.s.r. of OH in TiO_2 (rutile) 4=28887
free radicals, prod. by u.v. irradiation of $Cl_2 + O_2$, with trapping in solid Cl_2 0=1535
magnetic oxides, crystal growth 4=20734
metal oxides, elec. cond., effect of O vacancies, model 4=12860
metal, suspensions, non-Newtonian, turbulent transport 4=15855
oxide films on Fe, Mo, Ni and work function change 4=19076
oxide semiconductors, complex, elec. cond. and struct. 2=8370-1
oxide semiconductors, complex, elec. cond. and structure 1=19883-4
oxides; absorption, light, with exponential var., multi-phonon process 4=22835
oxides, binary, cond., ion and electron, electrochemical meas. method 4=4704
oxides, refractory, crystal growth furnace, Carc image 4=20735
ozonide production and stabilization in H_2O 4=23646
refractory oxides, crystal growth techniques 2=12893
 $A^*B_1^{3*}B_2^{5*}O_9$ ($A=Ca, Sr, Ba, Pb$ and $B=Nb, Ta$), diel. props. 2=2206
 $A^*B_1O_{15}$ ($A=Sr, Ba, Pb$), diel. props. 2=2206
 $(e^+e^-)O_2$, due to reaction of orthopositronium 0=3292
 O_2 —Ar [He, H_2] mixtures, vib. relax., acoustic resonator meas. 4=11244
 O_2 — CF_4 liquid system, phase diagram and solubility 3=21334
 O_2 — C_2H_2 , O_2 — C_2N_2 detonation in shock tube, C_2 , CN radical temps. 4=7757
OCS, i. r. spectrum 4=27314
OCS molecule, potential consts., determ. from vibr.—rot. interaction consts. 4=15352
OCS, perturbation in 003 band 2=16546
OCS, rotational mag. resonance meas. 4=22418
OCS, σ -Stark-splitting patterns, automatic recording 1=12282
 $O^{18}C^{18}S^{34}$, microwave spectrum 2=5494
OD, e.s.r., from D_2O soln., 77°K, u.v. irradiated 3=20012
OD, mol. spectrum, rotational and vibr. analysis 4=3866
OD⁺ rotational band analysis 3=12829
 OF_2 , microwave spectrum, spin—rotational hyperfine structure 3=19995
 OF_2 , microwave spectrum and structure 3=8278
 OF_2 —NO diffusion flame, emission and absorpt. spectra 4=6599
 $OF, A^2\Sigma \rightarrow X^2\Pi$ transition, oscillator strength, expt. 4=12456
OH, band spectrum in O—hydrocarbon react. 2=12961
OH, e.s.r., from H_2O soln., 77°K, u.v. irradiated 3=20012
OH, electron spectra and vibr.—rot. interact. 2=20819
OH electronic-band spectra, by exploding wire method 4=25635
OH, electronic structure 0=7774-5
OH, electronic trans., Franck—Condon factors, calc. 3=12827
OH, experimental oscillator strength $^2\Sigma^+ \rightarrow ^2\Pi$, by chemical method 4=6580
OH free radical, $\Pi_{1/2}$ levels, Zeeman effect 2=12335
OH ground state, h.f.s. consts. 4=1270
OH, interstellar, radio obs., 1612, 1720 Mc/s 4=30986
OH, mol. spectrum, rotational and vibr. analysis 4=3866
OH nightglow emission, correlation with Na 3=3511
OH, nightglow spectrum, near i.r. 4=23779
OH, OD, spectrum, $C^2\Sigma^+-X^2\Pi$, 1770-1900 Å 4=30439
OH, rotational transitions, absorption coeffs. 2=20791
OH, stabilization in ice, under γ irradiation 3=25150
OH, vibrational transition probs. calc. 3=12803
 $OH^2\Pi$ band system, and temperature measurement in shock tubes 3=7281
 $OH, ^2\Sigma \rightarrow ^2\Pi$ electronic band system, absorpt. oscillator strength from shock tube meas. 4=12457

Oxygen compounds—contd

- OH, u. v. band system, fundamental data 2=20822
 OH, vibrational excitation in H + O₃ flame, 1-3 μ emission 2=16513
 OH⁻ electron polariz. calc., ϵ var internuclear dist. 4=25651
 OH⁻ in silica, conc. rel. to F¹ centres 4=22951
 OH⁻ and H₂O⁺ recombination in flames 2=17786
 O¹⁷,¹⁸H, dipole moments, h.f.s. 3=12828
 O₂-H₂O mixtures, thermal conductivity, 300° to 1100°K 3=16655
 mX⁺⁺O.UO₃.nH₂O, general structural, formula 3=3305

Ozone

- absorption, light, Hartley band extinction coeff., as gas and in liquid N₂, CO, Ar 4=18200
 absorption profiles in far i. r., interpretation 4=28224
 absorption spectrum, pure rotational 0=17748
 in atmos., absorption of solar u.v. 0=18518
 in atmos., 9.6 μ observations 0=21323
 in atmos., power spectrum analysis 0=12145
 in atmos., at Spitzbergen and Tronsö 0=18527
 in atmos., rel. to time and atmosph. quantities 3=1428
 in atmos., vertical distribution 0=14193
 in atmosphere, meas., improved spectro-photometer 4=13781
 in atmosphere, rel. to stratospheric wind oscillations 4=23730
 in atmosphere, rel. to sunspots 3=13658
 atmospheric 2=11010, 24000
 atmospheric 3=13662
 atmospheric, attenuation of middle u.v. radiation 4=13800
 atmospheric, at Caliali 2=8952
 atmospheric conc. rel. to wind speed 1=20824
 atmospheric distrib. 4=2186
 atmospheric, distrib., from lunar eclipse photometry 1=1506
 atmospheric, distrib. rel. to solar u.v. reflection 2=4591
 atmospheric distrib. by satellite photometry 1=20812
 atmospheric, distribution 1=20814
 atmospheric, and earth mag. field vars. 4=7823
 atmospheric, formation rel. to u.v. absorption by O₂ 2=8106
 atmospheric, rel. to geomag. activity 2=2497
 atmospheric, and geomagnetic disturbance, relation 4=4757
 atmospheric, Halley Bay (Antarctica) observations 1=1497
 atmospheric, heating effects, calc., Curtis-Godson approx. 4=10699
 atmospheric, i.r. obs. 3=16207
 atmospheric, meas. by u.v. absorpt. 4=2187
 atmospheric rel. to moon 3=13661
 atmospheric, radiative transfer due to 9.6 μ band 2=2484
 atmospheric, representative vertical distrib., for transmission studies 4=23729
 atmospheric and sunspot cycle, comments on Willett 3=13659-60
 atmospheric, thickness, light scatt. data 2=11044
 atmospheric, total content rel. to stratospheric perturbations 2=4592

Ozone—contd

- atmospheric, total content rel. to sunspot cycle 2=8953
 atmospheric, upper-level, satellite sounding method 2=8954
 atmospheric, upper, meas., spectroscopic 4=10735
 atmospheric, variation and distrib. with height 3=5194
 atmospheric vertical distrib. 1=20813
 atmospheric, vertical distrib. 2=21624
 atmospheric, vertical distrib., absorption and diffusion 2=17127
 atmospheric, vertical distrib., from 9.6 μ spectral study 1=1507
 atmospheric vertical distrib., satellite meas. 4=13780
 atmospheric vertical distrib., twilight balloon photometry meas. 4=2185
 atmospheric vertical distribution 1=1504
 atmospheric vertical distribution at different latitudes 1=1505
 data tables, Kodaikanal (April-June 1961) 2=7000
 decomposition mechanism 0=18431-2
 decomposition by O₂* mols. 2=23954
 dielec. const. of liquid 0=14658
 dissociation rate, Monte Carlo calc. 2=18488
 effect on NaCl, brittleness 0=1872
 electronic structure, config. interaction calc. 3=22571
 far-u. v. spectrum 2=14284
 flames with H atoms 2=3789
 flames with H atoms, vibrational excitation of OH 2=16513
 flash photolysis, reactions of excited O and O₂ 0=8319
 liquid, miscibility with F and O 2=21904
 in mesosphere, conc. rel. to radiative equil. 4=23775
 in mesosphere, rel. to temp. changes 2=11012
 mol. structure det. from moments of inertia 3=2597
 molecular vibr.—rotation theory 4=3841
 molecule, vibr. ampl. and thermodyn. props. 4=17296
 negative ion formation 2=1391
 optical absorption, 2537-5770 Å 2=542
 ozone, analyser using radioactive clathrate 1=20779
 ozonosphere, rel. to nuclear detonation thermal flux 2=8955
 photochemical decomposition in yellow-red photochemical reactions in gas phase 2=4548
 photolysis, O₂* distrib. and relaxation 4=10648
 planets, Mars 3=18608
 production in silent discharge, surface effects 4=17860
 production and stabilization in H₂O 4=23646
 quantum mechanical tunnelling 0=17845
 radiosonde, Oxford-Kew model 1=1503
 reaction with atomic H 2=23953
 reaction with atomic N 1=7905
 reaction with atomic N 2=8909
 reaction with NO in supersonic nozzle 4=7752
 reaction with photolyzing NO 0=8315
 solar eclipse, obs. of increase in atmosph. content 2=2469
 solid, reaction products with atomic H, i.r. spectra 0=12098
 spark-produced in air, rel. to breakdown voltage 3=4100
 stratosphere—troposphere exchange and global supply 3=6953
 unimolecular decomp. 0=8302
 vertical distribution, by twilight method 1=11646

pH

See Electrochemistry.

Pair creationSee Electron pairs; and under individual particles,
e.g. Mesons.**Palladium**

absorbed H, Knight shift 4=26451
 absorption and adsorption of H gas 2=10932
 absorption of H_2 , -78 to -196°C, pressure depend. 0=4749
 antiferromagnetism, absence of 3=15913
 antiferromagnetism and elasticity 0=13846
 atoms, γ spectrum and levels 3=12765
 atoms, X-ray spectrum, L-absorption 3=4710
 band structure, effect of spin-orbit coupling 4=28412
 conduction electron polarization round mag.
 impurities 3=8709
 contact to CdS single crystals, electrical props. 4=12853
 containing rare earth ions, magnetic polarization effects,
 long range 4=26420
 crystal, localized defect mode of substituted
 Ni 2=12373
 dehydrogenerated, free energy 0=16379
 density in liquid state 2=2701
 desorption of H and D 0=10373
 deuteron scatt., elastic, 11.8 MeV 3=17490
 diffusion in Cu and Ag, meas. and analysis 4=6870
 diffusion of H 1=4990
 diffusion of H in, effect of concn. discontinuity,
 theory 1=17555
 diffusion of H_2 through Pd membranes 0=14061
 dislocation relaxation 1=17533
 elastic consts., 4.2-300°K 0=11966
 elec. resistance of Pd containing H, in acidic
 solutions 0=236
 electrical cond. rel. to H content 3=22896
 electrical resistivity and thermoelec. power,
 H-desorbed metal 2=14488
 electrodes, overvoltage and H diffusion through, X-ray
 study 0=8309
 electron energy losses 2=2073
 electron microcharacteristics meas., by optical
 constants 3=15467
 electron states, X-ray spectrometric study 1=19998
 epitaxial thin-film growth, in-situ meas. 4=29071
 e.s.r. of Gd, and long range polarization 4=26400
 e.s.r. of Mn, g shift 4=30738
 film on Ag, Pd, Ni, structure 3=1371
 film, on amorphous support, microstructure
 examination 2=10951
 film on Cu substrate, electron interference
 study 1=10283
 film orientation on Cu substrate, orientation 1=10282
 film, photoemission, rel. to photon energy 2=22251
 film, temperature rise, rel. to electron irradi. 3=17807
 film, work function 2=9612
 films, f.c.c. metals deposited, structure of
 layer 1=20671
 films, resistor thermometer element 0=7005
 fission fragment tracks, thermal processes 2=12484
 foils condensed on LiF and mica, epitaxy and
 twinning 1=15011
 free radicals, in soln., line-width variations 2=20859
 galvanomagnetic props. and Fermi surface 4=26012
 H absorption, grain-size depend. 1=1461
 heat capacity meas. at liq. He temp. 4=15428
 heat capacity, 1.4° to 100°K 4=25860
 isotope shifts in 4212 A spectral line 1=5975
 isotopic exchange of hydrogen on Pd cathode 0=12106
 L emission bands, comparison study 1=13946
 mag. susceptibility, electronic so. ht. 3=13228
 magnetic moment distrib. 3=1110
 magnetic suscept., 1.85-293°K, meas. 3=13229
 magnetic susceptibility of small crystals 2=4208
 magnetoelectric effects in fields up to 180 kOe,
 at 4.2°K 3=4909
 magnetoelectric properties, in pulsed mag.
 field 4=2928
 mirror reflectivity variation by Si-TiO₂ coating 1=9472
 μ^- -mesic atom, decay anomalies, search 3=2593
 μ^- -meson scatt., 1.7 GeV/c meas. 4=28050
 n.m.r. of adsorbed protons 1=14827
 optical emissivity, from 1100°K to melting point 4=28702
 paramagnetic resonance of Gd, effect of hydro-
 genation 3=15944

Palladium—contd

paramagnetic susceptibility, effects of s-d
 exchange 1=14674
 paramagnetism, rel. to atomic electron correl. 4=1839
 self-diffusion in Ag-Pd alloys at 850°C and
 896°C 4=9994
 specific heat, electronic contrib. at high temp. 3=10600
 specific heat, 65°-105°K 2=23077
 stacking-fault density meas. 4=9978
 stacking faults, energy calc. 4=12769
 surfaces, catalytic action in atomic beam
 recomb. 2=4522
 thermal expansion and lattice consts. up to 878°C 4=6753
 thermal expansion, lattice const. changes, from Bradburn-
 Fürth eqn. of state 4=20219
 thermal expansion near 10°K 1=17428
 thermodynamic props., 30-300°K 3=12924
 thermoelectricity meas. below 1°K 0=18076
 thin films, optical consts. theory 4=22868
 thin films, optical props., 2000-25 000 Å 4=22881
 vacuum pump using diaphragm, heated, for H 3=14225
 vaporization, heat of, at 298°K 3=1876
 vapour pressure, heat of sublimation and boiling
 pt. 2=15808
 work function, effect of H adsorption, photoelectric
 meas. 4=8794
 X-ray continuous spectrum, Ohlin structure meas. 4=4242
 X-ray emission spectrum, $N_{ii,iii}$ intensity distrib. 1=3514
 Gd-doped, long-range polarization 2=21372
 H_2 diffusion, mass spectrometry 3=2829

Palladium compounds

alloys, dilute, with Co, Fe, Ni or Mn, magnetic
 transitions 3=992
 alloys, ferromag., mag. moments, induction 2=12731
 alloys, low temp. thermoelectricity 2=6508
 magnetic susceptibilities and g-values 1=10128
 martensitic transformations, analysis 1=1406
 superconductivity 3=24148
 Pd alloys, binary, mag., elec. and cryst. props. 3=1126
 Pd alloys, mag. props., rigid band model 4=17624
 Pd alloys, mag. susceptibility, 120°-1100°K 4=4334
 Pd alloys, paramagnetic resonance of Gd, effect of hydro-
 genation 3=15944
 Pd, as break contact material, transfer of matter 1=16294
 Pd cobaltite- and pyrite-type compounds, superconductivity,
 > 1°K, semiconductivity 3=21663
 Pd, containing H, elec. resistance in acidic solns. 0=236
 Pd complexes, transmission of electronic effects through
 the heavy metal atom 1=869
 Pd-dilute Fe group alloys, mag. coupling, splitting of
 d orbitals 1=9018
 Pd, electron states, X-ray spectrometric study 1=19998
 Pd-transition metals, mag. interactions 3=3078
 PdAg alloy, vacuum pump using diaphragm, heated, for
 H 3=14225
 Pd-Ag, elec. resistivity rel. to temp., composition 2=8277
 Pd-Ag solid solutions, optical consts. rel. to
 concentration 3=2991
 Pd-Ag, Gd e.s.r., rel. to mag. props. 2=12821
 Pd-Ag-Rh, ferromag. properties 1=1203
 Pd₃As, structure 1=5099
 Pd₃As₂, space gp., lattice parameters relationship to
 Ni₃Si₂, Ni₃P₂ 4=26664
 Pd-Co-H, dilute, Hall effect, contrib. from ferro- and
 paramagnetism 1=14383
 Pd-Cr, hydrogenized, magnetic props. 1=6257
 Pd, with Cu, Sn or Fe, thermoelec. power
 at low temps. 1=3796
 PdF₃, mag. props., neutron diffr. study 1=1251
 Pd-Fe alloys, atomic magnetic moment 3=15737
 Pd-Fe alloys, heat capacity, 1.4° to 100°K 4=25860
 Pd-Fe, n.m.r. of adsorbed protons 1=14827
 Pd-Fe, oxidation, 1200-1460°C 2=15140
 Pd-Fe, low temp. resistivity 3=13035
 Pd-Fe, thermoelec. power at ~1°K, rel. to
 refrigeration 2=22105
 Pd-H alloys, thermodynamic props., 30-300°K 3=12924
 Pd hexahalide complexes, electron transfer
 spectra 0=20650
 Pd hydride, nonstoichiometry and lattice
 defects 2=3898
 Pd(hydrogenated)-transition metal alloys 2=16675
 α Pd-H, elec. resist. 2=6410

Palladium compounds—contd

- Pd-H, H diffusion at room temp. 4=17444
 Pd-H, electrodes and solid solns. 2=10987
 Pd-H, Pd-D, spec. heat anomalies 2=12385
 Pd-H solutions, heat capacity and elec. resistivity 1=17418
 Pd-H system, sublimation energy determ. 2=9458
 PdH_{0.65}, thermal motion by neutron scattering 1=7532
 Pd₂H, energy evolution below 1°K 3=9665
 Pd-H soln. in constant current, anodic oxidation 3=5166
 Pd-H system, phase transformations, isotherms hysteresis 3=25750
 Pd₂H, feasibility of nuclear cooling 1=11866
 PdH and PdD, absorption spectra 4=15342
 Pd-Hg, solid solns., lattice parameters 2=4473
 PdMg, crystal structure 1=15077
 Pd_{1.1}Mg_{0.9}, crystal structure 1=15077
 Pd₂MnSb, structure, mag. props. 0=12048
 Pd₃Mn, antiphase domain structure, by neutron diffr. 3=6729
 Pd₃Mn₂, antiferromagnetism 0=13854
 Pd₃Mn₂, ζ - and μ -phases, mag. props. 4=23033
 Pd-Mo, elec. cond. anomalies 2=21093
 Pd-Ni, with adsorbed H, magnetized, single transmission effect for slow neutrons 2=6672
 Pd-Ni, film, spin wave resonance 1=14772
 PdP₂, crystal structure 4=7634
 Pd-Rh alloys, mag. suscept., low-temp. meas. 3=13229
 Pd-Rh, props. and energy-band structure 1=1441
 Pd₂S, elec. cond. 0=18001
 Pd₄S, crystal struct. 2=10880
 Pd₄Se, crystal struct. 2=10880
 Pd₄S, elec. cond. 0=18001
 Pd₄Se₁₃, crystal struct. 2=15026
 PdTe, low temp. heat capacity 1=19717
 PdTe₂, low temp. heat capacity 1=19718
 PdTe₂, and mixed crystals with Ni, Rh, Pt, supercond. 2=5241
 Pd-U, phase diagram to 25 at.%U 4=29014
 Pd-W, elec. cond. anomalies 2=21093
 Pd-W, technical alloys, hardness 2=23793

Paper

- adsorption of water, effect on microwave permittivity 4=1656
 capacitor paper, i.r. spectrochem study 0=16396
 cushioning materials, analogue computer meas. of compression 1=21153
 dielectric anisotropy, oriented fibres, 3000 Mc/s 3=22990
 electrically conducting, in thermal conductivity measurement 1=11849
 filter, liquid rise, theory and exper. 0=8336-7
 leaved blocks, dielectric anisotropy at u.h.f. 1=14540
 light scattering and pore surface, rel. to dynamic compression 4=10591
 oil impregnated, as dielectric, effect of halogen gases 0=3725
 rheological props., tensile strength 0=13918
 surface depression distrib. meas. 2=7160
 surface structure under rolling pressure 3=13553

Paramagnetic resonance and relaxation

See also Masers.

- absorption coeff. and susceptibility, minimum detectable, formulae 1=16597
 absorption curve, second moment 0=3124
 absorption, line width calc. 0=8082
 absorption lines, general form, in transverse fields 3=25134
 acenaphthene-ion, h.f.s., hyperconjugation mechanism 3=22591
 acetic acid, resonance detection by parametrically excited circuit 1=10799
 acetone, with T₂O as internal radiation source 1=15907
 acetophenone anion radicals meas. 4=12513
 acetyl-d, l-alanine, γ -irrad., double quantum transit 2=12815
 acetyl-L-glutamic acid, γ -irrad., e.s.r. 3=3164
 N-acetyl methionine, γ -irrad., free radicals 2=16550
 N-acetyl glycine, irradiated single crystal 1=2345
 acids, sulphuric, phosphoric and perchloric, at 77°K, γ -ray irrad., atomic H yield meas. 0=14137
 acoustic, nuclei in ferromag. materials 2=18949
 acoustic paramagn. resonance in S-state ions 3=2725
 acoustic, in S-state ions 2=20929

Paramagnetic resonance and relaxation—contd

- acrylonitrile and methyl acrylonitrile, γ -irrad. at 77°K, free radicals 1=14107
 activator in phosphor, effect of flux 2=6608
 adiabatic demagnetization in a rotating reference system 1=9060
 adiabatic rapid passage for 3 equispaced levels 4=10312
 adiabatic susceptibility, equivalence with isolated susceptibility 0=13733
 adsorption of O₂ on C, interaction of O₂ with free spin centres in C 4=20822
 alanine, irrad. single crystals, free radical p-d exchange reaction, e.s.r. study 4=23043
 alanine, irradiated crystal 0=3128
 α -alanine, radiation dose meas. 2=18032
 alanines, irrad. 9 kMc/s 2=14821
 alcohol free radicals in ionic crystal matrix 2=3790
 alcohol-H₂O₂ mixtures, u.v.-irrad., free radical formation 0=20662
 alkali atoms in inert-gas matrices 2=14823
 alkali atoms, meas. of g, factors 1=9914
 alkali chlorides, Mn²⁺ resonance, calc. 1=3936
 alkali halides doped with nitrates, NO₂ resonance 1=10181
 alkali halides, F-centres 2=3960
 alkali halides, F colour centre study, 20-300°K 4=4080
 alkali halides, F₂-centres 4=1529
 alkali halides, pure and doped 2=3929
 alkali halides, saturation of F-centre absorption, theory 0=16172
 alkali halides, substituted radicals 1=20315
 alkali halides, V-centres, saturation of e.s.r. 0=1827
 alkali halides, X-ray irrad., absorption by F₂⁻, Cl₂⁻, Br₂⁻, I₂⁻ 1=3840
 alkali metal graphites, conduction carriers 2=14825
 alkali metal vapour, optically oriented, spin relax. 4=14223
 alkali metals trapped in solid inert gases 4=9819
 alkaline ice, rel. to O⁻ radiolysis production 3=23233
 alkenes, straight chain, radicals formed by u.v. irrad., e.s.r. study at 77°K 4=20583
 n-alkyl disulphides, γ -irrad. 2=18480
 alkyl hydroperoxides, photodissociation study 0=8314
 alkyl radicals, anisotropic h.f.s. interactions 1=6042
 alkyl radicals in irrad. polythene 4=28276
 alkyl radicals in liq. hydrocarbons transient 4=3925
 allowed and forbidden lines, intensity 4=1866
 allyl-type free radical, oriented 2=18491
 α, α -diphenyl- β -picryl hydrazine, neutron irrad. 3=15371
 α -quartz, containing Ge, colour centres 3=22832
 alum, dispersion function, for mag. susceptibility meas. 0=8031
 aluminosilicate glasses, e.s.r. 2=10926
 amalgamation in alternant spin system 3=20640
 amethyst 4=25975
 amino acids, γ -irradiated, e.s.r. spectra, temp. depend. 3=20019
 amino acids and proteins, rel. to semiconductor theory of free electrons 1=11115
 amino acids, and radical prod. by β -rays 4=29234
 aminotroponimine chelates of Ni 0=15762
 Ampere Colloquium, Eindhoven (1962) 3=20629
 Ampere Colloquium, Leipzig (1961) 3=23198
 Ampere conference, 7th 0=19950
 amplitude modulated r.f. field, expt. theoretical analysis 2=20168
 n-amyl disulphide, γ -irrad., ionic paramag. species prod., e.s.r. study 4=20319
 analogue computation of number of spins contributing to e.s.r. absorption 1=4739
 ang. modulation of d.c. mag. field, use 3=13295
 in anisotropic solids, intensity 0=13867
 anisotropic substances, intensity rel. to line shapes 2=10693
 anomalous Faraday effect, correl. between rotation and ellipticity 4=20096
 anomalous relaxation of hyperfine components 1=6041
 anthracene, C¹³ splitting in positive and negative ions, pairing theorem 4=22385
 anthracene negative ion soln., Bloch eqns. 3=6744
 anthracite carbon, transient excitation by h.f. electron beam 1=14785
 anthracite, line splitting, in inhomog. fields 1=14786

Paramagnetic resonance and relaxation—contd

- antiferromag. materials, line-widths, rel. to strongly enhanced pseudo-dipolar moments 0=1830
 antiferromagnet, linewidth formula, uniaxial anisotropy 4=13307
 apatites, e.s.r. spectra 1=4994
 apatites, e.s.r. spectra 1=10013
 apparatus, atomic beam, for use with mass spectrometer 0=288
 apparatus, atomic beam resonance 0=15671
 apparatus, bimodal cavity 0=16161
 apparatus, frequency stabilization for reflex klystron 0=17128
 apparatus, for He³ temps. operation 2=16083
 apparatus for use at low fields 1=10795
 apparatus, low-temp. cavities 2=1611
 apparatus, magnetic spectrum analysers, 4 types 1=19047
 apparatus, mass spectrometer, for trace impurity anal. 0=14157
 apparatus, microwave bridge spectrometer 0=19952
 apparatus, microwave resonance spectrometer 0=310
 apparatus, plastic cavity 0=5434
 apparatus, sensitivity and fidelity of autodyne oscillators 0=19954
 apparatus, spectrometer 0=15177
 apparatus, spectrometer, broadband mm wave 0=9225
 apparatus, spectrometer for photochemical studies 0=8314
 apparatus, superhet. spectrometer, 9300 Mc/s 1=4735
 apparatus, transitorized autodyne detector 0=17126
 apparatus, X-band spectrometer 0=4218
 application to semiconductor surface study 1=1257
 applications, review 2=16082
 aromatic anion radicals, nitrosubstituted, hyperfine splittings 3=22593
 aromatic free radicals 1=12322
 aromatic free radicals and ions, electron spin densities 4=25723
 aromatic hydrocarbon positive ions in solids 1=19866
 aromatic mols., hyperfine coupling consts. calc. 3=17552
 aromatic mols., in triplet state, line shape, $\Delta m = 2$ transition 3=25135
 aromatic radicals, hyperfine interactions. theory 0=15680
 aromatics in boric acid glass, X-irrad. 4=13742
 arylsulphenyl radicals, g-value anisotropy 3=25137
 dl-aspartic acid, X-irrad. damage 2=14482
 asphalt solns., Overhauser effect 0=3545
 asphalt solns., relax. 2=2734
 asphaltene, Bloch eqns. sols. 3=6744
 asphaltene solns., double resonance 3=7221
 asphaltene solns., dynamic polarization 2=13353
 asymmetrical line broadening, effect on n.m.r. coupling 2=10714
 atomic level struct. studies, review 2=6081
 atomic recombination study 3=25068-9
 atoms, excited, Franck-Hertz method appl. 4=1220
 azulene anion, e.s.r. spectrum, erratum 2=8310
 azulene anion free-radicals 2=23006
 azulene anion radicals 2=23007
 azulene anion, anomalous effects 4=25724
 BDPA, mag. exchange-lattice relax. theory 2=549
 benzaldehyde anion radicals meas. 4=12513
 benzene and derivatives, phosphorescent 3=21417
 benzene, e.p.r., spin-spin interaction, correction 3=8290
 benzene, polarization, dynamic by porous paramagnetic surfaces 4=27198
 benzene, positive and negative ions, Jahn-Teller distortions 0=17768
 benzidine complexes in weak field 2=2019
 benzidine-iodine crystal complex, spectrum 4=26063
 benzonitrile, electrolytically generated neg. ion 2=19136
 benzonitrile ions, C¹³ hyperfine splitting 0=13448
 benzophenone, ions, negative radical 2=16551
 benzophenone and naphthalene in E.P.A., energy transfer 1=7502
 benzophenone derivs., phosphorescent state 2=18476
 p-benzosemiquinone ion, C¹³ h.f.s. 2=3776
 p-benzoquinone, in ethanol and methanol 1=12306
 p-benzosemiquinone, satellite lines 1=874
 benzoylpyridine ions, negative radical 2=16551

Paramagnetic resonance and relaxation—contd

- benzyl, in polycrystals, second moment calc. 3=25560
 beryl, Fe³⁺ resonance at 20 and 290°K 0=16169
 biological materials, laser irrad., free radical obs. 4=26980
 biological materials and systems 4=25722
 biphenyl⁻ ions, K h.f.s. and coupling 4=15378
 biphenyl ether, e.s.r. hyperfine structure analysis 1=10183
 biphenyl negative ion in soln., exchange effects and anisotropy broadening 1=15906
 bipyridyl radical, biquaternary, spin densities 3=2654
 biradicals, spin exchange in 0=17722
 bis-cyclopentadienyl vanadium in ferrocene 1=9058
 bis (2,2' biphenylene) methane, ions, and electronic interactions 3=15362
 1,3-bisdiphenylene-allyl, in CS₂, high resolution 2=11390
 1,3-bisdiphenylene-2-phenyl allyl, down to 1.3°K 4=4391
 1-3-bisdiphenylene-2-phenyl allyl, exchange-ordering and forbidden transitions 1=11483
 4,4'-bis (diphenylmethyl) biphenyl in solution 4=24241
 Bloch eqns. for low mag. fields, approx. soln. 3=6744
 Bloch system analogue for spin S > ½ 3=18125
 blood, flow measurement by e.s.r. 0=12217
 brucite, study of manganese impurity 1=2495
 1,3-butadiene radical anion in liq. NH₃ 4=28254
 di-t-butyl nitroxide dissolved in methylcyclohexane, line-widths, effects of hydrostatic press. 4=24242
 calcite, neutron-irradiated, e.s.r. spectra 1=1258
 calcite, neutron irrad., at 77-300°K 1=14791
 ε-caprolactam, irrad. single-crystal 4=23044
 ε-caprolactam, irradiated, splittings in spectrum rel. to crystal orientation 4=4400
 N-carbamyl glycine, irradiated crystal 2=18942
 carbazole-chloranil charge transfer complex 3=8708
 carbazole donor diphenyl acceptor mixtures, in irrad. ether-ethanol glasses, 77°K 3=22595
 carbazyl, hyperfine interactions 1=8860
 carbohydrates, charred, dynamic nuclear polariz. 2=14329
 carbon tetrafluoride, γ-irradiated at low temp. 3=12874
 carbonates, Mn²⁺ reson. 2=4260
 carbonyl anion radicals 3=6429
 carbons, formation of spin centres by oxidation 2=12816
 carboxylate hydroxy methyl radical ion (HOCHCO₂⁻) 1=2346
 cavities, high-Q rectangular, and cylindrical X- and K band, fabrication method 4=11814
 cavity resonators, quality det. 2=20173
 cavity, variable-band, for X-band spectrometer 3=9959
 cerium magnesium nitrate, low-temp. spin-lattice relaxation 1=14808
 charcoals, reson. and double reson. with n.m.r. 2=14841
 charge transfer complexes in solns., photo-dissociation 4=4706
 charge transfer effect on relaxation time 1=9061
 Chichibabin's hydrocarbon, association, e.s.r. meas. 4=12535
 chloranil-n-phenylenediamine crystal complex, spectrum 4=26063
 chlorine compounds 1=7808
 chrysoberyl [Al₂BeO₄], e.s.r. 1=20205
 chrome alums, effect of elec. field at 9.3 kMc/s, at 4-300°K 1=5071
 chrysoberyl (Al₂BeO₄), e.s.r. 2=4252
 cis- and trans-thianthrene - 5,10-dioxide, anion radicals 4=3906
 classical microscopic model, including relaxation effects 2=6687
 coal powders, oxygen effect rel. to temp. 2=4255
 coal, spin-lattice relaxation, rel. to carbonization, 300°-600°C 4=1870
 coals, oxygen effect 2=18481
 colour centres, spin-lattice relax. times 1=20242
 colour centres, spin-lattice relaxation, theory 1=20244
 complexes of aromatic hydrocarbons with iodine 1=3938
 concentration - dependence 4=26370
 conference, Jerusalem (July, 1962) 3=1177
 conference, Jerusalem (1962) 4=23040
 conference on quantum mechanics, Sanibel Island (1963) 4=6449
 conference, 10th AMPERE Colloque, Leipzig (1961) 2=1608
 Coppinger's free radical, double, electron, nuclear, in n-heptane 4=22434

Paramagnetic resonance and relaxation—contd

- coronene, $\Delta m = 1$ transitions 3=1186
 coronene, broadening due to Jahn-Teller effect 0=7798
 coronene in polymethylmethacrylate host, triplet state, effect of temp. 4=23054
 corundum, anisotropic spin-orbit coupling of d^3 and d^4 solutes 3=2694
 corundum, Co^{2+} ions 2=14824
 corundum, Co^{2+} ions 3=6745
 corundum, spin-lattice and cross-relaxation 2=6697
 corundum, spin-lattice- and cross-relaxation 3=6753
 corundum, Ti^{3+} ion spin-lattice relax. 2=6696
 corundum, Ti^{3+} ion spin-lattice relax. 3=6752
 covalency calc., effect of charge transfer levels 3=8705
 covalent crystals, and radiation effects 4=28507
 creatine, X-irrad., e.s.r. of radicals 4=13311
 crossover transitions, finite-rotation operators 1=7783
 cross-relaxation in crystals, theory 3=18142
 cross-relaxation, general theory 4=20579
 cross-relaxation, general theory, higher-order processes 4=20580-1
 cross relaxation, in mag. dilute crystals 2=4274
 cross-relaxation in spin systems, entropy calc. 0=13384
 cross-relaxation, substances of two types of paramag. centres 1=20241
 cross relaxation, substances of two types of paramag. centres 2=8667
 cross relaxation time 2=10707
 crystal ion energy levels, spin-Hamiltonian description 4=28364
 crystal mount, universal 2=1614
 crystalline free radicals 1=11473
 crystals, $A^{III}-B^I$, study of mixed covalent-ionic bonds 4=3956
 crystals, broadening, due to indirect exchange interactions 3=20638
 crystals, effect of dislocation on lineshape 3=15933
 crystals, role of electric fields 3=20639
 crystals, electron-nuclear dipolar coupling, dynamic polarization of nuclei 1=10185
 crystals, ionic, spin-lattice relax., low-temp. 3=25578
 crystals at low temp., optical detection of e.s.r. 0=4508-9
 crystals, mag. dilute, anisotropic broadening of linewidth 1=20212
 in crystals, magnetically dilute, rel. to symmetry and electric field 1=11471
 crystals, non-metallic, spin-lattice relaxation of local electron centres, theory 1=20244
 crystals, nuclear polarization, "forbidden" transition saturation 0=4506
 crystals, optical pumping 0=1829
 crystals with rare-earth ions, spin-spin interactions 1=20243
 crystals with rare-earth ions, spin-spin interactions 2=4274
 crystals, spin-orbit interact., anisotropic 4=1864
 cubic crystals, low-temp. behaviour 1=7775
 cubic crystals, Zeeman effect on Γ_a level 4=28866
 cyanogen, free-radical detect. 2=12351
 cycloheptatriene cycloheptatrienyl radical 3=4778
 cycloheptatrienyl, e.s.r. in naphthalene crystals 3=1184
 1,4-cyclohexadiene 3=12859
 cyclohexadienyl radical, h.f.s., hyperconjugation mechanism 3=22591
 cyclohexadienyl radical, spin densities meas. 2=18493
 cyclohexane, γ -irrad. at 77°K, free radicals 1=14107
 cyclohexane-1,2-dione radical anion, h.f.s. 4=30472
 cyclohexane radicals, e.s.r. spectra 0=5969
 cyclohexyl halides, γ -irrad. at 77°K, free radicals 1=14107
 cyclohexyl radical, ring inversion 4=28278
 cyclooctatetraenyl radical, h.f.s. 0=15734
 cyclopentadienyl and cyclohexenyl radicals 4=6640
 cyclopentadienyl radicals, above 800°K 4=12534
 cyclopentane radicals, e.s.r. spectra 0=5969
 cysteine, glutathione, and djenkolic acid, irradiated, S-radicals formation 2=6231
 L-cystine dihydrochloride, γ -irradiated 1=3937
 DL-serine, γ -irradiated 1=14800
 DNA bases, free-radical yields, rel. to γ -irrad. 3=22606
 DNA, irradiated, e.s.r. 4=3903
 DPANO free radical, double quantum transit. 2=4247

Paramagnetic resonance and relaxation—contd

- DPPH, coupling consts. of hydrazyl nitrogens 0=4221
 DPPH (diphenylpicrylhydrazyl), double quantum transition 1=14092
 DPPH, double mag. resonance 1=12312
 DPPH free radical, double quantum transit. 2=4247
 DPPH, g-tensor anisotropy 3=23227
 DPPH, gyromagnetic ratio apparent change in weak field 4=17311
 DPPH-hydro peroxide solutions 4=202
 DPPH, hyperfine interactions in single crystals of the hydrazine 0=13881
 DPPH, low-field meas. at low temp. 4=25727
 DPPH, mag. exchange-lattice relax., theory 2=549
 DPPH, and molecular distortion in crystalline parent hydrazine 4=28336
 DPPH, powder, rel. to appd. fld. 4=28890
 DPPH, proton hyperfine spectra 0=10680
 DPPH, r.f. susceptibility along polarizing field 0=16179
 DPPH, recrystallization effect on line width 4=26394
 DPPH, resonance line at r.f., at liq. H temps. 0=10225
 DPPH solns. 2=7232
 DPPH, spin-spin relaxation in parallel fields 1=7793
 DPPH, T_1 and T_2 exchange effects 0=3123
 DPPH, triclinic, g-tensor anisotropy meas. 2=14828
 DPPH, 2×10^{13} spins detected with new spectrometer 1=4736
 d^9 ion in octahedral environment 4=26365
 deformation effects, crystals, by spin-phonon interaction 3=18124
 deformed crystals 1=10178
 deformed crystals 1=11472
 deoxyribonucleic acid, irrad., free radicals 1=9952
 derivative form, signal distortion, rel. to measuring arrangement 3=24489
 derivatives computer programme 4=14012
 dextrose, charred 0=3310, 16159
 diamagnetic line splitting 3=23221
 diamond, e.s.r. of N donors 0=1832
 diamond, N centres, cross relaxation, four spin flip mechanism 0=10224
 diamond, rel. to neutron dose 4=7324
 diamonds, IIa, e.s.r., rel. to defects 3=6746
 diamonds, with controllable impurity concns. 2=18943
 diamonds, vacancies, investigation 3=17710
 dibenzene vanadium 2=12343
 dibenzo-ditoluene-chromium iodides, and transition, low temp. 4=17669
 dibenzo-p-dioxin, radical, e.s.r., h.f.s., p and C^{13} 3=20017
 dicarboxylic acids, and radical prod. by $t \beta$ -rays 4=29234
 2,7-dichloroanthrene, in conc. H_2SO_4 3=20013
 difference spectra recording 3=17064
 diglycolic acid monohydrate, γ -irrad. 2=6689
 dihydropyrazine cation radical, e.s.r. spectrum, isotropic hyperfine splittings, signs 4=25728
 dihydropyrazine, methyl-substituted cations, and related radicals 4=28256
 diketopiperazyl radical, spin densities from molecular orbital calcs. 4=1289
 dimesitylmethyl radical 1=12519
 dimesitylmethyl, spin densities 0=11541
 dimethylacetamide 0=11538
 2,7-dimethylthianthrene, in conc. H_2SO_4 3=20013
 dinitrobenzene anion radicals, linewidth alternation 3=4776
 o-and p-dinitrobenzene anions, e.s.r. spectra, linewidths 4=17310
 dinitrobenzene ions, isomeric, coupling consts. 0=17776
 diphenyl acceptor carbazole donor, mixtures, in irrad. ether-ethanol glasses, 77°K 3=22595
 diphenylamine free radicals 1=9951
 diphenylamine, photo-oxidation products, in frozen solutions, 77°K 4=7325
 diphenylbenzidine free radicals 1=9951
 diphenyldiazomethane, in benzophenone, solid soln., triplet state, 77°K 3=4775
 diphenyl picryl hydrazyl 0=16178
 $\alpha\alpha$ -diphenyl- β -picryl-hydrazyl, rel. to antiferromagnetism 4=4390
 diphenyl-dipicrylhydrazyl (DPPH) in benzene soln. 4=27196
 $\alpha\alpha$ -diphenyl- β -picrylhydrazyl, relax. time var. down to 1.5°K 4=30730

Paramagnetic resonance and relaxation—contd

- diphenyl-picryl-hydrazyl solns., ordinary and super-cooled glassy solid 4=2710
 1, 1-diphenyl-2-picrylhydrazyl, spin—lattice relax. 4=28884
 diphenylpicrylhydrazyl, dynamic nuclear polarization, secondary signal 1=14818
 diphenyl picryl hydrazyl, e.s.r. and n.m.r. at 40°K 0=15773
 diphenyl picryl hydrazyl, line width, effect of external mag. field, 12-33 500 Mc/s 1=1271
 diphenyl picryl hydrazyl, reson. lines, movements 0=12671
 diphenyl picryl hydrazyl, spin—spin relaxation, field depend. 1=882
 diphenylpicrylhydrazyls, substituted 4=15377
 dipolar broadening from pulse velocity in u.s. spin resonance 4=26415
 2,2'-dipyridyl anion, e.s.r., h.f.s., effect of reducing agent 3=20020
 2,2' dipyridyl-Na complex, spectrum 2=20862
 diquinone anion 4=28257
 disubstituted nitric oxides in benzene soln. 2=2733
 double modulation of mag. field, expt. and theory 2=5499
 double nitrate crystals and frozen soln., Cr³⁺ resonance 1=20206
 double quantum transit. 2=2296
 double resonance, description by spin inversion operators 2=16554
 double resonance diffusion phenomena 1=14813
 double resonance, higher-order transitions, theory 1=1275
 double resonance, incorporated atoms and F-centres 1=14815
 double resonance in solids, mechanisms, distant-ENDOR effect 1=9067
 double resonance, in solids, theory 2=23715
 double resonance, spin inversion operator, new definition 1=9954
 double resonance theory, for systems with hyperfine interaction 1=14816
 double-quantum transitions, phonon—photon, selection rules verified 1=6071
 due to defects near surface after mechanical damage 1=14787
 durosemiquinone cation, line-width alternation 2=20858
 dye photoconductors 3=23021
 dyes used in spectral sensitization of photographic materials 3=11950
 dyes, triphenylmethane 1=5072
 dynamic polarization of nuclei, and molec. diffusion 1=153
 E_i centre in irradiated fused silica, rel. to optical absorption 4=26431
 use of e.p.r. for study of microwave devices 3=14775
 e.s.r., h.f. modulation of d.c. mag. field 1=13191
 e.s.r. hyperfine structure, theory 1=13189
 e.s.r. line shape in polycrystalline substances 1=11470
 e.s.r. spectra, analogue integrator 0=2454
 e.s.r. spectrometer for wide range of temps. 1=16602
 e.s.r. spectrometers, source-frequency fluctuation compensation 1=9693
 e.s.r. spectroscopy, use of analogue computers 0=17124
 e.s.r. spectroscopy, review 2=17952
 effect on nuclear polarization time, meas. 4=23065
 egg albumin, rel. to semiconductor theory of free electrons 1=11115
 electric field effects 4=26369
 electric fields, effects, Fe group ions 3=18126
 electron delocalized in system of equiv. potl. wells, h.f.s. 3=1178
 electron—nuclear double reson., for F-centre electrons 2=14474-5
 electron—nuclear double resonance 0=10242, 13883
 electron nuclear double resonance in irradiated organic crystals 1=10184
 electron phase trajectories, calc. 1=10747
 electron spin correl., rel. to nuclear relax. 3=5046
 electronic spin system, in strong r.f. field 4=3190
 electrons, g-factor anomaly meas. 4=885
 ENDOR studies, amplitude modulation 2=7777
 energy levels for paramag. centre 1=20211
 ethane radiolysis, obs. of ethyl radical conc. 0=18439

Paramagnetic resonance and relaxation — contd

- ethanol glass, e.s.r. of irradiation-induced electrons trapped at 77°K 4=4399
 ethanol, with T₂O as internal radiation source 1=15907
 ethyl bromide, irradiation, rel. to free radical 2=8125
 N-ethylacridone, triplet states 3=962
 ethylenediamine complexes of Cu(II)SO₄, e.s.r. 4=4401
 ethylene diamine copper II nitrate 3=8706
 ethynyl free radical, in solid Ar 4=12532
 exchange narrowed lines at low and intermediate frequencies 4=26394
 excitation of n.m.r., review 4=1896
 F⁺ centre in alkali halides, elec. field gradient 4=26448
 F-centre in alkali halides, ENDOR spectrum 4=26447
 F-centre antismorph in LiF 1=20217
 F-centre concn. and relaxation time, by microwave Faraday rotation 0=16161
 F-centre electrons, spin relaxation theory 0=16160
 F-centres, absorption curve, shape calc. 3=15519
 F⁻-centres, e.s.r. 1=20222
 F-centres, e.s.r., rubidium halide crystals 0=4300
 F-centres, g-shifts due to nuc. hyperfine interact. 4=20312
 F-centres, in KCl, line width, temp. depend. 4=1527
 F-centres, in KCl, pure and bleached 2=6386
 F-centres, LCAO wave-functions from ENDOR data 2=2104
 F-centres in magnetic fields 3=17797
 F-centres, in NaCl structures, theory 0=11950
 f³ ions in a cubic site 1=9055
 Faraday effect, associated, in birefringent medium 4=26173
 ferric acetylacetonate, zero-field energy levels 3=23228
 ferrimag. materials, line-widths, rel. to strongly enhanced pseudo-dipolar moments 0=1830
 ferrites, with paramag. admixtures, spin-lattice relax. 2=8674
 ferromagnet above Curie temp., Green's function theory 3=25561
 ferromagnetic insulators, e.s.r. 0=10220
 ferromagnetic metals, conduction electron resonance 0=18212
 ferromagnets, spin-lattice relaxation process 0=13865
 first and second derivatives, sensitive recording method 3=21993
 use in flow metering 0=929
 fluids, effects of acoustic resonance 3=16706
 fluids in porous media, magnetic spin pumping 0=89
 fluorides, iron-series, hyperfine effects 3=15955
 flux-prepared phosphors, e.s.r. study of activator state 1=14636
 forbidden transitions, energy levels and probabilities 0=18214
 'forbidden' transitions, explanation 1=3928
 formyl radical 2=8124
 free electrons contributing to signal, no. det., formulae 1=16596
 free-electrons, freq. shifts by collision with polarized atoms 4=19982
 free electrons, spin mag. moment 0=16162
 free radical detection, review 1=19046
 free radical frozen solutions, dynamic nuclear polarization 4=12533
 free radical, lifetime, effect 3=8311
 free radical solutions, and mol. motion 4=24245
 free radicals, anomalous alternating linewidths 3=2653
 free radicals, anomalous relaxation of hyperfine components 0=15756
 free radicals, in benzene, triple mag. reson. 2=23011
 free radicals in dilute soln., line-widths theory 3=23911
 free radicals, double quantum transits. 2=4247
 free radicals, g-values, precise meas. and structure depend. 1=14090
 free radicals in γ-irrad. organic cpds. at 77°K 1=14107
 free radicals, h.f.s. 0=6257, 13449
 free radicals, high-sensitivity spectrometer 1=4736
 free radicals, hindered internal rotation 2=22998
 free radicals, interaction with silica gel surface 4=1321
 free radicals, isotropic hyperfine splitting, semi-empirical theory 4=9765
 free radicals, method of determining concentration 1=14110

Paramagnetic resonance and relaxation—contd

- free radicals, organic, mag. exchange-lattice relax. theory 2=549
 free radicals in petroleum, effect of dissolved O_2 1=3571
 free radicals in polymethacrylate, dependence on γ -dose 3=25563
 free radicals, prod. by γ -irrad. at $4.2^\circ K$ 2=3791
 free radicals prod. in irradiated benzene and derivatives 3=2670
 free radicals in redox polymerization 4=9786, 2243.
 free radicals, rel. to negative spin densities 4=9763
 free radicals, recrystallized, low fields 4=28279
 free radicals, relative g-factors, e.s.r. meas. 4=9764
 free radicals in solid polymer fracture products 4=1885
 free radicals, solid, spin-exchange line broadening 4=9917
 free radicals in soln. det. by inverted Overhauser effect 4=25733
 free radicals, in soln., e.s.r., and h.f.s. 3=14183
 free radicals, in soln., h.f.s. and exchange relax. 2=14321
 free radicals in solution, rel. to rotational-diffusion 4=30470
 free radicals, theory of linewidths 0=20663
 free radicals, unpaired electron spin, interaction with proton 2=14338
 frequency variation, simple method 3=14785
 in g-factor meas., compar. with cyclotron resonance 0=11923
 G-tensor asymmetry in spin Hamiltonian, conditions for 3=3163
 γ -irradiated glycylglycine 1=11485
 gas in mag. field, with different spin and orbit temp. 0=2139
 gas molecules, spin relaxation, theory, strong-collision limit 4=25740
 general account 0=4505
 glass, Cu-activated, rel. to luminescence, 800-88 m μ band 2=14720
 glass, Fe resonance 0=6373
 glass, phosphate, e.s.r. study of colour centres 1=19809
 glass, phosphate, e.s.r. study of colour centres 2=8259
 glasses, alkali borate, with high alkali oxide content, γ -irrad., e.s.r. studies 4=20582
 glasses, line-shape, calc. 2=764
 glasses, organic solns., u.v. irradi. 3=5041
 glutamic acid hydrochloride, irradiated with 50keV X-rays 1=14797
 glycine crystal, X-irradiated, e.s.r. spectra 0=499
 glycine, γ -irrad. formation of $NH_3^+-CH-CO_2^-$, radical, orientation 0=20665
 glycine, γ -irradiated, e.s.r. 1=20210
 glycine, γ -irradiated, e.s.r. hyperfine structure low-temp. variation 1=11484
 glycine, γ or X-irrad., h.f.s., temp. var. 3=18132
 glycine, 9000 Mc/s band low-temp. var. 2=12822
 glycolic acid, X-irradiated single crystal 0=20666
 glycylglycine HCl, irradiated crystals 3=15942
 graphite, charge carrier resonance 0=10240
 graphite, neutron irradi., e.s.r. rel. to temp. 4=20592
 graphite, neutron-irrad., rel. to dose 1=12558
 graphite, neutron-irradiated rel. to annealing 3=22867
 graphite, polycryst., absorption rel. to temp. 2=18940
 graphite, polycryst., theory and meas. 3=3174
 graphite, review 1=4975
 graphite, single crystals, neutron irradiated 3=13296
 graphite, spin suscept. meas. in low field 3=25501
 graphs for interpretation of hyperfine spectra 4=30071
 halide crystal colour centres, study 2=3180
 heterodyne spectrometer, with homodyne detection 3=19468
 hexa-m-phenylene radical anion 4=25731
 high-field expts, 35-70 kMc/s 3=1158
 high-field, at mm wavelengths 0=13863
 high frequency modulation arrangement 1=16598
 high-resolution 3=21987
 high resolution, elimination of proton spin-spin splitting, double resonance technique 0=17125
 hindered internal rotation effect 3=12861
 hydrated paramag. salts, spin-spin relax. 2=21381
 hydrazyl free radicals, resonance h.f.s. 1=14106
 hydrazyl, hyperfine interactions 1=8860
 hydrazyl-type radicals in viscous media 3=21418
 hydrazyl free radicals, hyperfine structure 0=20660
 hydrocarbon-quinone complexes, cryst. solids 2=8669

Paramagnetic resonance and relaxation—contd

- hydrocarbons, aromatic, in boric acid glasses, photo-ionization study 0=21290
 hydrocarbons, aromatic, phosphorescent 0=21080
 hydrocarbons, aromatic phosphorescent, two-quantum transitions 4=6641
 hydrocarbons, aromatic, zero-field splitting theory 4=3901
 hydrozyl, free radical 0=2747
 hyperfine interaction Hamiltonian 0=17698
 hyperfine interaction tensors 2=2016
 hyperfine splittings, assignment by linewidth analysis 4=28252
 hyperfine structure, direct-field effects 1=20201
 hypersound generation and amplification 2=566
 hypersound generation during e.s.r. in crystals 2=11450
 ice, atomic H resonance, $77^\circ K$, rel. to γ -irrad. 4=4715
 ice, γ -irradiated 3=2669
 ice, γ -irradiated, $77^\circ K$ 0=16168
 ice, radicals in γ -irradiated material 0=7796
 impurity centres in semiconds. 2=8665
 impurity centres in semiconductors 1=20246
 impurity ion shift in paramagnetic crystals 4=10311
 impurity ions in insulating crystals 2=3909
 indigo carmine radical, aq. soln., hyperfine structure lines 2=23010
 industrial applications 1=13190
 inhomogeneous lines, structure, study by h.f. modulation phenomena 3=21988
 interpretation, commercial unit 3=24493
 inversion of fast passage in multilevel spin system 0=18222
 ion pairs in crystal lattices, exchange coupling 2=4245
 ion pairs, spin-lattice relaxation rate 3=3167
 ion radical salts, spin correl. 2=14827
 ionic crystals, exciton spin-lattice relaxation 0=20781
 ionic crystals, overlap model calc. 1=14817
 ionic crystals, saturation eqns. 4=1865
 ionic crystals with simple cubic lattices 4=26371
 ions in cubic surroundings, g-factor anomalies due to vib. coupling 4=25826
 ions, of Fe group, in crystals, acoustic e.s.r. 2=767
 ions with spin $\frac{5}{2}$ in crystalline fields with trigonal symmetry, theory 0=13871
 ions, with spin $S=1$, $\Delta M_s = \pm 2$ transits. 2=763
 iron group and rare earth impurities in CaO 4=26405
 irradiated aromatic systems 3=15372
 irradiated DPPH protected by polystyrene 1=20228
 irradiated frozen aq. soln. of S cpds. 3=15391
 Ising model, one-dimen., temp. var. of resonance 1=20191
 isobutyric acid free radical 2=6219
 isolated spin systems, transverse mag. mom., correlation tensor 4=26376
 dl-isovaline, γ -irrad., free radical det. 2=8126
 itaconic acid, irradi., e.s.r. study of radical formed 4=1886
 Jahn-Teller effect in octahedrally coord. d^9 ions 4=28867
 kaolinite, Fe^{3+} ion 1=10180
 ketyls, rel. to coupling consts and spin densities 3=4777
 ketyls, cyclic, spin densities meas. 4=1305
 in Kramers salt, field var., Van Vleck theory verification 4=17679
 in l.f. fields, thermodynamical calculations 0=10217
 lactose, irradiated, e.s.r. spectra 0=500
 lanthanide salts, audiofrequency dispersion effects 3=23243
 lanthanon ions, in hexa-antipyrene iodides 2=4257
 least squares analysis 2=3774
 leucine, rel. to semiconductor theory of free electrons 1=11115
 ligand nuclei in transition ion complexes, hyperfine interactions 4=25718
 line broadening, by quadrupole-quadrupole interactions 4=13337
 line moments, evaluation errors 4=27668
 line-shape functions 1=12247
 line shapes in inhomogeneous fields 3=21989
 line shape of randomly oriented molecules in triplet state 4=25719
 line shape, temp. dependence 0=16156
 line shape, temp. dependence at low temp. 4=26366
 line shapes, e.s.r., modulation broadened, moments correction 4=8964

Paramagnetic resonance and relaxation—contd

line shapes of e.s.r. spectrum of interacting triplets system 4=23041
 line shapes of polycrystalline transition element ion complexes 4=26434
 line shapes in spectra of free radicals in soln. 4=28253
 line splitting, in inhomog. fields 1=14786
 line structure, "spin packet" concept 4=26368
 line-width alternation, rel. to rot. isomerism 2=20858
 line width, effect of fine and hyperfine structure, in solids 1=20199
 line width variation short-range order effect 1=20198
 line-widths in liquids 4=24240
 linewidths of radicals in solution 4=25720
 liquids, appreciable spin-orbit coupling 2=11389
 liquids, hyperfine structure, anomalous loss of resolution 0=90
 liquids, nuclear hyperfine broadening, rel. to intramolec. properties 4=30469
 liquids, relax., molecular shape effect 3=21405
 liquids, theory 2=11388
 liquids, at v.l.f. 1=12905
 local electron centres, spin-lattice relax. time 2=8195
 longitudinal relax. times, meas., new method 2=5501
 low-temp. trapped O_2 in β -quinol clathrate 1=19664
 luminescence, solids, study 4=1761
 M-centres, zero signal, rel. to mag. moment 1=19813
 $MA_6(d^1)$ -type transition metals, rel. to inversion splitting 4=10332
 mag. dipole radiation effects, relaxation time correction 0=10191
 mag. dipole reson. of excited levels of free ions 0=2715
 magnetic field meas. application 3=2080
 magnetic field meas. in e.s.r. expts. 4=30070
 use in magnetic field meas. in v. small volumes 3=25519
 magnetically dilute systems, containing Cr^{+++} , Fe^{+++} , Mn^{++} , Cu^{+++} , VO^{+++} 0=8084
 magnetometer for alternating mag. fields 2=17925
 malonic acid, X-ray irradi. 2=6892
 many-component disordered crystals, term splitting 3=22624
 maser amplification in two-level systems 0=16181
 masers, two-level, det. 2=3163
 measurement by cm waves, method 1=16601
 mercaptosuccinic acid, γ -irradiated crystal 3=13304
 metal-ammonia solns., relaxation 2=1167
 metal-ammonia solutions 1=5286
 metal chelate salts 0=4589
 metal films, spin resonance, d.c. detection 3=15934
 metalammonia solutions, relax., by microwave spin echoes 3=21414
 metals, "combined resonance" 2=23698
 metals, electron relax. time in quantized em. fields 0=9947
 metals, g-factors and spin-lattice relax. of conduction electrons 4=28868
 metals, paramag. res. of S state ions 1=6417
 metals, S -state ions, mech. 2=12821
 metals, soln. in NH_3 , e.s.r., effect of adding electrolyte 3=11811
 metals, spin-acoustic resonance 1=17403
 metals with two conduction bands, theory 1=20195
 methane, γ -irradiated at low temp. 3=12874
 methanol, γ -irrad., e.p.r. spectrum of free radicals 4=15379
 methanol, with T_2O as internal radiation source 1=15907
 methyl acrylate and methacrylate, γ -irrad. at $77^\circ K$, free radicals 1=14107
 methyl group in $CH_3C(COOH)_2$ radical 2=2299
 methylamine alum, Fe^{3+} zero-field reson. 2=770
 methylene derivatives, spin-spin interaction 3=10535
 methylene groups in free radicals, torsional oscillation study by e.s.r. 4=12531
 methylene imino free radical det. 2=12351
 methylene, spin-spin interaction 3=17602
 methylenes, substituted, C^{13} h.f.s., and struct. 4=22420
 methylformamides 0=11538
 microwave cavity, for high temp. meas. 1=12023
 microwave saturation effect, absolute capacity meas. 1=19021

Paramagnetic resonance and relaxation—contd

mixed crystals, double resonance, external field orientation depend. 1=14815
 modulation broadening of unsaturated Lorentzian lines 2=1613
 modulation of light by microwaves in paramag. crystals 1=1149
 modulation of reson., freq., side bands 2=16079
 in molecular amplification 1=19048
 molecular crystals, electron-irrad., analysis 1=20197
 in molecular crystals, excitons study 1=20194
 molecular triplet states 3=962
 molecules, deriv. of chemical bonds 3=17611
 molecules with equivalent nuclei, h.f.s. 4=1302
 molecules, hyperfine coupling const., charge density var., calc. 4=22419
 molecules with internal electron transfer 4=1303
 molecules, randomly oriented, e.s.r. of triplet states 4=28255
 molecules, randomly oriented, powder line shape 3=17612
 moment analysis of resonance signals 1=4737
 moments of resonance lines, automatic meas. 0=12671
 moments of resonance line-shapes, modulation-effect corrections 0=13866
 morpholinium⁺ tetracyanoquinodimethane 1 to 600 atm 4=28878
 multilevel spin system, spin-lattice relaxation rel. to temp. 3=3184
 multiple quantum transitions 1=17339
 naphthalene, $\Delta m = 1$ transitions 3=1186
 naphthalene, in durene, triplet state h.f.s. 1=14799
 naphthalene, effect of deuterium substitution 0=10231
 naphthalene, line broadening rel. to electron transfer processes 1=14803
 naphthalene mononegative ions, dimethyl substituted series, e.s.r. 3=12857
 naphthalene neg. ion, C^{13} hyperfine structure 1=17345
 naphthalene negative ion, spin distribution 0=11535
 naphthalene phosphores 0=21080
 naphthalene in phosphorescent state 1=6234
 naphthalene in polymethylmethacrylate host, triplet state, effect of temp. 4=23054
 naphthalene, triplet-state, electron spin distrib. and hyperfine interactions 4=23053
 naphthazarin, radical, anion, e.s.r. and H-bonds 3=17610
 new phototropic substance, e.s.r. 0=13882
 Ninth Ampere Colloquium 1=4734
 nitrenes in glass, ground-state triplet spectra 4=13326
 nitrobenzene anions, p-substituted, e.s.r. spectra, solvent effects 4=11218
 bis(p-nitrophenyl) anions, electron transfer effects, h.f.s. 3=22597
 nitro-substituted benzene anions, e.s.r. spectra, alternating linewidths 4=25729
 nonconducting single crystals, 2-particle spin-spin interactions internal elec. field effect 0=18213
 nonconductive crystals, spin diffusion, relaxation, dynamic polarization 3=15957
 non-cubic crystals, rotational props. of spectra 1=20196
 non-equilibrium spin states, statistical mech. treatment 2=14834
 nuclear mag. cooling 0=8965
 nuclear-electron double resonance at 12500 gauss 4=24244
 nuclear moments calc. from h.f.s. 3=2362
 nuclear orientation, dynamic, by forbidden transitions 0=5654-5
 nuclei in solids, dynamic polarization, rel. to temp. concentration 3=18146
 nucleic acid pseudocrystals with bound magnetic ions 4=25791
 number of paramag. centres, determination using reflection cavity 1=12028
 nylon, γ -irrad. 2=14337
 octacyanide complexes 3=725
 n-octadecyl disulphide, γ -irradiated 3=6416
 octahedral complex with single magnetic electron, spin-lattice relax. bonds rel. to covalency 4=1868
 optically driven spin precession 1=8821
 organic crystals, irrad., free radicals study 2=12485
 organic dyes, spectra 3=15936

Paramagnetic resonance and relaxation—contd

- organic free radicals, antiferromag. exchange coupling 2=12738
 organic frozen cpds., tritium as an internal radiation source 1=12307
 organic molecules in glassy solns. 4=7198
 organic molecules, photo-excited triplet states 3=1181
 organic phosphors, triplet states invest. 3=5035
 organic radicals, 2nd-order splitting 2=20860
 organic radicals in solution 0=13447
 ortho-semiquinones, spin densities meas. 4=1305
 oscillator, max. gain meas. by garnet sphere coupling 4=27670
 oscillator, review 4=16675
 oven for X-band cavity resonator for e.p.r. studies, 25-500°C 1=10801
 Overhauser effect for dipole-coupled delocalised electron-proton system 4=1897
 Overhauser effect, influence of magnetic field modulation 1=7794
 Overhauser effect, in metals and alloys, with paramag. impurities 1=1274
 Overhauser effect, review 1=3944
 Overhauser effect, in saturation of forbidden resonance 0=13886
 Overhauser effect in solns. of free radicals 2=9290
 Overhauser effect, theory 0=13883
 oxazine dye radicals 2=23008
 p-phenylene-diamine positive ion 1=6040
 paraelastic centre, relaxation mechanism 3=23220
 paramag. crystals, spin-spin interact. via phonon field 2=14840
 paramag. crystals, spin-spin interact. via phonon fld. 3=6756
 paramag. ions, in C_{3h} , C_{4v} fields 2=20905
 paramag. salts and metals, u.s. wave absorption 3=20097
 paramag. salts, rotation of plane of polarization at 9150 Mc/s 0=11945
 paramagnetic crystals, orientation by e.s.r. anisotropy 3=16022
 paramagnetism without Kramers degeneracy, splitting of doublet ground state 0=8032
 particle system with anisotropic g-factor, line-shape 2=764
 passage effects with inhomog. broadening 3=15923
 passage effects, inhomog. line broadening 0=15175
 pentaphenylcyclopentadienyl, proton hyperfine splittings and spin densities 1=7487
 perinaphthene radical identification by e.s.r. 1=8135
 peroxo-dicobalt ethylenediamine complexes 4=26424
 phenanthrene-naphthalene, optically excited, energy-transfer det. 2=21370
 phenanthrene negative ion 2=14322
 phenazine radical ions 4=12514
 phenazine semiquinone ion, e.s.r., fine structure 2=15618
 phenothiazine oxidation products, e.s.r. 1=15905
 phenothiazine perbromide (quinone), h.f.s. 0=17774
 phenothiazine perchlorate (semiquinone), h.f.s. 0=17774
 phenoxy radicals in soln., nuclear-electron double resonance 4=24244
 phonon bottleneck observation 4=26429
 phonon masers and the phonon bottleneck 1=11475
 phonon-photon double quantum transitions for detection of microwave ultrasonics 1=6072
 phonon role, Cr^{3+} impurities used 1=20209
 phosphorescent aromatic hydrocarbons 1=14091
 photosynthesis mechanism in green plants, e.s.r. studies 1=9212
 phthalocyanine dyes, impurity g = 2 lines 3=20653
 phthalocyanines, rel. to semiconducting props. 4=10335
 phthalocyanines, solid 1=11486
 π -electron radicals, polycrystalline resonance line shape 0=20664
 π -electron radicals in polycrystals, second moments 3=25560
 π -electron radicals, self-consistent field theory of electron spin distrib. 1=14108
 picryl amino carbazyl 1=17364
 picryl-N-amino-carbazyl, e.s.r. linewidth rel. to temp. 2=10703
 picryl-n-amino carbazyl, exchange-ordering and forbidden transitions 1=11483
 picryl-N-aminocarbazyl, spin-lattice relax. 4=28884

Paramagnetic resonance and relaxation—contd

- plasma, gaseous, diamag. moment meas. 0=19693
 polarization of nuclei, by forbidden paramag. and by double resonances 0=13116
 polyatomic centres, symm. and microwave spectra 4=4398
 polyazine anion radicals in soln. 4=1304
 polycrystalline substances, absorption 0=6264
 polycrystalline substances, line shapes 2=2297, 21359
 polyethylene, e.s.r., rel. to γ -transit. 2=14833
 polyethylene, electron irradi., radical species sutyd 0=16176-7
 polyethylene, irradi., free radical spin density 4=3949
 polyethylene, irradi. free radicals study 2=3779
 polyethylene, irradi., molecular orientation 2=4264
 polyethylene, irradi., oriented, temp. depend. 2=23022
 polyethylene, irradiated 4=1334
 polyethylene, irradiated, free radical decay 3=2671
 polyethylene, stretched, ESR spectrum 1=20227
 polyformaldehyde, γ -irrad., free radicals 3=12858
 polymers, γ -irradiated 0=18221
 polymers, strong resonance lines 0=20703
 polymethacrylic acid, γ -irradiated 0=501
 polymethacrylic acid, trapped electrons 3=2684
 polymethylmethacrylate, e.p.r. spectra rel. to γ -irrad. 2=8123
 polymethyl methacrylate, γ -irradiated 0=501
 polyoxymethylene, irradi. 2=21371
 polystyrene radicals 2=18494
 polystyrene, study of γ -radiation effects 0=6420
 polystyrenes, deuterated, reaction with H and D atoms 4=29219
 polytetrafluoroethylene, e.s.r. 2=4265
 polytetrafluoroethylene, electron-nucleon double resonance 1=14814
 polytetrafluoroethylene, γ -irrad., complex spectrum 1=12562
 polytetrafluoroethylene, irradi., temp. depend. 2=20893
 polytetrafluoroethylene, irradiated oriented 3=17608
 polyvinylalcohol, irradiated 1=20226
 polyvinyl chloride "cokes", line form analysis 0=10213
 polyvinyl chloride, γ -irradiation effects 0=4732
 polyvinyl chloride, γ -irrad., kinetics of radical reactions 1=1489
 polyvinyl chloride, γ -irrad. at 77°K, anomaly 2=775
 polyvinyl chloride, resonance study 1=20200
 porphyrins 3=25129
 powders, glasses, and viscous liquids 0=21219
 powders, line-shape, calc. 2=764
 powders, meas., drawbacks as opposed to crystals 1=20208
 power transfer between spins and crystal lattice 0=4518-20, 11932-6
 pressure effects on spectra of Fe-group ions in cubic crystals 1=7786
 proteins, irradiated, e.s.r. study of free radicals 0=20705-6
 pulsed field meas. of large zero-field splittings 1=1270
 pyracene free radical 3=22590
 pyracene free radical, 2nd order splitting and coupling const. 2=20861
 pyracene ions, h.f.s., hyperconjugation mechanism 3=22591
 pyrazine ion, h.f.s. rel. to spin densities 2=3777
 pyrene anion, e.s.r. spectra 3=8310
 pyrocarbon, absorpt. rel. to sample orientation 3=13305
 quadrupole induction effect 4=1306
 quartz, colour centres 2=12468
 quartz, colour centres due to powdering 4=6883
 quartz, crystal imperfections, low temp. var. 4=20597
 quartz, E' -centres, spin-lattice relax. 3=13009
 quartz, E'_2 -centres, theory and expt. 3=13008
 quartz, fused and irradiated, e.s.r. 0=10237
 quartz, Ge-doped, colour centres 3=20239
 quartz, neutron-irradiated, e.s.r. 1=11482
 quartz, rose-coloured, e.s.r. of colour centres 3=8459
 quartz, spin-lattice interact., phonon generation 2=18952
 quartz, spin-lattice interaction, colour centres 4=20698
 quartz spin-lattice relaxation, rel. to neutron-irrad. 3=18136
 quinizarin, radical, anion, e.s.r. and H-bond 3=17610
 quinoxaline, phosphorescent state 4=7335
 radiation-induced free radicals in polycryst. sulphur cpds. 3=3413

Paramagnetic resonance and relaxation—contd

- radical conc. determ., 3000 Mc/s -160° to $+120^{\circ}\text{C}$ 4=8958
 radical, double-quantum transitions 1=17339
 radical in frozen $\text{H}_2\text{O}_2\text{-H}_2\text{O}$ solns. 1=9950
 radicals, crystalline organic, exchange-ordering and forbidden transitions 1=11483
 radicals in γ -irradiated ice 1=8861
 radicals in irradiated polytetrafluoroethylene 1=19673
 radicals, in liquids, spin-lattice relax. 2=60
 radicals, in liquids, spin-lattice relaxation 3=3817
 radicals, mag. h.f.s., orientation depend. calc. 0=17775
 radicals, in molec. crystals, spin-lattice relax. 2=777, 23713
 radioactive aq. solns., spin-lattice relaxation 0=6814
 radiochemical species, identification 2=3180
 rare earth compounds, Gd impurity g shifts 4=15672
 rare earth cpds., g-factor, effect of orbit-lattice interaction 4=7336
 rare-earth ethyl sulphates, spin-lattice relaxation 1=14809
 rare-earth ethylsulphates, spin-lattice relaxation data 3=25579
 rare-earth ion spin-lattice relaxation det. from ferrimag. resonance 4=26426
 rare-earth ions in crystalline fild, ground states in external mag. field 0=11946
 rare earth ions in dil. salts, hyperfine struct. 3=1179
 rare earth ions, energy levels in crystal, theory 4=6693
 rare-earth ions, spin-lattice relaxation for exchange split levels 4=26427
 rare earth ions, trivalent, transferred hyperfine reaction, direct magnetic contrib. 4=26454
 rare earth ions in CaF_2 , rel. to irradi. and heat treatment 4=26425
 rare-earth ions in CdS , electric field effects 4=26369
 rare-earth ions in $\text{La}_2\text{Mg}_3(\text{NO}_3)_{12}\cdot 24\text{H}_2\text{O}$ 4=24864
 rare earth ions in Pd , magnetic polarization effects, long range 4=26420
 rare earth ions (Yb, Er, Tb, Nd, Pr), in gallates with garnet struct. 4=28763
 rare-earth metals, hyperfine interactions 3=15954
 rare earth salts, ionic energy levels and energy transfer 4=25823
 rare-earth salts, phonon bottleneck in spin-lattice relax. 2=14838
 rare-earth salts, spin-lattice relax., field depend. 3=18144
 rare-earth salts, spin-lattice relax., theory 2=778-9
 rare-earth salts, spin-lattice relaxation 4=26428
 rare earth $(\text{C}_2\text{H}_5\text{SO}_4)_3\cdot 9\text{H}_2\text{O}$, low temp. var. 4=17677
 recording circuit 2=19841
 redox polymerization, transient radicals 4=28275
 relaxation, in ionic solns. 2=7231
 relaxation, in ions, effect on n.m. relax. 2=8679
 relaxation at liq. He temp. 0=6255
 relaxation in magnetically dilute crystals 1=3929
 relaxation in magnetically diluted free radicals, nature 4=2710
 relaxation rates det. by pulsed double resonance 1=6414
 relaxation in small particles 4=26374
 relaxation, spin-lattice, in ionic crystals 2=14837
 relaxation, spin-lattice, in ionic crystals 3=6755
 relaxation, spin-lattice, localized lattice modes, effects 2=8676
 relaxation theory, rel. to ultrasonic spin resonance meas. 3=23240
 relaxation, theory, review 3=23219
 relaxation time, T_2 , in moving liquid 1=13172
 resonance h.f.s. for electrons in double potential wells 1=4893
 resonance line shape in crystals, temp. var. 2=762
 resonance line shift due to spin-phonon interaction 2=21358
 resonance line shift due to spin-phonon interaction 3=3162
 resonance lines of local centres in crystals, shape and temp. var. 0=8087
 resonance measurements of exchange interactions 1=6418
 review, principles and applications 2=21075
 rhombic symmetrical polycryst. substs. 2=10694
 riboflavin and flavoproteins 1=9211
 Rochelle salt, irradiated 3=20654

Paramagnetic resonance and relaxation — contd

- Rochelle salt, X-irradiated single crystals 1=11487
 ruby, absorption of 9.3 kMc/s phonons 3=1190
 ruby, Al^{27} polarization time in e.s.r. 2=4268
 ruby, chromium ion pair interactions 1=6419
 ruby, Cr^{3+} pairs, exchange-coupled 0=6296
 ruby, Cr^{3+} res. rel. to green light absorp. 2=6557
 ruby, cross relaxation, concentration effects, calc. 1=3941
 ruby, cross relaxation, rel. to Cr conc. 0=13885
 ruby crystals, appraisal for maser use 3=22763
 ruby, electron-nuclear double res., h.f.s. 2=14842
 ruby, electron-nuclear double resonance, mechanisms 1=9067
 ruby, green absorption band fine structure meas. 4=26218
 ruby, harmonic generation, 4.5 \rightarrow 9 kMc/s 4=1872
 ruby, harmonic spin coupling, new maser pumping mode 0=9192
 ruby, and internal field non-uniformity 3=20048
 ruby, low-temp. relaxation from microwave acoustic meas. 4=26430
 ruby maser-type Hamiltonians, energy eigenvalues 1=10182
 ruby, optical detection of saturation 0=1833
 ruby, population inversion and microwave-stimulated emission 4=27705
 ruby, relax. time meas., d.c. magnetiz. technique 3=13306
 ruby, saturation of spins by 13 Mc/s sound 0=3125
 ruby, spin-lattice relax. theory 3=15952
 ruby, spin-lattice relaxation times, temp. dependence 0=13870
 ruby, spin-lattice relaxation times at 34.6 Gc/s 1=1265
 ruby, spin-lattice relaxation times at 34.6 kMc/s 0=4513
 ruby, spin-phonon interact., u.s. amplification 1=11821
 ruby, stress effects, and spin-lattice interaction 4=23055
 ruby, u.s. attenuation by spin-phonon coupling 1=6073
 rutile, Cr^{3+} spin-lattice relaxation time 1=6422
 rutile, doped, e.s.r. spectra 1=7788
 s-d spin interaction, dynamical props. 0=16166
 S-state ions, cubic field splitting, pressure depend. 0=18218
 S-state ions, proposed e.s.r. expt. under high pressure 0=11944
 S-state ions, spin-lattice relax. 2=18955
 sapphire, Fe^{3+} spin-lattice relaxation time 1=6422
 sapphire, fine structure due to Fe^{3+} 0=11947
 sapphire, Ni^{2+} absorption 3=1187
 sapphire, V^{2+} , V^{3+} , V^{4+} spin resonance 0=10238
 saturation, absorption in dilute inhomogeneously broadened systems 0=16172
 saturation, dynamic nuclear orientation study 1=14154
 saturation effects, calculation 1=6043
 saturation expts., interpretation of spin temp. concept 4=3190
 saturation, influence on Faraday effect 0=10216
 saturation in radiation-induced free radicals 2=4269
 second moment of absorption curve and spin-spin relaxation 0=6266
 semiconductor electrons, spin-lattice interact. 2=23709
 semiconductor free charge carriers, rel. to freq. change during deformation 2=23271
 semiconductor impurity centre theory 2=10461
 semiconductor surfaces, defects due to mechanical damage 1=14787
 semiconductors, combined electron resonance 3=15931
 semiconductors, combined resonance in strong mag. fields, theory 2=4003
 semiconductors, combined resonance in strong magnetic fields, theory 1=19842
 semiconductors, diamagnetic, review 4=23042
 semiconductors, g-factors and spin-lattice relax. of conduction electrons 4=28868
 semiconductors, group II-VI, and phosphors, conduction electrons 3=20642
 semiconductors, impurity electron states study 3=4911
 semiconductors, local electron centres 2=23697
 semiconductors, with loop extrema, absorption origin 2=23268
 semiconductors, review 2=16928
 semiquinones, in aprotic solvents 2=17486
 semiquinones, C^{13} hyperfine interactions 3=22589
 semiquinones, hyperfine splitting, MO calc. 1=7482

Paramagnetic resonance and relaxation — contd

semiquinones in soln. 0=4218
 shape, polycrystals, anisotropy, h.f.s. 3=23223
 short-range order, dependence, theory 2=4246
 signal increase by dynamic polarization 0=16183-4
 silica gel, following heating and γ -irradiation 0=21078
 silica gel, γ -irrad., H atoms formed 3=3419
 solid free radicals, theory of excitons 2=20975
 solid phase phototransfer reactions 2=6686
 solids, book 4=30729
 solids, conference 2=4238
 solids, effect of ESR structure on nuclear polarization 1=1272
 solids, at low temp., theory 1=12359
 solids, mechanical analogue 4=7317
 solids, minimum entropy production 3=23222
 solids, rel. to radiation-induced electron-hole centres 2=14410
 solids, review 1=10177
 solutions, effect of dissolved oxygen 1=10521
 solutions, undercooled, line-shape, calc. 2=764
 solvent effects 3=6415
 and spectra, diatomic molecules, for radio-astronomy 3=19988
 spectral diffusion decay, theory 2=3181
 spectrograph, microwave, for e.s.r. meas. 2=3179
 spectrometer, and its applications 1=20200
 spectrometer, for circular excitation 1=16600
 spectrometer, high-frequency modulated 3=21990
 spectrometer with homodyne balanced mixer detection, for free-radical study 1=4736
 spectrometer, improved circuit 2=16080
 spectrometer, pulsed X-band, e.s.r. 2=3177
 spectrometer, for relax. time meas. 2=11812
 spectrometer, slow sweep generator 2=11811
 spectrometer, for spin-lattice relax. meas. 2=20172
 spectrometer, 3-cm, with klystron noise compensation 2=3178
 spectrometer, travelling wave helix use 2=17976
 spectrometer with variable h.f. modulation 1=16599
 spectrometers, e.s.r., resonant-cavity and travelling-wave types 3=516
 spectrometry at zero magnetic field 1=9694
 spectroscopy, review 1=4743
 spin absorption in solids, theory 1=20251
 spin correlation of ion radical salts 1=14804
 spin diffusion, effect on dynamic polariz. of nuclear spins 2=10713
 spin diffusion, in inhomog. broadened systems 2=6695
 spin diffusion and polarization of nuclei at forbidden resonance 4=26372
 spin echo, fine structure, charac. parameter meas. 1=20193
 spin energy, spatial diffusion, calc. 0=1823
 spin exchange between excitons and free radicals 2=16634
 spin Hamilton description of energy levels 4=22947
 and spin Hamiltonian ion parameters, calc. 3=18127
 spin-lattice effects, rel. to microwave propag. 3=18139
 spin-lattice power transfer 1=9064-6
 spin-lattice relax., rel. to cryst. internal field 2=18527
 spin-lattice relax. effects on neutron scatt. 2=21377
 spin-lattice relax. of localized electrons 1=20245
 spin-lattice relax., phonon processes 3=15428
 spin-lattice relax. processes, direct, theory 3=8722
 spin-lattice relax. in S-state ion crystals 3=25562
 spin-lattice relaxation of S-state ions 4=26403
 spin-lattice relax. times, modified C.W. technique 2=9725
 spin-lattice relax. times, temp. depend. 2=16935
 spin-lattice relax. times, temp. dependence 3=6757
 spin-lattice relaxation in crystals, temp. dependence 4=26373
 spin-lattice relaxation, effect of crystal defects 0=16157
 spin-lattice relaxation, in magnetically dilute crystals, with S-state ions 4=1867
 spin-lattice relaxation of paramag. ions in diamag. garnets 4=26399
 spin-lattice relaxation in paramagnetics with strong exchange interaction 3=18141
 spin-lattice relaxation, salts, theory 1=9062
 spin-lattice relaxation times, for long duration, direct meas. 0=9223
 spin-lattice relaxation times, at low temp. 0=10215

Paramagnetic resonance and relaxation — contd

spin-lattice relaxation, for 2 types of interacting spin 0=11614
 spin-orbit coupling, anisotropic 2=23699
 spin-orbit coupling, anisotropic, effects 3=20641
 spin-orbit coupling in orbitally degenerate states of aromatic ions 1=4947
 spin-orbit interaction effect for ions with single 3d electron 1=14788
 spin-phonon interaction in relaxation 2=21378
 spin-phonon interaction in relaxation 3=3182
 spin-phonon transitions, selection rules verified 1=6071
 spin relax., size-dependent, model 3=8720
 spin relaxation, Fokker-Planck eqn. 3=1623
 spin-spin interaction, via phonon exchange 0=21068
 spin-spin relax., generalized Pauli eqn. 4=8961
 spin-spin relaxation in parallel fields 1=7793
 spin-spin relaxation, quantum statistical theory 4=10314
 spin-spin relaxation, recent developments, review 3=1196
 spin-spin relaxation, theory 1=7789-91
 spin temperature in rotating reference frame 4=17674
 spinel-type crystals, internal elec. fields 2=12645
 starch-iodine complex 1=19670
 statistical mechanical theory 3=21254
 strained crystals, data obtainable on band structure 1=6097
 in strong fields, harmonic analysis of signals 3=14787
 substituted aromatic ions, perturbation model 3=12860
 substituted aromatic ions, superposition model 2=18478
 substituted benzaldehyde ions, rotational isomerism 3=15373
 substituted cyclobutane anions 4=25726
 succinic acid, free radicals due to irrad. study 2=3180
 β -succinic acid, X-irradiated 0=13572
 sucrose, γ -irradiated single crystals 1=20230
 sucrose, X-ray irrad., e.s.r. study 2=18946
 sugars, X-irrad., centre prodn. and decay 2=12823
 sulphate radical meas. 4=2151
 superhet. detector microwave bridge 2=9727
 symmetric multiplet line, modulation effect, analysis 2=4239
 sym-trinitrobenzene and related radicals, generated by electrolytic reductions 4=30474
 systems with 2 kinds of mag. moment, thermodynam. of irreversible processes 0=10219
 DL-tartaric acid, irrad. single cryst. 2=6691
 technique for studying diamagnetism of gaseous plasma 1=7074
 Teflon, liq.-He temp. 20657
 Teflon, study of γ -radiation effects 0=6420
 temperature dependence of resonance lines 4=26367
 terephthaldehyde, rel. to rotational isomerism 1=17368
 terphenyl, σ -, m- and p-, anions 4=25730
 tetracene positive ion 2=18477
 tetrachlorosemiquinone, polycrystalline derivs., anisotropic g-factor 4=10334
 tetracyanoethylene anion radical 0=16715
 tetracyanoquinodimethan ion radical salts, spin correlation 1=9056
 tetracyanoquinodimethane ion radical salts 3=11109
 tetrahydrofuran-Na reaction product 2=10278
 tetramethyl ammonium chloride, γ -irradiated crystal 3=8716
 N,N'-tetramethylbenzidine positive ion 2=2300
 tetramethyl-1,3-cyclobutanedione ketyl 2=18479
 tetramethyl-pentamethylene oxide of nitrogen solns., ordinary and supercooled glassy solid 4=2710
 tetra-n-butyl ammonium halides, electron irradiated 0=7797
 tetraphenylhydrazine, free radicals 1=9951
 tetraphenylpyrrol radical 2=3778
 thiazine dye radicals 2=23008
 thiodiglycolic acid, γ -irradiated single crystal 1=7787
 thio-indigo and derivs. free radicals, spin-density distrib. 2=16552
 thio-indigo radical, effect of solvent 2=20881
 thioxanthone S, S-dioxide mononeg. ion 3=2655
 time variation of longitudinal and transverse magnetization theory 0=12378
 titanate ceramic, electrical ageing study 1=12659
 toluene anion 2=2018
 Tony blue (4,4'-dipyridyl radical) 2=15619

Paramagnetic resonance and relaxation—contd

- transient processes, (effective spin 1, equidistant spectrum), quantum theory 4=10310
 transition metal complexes, e. s. r., review 4=3902
 transition metal ions in corundum 2=3811
 transition-metal ions in crystals, charge transfer and exchange interaction expts. review 0=21067
 transition metal ions in soln., linewidths 4=29646
 transition metal ions in TiO_2 4=26432
 transition-metal oxyions 0=21069-70
 transition-metal porphyrins and phthalocyanines 1=865
 transition metal and rare earth ions, rel. to effective mag. flds. 3=977
 trapped free radicals in γ -irradiated compounds 1=6056
 trapped radicals in irradiated n-propanol 1=11130
 trifluoroacetamide, γ -irrad. single crystal 2=23707
 triglycine sulphate, ferroelec., γ -ray damaged 2=2208
 triglycine sulphate, γ -irrad., NH_2CHCO_2 radicals 2=8673
 s-trinitrobenzene, photo induced, line splitting 3=18831
 triphenylamine, photo induced 4=26437
 1, 3, 5-triphenylbenzene, $\Delta m = 1$ transitions 3=1186
 triphenylene, broadening due to Jahn-Teller effect 0=7798
 triphenylene, $\Delta m = 1$ transitions 3=1186
 triphenylene in polymethylmethacrylate host, triplet state, effect of temp. 4=23054
 triphenylmethyl, absorption 0=17773
 triphenylmethyl groups, biradicals, singlet-triplet splittings, calc. 0=15771
 triphenylmethyl radical, spin densities, corrections 3=20018
 triphenylphosphine anion, hyperfine structure 2=20863
 triplet spin exchange in ion radical salts 3=11109
 triplet states in crystals, det. of energy transfer 2=21370
 tris-p-nitrophenylmethyl radical 1=17342
 tritium radiation source for e. s. r. studies 1=11474
 tungstates, monocrystalline 0=6265
 2-quantum transitions 1=20192
 two-quantum transitions, two osc. fields at 90° 3=25559
 II-VI compounds, impurity resonance 4=26377
 two-spin system, relaxation, theory 3=1624
 12th Ampère colloquium, Bordeaux (1963) 4=4396
 tyrosine, rel. to semiconductor theory of free electrons 1=11115
 ultramarine free radical, double quantum transit. 2=4247
 ultrasonic, signal velocity meas. near resonant absorption 3=6759
 urea cpds., irrad. single crystals. 2=2106
 urea oxalate, irradiated crystal 1=11488
 d, l-valine, γ -irrad., free radical structure and orientation, 77° and 293°K 4=17685
 vanadium e. s. r. in rutile 1=1264
 vanadyl ion complexes, electronic structure studies 4=30468
 vanadyl porphyrins 1=4948
 vanadyl sulphate, resonance study 1=20200
 vinyl free radical, in solid Ar 4=12532
 vinyl radical, β -proton hyperfine splittings 4=25732
 viologen free radicals, photochem. produced 3=20028
 viscous media, highly, relax. and lineshape 4=5211
 viscous media, relaxation time 3=1713
 water normal and deuterated isotopes, molecular beam, condensed products, 77°K 4=1325
 weak mag. field measurement by free precession with electronic pumping 1=13149
 Wurster's blue perchlorate 1=17364
 Wurster's blue perchlorate, exchange-ordering and forbidden transitions 1=11483
 Wurster's blue perchlorate, exciton motions, temp. dependence 4=4415
 Wurster's blue perchlorate, influence of dissolved O on line width 0=14663
 Wurster's blue perchlorate, solid free radical, and ferromagnetism 4=6657
 Wurster's blue, reinterpretation 4=9766
 Wurster's blue, T_1 and T_2 exchange effects 0=3123
 xylene anions, m- and p- 2=2018
 xylene solns., dynamic polarization 2=13353
 zeolite adsorbed mols. 4=23613
 zeolites, and γ -ray effects 4=22657

Paramagnetic resonance and relaxation—contd

- zero-field e. m. r. in inorganic and organic radicals 3=17609
 zero-field splittings in molecular multiplets 3=10535
 A, solid, NO_2 , spectrum analysis 2=10695
 $\text{A}^{12}\text{B}^{11}$, charge transfer, light induced, e. s. r. meas. 2=8416
 $\text{A}_{\text{II}} \text{B}_{\text{VI}}$ cpds, Mn^{2+} impurity local dilatations 3=1192
 A and Kr, solid, intense H and CH_3 signals 2=20917
 Ag atoms, in paraffins at 77°K 3=15948
 Ag, in distilled H_2O and $\text{C}_2\text{H}_5\text{OH}$, 77°K 3=25575
 Ag halides, with Ag sulphide, selenide, telluride 0=11949
 Ag halides containing bivalent anions 1=9057
 Ag trapped in undecane at liq. N_2 temp. 4=13317
 Ag(II) compounds 2=1166
 $\text{Ag}^{104,104\text{m}}$ beams, h. f. s., nuclear mag. moments 1=12148
 AgBr, cyanine dye-sensitized, absorption signal, photo-induced 2=21374
 AgBr, e. s. r., rel. to photographic process 2=16933
 AgBr, g=2.04 line rel. to anti-colour centre 3=6542
 AgBr, light irradiated 0=6415
 AgBr, u. v. irradiated, detection of colloidal particles 4=26408
 AgCl:Co 3=15487-8
 AgCl, Cu⁺ doped, rel. to hole trapping and release 2=20968
 AgCl, with CuCl traces, photographic process investigation 0=19465
 Ag in KCl, on X irrad., nuclear double reson., h. f. s. 4=1889
 Al monocrystal 2=765
 Al monocrystal 3=5036
 AlCl_3 , Ti^{3+} g-factor theory 2=18947
 AlCl_3 , $6\text{H}_2\text{O}$, temp. depend. 2=23725
 AlCl_3 , $6\text{H}_2\text{O}$, Cr^{3+} resonance 1=11476
 AlCl_3 , $6\text{H}_2\text{O}$, Ti^{3+} , Cr^{3+} and Fe^{3+} resonance 0=4515
 $(\text{Al}_{1-x}\text{Cr}_x)_2\text{O}_3$, rotation fine and hyperfine struct. 2=14830
 Al-Fe alloys, rel. to low-temp. mag. props. 2=14763
 Al-Mn alloys, rel. to low-temp. mag. props. 2=14763
 Al_2O_3 absorbed water, relaxation times 1=20239
 Al_2O_3 , Cr^{3+} phonon-photon double-quantum transitions 1=6071
 Al_2O_3 :Cr, relaxation 0=18215
 Al_2O_3 , Cr^{3+} resonance, transition probability for $\alpha \epsilon^3 \epsilon \Gamma_4$ 0=11939
 Al_2O_3 (corundum), Mn^{2+} resonance 0=11942
 Al_2O_3 (corundum), Ti and Co ions, theory 1=20234
 Al_2O_3 , doped microwave u. s. spin-phonon interactions 3=23242
 Al_2O_3 :Fe, theory 0=13871
 Al_2O_3 , γ -irrad., centres meas. 4=17676
 Al_2O_3 , Gd^{3+} spectrum at 24 kMc/s, large zero-field splitting 1=7784
 Al_2O_3 , Mn^{2+} resonance, forbidden transit. 2=6600
 $\alpha\text{-Al}_2\text{O}_3$: Mn^{4+} , in ground state 2=14712
 $\alpha\text{-Al}_2\text{O}_3$, Ni^{2+} resonance 2=4263
 Al_2O_3 , resonance of Cr^{3+} excited state, optical detection 0=4508-9
 Al_2O_3 , Ti^{3+} g-factor theory 2=18947
 Al_2O_3 , V^{3+} zero-field splitting, pulsed field meas. 1=1270
 AlSb 1=17712
 Al_2SiO_5 , Cr^{3+} reson. meas. 2=21360
 Al_2SiO_5 (kyanite), Cr^{3+} resonance, maser appl. 1=11477
 Al^{3+} in ZnS, correl. with photocond. meas. 3=18128
 Ar, solid, H_2 and CH_4 impurities, irrad., energy migration and isotopic effects, e. s. r. meas. 4=25928
 $(\phi_3\text{AsCH}_3)^+(\text{TCNQ})_2^-$, spin-lattice relax. rel. to temp. 4=17684
 AsO_4^{3-} , in $\text{Na}_2\text{HAsO}_4 \cdot 7\text{H}_2\text{O}$ after X-irrad. 4=10316
 Au trapped in polar and nonpolar media at liq. N_2 temp. 4=13317
 B, rel. to C content 3=11110
 $\text{B}^{10,11}$ in alkali borate and borosilicate glasses 4=7319
 BPPA, T_1 and T_2 exchange effects 0=3123
 B in BeO single crystals, e. s. r. 4=26378
 BaF_2 , and crystal internal charge compensation by interstitial F^- 4=22460
 BaO, c. s. r. study of colour centres 0=11630
 BaTiO_3 , F^+ centre, 78°K , O non-stoichiometric 4=4404
 BaTiO_3 , paramagnetic particles 3=15935
 BaTiO_3 , tetragonal and cubic, Gd^{3+} reson. 2=18945
 $\text{BaTiO}_3 + (\text{ZrO}_2, \text{MgO})$, paramagnetic particles 3=15935

Paramagnetic resonance and relaxation—contd

- BeO, neutron irradi. 2=6688
 Bi, g-factor 0=16163
 Bi, shallow impurity traps and electron transfer dynamics at low temp. 0=18035
 Br, rel. to electronic g-factor 1=3932
 C, amorphous, line-widths, rel. to O 3=3168
 C, Faulquemont crystal, $T_1 T_2$ relax., rel. to temp., at 34.6 kMc/s 4=13314
 C, homogeneity, using spectrometer, modulated, field up to 1 Mc/s 4=748
 C, reson. and double reson. with n.m.r. 2=14841
 C, resonance lines, moments 0=12671
 C^{13} hyperfine splittings in semiquinones 1=7486
 C^{13} hyperfine splitting in semiquinones and cyclooctatetraene 1=19663
 C-Cl complex 4=20097
 Ca fluorophosphate, O^- ion in F^- site 2=23700
 $CaCO_3$ (calcite), Mn^{2+} resonance in 0=13871
 $CaCO_3$ (calcite), neutron irradi., stimulated spin-echo meas. of cross-relaxation 1=7792
 CaF_2 , Co^{2+} resonance, spin Hamiltonian 1=3934
 CaF_2 , and crystal internal charge compensation by interstitial F^- 4=22460
 CaF_2 , detection of hydrolysis in solid 1=11478
 CaF_2 , doped, microwave u.s. spin-phonon interactions 3=23242
 CaF_2 , Dy^{3+} resonance 1=3933
 CaF_2 , e.s.r. of point defects, charge compensation invest. 2=4249
 CaF_2 , Eu-doped, e.s.r. absorption of 9.3 kMc/s phonons 3=1190
 CaF_2 impurities 0=6267, 11937
 CaF_2 , impurity spectra, theory of satellite lines 0=8088
 CaF_2 with impurity valence changes 3=1180
 CaF_2 , Nd^{3+} and U^{3+} paramag. resonance at $20^\circ K$ 1=9055
 CaF_2 with rare earth impurities, effect of heat treatment 1=1259
 CaF_2 , rare earth ion spectra 3=3172
 CaF_2 , rare-earth ions 2=10696
 CaF_2 , self-trapped hole 2=16632
 CaF_2 , Tb^{3+} reson., meas. and theory 2=12817
 CaF_2 , trigonal site 2=16812
 CaF_2 , trivalent rare-earth ions, crystal-field splittings 4=20585
 CaF_2 , trivalent rare-earth ions, spin-lattice relax. 4=20586
 CaF_2 , U^{4+} reson. rel. to optical spectra 2=23708
 CaF_2 , Yb^{3+} resonance at $20^\circ K$ 0=11938
 CaF_2 :H 4=13319
 CaF_2 :Ho, resonance, rel. to impurity ion behaviour 3=8710
 CaF_2 :Mn, fine structure 1=1260
 CaF_2 :Tm, X-irradiated, down to $20^\circ K$ 1=20203
 CaF_2 :Yb, X-irradiated 1=20203
 $CaMg(CO_3)_2$, Mn^{2+} resonance 1=18714
 CaO, defect centres due to X or Hg irradi. 4=7320
 CaO, Fe^{3+} and Mn^{2+} 2=21362
 CaO, Gd^{3+} and Eu^{2+} , 290° , $77^\circ 4.2^\circ K$ 2=21363
 CaO, after neutron irradi. 3=13169
 $CaWO_4$, impurity resonance of Mn^{2+} and Gd^{3+} S-state ions 0=10221
 $CaWO_4$, irradiated single crystals 1=3655
 $CaWO_4$ with Mn^{2+} , Fe^{3+} , Nd^{3+} , determ. of ion sites 4=4409
 $CaWO_4$, Tb^{3+} reson., meas. and theory 2=12817
 Cd chromites, linewidths and g-factors 1=20189
 Cd, double, 5^3p , level, light modulation at r.f. 4=9639
 Cd ferrites, linewidths and g-factors 1=20189
 $CdBr_2$, Co^{2+} impurity at 9300 Mc/s below $40^\circ K$ 1=20202
 $CdCl_2$, Co^{2+} impurity at 9300 Mc/s below $40^\circ K$ 1=20202
 $CdCl_2$, Mn^{2+} reson. 2=772
 CdF_2 , Mn^{2+} reson. 2=772
 Cd in GaAs 4=7338
 CdS, photosensitive Fe^{3+} centre, theory 0=13871
 CdS:Cu, Ga, photosensitive centre 3=23224
 CdS:Eu(II), crystal field splittings of 8S state 0=21071
 CdS:Mn, at 4.2 and $300^\circ K$ 0=13872
 CdSe: Mn, 3a field splittings 3=1192
 CdTe, Co^{2+} resonance, spin Hamiltonian 1=3934
 CdTe:Mn, at 4.2 and $300^\circ K$ 0=13872
 CdTe, Mn^{2+} reson. 2=772
 Ce glass, u.v. irradiated 1=14349

Paramagnetic resonance and relaxation—contd

- Ce^{3+} in dil. LaMg nitrate, spin-lattice relaxation time rel. to echo formation 3=1195
 Ce^{3+} in $CaWO_4$ 4=23058
 Ce^{3+} in $CeCl_3 \cdot 7H_2O$, relax., 1.1° - $4.2^\circ K$, dispersion-absorption meas. 4=26379
 Ce^{3+} in $CeCl_3 \cdot 7H_2O$, spin-lattice and cross-relax. 4=26380
 $CeCl_3 \cdot 7H_2O$, liquid He temps. 3=8718
 $CeCl_3 \cdot 7H_2O$, susceptibility meas., 2 Kramers doublets 4=20587
 $(Ce, La)_2Mg_3(NO_3)_{12} \cdot 24H_2O$, dynamic polarization of protons 1=10185
 CeMg nitrate, Ce^{3+} spin-lattice relaxation 1=6423
 CeMg nitrate, rel. to crystal field splittings 4=26381
 CeMg nitrate, spin-lattice relax. 2=14836
 CeMg nitrate, spin-lattice relaxation, 1.64 - $2.12^\circ K$ 1=12566
 $Ce_2Zn(NO_3)_6 \cdot 24H_2O$, mag. interaction between Co^{2+} and Ce^{3+} ions 1=6260
 Ce^{3+} in $CaWO_4$, inhomog. resonance lines 1=14792
 Ce^{3+} and Nd^{3+} in $La_2Mg_3(NO_3)_{12} \cdot 24H_2O$, spin-lattice relax. below $1^\circ K$ 2=14839
 CH π -electron radical, e.s.r. line shape 1=17341
 CH radical in crystal, line shape 1=3939
 CH radical in polycrystalline state, e.s.r. 1=11116
 $CH(COOH)_2$, C^{13} hyperfine splitting 0=5968
 $CH(OOH)_2$ in malonic acid, X-irradiated 0=13571
 $CH(SO_3)_2$ free radical, e.s.r. in K methane disulphonate 2=16566
 CH_3 radical, C^{13} splittings 0=503
 Cl, atomic, microwave Zeeman spectrum 1=11068
 Cl, rel. to electronic g-factor 1=3932
 $Cl^{35,37}$ atoms, two-quantum transits. 2=22903
 Cl-C complex and electronic struct. 4=25725
 Cl_2^- in NH_4OHCl , irradi. 4=28869
 Cm^{3+} in $LaCl_3$ and La ethylsulphate 3=13299
 $Co(NH_3)_4Al(SO_4)_2 \cdot 6H_2O$ and isomorphous cpds. 1=12573
 Co ion in X site of $La_2Zn_3(NO_3)_{12} \cdot 24H_2O$, relax. 3=8723
 Co salts, at liq. He temps. 0=6261, 10222, 10218
 Co salts, spin-lattice relaxations of paramag. dispersion 3=23241
 Co^{2+} in Al_2O_3 (corundum) 1=20237
 $Co(NH_3)_4(SO_4)_2 \cdot 6H_2O$ spin-spin relaxation time 0=1831
 Co^{2+} in Al_2O_3 (corundum) 2=4251
 Co^{2+} in CaF_2 , CdF_2 and $CdTe$ 0=16164
 Co^{2+} in CaO rel. to MgO, CaF_2 3=3181
 Co^{2+} in CdS 4=10317
 Co^{3+} in corundum, cross spin relaxation 1=3940
 Co^{2+} in corundum, spin-lattice relaxation 0=21074
 Co^{2+} in MgO, double reson. 2=4278
 Co^{2+} , spin Hamiltonian, resonance in CaF_2 , ZnS, CdTe, ZnSe 1=3934
 Co^{2+} in TiO_2 4=26382
 Co^{2+} in TiO_2 (rutile) 3=1183
 Co^{2+} in TiO_2 (rutile) single crystal 2=8668
 Co^{60} , dynamic orientation in a crystal of $La_2Mg_3(NO_3)_{12} \cdot 24D_2O$ 0=5655
 Co-Au alloys, resistive anomalies 1=20213
 $CoCl_2 \cdot 6H_2O$, 55 kMc/s, $4.2^\circ K$ 1=1256
 $Co(Cs)_2(SO_4)_2 \cdot 6H_2O$, low temp. var. 4=17677
 Co-Cu alloys, resistive anomalies 1=20213
 $Co(NH_3)_4(SO_4)_2 \cdot 6H_2O$, low temp. var. 4=17677
 $CoNH_4$ -Tutton, single crystals, at liq. He temp. 0=10214
 $CoNH_4$ Tutton salt, spin-lattice power transfer parameter 1=9066
 CO_2^- radical, trapped 3=6418
 Cr, in corundum and Cr alum, spin-lattice relaxation 0=16158
 Cr ion in chrome alum, fine structure 1=6415
 Cr ion pairs in ruby, exchange interactions 3=3167
 Cr ion pairs, in ruby, spin-lattice relaxation 1=14812
 Cr ions adsorbed by exchange of ions 3=8707
 Cr ions, electric fields, effects 3=18126
 Cr ions in ruby, spin-lattice relax. 2=4275
 Cr oxychlorides, fluorides, sulphates, and mol. struct., bonding 4=20098
 Cr in ruby, lineshapes, statistical theory 4=26388
 Cr, in ruby, spin-lattice relax., concn. and temp. depend. 4=13313
 Cr(III) in $Co(NH_3)_6I_3$ cubic field, rel. to spin Hamiltonian 4=20588

Paramagnetic resonance and relaxation—contd

- Cr III complexes in aq. soln., study 4=201
 Cr³⁺ salt solns. 3=3818
 Cr³⁺, 3d⁵ config., in ZnSe and ZnTe 4=13312
 Cr³⁺, in alum, fine structure, ground-state splittings 0=21073
 Cr³⁺, in corundum, cross relax. 2=4274, 10707
 Cr³⁺, in corundum, resonance, line width and profile 0=11941
 Cr³⁺, in corundum, spin-lattice relax. time, 4-90°K 2=776
 Cr³⁺, in corundum, spin-lattice relax. time, 4-90°K 3=5037
 Cr³⁺, in cubic SrTiO₃, temp. and press. depend. 4=10325
 Cr³⁺, e.p.r. spectrum at low and room temp. 3=25567
 Cr³⁺ ion, charge transfer and spin-Hamiltonian 1=9052
 Cr³⁺ ion in spinel 3=3171
 Cr³⁺ ions in double nitrate crystals and frozen soln. 1=20206
 Cr³⁺ ions, effect of charge transfer levels 3=8705
 Cr³⁺, in K₃Co(CN)₆ and rubidium alum, broadening of lines due to dipolar interaction 4=15670
 Cr³⁺, in MgWO₄, 3=15939
 Cr³⁺ in ruby, electric shift 4=26384
 Cr³⁺ in ruby, line splitting by external elec. field 4=26387
 Cr³⁺ in ruby, second moment of lines 4=7321
 Cr³⁺, in ruby, spin-lattice relax. time, 9kMc/s 3=13298
 Cr³⁺ in rutile 4=23057
 Cr³⁺, in rutile monocystals, relax. times 2=18941
 Cr³⁺ salt solns. 2=5028
 Cr³⁺, in SnO₂, spin Hamiltonian 3=20645
 Cr³⁺, spin-lattice relax. in corundum 0=11940
 Cr³⁺, spin-lattice relax. in ruby, calc. 4=10320
 Cr³⁺, spin-lattice relax. time, in K₃(Fe,Cr)(CN)₆ 1=14810
 Cr³⁺, in TiO₂ 3=14798
 Cr³⁺, in ZnWO₄, meas. and theory 3=3169
 Cr³⁺, in ZnWO₄, spin-lattice relaxation 3=25569
 Cr³⁺ in glasses, 260-9320 Mc/s, 77°-295°K 3=18129
 Cr³⁺, in glycerol or water 3=7219
 Cr⁶⁺ in tetrahedral, octahedral and dodecahedral coordination, spin-lattice relaxation 3=13311
 Cr³⁺ in Al₂O₃, absorpt. line depend. on Cr conc. 4=26385
 Cr³⁺ in Al₂O₃, excited E^{(2)E} state 3=23225
 Cr³⁺ in Al₂O₃, linear elec. shifts 3=25568
 Cr³⁺ in Al₂O₃, matrix elements, calc. 3=3165
 Cr⁴⁺ in α-Al₂O₃, meas. 4=7322
 Cr⁵³ in Al₂O₃, electron-nuclear resonance 1=11490
 Cr³⁺ in Al₂SiO₅ (kyanite) 4=13309
 CrBr₃ line widths 3=23204
 Cr(CN)₃NO³⁻, (Cr⁶⁺), C¹³ h.f.s. and lines 3=20014-15
 [Cr(C¹³N)₅NO]³⁺, two h.f. splitting consts. 4=12512
 Cr³⁺ in CaO rel. to MgO, CaF₂ 3=3181
 Cr in CdS 4=26389
 Cr³⁺ in CdS, 1.4°K 3=23226
 Cr²⁺ in CdS single crystals 4=15669
 Cr in CdTe 3=20646
 CrCl₃, e. s. r. 4=10315
 CrCl₃, g-factor anisotropy, room temp., 36 kMc/s 0=21072
 CrCl₃ in LiCl-KCl, e. s. r. 4=10315
 CrCl₃ line widths 3=23204
 CrCl₃ in ZnCl₂, e. s. r. 4=10315
 CrF₆³⁻ in diamagnetic solids 1=20207
 Cr³⁺ and Gd³⁺ in LaAlO₃, 4°-700°K 4=26386
 Cr(H₂O)₆³⁺, in Al(H₂O)₆Cl₃ 0=13869
 CrK alum, relaxation at low temp. 1=14793
 Cr in K₂CrO₄ and K₃NbO₈-K₂CrO₄ 3=3166
 CrK(SO₄)₂·12H₂O 2=21381
 CrK(SO₄)₂·12H₂O, saturation 0=10223
 Cr³⁺ in K₂Zn(SO₄)₂·6H₂O 3=18130
 Cr³⁺ in MgO, linear elec. shifts 3=25568
 Cr³⁺, in MgTiO₃, 24 and 35 kMc/s 3=15938
 Cr³⁺, Mn⁴⁺, Co³⁺ in SrTiO₃ 4=26383
 Cr⁰, Mn²⁺, Fe³⁺ in ZnS 3=20648
 Cr⁰ and Mn²⁺ in Si, rel. to electric dipole induction 4=1863
 [Cr(NH₃)₆]Cl₃ crystals, diluted with [Co(NH₃)₆]Cl₃, 9.2 kMc/s 3=1182
 (Cr,Ne)₂O₃ mixed crystals, α-phase 4=1871
 Cr₂O₃, below Curie temp., 15 times reduction by heating at 1000°K 3=20643
 Cr₂O₃ on Al₂O₃ 3=13297
 Cr₂O₃-Al₂O₃ mixtures, antiferromagnetism 4=26350

Paramagnetic resonance and relaxation—contd

- Cr²⁺ in TiO₂, external stress effects 4=26435
 Cr⁵³, in Co(III) acetylacetonate and Al acetylacetonate 4=13338
 Cr³⁺ in ZnS, cubic and hexagonal 3=3170
 Cr³⁺ in ZnS, rel. to ion charge transfer 4=1357
 Cs, D level hyperfine structure 1=17260
 Cs, optically driven spin precession 1=8821
 Cs, soln. in NH₃, e. s. r., effect of adding CsI 3=11811
 Cs¹³³ vapour, optically aligned, fine structure 4=6471
 Cs¹³³ vapour, spin-exchange collisions meas. 4=25591
 CsBr, interaction energy 1=14817
 CsCl, electron irradi., unidentified centre 2=4253
 Cs-Cr alum, Cr relax., saturation effects 2=10697
 CsO₂, exchange effects 0=4522
 Cs and Rb in methylamine, hyperfine splitting 3=16640
 (Cs⁺)₂(TCNQ)₂²⁻ 2=14827
 (Cs⁺)₂(TCNQ)₃²⁻, spin-lattice relax. rel. to temp. 4=17684
 CsTi alum, Ti³⁺ g-factor theory 2=18947
 Cs₂ZrCl₆, resonance h.f.s. of tetravalent Pa²³¹⁺ 1=6420
 Cu benzoate, line width temp. var. 4=10318
 Cu chelates, N bonded 4=30471
 Cu complexes 2=16549
 Cu complexes, bonding studies 1=11117
 Cu complexes in glassy state 1=11479
 Cu ions, dissolved, hyperfine structure 0=3544
 Cu malonate, splitting factor 2=21361
 Cu phthalocyanine 4=26392
 Cu salts, 5.4 and 6.6 mm wavelengths 0=3129
 Cu trichloroacetate monohydrate, temp. dependence of line width 4=26391
 Cu(II) α-piccolinate at 77°K 1=14795
 Cu(II) dipyriddy₂SO₄ at 77°K 1=14795
 Cu III, 4p electron, spin-orbit coupling 2=4276
 Cu(II) monoethylenediamine chloride 4=7323
 Cu(II) pyridine₄S₂O₈ at 77°K 1=14795
 Cu²⁺ in CuSO₄, diluted with MgSO₄ 1=14794
 Cu²⁺, complexes, influence of Jahn-Teller effect 0=11943
 Cu²⁺, in CuCl₂·2H₂O, g factors, meas. and calc. 4=3958
 Cu²⁺, in Cu(NH₄)₂Cl₄·2H₂O 4=20589
 Cu²⁺ ion in tetrahedral crystal field 2=4254
 Cu²⁺ in K₂Cu(SO₄)₂, temp. depend. meas. 4=13328
 Cu²⁺ and Ni²⁺ in CaO, Jahn-Teller effect 4=13327
 Cu²⁺, octahedral complexes, spin inversion levels 3=25570
 Cu²⁺ in organic complexes, spin-lattice relaxation, temp. var. 4=12613
 Cu²⁺ spectra, distortion in tetrahedral crystal field 4=12571
 Cu²⁺ in TiO₂ 3=25564
 Cu²⁺, in water and glycerine, 90° and 300°K 0=16714
 Cu²⁺ in ZnO as substit. impurity 4=4042
 Cu²⁺ in Zn₃P₂O₇, e. s. r. spectrum, phase transition study 4=26574
 Cu³⁺, in corundum 3=13300
 Cu³⁺ in Al₂O₃ 4=26393
 Cu⁶⁴, in divalent Cu cpds, use in masers 0=2436
 (CuCl₂)⁺, rel. to electron distrib. 2=6248
 Cu_{0.96}Co_{0.04}K₂(SO₄)₂·6H₂O, at room temp. and 77°K 0=4510
 CuCs₂(SO₄)₂·6H₂O 2=4273
 CuCs₂(SO₄)₂·6H₂O, low temp. var. 4=23045
 CuF₃·5HF·5H₂O, 9625 Mc/s meas. 3=5038
 CuF₂·2H₂O 2=12808
 CuK Tutton salt, spin-lattice power transfer parameter 1=9066
 CuK₂Cl₄·2H₂O, relaxation at low temp. 1=14793
 CuK₂Cl₄·2H₂O, spin-lattice power transfer parameter 1=9066
 CuK₂(SO₄)₂·6H₂O 4=19247
 CuK₂(SO₄)₂·6H₂O, low temp. var. 4=23045
 CuK₂(SO₄)₂·6H₂O, saturation 0=10223
 Cu-Mn alloy, s-d interaction, theory 0=16166
 Cu(NH₃)₄Cl₄·2H₂O, crystal structure meas. 4=10319
 Cu(NH₃)₄Cl₄·2H₂O, spin-lattice power transfer parameter 1=9066
 Cu(NH₃)₄SO₄·H₂O 2=10694
 Cu(NH₃)₂(SO₄)₂·6H₂O 2=4273
 Cu(NH₃)₂(SO₄)₂·6H₂O, low temp. var. 4=23045
 Cu(NH₃)₂(SO₄)₂·6H₂O, size dependent relaxation times at liquid He temp. 1=14675

Paramagnetic resonance and relaxation—contd

- CuNH_4 , Tutton salt, spin-lattice power transfer parameter 1=9066
 $\text{Cu}(\text{NO}_3)_2$, anhydrous, organic solns. 4=11216
 CuSO_4 , spin-lattice relax., rel. to nonresonant sound absorption 4=9840
 $\text{CuSO}_4 \cdot 4\text{NH}_3 \cdot \text{H}_2\text{O}$ low-temp. anomalies 1=10179
 $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$, exchange amalgamation 3=20640
 $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$, Faraday effect, anomalous in e.s.r. absorpt. region 4=28870
 $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$, orientation depend. 1=1261
 $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$, paramag. ions coexisting within ordered spin system 3=20644
 $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$, spin-lattice power transfer parameter 1=9066
 $\text{Cu}_{0.08}\text{Zn}_{0.92}\text{K}_2(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$, at room temp. and 77°K 0=4510
 D , atomic, h.f.s. det. 0=20543
 D_2 , solid, unpaired atoms, rel. to lattice sites 4=4402
 DCrO 1=11413
 DO_2 , from D_2O_2 soln., 77°K, u.v. irradiated 3=20012
 D_2O_2 , polycrystals, resonance line shape 2=2297
 D_2O_2 in D_2O 1=17363
 Dy ethyl sulphate, spin-lattice relaxation 3=1194
 Dy^{2+} , in CaF_2 , spectra, study at liq. He temp. 4=28871
 Dy^{3+} , in CaF_2 , cubic and axial fields 4=1873
 Dy^{3+} , in CaO , covalent bonding evidence 3=25576
 Dy^{3+} , in Y ethylsulphate, spin-lattice relax. 4=7326
 Dy^{3+} in CaF_2 , separation of Γ_8 - Γ_7 levels 4=20590
 $\text{DyCl}_3 \cdot 6\text{H}_2\text{O}$, 1.1-4.2°K, 2-2660 c/s 3=8719
 $\text{DyCl}_3 \cdot 6\text{H}_2\text{O}$, spin-lattice relax. 1.1° to 4.2°K 3=3183
 Dy^{3+} in YGa garnet lines 3=15937
 Er^{3+} , in CaO , covalent bonding evidence 3=25576
 Er^{3+} , in CdF_2 monocrystals 2=18944
 Er^{3+} in CaF_2 , five spectra 4=4403
 Er^{3+} in CaWO_4 , inhomog. resonance lines 1=14792
 Er^{3+} in CdF_2 , BaF_2 , CaF_2 , spin-lattice relax., 1.6-25°K 4=30732
 $\text{ErCl}_3 \cdot 6\text{H}_2\text{O}$, 1.1-4.2°K, 2-2660 c/s 3=8719
 $\text{ErCl}_3 \cdot 6\text{H}_2\text{O}$, spin-lattice relax. 1.1° to 4.2°K 3=3183
 Er^{3+} in MgO , 20°K 4=13316
 Eu , divalence proved 0=13874
 Eu^{2+} in alkali earth fluorides, cubic field splitting 4=1875
 Eu^{2+} , in cubic SrTiO_3 , temp. and press. depend. 4=10325
 Eu^{2+} , in CaF_2 , electron-nuclear double reson. 2=10715
 Eu^{2+} , S-state, relaxation time 1=3927
 Eu^{3+} , in Nd ethyl sulphate, quadrupole h.f.s. 3=3173
 EuAl_2 , conduction electron polarization 1=1277
 Eu^{2+} in BaF_2 and SrF_2 4=1874
 Eu^{2+} in CaF_2 , electron-nuclear double resonance 4=26449
 Eu^{2+} in CaO , SrO , exchange interactions 4=13315
 Eu^{2+} in CdSe and CdTe , rel. to covalent bonding 4=10321
 EuIr_2 , no resonance detected 0=13874
 EuO , 23.8 and 27.5 Gc/s, 1.5° to 300°K 4=26358
 F , atomic, microwave Zeeman spectrum 1=11067
 F , in CaF_2 , ENDOR rel. to interact. with Eu^{2+} 4=4425
 F^{2-} in BeO powder, X-irrad. 4=26396
 F^{19} hyperfine interaction in irradiated organic crystals 4=26395
 F^{19} in irradiated pentafluoropropionamide crystals 4=26395
 F^{19} in irradiated trifluoroacetamide crystals 4=26395
 F^{19} in XeF_6 -HF, liquid, anomaly 4=21157
 Fe complexes with Fe at centre of 4 N square, review 1=873
 Fe , above Curie pt., theory of large linewidth 2=4259
 Fe , in Fe oxide glasses 4=2137
 Fe , in GaAs, meas. at 77°K 3=11113
 Fe , GaAs, quasiforbidden transitions 4=1879
 Fe -group ions in fluoride cryst., bonding 3=20043
 Fe -group ions in fluoride crystals, bonding study 3=15407
 Fe group ions in tetrahedral coordination 4=25903
 Fe group, salt solutions, resonance and relaxations 0=8085
 Fe , Ni and V, in ZnS , photoexcitation 4=13323
 Fe relax. in $\text{K}_3\text{Co}(\text{CN})_6$, freqn. depend. 3=25572
 Fe , trivalent, in calcite single crystal 4=1878
 Fe^{2+} , in cubic field, theory and expts. 0=10228-9
 Fe^{2+} , in MgO , u.s. velocity near resonant absorption, by u.s. e.s.r. 3=6759
 Fe^{3+} , ground-level splitting and g-factor in nearly cubic crystal field, calc. 0=11601

Paramagnetic resonance and relaxation—contd

- Fe^{3+} , ground-state cubic crystal field splitting parameter, sign 0=1824
 Fe^{3+} , in Al_2O_3 , 2-80°K, 3 cm 3=20649
 Fe^{3+} , in anatase 2=12818
 Fe^{3+} , in andalusite, and isomorphism 3=20855
 Fe^{3+} in calcite 3=15940
 Fe^{3+} , in CdWO_4 , and spin Hamiltonian 3=5040
 Fe^{3+} , in corundum, temp. depend. 2=768
 Fe^{3+} , in corundum, temp. depend. 3=5039
 Fe^{3+} , in cubic SrTiO_3 , temp. and press. depend. 4=10325
 Fe^{3+} , in Fe-Rb alum, rutile and $\text{K}_3\text{Co}(\text{CN})_6$ 4=20594
 Fe^{3+} in guanidinium Al sulphate hexahydrate 3=6747
 Fe^{3+} ions in MgAl_2O_4 and ZnAl_2O_4 , exchange interaction and field splitting parameter 1=1481
 Fe^{3+} , in MgO , acoustic e.s.r. 4=1867
 Fe^{3+} , in natural MgAl_2O_4 , at room temp. 3=25571
 Fe^{3+} , parameter D, rel. to axial crystal field 3=8336
 Fe^{3+} , PbTiO_3 , strong axial field, meas. 3=20595
 Fe^{3+} , in rutile, c.w. push-pull maser 2=1583
 Fe^{3+} , in rutile monocrystals, relax. times 2=18941
 Fe^{3+} , S-state, relaxation time 1=3927
 Fe^{3+} , in sapphire, spin-Hamiltonian description, exactness 2=8670
 Fe^{3+} , spin-lattice relax. time in $\text{K}_3(\text{Fe}, \text{Cr})(\text{CN})_6$ 1=14810
 Fe^{3+} , in spinel lattices, linewidth rel. to Fe^{3+} conc. 2=769
 Fe^{3+} , in ZnWO_4 , spin-lattice relaxation 3=25569
 Fe^{3+} in AgCl 4=13324
 Fe^{3+} in Al ammonium sulphate 4=13321
 Fe^{3+} in Al_2O_3 , transition matrix elements, calc. 3=23230
 Fe -Au alloys, resistive anomalies 1=20213
 Fe^{2+} in BaTiO_3 , near Curie point, var. with d.c. bias field, and phase transformation 4=10324
 Fe^{3+} in BaTiO_3 , low temp. 4=7329
 Fe^{3+} in CaCO_3 , isotopic shift in h.f.s. 4=13322
 Fe^{2+} in CaO 4=17678
 Fe^{3+} in CaO rel. to MgO , CaF_2 3=3181
 FeCl_3 , e.s.r. 4=10315
 FeCl_3 in LiCl - KCl , e.s.r. 4=10315
 Fe -Cu alloys, resistive anomalies 1=20213
 Fe^0 and Fe^+ in interstitial Si 1=20214-15
 Fe^{3+} in $\text{K}_3\text{Co}(\text{CN})_6$, relaxation from 0.1° to 4.2°K 4=26407
 Fe^{3+} in $\text{K}_3(\text{Co}, \text{Fe})(\text{CN})_6$, spin-lattice relaxation 4=10323
 Fe^{3+} in LaAlO_3 4=23074
 Fe^{3+} , in Li aluminate, internal elec. field 2=12645
 Fe^{3+} in $\text{Li}_{0.5}\text{Al}_{2.5}\text{O}_4$ and $\text{Li}_{0.5}\text{Ga}_{2.5}\text{O}_4$ 4=26404
 Fe^{3+} in MgAl_2O_4 , spinel 3=8711
 Fe^{3+} in MgO , rel. to axial cryst. field 3=2695
 Fe^{2+} in MgO , $\Delta M = 2$ lineshapes model 4=13320
 Fe^{2+} in MgO , stress effects 4=30736
 Fe^{2+} in MgO , virtual phonon effects 4=23046
 Fe^{3+} and Mn^{2+} in $\alpha\text{-Al}_2\text{O}_3$, appd elec. fld effect 4=26406
 $\text{FeNH}_4(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$ 2=21381
 $\text{Fe}(\text{NH}_4)(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$, line-widths, g-factor 3=25565
 $\text{Fe}(\text{NH}_4)(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$, at 9.3×10^9 c/s 0=3130
 $\text{Fe}(\text{NH}_4)(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$, resonance in parallel fields 0=13875
 $\text{Fe}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$, at 9.3×10^9 c/s 0=3130
 $(\text{FeO})^{2-}$, in K_2CrO_4 0=20169-70
 Fe^{3+} in SrTiO_3 , axial, due to nearest-neighbour charge compensation 4=23047
 Fe^{3+} in Y orthoaluminate 4=30733
 Fe^{3+} in ZnS , rel. to ion charge transfer 4=1357
 Fe^{3+} in ZnWO_4 4=30734
 Fr^{2+} and Ni^{2+} in MgO , microwave u.s. pulse interaction 4=26415
 Ga^{3+} , in fluorides 0=10226
 Ga^{3+} in LaAlO_3 3=11112
 GaAs , centres, obs., in high concentrations 3=20647
 GaAs , n-type, 4.2°K 4=4406
 GaAs , of Zn, Cd 4=7338
 GaSb 1=17712
 Gd , in alloys and intermetallic cpds., rel. to theory 2=12821
 Gd ethylsulphate, spin-lattice relax. 2=18950
 Gd , g-shift, rel. to f-cond. electron coupling 3=8450
 Gd , resonance in Pd and Pd-rich alloys, effect of hydrogenation 3=15944
 Gd^{3+} , in alkali earth fluorides, cubic field splitting 4=1875
 Gd^{3+} , in CaF_2 0=18216
 Gd^{3+} , in CaF_2 4=1876, 7327
 Gd^{3+} , in CaF_2 , h.f.s. of resonance spectrum 3=15943
 Gd^{3+} , in CaF_2 , relaxation meas. 4=7328

Paramagnetic resonance and relaxation—contd

Gd³⁺, in CaF₂, SrF₂ and BaF₂ 4=4407
 Gd³⁺, in CdF₂ 2=4256
 Gd³⁺, in cubic SrTiO₃, temp. and press. depend. 4=10325
 Gd³⁺, in cubic and tetragonal BaTiO₃ and SrTiO₃ 2=18945
 Gd³⁺ in fluorite, resonance at 9190 Mc/s 1=14796
 Gd³⁺ in garnet, rel. to GdIG anisotropy 4=26398
 Gd³⁺, in Gd hexa-antipyrene iodide 2=4256
 Gd³⁺, in glasses 3=20651
 Gd³⁺, in La hexa-antipyrene iodide 2=4256
 Gd³⁺, in metals and cpds. of high susceptibility 4=28873
 Gd³⁺, Pr³⁺ in LaAlO₃ 4=26383
 Gd³⁺, resonance in LaF₃ 0=6263
 Gd³⁺, S-state, relaxation time 1=3927
 Gd³⁺, in Y, Sm and Nd sulphates 2=10698
 Gd³⁺ in zircon 4=15673
 GdAl₃, conduction electron polarization 1=1277
 GdB₂ 2=3998
 GdCl₃.6H₂O, 1.1-4.2°K, 2-2660 c/s 3=8719
 GdCl₃.6H₂O, spin-lattice relax. 1.1° to 4.2°K 3=3183
 Gd in Pd, and long range polarization 4=26400
 Gd³⁺ in Pd with rare earth impurities 3=8709
 Gd₂(SO₄)₃.8H₂O 2=21381
 Gd³⁺ in SrF₂ and BaF₂ effects of heat treatment, hydrolysis 4=1877
 Gd³⁺ in TiO₂, temp. var. and crystal field 4=10322
 Gd³⁺ in Y orthoaluminate 4=30733
 Ge 4=23042
 Ge, doped with P, rel. to stress 3=18131
 Ge, donor spin-lattice relaxation and g-factor 0=11612-13
 Ge, hyperfine splitting, stress depend. 2=8340
 Ge, 136 k Mc/s absorption spectrum, rel. to valence band parameters 3=25577
 Ge, p-type spin resonance predicted 0=11756
 Ge, Sb-doped, additional resonance spectra, theory 1=3930
 Ge, Sb-doped, new spectrum of four lines 1=1267
 Ge, shallow donors, effect of stress 4=13318
 Ge, shallow impurities 2=23705
 Ge type crystals, ground state splitting rel. to deformation mag. and elec. fields 4=15674-5
 H atom free radicals, at 4.2°K 2=3791
 H, atomic in CaSO₄.¹/₂H₂O, γ irradi. 4=26401
 H, atomic gas, line widths 1=3510
 H atoms, in CaF₂ 2=21364
 H, atoms, h.f.s. det. 0=20543
 H, atoms in rare gas matrices 0=7889-90
 H interstitial atoms in CaF₂ 4=26402
 H—polystyrene reaction, free radical intermediates, e.s.r. spectra 1=17340
 H, recomb. to H₂ 2=16494
 HCrO₃ 1=11413
 HO₂, from H₂O₂ soln., 77°K, u.v. irradiated 3=20012
 H₂O₂, aq., quickly frozen, preferred orientation meas. 2=4258
 H₂O₂, solid, ΔM = 2 transitions, rel. to u.v. irradi. 3=23229
 H₂O and D₂O ice, tritiated 1=7498
 H₂O₂ in H₂O in irradiated glasses rel. to spatial distrib. 1=17363
 H₂O₂-H₂O solns., u.v. irradiated 0=10678
 (HOOC)C¹³H(COOH) radical hyperfine splitting 1=9059
 H₂S plasma, free radicals of dissociation 0=502
 H³, solid, study of defects due to radioactive decay 0=20855
 He, optically driven spin precession 1=8821
 He³ liquid, relaxation, Fermi liquid model 3=14435
 He⁴, energy levels 1=12258
 He⁴, mag. res. of atomic excited levels 1=2280
 Hg, excited states 0=20557-8
 Hg vapour, by transverse Faraday effect at Larmor freq. 3=23943
 Hg₂(NO₃)₂.2H₂O, γ irradi., bands due to NO₂ 4=17680
 Ho³⁺ in CaF₂ at 4.3°K 3=13301
 Ho³⁺ in CaF₂, g-shift, calc. 4=7336
 Ho³⁺, Tm³⁺ in CaF₂ 4=26433
 In^{113m}, atomic beams, h.f.s. 0=15511
 In¹¹⁴ spin relaxation in Fe alloy 3=2417
 InSb 4=23042
 InSb, electric dipole spin transitions 3=3175
 InSb, impurity electron states study 3=4911
 InSb, n-type, combined reson. 2=2304
 InSb, n-type, e.s.r. and cyclotron 3=18133
 InSb, shift due to hyperfine interaction 2=10488
 InSb, spin resonance of conduction electrons 0=6268

Paramagnetic resonance and relaxation—contd

Ir ions, in Ir salts, superexchange 0=13876
 Ir⁴⁺ triads in K₂Ir, PtCl₆ 4=26403
 (IrCl₆)³⁻, unpaired electron spin transfer 2=12337
 K-alkylated amines, e.s.r. absorpt. spectra 4=18216
 K chromicyanide, spin-spin relax. at low temp. 2=4271
 K colloids in KN₃, e.s.r. 4=26422
 K ethylamine solns., decay and mols. present 4=21156
 K ferricyanide, spin-spin relax. at low temp. 2=4271
 K halides, doped, X-ray irradi., trapped paramag. N oxides 1=14350
 K halides, nitrogen centres, h.f.s. 4=26416
 K—liquid NH₃ solns., relaxation times 3=18834
 K-salt of m-dinitrobenzene negative ion 0=4129
 K, soln. in liq. NH₃ decomposition, study 2=10971
 K, soln. in NH₃, e.s.r., effect of adding KI 3=11811
 K vanadyl oxalate, diluted single crystal 3=1189
 KBr, doped with NO₂ 2=4248
 KBr, F-centre, double spin reson. 2=6388
 KBr, F-centres, electron-nuclear double reson. 2=12471
 KBr, V-centres in crystals containing Ca, Sr, Ba ions 0=6051
 KBr, U₂-centre 3=10696
 KCl, colour centres 3=23234
 KCl, colour centres, spin-lattice relax. 1=20245
 KCl, colour centres, spin-lattice relax. 2=14471
 KCl, doped with KNO₃, X-irradi. 3=25573
 KCl, doped with NO₂ 2=4248
 KCl, electron excess centres, rel. to bleaching and annealing 1=14330
 KCl, e.s.r. of F⁻centres 1=20222
 KCl, F-centre aggregation study 3=25302
 KCl, F-centres, after opt. and thermal bleaching 2=3963
 KCl, F-centres, double resonance meas. 4=22632
 KCl, F-centre, double spin reson. 2=6388
 KCl, F-centres, electron-nucleus double resonance 0=6273
 KCl, F-centre spin-lattice relax. times 1=20242
 KCl, F-centre spin-lattice relax. 4=26421
 KCl, F-centres, with h.f. modulation of mag. field 3=15932
 KCl, F-centres, line contours 4=10330
 KCl, F-centres, saturation and partial recovery of e.s.r. at 4°K 0=10236
 KCl, F-centres, spin-lattice relaxation, calc. 1=20244
 KCl, F-centres, spin-lattice relaxation times, temp. dependence 4=4405
 KCl, F-centres, spin resonance, optical saturation at 2.1°K 1=14333
 KCl, F = F' reaction and F' lifetime study 3=2840
 KCl, with impurity valence changes 3=1180
 KCl, Li doped, A centres, polarized and unpolarized 2=14470
 KCl, M-centres 1=11241
 KCl, M-centres, metastable triplet state 4=4408
 KCl-MnCl₂, rel. to substructure 2=10405
 KCl, NaCl-doped, A-centre e.s.r. 2=21365
 KCl, no e.s.r., diamagnetism confirmed 2=3966
 KCl, with O-containing additions 2=21373
 KCl, "pure" F-centres, absorption 2=23214
 KCl, R centre, by X-irradi., e.s.r. 4=17452
 KCl, U₂-centre 3=10696
 KCl, V-centres in crystals containing Ca, Sr, Ba, ions 0=6051
 KCl, U₂-centres, electronic structure 0=20832
 KCl:Ag, Ag spectrum, calc. for double and zero field reson. 0=18219
 KCl : Ag, X-irradi., trapped holes and electrons 3=5044
 KCl-RbCl mixed crystals, F-centres meas. 4=20315
 KCl: Sr, Z-centres 3=25304
 KClO₃, X-ray irradi., V-centre structure 0=2825
 K₃Co(CN)₆:Cr, effects of polytypism 0=13877
 K₃Co(CN)₆, Cr³⁺ electron spin-lattice relaxation at liquid He temp. 0=13878
 K₃Co(CN)₆, Cr³⁺, spin-lattice effects 0=6256
 K₃(CoCr)(CN)₆, relaxation effects 0=3134
 K₃(Co, Cr, Fe)(CN)₆, cross-relaxation of Cr and Fe at 4.2°K 0=16165
 K₃[Co, Fe](CN)₆, Fe³⁺ relax. at low temp. 2=18953
 K₃(Co, Fe)(CN)₆, spin-lattice relaxation 3=18140
 K₃Co(CN)₆, Cr³⁺ doped 2=766
 K₃Cr(CN)₆, studied in K₃Co(CN)₆ crystal 0=681
 KCr(SO₄)₂.12H₂O, rel. to Faraday effect 4=4268
 K₃[Cr(CN)₆]NO₃.H₂O 1=3566

Paramagnetic resonance and relaxation—contd

- K_2 (Cr-Fe-Co)(CN)₆, spin-lattice relax. 2=6698
 K_2 CuCl₄·2H₂O, exchange amalgamation 3=20640
 K_2 CuCl₄·2H₂O, low temp. line structures 4=26390
 K_2 CuCl₄·2H₂O, temp. dependence of line-width 1=20225
 KF, F-centre, double spin reson. 2=6386
 K_2 Fe(CN)₆, ferric ion exchange interaction 3=1054
 K_2 Fe(CN)₆, resonance spectrum 1=20224
 K_2 Fe(CN)₆, spin-lattice relax. 2=23067
 K_2 Fe(CN)₆, spin-lattice relaxation time 1=14811
 K_2 Fe(CN)₆, Fe³⁺ interaction effects 1=12559
 KH₂PO₄, KD₂PO₄, X-irrad. 4=4414
 KI, F-centre, electron-nuclear double spin reson. 2=6388
 KI, F-centres, 4-293°K, compared to other K halides 0=1826
 KI, I₂ colour centres 2=21083
 KI, I¹²⁷ quadrupolar spin-lattice relaxation time 3=18156
 K_2 IrCl₆, Ir-Ir exchange interaction 0=8067
 KMgF₃·Mn 1=1262
 KMgF₃, Mn²⁺ reson. 2=772
 KN₃ crystal, with NO and NO₂ absorption lines after irradiation 2=21089
 KN₃, γ-irrad., trapped N and N₂ 2=4266
 KN₃, irradiated with u.v. or X-rays 0=17919
 KN₃, u.v. irradiation, 77°K, paramag. centres 2=16931
 KN₃, X-irradiated crystal, paramag. N oxides produced 4=26419
 K-NH₃ soln., decomposition study 3=3381
 K-NH₃ solutions, relax. times 4=8222
 K-NH₃³ and K-ND₃ solutions, relaxation 1=6873
 KNO₃, γ-irradiated 4=26423
 KNO₃, irradiated, NO₂ and NO₂⁻ resonance 3=11116
 KO₂, exchange effects 0=4522
 KO₂, temp. and freq. depend. 0=21077
 K_2 (SO₄)₂, aq. solns., electron spin exchange 3=16639
 3K₂S₂O₈·5H₂O, γ irradiation, liquid N₂ temp. 4=1887
 Kr, solid, H₂ and CH₄ impurities, irradiation, energy migration and isotopic effects, e.s.r. meas. 4=25928
 Kr⁸⁵, solid, study of defects due to radioactive decay 0=20855
 KrF, spectrum at 77°K 4=28872
 L-cystine dihydrochloride, irradiated 4=13310
 L-cystine dihydrochloride, irradiation, at low temp., free radical prod., e.s.r. study 4=20591
 La(C₆H₅SO₃)₃·9H₂O, Gd³⁺, spin-lattice effects 0=6256
 LaCrO₃, resonance 2=2298
 La ethyl sulphate, (Pm¹⁴⁷)³⁺ resonance 1=20223
 La ethyl sulphate, quadrupole splitting, large 4=23048
 La³⁺, in CaF₂ 3=20650
 LaAlO₃, of Fe³⁺ 4=23074
 LaCl₃, quadrupole splitting, large 4=23048
 LaF₃, Nd³⁺ doped, hidden selection rule 3=20481
 (0.999 La, 0.001 Gd).(C₂H₅SO₃)₃·9H₂O ΔM = ±2, ±3 angular spectra 4=26397
 LaMg nitrate, Ce³⁺ spin-lattice and spin-spin relaxation 1=20204
 LaMgNO₃, quadrupole splitting, large 4=23048
 La₂Zn₃(NO₃)₁₂·24H₂O, Ni ions, at 77°K 2=14829
 Li-alkylated amines, e.s.r. absorpt. spectra 4=18216
 Li aluminate, Fe³⁺ resonance, internal elec. field 2=12645
 Li, effect of plastic deformation on line width 1=6416
 Li, liquid, conduction e.s.r. 3=5450
 Li-liquid NH₃ solns., relaxation times 3=18834
 Li, Na, K fluorenones, dimers 2=23012
 Li in neutron-irrad. LiF, line-width depend. on annealing 0=4511
 Li, nuclei and protons, frequency ratio 2=17489
 Li, 1.5°K to 4.2°K, electron density at Fermi level, calc. 4=28874
 Li, Overhauser effect meas. at 1.5°K 4=4427
 Li, saturation, for paramag. suscept. meas. 4=4331
 Li solutions, in ethylamine and NH₃, e.s.r. 1=16600
 Li sulphate monohydrate, spectrum interpretation 2=8665
 LiAlH₄, and catalytic active centres 4=2156
 LiCl, F-centre resonance, g-value 1=995
 LiF, cross-relaxation 0=4521
 LiF, F-centres, h.f.s., M-centre resonance discounted 0=18217
 LiF, with impurity valence changes 3=1180
 LiF, irradiation, resolved h.f.s., two types of paramag. centre 1=3935

Paramagnetic resonance and relaxation—contd

- LiF, irradiated, dispersion signal, rapid passage 0=16171
 LiF, neutron-irrad., F-centre study 3=11114
 LiF, neutron irradiation, two types of centre 1=20219
 LiF, with nucleus, of V_K centre 4=26452
 LiF, Mn²⁺, var. with temp. rel. to elec. cond. mechanism 4=30646
 LiF-Na, irradiation, rel. to substructure 2=10404
 LiF, X-irrad., e.s.r. of "antimorph" of F-centre 0=6053
 LiF, X-ray irradiation, damage study 1=20218
 LiF, X-ray irradiation, F-centre antimorph 1=20217
 LiH, colloid centres 0=1598
 LiH, F-centres 1=19811
 LiH, F-centres 2=14473
 LiH, radiation damage study, Li precipitation 2=21000
 LiH, u.v. irradiation, e.s.r. study 1=14798
 LiH, u.v. irradiation, polarization of Li nuclei 2=3815
 Li in LiF, electron density at nucleus, 1.5-4.2°K 0=16170
 LiN₃D₃SO₄, ferroelec., γ-irrad. 3=13302
 LiN₃H₃SO₄, ferroelec., γ-irrad. 3=13302
 Lu₃Al₅O₁₂, Nd³⁺, Dy³⁺, Er³⁺, Yb³⁺ substituted, g-value detm. 3=1052
 Lu₃Ga₅O₁₂, Nd³⁺, Dy³⁺, Er³⁺, Yb³⁺ substituted, g-value detm. 3=1052
 (Me, PhN)(FeCl₄) 1=7808
 MgAl₂O₄, Cr³⁺ resonance 0=3131
 MgCO₃ 1=18714
 MgCl₂ 1=20221
 MgCl₂, Mn²⁺ reson. 2=772
 MgCl₂, Mn²⁺ reson., cubic contribs. 2=10702
 Mg-Fe alloys, rel. to low-temp. mag. props. 2=14763
 MgHPO₃·6H₂O, X-irrad., hyperfine interact. 2=10701
 Mg-Mn alloys, rel. to low-temp. mag. props. 2=14763
 MgO, antiferromag. exchange interactions between Mn²⁺ ions 0=6274
 MgO, and chemisorption of O₂ on n, γ irradiation 4=23600
 MgO, Cr³⁺ spin-lattice relaxation, 1.3-50°K 1=5073
 MgO, defects study 1=3653
 MgO, double-quantum transitions of Ni 0=6270
 MgO, e.s.r. study of radiation defects 1=17536
 MgO, Fe-group impurities, electron transfers 0=21075
 MgO, Fe²⁺ reson., phonon absorption 2=10699
 MgO, Fe²⁺ resonance in 0=10229
 MgO, Mn²⁺ and Fe³⁺ phonon-photon double-quantum transitions 1=6071
 MgO, Mn²⁺ and Fe³⁺ resonance, cubic field splitting pressure depend. 0=18218
 MgO, neutron-irrad., maser 2=3163
 MgO, neutron irradiation, spin-lattice relaxn. of F-centres 3=817
 MgO, Ni²⁺ ion, rel. to uniaxial press. 2=10700
 MgO, Ni²⁺ and Co²⁺ resonance, Ni⁶¹ nuclear moment 0=15513
 MgO, point defects det. 2=3907
 MgO, pressure effects on spectra of Cr³⁺, Mn²⁺, Fe³⁺, Ni²⁺ 1=7786
 MgO, second-order Stark effect of impurity ions 4=26414
 MgO, u.v. irradiation, induced V_K centres for catalysis of H₂ + D₂ = 2HD, e.s.r. study 4=30901
 MgO, valence of Fe and Cr impurities 0=11795
 MgO, weak lines, Fe³⁺ and Cr³⁺ transitions 0=6262
 Mn acetate, sulphate, line-widths, g-factors 3=25566
 Mn acetate tetrahydrate 4=26413
 Mn-activated phosphors, correlation with luminescence 4=26411
 Mn-activated phosphors, examination of physical props. 0=1752
 Mn apatite, rot. fine and hyperfine struct. 2=14830
 Mn cpds., h.f.s. and bonds 4=20095
 Mn, diffusion in Ca and Sr fluorides 2=10409
 Mn, in GaAs at 77°K, meas. and theory 3=3177
 Mn hexammine halides, motional and exchange effects 4=26418
 Mn ions, electric fields, effects 3=18126
 Mn ions, trapped in dislocation lines in NaCl 2=4261
 Mn salt solutions 0=8670
 Mn, in SnO₂, h.f.s. and s.h.f.s. 4=26412
 Mn²⁺, in Si, electrically induced transit., between spin levels 2=21367
 Mn²⁺ in calcite, e.s.r. spectrum 1=7785

Paramagnetic resonance and relaxation—contd

- Mn²⁺, in AgCl single crystals, rel. to vacancy motion 2=10704
 Mn²⁺, in Al₂O₃, forbidden transit. 2=6690
 Mn²⁺ in apatite crystals 4=10326
 Mn²⁺, in aq. soln., effects of Cl⁻ and SO₄²⁻ 4=11217
 Mn²⁺ associated with impurities in alkali chlorides 1=14789
 Mn²⁺, in 3[Ca₃(PO₄)₂]CaF₂ 2=14831
 Mn²⁺, in carbonates 2=4260
 Mn²⁺, in crystals of cubic and axial symmetry 2=772
 Mn²⁺, in cubic environment, spin-lattice relax. 2=18955
 Mn²⁺, in cubic field, ground-state splitting, calc. 2=553
 Mn²⁺ in cubic MgO, first-order forbidden transitions 4=13325
 Mn²⁺ in cubic MgO, "forbidden" hyperfine transitions 4=10327
 Mn²⁺, e.s.r. in CdWO₄ 2=14832
 Mn²⁺, e.s.r. in fluosilicate-type crystals 2=21368
 Mn²⁺, e.s.r. in MgTiF₆·H₂O 2=21369
 Mn²⁺, e.s.r. in (NH₄)₂Cd₂(SO₄)₃ 2=12813
 Mn²⁺, e.s.r. in various halides 1=14802
 Mn³⁺, in GaS 3=8713
 Mn²⁺, in glasses 3=20651
 Mn²⁺, ground-level splitting and g-factor in nearly cubic crystal field, calc. 0=11601
 Mn²⁺ in ionic crystals, calc. 1=3936
 Mn²⁺ ions in ZnAlO₄, exchange interaction and field splitting parameter 1=11481
 Mn²⁺ in KCl and LiCl 0=683
 Mn²⁺, in LiF, at X-band and room temps. 4=4410
 Mn²⁺, in MgO, acoustic e.s.r. 4=1867
 Mn²⁺ pairs in Mn, ZnF₂, exchange interaction 3=3176
 Mn²⁺, proposed e.s.r. expt. under high pressure 0=11944
 Mn²⁺, S-state, relaxation time 1=3927
 Mn²⁺, salt solutions, spin-lattice relaxation times 0=10679
 Mn²⁺, spin-spin relaxation time in diamag. crystals 0=6266
 Mn²⁺, in SrS 3=5042
 Mn²⁺, in SrS, relax. effects 2=781, 23701
 Mn²⁺, in SrS, relaxation time 4=1867
 Mn²⁺, in SrS, spin-lattice relax., theory 3=25562
 Mn²⁺ surrounded by F ions 1=11480
 Mn²⁺ in II-VI cpds., rel. to lattice distortion 3=25167
 Mn²⁺, in water and glycerine, 90° and 300°K 0=16714
 Mn³⁺ in rutile 4=23057
 Mn³⁺ in rutile, spin Hamlt. analysis 4=4411
 Mn⁴⁺ ions, effect of charge transfer levels 3=8705
 Mn⁴⁺ in rutile, h.f.s. interaction of Ti⁴⁺ 4=23057
 Mn⁴⁺ in α-Al₂O₃ 4=26236
 Mn in An, Pd, g shift 4=30738
 MnAu₂ 0=13864
 Mn²⁺ in BaTiO₃, forbidden hyperfine lines 4=7330
 Mn²⁺ in CaCO₃, calc. 3=23231
 Mn²⁺ in CaCO₃, rel. to pressure up to 7000 atm. 4=1880
 Mn²⁺ in CaO rel. to MgO, CaF₂ 3=3181
 Mn²⁺ in CdSe, rel. to covalency effects 3=11115
 MnCl₂ 4=10315
 MnCl₂-alkali chloride system, e.s.r. of Mn 1=9054
 MnCl₂ aqueous solutions, Overhauser effect, rel. to temp. 4=11219
 MnCl₂·4H₂O 4=10315
 MnCl₂·4H₂O, Faraday effect, anomalous in e.s.r. absorpt. region 4=28870
 MnCl₂·4H₂O, mag. susceptibility 0=10095
 MnCl₂·4H₂O, rotation of plane of polariz. at 9150 Mc/s 0=11945
 MnCl₂·4H₂O, single crystal 0=10230
 MnCl₂ in LiCl-KCl 4=10315
 MnCl₂ in molten alkali halides 4=11215
 MnCl₂ in ZnCl₂ 4=10315
 MnCO₃ 1=12560
 MnCO₃, nuclear freq. pulling 4=30737
 MnF₂, above Néel temp. 4=13303
 MnF₂²⁺ in diamagnetic solids 1=20207
 Mn²⁺-F⁻ pair in NaCl, σ-bond character 1=14801
 Mn and Gd impurities in BaF₂ 3=11111
 MnH₄ Tutton salt, spin-lattice power transfer parameter 1=9066
 Mn(H₂O)₆²⁺, in aqueous glass 3=6748
 Mn(H₂O)₆²⁺ solns., linewidths 2=2732
 Mn²⁺ in KF 4=23049
 Mn²⁺ in LiF 3=13303
 Mn²⁺ in MgAl₂O₄ spinel 3=8711
 Mn²⁺ in MgAl₂O₄ spinel, zero-field splitting 3=8712

Paramagnetic resonance and relaxation—contd

- Mn⁴⁺ in MgO 4=28876
 Mn²⁺ in MgO, additional biquadratic exchange term in spin Hamiltonian 3=20627
 Mn²⁺, in MgO, spin-lattice relax. 3=8724
 Mn²⁺ in MgO, stress effects 4=30736
 Mn²⁺ in K₂MnCl₄, temp. var., and antiferromagnetism 4=1881
 Mn²⁺ in MnCl₂ frozen solutions, rel. to composition 4=30735
 Mn²⁺ in MnSnCl₆·6H₂O, rel. to calculated crystal field constants 4=1353
 Mn²⁺ in NaCl, with Ca²⁺, Cd²⁺ admixtures 4=28877
 Mn²⁺ in NaN₃, KN₃, and RbN₃, rel. to crystal orientation 4=23051
 Mn in NH₄Cl 1=14790
 Mn²⁺ in NH₄Cl-MnCl₂-H₂O solid solns. 4=28875
 Mn(NH₄)₂(SO₄)₂·6H₂O 2=21381
 (MnO₄)³⁻ in K orthovanadate 0=20169-70
 (MnO₄)²⁻ in K₂CrO₄ 0=21069-70
 Mn in Pd, hyperfine structure 3=15945
 MnS, absorpt., -195 to +100°C, 9285 kc/s 4=15676
 MnSO₄·H₂O, Faraday rot. 4=23050
 MnSnCl₆·6H₂O, Mn²⁺ axial field splitting parameter 2=21366
 MnSiF₆·6H₂O, Mn²⁺ axial field splitting parameter 2=21366
 Mn²⁺ in SrCl₂, line intensities ang. depend. 4=26410
 Mn²⁺ in SrCl₂·6H₂O 4=1467
 Mn²⁺ in SrO, g factor 4=10328
 Mn²⁺ in SrS 2=771
 MnTiF₆·6H₂O, Mn²⁺ axial field splitting parameter 2=21366
 Mn in TiO₂, h.f.s. and g-tensor anisotropy 1=14805
 Mn and V in corundum, ENDOR 4=3959
 Mn²⁺ in (Zn_{1-x} + Cd_x)S and Zn(S_{1-x} + Se_x) wipe-out number 4=26370
 Mn²⁺ in Zn₂P₂O₇, e.s.r. spectrum, phase transition study 4=26572
 Mn²⁺ in ZnS, cubic and hexagonal 4=1882
 Mn²⁺ in ZnSe (cubic), transitions, allowed and forbidden 4=23052
 Mo⁴⁺,⁵⁺ in MoCl₅ liquid and supercooled solns. 3=1711
 Mo⁵⁺ in TiO₂ 2=23704
 MoS₂, impure, temp. and press. depend. 4=7331
 N atom conc., quantitative meas. by e.s.r. 4=23687
 N, in NaN₃ after X-irrad., fine structure 3=25574
 N, in oriented NaVapour, N¹⁴-N¹⁵ hyperfine anomaly 0=1482
 N, recomb. to N₂ 2=16494
 N₂, dissociated, atomic concn. meas. 2=3792
 N₂ gas, e.s.r. and afterglow at λ=10 cm 2=1211
 N²⁺ in α-Al₂O₃ 2=4263
 N¹⁴ betaine hydrochloride single crystals 4=13308
 N¹⁴, in di-sec-butyl nitric oxide 3=6353
 N¹⁴ h.f.s. in heterocyclic anions 3=8295
 N₂F₄-NF₃, e.s.r. obs. of dissociation and free radicals 4=6654
 NH₂ free radical, hyperfine spectrum 4=6658
 NH₃-metal solns. relax. and spin echoes 2=17488
 N₂H₄⁺, during hydrazine oxidation in H₂SO₄ 4=2712
 (NH₄)₂(Cd₂(SO₄)) : Mn²⁺, temp. depend. 3=5043
 NH₄Cl, X-irrad., electron-deficiency centres 4=10006
 NH₄ClO₄, X-irradiated, paramag. defects 1=17594
 (NH₄)₂ Cu Cl₄·2H₂O, absorpt. abs. intensity 3=1185
 NH₄FeAl(SO₄)₂·12H₂O, study of cryst. field 2=23033
 NH₄Fe(SO₄)₂·10H₂O, e.s.r. 2=4262
 (NH₄)⁺ (H₂PO₄)⁻, e.s.r., rel. to chem. struct. 2=14822
 (NH₄)₂H₂P₂O₈, γ-irrad., defects 3=13022
 (NH₄)₂HPO₄, irradiated, π-electron radical 3=11117
 (NH₄)₂IrCl₆, Ir-Ir exchange interaction 0=8067
 NH(SO₃)⁻ in γ-irrad. K sulphate 3=6417
 NO, h.f.s., N nucl. quadrupole moment 0=13443
 NO radicals, e.s.r. spectra, solvent effects 4=11218
 NO₃ mol., in nitrate-doped alkali halides 2=773
 NO₃ radical, trapped 3=6418
 NO₂ and NO₃ in irradiated PbNO₃ 4=17682
 NO₂ in NaNO₃, irradiated 4=10329
 [NO(SO₃)₂]⁻ electrolytic ions, N¹⁵, S³³ lines 4=3904
 NO(SO₃)₂²⁻, nuclear resonance signals 0=16713
 NO(SO₃)₂²⁻ relaxation study by dynamic polarization 1=2769
 NO(SO₃)₂²⁻ in solution, proton resonance and e.s.r. 1=14819
 N(SO₃)₂²⁻, free radical, e.s.r. in K amine disulphonate 2=16566
 Na alloys, paramag. res. of conduction electrons 1=1268
 Na-aromatic complex in soln., hyperfine splitting 3=25138

Paramagnetic resonance and relaxation—contd

Na atoms, optically polarized, spin relaxation 4=6486
 Na azide, colour centres identified as colloidal Na 0=1606
 Na, colloidal, in Na azide 0=8083
 Na, colloidal in NaN_3 , temp. depend. 3=3418
 Na, cond. electron susceptibility 3=1053
 Na, conduction electrons, spin-lattice relax. time 4=20600
 Na, D level hyperfine structure 1=17260
 Na dinitrobenzene 2=10280
 Na—liquid NH_3 solns., relaxation times 3=18834
 Na, Overhauser effect meas. at 1.5°K 4=4427
 Na perfluorosuccinate, X-irrad., e.s.r. spectra of free radical formed 4=20601
 Na, saturation, for paramag. suscept. meas. 4=4331
 Na, soln in NH_3 , e.s.r., effect of adding NaI 3=11811
 Na vapour, optically pumped, shifted 3=12771
 NaCl, doped with NO_2 2=4248
 NaCl, e.s.r. of F-centres 1=20222
 NaCl, F-centre concn. and relaxation time, by microwave Faraday rotation 0=16161
 NaCl, F-centre electrons, spin-lattice relaxation time, 300°K 0=16160
 NaCl, F-centres, double spin reson. 2=6388
 NaCl, F-centres, electron-nuclear double reson. 2=12471
 NaF, Fe-group impurities, bonding and valence props. 0=21076
 NaCl, nitrogen centres, h.f.s. 4=26416
 NaCl, U_2 -centre 3=10696
 NaCl— MnCl_2 , rel. to substructure 2=10406
 NaF with impurity valence changes 3=1180
 NaF, M-centre, paramagnetism question 3=819
 NaH, e.s.r., 1.2°K, 9200 Mc/s, and electron density 3=15947
 NaH, F-centre absorption, resolved isotropic h.f.s. 1=11239
 NaH, F-centres, bleaching effects 2=3962
 NaH, F-centres, electron-nuclear double reson. 2=12471
 NaN_3 , F-centre spin resonance 1=1269
 NaN_3 , trapped N atoms produced by X-irradiation 1=8921
 Na— NH_3 , e.s.r. absorpt. spectra 4=18216
 NaNO_2 , γ -irradiated 1=12561
 NaNO_2 , γ -irradiated, e.s.r. 4=13329
 $\text{Na}_2\text{O} \cdot \text{B}_2\text{O}_3 \cdot \text{SiO}_2$ glass, radiation effect meas. 3=17795
 $\text{Na}_2\text{S}_2\text{O}_3$, γ -irrad., effect of dehydration 3=23236
 $\text{Na}_2\text{SO}_3 \cdot 5\text{H}_2\text{O}$, γ -irradiated 4=7337
 $\text{Na}_2\text{S}_2\text{O}_3$, $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$ γ -irrad., liquid N_2 temp. 4=1887
 Nb^{4+} in ethanol glass 3=15946
 Nb^{4+} in silicate glasses 4=7332
 Nb^{4+} in Zr, 77°K 4=1883
 Nd ethyl sulphate, spin-lattice relax. and heating, low temps. 4=17681
 Nd ethyl sulphate spin-lattice relaxation 0=10232
 Nd ethylsulphate, spin levels saturation 3=8714
 Nd^{3+} in dil. LaMg nitrate, spin-lattice relaxation time rel. to echo formation 3=1195
 Nd^{3+} , in ethyl sulphate, cross relax. time 2=10707
 $\text{Nd}^{143, 145}$, in LaCl_3 , double reson. 2=23714
 Nd^{3+} , in LaCl_3 , double resonance 0=16173
 Nd^{3+} in CaWO_4 , e.s.r. and spin-lattice relaxation 4=1884
 Nd^{3+} in CaWO_4 and $\text{Nd}^{143, 145}$ mag. moment ratios 4=15677
 Nd^{3+} in CdS at 1.4°K 4=7333
 $\text{NdCl}_3 \cdot 6\text{H}_2\text{O}$, 1.1–4.2°K, 2–2660 c/s 3=8719
 $\text{NdCl}_3 \cdot 6\text{H}_2\text{O}$, spin-lattice relax. 1.1° to 4.2°K 3=3183
 NdMg nitrate, spin-lattice relax. 2=14836
 Nd^{3+} in Nd ethylsulphate, temp. depend. 4=13328
 Ni chelate, Ni^{2+} splitting in crystal field 0=3135
 Ni, above Curie pt., theory of large linewidth 2=4259
 Ni ferrites, linewidths and g-factors 1=20189
 Ni fluosilicate, 4.2–1.8°K 0=10234
 Ni hexammine halides, motional and exchange effects 4=26418
 Ni ions in alumina 3=23232
 Ni ions in double-nitrate crystals 3=6749
 Ni, in MgO and Ge, rel. to Ni^{61} mag. moment 2=13970
 Ni, in sapphire 0=11948
 Ni, spin-lattice relaxation time, calc. 0=13865
 Ni, in ZnO, photoexcitation 4=13323
 Ni^{2+} , in AgBr, AgCl, liquid H temps. 3=13307
 Ni^{2+} , in AgBr, rel. mag. field direction 4=4412
 Ni^{2+} hydrated salts 0=1778
 Ni^{2+} ions, effect of charge transfer levels 3=8705
 $\text{Ni}^{2+} \cdot 6\text{H}_2\text{O}$ in cryst. salts, absorption 4=25830

Paramagnetic resonance and relaxation—contd

Ni^{2+} , in MgO, u.s. velocity near resonant absorption, by u.s. e.s.r. 3=6759
 Ni^{3+} , Ce^{3+} , Nd^{3+} in SrTiO_3 4=26417
 Ni^{3+} in Al_2O_3 , SrTiO_3 , Jahn—Teller splitting 4=28879
 Ni^{61} in Al_2O_3 , electron nuclear double resonance 4=7334
 Ni^{2+} in CaO rel. to MgO, CaF_2 3=3181
 NiCl_2 in LiCl-KCl , e.s.r. 4=10315
 $\text{NiCl}_2 \cdot 6\text{NH}_3$ crystals, e.s.r. meas., co-operative proton tunnelling 4=28880
 Ni^+ and Cu^{2+} in CaO, Jahn—Teller effect 4=13327
 Ni—Fe alloys strips, up to 1 Mc/s 0=13821
 Ni^{3+} and Fe^{2+} in MgO, microwave u.s. pulse interaction 4=26415
 $\text{NiI}_2 \cdot 6\text{NH}_3$, low temp. anomalies 1=10179
 Ni^+ in LiF: Ni and NaF: Ni, irrad., and complexes 4=28885
 $\text{Ni}(\text{NH}_3)_6\text{Cl}_2$, anomalous 2=774
 Ni^{2+} in NiSiF_6 , temp. depend. meas. 4=13328
 $\text{NiX}_2 \cdot 6\text{NH}_3$, (X = Cl, Br, I) f.c.c., e.s.r. linewidths 3=1188
 Np^{237} , h.f.s. in $(\text{NpO}_2)_3\text{Rb}(\text{NO}_3)_3$ 0=403
 NpF_6 0=3126, 7768
 O, in alkali halides 0=3127
 O atom concn., quantitative meas. by e.s.r. 4=23687
 O, atomic, recombination study 0=2728
 O, fine Zeeman level transitions 4=6481
 O, recomb. to O_2 2=16494
 O recombination on surfaces 1=20743
 O²⁻ ion, in Ca fluorophosphate 2=23700
 O_2 , dissociated, atomic concn. meas. 2=3792
 O_2 in solutions, relaxation 4=2711
 O_2 -radical substituting for halogen ion rel. to paraelasticity 3=1219
 $\text{O}_2(\text{O}^{16}\text{O}^{16}$ and $\text{O}^{16}\text{O}^{18})$, g-values 0=9821
 O^{17} , in di-sec-butyl nitric oxide 3=6353
 OD, from D_2O_2 soln., 77°K, u.v. irradiated 3=20012
 OH⁻, in H_2O_2 at 77°K 0=13868
 OH⁻, from H_2O_2 soln., 77°K, u.v. irradiated 3=20012
 O^{16}H free radical, microwave Zeeman effect 2=12335
 OH and OD, Zeeman effect 1=7496
 $(\text{ON}(\text{SO}_3)_2)^{\cdot -}$, thermal motion effects 1=9407
 $(\phi_3\text{PCH}_3)^+(\text{TCNQ})_2^-$, spin-lattice relax. rel. to temp. 4=17684
 PF_4 in NH_4PF_6 , rel. to γ -irrad. 3=20652
 $\text{PO}_3^{\cdot -}$, ionic radical, struct. 2=2017
 P in S, relax. time meas. 4=28882
 Pa^{231} , tetravalent 0=10235
 Pd, Gd-doped, long-range polarization 2=21372
 Pd—Ag alloys, Gd reson., rel. to theory 2=12821
 Pm^{147} , trivalent, in La ethyl sulphate 1=20223
 Pr^{3+} in dil. LaMg nitrate, spin-lattice relaxation time rel. to echo formation 3=1195
 Pr^{3+} , Gd^{3+} in LaAlO_3 4=26383
 Pr^{3+} in Pr gallate, hyperfine struct. 4=28881
 Pt^{3+} in Al_2O_3 4=28879
 Pt^{3+} in BaTiO_3 , Ni doped 4=4413
 Pt—C system, spin/gram in various atmospheres 4=30902
 Pu^{3+} , doped LaCl_3 , La-ethylsulphate 2=4267
 $\text{RCH}_2\text{CHCOOR}'$ radicals in ester—urea inclusion cpds. 4=28277
 Rb atoms, polarized, mag. relaxation at paraffin-covered walls 3=25060
 Rb atoms, relaxation on paraffin covered walls 4=6492
 Rb ethylamine solns., decay and mols. present 4=21156
 Rb, optically driven spin precession 1=8821
 Rb^{85-87} atomic beams, h.f.s. anomaly 1=12149
 $\text{Rb}^{85, 87}$ vapour, aligned in earth's field, fine structure 4=12374
 $\text{Rb}^{87, 85}$ vapour, optically aligned, fine structure 4=6471
 $\text{Rb}^{85, 87}$ vapours, spin-exchange collisions meas. 4=25591
 RbAl sulphate, Fe^{3+} ground-state cubic crystal field splitting parameter, sign 0=1824
 RbBr, F-centres 0=4300
 RbBr, F-centres, e.s.r. and ENDOR 3=15520
 RbCl, F-centres 0=4300
 RbCl, F-centres, e.s.r. and ENDOR 3=15520
 $\text{Rb}[\text{CrAl}](\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$, splitting, var. Cr^{3+} conc. 4=20599
 RbI, F-centres 0=4300
 $\text{Re}(\text{IV})$, in cubic field 2=8671
 $\text{Re}^{185, 187}$, in glasses, anisotropic h.f.s. 4=10331

Paramagnetic resonance and relaxation—contd

- Rh-Pd alloys, Gd reson., rel. to theory 2=12821
 S, green and purple deposits, trapped radicals 0=16175
 S, purple, annealing study 3=20655
 S-state ions, parameter D, rel. to axial crystal field 3=8336
 S, sublimated 3=1191
 S, liquid, e.s.r., and polymer chains, length 3=14155
 SD radical, $J = \frac{3}{2}$ rotational state of $^2\Pi$ 4=3905
 SH, absorption and spectrum, for radioastronomy 3=19988
 SH radical, $J = \frac{3}{2}$ rotational state of $^2\Pi$ 4=3905
 SO, and molecular rot. 4=17309
 SO radical, rotational states of $^3\Sigma$ 4=3905
 SO₂, free radicals, e.s.r. 2=16565
 (SO₃)₂NO⁺ radical in aq. soln., Overhauser-Abragam effect in intermediate mag. fields 0=6815
 (SO₃)₂NOK₃, e.s.r., weak magnetic field measurement 1=13149
 S and Se org. cpds, u. v. irradiat. free radical comparison 4=30473
 Sb, conduction electrons, rel. to g-factor 2=12814
 Sb, g-factor 0=16163
 Si 1=17712
 Si 4=23042
 Si, divacancy identification 2=3905
 Si, donor electron spin-lattice relaxation 3=23244
 Si, donor spin-lattice relaxation and g-factor 0=11612-13
 Si, donors in, excited states from uniaxial stress effects 1=20232
 Si, E-centre, e.p.r. and ENDOR meas. 4=20309
 Si, electric field effects 4=26369
 Si, electron irradiat. recovery 4=28707
 Si, electronic structure of impurity transition-metal ions 0=17960
 Si, Fe-doped, passage effect and relax. time 1=20216
 Si, impurity electron states study 3=4911
 Si, irradiat., A-centre resonance 1=3656-7
 Si, irradiat., mono and divacancy study 2=12417
 Si, rel. to lattice vacancies 3=22734
 Si, n-type, doped with P, linewidth dependence on electron conc. 4=28883
 Si, n-type, paramag. centre 3=6750
 Si, n-type, spin-lattice relaxation in small particles 4=26374
 Si, neutron irradiat., centres study 3=2849
 Si, 136 kMc/s absorption spectrum, rel. to valence band parameters 3=25577
 Si, P-doped, conduction electrons, rel. to temp. 2=23706
 Si, P-doped, donor exchange integral by ENDOR meas. 4=17683
 Si, P-doped, relaxation time as function of i.r. radiation power 0=10241
 Si, P-doped, spin-lattice relaxation 0=4512
 Si, p-type, donor electrons, compensation det. 1=20231
 Si, p-type spin resonance predicted 0=11756
 Si, p-type, under uniaxial stress, absorption from acceptors 1=1266
 Si, Pd- and Pt- reson., expt. and theory 2=10705
 Si, resonant spin-spin interaction between donors and acceptors 1=1273
 Si, shallow impurities 2=23705
 Si, spin-lattice relax. rel. to valley-orbit splitting 2=8348
 Si, spin-lattice relaxation of conduction electrons 4=23056
 Si, spin-lattice relaxation of donor electrons, theory 1=11489
 Si, spin-1 centres after neutron irradiat. 4=1543
 Si, spin resonance of transition metals in 0=4514
 Si, surface centres prod. by heat treatment 3=5045
 Si, transition metal-doped, rel. to impurity interact. 2=23360
 Si type crystals, ground state splitting rel. to deformation, mag. and elec. fields 4=15674-5
 Si, vacancy trapping and annihilation by interstitial impurities 0=17959
 Si²⁺, h.f. interaction of donor electrons, double-resonance technique 0=16174
 SiC, B and N impurities 1=20233
 SiC, n-type, ENDOR meas. 4=1888
 SiF₄, γ -irradiated at low temp. 3=12874
 SiTiO₃-(0.04%)Gd₂O₃, Gd³⁺ e.s.r. 2=12824
 Sm ethyl sulphate, Sm³⁺ spin-lattice relax. calc. 2=12828
 Sm³⁺ in CaF₂, tetragonal, g factors 4=20590

Paramagnetic resonance and relaxation — contd

- Sn, 10¹⁰ c/s, 2.3 °K, orientation depend. 0=21079
 Sn tetraethyl, paramagnetic proton resonance spectra 1=12310
 Sr, in KCl, F centres 3=23235
 SrCl₂, resonance spectra of Mn²⁺, Gd³⁺, and Eu²⁺ 0=3132
 SrF₂, and crystal internal charge compensation by interstitial F⁻ 4=22460
 SrF₂, U⁴⁺ reson., rel. to optical spectra 2=23708
 Sr(NO₃)₂, γ -irradiat., spin $\frac{1}{2}$ centres meas. 4=20602
 SrO, e.s.r. data, weak cubic crystal field evidence 4=28886
 SrS phosphors, rare-earth activated 2=14730
 SrS: Eu phosphors, e.s.r. study 1=3858
 SrS:Eu:Sm, e.s.r. of Eu²⁺, detection of optical excitation 0=682
 SrS:Eu:Sm phosphor, e.s.r. study of activator-valence change on excitation 1=3857
 SrTiO₃, resonance of Fe³⁺, test of spin Hamiltonian 0=3133
 SrTiO₃, tetragonal and cubic, Gd³⁺ reson. 2=18945
 SrTiO₃ + (ZrO₂, MgO), paramagnetic particles 3=15935
 T, atomic, h.f.s. det. 0=20543
 ThO₂, Gd³⁺ linewidth, anisotropic broadening 1=20212
 Ti acetyl-acetate, Ti³⁺ g-factor 2=18947
 Ti (III) acetylacetonate 3=8715
 Ti(III) complexes, Ti⁴⁺ h.f.s. 2=3775
 Ti³⁺ in alcohol and glycerol 3=1712
 Ti³⁺ alum., rel. to nature of crystalline fields 0=8034
 Ti³⁺ in corundum 4=26436
 Ti³⁺, in corundum, spectrum and spin-lattice relaxation, theory 3=23237
 Ti³⁺ in corundum, spin-lattice relaxation 4=1890
 Ti³⁺, e.s.r. in glasses, rel. to glass struct. 2=21376
 Ti³⁺ e.s.r. in glasses, rel. to glass structure 3=3179
 Ti³⁺ ions in hydrated crystal, charge transfer, effect on relaxation time 1=9061
 Ti³⁺, resonance and relax. in corundum 0=13873
 Ti³⁺ in salts 1=14788
 Ti³⁺ salt solutions, hyperfine structure 1=18434
 Ti³⁺ salts, solns. in alcohol and glycerine 1=18433
 Ti³⁺, salt solns., h.f.s. 2=21925
 TiCl₃. 6H₂O 2=10706
 TiCl₃. 6H₂O, glycerine soln., spin-lattice relax. 2=15617, 17483
 TiCs sulphate alum., 2.5 °K 0=16127
 TiO_x (x = 1.5-2.0), temp. depend. 3=15949
 TiO₂, Co²⁺, reson., in single crystal 2=8668
 TiO₂, Cr³⁺-doped, as maser material 0=16180
 TiO₂, Fe³⁺ reson., maser action 2=1583
 TiO₂, Mo⁵⁺ reson. 2=23704
 TiO₂, Ni²⁺ and Ni³⁺ reson., analysis 2=8672
 TiO₂, oxygen-deficient and doped at liq. He temp. 1=20229
 TiO₂ (rutile), Fe³⁺ resonance at low temp. 0=11951
 TiO₂ (rutile), Mn ions in, spectrum at 9.505 kMc/s 1=1263
 TiO₂ (rutile), of Ti³⁺, OH, colour centres 4=28887
 TiO_{1.5}-TiO₂ system, e.s.r. 2=21375
 TiO_{1.5}-TiO₂ system, e.s.r. 3=3178
 TiO₂, V⁴⁺ resonance in 0=13879
 Ti₂(SO₄)₃. 4H₂O 2=10706
 Tm³⁺, Ho³⁺ in CaF₂ 4=26433
 Tm²⁺ in CaF₂, g-shift, calc. 4=7336
 Tm garnets, Fe impurities, effect of Fe³⁺-Tm³⁺ exchange interactions 4=20593
 Tu³⁺ in CaF₂, 9250 Mc/s, 4.2°-60°K 3=18134
 U⁴⁺ in Ca[Ba,Sr]F₂ 4=26433
 U³⁺ in CaF₂, orthorhombic spectrum 3=20658
 U^{3+,4+} in CaF₂, SrF₂ 4=26438
 U⁴⁺ in CaF₂, SrF₂ and BaF₂ 3=3180
 U⁴⁺, in CaF₂ and SrF₂, rel. to optical spectra 2=23708
 V, in GeO₂, amorphous and polycryst. 4=13330
 V and Mn in corundum, ENDOR 4=3959
 V oxide, resonance study 1=20200
 V³⁺ in CaO rel. to MgO, CaF₂ 3=3181
 V³⁺ and Cr³⁺ in MgO, lattice imperfection effects 4=26440
 V³⁺, in ZnSiF₆. 6H₂O, 'forbidden' transitions 1=3928
 V³⁺, in Al₂O₃ (corundum) 1=20236
 V³⁺, in Al₂O₃ (corundum) 2=4250
 V³⁺, in corundum 0=8086
 V³⁺ in corundum (Al₂O₃) 1=20235
 V³⁺, in corundum, mag. suscept. 3=20548
 V⁴⁺, in corundum, spin Hamiltonian constants 1=20238

Paramagnetic resonance and relaxation—contd

- V³⁺ ions, in Al₂O₃ (corundum), hyperfine transitions, calc., temp. effects 3=20659
 V³⁺, in sapphire 0=1834
 V⁴⁺, e.s.r. in TiO₂ (rutile) 2=2300, 6692
 V⁴⁺ in rutile, h.f.s. interaction of Ti⁴⁺ 4=23057
 V⁴⁺ in TiO 1=14788
 V⁴⁺ in TiO, spin lattice relaxation, 4.2-110°K 4=1891
 VO²⁺ solutions, relaxation 0=19167
 VO²⁺ solutions, var. conc. and added HCl, and [VO.H]³⁺ 4=14188
 VO³⁺ in Tutton salts, rel. to X-ray produced V³⁺ 4=20603
 V₂O₅, partially reduced crystals 3=15950
 VOCl₂, aq. soln., line shape rel. to conc. and temp. 2=61
 VOCl₂ aqueous solution, line shape rel to cons. and temp. 3=150
 VOCl₂, dil. soln., hyperfine line width 2=15621
 VOCl₂, dil. soln. hyperfine line width 3=5451
 VOCl₂ in LiCl-KCl 4=10315
 V^{50,51}, in VOF₂ and VOCl₂ soln., h.f.s. 4=16126
 W⁵⁺ in glasses, silicate and phosphate 3=20656
 W^{180-184,186}, in WCl₅ solns., liquid and super-cooled 3=21407
 Xe^{129,131}, atomic beams, h.f.s. 1=11065
 XeF₄ radical, in γ -irradiated XeF₄, e.s.r. spectrum 3=25136
 XeF₄¹⁹-HF, liquid, anomaly 4=21157
 YAl garnet, Cr³⁺ ground state, zero-field splitting 1=14806
 YAlG, YGaG, Gd³⁺ e.p.r. 2=12714
 Y in CaF₂, after 2 MeV β irradi. 4=10167
 Y₆ complexes, spin-lattice relaxation 0=16158
 Y²⁺(4d¹) in CaF₂ 3=15516
 Y(CH₃COO)₃.4H₂O, g-values of Yb³⁺ 0=1835
 YFe garnet, anisotropy energy 1=2496
 YGa garnet, Cr³⁺ ground state, zero-field splitting 1=14806
 YGa garnet, Fe³⁺ ground-state cubic crystal field splitting parameter, sign 0=1824
 YGa garnet, Fe³⁺ resonance in octahedral and tetrahedral sites 1=2496
 Y₃Ga₅O₁₂, low-temp. mag. props. 1=6365
 Y₂O₃, Cr³⁺ resonance, 4.2-300°K 1=9053
 Yb, spin-lattice relax. time in Yb iron garnet 2=23711
 Yb³⁺, in Al and Ga garnets 0=10239
 Yb³⁺, in CaO, covalent bonding evidence 3=25576
 Yb³⁺ e.s.r. and spin-lattice relax. in CdF₂ 4=26442
 Yb³⁺ ion, in CdF₂ 2=14826, 18948
 Yb³⁺, Nd³⁺, Eu²⁺ in SrTiO₃ 4=26441
 Yb³⁺, in yttrium garnets 0=4516
 Yb³⁺ in CaWO₄ 4=23058
 Yb³⁺ in CaWO₄, at 20°K and 3 cm 4=20604
 Yb³⁺ in CdF₂, spin-lattice, 2-77°K 3=18138
 Yb³⁺ in Tm₃Al₅O₁₂ and Tm₃Ga₅O₁₂, g-value shifts by exchange interactions 4=7318
 Yb³⁺ in Y₂O₃ 3=18135
 Zn blende lattice, combined reson. 2=2303
 Zn chromites, linewidths and g-factors 1=20189
 Zn, energy levels 1=12258
 Zn, 4sP₁ atomic levels excited by electron bombard. 2=12296
 Zn ferrites, linewidths and g-factors 1=20189
 Zn 4p, level, width of resonance 1=2281
 Zn tungstates, e.s.r., rel. to maser applic. 2=22330
 Zn, vapour, mag. resonance of excited atomic levels 0=13880
 ZnAl₂O₄, Mn²⁺ resonance 0=3131
 ZnCdS phosphors, trapped electrons 3=23238
 ZnF₂, Mn²⁺ resonance, calc. 1=3936
 ZnF₂, resonance of Mn²⁺ impurity, F¹⁹ super-h.f.s. 0=6272
 ZnF₂, spectra of Ni²⁺, V²⁺ and Cr³⁺ 0=10233
 Zn in GaAs 4=7338
 Zn₃La₂(NO₃)₁₂.24H₂O, Cr³⁺ resonance 0=4507
 Zn-Mn (0.4 at. %), low temp., shift, spin ordering effects 4=17623
 ZnO, crystals, Fe³⁺ reson. 2=12819
 ZnO, donors 1=20240
 ZnO, donors and acceptors 3=13309
 ZnO, Fe⁵⁷ reson., meas. and theory 2=12820
 ZnO, high temp. induced signals, u. v. sensitive centres 4=30739
 ZnO, Mn²⁺ reson. 2=772
 ZnO, Mn²⁺, X-band freq. analysis 2=23702-3
 ZnO, oxygen chemisorption 2=6693
 ZnO, photo-induced 3=6751
 ZnS, A and B centres 2=23605
 ZnS A-centre, e.p.r., g-factor anisotropy at 77°K 4=26443

Paramagnetic resonance and relaxation—contd

- ZnS, A centres, e.s.r., g-shift calc. 4=10333
 ZnS, A-centres, thermally activ. motion meas. 4=28446
 ZnS, Co²⁺ resonance, spin Hamiltonian 1=3934
 ZnS, cubic, Fe³⁺ reson. 2=12825
 ZnS, Fe²⁺ resonance in 0=10229
 ZnS phosphors, luminescent centres and traps 3=23112
 ZnS, pressure effects on spectrum of Mn²⁺ 1=7786
 ZnS, self-activated 4=1892
 ZnS, self-activated, Fe³⁺ and A-centres 2=21274
 ZnS:Al, luminescent centre 3=8717
 ZnS:(Cu, Ag or Al), crystalline transformations 0=11998
 ZnS:Cu/Cl, rel. to preparation method 2=2253
 ZnS:Ga phosphors 3=23131
 ZnS:Gd, photoconductive, trapping detection, e.s.r. enhancement by radiation 0=11729
 ZnS: Mn²⁺, formation kinetics study, rel. to luminescence 4=20596
 ZnSe, Co²⁺ resonance, spin Hamiltonian 1=3934
 ZnSiF₆.6H₂O, Fe²⁺ e.s.r. 2=16932
 ZnSiF₆.6H₂O, Mn²⁺ resonance in, $\Delta m = \pm 1$ transition 0=18220
 ZrSiO₄, study of colour centres 2=12466
 ZnTe: Al trapped hole in Zn²⁺ vacancy 4=30556
 Zn Te: Mn, 3a field splittings 3=1192
 Zr⁴⁺ in glass, 450-9320 Mc/s, 77°-295°K 3=20660
 ZrSiO₄, zircon, 3=23239
- measurement**
 (subheading introduced in 1963)
 angular momentum operators, component product trace calc. 4=16672
 apparatus for meter-band frequencies 4=16674
 apparatus for nuclear-electron double resonance at 12 500 gauss 4=24872
 apparatus for pressures to 60 kbars and beyond 3=24492
 autodyne oscillator, limiting values of sensitivity and S/N ratio 4=5831
 betatron time-varying fields meas. 3=4279
 cryostat, He³ 4=24860
 earth, magnetic field meas., D.P.P.H., a.c. mag. field 4=2315
 for echo detection of chirped radar 4=11791
 feedback microwave oscillator use 4=24863
 free radicals, improved flow cells 4=22436
 g-value det. by molecular orbital theory 4=24868
 g-value shifts by exchange interactions 4=7318
 by grid-current oscillator 4=16673
 induction waveguide method 4=5832
 low temps., dual-cavity system 4=3192
 for mag. field meas., errors at low fields 4=17311
 magnetic fields, low, for teaching 3=5807
 maser, NH₃, as pre-amplifier 3=21991
 maser spectrometer 4=24865
 matrix element tables for operators O₂^{±1}, O₄^{±1}, O₆^{±6} 3=18691
 meas. at mm, using supercond. high field magnet. 4=24866
 microwave and elec. components for anisotropy studies 3=25565
 modulated saturating field with synchronous detection of modulation of longitudinal mag. 4=747
 modulation broadening of line shapes 4=3194
 modulation, r.f., extension to spin-lattice 4=1869
 optical double resonance method 3=24490
 oscillator, autodyne, tunnel diode, for low temps. 4=8957
 radical lifetimes meas. method 4=25721
 radio spectroscopy, max. sensitivity 3=21992
 rate equations for multilevel systems, soln., general methods 4=26375
 relaxation time, by lateral frequency modulation band obs. 3=24491
 resonator for e.s.r. spectrometer with h.f. modulation 4=24867
 review of modern spectrometers 3=24488
 review of recent improvements 4=8959
 review, resonators 4=8960
 sample holder for meas. during X-ray irradi. 3=4280
 sensitivity in transmission and reflection-cavity type spectrometers 3=14786
 signal analysis, for randomly orientated paramag. centres 4=24861
 signal-to-noise ratio, enhancement by continuous averaging 4=24859
 signal shapes distortion by finite modulation ampls. 3=2138

Paramagnetic resonance and relaxation—contd
measurement—contd

- solids, during fast electron irradi., apparatus 4=17675
- spectrograph 4=746
- spectrograph with freq. and mag. field modulation 4=11813
- spectrometers 3=21986
- spectrometers, e.s.r., for solutions, aqueous, sensitivity 3=17063
- spectrometer with h.f. field modulation 3=14788
- spectrometer for high pressure observations on crystals 4=21663
- spectrometer, modulated, field, up to 1 Mc/s 4=746
- spectrometer operating between 0.3° and 1.5° K 4=24864
- spectrometer, pulse, superheterodyne 3=7725
- spectrometers, sensitivity 4=14916
- spin echoes, elec. field effects, shift meas. method 4=10313
- spin interactions 4=19246
- spin-lattice relaxation det. from ferrimag. resonance 4=26426
- spin-lattice relaxation meas. by modulation of saturation factor 4=24862
- use of supercond. magnet in spectrometer 4=20590
- use of a tunnel diode at 1000 Mc/s 4=5833
- X-band cavity, for liquid helium temps. 3=5884

Paramagnetism

- See also Magnetic properties of substances, paramagnetic.
- absorption of ultrasound in paramag. metal in mag. field 1=3599
- acoustic resonance, resonance, selection rules and ang. depend. 4=17357
- and acoustic, u.s., anomalous dispersion and scatt. 4=15416
- adiabatic rapid passage for 3 equispaced levels 4=10312
- adiabatic susceptibility, equivalence with isolated susceptibility 0=13733
- alloys, binary, theory rel. to short range order 3=3085
- alloys, localized mag. states, rel. to s-d exchange 4=9877
- aromatic free-radical solids, excitons 2=14413
- atoms, μ -mesic 1=5988
- Bloch's equation, thermodynamic derivation 1=15712
- and chemical bonding 1=3881
- collective, rel. to chemisorption 3=20995
- conversion to ferromagnetism by strong fields, collective electron theory 3=5004
- cooling by adiabatic magnetization of certain paramag. salts 0=1087
- counter, crystal, low temp., possibility 4=3248
- cross relaxation in dilute paramag. systems 0=18223
- crystal ions, spin Hamiltonian, generalized 4=6694
- crystal lattice mechanics, spin-spin nuclear interaction, by virtual phonons 3=17648
- crystal line defects, parasitic 4=13111
- crystals, higher-order dipole-dipole coupling effect calc. 4=15623
- crystals, inhomogeneous, spin-lattice interact. 3=17647
- Curie point, difference with ferromag. Curie point 3=1127
- diatomic molecules, susceptibility calc. 3=10494
- diphenyl picryl hydrazyl, transition to antiferromag. state 0=16178
- double refraction, 9275 Mc/s, α length 4=28696
- dysprosium ethyl sulphate, susceptibility below 1° K 0=10094
- e.s.r. impurity ion shift 4=10311
- electron gas, free, using free energy 3=3769
- electron gas in lattice of positive charges 3=8381
- electron gas, long-range spin interaction, Meissner-Ochsenfeld effect 0=11611
- electron gas, nonoscillatory suscept. 4=18102
- electron gas, relativistic quantum distrib. func. 0=13726
- electron spin orientation at low temp. and energy of magnetization 1=7510
- Faraday effect, fine structure analysis 2=10579
- fermion system, interacting 0=14538
- of ferrimagnet, calc. 4=13226
- ferrimagnetic and antiferromag. systems 3=20562
- ferrimagnetic and antiferromag. systems, susceptibility 4=26272
- in ferromagnetic, explosively shocked 0=2307
- ferromagnetic particles, at high temp. 0=4470
- free electron in lattice, Abe's theory 4=30704
- free electrons 4=26267
- garnets, rare earth, high temp. study 0=13739

Paramagnetism—contd

- heat capacity of spin system, exper. test of Van Vleck's formula 3=22665
- hydrides, μ -mesic 1=5988
- impurity or ion-pairs, energy states 4=13306
- ion spin Hamiltonian parameters, calc., from reson. spectra 3=18127
- without Kramer's degeneracy 0=8032
- low temp. props. of salts, matrix calc. 2=4913
- luminous echo of paramagnetic crystals 4=15608
- mag. fields, high, effects on energy levels 4=1426
- magnetic double refraction of microwaves 0=2982
- magnetic interactions between atoms, review 3=3090
- magnetization entropy meas. 1=14672
- magnetostatic higher mode resonance 4=10243
- μ -mesic atoms 1=17298
- measurement, strain gauge balance 2=9672
- metal particles at v. low temp., anomaly 2=14383
- metals, cond. electrons, effect on sound velocity 4=9839
- metals, diamagnetic and paramagnetic effects of conduction electron 1=5061
- metals, electron spin, electron interact. effect 3=15756
- metals, spin paramag. susceptibility of conduction electrons, effect of electron-phonon interaction 0=11592
- metals, susceptibility rel. to lattice defects 4=7214
- molecular gyromagnetism 4=3900
- molecules, second-order, proton mag. shielding const. 2=22938
- Mössbauer effect in paramag. substs., h. f. s. theory 4=6688
- n.m.r. shifts in paramag. crystal, theory 0=1837
- neutron critical and mag. scatt. 3=986
- neutron inelastic scatt. by phonons, cross-section 1=19706
- neutron scattering in paramagnetic, spin-spin interaction 2=23638
- neutron scattering in paramagnetics, spin-spin interaction 3=6694
- neutron scattering by paramagnetic spin system 2=23639
- neutron scattering by paramagnetic spin system 3=6695
- paramagnetic effect in superconductors 0=8961
- paramagnetic susceptibility of conduction electrons 1=17436
- particles with arbitrary anisotropy, superparamag. initial susceptibility 1=10131
- particle motion in a fluid in a magnetic field 3=17036
- particles, superparamag., specific heat calc. 1=14178
- Pauli, effect on superconductors, theory 4=27412
- phonon coherent paramag. diffusion in paramag. crystal 3=10585
- polarons, susceptibility 0=21023
- polyatomic centres, symm. and microwave spectra 4=4398
- relaxation at low temp., theory 1=12359
- relaxation times of paramag. dispersions 1=20055
- resistance minimum in dilute paramag. alloys 0=2844
- rotation of polarization plane of sound in paramagnetic 2=20928
- rotation of polarization plane of sound in paramagnetic 3=2724
- and rotatory dispersion 3=19971
- ruby, susceptibility at low temp. 0=10098
- saturation, considering interatomic coupling 3=5001
- screw spin system, mag. structural changes 4=13113
- semiconductors, calc., from electron density distrib. 4=4328
- semiconductors with nonparabolic bands 3=23139
- solid solutions of paramag. impurities in nonmagnetic substrate, exchange-coupling 0=674
- solution, ions, p.m.r., spin-lattice theory 4=204
- solutions, n.m.r. 3=21413
- specific heat for strong spin-lattice coupling 4=6739
- spectra splitting due to atomic interactions 4=22824
- spin absorption, zero-field, at liq. He temps. 4=10242
- spin Hamiltonian, derivation by tensor decomposition 4=28775
- spin Hamiltonian description of energy levels 4=22947
- spin paramagnetism, theory 1=17932
- spin-phonon interaction, review 4=15409
- spin-spin interact. calc. 2=21380
- spin-spin interact. by virtual phonon exchange 2=18889, 21293
- super, in mag. dilute systems 4=13112
- and superconductive crit. field, upper, temp. var 4=11472

Paramagnetism—contd

- superconductivity in paramagnetics and critical fields of alloys, high values 4=18335
 superconductors, energy gap, meaning 3=14439
 superparamag. behaviour of aligned uniaxially anisotropic particles 1=6314
 superparamagnetic particles, anisotropy meas. 0=2999
 superparamagnetic systems, single domain, anisotropy 4=7224
 superparamagnetism, of fine particles 1=6309
 superparamagnetism, at high temp. 0=4470
 super-paramagnetism of plane ferromag. lattice in Heisenberg model 2=14769
 superparamagnetism in small grain, superposition of antiferromagnetism, calc. 1=14757
 susceptibility, He temps., paramag. salts 4=10249
 susceptibility, on Heisenberg model 2=21302
 susceptibility meas. using electromagnet pole pieces 4=8895
 susceptibility, rel. to internal field splittings 4=26381
 susceptibility, tensor representation calcs. 4=16012
 temp. independent near saturation 4=26267
 transition metal salts, superexchange model 3=11032
 transition metals, Heisenberg exchange interaction 2=10294
 weak temp. -independent, expt. evidence 2=6655
 $\text{CuF}_2 \cdot 2\text{H}_2\text{O}$ single crystals, n.m.r. study 1=20255
 Fe group, spin-phonon interactions, quadrupole selection rule 0=529
 Fe^{3+} , in spinel lattices 2=769
 Ni^{2+} hydrated salts, anisotropy 0=1778
 Sm^{152} , induced mag. field of 4f-electrons 0=402
 ZnO, high temp. induced e. s. r. signals, u. v. sensitive centres 4=30739

Parity

- See also under individual particles, e.g. Mesons, spin and parity.
 Adair spin analysis with parity nonconservation 3=2229
 baryons, from baryon-baryon interactions 1=3209
 baryons, det. from polarization, possible expts. 1=10931
 baryons, relative, rel. to electrodyn. theory 2=5589
 baryons, relative parities of Λ and Σ 0=12845
 CP invariance, fundamental symmetry law 1=3104
 CP, CPT invariance, outlines 4=1
 CP noninvariance, rel. to intermediate bosons in weak interactions 4=16815
 CPT theorem, rel. to K^0 -meson props. 3=10010
 in compound nucleus formation, role 1=8544
 conservation, in approx. unitary symmetry 4=19385
 conservation, asymmetry experiments, minimal error 0=17210
 conservation in baryon strong interactions 3=5932
 conservation, cascade reaction test 0=11128
 conservation in Fe^{57} 14.4 keV γ -transition 1=602
 conservation, in Heisenberg nonlinear 5-D space 2=7805
 conservation, in K-He interactions 0=17416
 conservation law, rel. to coupling const. classes 4=19410
 conservation, in meson group, invariance principle 0=12870
 conservation, in nonlinear pion interaction with fermion isotopic doublet 0=17383
 conservation, in π^0 -meson production 0=15411
 conservation, in π^+ production by $p + p$ at 1 BeV 0=1279-80
 conservation, of states in Rb^{85} 0=17502
 conservation, in strange particle processes 1=3104
 conservation in strong decay $\Sigma^0 \rightarrow \Lambda + \gamma$ 3=22213
 conservation, in strong interactions 0=2684
 conservation, in strong interacts. 2=18067
 conservation in strong interactions, baryon mass-differences 1=5659
 conservation in strong interactions, experimental evidence 1=5780
 conservation, in strong interactions, Fe^{59} β -decay 0=15550
 conservation, in strong interactions, invariance of CP alone 0=12833
 conservation, in strong interactions, test using β - γ and γ - γ correl. 0=2484
 conservation, in strong interactions, test using Xe^{133} β - γ angular correl. 0=17547
 conservation, in strong interaction theory 1=433
 conservation, in three-field theory of strong interactions 0=3924
 conservation, rel. to unitary symmetry 4=30167
 conserving and nonconserving interactions, mass reversal 0=5483

Parity—contd

- e-e scatt., weak interaction effects 4=5957
 e.m. interactions, rel. to Dirac monopole 3=22054
 elementary account 1=3103
 elementary particles 0=20041
 Fermi transitions, deviations from $\Delta T = 0$ isotropic spin selection rule 0=9576
 forward scatt., rel. to favoured transitions 4=27074
 $\frac{1}{2} + \frac{1}{2} \rightarrow 0 + 0$ reactions, intrinsic, rel. to cross-section 4=5952
 helicity of β^- and β^+ , by Møller and Bhabha scatt. 1=7229
 imaginary parity of spin-zero particles 1=5642
 in inelastic scatt. from nuclei, change det. from ang. distrib. 1=5904
 internucleon potentials, parity-nonconserving, invariance requirements 0=12862
 K^- -hyperon relative parity, test suggested 1=3231
 K^- - K^0 relative parity, from $p + n \rightarrow \text{K}^- + \text{K}^0$ 0=5603
 $\text{K}\Lambda$, from $\text{K}^- + p \rightarrow \Lambda + \omega$ 4=25182
 KAN 3=7929
 K-meson-baryon vertices 0=5523
 K-meson- γ -particle relative parity, determ. 0=2596
 K-mesons, charged and neutral, relative parity 0=20227
 $\text{K}\Sigma\text{N}$, meas., resonance-interference method 2=13877
 even $\text{K}\Sigma$ parity, from $\gamma + p \rightarrow \text{K}^+ + \Sigma^0$ 1=13498
 K-Y, from K^+ -N scatt. theory 3=24795
 Λ , Σ , K, and Y^* , from prod. and decay of Λ - π resonant state 1=4810
 Λ^0 prod. in C nuclei by $2 \text{ BeV/c } \pi^-$, meas. 4=9290
 magnetic monopoles, parity violation 3=21205
 mixture, in A^{41} , Xe^{138} and Lu^{177} states 0=4030
 neutrino emitted in β^- , μ^- and π^- -decays 0=2525
 neutrino, energy density, and density of universal matter 1=19172
 neutrino, energy density, and density of universal matter 2=22483
 nonconservation 0=17275
 nonconservation 1=10406
 nonconservation, in β -decay of Bi^{210} (RaE) 0=5702
 nonconservation, in Bi^{210} (RaE) β -decay 0=11356
 nonconservation in β -decay, possible expts. using Mössbauer effect 1=8635
 non-conservation, and beta decay review 4=1035
 non-conservation, and beta decay, review 4=1036
 non-conservation and conformal theory in C_6 4=9062
 nonconservation, covariant interpretation, two new spin-like freedoms 0=12832
 nonconservation, effect on crystal enantiomorph formation 0=11995
 nonconservation in electromag. + weak interactions 1=19120
 nonconservation in e.m. interactions, search for electron electric dipole moment 1=5071
 nonconservation, in $\text{K}_{\mu 3}$ and $\text{K}_{\mu 3}$ decays 0=11217
 nonconservation, in K, Λ and Σ decays 1=5642
 nonconservation, in Λ and Σ -decays 0=4004
 nonconservation, Li^{7*} (0.478 MeV) $\rightarrow \text{Li}^7$, γ -anisotropy, calc. 2=418
 non-conservation, and macroscopic rotation 4=15033
 nonconservation, in neutrino capture by protons and deuterons 0=1269
 nonconservation, nuclear fission, effect on 2=5977, 22856
 nonconservation, in π -meson production 0=5593
 nonconservation in $\pi^+ \leftrightarrow \mu^+ + \nu + \gamma$ decay 0=2566
 nonconservation, probability in double β -decay 0=13188
 nonconservation, rel. to strength of interactions 0=11084
 nonconservation, in strong interactions 0=3978
 nonconservation, strong interactions and particle decays 0=9311-17
 nonconservation, in strong interactions of strange particles 0=11234
 nonconservation, in strong interactions, of strange particles 1=2099
 nonconservation, theory, renormalization 0=2483, 12837
 nonconservation, and time reversal invariance, e.m. interactions, applic. to atomic energy levels 0=11485
 nonconservation upper limit, in O_2^{16} mol. study 2=16517
 nonconservation, in weak interactions 0=12827-30, 20032-3
 nonconservation, in weak interactions, discussion 0=17209
 nonconservation, in weak interactions, rel. to multiple model 0=20052
 nonconservation, in weak interactions, rel. to strange-particle spins 0=11235
 nonconservation, in Ξ -cascade decay 0=9437

Parity—contd

- nonconserving interactions, rel. to theory of propagators 1=10841
 nonconserving internucleon potential, effects 1=19288
 nuclei, excited states, det. from heavy ion-reactions 2=3624
 P and CP invariance in strong interact., rel. to $\eta \rightarrow 2\pi$ absence 4=19427
 p-p system, space and charge parities 1=19190
 p-p system, space and charge parities 2=22501
 particle in elementary-particle reactions, spin-zero photo production type expts. 4=19401
 π^0 -decay, T, P, C symmetries, possible breakdowns 0=9398
 π -nucleon scatt., low-energy, possible parity nonconservation 0=1299
 π -nucleon vertex, nonconservation induced by universal Fermi interactions 2=1717
 π -photoproduction, conservation 2=20386
 π^+ meson prod. from polarized protons, nonconserving contrib. 2=3381
 reflection symmetry, breakdown, and principle of restricted coherence 4=15018
 relative, determination in baryon-baryon scattering 1=2017
 relative, suggested experimental determ. 0=2504
 resonance, meas. using polarized targets 4=21813
 S-matrix theory, intrinsic parity 3=2218
 (Σ, K) relative parity from $(\Sigma^- + p)3K$ annihilation mode 0=7418
 $\Sigma-\Lambda$, odd, rel. to S-wave $\Lambda-\Lambda$ scatt. 4=19594
 $\Sigma-\Lambda$ relative parity, from pionic decays 2=13885
 $\Sigma-\Lambda$ relative parity proposed expt. 0=13066
 $\Sigma-\Lambda$ relative parity, rel. to $\Sigma^0 \rightarrow \Lambda + e^- + e^-$ meas. 2=18189
 $\Sigma^0-\Lambda^0$ relative parity, possible det. 1=548
 selection rules for reactions of polarized particles 0=2507
 space and time inversions, spinors and pseudo-spinors 0=4938
 spin- $\frac{1}{2}$ and spin-1 particles, P, C, T symmetry, Lorentz-group study 1=4756
 spinor theory, nonlinear 1=8418
 strange particles, from dispersion relations 1=16908
 strange particles, from hyperon polarization in $K^- + p \rightarrow Y + \pi$ 0=2599
 strange particles, methods for det. 0=2598
 T.C.P. theorem, free-field transformations, applications 0=321
 time parity cons. in β -decay of Bi^{210} (RaE) 0=4050
 unitary parity 4=3293
 universal weak interactions conserving doublet parity 2=3258
 violation, origin 1=2005
 weak interaction currents 1=4769
 weak interactions, rel. to elementary particles internal structure 3=24623
 weak interactions, non-conservation 3=17192
 weak nonleptonic processes rel. to strong interaction symmetries 1=16677
 Ξ -nucleon 3=19552
 $\text{Ni}^{60,61,64,65}$, ground state 2=10138
 O^{16} α -decay, parity non-conservation 1=12166
 $\text{Zr}^{90,91}$, from deuteron stripping reaction 1=17148

Particle accelerators

- See also Ion beams.
 accessories, magnetic particle analysers 0=15222
 BeV, instrumentation for particle interactions 2=7682
 beam contraction, effect on particle loss calculation 4=16570
 beam cross-section display for protons, pions 4=21601
 beam cross-section measurement, continuous 4=11727
 beam-current integrator, condenser-type 2=7681
 beam current meas., by integrator, digital 3=19138
 beam energy, determination, kinematic method 4=21600
 beam monitor 4=16568
 beam position sensor, non-intercepting 2=9656
 beam profile indicator 2=9657
 beam transport, magnet optimization, computer programme 3=16986
 bibliography 3=12098
 bibliography of current research 4=16458
 bibliography 4=490
 Brookhaven International Conference 2=3105
 Brookhaven, liquified gas level indicators for H_2 and N_2 targets 4=14474
 bunching magnets design 2=3107

Particle accelerators—contd

- CERN symposium 1956, review and proceedings 0=19811
 capture of particles into synchronous regime 1=4673
 cascade generators 0=12655
 cavity electromag. field from periodic beam, calc. 4=24764
 charged particle bunches, elec. fields 3=24379
 charged particles, acceleration possibility by e.m. waves in const. mag. field 3=2091
 chopper, model 2=16204
 circuits, instrumentation, transistorized 3=24178
 collimators, multiple scatt. corrections 1=16440
 collimator slit scattering, calc. 3=5719
 conference report 1=1931
 conference, Amsterdam (1960) 2=3104
 current of beam, meas. using mag. pickup probe 3=446
 cyclical, charged beam, stability, longitudinal, by quasi-stationary processes 4=14782
 design, waveguide theory 0=2450
 deuteron beam, 150 keV, 5 Mc/s pulse modulation 4=16601
 dissociation of molecular ions by high elec. and mag. fields 1=8862
 electron accelerator, bremsstrahlung in Si 2=13755
 electron beam current integrator 3=14650
 electron beam current meas. by secondary emission 4=21602
 electron, beam effect on accelerating system 3=19376
 electron, beam position and current meas. 4=8875
 electron beam profile monitor 4=3066
 electron beam, relativistic, focusing with moving mag. field 2=216
 electron, design of X-ray target 2=5392
 electron, linear, circular, wave modes 4=24768
 electron optics, mag., momentum defining non-interacting slit 3=19377
 electron in osc. electric field in a mag. field, calc. 4=5754
 electron and photon, for use in biology and radiology 1=10342
 electron and positron storage rings 3=12267
 electron, shielding 3=455
 electrons, radiation damping, theory 3=24394
 electrostatic generators, use as injectors for synchrotrons 0=19818
 electrostatic machines, conference 1=264
 energy calibration 1=13138
 energy resolution, limits of mag. analysis 2=3106
 engineering methods 1=339
 focusing fields, formulation methods 2=22278
 focusing magnet pole faces, ideal 3=24396
 future developments in W. Europe 4=16567
 future, review of progress 2=5393
 gap accelerating efficiency determ. 4=16569
 handbook 3=2146
 high-current high-voltage generator 0=1176
 high-energy; conference, July 1962 3=527
 high-voltage generator 1=16245
 high-voltage generators using ion injection into insulating liquid 1=2940
 high-voltage source, cascade generator 2=9658
 ideal pole faces, weak, strong, FFAG-focusing 3=9881
 injector frequency, optimum accelerator, displacement effect 4=14781
 instrumentation conference, Geneva (1962) 3=12363
 ion current measurement 4=16551
 ion and plasma propulsion, comparison 0=12615
 ion source 1=8358
 low energy, three types 1=1932
 magnet design calculation 4=16579
 magnets, field distrib. due to pole face windings 2=11755
 magnetic field distrib., weak, strong, FFAG-focusing 3=9880
 magnetic field meas., Permalloy transducer 2=1544
 magnetic field median surface, adapter 4=3063
 magnetic fields, production 0=17063
 mag. fields with time periodicity, theory 4=5764
 magnetic particle optics, graphical first-order anal. 4=11723
 magnetic quadrupole lenses 1=1926-7
 meas. of position of pole faces of very large magnets 4=620
 microparticles, charging and accel. system 4=3062
 microparticles, to meteorite velocities, methods 4=5726

Particle accelerators—contd

monochromatic beam prod., by electrostatic analyser 0=1406
 motion of one-dimensional oscillator, extended adiabatic invariant 1=9341
 μ -meson beams of different energy, obtained in channel of mag. quadrupole lenses, theory 4=14841
 multiparameter analysis 4=24765
 multi-stage lens system 2=15968
 neutron dosimetry outside shielding, use of De Pangher dosimeter 4=25117
 nonlinear oscillations, theory 0=11037
 nuclear, construction 4=16566
 nucleonic instrumentation 0=19962
 particle bunches, phase oscill., induced voltage effects 3=24397
 particle trajectories, analogue computer 0=19734
 plasma accelerators using e. m. waves 2=15928
 plasma, steady state, crossed-field 1=10715
 polar surface, ideal 3=21898
 precision current integrator 2=7533
 prod. of particle beams and use of nuclear emulsions 0=12654
 proton colliding-beam, high density current production 1=9648
 proton energy calibration points below 3 MeV 4=19515
 proton, pulsed beam 2=364
 pulsed, beam profile detector 4=3055
 pulses stored for colliding beam expts. 2=5592
 quadrupole focusing systems 1=18942
 relative energy calibration using foil transmission data 0=3816
 review 4=19137
 Rutherford Laboratory's two accel., use by universities 3=24393
 separator, electrostatic 3=19390
 setting-up devices 0=17153
 signal electrodes, design and construction 3=5726
 solid particle, to meteorite speeds, method 4=11728
 storage rings, review 4=14772
 storage systems, high currents, phase conditions 3=12277
 stray radiation from, shielding problems 0=19817
 strong or weak focusing, mag. fields 2=22284
 structure at l. f., perturbation study 4=27590
 synchrocyclotron, annular particle motion 3=9889
 synchrotron radiation, polarization 1=16658
 synchrotrons, proton, high energy, review 3=19389
 tables of energy versus mag. field for He^3 0=7176
 target cooling device 4=30102
 target, liquid hydrogen and deuterium 3=14688
 target potential modulation 3=12265
 target prep., by cathodic sputtering 2=9648
 target prep., Zr on Cu and Ag base-layers 2=17979
 target of T_4 or D_2 -saturated Zr, temp. distrib. 3=24395
 target thickness calculations, kinematic effects 1=7111
 targets, carbon film preparation 0=18415
 targets, Ti-T, used in neutron accelerators 4=19523
 Third International Conference, Boston, 1963 4=24763
 use of oxide-coated cathodes 0=2378
 use of signal electrodes for fast beam meas. 4=619
 vacuum pumps and apparatus 1=9426
 vacuum system cooling trap, liquid nitrogen automatic pumping 4=8880
 Van de Graaff, for ion spectra 4=22285
 weak secondary beams, system for detectn., focusing 3=2179
 world list of installations 0=19815-16
 H ion beam, $\text{H}^+ - \text{H}_2^+ - \text{H}_3^+$ content 2=11731
 Li ion sources 0=19779
 LiH bremsstrahlung beam hardener 0=2517

linear

accel. voltage phase, meas. 1=18954
 accelerating-voltage stabilizer circuit 4=16576
 accelerator section construction for convenience 1=1936
 alternating-gradient focusing 0=5366
 Alvarez type, e. m. field calc. 0=15090
 beam extraction, 1 GeV, three-magnet system 3=16997
 Brookhaven Conference (1962) 3=7662
 buncher, beam current loading 3=14689
 bunchers, klystron-type, optimal parameters calc. 2=1531
 bunching section, change in action integral 4=16066
 cascade generator, 850 kV, at Utrecht 1=5506-7
 cascade generator, 700 kV, stabilizing system 1=5508

Particle accelerators—contd**linear—contd**

cascade generator, symmetrical 4=16575
 cascade, meas. of ripple voltage in accel. potl. 4=3064
 cascade, stabilizer, 2 MV protons 3=24415
 cascade, voltage regulation by braking gap 2=5409
 cathode, W, carburized thoriated, high current 4=3067
 cavity-excited, field configurations 1=13137
 CERN, power meter for pulse amplifier 1=18727
 CERN, radial beam study using emulsions 4=27593
 CERN, 2.5 MW h.f. amplifier 0=19834
 characteristics for nuclear research 2=5399
 circular waveguide, gap fields 1=1974
 Cockcroft-Walton deuteron accelerator as neutron source 1=13453
 Cockcroft-Walton, focusing props. 2=20064
 Cockcroft-Walton, h. f. 600 kV 2=17905
 Cockcroft-Walton, (JEN, Madrid), pulsation 2=20065
 Cockcroft-Walton, mass analysis of ion beam 0=19829
 Cockcroft-Walton machine, voltage stabilizer 3=9882
 Cockcroft-Walton, selenium rectifiers 2=13612
 Cockcroft-Walton, 200 kV, ion optical system 3=19382
 Cockcroft-Walton type, use as neutron source 4=30226
 components, and vacuum techniques 1=4676
 constant gradient tubes, construction 2=3108
 current pulses in electron accel. 2=11735
 d.c. methods, recent advances 3=24400
 design criteria 0=9114
 deuteron, 150 kV rotating disk electrostatic transformer 0=5365
 deuteron, very-low-voltage 0=17055
 diverging electrostatic lenses for accelerators 0=19819
 drift tube quadrupole self-focussing 4=24767
 e.s. belt, short circuit current in transport, calc. 3=21910
 e.s., pressurised, 3 MeV, "Lech" 4=3068
 electron accel., current monitor types 2=22285
 electron accelerator, energy and phase characteristics, wave phase vel. equal to light vel. 3=21908
 electron accel., optical maser use 2=7684
 electron accelerators, pulse shortening 1=18952
 electron accel., 30 MeV, for neutron spectroscopy 4=622
 electron axial motion, simple solution 4=16573
 electron, balance of power eqn. 4=16571
 electron, beam current meas. 3=9883
 electron beam motion, elec. analogue 2=20066
 electron beam optics and X-ray prod. 2=11732
 electron beam, position and current meas. 4=16572
 electron, beam position monitor 3=5728
 electron beam splitting 1=4677
 electron, beam splitting, by e. m. wave in guide 0=17053
 electron, Coulomb interaction effects on bunching, calc. 2=5441, 11757
 electron current pulse monitor 3=24401
 electron, effects of secondary radiation 4=621
 electron, forming section with const. wave phase vel. 4=8870
 electron generator, 250 μA , 500 keV 2=20070
 electron, Ghent University 0=19823
 electron, guide field accelerator 0=3817
 electron, Harwell, 10 nsec. bursts 3=19655
 electron, high current induction type 4=21604
 electron, for high pulsed currents 2=17909
 electron, as injector of 1 BeV synchrotron 2=229
 electron microwave accelerator 3=19380
 electron, microwave, automatic frequency control 2=17910
 electron, microwave, 500 mA pulse currents 2=5403
 electron, 1 MeV, for studying chemical and physical effects of radiation 0=19821
 electron, 1 MeV, X-ray beam measurements 0=19822
 electron, parameter choice criteria 3=16996
 electron, performance, effect of iris spacing 4=14773
 electron phase trajectories, calc. 1=4674
 electron, precision instrumentation 2=3109
 electron, pulse-shortening 0=19824
 electron, pulse shortening, E_{11} fields in iris-loaded guides 3=19379
 electron, pulsed, high-current 2=11733
 electron, pulsed, spatial positioning 2=9656
 electron, single cavity, high current 2=9659
 electron, 6 MeV for injector of 1 BeV synchrotron 2=1530
 electron, 6 MeV klystron amplifier and r. f. power system 2=5397

Particle accelerators—contd
linear—contd

electron, 60 MeV Darmstadt, mag. deflection and analysis adjustment 4=14777
 electron, Stanford, 3 km, 45 GeV 3=5729
 electron, Stanford 2 mile, magnetic shield de-magnetization 4=24760
 electron, Stanford two mile accelerator, travelling-wave mass separator 4=14775
 electron, strongly relativistic, motion 1=4678
 electron, theory and operation, review 2=7683
 electron, 30 MeV, for neutron spectroscopy 3=5727
 electron, 3 MeV operating energy 2=20068
 electron, travelling wave, beam loading calc. 2=11736
 electron, travelling wave, buncher design 4=27592
 electron, travelling wave, load charact. 2=1529
 electron, travelling wave, space charge effect on bunching 2=230
 electron Van de Graaff, use for chemical research 1=1933
 electron, variable energy and pulse length 2=13614
 electrostatic 0=2405
 electrostatic, beam pulsations 0=10974
 electrostatic, in compressed gas, 1.5 MeV operation 0=17054
 electrostatic, electron optics, expts. 3=16984
 electrostatic, electron optics in relativistic region 2=7666
 electrostatic generator, H⁻ ion injector 2=17908
 electrostatic generator voltage stabilization 4=16577
 electrostatic generator, voltage surges 1=11988
 electrostatic, relativistic electron optics 0=15091
 electrostatic, 300 keV, as neutron source 2=9861
 electrostatic, 2.5 MeV, for production of H and He ions 3=21909
 electrostatic, voltage supply, variable 4=16574
 elutron, linear-cyclic accelerator 0=10991
 energy modulator, modification 0=19820
 external beam current monitor 0=2406
 15 MeV machine, 50 mA beam pulse current. 3=19385
 focusing by accelerating field 3=24402
 focusing, alternate, by crossed-gradient fields 3=24399
 focusing by weak lens multistage 2=1528
 gap-excited linear ducts, general formulae 0=19828
 gophered mag. field motion, var. with injection 4=8903
 Grenoble electrostatic accelerator, mag. analysis of beam 1=18953
 Harwell, 15 MeV, time-of-flight experiments 0=17350
 heavy ion accelerator, pulse modulator, 500 kw 1=16446
 heavy-ion (H to A region) 70-Mc cavity resonators 1=10749
 heavy ion, 100 keV, for irradi. damage study 2=11734
 heavy ion, Sloan and Lawrence type, 1 MeV/nucleon 2=1532
 heavy ions, energy spectrum, exptl. study 4=624
 heavy nuclei, "long" resonator, high-freq. characts. 2=5410
 helical waveguide type, construction 0=19833
 inclined field tubes, ion path 3=14690
 injection method, protons, for tandem accelerator 2=17907
 ions, atomic and molecular, 150kV 1=10748
 ions, electrostatic, axially symmetric 3=12266
 ion, heavy, gas stripper 4=19139
 ions, heavy, using tandem generator 4=625
 ions, mean energy meas., optical meas. 3=24384
 ion, 150 kV, beam pulsation system 2=5396
 ion pulse prod., high intensity, nsec. 2=5407
 ion source 1=18937
 ion source, 150 kV, giving 1 mA 3=19386
 ion source, polarized protons and deuterons 4=11988
 ions, surface-contact Hall current device 4=14729
 for K π separation, 4 GeV/c, r.f. 3=19381
 "Lech" 3 MeV pressurized accelerator, Warsaw 4=3068
 "long" resonator, accel. field equalization 2=5411
 low-background target room 0=318
 microwave beam pulsing device 2=5815
 microwave separator for high-energy particle beams 1=4675
 millimicrosecond pulsing, positive ions 2=5402
 modulation using slow electrons, for heavy-particle work 1=13139
 moving fields, possible use of 0=1159
 multistage, ion optics 1=11984
 neutron generator, 14 and 2.5 MeV 3=2286

Particle accelerators—contd
linear—contd

neutron sources, pulsed, review of uses 2=5405
 NIMROD, injector, r.f. field stabilization 4=11729
 Orsay, 1 BeV, pumping 0=2407
 Orsay, 250 MeV beam, meas. of resolving power, aberrations and mixed focusing 0=10984
 particle bunching in travelling wave accelerator 0=9112
 particle motion, analogue apparatus 0=5367
 particle phase space matching, longitudinal, linear theory 4=21603
 plasma acceleration, in coaxial waveguide 0=19653
 plasma accelerators 0=10907
 positive ion, hydrogen, carbon target prep. 2=5408
 pre-buncher, resonator type 3=12268
 proton accelerator, Harwell, injector 1=9649
 proton electrostatic accel., high-press. type 4=623
 protons, energy spectrum 4=14779
 protons, high-freq; concentric high Q Lecher line 3=458
 proton machine, accel. system design, semiempirical calc. 2=5398
 proton machine, transit-time factor, elec. field distrib. 0=19827
 proton, 1.5 MeV, TE-mode system 2=17912
 proton, prod. of γ -ray beam 2=20069
 proton, pulse prod. by phase focusing 2=15969
 proton, superconducting, feasibility 1=18955
 proton, tandem, 12 MeV 4=16578
 pulsation device for low-energy ion beams 1=16434
 pulse shortening effect 4=8867
 pulsed beam deflection system 0=19825
 pulsed, fast scalar 2=2981
 pulsed neutron source 2=462
 with pulsed operation, for neutron production 1=508
 relativistic electron motion, away from accelerator axis 0=19826
 Rensselaer Polytechnic Institute linac 3=2057
 resonator type coupler, modulating action of h.f. field 4=14776
 S-band isolator for use in linear accelerators 0=12656
 as source of intense pion beams 1=16444
 source of polarized protons 3=24732
 space charge effects in cylindrical beams with uniform acceleration 1=5500
 Stanford Mark III, positron prod. 2=16187
 stroboscopic radiography 0=6958
 strong-focusing, accel. of polarized protons 0=9363
 strongly focused, calc., construction 2=17911
 superconducting cavities, high power 4=14778
 systems employing H-type waves 2=13613
 tandem, at Chalk River 2=5401
 tandem electrostatic accelerators, principles and design 1=5509
 tandem generator, nuclear reactions studies 2=5906
 tandem, He ion beam formation 1=9645
 tandem, single-stage, utilizing intense neutral beam injection 4=8869
 tandem, 10-40 MeV ions, electron stripping 2=17906
 tandem, three-stage 2=5400
 tandem van de Graaff, negative ion source, review 2=20062
 targets, liquid He 0=2477
 targets, low-temp., liquid hydrogen or deuterium 3=24531
 three-stage tandem, injection of fast neutral beams 0=19830
 Transtron S-1 accelerator, mag. field effects 4=14774
 travelling wave, calc. of performance 2=20067
 travelling-wave, optimum freqn. and energy—freqn. depend. 4=8871
 triton, 340 kV, design and construction 0=9113
 Van de Graaff, accelerating tube electron optics 1=340
 Van de Graaff beam, as atomic emission spectrum source 3=19918
 Van de Graaff beam deflecting system 3=456
 Van de Graaff, beams for time-of-flight meas. 0=2476
 van de Graaff, belt, charge meas. 3=19384
 van de Graaff, charging, theory 3=19383
 Van de Graaff, construction and ancillary equip. 0=1175
 Van de Graaff, electron accelerator, uses 0=19832
 Van de Graaff, electron gun, optical analysis 3=7644
 Van der Graaff, fibre belt charge transport 1=9650
 Van de Graaff, h.f. ion source, base design 0=15084
 Van de Graaff, heavy-ion energy accumulation 3=21907
 van de Graaff, instrumentation circuits 3=24178

Particle accelerators—contd

linear—contd

- Van de Graaff, integrated data handling system 4=24766
 Van de Graaff, "inverted cone" tubes, performance 3=9885
 Van de Graaff, ion source, mass analysis 0=12642
 Van de Graaff, ion source for nsec proton bursts 4=19138
 Van de Graaff, ion source, remote control 2=5394
 Van de Graaff, with low retrograde electron current 0=19831
 Van de Graaff MP-II tandem, probing of nuclear structure 3=22268
 Van de Graaff, magnetic analyser 4=8868
 Van de Graaff mμ-sec pulsing, application and technique 1=1934
 Van de Graaff, for neutron irradiation of metals 2=5404
 Van de Graaff, nsec pulsed, high intensity 3=4223
 Van de Graaff, ozone hazards 2=20063
 Van de Graaff, precision method for high-voltage measurement 0=2295
 Van de Graaff, precision voltage meas. with generating voltmeter 4=30001
 Van de Graaff, proton pulse prod. 2=5395
 Van de Graaff, source leak control, transistorized 4=3065
 van de Graaff, stabilization of ion beam energy, 4 MeV 3=19378
 Van de Graaff, tandem-type, principles, design for 10 MeV proton prod. 1=5509
 Van de Graaff at Tata Institute, Bombay 1=341
 Van de Graaff type model VC-3, characteristics 3=4224
 Van de Graaff, 2.5 MeV, at Delft 1=5505
 Van de Graaff, for 2 MeV neutrons, electrons, X-rays 2=5406
 Van de Graaff, for 2 MeV protons, Ecole Polytechnique, Paris 0=9630
 Van de Graaff, 3 MeV, energy resolution 3=457
 Van de Graaff, 2000 000 V, hypervelocity projector 2=7685
 variable-phase focusing 0=9115
 voltage breakdown prevention by inclined fields 3=9884
 500 kV ion accelerator 1=16445
 1.5 MV, 3mA, 14-stage electron accelerator 1=1935
 4MV symmetrical cascade generator 1=16443
 2 MeV electrostatic, terminal electronic circuits 3=16995
 Li ion source for electrostatic accelerator 4=16547

orbital

- accelerating particles, oscillation phases, external disturbance effect 4=14789
 accelerating particles, phase oscillation, harmonic linearization study 4=14780
 accelerating system, choice of freqn. 3=21911
 accelerator with stable oscillating particle orbits 1=543
 accelerators with general magnetic field 1=16449
 AdA (Frascati Storage Ring), progress report 2=7690
 analogue for particle oscillation studies 0=19835
 automatic control of betatron oscillations 2=5412, 9660
 beam interaction with external r.f. cavity 1=8364
 beam lifetime in storage device rel. to scatt. on gas atoms 4=16585
 beam particle losses and lifetime in storage device 4=16584
 beam shape, from hydrodynamic model 0=3819
 beam stability in stacked orbits 1=13140
 betatron acceleration cycle, field index variation, meas. and correction 4=30005
 betatron, air-cored, mag. field production 0=1178
 betatrons, beam capture, wall or electrode potential effects 4=3075
 betatron, beam energy distrib. and stability 2=3123
 betatron, beam storage method 3=12276
 betatron, beam withdrawal by local mag. field variation 1=342
 betatron, bremsstrahlung meas. 1=5523
 betatron, bremsstrahlung production 3=5983
 betatron bremsstrahlung spectral distribution 1=9662
 betatron, Bucharest, ceramic accel. chamber 2=22288
 betatron, Bucharest, start up, adjustment 2=20084
 betatron, calibration, photoneutron thresholds 0=13261
 betatron, conditions for electron capture into stable orbits 4=8874
 betatron, cylindrical, without Fe 0=17062
 betatron, cylindrical, cont. no steel and using axial mag. focusing 3=14698

Particle accelerators—contd

orbital—contd

- betatron, cylindrical without iron, model 1=4684
 betatron, distribution of electron paths 1=5521
 betatron, distribution of electron paths 1=11893
 betatron, e.s. electron extraction system 1=16453
 betatron, efficiency 3=21915
 betatron, electron-capture processes 0=9130-1, 11000, 12660
 betatron, electron capture in stationary mode 2=13618
 betatron, electron-charge meas. 0=11004
 betatron, electron currents 2=7603
 betatron, electron distribution in vacuum chamber 0=19860
 betatron, electron injection 1=4683
 betatron, electron injection 4=16597
 betatron, electron injection, bunching theory 2=20083
 betatrons, electron injection on inner and outer sides of equil. orbit, equivalence 1=4682
 betatron, electron injection, with resonance 0=17061
 betatron, electron injector 3=7664
 betatron, electron loss by scatt., expt. 3=459
 betatron, electron motion 0=15092
 betatron, electron motion, clock paradox 0=8543
 betatron, electron trapping mechanism, for large and small injection currents 0=11001
 betatron, energy calibration 0=1177, 3822, 7175
 betatron, energy imprecision reduction by internal target 3=24408
 betatron, ETL 25 MeV, field distributions and correction 4=629
 betatron, ETL 25 MeV, magnet design 4=628
 betatron, expander, power supply circuit 3=14480
 betatron field parameters calc. 3=2066
 betatron, with fixed-gap field, electron capture 0=11003
 betatron, gamma-ray intensity rel. to injector focusing 3=24417
 betatron with H-type magnet, field inhomogeneities 3=7663
 betatron, injection, bunching phenomena 1=16452
 betatron, injection pulse effectiveness 0=12658
 betatron, intensity dependence on injection energy 4=630
 betatron, internal target 1=546
 betatron, irradiation inside accel. chamber 3=14701
 betatron, magnetic circuit technology 3=17009
 betatron, magnet excitation, stabilization, ferro-resonant 3=12274
 betatron, mag. field adjustment for max. intensity 4=16596
 betatron, mag. field index meas. accuracy 2=22294
 betatron magnet profile determination 1=547
 betatron Mark II injector, 100mA proton source 2=1533
 betatrons, orbit, equilibrium meas. 3=19388
 betatron oscillations in accelerator with general field 1=16450
 betatron oscillations, equil. trajectories, generalized magnetostatic field 0=12659
 betatron, oscillation frequencies meas. in spiral ridge cyclotron 2=20077
 betatron oscillations, fringing effects, with sectional magnet 0=2410-11
 betatron oscillations with general field 1=16451
 betatron oscillations in nonlinear mag. field 3=14699
 betatron oscillations, nonlinear, theory 3=9892
 betatron oscillations, vertical, amplitude change 0=15098
 betatron, particle capture, digital computer calc. 4=16595
 betatron, polarized bremsstrahlung production 0=3950
 betatron, pole piece design 4=631
 betatron radiation, var. with injection voltage 3=17007
 betatron, resist. coating effect on electron capture 4=19148
 betatron, with short pulse injection periods, < period of revol. 0=11005
 betatron, slow expansion system 4=21607
 betatron stable oscillations in constant-time field 1=10750
 betatron study and design, Tomsk Polytechnic Institute 1=9652
 betatron and synchrotron, electron oscills. 2=9666
 betatron and synchrotron electron oscills. 3=5798
 betatron and synchrotron γ-radiation, intensity stabilization 0=19859
 betatron, time-varying fields, e.s.r. meas. 3=4279
 betatron, transient current, during capture 0=9129
 betatrons, X-ray beam instability, stabilizing 1=3027
 betatron, X-ray beam, neutron det. system 2=1694

Particle accelerators—contd
orbital—contd

- betatron, X-ray pulse, 10 to 22 MeV, 150 μ sec 4=8882
betatron, 20 and 15 MeV, radiation intensity rel. to press. 2=3111
betatron, 23 MeV, energy control calibration 3=4226
betatron, 30 MeV, bremsstrahlung spectrum 0=12657
betatron, 31 MeV, energy control 0=19861
betatron, 31 MeV, energy meas. and automatic control 0=19862
bevatron, μ beam prod. at 2 BeV/c 1=7257
capabilities for high-energy neutrino studies 0=11140
CERN proton synchrotron, description 1=18960
Cern 25 GeV proton synchrotron, neutral beam meas. 1=5518
circulating currents, azimuthal instability, radial-phase oscill. 1=348
coasting beam, electromagnetic coupling instabilities 1=8366
considerations of gravitational radiation 1=15601
Cosmotron, Be foil monitor for proton beam 2=15973
cosmotron, betatron oscillation freq. meas. 1=3028
cosmotron, damping beam instability 4=19150
Cosmotron, mag. lens system for pions, unit magnif. 2=22604
cosmotron rapid beam ejector 1=16468
cosmotron, target motor, torque reversing drive 4=21610
Coulomb scatt., multiple, particle loss 3=9891
cyclic, phase stability 3=2060
cyclotron, AVF, mag. field measurement 3=5767
cyclotron, AVF, motion of ions 3=5758
cyclotron, AVF, orbits invest. by analogue computer 3=5768
cyclotron, accel. of polarized protons 1=9655
cyclotron, accel. voltage stabilizer 3=14694
cyclotron, accelerating potential, stabilization 1=16454
cyclotron, adjustment when accelerating ions 3=4228
cyclotron, Analogue II, beam characteristics 3=5782
cyclotron, Analogue II, tune-up 3=5783
cyclotron, Argonne National Lab., beam energy degrading—focusing 1=5514
cyclotron, Argonne, 60 in., scatt. chamber 2=20074
cyclotron, with azimuth. varying mag. field 2=17915
cyclotron, with azimuth varying mag. field 3=9888
cyclotron with azimuthal variation of mag. field 1=16455
cyclotron, beam current density distrib., meas. 4=14788
cyclotron, beam current integrator 2=1534
cyclotron, beam extraction and energy regulation 2=20076
cyclotron, beam extraction and energy regulation with variable mag. field 2=7686
cyclotron, beam extraction system 2=20075
cyclotron-beam induced nuclear reactions, vacuum-tight walls for devices 4=16163
cyclotron beam, mag. deflection, sector, three different directions 3=21916
cyclotron, Berkeley 88 in., beam phase meas. 3=5792
cyclotron, Berkeley 88 in., beam-transport system 3=5791
cyclotron, Berkeley 88 in., central mag. cone 3=5772
cyclotron, Berkeley 88 in., centre-region geometry 3=5771
cyclotron, Berkeley 88 in., computer codes for trim-coil currents 3=5766
cyclotron, Berkeley 88 in., electrostatic deflection calcs. 3=5788
cyclotron, Berkeley 88 in., ion source 3=5790
cyclotron, Berkeley 88 in., ion-source mechanism 3=5789
cyclotron, Berkeley 88 in., 100-200 μ A external beam 3=5732
cyclotron, Berkeley 88 in., mag. fields meas. 3=5750
cyclotron, Berkeley 88 in., r.f system 3=5755
cyclotron, Birmingham, use of electric-current shims 0=3820
cyclotron, Bucharest, 120 cm, adaptation for heavy ions 2=7688
cyclotron, Bucharest, 120 cm, energy det. by time-of-flight method 2=7689
cyclotron, Bucharest, 120 cm, increasing energy range 2=11743
cyclotron, Bucharest, 120 cm, ion accel. 2=7687
cyclotron, C layers for targets 2=3117
cyclotron, Calcutta, 37 in., ion source 2=20036
cyclotron, Collège de France, focusing and beam analysis, α -particle prod. 0=3821
cyclotron, Colorado 52 in., internal beam prodn. 3=5735

Particle accelerators—contd
orbital—contd

- cyclotron, Colorado 52 in., magnet and spiral shim design 3=5749
cyclotron, Colorado, negative H ions accn., extraction 3=5736
cyclotron—computer multi-conductor cable 4=11730
cyclotron, constant freq. sector-focused, for 450 MeV protons 3=5777
cyclotron, dee voltage, choice considerations 0=9119
cyclotron, dee voltage stabilization 2=3113
cyclotron, dee voltage stabilizer 3=2058
cyclotron deflecting system, voltage stabilization 4=14787
cyclotron, deflector voltage stabilizer 3=14695
cyclotron depolarization of polarized proton beam 1=1946
cyclotron, deuteron resonant depolarization during acceleration 4=24772
cyclotrons, duty cycle improvements 3=5795
cyclotron, 88 in., spill beam 3=5733
cyclotron, elec. accel. field, phasing effect 3=9890
cyclotron, electric deflectors, shaping 0=10993
cyclotrons, emerging ion beam meas. 3=2061
cyclotron, external beam bunch selector 2=11739
cyclotron, external beams, natural pulsing 2=3116
cyclotron, FFAG, choice of spiral shape 4=626
cyclotron, fixed freq., 105 cm 2=15970
cyclotron, gas entrainment recoil target assembly 3=2064
cyclotron, H⁻ ion decay rate cal., 60° Thomas 4=16589
cyclotron, h.f. resonance discharge 4=19143
cyclotron, with helical field, theory 0=3818
cyclotron, history 0=5368
cyclotron, improved focusing near source 1=18958
cyclotron, internal beam phase meas. 3=5793
cyclotron, ion beam modulation, use for control purposes 0=9121
cyclotron, ion bunches, length and repetition 3=2063
cyclotron, ion current intensity distribution, measuring apparatus 1=5513
cyclotron, ion motion in central zone, calc. 3=21914
cyclotron, ion source 1=16429
cyclotron ion source 4=16587
cyclotron, ion source, hooded arc, variable yield 3=17008
cyclotron, ion source, inverse magnetron type 3=2043
cyclotron, ion source, multicharged 1=18938
cyclotron, Iowa State Univ., 1.5 MeV 2=11740
cyclotron, Iowa State Univ., 1.5 MeV, exptl. programme 2=11741
cyclotron, Iowa State Univ., 1.5 MeV, proton orbit calcs. 2=11742
cyclotron, isochronous, betatron oscillation rel. to frequency 4=3070
cyclotron, isochronous, duty factor increase 3=5794
cyclotron, isochronous, giving 12 MeV deuterons 4=5728
cyclotron, isochronous, Hill eqn. approx. soln. 4=19142
cyclotron, isochronous, as meson factory 3=5778
cyclotron, isochronous, particle free oscillation freq., effect of space charge 4=30003
cyclotron, isochronous, particle free oscillation frequency, space charge effect 4=5727
cyclotron, isochronous, power supplies 2=7537
cyclotron, isochronous, sector-focused, shimming 3=5739
cyclotrons, isochronous, tabulated 3=5748
cyclotron, isochronous 3-sector, accelerated orbits in central region 3=5774
cyclotrons for large π and μ meson fluxes 3=5781
cyclotron, Livermore, variable-energy 90 in. 1=18956
cyclotron, at Louvain, beam extraction and analysis 0=15094
cyclotron, M.I.T., irradiation of metals at controlled temps. 1=1942
cyclotron, mag. field intensity, shape control 3=21913
cyclotron magnet design 1=1941
cyclotron, magnetic analysis instrumentation 1=1943
cyclotron, Manitoba, shaping of mag. field 3=5745
cyclotron, max. admissible radial decrease of mag. field 1=345
cyclotron, Mc⁴ type, for protons, π and μ mesons 3=5779
cyclotron, Michigan 83 in., design 3=5741-4
cyclotron, motion of particles in central region 0=9120
cyclotron, MSU, computer programmes 3=5770
cyclotron, multicharged ion source 2=20037
cyclotron, multicharged ions 2=11738
cyclotron, neutron time-of-flight 2=9499, 13615

Particle accelerators—contd

orbital—contd

- cyclotron, nonfilament ion source 2=20040
- cyclotron, Oak Ridge, isochronous, first month's operation 3=5734
- cyclotron, Oak Ridge, relativistic 1=1940
- cyclotron, Oak Ridge, relativistic, isochronous development 1=1937
- cyclotron, with oblique accel. gap 0=9118
- cyclotron, 184 in., radiation survey 3=5784
- cyclotron, optimum magnet geometry 2=22286
- cyclotron orbits calc., computer programmes 3=5763
- cyclotron, ORNL 86 in., high voltage regulation 3=5757
- cyclotron oscillator, magnet power supplies, use of Si diodes 3=5796
- cyclotron parameters effect on ion bunching 4=3071
- cyclotron, parameters rel. to length and phase of ion bunch 4=16586
- cyclotron for particles with relativistic increase in mass 1=16461
- cyclotron, phase changes near centre 2=3115
- cyclotron, phase relations calc. 4=27591
- cyclotron, phase relationships 0=7177
- cyclotron, Philips, time marker 2=22287
- cyclotron, Pretoria 0=19842
- cyclotron, r.f. voltage stabilizer 1=4679
- cyclotron, radial-ridge, at Birmingham, linear regenerative extraction 3=5785
- cyclotron, radial ridge, 40 in., for 12 MeV deuterons 3=5731
- cyclotron with radially travelling mag. wave 1=9654
- cyclotron radiation of electrons moving on a single orbit, Coulomb interaction effects 1=10768
- cyclotron, relativistic fixed freq., mag. field determ. 4=14785
- cyclotron, relativistic, nonlinear resonances 3=12273
- cyclotron, relativistic, for University of Milan 3=5738
- cyclotron, resonance system, γ -rays meas. 3=24419
- cyclotron resonance systems, automatic control circuits 1=16457
- cyclotron, ring, effect of fringing fields 2=9663
- cyclotron, ring f.m., high-current injection 0=10992
- cyclotron, ring f.m., magnetic design 0=9117
- cyclotron, ring type, vertically inc. mag. field, stability conditions 0=17057
- cyclotron at Rossendorf, beam energy expts. 4=5730
- cyclotron, Saclay, deuteron beam, polarization 2=20073
- cyclotron, Saclay, focusing and analysing magnets 0=19841
- cyclotron, Saclay, polarized deuteron source 4=19602
- cyclotron sector, approx. calc. of $Q_{z,r}$ 4=14784
- cyclotron, for 700 MeV H^+ , design criteria 4=8879
- cyclotron, 70 in., design for protons up to 50 MeV 3=5746
- cyclotron, 16 in., neutron time-of-flight system 4=25116
- cyclotron, small, design and construction for students' use 0=19840
- cyclotron, spiral-dee 0=19836
- cyclotron, spiral ridge fields, particle motion 3=4225
- cyclotron, spiral ridge, for 450 MeV protons 3=5780
- cyclotron, spiral ridge, Illinois, beam extraction 3=5787
- cyclotron, spiral ridge, particle dynamics 0=19852
- cyclotron, spiral ridge, 70 in., magnet design 3=5751
- cyclotron, spiral ridge, 22 in., Davis, California 3=5747
- cyclotron, spiral-ridge, UCLA, 50 MeV, beam intensity, tuning 3=5730
- cyclotron, spiral-sector, start-up with space variation of mag. field 1=544
- cyclotron, with star-shaped mag. fields, stability and isochronism 0=15095
- cyclotron, Stockholm N.I.P., 225 cm 0=9122-3, 17056
- cyclotron targets, extraction of radioactive isotope Be^7 4=10652
- cyclotron, 3-sector, electric gap-crossing resonance 3=5761
- cyclotron, 3-sector low-spiral, resonant extraction 3=5786
- cyclotron, 3-sector, radial stability, effect of field imperfs. 3=5760
- cyclotron trim-coil currents, calc., linear programming methods 3=5765-6
- cyclotron U-120, α -particle accel. 4=21609
- cyclotron, U.C.L.A., 50 MeV, mag. field meas. 2=9677
- cyclotron, U.C.L.A., 50 MeV, sector-focused 2=9662
- cyclotron, UCLA, r.f. system 3=5754
- cyclotron, ultrarelativistic isochronous, equil. orbits stability 4=21605

Particle accelerators—contd

orbital—contd

- cyclotron vacuum tank, primary nuclear reactions, study 3=10321
- cyclotron, variable energy 2=3114
- cyclotron, variable energy, accel. voltage 2=9664
- cyclotron, variable energy, with azimuthally varying mag. field 2=13619
- cyclotron, variable energy, multiparticle, central orbit programme 3=5773
- cyclotron, variable-energy, new oscillator 3=5836
- cyclotron, variable-energy spiral ridge 0=15096
- cyclotron with vertically increasing mag. field 1=13141
- cyclotron, zero-pulse obtention method 2=20078
- cyclotrons, acceleration at subharmonics of h.f. 4=14786
- cyclotrons, current probe, for multi-charged ions 1=5512
- cyclotrons, isochronous, phase focusing 4=11731
- cyclotrons, pole-piece design 1=8368
- cyclotrons, Pretoria, report 1=18957
- cyclotrons, sector-focused, conference, Los Angeles (1962) 3=4227
- cyclotrons, synchrocyclotrons, elec. dissociation of negative H ions 3=5737
- cylindrical, space charge—r.f. field interact. 3=24418
- damping of free oscillations 1=13143
- decoupling of oscillations, about central trajectory 0=9116
- deflection coil for external accel. beam 2=3110
- deflector, electromagnetic, for particle introduction 3=17010
- Desy, 6 GeV strong-focusing electron synchrotron 4=16592
- e.m. fields in circular and linear accelerators 2=9661
- early development 0=284
- effect of space charge on particle motion 0=2408
- electromagnetic fields and resistive losses 1=8365
- electrons, acceleration in annular phasotron 3=24403
- electron accelerator, Cambridge 2=1538
- electron accelerator, radiation losses due to electron oscillations 2=11737
- electron beam, focusing, vertical, by cylindrical mag. lenses in axisymmetrical radially increasing mag. field 4=14791
- electron capture processes 3=17006
- electron current buildup 4=24770
- electron cyclotron maser 4=21665
- electron cyclotron (microtron), 5-15 MeV 1=18965
- electron guide field accelerator, Boltzmann equation 0=9111
- electrons, induction acceleration in annular phasotron 3=24404
- electron, injector for betatrons and synchrotrons 4=16593
- electron oscillations, quantum excitation and radiational damping 1=7112
- electrons or positrons in storage rings, radial and azimuthal distrib. 4=30000
- electron radiation, coherent 0=12662
- electron, spiral sector, for fixed field alternating gradient 0=19837
- electron synchrotron, betatron oscillation suppression 1=9656
- electron synchrotron, bremsstrahlung lines, 150 and 300 MeV 2=20302
- electron synchrotron, cavity loss var. impedance compensation 4=19147
- electron synchrotron, Frascati, bremsstrahlung spectrum 0=15099
- electron synchrotron, Inst. Nuc. Studies, Tokyo 3=460
- electron synchrotron intense sources 1=5516
- electron synchrotron at Lund, injection time behaviour of mag. field 1=16476
- electron synchrotron, quantum effects 0=15100
- electron synchrotron, 6 GeV, DESY, magnet design 4=19146
- electron synchrotron, with Van de Graaff injector 2=5414
- electron trapping, in betatron accel. range 0=11002
- equations of motion, approximation 4=19140
- equations of motion, for general field 4=14783
- fermion, extreme relativistic, helicity and transverse momentum, effect of vert. dimensions 4=16581
- fermion, ultra relativistic, helicity and transverse momentum 4=11903
- FFAG, geometrically similar orbits 3=12269
- FFAG, for 720 MeV protons 4=14793

Particle accelerators — contd

orbital — contd

- F.F.A.G. system, energy losses 1=16447
 FFAS, stability rel. to betatron oscillation frequencies 4=8877
 F.M. cyclotron, Princeton, scattering chamber 4=16588
 fields excited by beam currents in toroids 1=5510
 fixed-frequency, fixed-field, high-energy 3=24411
 fixed-point orbits associated with sector resonances 3=5762
 four-sector racetrack microtron 1=11990
 Frascati electronsynchrotron, bremsstrahlung spectrum 1=5524
 geocyclotron, simplified model, stability 2=8994
 German electron synchrotron, review 4=8876
 Harwell synchro-cyclotron, duty cycle extension 3=24410
 heavy ion injection in Orsay cyclotron 1=16458
 h.f. beam stacking 1=16448
 injector cyclotrons, performance 2=5418
 interaction of two consecutively injected pulses 1=349
 ion cyclotron heating of a plasma 1=9617
 isochronous cyclotron, ion capture, initial orbits 2=5417
 isochronous cyclotron, ion orbit analysis 1=1939-40
 loss, particle, calc., Kramers and hypergeometric series methods compared 3=12270
 mag. fields produced by ridged pole-pieces 1=9651
 magnetic field distortions, meas. with probe coils 1=5511
 magnetic field measurement 4=14851
 magnetic field perturbation for target irradiation and particle extraction 4=24771
 magnetic field self-correction, applic. 2=17913
 magnetic field tolerances, calc. 2=5416
 megatron, switch for field-coil capacitor-bank current 1=5402
 as meson factories, comparison of types 3=5775
 meson factory, shielding and activations 3=5776
 microtron, accel. gap length 2=17918
 microtron accelerating gap, optimum length 1=18963
 microtron, beam focusing, magnetic 4=8873
 microtron, construction possibility using permanent magnet 4=30004
 microtron, effect of inhomog. mag. field 3=24414
 microtron, efficiency increase 4=11734
 microtron, efficiency increase, 7 to 10% 4=3074
 microtron electron accel., review 3=14693
 microtron, electron bunch radiation 2=13617
 microtron, electron bunch radiation 3=5800
 microtron, electron bunches 3=24413
 microtron, for electron injection into synchrotron 4=11733
 microtron, electron packets, charge density 2=231
 microtrons, electron packets, charge density 3=4229
 microtron, for electrons, operating conditions 2=3118
 microtron, general description 2=17917
 microtron, high-energy type, design and construction 1=1948
 microtron, large current, construction and operation 1=18966
 microtron, large current, construction and operation 2=22289
 microtron, phase- and vertical stability 1=18964
 microtron, as pulsed source, for n spectrometry, time-of-flight 3=22139
 microtron, racetrack, for e.m. mm and sub mm generation 4=19200
 microtron, state of development 2=11744
 microtron, tuned focused cathode arrangement 3=24412
 microtron, use of field and thermionic emission cathodes 4=8801
 microtron, with variable orbital periodicity 1=1949
 microtron, vertical focusing 2=9667
 microtron, vertical focusing 3=5799
 microtron, 6.5 MeV, as synchrotron electron-injector 4=3073
 microtron, 28 MeV, design 1=9663
 microtron, 29 MeV, magnet design 1=16467
 microtron, 30 MeV, r.f. system 2=1541
 modulation by random fluctuations 3=14697
 Nimrod 7 GeV weak-focusing proton synchrotron 4=16599
 non-synchronous ion acceleration in cyclotron 1=16456
 omegatron, ion beam meas. device 2=7529
 omegatron for student determination of proton e/m 1=3187

Particle accelerators — contd

orbital — contd

- orbit stability, calc. from field distrib. 0=15093
 orbit stability, computer programme 3=5769
 orbits under conditions of similarity 1=13142
 ORIC, mag. field design, measurement 3=5752
 ORIC mag. fields design, computer programmes 3=5764
 ORIC, magnet regulators 3=5753
 oscillation damping in general field with periodic structure 1=18959
 particle injection, effect on accel. voltage 2=1543
 particle losses by Kramer's method 2=5421
 particle losses due to radiation quantum fluctuations 2=5420
 particle phase motion 2=13623, 17914
 particle radial motion in accelerators with beam extraction by means of regenerative deflector 4=16594
 periodic magnetic field calc. 2=3112
 phase and radial oscillations, due to quantum radiation fluctuations 2=1535
 phasotron, annular, acceleration of electrons 3=24403
 phasotron, annular, induction acceleration of electrons 3=24404
 phasotron, ring, design of magnet 4=3069
 phasotron, ring, model 2=3120
 phasotron, ring-shaped, spiral field distrib. 3=9887
 phasotron type, general particle motion and betatron oscillations 1=5522
 phasotron type, general particle motion and betatron oscillations 1=11989
 Philips AVF prototype, design features 3=5740
 pion factory, role in elementary particle physics 3=7886
 plasma accelerators 0=10907
 plasma betatron 1=9661
 plasmabetatron, electron acceleration 4=30006
 plasma betatron, self-consistent field theory 1=9601
 positrons, in microtron 4=21606
 proton, cavity resonator h.f. system 4=3076
 proton, next generation 4=16598
 proton synchrotron achromatic extractor 1=9657
 proton synchrotron, beam extraction 2=1539
 synchrotron, proton, Argonne and Princeton, capabilities for high-energy neutrino studies 0=11140
 proton synchrotron, Birmingham, fine time-structure of beam 0=19844
 proton synchrotron, CERN 0=7179
 p-synchrotron, CERN, prod., of high-energy neutrinos 3=17243
 p-synchrotron, CERN, prod. of K, 800 MeV/c, focusing 3=17333
 synchrotron, proton, CERN, performance meas. 2=3119
 proton synchrotron, Harwell, vacuum chamber leakage 2=1218
 proton synchrotron high vacuum system 4=19151
 proton synchrotron, injection system and ion beam line 4=16600
 synchrotron, proton, K-meson separator, 1.5 GeV/c 3=17001
 synchrotron, proton, K⁺ mesons in secondary beam 2=3405
 proton synchrotron, limiting injection currents 4=632
 proton synchrotron, mag. meas., using n.m.r. techniques 1=5519
 proton synchrotron, particle injection, steering-focusing system 0=10998
 proton synchrotron, use of propane bubble chamber 1=408
 synchrotron, proton, ring-shaped 3=7665
 proton synchrotron, Saclay, K⁺ meson beams extraction 4=9281
 synchrotron, proton, at Saclay, vacuum system 1=550
 proton synchrotron, "Saturne", correction circuits 0=19849
 proton synchrotron, "Saturne", detailed account 0=2412
 synchrotron, proton secondary beam, small angle, variable momentum 3=17002
 synchrotron, proton, 7 GeV 3=12275
 proton synchrotron, 7 BeV, accelerating field and freq. meas. system 4=14814
 proton synchrotron, 7 BeV, accelerating field freq. control 4=14810
 proton synchrotron, 7 BeV, accelerating voltage frequency control 4=14812
 proton synchrotron, 7 BeV, accelerating voltage frequency meas. 4=12815
 proton synchrotron, 7 BeV, accelerator-injector 4=14800

Particle accelerators—contd

orbital—contd

- proton synchrotron, 7 BeV, adjustment of acceleration conditions 4=14840
- proton synchrotron, 7 BeV, beam betatron oscillation frequency meas. 4=14839
- proton synchrotron, 7 BeV, beam intensity meas. 4=14816
- proton synchrotron, 7 BeV, beam position determ. 4=14817
- proton synchrotron, 7 BeV, beam radial and phase position control 4=14811
- proton synchrotron, 7 BeV, C-magnets field variation 4=14829
- proton synchrotron, 7 BeV, compensating pole windings 4=14822
- proton synchrotron, 7 BeV, design parameters 4=14794
- proton synchrotron, 7 BeV, electromagnet block factory testing 4=14825
- proton synchrotron, 7 BeV, electromagnet blocks and assemblies 4=14796
- proton synchrotron, 7 BeV, electromagnet design 4=14795
- proton synchrotron, 7 BeV, electromagnet power supply 4=14798
- proton synchrotron, 7 BeV, electronic systems 4=14797
- proton synchrotron, 7 BeV, foundations for electro-magnet blocks 4=14804
- proton synchrotron, 7 BeV, frequency control system 4=14813
- proton synchrotron, 7 BeV, frequency programmer 4=14808
- proton synchrotron, 7 BeV, h.f. accelerating system 4=14809
- proton synchrotron, 7 BeV, magnet blocks characteristics, meas. 4=14832
- proton synchrotron, 7 BeV, magnet units spacing 4=14830
- proton synchrotron, 7 BeV, magnetic characteristics of C-units 4=14827
- proton synchrotron, 7 BeV, magnetic field asymmetry 4=14824
- proton synchrotron, 7 BeV, magnetic field compensating system 4=14823
- proton synchrotron, 7 BeV, magnetic field, effect of vacuum chamber steel sections 4=14834
- proton synchrotron, 7 BeV, magnetic field meas. 4=14807
- proton synchrotron, 7 BeV, magnetic field meas. 4=14837
- proton synchrotron, 7 BeV, magnetic field neutral plane 4=14835
- proton synchrotron, 7 BeV, magnetic field var. due to supply system changes 4=14838
- proton synchrotron, 7 BeV, magnets, meas. unit supply system 4=14831
- proton synchrotron, 7 BeV, master oscillator for accelerating field freq. control 4=14806
- proton synchrotron, 7 BeV, meas. of coupling between basic and measuring e.m. fields 4=14818
- proton synchrotron, 7 BeV, meas. of freq. of betatron oscillations 4=14819
- proton synchrotron, 7 BeV, particle phase motion 4=14820
- proton synchrotron, 7 BeV, particle transverse oscillations 4=14821
- proton synchrotron, 7 BeV, Permalloy pickups for magnetic field meas. 4=14836
- proton synchrotron, 7 BeV, permalloy sensors for mag. meas. 4=14826
- proton synchrotron, 7 BeV, positioning of magnets 4=14803
- proton synchrotron, 7 BeV, power supply 4=14799
- proton synchrotron, 7 BeV, power supply for ion injector 4=14805
- proton synchrotron, 7 BeV, vacuum system 4=14801
- proton synchrotron, 7 BeV, vacuum system 4=14802
- proton synchrotron, 7 BeV, varying magnetic field, cont. meas. and recording 4=14828
- proton synchrotron, 7 BeV, X-block magnetic field configuration 4=14833
- synchrotron, proton, store-injector 1=11991
- proton synchrotron, 10 GeV, beam-target interact. time, variation 3=24416
- synchrotron, proton, 10 GeV, proton beam 3=7667
- synchrotron, proton, 10 GeV, at USSR Academy of Sciences, design 0=5369
- synchrotron, proton, 300-1000 GeV, experimental techniques 3=17004

Particle accelerators—contd

orbital—contd

- proton synchrotron, 12 BeV, voltage programming 3=24409
- proton synchrotron, two-target operation 0=19845
- proton synchrotron, USSR, 7 GeV, development 2=20081
- proton synchrotrons, mag. field meas., with permalloy pickups 1=5526
- radial fall-off of magnetic field in cyclotron 0=2409
- radiation damping theory using Liouville eqn. 4=5756
- radiation, relativistic, of circular current 2=15931
- radiation from relativistic particles, collision effects 0=15316
- radioisotope production, maximization 1=13674
- reaction yield increase in thin targets 2=5882
- regenerative action in high-energy accelerators 0=19838
- regenerative deflector 0=10994
- relativistic isochronous cyclotron, Oak Ridge 1=1938
- review 4=24935
- review, mainly proton synchrotrons 4=19149
- saturation effects, self correction 3=24398
- saturn, K^+ meson prod. at 0.6 - 2.92 BeV 1=12119
- Saturne synchrotron, loss of particles and median mag. plane 1=16460
- sector-focused, betatronic stability, isochronism 3=5759
- self-correction principle, mag. field, appl. 3=7666
- similarity conditions, non-resonance eqn. of motion, oscillation damping 0=17058
- six-metre synchrocyclotron, proton beam energy distribution 1=9660
- slow-wave structures for orbital accel. 2=13622
- Soviet, survey article 0=19839
- space charge effect on particle motion 1=10752
- spiral ridge, pendulum analogues 1=9664
- spiral-sector, coupling resonances 2=1542
- spiral-sector, mag. field charact. 2=17919
- Stellarator, charged-particle motion, stability 3=2065
- stereotron 2=13621
- storage ring, e^+ , e^- , Frascati, AdA, 100-250 MeV, expts. 4=16583
- storage ring, e^+ , e^- , Frascati, Adoue, 750-1500 MeV 4=16582
- storage rings, electron stability, radiation effects 4=16630
- storage ring of Frascati accelerator 1=9653
- storage ring, lifetime and beam size 3=17005
- storage rings, proton, colliding beam, for synchrotron 3=17003
- storage rings, radiating electron motion stability 4=8907
- storage ring for relativistic charged particles 2=5415
- storage rings, review 4=8872
- storage system, phase conditions 2=20072
- storage systems, colliding beam dynamics 4=5729
- strong-focusing electron machines, high-gradient instabilities 2=1536
- strong-focusing, with fixed mag. field, equilib. orbit and betatron oscill. 0=10995
- strong focusing, injection energy decrease 3=16998
- "superposed" accelerators 1=10751
- synchrocyclotron, annular, with radial sectors 2=15971
- synchrocyclotron, beam behaviour, calc. method 2=19881
- synchrocyclotron, beam extraction 0=5370, 19856
- synchrocyclotrons, beam extraction methods 3=21917
- synchrocyclotron, Bonn, frequency modulator 1=1947
- synchrocyclotron, Buenos Aires, 180 cm, beam magnetic deflector 0=15101
- synchrocyclotron, burst cycle modification 0=10999
- synchrocyclotron, cold cathode ion source 2=3088
- synchrocyclotron, debunching of beam pulse 3=12271
- synchrocyclotron, energy distrib. of protons bombard. target 4=8878
- synchrocyclotron, external beam, time distrib. improvement 1=16463
- synchrocyclotron, 460 MeV, Chicago, peripheral cee beam extractor 4=30002
- synchrocyclotron at Harvard, duty cycle improvement 1=16465
- synchrocyclotron, Harvard, regenerative deflection 0=19853
- synchrocyclotron, Harwell, beam output increase by small dee 1=9659
- synchrocyclotron, Harwell, beam stacking 3=12272
- synchrocyclotron, Harwell, conversion to spiral ridge operation 0=19852

Particle accelerators—contd
orbital—contd

- synchrocyclotron, high-energy research, Joint Institute of Nuclear Studies, USSR 0=15305
 synchrocyclotron, for intense muon beam prod. 2=5703
 synchrocyclotron, internal beam current meas. 3=14700
 synchrocyclotron magnet, polar profile, determ. for fixed induction gradient 4=19144
 synchrocyclotron, particle loss at limit radius 1=18962
 synchrocyclotron, particle vertical motion in regenerative extractor 0=19857
 synchrocyclotron, proton beam prod. 1=16464
 synchrocyclotron, proton, Dubna, h.f. system improvements 4=14792
 p synchro-cyclotron, energy spread reduction by target osc. 4=21608
 synchrocyclotron, proton, 157 MeV, French, general description and installation 1=16462
 synchrocyclotron, pulse circuit for oscillator 3=2059
 synchrocyclotron, pulse simulator 0=19858
 synchro cyclotron, ring-type, h.f. free oscillations 3=24405
 synchrocyclotron, 6m, proton beam production, 612 MeV 4=3411
 synchrocyclotron, tuning-fork frequency modulation 0=19854-5
 synchrocyclotron, 200 m flight path neutron spectrometer 4=16914
 synchrocyclotron, variable-energy, compared to sector-focused cyclotron 3=5756
 synchrocyclotron viewing probe for high voltage pulses 1=5520
 synchronous accelerators, expanding phase stability 1=8367
 synchrophasotron, shaping of phase motion of particles 0=17060
 synchrophasotron, 10 BeV, beam injection power supply 4=16590
 synchrophasotron, 10 GeV, proton beam characteristics 2=20082
 synchrotron a.c. magnets, field errors 2=9665
 synchrotrons, alternate gradient, resonant beam extraction 1=4661
 synchrotron, alternating gradient, mag. measurements 0=19850
 synchrotron, alternating gradient proton, antiproton separator 3=16999
 synchrotron, beam loading of r.f. cavity 2=7692
 synchrotron, beam shaping, by Cu induction electrodes 3=19387
 synchrotron, Birmingham, deuteron prod. at 640 MeV 1=9658
 synchrotron, Birmingham proton extraction 1=1945
 synchrotron, bremsstrahlung energy flux 2=15972
 synchrotron, bremsstrahlung monitor, diff. ionization chamber 2=1623
 synchrotron, bremsstrahlung, polarized by crystal, on electron impact 3=5980
 synchrotron, coherent electron radiation 0=9124
 synchrotron, coherent radiation from electrons 1=16459
 synchrotron, DESY electron, injection phase focusing control 4=14790
 synchrotron, Dubna, 10 GeV, design tolerances 0=9126
 synchrotron, electron clusters, axial and radial variation 2=212
 synchrotrons, electron clusters, axial and radial variation 3=4193
 synchrotron, electron clusters, coherent radiation 2=20080
 synchrotrons, electron loss probability 1=18961
 synchrotron, electron, 1100 MeV, at Frascati, Italy 3=21912
 synchrotron, electron, oscillations, radial and phase 0=10996
 synchrotron, electron phase motion, e.m. interaction effects 0=10997
 synchrotron, electron radiation due to acceleration 1=1944
 synchrotron, electron, with toroidal waveguide 3=9886
 synchrotron, electron, waveguide as accelerator, efficiency 2=3121
 synchrotron, energy stabilization circuit 2=11745
 synchrotron, focusing of scattered-out beam 0=19847
 synchrotron, Frascati, electron X-ray spectra 4=3079-80
 synchrotron, Frascati, shielding calc. 0=19817

Particle accelerators—contd
orbital—contd

- synchrotron, frequency, upper limit 0=9125
 synchrotron, γ -ray prod. 4=11732
 synchrotron, high-current phase oscillations 0=15097
 synchrotron, injector 0=3823
 synchrotron injection, e.m. inflector 3=12279
 synchrotron, injector, variable-slope pulse line 0=17059
 synchrotron, Leningrad, electron-orbit shifting device 2=5419
 synchrotron, magnet excitation, stabilization, ferromagnetic 3=11274
 synchrotron, magnet field stabilization 0=19848
 synchrotron magnet power circuit 1=18728
 synchrotron, magnet supply circuit, blocking inductor 1=8290
 synchrotron, obs. of energy dependence of photonuclear reaction cross-sections 4=16591
 synchrotron, 100 MeV electron, Turin 3=4623
 synchrotron, oscillation damping 0=9128
 synchrotron, oscillations, resonant perturbations 0=9126
 synchrotron, particle extraction by mag. field perturbation 4=24771
 synchrotron, particle injection optimization 4=3072
 synchrotron, phase oscill., parametric reson. 2=1537
 synchrotron, polarization of electron radiation 0=15317
 synchrotron, possibility of particle storage 2=13620
 synchrotron, r.f. separators, high-power 2=20079
 synchrotron, radial phase amplitude distrib., for γ -rays 0=7180
 synchrotron, with radial sectors, free oscillations 2=1540
 synchrotron, regulation of γ -ray intensity 1=5515
 synchrotron, regulation of γ -ray intensity 1=11992
 synchrotron, relativistic electron radiation 2=3151
 synchrotron, ring type, betatron oscillations, characteristic functions 0=9127
 synchrotron, Saclay, testing of electromagnet segments 0=19851
 synchrotron, single-channel time analyser 0=7181
 synchrotron, 6.5 MeV electron injection microtron 4=3073
 synchrotron, 680 MeV, layout and operation 4=627
 synchrotron, special operation mode, electron bunch size 2=17916
 synchrotron, special operation mode, electron bunch size 3=5797
 synchrotron, stability improvement by magnet power supply stabilization 2=3122
 synchrotrons and storage rings, space charge influence 3=24406-7
 synchrotron, strong-focusing, gas scattering 0=19846
 synchrotron, study of 280 MeV electron beam 1=5517
 synchrotron, 10 GeV, theoretical aspects 0=7178
 synchrotron, 340 MeV, associated equipment 0=17286
 synchrotron, with 2 internal targets, increased efficiency 1=4680
 synchrotron, weak-focusing, damping phase oscillations 0=12661
 synchrotron, zero gradient, for polarized protons 2=7691
 target, H-D, liquid 3=14692
 target, high-pr. H₂ gas 1=16620
 targets, rare-earth oxide, preparation and use 0=19843
 trajectories, generalization of eqn. for phase 3=14691
 2 MeV microtron 1=16466
 ultrarelativistic cyclotron, isochronous, equil. orbits stability 4=19141
 use of target for particle energy analysis 4=16580
 vertical field gradient 2=20071
 vertically increasing field 3=12278
 waveguide, cyclic, effect of bunch fields on phase oscils. 4=19145
 waveguide, irised, beam stability 3=14696
 160 cm synchro- and variable energy cyclotron 1=7113
- Particle detectors**
 See also Bubble chambers; Cloud chambers; Counters; Ionization chambers; Nuclear track emulsions; Particle track visualization.
 alloyed Si diodes for counting and spectrometry 1=3092
 α -particle counter 2=5753
 alpha-particle detector, absolute meas. of 14 MeV neutron absolute yield 1=2070
 α -rays in solutions 2=5828
 astigmatic focusing spectrometer, for energy distrib., light nuclei reactions 0=9251

Particle detectors—contd

atomic flux from plasma, measurement 1=9608
 β -particles, use of Ge and Si diodes 0=7493
 β -ray, Li-ion drift semicond. detector 2=13775
 chamber, secondary electron monitor foil, stability 3=17112
 charged, identification using E(dE/dx) method 4=3236
 charged particle discrimination by ionographic method 2=20211
 Cherenkov high-energy neutron detector 0=17358
 Cherenkov proton detector, Perspex cone 0=17155
 chopper-ionization chamber method; 2×10^5 particle/cm sensitivity 0=5859
 coincidence technique in nuclear spectroscopy 2=13709
 coincident pulses sorted according to amplitude 2=5273
 corona counters, electrical field shape 0=5452
 corona counters, for heavily ionizing particles 0=5451
 cosmic rays, absorption spectrometer for GeV region 3=24813
 counters for soft beta-rays 1=13397
 cryotron as ionizing-particle detector 2=11837
 crystal phosphors for β , γ -ray dosimetry 2=1631
 data analysis systems, review 4=21691
 data handling techniques 1=7175
 dead-time, accurate meas. 2=3219
 dead-time correction, automatic 2=13700
 "dead" time errors 1=16625
 delayed-neutron monitor for reactor 0=13381
 developments, review 1=8398
 diamonds 1=888
 different type particles, together, energy spectra detect. and processing 2=9729
 discrimination by ionization losses in scintillation counter telescope 4=16731
 distrib. meas. errors due to pile-up effect 4=30105
 dosimeters, Al phosphate glass, high energy particles 4=5892
 double focusing mag. spectrometer, 180° , aberrations and fringing effects 0=19788
 elastic scattering at high energies 2=247, 22376
 electron-gamma directional correl. meas. 2=10032
 electronic pulse multiplier 2=9509
 emulsion-scintillator sandwiches, for dense shower detection 0=1233
 exhibited at 1964 Physical Society 4=21690
 by exo-electron emission 3=12229
 fast-neutron dosimeters, proton-recoil, discrimination losses 0=7249
 flow counters, large area 2=3192
 four-counter telescope for stopping particles 3=24754
 4π fission counter 1=1990
 4π , for radiochromatograms 0=5450
 G-factor, calc. for scattering through two apertures 0=17276
 γ -ray scintillation detector, cylindrical, absolute detection efficiency 4=16732
 general props., review 2=20177
 heavy ions, by radioactivity in stacked foils 2=9748
 high efficiency, in decay rate meas. by coinc. method 2=7781
 high-energy; conference Geneva, July 1962 3=527
 high resolution for Yale heavy-ion accelerator 2=9747
 hodoscope for low-level-output detectors 1=4745
 Hornyak buttons, γ -backgd. rejection 2=18013
 identification, mag. field and nuclear emulsion 1=19081
 identification by track width 0=200
 ion beams, positive, for two beams simultaneously 4=3053
 ion detector, large aperture, slow positive ions 2=9741
 ion-electron converter, detection of single ions 1=9707
 junction-type, linear amplifier 2=11592
 lifetime meas. by centroid shift method 2=20501
 limitations and needs, survey 2=1618
 low-energy, use of pulsed ionization chamber for spectra 0=15186
 low flux, high energy beam profile detectors 2=3206
 luminescent chamber, review 2=16106
 microwave discharge chambers, principles discussed 1=12039
 multichannel collimated scintillation, theory 2=5512
 multidetector array, method of use 3=5610
 multidimensional analysis, apparatus 2=19844
 multidimensional spectra, potentialoscope 2=7546

Particle detectors—contd

multiparameter analysers 3=24187
 multiwire counter for charged particles 0=3890
 neutron detectors, in motion, spatial integration of neutron fields 1=3195
 neutron dosimeter, BF_3 double moderator 0=17359
 neutron, by fission in gas current 0=7384
 neutron, flux meas., calib. of Mn and Au foils 0=15367
 neutron, γ -ray compensated B^{10} ioniz. chamber 0=3882
 neutron, graphite sphere 0=17356
 neutron, intermediate energy, by glass scintillators 0=17145
 neutron thermal image, photographic det. 2=1695
 neutrons, thermal, photographic detectors 3=12477
 nuclear electronics symposium 0=12719
 nuclear events, 3-parameter multichannel recorder-analyser 2=1364
 nuclear instrumentation, review 4=3231
 nuclear instruments symposium 3=12364
 nuclear reaction products, identification, energy meas. 2=5975
 operating with pulsed sources, "dead" time errors 2=22368
 p-i-n junction detectors, Li-drifted, prep., props. 2=22364
 p-i-n junction, pulse shaping, calc. 4=27720
 p⁺-i-n⁺ diodes, Li-drifted, use 2=20202
 p-n junctions, calibration with α -particles 2=20201
 p-n junction detectors, pulse rise-time 1=13230
 p-n junction detectors, transient response 1=13231
 p-n junction devices, temp. behaviour 1=3090
 p-n junctions, Au-Ge 0=1234
 p-n junctions, as detectors 0=5630
 p-n junctions, Ge, as α proportional counters 0=5466
 p-n junctions, Ge, charge collection coeff. 0=20886
 p-n junctions for high resolution α -spectroscopy 1=1991
 p-n junctions, Si, for charged particles 0=7274
 p-n junctions, Si, for heavy ion induced nuclear reactions 0=20508
 p-n junctions, Si, for minimum ionizing particles 0=19975
 p-n, p-p⁺ junctions 2=9745
 p-n transitions, in semiconductors 2=3216
 p-silicon, lithium, n-i-p 3=14830
 periodic medium, from resonance radiation 4=5883
 photodetectors, u.v., description 3=7337
 photomultiplier, 53 AVP type, gain 1=19065
 photomultiplier, for mag. analyzers 3=19508
 photomultipliers, behaviour to h.f. light modulation 1=2991
 photomultipliers, factors affecting gain and resolution 1=2992
 photon counters, self-quenched, characteristics 0=3598
 photons, i.r., comparative report 2=7454
 Pioneer V instruments, results 0=17453
 polarization meas., statistical errors 1=472-3
 pulse amplifiers 1=2937
 pulse density meter, transistorized 2=1355
 pulse shape discrimination methods 2=5514
 radiation belt measurement 1=21068
 radiometric calorimetry, review 4=30115
 rectangular, solid angle calc. rel. to rectang. source 2=7782
 resolution, finite, effect unfolding procedure from pulse height distrib. 3=30103
 review 2=16084
 scanning efficiency estimation 3=9998
 scanning speed, rel. to visual detector efficiency 2=16101
 scattering chamber, gaseous 2=442
 scattering, multiple, photoelec. transducer 2=20204
 scintillation counters, NaI (TI) and plastic, characteristics 1=19058
 scintillation gamma spectrometer, automated 0=4040
 secondary electron monitor foil chambers, stability 3=17112
 secondary emission monitor, for 15-70 MeV, efficiency 4=6026
 semiconductor, for α -particles 2=7911
 semiconductor, analysis of high resolution lines 2=20200
 semiconductor, B^{10} diffused juncts. in n-type Si 2=18021
 semiconductor devices 0=15195
 semiconductor devices, as fast linear detectors 0=9237
 semiconductor devices, Ge 0=17156
 semiconductor devices, physical processes 1=3084
 semiconductor devices, surface barrier type, from Ge and Si 1=1992
 semiconductor, diffused junction, for $\Delta E/\Delta X$ detect. 2=18018
 semiconductor, diffused junction, window thickness 2=18017

Particle detectors—contd

- spectrometer, double-focusing zero-dispersion, magnetic 0=9252
 semiconductor and gas-ion-chamber, for 10-30 MeV particle masses 2=9746
 semiconductor and ionization chamber for Yale heavy-ion accel. 2=9747
 semiconductor, junction for mass discrimination 2=7797
 semiconductor, "modular" nucl. instrums. 2=17992
 semiconductor, n⁺-i-p⁺ 2=18016
 semiconductor, neutron counters 2=9864
 semiconductor, p⁺-i-n⁺, prod. tech. 2=18019
 semiconductor p-n junctions 1=3086
 semiconductor, p-n, pulse-shape discrim. 2=18020
 semiconductor, p-n, surf. barrier, p-i-n GaAs, Si 2=18014
 semiconductor, performance, electronic requirements 2=5528
 semiconductor, prep. and uses, review 2=20199
 semiconductor, for reactor flux meas. 2=11960
 semiconductor, review 2=18015, 22365
 semiconductor, Si, Au-doped, for bubble-chamber photog. control 2=18028
 semiconductor, Si and GaAs 2=9742
 semiconductor, Si junction 3=529
 semiconductor, Si p-n temp. effects 2=9744
 semiconductor, Si surf. barrier, with high reverse-breakdown voltages 2=18024
 semiconductor, space spectrometry applic. 2=18196
 semiconductor, surf-barrier, encapsulated, prod. techn. 2=18025
 semiconductor, surf-barrier, H ion response, 25-250 keV 2=18022
 semiconductor, thin Si surf.-barrier 2=9743
 semiconductor, time charact. 3=22040
 semiconductor, transit, time of charge carriers 2=5529
 semiconductor, with two opposite surface-barriers 2=20196
 sensitivity criterion for detector selection 3=9997
 separation scheme for high energy particles 2=11916
 small scattering chamber for large angular region 1=19072
 solid-state, for high resolution nuclear spectroscopy 1=16618
 solid state, low-noise linear preamplifier 2=13520
 solid state, monitoring 14 MeV neutron prod. 2=5696
 solid state, Si(n, p)Al, Si(n, α)Mg cross-section meas. 4=28045
 spark chamber 1=13264
 spark chamber, review of development 1=9699
 statistics, use of generating probab. functions 3=14833
 superconducting film as detector 2=22366
 surface-barrier diode 2=5530
 surface-barrier diodes, 0.2-300°K, mechanism 1=3089
 synchrocyclotron external beam, meas. 1=16463
 system, detecting, with selection electronics 1=13207
 target chamber, movable exit port 2=5584
 target chamber for precision ang. distrib. meas. 4=30100
 target, low evaporation, for liq. H₂, D₂, He 4=30101
 telescope, coincidence, for angular distrib. 2=5932
 thermoluminescent dosimetry device 0=9241
 thin scintillators used to discriminate ionizing particles 1=3776
 time-of-flight mass discriminator, π^+ separation 1=5771
 time-sorter for use in nanosecond range 0=15219
 transistor probe unit 3=4287
 transistors, for α -particle detection 0=9238
 travelling-wave devices, for mass analysis 0=319
 triggered spark counter μ -meson telescope 1=3292
 use of effect of radiation on electrical conductivity of insulating liqs. 4=11211
 use of multiparameter analysers, conference (1962) 4=11842
 180° deflection magnet for particle energies 2=9749
 AgCl, dislocation decoration, for recording cosmic-ray and nuclear processes 2=17960
 Au foils, meas. of flux perturbation 0=9371
 Au-Si surface-barrier, construction, performance 4=27721
 Au-Si surface-barrier, detectors 2=3634, 5527, 16094
 Au-Si surface-barrier, high-resistivity 2=11834
 Au-Si surface-barrier, pulse height meas. and calc. 4=28080
 Be foil, for Cosmotron proton beam 2=15973

Particle detectors—contd

- He³ semicond. detector, for dE dx and E meas. 1=3255
 In disk, foil depression factors 0=12995
 Li drift, high-energy 3=17114
 Li junction detector, with thick depletion layer 2=3215
 O¹⁷ nuclear bombardment targets, preparation, improved technique 4=30099
 Si crystal, Au doped, ionization detector 1=3091
 Si diffused junctions 1=3086
 Si, 14 MeV neutron interactions 1=19495
 Si, guard-ring surface-barrier detectors for β -spectroscopy 2=22487
 Si junction, appl. 2=11856
 Si junction, ionizing radiation detector 2=21166
 Si, n-type, for charged heavy particles 3=2166
 Si, n-p junctions, for heavy charged particles 2=18028
 Si p-n junction, for heavy charged particles 1=5615
 Si p-n junctions 1=3082
 Si p-n junctions 1=3083
 Si p-n junctions, shallow diffused type 1=3081
 Si, production by ion bomb. 2=16096
 Si, in spectrometry of charged particles 2=1630
 Si surface-barrier diodes, with charge-sensitive amplifiers 1=3085
 Si surface barrier, oxide stabilized 2=3217
 Si surface barrier, use in proton recoil telescope to meas. neutron spectrum and flux 4=27866
 Si surface barrier, reverse current, effect and meas. 4=27719
 Si transistors, with deep depletion layer 1=3087
 Si and GaAs, conduction counters 2=9742
 Si-Au surface barrier diodes 1=3083
 ZnS:Ag, fluorescence decay rates for different particles 0=6203
 ZnS:Ag-paraffin scintillator, for fast neutrons 2=286
 ZnS:Ag, proton and α discrimination from γ -background, by decay mode study 0=21009
- Particle focusing**
 See Particle optics.
- Particle optics**
 See also Electron optics; Ion optics.
 acceleration by time periodic mag. fields 4=5764
 accelerator, synchrotron, alternating gradient proton, antiproton separator 3=16999
 accelerator, synchrotron, proton, K-meson separator, 1.5 GeV c 3=17001
 accelerator, synchrotron, proton, secondary beam, small angle, variable momentum 3=17002
 achromatic quadrupole lenses 4=16553
 analysing magnets, edge effects 4=16617
 axially symmetric mag. field focusing effects 3=9875
 axially symmetric mag. fields, with central particle source 0=10978
 beam deflecting system for Van de Graaff accel. 3=456
 beam production 4=29986
 beam production, review 4=24935
 beam shape detm., in electrostatic field 4=611
 beam transport systems, symmetry props. 3=24861
 charge-traversing resonator, cylindrical, radiation emitted 4=26991
 charged beam circulating in medium, longit. stability 4=3086
 charged beam, in cylind. resonator, longit. instability 4=3067
 charged, focusing props. of long mag. lenses 3=14673-4
 charged-particle beams 3=12256
 charged particle beams in mag. channel 3=14670
 charged particle bunches, elec. fields 3=24379
 charged-particle motion, in near homog. mag. field 0=12646
 charged particle motion in uniform mag. fld. increasing linearly with time 3=2092
 charged-particle orbits in varying mag. fields 0=12647
 charged-particle trajectories, differential geometry 0=10977
 charged particles, drift in mag. dipole field 1=1957
 charged particles in mag. field, perturbed, trapping and loss 4=29986
 collimators, multiple scatt. corrections 1=16440
 containment in "bumpy" current-carrying system 4=3089
 convergence of mag. sectors with shaped edges 0=9102
 in corrugated mag. fields, particle traps 0=10980
 cosmotron, mag. lens system for pions 2=22604

Particle optics—contd

- cyclotron beam, mag. deflection, sector, three different directions 3=21916
 in dipole fields, focusing and polarization 1=886
 double focusing in a wide energy interval, by sector-shaped fields 2=17898
 double focusing in wide energy intervals 3=4220
 duoplasmatron, focused beam study 2=20047
 e. m. field, conditions for flow along given curve 4=19128
 electrolytic wedge-tank 1=8356
 electrostatic lenses, aberrations, third order 4=11724
 electrostatic lenses, diverging, in accelerators 0=19819
 in figure-of-eight systems 0=10981
 focusing by accel. field of linear accelerator 3=24402
 focusing and beam analysis in cyclotron at Collège de France 0=3821
 focusing, detectn. of weak charged particle beams 3=2179
 focusing, using ferromag. blocks as quadrupole lenses 0=1166
 focusing by iron-free coils 1=18941
 focusing of neutral-particle beams by Coriolis forces 4=2615
 focusing, quadrupole magnets, design and calc. 3=447
 focusing, synchrotron scattered-out beam 0=19847
 guiding centre approx. to particle motion 1=16405
 use of h. f. fields for mass and velocity separation 4=16545
 heavy particle spectrometer 0=2403
 high-energy beams, microwave separator 1=4675
 image location in particle spectrometers, effect of stray mag. fields 0=19799
 inflector and deflector, mag. field fronts, pulse-forming circuits 4=5746
 inflector and deflector magnet parameters 4=5745
 influence of charge on charged particle flux 4=8851
 injection of charged particles into mag. field 1=16409
 injection of high-velocity particles into strong mag. fields 3=14653
 intense beam focusing in cylindrical-cathode systems 2=15965
 interaction of charged-particle beam with a plasma 1=2965
 lens focusing system, high-energy particles 0=5350
 lens, magneto-electric quadrupole, spherical aberration 3=19368
 lenses, quadrupole, calc. of props. 1=4661
 linear accelerators, longitudinal phase space matching, theory 4=21603
 mag. deflection systems, calc. of props., matrix method 1=4661
 mag. spectrometer, 180°, double-focusing, aberrations and fringing effects 0=19788
 mag. spectrometer, 180°, line focus intensity distrib. 0=7173
 magnet optimization, computer programme 3=16986
 magnetic analyser combinations for nuclear reaction studies 1=1995
 in magnetic analysers, with double focusing 1=3093
 magnetic deflector for protons, "floating-wire" study 2=1518
 magnetic deflector systems, possible deflection aberration 4=5720
 magnetic, graphical first-order analysis 4=11723
 magnetic lens, long, focusing properties, Monte Carlo method 3=19342
 magnetic mirror effect, demonstration 3=4194
 magnetic mirror plasma traps 1=9600
 magnetic mirrors, achromatic 0=10983
 magnetic optics matrix equations, wedge magnets 4=14771
 magnetic particle analyser, multi-purpose 1=1996
 magnetic trap, with rotating mirrors 0=17002
 molecular NH₃ beam focusing, ring and helical electrodes, for maser 3=16987
 motion of a charged particle 1=9342
 motion in slowly varying e. m. fields 0=1184
 multivelocity stream, Hamiltonian represent. 4=592
 neutron beams, chopper and time-of-flight device 1=19214
 orbit calc. for high-energy charged particle in e. m. field 0=12679-80
 orbit studies, in h. f. and static magnetic field combinations 4=19167

Particle optics—contd

- orbit stability in mag. field, helically perturbed 4=29996
 orbital momentum invariance 1=16410
 paraxial trajectories in presence of space charge 3=9856
 penetration of transverse magnetic fields by protons, rel. to electron neutralization 4=19130
 perfect imaging systems, theory 0=12680
 plasma particle motion in cylindrical symmetry 1=9561
 polar surface, ideal 3=21898
 proton collimator, slit scatt. effects 2=1685
 quadrupole focusing systems 1=18942
 quadrupole lens focusing and transmission, calc., graphical 3=19369
 quadrupole lenses, pole shape 3=14671
 quadrupole magnet focusing system 0=19783
 relativistic beam propagation in electrostatic fields 3=21895
 relativistic motion of charged particle in inhomogeneous e. m. field 0=15114
 relativistic particle beams through hole in screen 0=278-9
 relativistic trajectories in static elec. and mag. fields 2=225
 retarding-field energy analysers 2=1522
 separator, electrostatic, high-energy 3=19390
 spectrograph for heavy particles 3=24383
 of spherical condenser particle spectrometer 1=18947
 spherical electrostatic analyser, theory 0=2389
 in static mag. field with axial symmetry 1=13131
 static systems, axisymm., in rotating mag. fields 4=3058
 Störners problem, modification of adelpic integral method 4=26833
 in toroidal mag. field, screw form, particle trap 0=10981
 trajectories, analogue computer 0=19784
 trajectories, calculation and plotting, trajectograph 4=610
 trajectories, in elec. and mag. fields, numerical calc. 0=12638
 trajectories, in mag. monopole field 0=17075
 trajectories in magnetic prisms, calc. 4=11707
 translation system, achromatic 4=19129
 in weak, strong and FFAG-focusing instruments 3=9880
 He³ energy versus mag. field 0=7176

Particle range

- (Heading introduced in 1963, for earlier entries see Range of Particles)
 α -rays, range-energy meas., 5-30 MeV 3=24812
 atoms, energetic in crystal lattices 3=22879
 atoms, energetic, in solids 3=8462
 atoms, energetic, in solids 3=10571
 atoms in solids, Monte Carlo range calc. for Thomas-Fermi potential 4=25977
 austenite, from X-ray diffr. at low temp. 4=23486
 in bubble chambers, use for mass determ. 4=16772
 charged particles in Si 3=17113
 dE/dR meas. in gases with low energy heavy particles 4=27578
 deep penetration, general theory 3=5711
 electrons, in Cu films, rel. to energy 4=8835
 electrons, meas. for energy calibration 4=586
 electrons, 10-80 keV, penetration depth in phosphors 3=10701
 electrons, 3 keV-3 MeV 4=15043
 50 keV ions in gases, obs. using radioactive isotopes 4=24752
 heavy charged parts., range-energy relation 3=7818
 heavy-ions, by analysis of α -line shapes 3=14677
 heavy ions of moderate vel., quasi-elastic collision theory 4=25438
 inert gas atoms in W, "tail" 4=27579
 inert gas ions in metals, keV, corrections, due to sticking and saturation 3=19373
 martensite, from X-ray diffr. at low temp. 4=23486
 and mass meas., by scintillation counters correction for non-ionizing losses 4=5994
 and mass meas., using counters, from momentum, ionization, range, energy 4=5995
 measurement of depth in solids of radiotracer atoms 4=1536
 μ , ultrarelativistic, range-energy reln. calc. 4=25127
 multicharged ions in solids and gases 3=5722
 nuclear track emulsion, from K⁺, π decays 4=9034
 optimum conditions, rel. to Beer's law 3=24041
 positrons, in Ar and N₂, meas. rel. to positronium 4=6028

Particle range—contd

- protons, in Agfa K2 emulsion 4=789
 protons, in Ilford K-1 emulsion, meas. 4=16899
 recoil-atom distrib. in flat plate, recoil-atom source and target, theory 4=29994
 recoil nuclei, counting by surface barrier semi-conductors 4=14973
 in solids, from sputtering yield 3=5721
 straggling, of heavy particles, in various subst. 4=3363
 stopping power of electron gas for charged particles, rel. to dielectric constant 4=27572
 tritons, in polystyrene, N_2 , air, Al, Ar, Ni, Kr, Xe 3=10180
 Al, deuterons meas., 5-27 keV 4=1540
 Ar ions, in H_2 , N_2 and Ar, at < 10 MeV/a.m.u. 3=1937
 Ar^{41} , in Al, 0.7 keV-2.25 MeV 3=19372
 Ar^{41} , in amorphous WO_3 and Al_2O_3 , meas. comp. to theory 4=27580
 Ar^{41} ions, in W, keV energies 3=22878
 Au, deuterons meas., 5-27 keV 4=1540
 Be^9 ions, in Al and Au, at 2-21 MeV 3=2048
 C ions, in H_2 , N_2 , CH_4 , Ar and He, at < 10 MeV/a.m.u. 3=1937
 Cu atoms, 1-10 keV, in crystals, theory 4=6891
 Cu, deuterons meas., 5-27 keV 4=1540
 Cu lattice, collision effects of Cu atom, machine calc. 4=28506
 γ -Fe, Fe^{59} self diffusion var., radioactive tracer meas. 4=30581
 H^+ and He ions, in Si 3=10708
 H^1 , in C, Al_2O_3 , VYNS films, energy loss 3=4394
 He ions, in H_2 , N_2 and Ar, at < 10 MeV/a.m.u. 3=1937
 He^4 , in C, Al_2O_3 , VYNS films, energy loss 3=4394
 Kr ion penetration into Mo in glow discharge 4=27581
 Kr, 10-150 keV, in Cu, high-values perpendicular to (110), due to focussing 3=20251
 Kr^{85} , in amorphous WO_3 and Al_2O_3 , meas. comp. to theory 4=27580
 Kr^{85} heavy ions in monocryst. Al, rel. to channelling 4=22642
 Kr^{85} ions in Al channelling events 3=15521
 Kr^{85} ions in Al, W, 2-600 keV 3=14675
 Kr^{85} ions, in WO_3 , 40 keV 3=22878
 Mg^{27} , in Al, from $Al^{27}(n, \alpha)Mg^{27}$ 4=9528
 Mg^{27} , in Al, from $Al^{27}(n, p)$ 3=6270
 N ions in Au, 0.4-6.4 MeV 3=4211
 Na^{24} , in Al, from $Al^{27}(n, \alpha)Na^{24}$ 4=9528
 Na^{24} , in Al, range-energy curve 3=4640
 Na^{24} , in amorphous WO_3 and Al_2O_3 , meas. comp. to theory 4=27580
 Na^{24} heavy ions in monocryst. Al, rel. to channelling 4=22642
 Na^{24} ions, keV energies, range in Al 3=24385
 Na^{24} recoil nuclei in Al, from reaction $Al^{27}(n, \alpha)Na^{24}$ 4=6355
 Ne^{22} , in Al, 1-3 MeV 3=4640
 Ni^{58} reactions due to 46-68 MeV α -rays, recoil ranges 4=19826
 Rb^{86} heavy ions in monocryst. Al, rel. to channelling 4=22642
 Rn^{222} ions, by analysis of α -line shapes 3=14677
 Rn^{222} ions, 2-450 keV, in Al and W. 3=14676
 W^{187} ions in W, 1.6-127 keV 3=14678
 Xe in Cu, Ni, Mo crystal lattices, 5-30 keV 4=19120
 Xe^{125} , in amorphous WO_3 and Al_2O_3 , meas. comp. to theory 4=27580
 Xe^{125} ions in monocryst. Si, 5-80 keV 4=22652
 Xe^{133} , in Al, 0.5-240 keV 3=19372
 Xe^{133} heavy ions in monocryst. Al, rel. to channelling 4=22642
 Xe^{133} ions, in W, keV energies 3=22878

Particle size

- See also Surface measurement.
 aerosols, from diffusion decay meas. 3=13625
 aerosols, Goetz spectrometer 2=6897
 in aerosols, hydrosols, flow-ultramicroscopic method 3=3415
 aerosols, natural, meas. technique 3=13691
 aerosols, polydisperse, by diffusion method 2=12985
 aerosols, radioactive, calc. 2=21598
 aerosols, size distrib., ion mobility data 2=8935
 aerosols, size distribution, light scattering measurements 1=9186

Particle size—contd

- in aerosols, from spectral transparency, calc. 4=7783
 aerosols, rel. to thermal forces 2=2455
 airborne matter, ballistic separator 0=10363
 analysis methods, evaluation 4=13659
 atmospheric aerosols 3=11416
 atmospheric precip., particle sampler, continuous-recording 2=8949
 automatic sizer and counter 1=101
 brittle solids, grain size rel. to fracture stress, theory 4=10364
 butadiene-styrene, determ. by light scattering 4=4716
 centrifugal analyser for 0.1-5 μ 3=8981
 centrifugal classifier for 4-30 μ 3=8980
 classifier for diameters < 50 μ 4=4999
 colloidal Po 0=16389
 colloidal spheres, light scattering, size distrib. curves 4=10663
 colloids, meas. by light scatt. at two freqs. 4=13749
 colloids, size distribution from light scattering 1=8239-40
 constant size particle, aggregate, geometric props. 4=23541
 Coulter coincidence counter 1=20769
 counting and sizing apparatus, photoelec. scanning 0=4682
 in crystals, optical maser, rel. to scatt. effects 2=8510
 det. by light scattering, polychloroprene latex globules 0=19446
 determination using wavelength exponent differential scatt. spectra 4=8455
 diamond powder, analysis, comparison of methods 3=23825
 disperse systems, photoelec. scanning, applic. coal dust 0=4682
 dispersion, spectrum meas. from transparency spectrum 4=13748
 distribution, in aerosols 0=3331
 distribution Cu powders 3=13552
 distribution, droplets in mists 0=1967
 distribution, single tube sedimentation apparatus 0=14139
 diver method of analysis 2=17401
 droplets in precip. clouds 2=8968
 drops, electronic disdrometer 1=12687
 dust, airborne, surface area, light and electron microscope 3=18461
 dust, electron-microscope analysis 1=7895
 dust, mine, by microscope, use of χ^2 test 3=14088
 dust samples from coalmines, size distrib. 0=6422
 in emulsions, spectroturbidimetric meas. 1=16072
 fracture distrib. function 4=13658
 globular and rod-like particles in solution, X-ray small-angle scatt. 1=15839
 grain, single, X-ray reflection, intensity theory 1=20695
 growth processes in mixing vessels, statistics 4=2158
 heat of immersion method for surface mean diameter of powders 1=18337
 interplanetary and interstellar matter, meas. 3=7019
 interstellar grains 1=2595
 irregular, area meas., various methods 3=1651
 irregular, by statistical average, meas. 2=1099
 light scattering, Mie coeffs. depend. 2=1279
 light transmission effects, by particle cloud 2=120
 liquid sprays, analysis by sedimentation 3=11363
 mathematical det., to avoid scatt. curves 2=3126
 meas., distribution, by Japanese Bahco 4=10589
 meas., using light scattering, formulae and nomograms 0=12496
 meas. with micrometer microscope 0=19384
 measurement, by higher-order Tyndall spectra 1=2560
 measurement by light scatt., use of wavelength exponent 2=7404
 measurement, shape factors, in sieve range, applic. to coal 0=16341
 metal particles prepared by evap. in Ar gas 4=4645
 micromeritics, statistical technique 3=6934
 microscopic particles, "flying spot" scanning 1=10463
 montmorillonite clay, X-ray study 1=6579
 non-volatile droplets by electron microscopy 0=6771
 non-volatile drops, size distribution determination 1=11744
 polycrystalline aggregate, distorted, determ. from X-ray line broadening 4=26685
 polydispersions, distrib. det. by turbidimetry 2=10991
 polystyrene, determ. by light scattering 4=4716
 powdered system, new characterization method 4=26702
 powders, analysis 4=20786

Particle size—contd

powders, distrib. 4=23537
 powders, distrib. 1-40 μ , using photosedimentograph 3=16570
 precipitation alloys, heat treated in mag. field 2=12934
 radiometric sedimentation analysis 1=15208
 rod-shaped particles, nomograms for size from light-scattering properties 1=2892
 rubber latex, distrib., from turbidity meas. 3=6931
 silica sol mixtures, rel. to X-ray scattering 0=12053
 small particles in suspension, photoelectric counter 0=18447
 soil, mechanical analysis short cut charts 4=10590
 in solids, meas. 3=23367
 spectral transmission and inverse scatt. theory 2=9407
 spectrum of condensing vapour 0=16736
 steel, Fe, cast, effect of cold pressing, by X-rays, reflection 3=18401
 stratosphere, aerosols 2=8965
 structure, from light scattering 4=18432
 submicron aerosols, classification by electrostatic method 1=7921
 submicroscopic, electron microscope exam. 0=8331
 sub-sieve sizing, automatic decantation 0=8262
 sub-sieve sizing, by sedimentation balance 3=21278
 suspensions, distrib. and average, calc., by numerical integration 4=10653
 suspensions, meas., by resistance, elec. 4=10655
 suspensoids, distrib. eqns. 2=4565
 thermal precipitator slides, inter-observer checks 0=8327
 from turbidity, nomogram 0=16390
 ultrasonic emulsification 1=1493
 upper atmosphere, micrometeoritic, effects 2=9008
 water drops, det. using photographic emulsions 1=12853
 X-ray reflection meas. 3=18401
 X-ray small-angle scatt., technique 2=10931
 Ag halide dispersions, change with time. 3=25839
 AgBr, ageing by precip., theory 2=8934
 Al₂O₃ abrasive grains, tensile strength rel. to size 1=20380
 Au colloids, det. from absorption spectra 2=4571
 Au colloids, radioactive 2=19170
 Ba ferrite powders, effect of particle size on coercive force 3=15879
 Co, in Hg 2=15529
 Cu-12 vol % SiO₂ alloy, rate of worsening of SiO₂ particles, electron-micrographic study 4=30868
 Fe, cast, steel, effect of cold pressing, by X-rays, reflection 3=18401
 Fe, in Hg 2=15529
 Fe-Co alloys, in Hg 2=15529
 MgO smoke, by X-ray-graphic methods 4=30911
 NaCl aerosol, size variation 3=13626
 Ni superparamagnetic nodules, determ. with Guinier high-resolution camera 4=4651
 Pt-Al₂O₃ catalyst, 300° to 1300°C 3=18367
 Sn crystallites on SiO films 3=18380
 TiO₂ paint layers 2=10993
 W carbide grains, Co coated, mag. measurements 1=6555

Particle spectrometers

(Heading introduced in 1961)
 See also Alpha-ray spectrometers, etc.
 amplitude-to-time converter, transistorized 3=19148
 analyser-multispectrograph, mag. multiangular 3=531
 automation of measurements 4=16845
 Buchner spectrometer for particle selection 1=13701
 charge and mass analysis by pulse multiplier, Hall-effect based 4=777
 charged, intensity distrib. in line focus, wave optics 4=602
 compensation of earth's mag. field 3=19399
 cosmic-ray spectrograph 2=20469
 electrostatic analyser, with 2nd-order focusing, for ang. distrib. studies 1=4748
 electrostatic-prism energy analyser 3=4209
 electrostatic, for recoil nuclei 4=16843
 field emission 3=5691
 fission products, mass separator 2=12238
 focusing magnetic fields, parameters 3=19598
 gas target for multiple-gap spectrograph 2=1632
 high transmission, spherical condenser type 1=18947
 ideal pole faces, weak, strong, FFAG-focusing 3=9881

Particle spectrometers—contd

identification, scintillation counter circuit 2=5517
 ion focusing, parabola 2=20048
 liquid-air trap to prevent carbon deposition 2=16100
 magnetic, ang. distrib. meas. 2=5535
 magnetic analyser, double focusing, for nuclear reaction products 1=3093
 magnetic, axially symm. fields, focusing 3=9875
 magnetic, characteristics calc., matrix method 3=7652
 magnetic, current stabilizer for mag. field 4=612
 magnetic, double-focusing 2=16099
 magnetic double focusing for charged particles 4=21703
 magnetic field distrib., weak, strong, FFAG-focusing 3=9880
 magnetic, modification of fringe field 1=16494
 magnetic, pole piece surface area 2=5593
 magnetic, semicircular, freq. response 2=17899
 multidimensional transfer analysis 1=16228
 multi-gap, broad-range, gas target 2=9752
 multiparameter analysers use for low energies 4=21692
 multiple-gap mag. spectrograph, charged particles 3=9871
 neutron, with one data unit 2=5684
 neutron, proton-recoil with liq. H radiator and CsI(Tl) 2=7873
 nuclear reaction products, multispectrograph 4=16844
 nuclear, for satellites and space probes 2=17981
 photoelectron, with inclined plane pole faces 2=9637
 photoelectron-scintillation spectrometer 2=3202
 photo-proton spectrometer for 2-10 MeV 1=8459
 π , spark chambers, mag. 3=17326
 π^- -meson star spectrograph 3=17327
 positrons, spectra meas. 2=20318
 print-out system for pulse-height analyser 2=7783
 protonsynchrotron, CERN, use 2=3119
 pulse-height analyser, Hutchinson-Scarrott, dead-space elimin. 2=9501
 retarding-field energy analysers, design study 2=1522
 satellites and space probes 2=17981
 scintillation, with Compton contrib., reduction 2=3201
 scintillation, energy resolution correction 1=5611
 scintillation, pair type, three-crystal 1=19064
 scintillation, pulse pile-up explanation of weak maxima 1=16624
 scintillation, stabilizing circuit 1=18734
 scintillation type, iterative response correction of data 1=7173
 semiconductor detectors, appl. 2=20199
 semiconductor (Ge, Si) 3=7748
 separation for high energy particles 2=11916
 simple broad-range mag. spectrometer 2=1521
 spectrograph for heavy particles 3=24383
 spectrometer, automatic single-channel 3=15126
 using spherical electrostatic condenser 1=1919
 time-of-flight single channel analyser for nanosecond region 1=5412
 wide-band, with double focusing 3=19500
 NaI:Tl, use for abs. standardization 3=17111
 NaI(Tl) scintillation, pulse pile-up 1=16624
 Si detectors appl. 2=1630

Particle track visualization

See also Bubble chambers; Cloud chambers;
 Luminescence chambers; Nuclear track emulsions.
 Agfa K2 nuclear emulsion, proton range 1=16633
 α , in cellulose nitrate, ≤ 3 MeV 4=16984
 analogue recognition 3=19516
 beam profile, scintillators, image intensifiers and t.v. tube sensitivities 4=9012
 bubble chambers, digitized microscopes, construction 4=14989
 bubble chambers, momentum and direction uncertainties 4=9027
 in bubble chambers, pattern formation during photography 4=14988
 bubble hodoscope, new type 2=13712
 CERN protons, 15 GeV/c, interaction with emulsion nuclei tracks 1=17101
 chart tracing method modification 4=14994
 Cherenkov chamber, using large Cherenkov angles 4=30135
 cloud chamber track simulator, three dimensional 4=30132
 cloud chambers, diffusion, photography 2=20206
 computer programme for kinematic analysis 3=19517
 cosmic ray primaries identification 1=567
 demonstration apparatus 3=3703

Particle track visualization—contd

discharge chamber, Fukui-Miyamoto, for cosmic rays 2=3434
 discharge chamber, isotropic, for relativistic charged particles 4=30136
 discharge chamber, Ne-A characts. 2=5559
 dust-track model, with Pb and Alnico slugs, for teaching 0=5458
 electron showers in Pb plate spark chamber 2=22489
 emulsion chambers, effect of hydrogenous impregnation 3=24571
 Enetra 110, comparator-type apparatus 3=4305-6
 fission-fragments, in micaceous minerals, Makrofol and glass 4=19344
 fission fragments from U^{235} , Cm^{244} , ionization along track 4=24955
 fission fragments in UO_2 films 3=822
 fission, in plastic films, electron microscope obs. 4=12819
 fission products in crystals, electron microscope obs. 4=12817
 fission, products, damage effects in mica, electron microscope study 0=19979
 fission tracks in AgCl crystals 3=821
 flash tube data, computer analysis method 2=11846
 flash tubes, array design, parameters study 2=11847
 G5 emulsion, proton track latent image formation 2=3339
 gas discharge avalanche, delineating 3=19532
 gas discharge streamers in arrested sparks 4=14993
 in gas mixture in waveguide 3=17155
 in gas, new detector 0=7248
 gaseous discharge chamber 3=2182
 handbook 3=2146
 heavy relativistic nuclei, photometric track profiles 2=3233
 hodoscope, using ferrite-transistor elements 3=1916
 Hough-Powell analysis realization 3=24561
 Hough-Powell digitizer, slit source illumination 4=5371
 Hough-Powell flying spot digitizer program 3=24562
 image intensifiers, with transmitted secondary-electron mult. 1=3001
 image intensifiers for, 2- and 3-stages, electrostatic focusing 1=7090
 inside AgCl large crystals, distortion-free 3=7754
 ionization meas. of single charged fast particles on steep tracks 4=28005
 kinematic analysis, high energy 0=9307
 light chamber or gas-amplified scintillation chamber 2=22377
 luminescence camera 0=3893
 luminescence chambers, using filament scintillators 2=3235
 luminescent chamber 0=15197
 luminescent chamber, review 2=16106
 luminous discharges in ionized bubbles injected into a liquid 3=19537
 magnetic analyser, outline 1=16462
 measurement of chamber photographs with punched card output 4=9039
 measurement, hand and automatic, punched tape 3=17120
 mica etched tracks from spallation recoils 2=18051
 in mica, fission, use in radioactive dating 3=5907
 mica, fossil U fission tracks 3=6948
 molybdenite, fission fragment track observation 1=19549
 multiparameter analysers use for high energies 4=21693
 neutral particles, tracing using gamma-sources 2=20217
 neutron, selective fission fragments, for dosimeter, slow and fast 3=24752
 nuclear emulsion multiple scattering calculation 3=7752
 nuclear emulsions, α -ray sensitivity, HNO_3 influence 1=13247
 nuclear fission products in $NiCl_2$, $NiBr_2$, enlargement by moisture 4=22650
 nuclear recoil tech. for proton scatt. 2=247, 22376
 optical method of observation 0=1231
 Papa No. 3 machine for pattern recognition 4=8016
 parallel plate counters with electronically controlled triggering 1=13266
 photographic tracking, review article 0=19988
 photography, image intensifier 4=3265
 π^- -N interactions, bubble chamber record rel. to emulsion 2=16225

Particle track visualization—contd

use of plastic scintillator filaments, utility of arrays 0=18150
 polymers use 4=3260
 protons, by He discharge chamber 2=3340
 radiation chemical nuclear track chamber 2=1646
 scanning speed, influence on efficiency 2=16101
 scintillation chamber, for μ -mesons 1=3374
 scintillation chambers, π -meson study, at 2 BeV/c 1=3101
 scintillation chambers, review 1=2002
 scintillation chambers, review 2=18046
 scintillation chambers, with image intensifier 1=3102
 silicate minerals, use 3=2843
 solid-state, registration props., critical energy-loss rates 4=11866
 spark chamber 1=13264
 spark chamber 1=13265
 spark chamber, delay reduction, bet. part passage and spark 2=18050
 spark chamber, digitized 2=20214
 spark chamber, for electronic data retrieval 2=18049
 spark chamber, ionization density effects 2=18048
 spark chamber, multilayer, controlled 2=20215
 spark chamber, review 2=18047
 spark chamber track location accuracy 1=9702-3
 spark chambers, automatic collection and reduction of data 1=19076
 spark counters, accuracy 2=11848
 stereophotographs, comparator for analysis 4=16763
 stereoscopic photographs, refraction errors 2=5548
 tangents to trajectories, minimum deviation method 0=10979
 track density, det. from bubble and emulsion chamber statistics 2=11839
 trajectory photography, argon-propane electron cascades, study 0=7248
 in Ag evap. layers, electron microscope study 2=22374
 AgCl crystals, applic. to 1.55 BeV proton reactions 3=5906
 Au and Al films, fission-fragments 2=23227
 BeV accelerator instrumentation 2=7682
 MoS_2 , crystal imperfections prod. by collimated fission products 4=12820
 U^{235} fission fragment tracks in Al foil on U layer 1=2246
 UO_2 , fission fragment tracks in thin films, electron microscope examination 1=2003

Particle tracks

See also Particle range.

analogy with pulse assemblies 0=12782
 analysis, computer programme for bubble chamber data 1=8408
 analysis by semi-automatic machine 2=5543
 angle meas. in gridded ionization chamber 0=19966
 angles of emission in showers, meas. 1=13261
 angular distrib., effect of nuclear emulsion distortion 0=12775
 angular-distribution chamber 0=17577
 angular meas. in emulsions 0=201
 angular spread in emulsion 0=3900
 area-scanning for events, efficiency determ. 4=9038
 automatic track analysis, survey 0=12784-5
 automatic track following method 2=5544
 brightness rel. to ionization density in spark chamber 3=19525
 bubble chamber photographs, analyser 1=16630
 bubble-chamber track analysis, review 2=7803
 bubble chambers, distortion due to bubble rise 3=2177
 in bubble chambers, velocity dependence of track density 1=7177
 bubble density meas. 3=14835
 bubble nucleation in superheated aqueous solns. 0=7253
 charge determination, relativistic particles in emulsion 3=14841
 charged particle discrim. by ionographic method 2=20211
 charged particle, drift velocity in inhomogeneous mag. field 1=18986
 charged particle energy det. by magnetic curvature and Coulomb 2=3220
 charged particle in photographic emulsion, track density 2=3232

Particle tracks—contd

charged particles in bubble chambers, max. likelihood method 2=7799

"constant sagitta" scheme for Agfa K2 emulsion 0=5461

correction formula for photographic overlap 0=1271

curvature, momentum estimate 0=2467

density, rel. to grain size in Ilford G5 emulsions 0=12762

depth gauge for nuclear emulsions 3=2181

in diffusion chambers, photometric ionization meas. 4=16785

Dirac magnetic monopole, discussion 0=1258

discrimination at high γ -intensity by K ferro-oxalate developer 0=202

electrons, in Ilford K5 and L4 emulsions, grain density 0=12761

in emulsion, analysis of track density photometric curves by Fourier transform method 0=5462

in emulsion, charge identification 0=15210

in emulsion, densitometry of tracks of heavy nuclei 1=13254

in emulsion, finder attachment to microscope 0=15209

emulsion, meas. of multiple Coulomb scatt., elimination of distortion and noise effects at high energies 4=19342

in emulsion, momentum meas., high energy particles 3=12378

in emulsion, nuclear charge det. 0=12729

in emulsion, singly-charged relativistic particles 0=15206

emulsion, particle identification by photometric device 3=24573

in emulsion, profile meas. 3=534

in emulsion, scattering const. det. in noise 1=13253

in emulsions, device for dip-angle meas. 1=13258

in emulsions, distortions and spurious scatt. rel. to dip angle 2=18043

in emulsions, improvement of visibility of α tracks 1=3100

in emulsions, microphotography device 2=5552

in emulsions, multiple scattering, from sums of second differences of trajectory arrows 3=7753

in emulsions, range-energy rel. for protons 2=20340

in emulsions, Sagitta distrib. function, background noise 1=416

in emulsions, velocity from grain density data 2=11843

energy and ang. distrib. fluctuations meas. 0=312

energy estimation from, limitations on accuracy 3=24568

flying spot meas. machines for use on bubble chamber film 4=5910

formation in G5 emulsions 2=16103

frequencies of various sizes of ion clusters 4=19337

gap meter for nuclear emulsions 1=16637

gaps, in emulsions, meas. with ocular micrometer 1=3099

in glass, obs. of damage tracks 3=22850

grain structure, in emulsions, effect of contact development 0=12781

grain structure, optical model 0=12783

granularity, semi-automatic meas. 3=19536

hammer tracks, proton interact. in emulsion, Li^8, B^8 fragments 2=20626

heavy-ion tracks in Ilford G5 emulsions 0=11073

high-energy interactions, single reaction product, kinematical analysis 4=21814

identification in fine-grain emulsions 0=197

identification in nuclear emulsions 1=13263

identification of particles in high-energy stars 0=15203

identification by width meas. 0=200

index of identification of 100μ tracks 1=411

information content, theory 2=246

ionization measurement in emulsions 0=2469

length evaluation by Pythagoras' formula in 3-dim., slide rule 1=17983

linearly biased track counting, cross-section determinations 0=2475

meas. of small-angle scatt., microscope and recorder ("Hasem") 1=5621

mica, charged particles, electron micr. study 3=2842

in mica, from U fission, and radioactive dating 4=23708

microscopic analysis, device for improvement of accuracy 0=12477

microscopic analysis, use of image rotator 0=12789

microscopic analysis, scanning device 0=12790

multiple detector systems 3=19515

Particle tracks—contd

multiple scatt. parameters, automatic meas. 0=12786-7

neutrons, in silicon, electron micr. exam. 3=15524

nuclear emulsions, momentum meas., high energy diffusion separation 3=24668

photometric study, in diluted emulsions 0=12779

plotting of charged particle tracks in time varying fields 4=8583

position location in scintillator 2=22357

profiles, semi-automatic meas. 0=12788

proton and α -ray tracks in Ilford emulsions 1=16634-5

protons and α -particles, discrim. in D1 and K0 emulsions 0=12770

protons and deuterons, discrimination in nuclear emulsions 0=12766-7

protons, in emulsions, sagitta-method meas. 0=15204

radius of curvature meas. in emulsions 2=1642

relativistic energy by meas. of mult. Coulomb scattering 0=1260

resolution in nuclear emulsions, effect of development 0=12778

scanning, nuclear emulsions, television raster method 2=18044

scattering in nuclear emulsions, Digiscat meas. 2=13714

solids, charged particle tracks, etching 3=2843

spark chamber track measuring system 2=20216

stereoscopic reconstruction 0=15198

theory of formation in emulsions 0=196

thin-down in nuclear emulsions 0=12777

3 GeV proton interactions in mica, tektite and olivine, optical microscope study 4=30137

track analysis, thermally insulated microscope 0=12476

track-grain depth meas. in emulsions 1=13255

track plotting and servo track follower 1=7175

true length in nuclear emulsions, rel. to background fog 0=12773

He^8 , from T-shaped track due to 9 BeV proton reaction 2=328

He^8 , from T-shaped track due to 9 BeV proton reaction 3=4475

Li^8 hammer tracks, from $\text{C}^{12}(\nu, \text{Li}^8)$ 1=13774

Pb^8 , fission-fragment tracks 3=25306

Particle velocity analysis

(Heading introduced in 1963, for earlier entries see Velocity analysis, particles)

See also Alpha-ray spectrometers; Beta-ray spectrometers; Ion velocity; Mass spectrometers; Particle range.

beam profile detector using scintill. counters 4=3055

charged particle beam in axial mag. field 4=29992

Cherenkov ring measurement 3=24554

cosmic rays at mountain altitudes 3=7956

electric discharge, positive column, electrons meas. 4=2957

electron stream, multi-velocity 3=14651

electrons, relativistic, teaching demonstration 4=21023

electrostatic analyser, up to 3.5 MeV/charge 4=27585

electrostatic-prism spectrometer 3=4209

group theory, invariant operators, Casimir type 3=3707

use of h.f. fields for separation of relativistic particles 4=16545

ion energy analyser, up to thousands of eV 3=7588

ion velocity gauge, absolute, testing 3=22381

ions, mean energy meas., optical meas. 3=24384

molecular beams, mechanical selector 3=15398

molecules evaporating from chamber 3=15399

momenta meas. in emulsions using spurious scatt. 4=9035

momenta meas., $\sim 24\text{GeV}/c$, with emulsions 3=12378

momentum meas. by single-gap spark chamber 3=17150

neutrons, phased chopper vel. selectors 3=4408

nuclear beams, velocity gauge, absolute 4=29989

in orbital accelerators, use of target 4=16580

pulse-height spectroscopy, high-resoln., electronic system 4=14981

pulse spectrometry, statistics 3=14833

from r.f. emission, angle of maximum 4=681

by scatt., ang. var., knowing Q 4=3364

scattering phase meas. using intensity correl. 4=5999

simultaneous meas. of several spectra 3=1922

velocity selector, image force 3=4379

Cu, cathode sputtering, rel. to focusing energies 3=25315

Particles

See Fundamental particles; Particle range;
Scattering, particles; and under individual particles,
e.g. Protons and antiprotons.

Pendulums

amplification, travelling wave, analogue demon-
stration 3=21191
analogue for circular accelerator particle
oscillations 0=19835
analogue of spiral ridge accelerator 1=9664
ballistic, design and use 4=11132
bi-pendulum, for relative gravity meas. 1=1500
dielectric, with Rochelle salt 2=14611
double, for determ. of modulus of elasticity 4=7363
double, in a plane subject to rotation 4=2613
earth vibrations effects 3=23562
elastic, with two degrees of freedom, motion
solution by differential analyser 1=5242
electrically charged torque, anomalies 4=27123
energy transfer from a.c. field 3=19403
equivalent pendulum for oscill. period calc. of
vibrating body, Schuler's theorem, proof 2=13296
Foucault pendulum, suspension construction 1=12836
Froude, circular motion 2=17396
Lorentz problem, new method 4=29511
Lorentz's problem of shortening thread 3=11744
oscillatory variations of damping, calc. 4=14011
period vs. amplitude, precision meas. 4=27124
physical, inexpensive construction 4=14006
simple, equation for amplitude dependence of
frequency 0=56
spherical, equations in three-dimensional polar
coords. 4=18121
spherical, stability of forced oscill., theory 2=11314
system hung on rod, special properties 4=2614
torsion, equation of motion and complex modulus
corrections 1=12837
torsion, with ferromag. suspension, excitation by a.c.
mag. field 1=18980
torsion, rel. to internal friction meas. 4=28913
torsion, transformer system for carrier
freq. 4=4997
torsional, impulse driven 2=4974
torsional, internal friction meas., oscillograph
appl. 2=2316
torsional, temp. depend. of internal friction 4=113
two-pendulum system, under uniform rotation,
small periodic oscill. 1=1721
vertical ballistic pendulum apparatus 3=23819
vibration with two dimensional axis movement 1=99
in viscous fluid, motion eqn. 2=15524
viscous liq. filling the cavities, small oscillations 4=8122
"whirlygig" comical pendulum 2=7156

Periodic system

See also Elements.

atomic radii, electron shells 0=11477-9
and compressibility, solid 4=26467
electron group formation and paramagnetic
susceptibility of conduction electrons 1=17436
electron groups in the statistical theory of atoms 0=7679
isoelectronic series, constant energy differences 3=22472
mathematical expression of props. var. Z , quantum numbers
 n and l 4=25472
and melting points, transition metals, and T_c 3=7386
modification, elements 2=54-78, 86-107, 18392
secondary-emission props. depend. 2=5376, 7657
surface tension, Mendeleevian periodicity 4=8189
rel. to Thomas-Fermi atom, electron scattering,
elastic, low-energy 3=12774
transuranic group, subdivision 3=12748

Permeability, magnetic

See Magnetic properties of substances;
Magnetization process.

Permeability, mechanical

See also Diffusion in solids.

anomalous polymer-penetrant permeation 3=1679
beryllia, pore props., rel. to density 2=4480
diffusion in porous media 4=126
diffusion in porous media 1=20649
dispersion of fluid in porous media, general
theory 2=13318
filtration of aerated liquids 0=14060

Permeability mechanical—contd

flow of adsorbable gases and vapours in microporous
medium 3=3823-4
flow of gasified liquid in porous medium 0=14587
gas flow in permeable solids 1=2513
gas flow through porous ceramic 1=18447
gas flow, porous media, press. distrib. 2=9297
gas thermal permeation through polymers, approach to
steady state, eqns. 4=29172
gases, in membranes monolayer 3=5461
ion-exchange resins, percolation of water under
press. 0=12067
laminated slab 4=12777
lattice of parallelepipeds, theory 1=19799
lattices, percolation probabilities 2=12447
membrane, with mixed boundary conditions 3=5418
percolation processes, cluster size 1=7512
polymers, to gases, irradiation effects 0=12064
polypropylene, effect of crystallinity on gas
permeation 1=19800
porous granular materials, to H_2 0=14693
porous materials; Marshall method 3=18369
porous media, dry granular materials 0=14693
porous media, non-steady state method 0=14692
porous solids 2=6843
quartz, to H and D 3=8452
sea ice 0=1975
terylene, effect of crystallinity on gas permeation 1=19800
transition metals, to H_2 , theory 0=20848
unconsolidated aggregates 2=17062
Ag to oxygen 3=13549
Ce vapour through Ni, surface ionization 4=30576
H through Pd 1=4990
 H_2 , in Fe-Ni alloys, rel. to work hardening 3=18344
 H_2 , in Nb 2=10411
 H_2 , in Ni, W, Mo, Fe 2=21074
 H_2 in phase-hardened austenite, parameter
interdepend. 4=20297
 H_2 and D_2 , through Fe, rates 3=22815
 H_2 and D_2 , through fused quartz 2=6366
He, in fused quartz 1=3685
He gas through glass 3=2826
 N_2 , in Fe 2=21074
Ne isotopes in fused quartz 1=17558
Ni, evolution and diffusion of various gases 0=12120
Ni, permeation of H and D 1=6114
Ni, permeation of H and D 1=11227
 β -Pd, H absorption 2=10932
Pd, to H_2 0=12069
Pd, to H_2 2=23207
Pd membranes, to H_2 0=14061
U, Kr evolution 1=19570
Xe, in UC powder 3=2834

Permittivity

See Dielectric properties of substances.

Phase equilibrium

See also Solubility; Solutions.

acetaldehyde-water mixtures 0=6819
acetic acid-water-butane, 3 coexisting phases 4=24442
alkali halide mixtures, rel. to microstruct. 4=23520
alkali halides, evaporation, ion-molecule reactions 0=10876
alloy, binary, stability of planar interface during
solidification 4=11404
alloys, antiphases theory in f. c. c. A-B type 4=10414
alloys, CuZn₂-type short-range ordering, long-range
effects 4=10411
alloys, obs. of antiphase domains 4=7472
alloys, thermodynamic interactions, use of phase
diagrams 1=19711
benzene-iso-octane mixtures, vapour-liquid 0=6781
carbon, phase diagram 4=5448
closed crucible technique for high-temp. studies 0=12095
co-existence curve and compressibility curve near
critical point 3=3786
complex equilibrium with unknown number of
phases 1=7899
condensing systems, cluster theory 0=12094
rel. to cryogenic engineering, conference papers
(1962) 4=8533
crystalline-liquid phases, texture 3=24107
crystallization of Ta in Ge, distrib. coeff. 2=2356, 6770
diamond-graphite 1=12621
diamond/graphite/liquid, triple point 3=8793

Phase equilibrium—contd

- distribution of one component between two phases 1=2741
 DT, soln. in e-D₂, vapour-liquid equilibria, from triple pt. to crit. temp. 3=21626
 entropy of mixing interconvertible species, Gibbs paradox 1=10290
 graphite/diamond/liquid, triple point 3=9656
 HT, soln. in e-H₂, vapour-liquid equilibria, from triple pt. to crit. temp. 3=21626
 heterogeneous multicomponent systems 0=4706
 hydrogen-methane, solid-vapour equilib., pressure depend. 4=11424
 impurity in solid, and crystal imperfection structure 4=6820
 intermetallic phases 4=10417
 interphase surface, surface tension 3=11198
 isotope effects, and intermol. forces, review 4=25765
 isotope separation factor in solid-vapour and liquid-vapour 2=22092
 liquid crystals, binary, with smectic A-phases, 51 diagrams 4=18181
 liquid-liquid phase boundaries, rel. to coalescence of 2 Hg hemispheres 3=23865-6
 liquid-solid and liquid-vapour systems, comparison 2=8906
 liquids, gap system, nucleation, theory test 2=13489
 meas. at temp. up to 1750°C and 50 kilobars 0=14041
 metal solid solutions, equilibrium diagrams, statistical approach, rel. to valency 4=13469
 metallic phases, binary, thermal diffusion, theory 4=9983
 metastable alloys, thin films vacuum deposited 4=10422
 mixtures, binary, liquid and vapour composition calc., from dew and bubble isotherms 4=14454
 monotectic alloys, phase diagram application to thermodynamic interactions 1=1435
 multicomponent polyphase systems, chem. equilibrium 0=16369
 multiplicative chem. equilib. reduction to math. equiv. systems 2=15125
 naphthalene, solid-vapour, effect of inert gases at high press 3=304
 nucleation from vapour phase 2=2934
 phase-boundary reacts., pot. depend. impedance spectrum, theory 2=12956
 pressure effects, visual observation, glass-metal connector 4=2500
 solid-vapour, binary cryogenic systems 4=11424
 solid-vapour and liq.-vapour, isotope effects 3=21611
 steel, quantitative phase analysis, additive props., calc. 4=17749
 strictly regular mixtures, approx. 2=21841
 temp. distrib. in moving interface 0=208
 ternary system Si/S₂/LO, isothermal data, calc. 3=20983
 thermodynamic functions at liquid-vapour equilib. 2=17692
 thermodynamic interactions, appl. of phase diagrams 1=20583
 thermodynamics of phase equilibrium 1=8269
 III-V compounds 3=11199
 III-V melts 3=25815
 three phases, thermodynamic equilib. at boundary 4=1972
 tin, α - to β -, nucleation rates 4=15745
 transfer of matter between two liquid phases 1=2742-4
 transition metals and H₂, and hydrides, rel. to adsorption 4=10619
 transition metals in solid soln., apparent metallic valency 1=20624
 transport of solid through gas phase 2=23948
 uranium monosulphide 1=11862
 vapour-liquid, heteroazeotropic binary systems 2=11540
 vapour-liquid multicomponent systems 2=15819
 vapour-liquid equilibrium, apparatus for static meas. 4=11408
 vapour-liquid equilibrium data, consistency test 4=21355
 water-vapour phase composition in heated pipe 4=14456
 A, properties at triple point 1=16178
 A + O, liquid-vapour 2=22097
 Ag-Bi alloys, thermodynamic props. meas. 4=10437
 Ag-In films, γ , ϵ and ϕ phases, by electron diffr. 4=2002
 AgCl-Ag₂S system, phase diagram 4=24235

Phase equilibrium—contd

- Al-Ag 3=8886
 Al-AlF₃ and Al-LiF-AlF₃ systems 0=18427
 AlRe, AlRu, AlOs 0=6357
 Al-Zn 3=8886
 Au-Cd alloys, α , α_2 and β^1 phases 3=6855
 Au-In system, rel. to diffusion below 155.4°C 4=22618
 Au-Ni 3=8886
 Au-Si eutectic, composition 2=4450
 B₂C-SiC system 4=20698
 B₂O₃ + BCl₃ system, BOC1 form. 4=15837
 BaO-MgO-P₂O₅ 4=10421
 BaO-ZnO-P₂O₅ 4=10421
 Bi perovskites 2=6522
 Bi, pressure-temp. phase diagram 4=12882
 BiCl₃, liq.-vapour coexistence curve 4=29812
 Bi₂O₃-Nb₂O₅ systems meas. 3=6813
 Bi-Se system, monotectic reaction 3=16107
 CCl₄-methylene chloride solutions 0=10655
 CO₂-N₂, solid-vapour system 4=11425
 Ca, phase diagram, molten-b. c. c.-f. c. c. 4=4505
 Ca-CaH₂ system 2=2405
 CaF₂-YF₃ crystalline solns., confirmation of defects 4=6831
 CaO-Al₂O₃-Fe₂O₃, different structures 4=26643
 3CaO, MgO, 2SiO₂-MgO, Al₂O₃-2CaO, Al₂O₃, 3SiO₂ in CaO-SiO₂-Al₂O₃-MgO 4=29005
 CdO-P₂O₅ 4=30796
 CdSe, solid state-vapour phase equilib. 3=20977
 CdSe-CdCl₂ system 3=13590
 CdTe, rel. to semiconducting properties 0=2893
 CdTe in PbTe and SnTe, phase diagrams 4=23262
 Ce-Cu phase diagram, by differential thermal analysis and metallography 4=30800
 CoAl, ordering rel. to composition 3=16104
 Co-S, phase diagram 3=25734
 Cr-Si-O system at low O pressures 4=24434
 Cu-Ag, asymmetry at 800°K 4=4504
 Cu-Al, new phase α_2 , below $\beta = \alpha + \gamma_2$ eutectoid 4=4506
 CuCl, phase diagram 4=5448
 Cu-Sn, thermal diffusion meas. 4=9984
 Cu-Zn-Sb alloys 3=23466
 Fe-rich alloys, liq.-solid and δ - γ 3=13526
 Fe-Al alloys, "K-state" and order diagram 3=23467
 Fe-C system, liquidus 1=16174
 Fe-graphite solid solutions, phase boundaries in eutectoid part of equilib. diagram, rel. to pressure 4=23238
 Fe-Mu-Si 4=17748
 Fe-Nb, iron-rich, phase diagram, 1200°-1535°C 4=26556
 Fe₂O₃-BaO 3=6812
 Fe-Ru alloys 0=6385
 Ga I or II with Sn, Zn, In, phase diagrams 3=13527
 Ga-As system 3=11199
 GaSb, phase diagram 4=5448
 Ga-Sb system, three-phase line, pressure-temp. projection 4=16290
 Gd hydrides, statistical treatment 4=13486
 Ge, phase diagram 4=5448
 Ge-Al-Sb crystallization, heterogeneous, Al-Sb interaction 3=20902
 Ge-Br, chemical equilibria by weight-loss meas. 4=26596
 Ge-I, chemical equilibria by weight-loss meas. 4=26596
 HClO₄, anhydrous, phase diagram rel. to fusion data 4=9859
 H-D systems, solid-liquid phase diagrams 3=21612
 H₂-He system, liquid-vapour equilibrium 4=11409
 H₂-N₂ mixtures, vapour-liquid equilib. 2=1311
 HNO₃ → NO + NO₂ + H₂O, vapour-phase equilibrium 3=25813
 H-O in protonosphere 1=20986
 He II, liquid-vapour equilib. 2=17713
 He³ 2=1331
 He³, 0.02°-0.3°K, melting curve 3=14437
 He³-He⁴, critical point for separation 0=8862
 He³-He⁴ freezing mixtures, phase diagram, down to 0.45°K 4=8550
 He³-He⁴, liquid-crystals 4=2912
 He³-He⁴ solutions, liquid-crystal equilib. diagram, 1.4-4°K 4=29823
 He³-He⁴ solutions, stratification and solidification curves 4=378
 Hg, liquid- α and α - β , under pressure 2=18227

Phase equilibrium—contd

- Hg—metal binary systems, rel. to atomic d-shells 4=15741
 Hg—Sn, constitution diagram 3=13504
 Hg—Sn system 3=5116
 HgTe, solid—vapour, rel. to extrinsic carrier conc. 4=13497
 HgTe—MnTe system, zinc blende type 3=13543
 InAs, phase diagram 4=5448
 InAs—GaAs system, complete phase diagram 3=16120
 InSb, press—temp. diagram 4=17758
 InSb—Sb eutectic alloys, phase-boundary energies 3=23401
 InTe(II), metallic, press.—temp. diagram 4=10429
 InTe in PbTe and SnTe, phase diagrams 4=23262
 In—Te system, phase diagram 4=29011
 In₂Te₃ in Sb₂Te₃ and Bi₂Te₃, solid solutions 1=20620
 Li oxides 4=3876
 Li₂O—B₂O₃—Fe₂O₃ system, rel. to crystal growth of LiFeO₂, LiFe₂O₄ and α -Fe₂O₃ 4=7560
 Mg, Ge, Si, χ , 250°–600°K meas. 3=13142
 MgO—GeO₂—SiO₂—TiO₂ system, luminescence data 4=1775
 MgO—MgCr₂O₄ system 4=20713
 MgUO₃—MgUO₄ 4=20714
 Mg—Zr system 4=23243
 Mn—Ge system, 21.8–35.7 at. % Ge 1=20043
 Mn—Si, Si stabilizes δ phase 4=17748
 MnO—MnS, solid solution limits and eutectic values 4=10434
 MnSi—Si system, phase diagram 4=29012
 Mo—O system 0=12095
 Mo—Zr—C system, rel. to composition 3=23476
 N₂—methane system, solid—liquid equil. 2=9461
 NH₃—Kr, gas—liquid equil. 0=14639
 NH₃—N₂—H₂, gas—liquid equil. 0=14639
 NH₄⁺ ion motion in lattices of NaCl-type 1=19692
 NH₃—A, gas—liquid 1=18673
 Nb—C system, equilibrium to 63.5 at. % C 3=18342
 NbO₂—NbO_{2.5}, phase relationships, micro method 4=7507
 2Nb₂O₅, Ta₂O₅, phase diagram 4=13500
 Nb—Rh [Ir, Pd, Pt], intermediate phases, structure 4=23280
 Nb—Ru alloys 3=22662
 NiAl, ordering rel. to composition 3=16104
 Ni—Co alloys, rel. to ferromag. domain patterns 3=18079
 Ni—Fe—O system, ferrite region 2=2404
 Ni—S, phase diagram 3=25734
 Ni—Se, phase diagram 3=25734
 O₃—CF₄, liquid system, diagram 3=21334
 Os—Ir equilibrium diagram 4=26563
 Pb—In alloys 3=25731
 (Pb_{1-x}La_x)(Zr_{1-y}Ti_y)_{1-x-y}—Fe_xO₃ system, rel. to antiferroelec. phase 4=28633
 PbMg_{1/3}W_{2/3}O₆, ferroelectric and antiferroelectric 1=12478
 Pb—O system, 200°–900°C, 3–1400 bars 4=29214
 PbO—TiO₂—ZrO₂ system 3=3255
 PbSe—Bi₂Se₃ system, phase diagram 3=25742
 PbSe—Sb₂Se₃ system, phase diagram 3=25741
 PbTe, diagram, temp.—press. projection 3=13512
 PbTiO₃—BaZrO₃ system 3=13481
 PbZrO₃, modified with Ti⁴⁺ and Sn⁴⁺ 4=26123
 Pd—U, phase diagram to 25 at. % U 4=29014
 Pt—Pd—H and Pt—Pd—D systems, phase boundaries 4=26720
 Pu, triple points to 35 kbar in diagram 4=2001
 Pu—Al alloys, (α + δ)/ δ phase boundary position, calc. 4=13440
 Pu—Ce 4=29802
 Pu—Ce alloys, (α + δ)/ δ phase boundary position, calc. 4=13440
 Pu—Ga system, diagram 4=29015
 Pu—O system, phase diagram 4=29016
 Pu—Zn system, phase diagram 4=29018
 Rb_xK_{1-x}NO₃ mixed crystal, diagram rel. to ferroelec. phase 4=26125
 Se₂O₃—Ga₂O₃ system, melting and solid solns. 3=12001
 Sn, I—II boundary line up to 70 kbar 4=10555
 Sn—Te phase diagram near SnTe 3=6861
 Sr, phase diagram, molten—b. c. c.—f. c. c. 4=4505
 Sr—Bi, Sr-rich end 2=10905
 Sr₃(PO₄)₂ systems 2=4177
 Ta—Ir system, phase diagram 4=13502
 Ta—N dilute solid soln., instability 2=2413
 Ta—O system 0=12095
 Ta—Rh [Ir, Pd, Pt], intermediate phases, structure 4=23280

Phase equilibrium—contd

- Ta—Rh, rel. to constitution diagram 4=15744
 Ta—Zr system 0=6384
 Th hydrides, statistical treatment 4=13486
 Th—Ce phase diagram, revision 4=29020
 Th—In diagram rel. to temp. and press. 3=20886
 Ti—Al alloys, three phases 3=13502
 Ti—Al—Co alloys, ageing process 3=18354
 Ti—Cr alloys 3=22898
 Ti—Cr system, investigation of Cr-rich region 4=13504
 Ti, b.c.c., β -b.c.c., and β -f.c.c. phase equilibria, 100°C and 37 kbar triple point 4=30806
 Ti—Ni, phase diagram 4=10439
 TiO₂—NbO_{2.5}, phase relationships, micro method 4=7507
 Ti base alloys, kinds of phase and boundaries 1=11578
 Ti—Sb liquid system 4=29619
 U oxides, phase diagrams 4=2140
 U-rich binary alloys for nuclear fuels 2=17033
 U—C system, phase diagram 4=13611
 U—Mo, below 900°C 0=18378
 γ U—6 at. % Mo, kinetics of isothermal decomp. 3=25764
 UO₂, at 1600°C, U precipitation 3=13591
 U—Pu—C ternary phase diagram below 50 at. % C 3=25747
 U—Pu—C ternary system, below 635°C 3=25748
 U—UO₃ system, phase diagrams 4=11402
 V₂O₅, phase diagram 3=15779
 W oxides, solid/gas phase 0=1955
 W—C system, phase diagram 4=26570
 W—44 at. % Mo, ordering 3=20891
 W—Ru alloy, rel. to constitution diagram 4=15746
 Zn—Al system (40–75 wt % Zn), phase diagram 4=23299
 Zn in ZnS 1=8914
 ZnO—CdO—P₂O₅ 4=30796
 ZnP₂O₇—Cd₂P₂O₇ 4=30796
 Zn(PO₃)₂—Cd(PO₃)₂—Mg(PO₃)₂ system 4=26573
 Zn₃(PO₄)₂—Cd(PO₄)₂ 4=10444
 Zn₃(PO₄)₂—Mg₃(PO₄)₂ 0=2953
 Zr—Al alloys different phases rel. to gettering props. 4=21200
 Zr—Fe, Zr₄Fe and Zr₂Fe phases 4=10442
 Zr—H system, thermodynamic functions 4=3989
- Phase transformations**
 acetamide, rel. to Raman spectra 0=5948
 acetonitrile, study by N¹⁴ pure quadrupole resonance 0=6283
 acoustic dispersion and absorption, transforms. of second kind 4=14289
 aerosols, processes and formation from supersaturated vapour phase 1=11626
 aggregation on ageing, Cu and Ag solid films 4=10608
 alkali halide vapours 1=11629
 alkali halides, polymorphic transitions, Born model 2=14921
 alkali iodates 1=14833
 alloys, b.c.c., ordering with 4 kinds of site 3=8904
 alloys, binary, ordering, effect on elastic const. 4=13361
 alloys, binary, thermodynamics 2=12924
 alloys, energy of order, theory 1=20588
 alloys, equil. order parameters, quantum and class. theory 4=10413
 alloys, eutectic, nucleation 3=13503
 alloys, f. c. c., ordering, statist. theory 4=13467
 alloys, growth of diffusion-limited centre 3=5127
 alloys, mag. directional ordering, rel. to superlattice 3=18072
 alloys, order—disorder, by single-vacancy migration 3=13530
 alloys, ordering, by two-time Green functions 3=11292
 alloys, precipitating, rel. to heavy particle bombard. 2=21547
 alloys, second phase precipitation rel. to boundary migration 3=13534-5
 alloys, spinodal, magnetic ageing 4=7244
 alloys, ternary, thermodynamics 2=17044
 Alnico 5, α — γ , thermal expansion obs. 4=23251
 AlNiCo 500, AlNi, magnet by microsonde and microhardness 3=16090
 α and β -Ti, ω -alloy phases, δ -Ti oxide and Ti monoxide, structural and geometrical relations 0=16310
 anatase—rutile, effect of impurities 0=7895
 ANKO-4 alloy, γ -phase form. at 750–800°C 4=17805
 anorthite, 25°–350°C 3=16019

Phase transformations—contd

- antiferroelectrics, lattice theory 4=22778
 antiferroelectrics, superstructural cells and domains 4=10116
 antiferromagnetic alloys, b.c.c. lattice, ordering and magnetization processes 4=29000
 antiferromagnets, uniaxial, 2nd order transitions, magneto-elastic props. 4=26348
 Armco iron, ageing, effect of deformation 2=12929, 15068
 Armco iron, α - γ , discontinuous change of thermal and elec. props. 0=13498
 austenitic alloys, $\gamma \rightarrow \alpha \rightarrow \gamma$ transformation, strength increase 4=17738
 austenite, fine structure due to martensitic trans-form. 3=20866
 austenite formation, rapid heating, X-ray anal., recording apparatus 4=23270
 austenite, second-kind ordering 1=7832
 austenitic steels, heat treatment, second-kind ordering 0=18397
 austenitic steels, martensitic components 3=23483
 austenite, supercooled, ferrite grain growth 3=5127
 austenite, under-cooled, theory 4=20708
 p-azoxanisole with and without phenanthrene, near freezing 4=11181
 benzene crystals, first-order, study using positron annihilation 4=23300
 beryllia, 2080°C 2=14924
 binary alloys, short range order effects 3=8901
 binary eutectic systems, crystallization mechanism 4=30862
 binary semiconductors, differential thermal analysis 0=12081
 binary systems, temp. var. 4=1977
 biocolloids, order-disorder transitions 4=15851
 biphenyls, effect on γ -radiolysis 3=3411
 boson gas 0=3462
 brass, quenched, 60:40, hexagonal phase 2=8847
 α -brass, undeformed specimens 4=26571
 β -brass, $\beta \rightarrow \alpha$ spontaneous transform. 2=23869
 brass, β , martensitic 4=10526
 β -brass, martensite formation, during electrolytic thinning of foil 3=8891
 β -brass, order-disorder, self-diffusion, statist. dynamics 2=3934
 β -brass type alloys, ordering, effect on thermoelec. power, theory 1=19913
 p-bromotoluene crystals, first-order, study using positron annihilation 4=23300
 bronzes, Al, martensitic transformation 1=6530
 camphor solid solutions, temp. varn. with camp. rel. to molec. tumbling 4=30741
 d-camphor, II-III, at high press., region of indifference 4=13510
 cast iron, Cr-bearing, nuclear irradi., graphitization 4=26554
 cast iron, graphitization, effect of Cr 4=29010
 cellular precipitation, solid solns., Turnbull theory 4=10415
 cellulose acetate, alkali-chloride doped, glass transition 4=7735
 cholesterol esters, liquid crystals 3=21370
 classical many-body theory, coupling rule 2=11295
 close-packed to nonclose-packed structures, pressure-induced polymorphic transitions 4=15728
 coherent lattice rearrangement 3=3284
 condensing vapour, flow through constant cross-section pipe 1=8099
 constitution diagrams, for b.c.c. lattices, AB and A_3B long-range order 3=3325
 Costa Ribeiro effect, influence of crystallographic orientation 1=1119
 cristobalite, optical obs. 0=1878
 critical assemblies, small-angle scatt. 3=52
 critical isotherm near critical point 1=18672
 critical isotherm near critical point 3=3924
 critical isothermal degree 4=27390
 critical point, density fluctuations 1=18671
 critical state, ultrasonics, effect on light diffr. 2=5188
 cryogenic solids containing free radicals, effect on flame propagation 3=5161

Phase transformations—contd

- crystal, ferromag. model, nucleation field, magneto crystalline anisotropy effect 4=30708
 crystallization, NaCl, "Morphodrome" diagrams 3=16042
 crystals, Ehrenfest relations 1=19727
 crystals of O_h symmetry group 0=16252
 crystals, perfect and with lattice defects, comparison 0=13761
 crystals, of T_h symmetry 0=18343
 cyclohexane crystals, first-order, study using positron annihilation 4=23300
 cyclohexane, solid, rel. to positron annihilation 3=2774
 deformed crystal, Bose-Einstein condensation of excitons 4=6804
 diamond, allotropic, graphite orientation 3=20776
 diamond \rightarrow graphite at 1500-1900°C 4=7492
 diamond, graphitization 0=21185
 diamond, graphitization, surface orient. effect 3=13398
 diamond, under high-pressure 3=23375
 diamond, meteoric origin 2=8761
 diamond structures, up to 50000 atm pressure 4=5448
 diamond, surface and internal graphitization 2=21460
 p-dichlorobenzene, α - β , n.q.r. 2=791, 8688
 differential thermal analysis, of cmpds. with high vapour press. components 2=7087
 diffusion-controlled, influence of "drift" upon kinetics 4=10412
 diffusion processes of crystalline phases in binary metallic systems 4=23236
 diglycine nitrate, at -67° and -150°C 4=7653
 diphenylamine crystals, first-order, study using positron annihilation 4=23300
 direct observation of high temp. phase changes, possible method 4=10512
 disordered structures, ordering processes 1=15027
 Duralumin, ageing study using n.m.r. 1=6540
 effect on Bi self-diffusion in Bi_2O_3 4=6867
 elastic disks, 2-dimens. system of 870 particles 2=17699
 electronic transformations, spin effects 1=7551
 entropy change, stability, calc. 4=27394
 equation of phase-transition curve 0=6991
 eutectics, binary, lamella-rod transition 3=25758
 eutectics, lamellar, freezing and entropy prod., theory 4=5449
 f.c.c. \rightarrow b.c.c. lattice 4=9954
 f.c.c. \rightleftharpoons h.c.p., rel. to cold working 3=3256
 f.c.c. lattice, Ising, mag. ordering theory 3=8649
 f.c.c. metallic alloys, antiphases 3=20881
 ferrites, induced by shock waves 2=15057
 ferro- antiferromagnetic, entropy changes 3=15750
 ferroelec. and antiferroelec. crystals, theory 0=10014
 ferroelectric, broadening, mechanism 3=17935
 ferroelectric crystals 1=19936
 ferroelectric crystals, quantum effects 2=2203
 ferroelectric and ferromagnetic, crystal symmetry changes 4=20747
 ferroelectric-paraelectric, symmetries 4=29001
 ferromagnetic alloys, b.c.c. lattice, ordering and magnetization processes 4=29000
 ferromagnetic alloys, f.c.c., ordering 4=15634
 ferromagnetic alloys, h.c.p. lattice, ordering and magnetization 4=22965
 ferromagnetic alloys, Fe_3Al -type, ordering 4=17759
 ferromagnetic, as first-order effect 2=8618
 ferromagnetic materials, first order, rel. to magnetic disorder 3=1002
 ferromagnetic, short-range order at Curie point 3=11042
 ferroelectrics, 2nd-kind transition, rel. to Raman light scattering 0=20974
 ferroelectrics, space group change law 0=13986
 ferromanganese alloy, $\gamma \rightleftharpoons \epsilon$, cycles 3=5128
 first kind, kinetics, volume pressure effects 1=14940
 first kind, thermodynamic singularity 4=8514
 fluids, canonical partition function, cellular method 2=21292
 free-volume model of amorphous phase, glass transition 1=4073
 gas, liquid and solid, cell theory of classical liquids 0=19098-9
 gas-liquid, rel. to statist. mech. RPA 2=15802-3
 gas of long thin rods, first-order 4=225
 geometric basis of phase change 1=5270

Phase transformations—contd

- germanate pyroxenes and related cpds., high-pressure 4=4509
- Gibbs free energy increase, bulk specific, rel. to nucleation of supercooled droplets 4=27376
- glass, in polymeric materials, multidim. 3=25766
- glass transition, thermodynamic aspects 4=7733
- "globular" organic cpds., neutron inelastic scattering 3=13393
- glycine silver nitrate, ferroelec. transit. 4=20423
- graphite to diamond 3=6819
- graphite—diamond, catalysis by metals 4=1991
- graphite—diamond, equilibrium curve, calc. 4=4508
- graphite, diamond and other phase form. by strong shocks 2=4360
- graphite—diamond, study methods 4=4507
- graphite, melting, high pressure 3=6818
- graphite, pyrolytic, graphitization, applied stress effect 4=20704
- graphite, rhombohedral form prod. by deformation 3=25627
- growth of aerosol particles by diffusion 1=11632
- heat transfer bibliography 3=7364
- heterogeneous nucleation, review 3=11206
- hexamethylbenzene rel. to conductivity 3=10873
- hexamethylbenzene, rel. to low-temp. n.m.r. 2=8684
- high polymers, second-order transitions 1=15165-7
- high-pressure cell, for optical study 4=28658
- high-pressure, visual obs. 3=11208
- ice crystal nucleation on aerosol particles 1=11628
- ice, high-pressure forms, structure 0=16319
- ice, low-temp. forms, formation temps. 1=7868
- ice VI and VII at atmos. press. 4=26553
- ice, II, III and V, at atmospheric pressure 3=11202
- ice, vitreous—cubic—hexagonal transitions 1=10228
- incandescent materials, temp.—time meas. appar. 4=2872
- investigation by damping capacity 1=10206
- ionic crystals, effect on u.v. absorption 0=10038
- ionic crystals, to metallic states, calc. 2=6761
- irons, cast, graphite formation during cooling from 1000-700°C, from u.s. velo. decrease 3=23473
- Ising binary lattice, order—disorder transitions 1=15140
- Ising model of cooperative phenomena, reformulation 4=28782
- Ising model, dimer statistics 3=14043
- Ising model long-range interact. 3=12899
- kinetics study using dilatometer 3=21277
- λ -transitions, thermodyn. theory 2=23871
- lattice gas, spherical 0=18997
- lattice partition, rel. to individual funcn. 4=30794
- Laves phases, thermochemistry 4=10418
- layer with polymorphic transformation, inelastic and residual deformation 2=6828
- liquid binary mixtures, first and second order 1=18674
- liquid crystal p-azoxyanisole with and without phenanthrene, near freezing 4=11181
- liquid—gas, equation of state, organic compounds 4=367
- liquid \rightarrow glass 3=12003
- in liquid model, representing solidification 1=12866
- liquid—vapour, liq.—liq., struct. effects on u. s. waves 4=27140
- liquid—vapour, statistical mechanics 4=16297
- low temp. apparatus, 20-300°K 4=5487
- luminescence during phase changes in crystals 1=7731
- magnetite, at low temp., thermoelec. data 0=6148
- magnetite, magnetocaloric effect, low temp. 1=3897
- magnetite, order—disorder, -155°C, rel. to magnetization 4=26312
- magnetometer, for invest. with rapid heating and cooling 2=1554
- manganite 4=26561
- manganites, by temp., struct. transform. 2=14923
- marble, shock adiabat 0=3585
- martensite—ferrite, thermodynamics 3=5120-3
- martensite, at low temp. 4=10416
- martensite reaction in steel 1=20582
- martensite temperature, rel. to twinning temp. 3=11288
- martensite-type, lattice reconstruction, book 4=7528
- martensitic, crystallographic analysis by prism matching 1=1400
- martensitic, dilatation parameters 3=8889

Phase transformations—contd

- martensitic, theory 0=16313
- measurement, electron interferometer 2=10954
- in metals, accompanying acoustic effects 4=15414
- metallic alloys, ordering, effect on elec. cond., theory 1=17600
- metallic hexafluorides, orthorhombic to b.c.c. 2=8077
- metals, mag.—non-mag., Pauli susceptibility anomaly 4=4322
- metals, microheterogeneous condensation in vacuum 2=1308, 7468
- metals, resistivity change, voltage signals 2=4451
- metallic systems, microscopic study 2=15055
- metals, up to 250 000 kg/cm² press. 2=618
- metal whiskers 1=15010
- mica, nucleated by particle irradi., obs. 2=16977
- miscibility point, dielectric behaviour 1=6871
- mixture, phase separation, temp. dependence 4=24178
- molecular crystals, distinguishable molecular orientations 2=8764
- molecular crystals, fusion rel. to solid transitions 2=1309
- molecular crystals, phase transition theory 0=15803
- molecular solids, n.m.r. study 2=8678
- moving boundaries in ferromagnetic, ferroelectric and superconducting materials 1=7875
- multicomponent systems, matrix thermodynamics 2=9200
- muscovite, 700-1200°C 4=7501
- naphthalene crystals, first-order, study using positron annihilation 4=23300
- Nichrome, at low temp., volume changes 3=20885
- Nichrome, recryst. nuclei formation obs. 4=13474
- monimonic alloys, ageing 1=15127
- Nimonik-type alloys, ageing 3=16113
- nitrites, nitrites, crystal, from u. v. spectrum 4=7509
- p-nitrophenol, $\beta \rightarrow \alpha$, lattice reconstitution 4=17779
- noble metal alloys and solid solns. 2=8837
- nucleation by crystalline particles 3=7394
- nucleation of water aerosols 1=11627
- nucleus growth, surface tension effects 4=18488
- I—VII, II—VI, and III—V cpds., from press. depend. of absorption edge 1=8986
- order—disorder in alloys, interact. bet. atoms 3=8380
- order—disorder in alloys, lattice vibrations contrib. 0=21233
- order—disorder, and creep 4=26519
- order—disorder model, 1-dimens., which approaches second-order phase transition 1=9149
- order—disorder phenomena, theory 2=19091-2
- order—disorder, polar model 3=8899
- order—disorder systems, one-dimen. 2=16576
- order—disorder transformation in b.c.c. lattice, Monte Carlo calc. 1=20590
- order—disorder transformations, in ternary alloys 0=16336
- order, short-range, in alloys 3=8905
- ordered structures formed by chemisorption 4=30886
- ordering alloys, theory for hexag. close-packed lattice 2=6819
- ordering, in β -brass type alloys, quasichemical model 4=1980
- ordering, inhomogeneous, due to excess vacancies 2=8848
- ordering, rel. to mechanical properties 3=20685
- organic compounds, liquid-polycrystal region 3=21355
- organic cpds., rel. to Debye dipolar absorption 3=22987
- organic crystals, first-order, study using positron annihilation 4=23300
- ozone—F—O liq. system 2=21904
- parachlorotoluene, singlet \rightarrow triplet transition, luminescence spectra 0=16099
- n-paraffins, crystalline, theory 3=16020
- n-paraffins, at high pressures 1=2747
- paraffins (normal), data and theory 2=16978
- pentaerythritol, effect of high press. 2=21459
- pentaerythritol, effect of high pressures 3=3252
- 78-Permalloy, mag. ordering and elec. props. 1=6533
- Perminvar, mag. ordering and elec. props. 1=6533
- phase-boundary motion, converse Stefan's problem 0=14862
- phase boundary stability round growing particle 3=11297
- phase coexistence, strain terms, bulk free energies 0=220
- phenol crystals, first-order, study using positron annihilation 4=23300

Phase transformations—contd

N-phenylbenzylamine crystals, first-order, study using positron annihilation 4=23300
 n-phenylenediamine, rel. to Raman spectra 0=5948
 phthalocyanine, $\alpha \rightarrow \beta$, large decrease in elec. cond. 1=14393
 Pippard equations, generalization 4=27392
 polar crystals, theory 1=2362
 polyethylene, deformed, rel. to stretching direction 4=20679
 polyethylene, γ -transit., e.s.r. study 2=14833
 polyethylene, glass transit. temp. 2=23904
 polyethylene, second order 1=9155
 polymer solns. in H_2O , conc., separation 4=24179
 polymers, glass transition temp., rel. to dielec. relaxation 4=26108
 polymers, second-order transition, analysis and effect on mechanical props. 1=7879
 polymorphic, in anomalous substances 0=19504
 polymorphic, and crystal symmetry 1=14947
 polymorphic, high pres., a.f. and r.f. obs. 4=20695
 polystyrene, glass, heat capacity 4=7736
 polystyrene, transition at 50°C, DTA study 4=7737
 p.t.f.e., 75-380°K, up to 21 000 atm 0=1875
 polytetrafluoroethylene 4=28975
 polytetrafluoro-ethylene; thermal props var. 4=30533
 polyvinylcarbazol in benzol, vitreous 3=8920
 post-transition metal tellurides, solid solns. 2=23858
 quartz, $\alpha = \beta$, and deform. 3=15990
 quartz, amorphous—cryst., by Ag diffusion 3=13396
 quartz, amorphous state prod. under shock conditions 0=6324
 quartz—cristobalite, Kr⁸⁵ diffusion meas. 2=4361
 quartz, displacive, due to neutron irradiation 4=26564
 quartz, on heating in H_2 , amorphous state with crystallization centres 3=20917
 quartz, 2nd-kind transition, rel. to Raman light scattering 0=20974
 quartz, vacuum sintering 1=20399
 quaternary alloy model, order—disorder problem, soln. on square net 4=27080
 radiation induced, necessity of impurities 4=17776
 rapid, dynamical characts. 2=4451
 rapidly running transit. at high press. 2=23806
 rare-earth arsenates and vanadates, pressure rel. to ionic radii 3=18225
 rare-earth metals, heavy, allotropy at high temp. 4=23265
 rare-earth niobates and tantalates, at high temp. 4=20715
 rare-earth oxide systems, X-ray study 2=4356
 rare-earth pseudo-binary systems, Laves phases 2=17042
 rigid-disk system 4=16288
 Rochelle salt, para-ferroelectric, mechanism, and Raman spectrum 3=20484
 rubber, glass transition, pressure effect meas. 4=7454
 salt mixtures, elec. cond. rel. to melting 2=9464
 and scattering, light, ferroelectric 3=20450
 second kind, ordering kinetics 2=17048
 second kind, ordering kinetics 3=6864
 second kind, pressure effects, applic. to superconductivity 4=1976
 second kind, theory 4=1974
 second-order, ferromag. to mixed ferroelec. and ferromag. phase 3=23147
 second-order, He⁴ as model 0=14914
 second-order, relax. phenomena, theory 2=23805
 second-order, relax. slowing, microscopic mechanism 4=16289
 second-order, theory 1=6193
 semiconductors, to cond. state, by press. 2=16704
 short range order detection, by paired dislocations 4=4499
 silica, vitreous, Hugoniot curve, shock crystallization 0=3259
 sintered material, elastic energy 3=20769
 soda—lime—silica glass, rel. to stress relaxation 4=4680
 soft magnetic alloys, disorder—order transformations 1=1215
 solid binary and ternary systems, relative molar thermodynamic functions 1=15131
 solid—solid, press. meas. by piston gauge 2=10778
 solid solutions, activation energy 0=1935
 solid solutions, effect on thermal conductivity 0=15820

Phase transformations—contd

solid solns., metallic, conference 4=10407
 solid solutions, multi-component, degree of short range order 1=9148
 solid solns., multicomponent, order—disorder 2=10919
 solid solutions, nucleation, ageing 0=1929
 solid solutions, order—disorder, f.c.c. lattice, appl. of nonlinear integral equations 3=18347
 solid solns., redistribution of components on decomposition and internal boundary adsorption 4=26543
 solid solutions, substitutional, anal. by internal friction 0=1933
 solid solns., supercond. transition temp. 2=8864
 solid solutions, super-saturated, decomposition kinetics, theory 3=20907
 solid solutions, X-ray scatt. rel. to degree of order 1=20616
 solidification front in liquids 2=19773
 solids, brief survey 2=14346
 solids, correlated cell model, cooperative motion 4=10409
 solids, crystallographic orientation, charge formation depend. 0=16005
 solids, electron diff. study of rapid changes 2=2440
 solids, gradual phase transitions 1=7835
 solids, "linear" transitions, rel. to Ehrenfest's eqns. 4=1973
 solids, premonitory phenomena, review 4=1975
 in solids, review 3=11207
 solids, second-order, detection from shocks 1=14937
 solute redistribution 4=27370
 solutions, binary, effect of impurity 2=15579
 spherical precipitates, bounds on nonlinear-diffusion-controlled growth rate 0=15871
 spinels containing Mn³⁺ ions 1=20556
 spinels, transition-metal, tetragonal to cubic phase, theory 0=1550
 spinels, $X_2Y_{1-x}Z_2O_4$, correl. parameters 2=19028
 spinodal decomposition in cubic crystals 2=10780
 statistical mechanics 1=15718
 statistical mechanics, interrel. of theories 4=8098
 statistical mechanics of, 2-dimensional configuration model 4=5079
 statistical thermodynamics of one-dim. system 4=8087
 steel, ageing kinetics, structural changes 4=29009
 steel, $\alpha \rightarrow \gamma$, rel. to deformation by waves 2=2322
 steel austenitic, stainless, Ti stabilized, σ -phase formation 3=3337
 steel, Cr-Ni austenitic, ageing, effect on thermal and elec. cond. 4=12663
 steel, Cr stainless, heat capacity study 2=23078
 steel, deformation recovery, 50° to 70°C 4=4462
 steel, rel. to dislocation heredity 2=16656
 steel, effect of applied tensile stress 0=16337
 steel, isothermal transforms., free energy changes 2=23874
 steel, mild, brittle—ductile, neutron effects 2=6824
 steel, Mn, γ - α , effect of etching 2=21457
 steel, Mn-V, during elec. heating 2=6827
 steel, rel. to n-irrad. 2=23765
 steel, Ni—Cr—Mo alloy, martensite formation rel. to tensile stress 3=3323
 steel, residual austenite, temper ageing 1=15138
 steel, separation of cementite in austenite 4=1989
 steel, stainless, martensite transd. obs. 2=6825
 steel, stainless, thermal f.c.c. to h.c.p., nucleation 4=26567
 steel, tempering process 1=12644
 steel, (225) F transform. 2=15056
 steels, C and Cr, austenitic transformation, white layer formation 4=23269
 steels, hardenable, austenitic grain size, method of study 1=20609
 Stefan problem for nonuniform media 4=14450
 Stefan problem, 2 phase, finite difference soln. 4=18489
 Stephan's problem, single-phase 2=15801, 19771
 stiskovite, crystal habit rel. to temp. 4=26565
 study using Debye—Scherrer 19cm X-ray camera 4=27345
 study using quadrupole resonance of impurity molecules 0=4539
 supercond. films, to normal, var. field, temp. 4=21396
 superconducting-to-normally conducting, in transmission line structures 4=18545

Phase transformations—contd

superconductive transition, thermal and elec.
aspects 2=1333
superconductivity, second order, electron-pair correl.
as "inner field" 4=21395
superconductors 4=27414
superconductors, spin ordering 3=12023
superconductors, from spin susceptibility, short range,
calc. 4=18552
superconductors, thin-film 4=396
surface phases, thermodynamics, theory 0=5213
temperature-time recording, by thermocouple 4=5430
ternary semicond. cpds., ordering mechanism 3=18350
thiourea, rel. to ferroelec. props. 2=667
thiourea, ferro- — nonferroelec. under 4000 kg cm⁻²
press. 4=26130
toluene, triple point 2=15822
"topotaxy", in solid-state reactions 0=6337
transition metal hydrides 0=18289
transition metals and their alloys, rel. to band
structure, theory 0=17911
triglycine sulphate, ferroelec. 2=23508
triglycine sulphate, ferroelectric 1=14556
triglycine sulphate, γ -irrad., ferroelec. switching
mech. 2=8673
triple point, thermodynamic peculiarities 4=5477
in two-component systems, calc. from atomic props. 0=8649
in two-phase mixtures, during elastic wave
propag. 1=11806
two-phase systems, residual stresses 4=23099
without unit cell change, point group
representation 1=4033
uranium, polygonization due to allotropic
transformations 1=6485
vapour-liquid, specific heat near critical
point 1=1847
volatiles on lunar surface 1=18034
water, freezing, sorbed on Si gel, n.m.r. obs.,
to -100°C 3=19069
water sorbed on ice-forming nuclei 4=13539
water, triple point 0=1056
water-water vapour, specific heat meas. 2=13485
wüstite disintegration, kinetics, study by mag. analysis, and
mechanism 4=23268
wüstite, metastable triple point 4=20710
wüstite, second order from, thermodynamics 4=26742
X-ray diffr. technique, to 100 kbar 2=8811
X-ray diffraction obs., apparatus for high pressures
and temp. 4=10519
zincblende, under high-pressure 3=23375
zincblende structures, up to 50 000 atm pressure 4=5448
Zircaloy-2, α - β change, obs. by electron emission
microscope 4=7520
Zircaloy-2, hot working 2=4460
zirconia, neutron irrad. 0=1822
A_{0.8}B_{0.8} alloy, order and disorder-antiphase trans-
itions 3=8887
ABX₂ covalent compounds, order rel. to thermal
props. 2=20947
A-Xe mixtures, solid-liquid equil. 1=1848
Ag, amorphous film, rapid crystallization 2=2440
Ag azide, crystal forms 4=17493
Ag germanide, metastable phases, X-ray diffr.
exam. 4=29833
Ag halides, mixed ternary crystals, equil. 2=10895
Ag and Cu halides, obs. by h.p. microscopy 4=15743
Ag telluride, metastable phases, X-ray diffr.
exam. 4=29833
Ag-Al, ordering in hexagonal ζ -phase 3=6862-3
Ag-Cd alloys, annealing spectrum of cold-worked
specimens 4=23290
Ag-Cd alloys, X-ray study 1=15118
Ag-Cd films, β - γ , electron diffr. study 2=10910
 β -AgCd, b.c.c. \rightarrow h.c.p. transformation produced by mech.
deformation, reversion 0=18373
AgCd, order-disorder, by X-ray diffr. and mech.
testing 3=3328
AgCd-AuCd, β -system, elec. resist.
data 2=17040
AgCl, to 100 kbar, X-ray diffr. study 2=8811
AgClO₄·3C₂H₅O₂, and dioxane rot., from p.m.r. 4=1900
AgFeTe₂, 150° and 520°C 0=15961
Ag₂HgI₄, order-disorder transition, elec. cond. of both
phases 4=26105

Phase transformations—contd

AgI, α - β , rel. to optical band gap 2=23544
AgI, cubic to hexagonal transition, energy
barrier 4=30784
AgI, low-cubic to hexagonal, kinetics and
mechanism 4=23292
AgI, rel. to self-diffusion of Ag 2=18605
AgI, three polymorphs 1=17892
Ag-In-Ga system 2=4438
Ag-Mg solid solns., ordering, lattice spacing
changes 1=15161
AgNO₃, kinetics of phase growth 3=13401
AgNO₃, I=II, direct meas. of energy 2=16975
AgNO₃, from specific heat, ~433°K 4=15430
Ag-Sb-Te, AgSbTe₂, phase formation 3=18345
AgSbTe₂, at 410°K, rel. to elec. cond. and thermo-
e.m.f. 4=25868
Ag₂Se 2=573
Ag₂Se films, α - β 4=23291
Ag-Si system diagram, solid-liquid 4=5445
Ag₂Te 3=18384
Ag-Zn alloys, ζ - β transformations 1=1411
Ag-Zn, β , β' and ζ phases 2=21542
AgZn, heats of formation of three phases 3=1352
AgZn and AgCd, accelerated ordering and hardening by
thermal cycling 4=23289
Al, ageing of quenched metal 2=2409
Al bronzes, binary and ternary, kinetics of $\beta \rightarrow (\alpha + \gamma_2)$
transformation 4=4500
Al, grain refinement by transition metal additives 4=23241
Al, recryst. nuclei formation obs. 4=13474
Al-Ag alloys, ageing, effect of small additions of Cu
Mg, Zn 1=15148
Al-Ag alloys, G.P. zone formation and
miscibility 2=15067
Al-Ag, metastable miscibility gap obs. by cond.,
elec. 4=7474
Al-Ag, ordering inside Guinier-Preston
zones 3=8877
Al-Ag(8%) solid soln., crystal structure disintegration
under heat treatment 4=7678
Al-20% Ag with or without trace elements, aging, effect of
plastic deformation 4=23250
Al-B, Al-B-C systems 4=26640
Al-4% Cu alloy, ageing reactions, kinetics, effect of creep
deformation 4=23249
Al-Cu alloy, order-disorder transf. at 280°C 0=8270
Al-Cu alloys, ageing, role of vacancies 2=15066
Al-Cu solid solutions, matrix block struct.
changes 3=20906
Al-4% Cu with or without trace elements, aging, effect of
plastic deformation 4=23250
Al-CuAl₂, thin films, equil. diagram 2=21530
Al-Fe alloys, equil. diagram 2=2398
Al-Li (2.8, 1.5 wt. %), aging, electron microscope, hardness
obs., neutron effects 4=13472
Al-Mg alloys, decomposition kinetics during zone formation,
effect of vacancies 4=15729
Al-Mg(5%), age hardening enhancement by Ag 4=20696
Al-Mg-Si alloys, rel. to ageing 2=2331
Al-Mn alloys, intermetallic phases 1=1438
Al-1.2% Mn alloy, precipitation and recryst. 4=7473
Al-Mo, phase diag., changes at Al-rich end 4=13470
Al₂O₃-AlN systems 3=10985
Al₂O₃-GeO₂, new phases, 900, 1350°C 4=13475
 β -Al(OH)₃ to η -Al₂O₃, rel. to struct. 4=30844
 γ -AlOOH to γ -ad-S-Al₂O₃, rel. to struct. 4=30844
Al-Re, diagram, new phase ReAl₄ 3=20882
AlSb, to metallic form at high pr. 3=11211
Al-Si, ageing, effect of Mg 3=18355
in Al-Si eutectic, modification due to 1A elements 4=13476
Al-Si solid solutions, matrix block struct.
changes 3=20906
Al₂SiO₅ system at high temp. and press. 4=29002
Al-Tc, diagram 3=20882
Al-Zn alloy, ageing, natural, effect of a third
component 4=17752
Al-Zn alloys 0=2851
Al-Zn alloys, containing Si, Ge or Sn, isothermal ageing
after quenching 4=28994
Al-Zn alloys, Guinier-Preston zones, effect of d-
irradiation 4=23248
Al-Zn alloys, stress relaxation 4=17725

Phase transformations—contd

- Al-Zn, cooling depression of boundary, elec. cond. obs. 4=26544
 Al-Zn (10-98 wt. %), and heat cycling, effect on internal friction and elongation 4=13389
 Al-Zn, transition phase in ageing 1=15130
 Al-Zn-Mg alloys, isothermal ageing after quenching 4=28995
 Am, pressure-temp. -resistance props. 4=7500
 in Ar, liquid, under shock compression, rel. to inter-molecular potential 4=15388
 Ar, metastable hexagonal 4=23247
 As, up to 70 kbar 3=19067
 As₂Se₃, crystalline-vitreous, short-range order 3=10802
 As₂Se₃-As₂Te₃, crystalline (low-temp), vitreous 3=18364
 Au germanide, metastable phases, X-ray diffr. exam. 4=29833
 Au telluride, metastable phases, X-ray diffr. exam. 4=29833
 Au-Cu, order-disorder 1=12646
 Au-Cu system, complex phase 1=1407
 AuCu 3=10720
 AuCu, cubic to orthorhombic crystallography 1=2540
 AuCu, order-disorder transformation energy 1=2541
 AuCu, order variation rel. to temp. 2=10912
 Au₃Cu, order, effect of cold work 2=4462
 AuCu₃ films, ordering, temp. depend. 1=7893
 Au-Cu-Ni, order-disorder, X-ray diffr. obs. 4=7493
 Au-Cu-Zn, Martensitic, crystal structures, boundary theory 4=29008
 Au-Mn, martensitic 2=6820
 Au-Mn, new hexagonal phase between Au₄Mn and Au₃Mn 3=3312
 Au-Mn, order-disorder 1=12646
 Au₃Mn, ordering 4=7494
 Au-Ni alloys, precipitation, composition effects 4=20703
 B₂H₆, solid, at low temp. 0=1914
 BN, direct trans. of hexagonal to denser forms 3=11203
 Ba, b.c.c. → BaII 3=16834
 Ba, electronic, 5d, 6s levels, high pressure, calc. 3=23372
 Ba, high press., temp., from elec. cond. 4=16293
 Ba, at high pressure 4=4596
 Ba₂Bi₄Ti₅O₁₈, and substituted cpds, ferroelec. phase transitions 4=23255
 BaCl₂, from enthalpy var. with temp. 4=8501
 Ba(Nb,Ta)₂O₈-Sr(Nb,Ta)₂O₈ 1=6195
 Ba(NiW)₆O₁₉ 3=8864
 Ba-Pu oxide systems, crystal structure, atomic 4=7606
 BaS, vaporization rel. to thermodynamic props. 4=16501
 BaTiO₃, cubic-hexagonal 1=6486
 BaTiO₃, cubic-tetragonal, elastic energy 3=20769
 BaTiO₃, cubic-tetragonal, nucleation 3=4942
 BaTiO₃, cubic, tetragonal, orthorhombic 2=6523
 BaTiO₃, cubic to tetragonal transition 3=6816
 BaTiO₃, d. c. field effect, from e. s. r. of Fe²⁺ 4=10324
 BaTiO₃, displacive, due to neutron irradiat. 4=26564
 BaTiO₃, effect of added Co 4=30807
 BaTiO₃, effect of isomorphous replacement of Ti ions 2=14633
 BaTiO₃, elec. field effects, optical transmission study 0=20958
 BaTiO₃, ferroelec. nucleation, field induced 3=4943
 BaTiO₃, tetragonal-cubic 0=548
 BaTiO₃, tetragonal to cubic, effect of grain size 3=8792
 BaTiO₃, tetragonal-cubic, X-ray induced 4=15730
 BaTiO₃, theory 1=1134
 BaTiO₃-BaHfO₃, from Σ /T meas. 2=4359
 BaTiO₃-BaSnO₃ solid solutions, at high temp. 0=12076
 Be, allotropic transf. due to plastic deformation 0=3170
 Be films, condensed on cold substrates 1=15179
 Be hydroxide, allotropic, light-dark 4=7475
 Be, internal friction study 2=21544
 Be, at 93 and 55 kbar at 25°C 4=10022
 Be-Fe alloys 3=11290
 Be-Ni (8 at. %), diffusionless $\beta \rightarrow \alpha$ for rapid cooling 4=23254
 BeO, high temp. polymorph 3=1320
 BeO, 2100°C 3=2818
 Bi, allotropic transf. due to plastic deformation 0=3170
 Bi, diagram for pressures up to 30 000 kg/cm² 1=11581
 Bi, effect of Sb and Pb impurities, under pressure 3=25751
 Bi, up to 50 kbar and 500°C 4=26568
 Bi, high press., low temp. 2=7482, 9483

Phase transformations—contd

- Bi metal, to 40 kbar 1=9090
 Bi, phase diagram, up to 10⁵ kg/cm² and 500°C 2=23872
 Bi, press.-induced polymorphs, structural and transform characts. study 4=30795
 Bi, pressure-temp.-resistance props. 4=7500
 Bi, up to 70 kbar 3=19067
 Bi, strain-induced at low temperatures 0=18379
 Bi, supercooling 2=4447
 Bi-Ca-Mg system 2=21538
 BiFeO₃, ferroelec., Curie temp. det. 2=2205, 4090
 BiFeO₃, 700°-800°C 3=20770
 BiFeO₃-LaFeO₃, dielectric, diagram 4=4214
 BiFeO₃-Sr(Sn_{1/2}Mu_{1/2})O₃, antiferromag., and Sn¹¹⁹ Mossbauer change 4=15658
 BiFeO₃-SrSnO₃, 4 solutions, ferro to paraelectric, from Mossbauer effect, temp. var. 4=4212
 Bi₂O₃-Nb₂O₅ systems meas. 3=6813
 Bi-Pt alloys between PtBi and PtBi₂ 3=11280
 Bi₂Rh, diagram revision 2=4448
 Bi-Se, double layers 2=4355, 6759
 Bi-Sn(50/50), high press., melting pt. obs. 4=20697
 C black, graphitization 2=6763
 C films, graphitization 3=13395
 C films, graphitization and deformation 4=15731
 C films, graphitization, structure meas. 4=23263
 C graphitization, diamag. suscept. obs. 4=26546
 C, graphitization of polymers 4=23264
 C graphitization, X-ray obs. 4=26547
 C, new phase above 150 kbar 3=18229
 C, pyrolytic, high temp. graphitization 4=7476
 C steel, martensitic, coherent rearrangement of lattice 2=23875
 CF₄, solid, to 20 000 kg/cm² 0=14042
 (CH₃)₄NCl, thermodynamic data 2=14381
 CH₄, CD₄, solid, 0-19 000 kg/cm², 4-120°K 0=12055
 CO₂, electrical effects 0=8977
 CO₂-H₂O, two phase region, up to 3500 bar 4=8508
 CS(NH₄)₂, ferroelectric and specific heat, anomalous 4=1399
 Ca, $\alpha \rightleftharpoons \gamma$, alloying addns. effects 2=23878-9
 Ca perovskite-type cpds., ferroelectric and puckering transitions 0=13654
 CaCO₃, high-press phases I, II, III and KNO₃-IV type 4=30799
 CaCO₃, to 100 kbar, X-ray diffr. study 2=8811
 Ca-CaH₂, phase system 2=2405
 Ca₃GeO₈, temps., by thermal analysis 3=23373
 β -Ca₃(PO₄)₂, at low temps. 0=8011
 CaS, vaporization rel. to thermodynamic props. 4=16301
 CaSiO₃:Mn:Pb 0=3267
 Ca₂SiO₃, room temp. to 1100°C 4=29100
 Ca_{0.16}Zr_{0.84}O_{1.84}, isothermal grain growth 4=13644
 Cd oxide pressed powders with excess Cd or O, between impurity and lattice scattering 3=22940
 Cd-Mg alloys, and composition 4=20699
 Cd-Mg alloys, kinetics 1=12645
 Cd-Mg alloys, order-disorder 3=16103
 Cd-Mg-In alloys, and composition 4=20699
 CdS, 18 to 35 k bars 4=4502
 CdS powder, $\beta \rightarrow \alpha$, temperature 4=7477
 CdSe, polymorphic, at 0-50 kbar 3=16016
 Cd₂SiO₄, high press., olivine-spinel 4=30797
 Cd-Sn alloys, ordering 1=15141
 Cd-Te system, rel. to semicond. props. 2=19089
 CdTe, polymorphic, at 0-50 kbar 3=16016
 CdTe-In₂Te₃, peritectic compounds, semiconducting props. 4=6950
 CdTe-In₂Te₃ pseudo-binary system, peritectic transformations 4=7478
 Ce 1=15124
 Ce, allotropy at high press. 4=26560
 Ce, $\alpha - \alpha'$, diffusion on increasing temp. and press. 4=4503
 Ce, existence of critical point, study to 20 000 atm and 575°K 1=14938
 Ce, $\gamma \rightleftharpoons \alpha$, crystal struct. meas. 2=17041
 Ce, $\gamma \rightarrow \beta$, at high deformations in rolling at room temp. 4=13656
 Ce, Hall coeff., effect 2=18640
 Ce, at high pressures 1=3957
 Ce at high pressures 1=10205
 Ce, magnetic order-disorder and thermal expansion, low temp. anomalies 4=15433

Phase transformations—contd

- Ce, I-II, rel. to crit. end point 4=17757
 Ce, polymorphic, under pressure 1=10226
 Ce, spin effects on electronic configuration 1=7551
 Ce, transformations and structures 1=2518
 Ce, 20-350°C, up to 80×10^3 kg/cm² 3=16014
 Ce—Cu phase diagram, by differential thermal analysis and metallography 4=30800
 Co, f.c.c.—h.c.p. transformation 0=18374
 Co films, 0-500°C, elec. cond. study 1=14367
 Co, 6H₂O²⁺ trigonally distorted complex, below 90°K 4=28307
 Co, thin films 2=2425
 Co, thin sections, h.c.p. to f.c.c. obs. by electron diffraction and microscope 3=1351
 Co whiskers, f.c.c. \leftrightarrow h.c.p. martensitic transformation 4=23258
 CoCl₂·6H₂O, para- to antiferromagnetic, proton resonance obs. 4=20610
 Co and Co—Ni, f.c.c.—h.c.p., natural and stress induced 0=16311
 Co and Co—25% Ni, martensitic 0=21207
 Co—Mn oxide spinels 2=6760
 Co—Ni alloys, h.c.p. to f.c.c. electron diffract. and microscope observation 3=1351
 Co₃O₄—Mn₃O₄ system, composition—activity curves, free energy of mixing and of CoMn₃O₄ formation 4=22517
 Co—Pt, ordering, lattice distortion, X-ray exam. 4=23260
 Co—Se, monoselenide to diselenide 4=7480
 Co—Sn, mag. props., temp. var. 4=4327
 Co V, order—disorder, near 550°C 4=23259
 Co—W, elastic modulus and damping decrement 4=17727
 Cr, ductile—brittle, rel. to fracture 4=23135
 Cr, high temp. search 4=23261
 Cr, 113°—373°K 4=29104
 Cr spinel systems 3=16018
 Cr spinelides, rel. to calcination 3=16081
 Cr—steels, austenite—martensite transformation effect of irradiation 1=4005
 Cr, 200°C, X-ray obs. of no anomalous thermal exp. 4=20700
 CrCl₃, at 240°K 4=17808
 Cr—Fe alloy, electron shift, X-ray evidence 1=20585
 Cr—Fe, high temps., X-ray diffr. obs. 4=7479
 Cr—Fe system, thermodynamics 1=2539
 CrI₂, high temp. search 4=23261
 CrK alum, P_r²—T curve and colour transitions 4=28761
 Cr K sulphate alum, 192.5°K 4=29006
 Cr—Nb—Ni system 3=5119
 Cr—Ni alloy, ordering, effect of quenching temp. 0=8271
 Cr—Ni, high temps., X-ray diffr. obs. 4=7479
 Cr—Ni system, equil. diagram 3=11289
 Cr—Si—O system at low O pressures 4=24434
 Cr—Ti alloy, β — α , high-vacuum and high-temp. X-ray camera 0=13972
 Cr—Ti alloys, electron microscope examination 1=1416
 Cs, allotropic transf. due to plastic deformation 0=3170
 CsCl, b.c.c.—f.c.c. 2=12449
 CsI, at 469°C, X-ray investigation 4=23257
 CsI, to metallic state, calc. 2=6761
 CsNO₃, with absence of ferroelectricity, mechanism 4=4202
 CsNO₃ transition energy, direct meas. 0=18372
 CsPb chloride, tetragonal to cubic 2=19029
 Cu, critical pt. density, pressure, internal energy relationship 4=25849
 Cu, crystal texture, var. with rolling temp. 4=7481
 Cu films, condensed on cold substrates 1=15179
 Cu oxinate 3=18257
 Cu phthalocyanine 3=18257
 Cu, polygonization, rel. to impurities 3=20897
 Cu salicylate, crystal, mag. different 3=23374
 Cu—Ag(1.8-5.1%), ageing, effect of Sb, Be additions 4=13484
 Cu—11.9% Al alloy, isothermal ordering 2=23881
 Cu—Al alloy, ordering, effect of quenching temp. 4=1984
 Cu—Al alloy, ordering kinetics, incompleting long-range order 4=1986
 Cu—Al alloy, ordering, rel. to quenching temp. 3=18349
 Cu—Al alloy, ordering, vacancy formation 4=1987
 Cu—Al alloys, ordering, effect of P additions 4=1985
 Cu—Al alloys near solubility boundary, ordering 3=5132
 Cu—Al (14.3 at.%), order increase on low deformation 4=7487
 Cu—Al, low-temp. μ -phase (near Cu₃Al), structure 4=7617

Phase transformations—contd

- Cu—Al, ordering 2=23882
 Cu—Al, short-range order 4=1988
 Cu—Al solid solns., ordering kinetics, theory 4=7484
 Cu—Al solid solns., short-range order, temp. depend. 4=15723
 Cu—Al and Cu—Ga, order—disorder on heating 4=6741
 Cu—Al—Ni, martensitic, lattice reorientation 4=13483
 Cu(78)—Al(14)—Ni(8), martensitic, with increased strain under stress 4=20702
 Cu—Au alloy, order—disorder, X-ray study 2=17046
 Cu—Au system, antiphase structures 4=13485
 CuAu, growth of ordered regions 3=8902
 CuAu, order—disorder, internal friction peak 4=26511
 CuAu₃, ordering, X-ray study 2=4461
 Cu₃Au alloy, order—disorder, kinetics, two ordering processes 4=7489
 Cu₃Au alloy, ordering process, elec. data 3=3330
 Cu₃Au alloy, ordering process, Hall effect data 3=3331
 Cu₃Au, equilib. states of resist. at 600°C 2=2110
 Cu₃Au, kinetics of ordering 3=20889
 Cu₃Au, local ordering at low temps. 4=26548
 Cu₃Au, order—disorder, internal friction peak 4=26511
 Cu₃Au, ordered and disordered, elastic const., 4.2—300°K 1=20284
 Cu₃Au, ordered, disordering by particle bombard. 3=4895
 Cu₃Au, ordering, influence on Hall effect 3=839
 Cu₃Au, ordering kinetics, X-ray obs. 3=13529
 Cu₃Au, ordering, nucleus formation and growth 4=7488
 Cu₃Au, ordering rate, effect of quenched-in vacancies 4=15732
 Cu₃Au, ordering, thermoelec. meas. 3=25753
 Cu₃Au, ordering, type II antiphase boundaries 4=7490
 Cu₃Au superlattice, off-stoichiometric 3=13495
 Cu₃Au type alloy, ordering effect on resistivity, theory 1=19827
 Cu₃Au type superlattice alloys, ordering 4=7483
 CuAuI, ordering 2=6829
 CuAu(I)—CuAu(II) superlattice transition 0=21212
 Cu—Be, aged, orientations of new phases 3=16099
 Cu—Be alloy, elastic oscill. damping effect 4=13403
 Cu—2% Be alloys, ageing, structural changes 4=7482
 Cu—Be system, β transformations 4=7486
 CuBr, T—P curves of transitions 1=8986
 CuCl, T—P curves of transitions 1=8986
 Cu—3%Co, rel. to precipitation hardening 3=20898
 CuFe₂O₄, cubic—tetragonal, from Müssbauer effect 3=11205
 CuFe₂S₃, polymorphic, rel. to mag. props. 3=11049
 Cu—In alloy, elastic oscill. damping effect 4=13403
 Cu₂MnAl alloy, partial disordering at high temp. 2=21551
 Cu₂MnSn 1=15132
 Cu[(NH₄)₂SO₄]₂·6H₂O, at 67°C, with change of structure 1=14936
 Cu—Ni alloys, "microheterogeneous" condensation 2=4449, 8843
 Cu—Ni, powder to alloy homogenization progress, X-ray diffr. obs. 4=26550
 Cu—Ni—Al alloy, martensite transformation 4=17755
 Cu—Ni(6-10 wt.%)—Al(1.5 wt.%), Ni₃Al separation at 880°C 4=26551
 Cu₃Pd, order—disorder, internal friction peak 4=26511
 CuPt₃, order—disorder, internal friction peak 4=26511
 Cu—Si alloy, $\alpha \rightarrow \kappa$ transf., role of vacancies 3=1353
 Cu—Si—(Mn) alloys, rel. to deformation and annealing 3=22701
 Cu—Sn alloy, β'' — β reverse martensitic, heating rate effect 4=7491
 Cu—Sn alloys, optical studies 0=1718
 Cu—Sn, Cu—Sn—Pu, neutron irradiat. 2=12926
 Cu—Sn, γ -phase, natural ageing process 4=23256
 Cu—Ti, ageing, plastic deformation 1=15136
 Cu—Ti alloy, rel. to plastic deformation 3=5126
 Cu—Ti alloys, Cu₃Ti precipitation 0=21228
 Cu—Ti alloys, during ageing 1=1412
 Cu₂XY₂, (X = Ge or Sn; Y = S, Se or Te), ordering and superstructure 4=2066
 Cu—Zn alloys, order—disorder transformation 4=17756
 Cu—Zn alloys, change in X-ray diffr. pattern due to disorder—order transformation 4=17756
 α Cu—Zn, ordering energy, thermal meas. 4=10423
 CuZn β , order parameters near transit. temp. 2=15059

Phase transformations—contd

- β -CuZn, order-disorder, neutron diffr. study 3=16105
 β -CuZn, ordering, effect of long-range interactions 4=13482
 Cu-Zn, γ -phase transitions 4=13481
 Cu-Zn-Cd, diagram, section 500°C, 100-35% Cu 3=8898
 Dy, ferro- and antiferromagnetic, exchange interaction mechanism 3=20573
 Dy, 50-kilobar transition, nature 4=30849
 Dy, paramag.-antiferromag. transition, pres. effects 3=20552
 Fe, A₁ and A₂, heats meas. 3=10598
 Fe alloy, with Al, C, Ni, S, Si, diffusion 0=8268
 Fe alloys, liquidus-solidus curves 4=24430
 Fe alloys, thin-film martensite transformation 0=21209
 Fe, α - γ , detection using differential thermal cond. anal. 0=14043
 Fe, α - γ , rel. to energy loss in electron scattering 3=2040
 Fe, α - γ , γ - δ , wires, plastic deformation, irreversible 3=23471-2
 Fe, α = γ interface 3=13494
 Fe, α \rightarrow γ transition, elec. resistivity meas. 4=30611
 Fe, α - γ , twinning and atomic matching 2=8842
 Fe, b. c. c. to h. c. p. at 130 kbar room temp. 4=30802
 Fe-base alloys, paramag. range, ordering 2=23635
 Fe carbides, X-carbide-cementite, 350°-550° C 4=7499
 Fe, rel. to deformation 4=28960
 Fe, dispersion-strengthened, A₃ transform. 2=23868
 Fe, elec. cond. at high press. 2=8276
 Fe, rel. to elec. resistivity 1=17607
 Fe, f.c.c. and b.c.c., lattice stability 3=13523
 Fe films, condensed on cold substrates 1=15179
 Fe foils, martensite, by optical microscopy 3=8890
 Fe, γ - α change point, length change meas. apparatus 0=14572
 Fe, martensite-ferrite, thermodynamics 3=5120-3
 Fe, martensitic, on rapid quenching 4=13495
 Fe, shock-wave induced, 130 kbar 2=23846
 Fe, strength during allotropic transformation 4=23266
 Fe, technical, strain-ageing meas. 4=13415
 Fe, torsion at 700°-1250°C 3=6857
 Fe, from velocity, acoustic waves, up to melting temp. 4=15413
 Fe, X-ray diffr. study, to 100 kbar 2=8811
 Fe-Al alloys 4=15441
 Fe-Al alloy, atomic order rel. to elastic modulus 3=25605
 Fe-Al alloys, liquidus-solidus relations 0=6383
 Fe-Al alloys, ordering rel. to yielding 4=28959
 Fe-Al alloys, short range order coeffs. 3=13505
 Fe-Al, order-disorder reaction 4=6854
 Fe-Al, ordering kinetics 3=3327
 Fe-Al solid solns., ordering, theory 3=6871
 Fe₃Al alloy, neutron radiation disordering 4=20707
 Fe₃Al, mag. and elec. props., equilb. diag. 3=3326
 Fe₃Al, ordering 4=4473
 Fe₃Al superlattice, martensitic 3=16102
 Fe-Au alloys, A₁, temp. 3=11285
 Fe-3.8% Au solid solution, plates to particles 3=8882
 Fe-C alloys, austenite, isothermal, pressure effects 3=11286
 Fe-C, irradi., C precipitation, kinetics 4=15735-6
 Fe-C, martensitic transform., effect of press. 2=8841
 Fe-1.2% C-12.5% Mn, martensite formation 4=17760
 FeC₂O₄·2H₂O, antiferromagnetic, from Mössbauer effect 4=9812
 Fe-Co alloy, order-disorder transition, neutron diffr. study 4=1994
 Fe-Co alloys, order-disorder 3=1355
 Fe-Co alloys, order-disorder 3=13506
 Fe-Co alloys, ordering processes rel. to recrystallization 4=26598
 Fe-Co alloys, ordering, recrystalliz. 3=11296
 Fe-Co alloys, ordering and recrystallization 4=1993
 Fe-Co alloys, rel. to Young's modulus and magnetization 1=20302
 Fe-Co, order-disorder, neutron diffr. exam. 3=23478
 Fe-Co-V alloys, α - γ transformation 1=6532
 Fe-Co-V alloys, annealing, elec. cond. 4=1992
 Fe-Cr alloys, rel. to elec. resistivity 1=17607
 Fe-Cr, α - γ , elec. cond. and thermo. e.m.f. 2=23234
 Fe-Cr-C, austenite-martensite 3=18346

Phase transformations—contd

- Fe-Cr-Ni alloy films, f.c.c. to h.c.p. and b.c.c. 3=23474
 Fe-Cr-Ni alloy, martensitic transform. 2=23870
 Fe-Cr-Ni alloys, martensitic 3=20883
 Fe-Cr-Ni, martensitic, association of hcp and bcc. 4=20709
 Fe₃Cr, order-disorder, 1000°-1150° C 4=10427
 Fe-Cu alloys, resistance to deformation 1=15137
 Fe-Ge alloys, β -phase homogeneity 4=29118
 Fe₃Ge 4=1833
 Fe-Ir alloys, A₁, temp. 3=11285
 Fe₃LiO₈, order-disorder, radiocrystallog. study 4=26555
 Fe-Mn alloy, γ \rightleftharpoons ϵ transformation, effect of Mo and W 4=10426
 Fe-Mn alloys, effect of plastic deformation 4=13493
 Fe-Mn alloys, martensitic transf., rel. to internal friction 1=1305
 Fe-Mn, ϵ -phase formation, kinetics 4=23272
 Fe-Mn(< 7%), δ liquidus and solidus meas. 4=24431
 Fe-Mn-C foils, martensite nucleation 3=23475
 Fe-Mn-C, martensitic transition, multilayer structure 4=13494
 (Fe, Mn)₃C, (cementite), precipitation from austenite 4=15734
 Fe₃N and Fe₄N, precipitation from ferrite 4=15734
 Fe-Ni alloys, effect of pressure and heat treatment 1=6531
 Fe-Ni alloy in fine particles 3=8897
 Fe-Ni alloys, γ - α - γ , rel. to H permeability 3=18344
 Fe-Ni alloys, Invar type, mag. transforms. and elasticity 3=25607
 Fe-Ni alloys, martensitic 0=21208, 21210
 Fe-Ni alloy, martensitic 3=20883
 Fe-Ni alloys, order-disorder 3=1355
 Fe-Ni alloys, rel. to plastic deformation 4=17763
 Fe-Ni alloys, resistance to deformation 1=15137
 Fe-Ni alloy, reverse martensitic, structure 3=20866
 Fe-Ni, austenite-martensite, by compression 2=10781
 Fe-Ni, austenite-martensite, under high pressure 4=23267
 Fe-Ni, Cr, Si, diffusionless, $\gamma \rightarrow \alpha$ 2=8840
 Fe-Ni 50/50% alloy, ordering by neutron bombard. 2=6830
 Fe-Ni (50-50), order-disorder, by n irradi., from elec. cond. 4=7496
 Fe-Ni films, martensitic transform. 3=20884
 Fe-Ni foils, martensite nucleation 3=23475
 Fe-Ni, martensite burst transform., mechanism 4=7495
 Fe-Ni (1-10%), on rapid quenching 4=13496
 Fe-Ni, order-disorder 4=1457
 Fe-Ni, order-disorder transition 3=8900
 Fe-Ni (70/30), austenite to martensite, u.s. study 1=7813
 Fe-Ni system, high-pressure, phase diagrams 2=2399
 Fe-Ni (23.7%)-Mn (2.8%), martensitic 2=23873
 Fe-Ni (22.5%), effect of alloying elements 4=7496
 Fe₃Ni, order-disorder 2=4465
 Fe-Ni-Al solid solution, decomposition, initial stage 3=20909
 Fe-Ni-C alloy, martensitic transformation rel. to plastic deformation 4=17764
 Fe-Ni-C alloy, resistivity changes, voltage signals 2=4451
 Fe-Ni-Mn alloys, antiferromag. ordering 3=13284
 Fe-Ni-Ti, reverse martensitic transform, mech. props. 4=23167
 Fe-Ni-V, reverse martensitic transform, mech. props. 4=23167
 FeO₂, iron-magnetite-wüstite diagram, $1 \leq x \leq 1.2$ 4=26559
 FeO, by X-ray exam. 3=11200
 Fe₂O₃, $\gamma \rightarrow \alpha$ phases, theory 3=11204
 Fe₂O₃, $\gamma \rightarrow \alpha$ with pressure 0=18376
 Fe₂O₃, melting relations, Cr₂O₃ effect at low O₂ press. 4=14453
 Fe₃O₄, low-temp., Mössbauer effect study 4=4510
 Fe₃O₄- γ -Fe₂O₃- α -Fe₂O₃, mag. and dielectric props., 10^2 - 4×10^9 c/s 3=18071
 FeO-SiO₂-CaO melts, temp. and composition depend. 0=18163
 Fe-Os alloys, A₁, temp. 3=11285
 Fe-P (0.5-13% wt.), diagram 4=13491
 Fe-Pt alloy, press. effect on Curie temp. 4=20711
 Fe-Rh alloys, Fe⁵⁷ Mössbauer effects 3=17632
 FeS, α -transformation, susceptibility anomaly 0=18209

Phase transformations—contd

- Fe-Si alloys, A_3 point, volume change 3=10602
 Fe-Si alloys, $\alpha = \gamma$, effect of volume changes 3=5124
 Fe-Si alloys, ordering, Fe sites study 3=8335
 Fe-Si alloys, ξ -phase, eutectoid 3=6859
 Fe-3%Si, directional ordering by magnetic annealing 3=15804
 Fe-Si, high pressure, var. with Si content 4=7497
 Fe-Tc alloys, A_4 , temp. 3=11285
 FeTiO₃-Fe₂O₃, order-disorder, rel. to reverse thermo-remnant mag. 3=13255
 Fe-V alloy, electron shift, X-ray evidence 1=20585
 Fe-Zn alloys, α -phase boundary 4=26654
 Ga, elec. cond. anisotropy 0=9930
 Ga II-III, polymorphic at high press. 3=6814
 GaSb, to metallic form at high pr. 3=11211
 Ga-Te system 1=15134
 Gd, high press. 4=15733
 Ge, antiferromagnetic, n-type, heavily doped 3=23135
 Ge, epitaxial films, amorphous-cryst. 3=3280
 Ge epitaxial films, polycrystalline-single crystal 4=10486
 Ge, at high pr. metallic modifications 3=11210
 GeO₂, kinetics, 800°-1200°C 3=13400
 GeS-S-SnS system 4=26552
 GeTe-PbTe, solid soln. 2=17055
 GeTe-SnTe alloys, rhombohedral-cubic 3=13524
 GeTn-SnTe, solid solns. 2=17055
 H, solid, second-order transitions 3=6450
 H₂, conditions for existence of momatomic phase 0=15767
 HCl, HBr, solid phases under press. 2=4357
 HCN, between 77-195°K, study by N¹⁴ pure quadrupole resonance 0=6283
 pH₂-oD₂, solid system, separation, from vapour press. at pH₂ triple point 4=20705
 H₂O, adsorbed in porous Vycor glass, from expansion 4=10630
 H₂S, solid 3=1325
 H₂S, solid, rel. to structure 4=20706
 H₂S, solid, to 20 000 kg/cm² 0=14042
 He, liquid, boundaries between phases 0=8921
 He, liquid, λ , and specific heat logarithmic var. 4=21370
 He liquid, λ -transition 4=8543
 He, liquid, 2nd kind transitions, theory 4=16312
 He, solid, transit. to metal state at high press. 2=22109
 He II, λ -point drag forces 2=1328
 He α , β - γ transform. in solid 2=7493
 He³, h.c.p. allotrope at high press. 1=13039
 He³, liq., near melting curve 2=15834
 He³, liquid, transition predicted 0=12548
 He³, solid, α - β 2=15842
 He³,⁴, solid, hcp-bcc 3=16853
 He³, solid, rel. to thermal cond. 0=19545
 He⁴, liquid, λ transformation, thermodynamic props. 4=27405
 He⁴, liquid-vapour and liquid-solid mixtures, Ehrenfest eqns. 0=14914
 He⁴, solid, α - γ 2=15830
 He⁴, solid β and γ forms 1=8279-80
 He⁴, solid, with liq, He⁴II, rel. to thermal props. 3=1888
 He³-He⁴ diagrams 4=18508
 Hf, h.c.p. \rightarrow b.c.c. rel. to elastic moduli 4=26530
 Hf, at high pr. 3=13451
 Hf-Al-Si system 2=17045
 Hf-H system 2=23808
 HfO₂, monoclinic-tetragonal 3=25654
 HfO₂, monoclinic-tetragonal, diffusionless 4=13509
 Hg, liquid- α and α - β , under pressure 3=18227
 Hg, solid, $\alpha \rightarrow \beta$ transform. 2=14915
 HgS, on cooling after vapour phase growth 2=16976
 HgSe, high press., from elec. props. 4=23278
 HgSe, high-pressure 3=3253
 HgTe, polymorphic, at 0-50 kbar 3=16016
 HgTe, resistivity change rel. to pressure 1=14473
 HgTe-In₂Te₃ alloy, rel. to semicond. props. 4=22719
 I₂, first order, by shock waves, diatomic bond destruction 0=15767
 In, fusion curves to 10⁵ atm 0=9840
 In, supercond., edge effect elimination 4=24502
 In supercond. films, 2nd order, mag. field effects 4=29835
 InAs, to metallic form at high pr. 3=11211

Phase transformations—contd

- InAs-In₂Se₃, homogenization, by annealing under pressure 0=1939
 InP, to metallic form at high pr. 3=11211
 In₂S₃, vacancy ordering, 420° C, direct obs. 4=13489
 InSb 3=20771
 InSb, h.p. transition 4=17758
 InSb, metallic form 3=13517
 InSb, to metallic form at high pr. 3=11211
 InSb, solid 1=18678
 InSe, amorphous, short-range order meas. 3=13515
 In-Sn alloys, supercond. order, from magnetization 4=18576
 In-Te, diagram in In₂Te₃ region 2=10917
 InTe (II), metallic, stability conditions 4=10428
 In₂Te₃, $\alpha = \beta$ 1=4065
 In₂Te₃ solid solns. with A^{II}B^{VI} tellurides, ordering 1=20621
 K, elec. cond. rel. to pressure over 500 kbar 4=1559
 K halides, polymorphic transition, optical observations 0=16037
 K, residual resistance 0=20870
 (K_{0.5}Bi_{0.5})TiO₃, 270° and 410° C 3=20851
 KBr, high-pressure, from compressibility, shock 3=18179
 KBr, rel. to press., transparency meas. 2=23803
 KBr-KCl, solid solns., kinetics 2=23799
 KCl, high-pressure, from compressibility, shock 3=18179
 KCl, polymorphic, press. effect calc. 2=14922
 KCl, rel. to press., transparency meas. 2=23803
 KCl, X-ray diffr. study, to 100 kbar 2=8811
 KCN, interdomain symmetry in reversible transformations 1=7834
 KCN, temp. cycling at thermal transformation, \sim -110°C, domain co-existence 0=21196
 K(Cr, Al) alums, optical study 1=7710
 K₂CrO₄, up to 100 kb 3=25655
 K₂Cr₂O₇, up to 100 kb 3=25655
 K₄Fe(CN)₆·3H₂O 1=11351
 K₄Fe(CN)₆·3H₂O, ferroelectric and specific heat, anomalous 4=1399
 KH₂PO₄, and optical harmonic prod. anomaly 4=4269
 K-Hg 2=21549
 KMnO₄, up to 100 kb 3=25655
 KNO₂, solid at 40°C, hysteresis shown by dilatometric methods and u.v. spectroscopy 4=7510
 KNO₃, calorimetric meas., polymorphic transforms. 2=14920
 KNO₃, high-pressure polymorphs, rates 3=20772
 KNO₃, transition at 130°C, thermal cond. decrease 1=9991
 KNO₃, I=II, direct meas. of energy 2=12878
 KPF₆, first-order transition, calorimetry 3=12927
 La, allotropy at high press. 4=26560
 La, pressure-temp.-resistance props. 4=7500
 LaAlO₃, to cubic phase, e.s.r. data 3=11112
 Li, allotropic transf. due to plastic deformation 0=3170
 Li, b.c.c. to h.c.p., low-temp. mag. susceptibility change 1=1193
 Li, Li-Mg, martensitic, elec. resist. 2=6411
 Li, at low temp., deformation-induced, dilatometric study, rel. to elastic props. 4=10430-1
 Li, elec. cond. rel. to pressure over 500 kbar 4=1559
 Li, martensitic transform. in 30°K range 4=6745
 Li, martensitic transformation, spec. ht. study 0=7852
 LiFeO₂, polycrystalline powder, order-disorder process 4=30803
 LiH, polymorphic, press. effect calc. 2=14922
 LiGaO₃, disorder, above 1140°C 4=2080
 LiH, metallic, high pressure, calc. 4=10432
 LiI, effect on u.v. absorption 0=10038
 Li-Mg alloys, martensitic, rel. to elastic consts. 3=5125
 Li-Mg, sp. ht., martensitic transform. 0=2787
 Li(N₂H₄)SO₄ 4=1902
 Mg pyrophosphate, at 342.2°K 4=9860
 Mg₃B₂O₁₃, crystal symmetry, and absence of ferroelec. 4=4201
 Mg-Bi-Sn, thermal and metallographic study 2=21539
 MgCd, disorder-order 2=15060
 Mg-Cd alloys, order-disorder transformation 3=23479
 Mg-Cd alloys, ordering kinetics 4=7503
 Mg-Cd system, order-disorder, and creep 4=26519
 Mg₂Cd, order-disorder, dilatometric obs. 4=23277

Phase transformations—contd

- Mg₃Cd, ordering kinetics 4=1995
 Mg₃Cd, superlattice formation, and 2-phase, ordered-plus-disordered region 4=23176
 Mg-Fe ferrite, ordering, on heat treatment 4=13241
 MgGa₂O₄-MgMn₂O₄, 850° C 4=15740
 MgMn₂O₄, cation migration process meas. 4=26052
 MgMn₂O₄, "normal-random" change 2=14923
 MgMn₂O₄-MgAl₂O₄, tetragonal-cubic spinel transformation 1=20556
 Mg₂Si, cubic to hexagonal transform., temp.-press. conditions above 900°C and 25 kbars, 15% density increase 4=30804
 Mn, electrodeposited, X-ray study 1=1413
 Mn ferrite, -75°C, elec. props. study 1=14381
 Mn steel, $\gamma \rightarrow \epsilon$, plastic deform. effects 2=23876
 Mn steel, low C content, dissolution and formation of Nb carbide, kinetics 4=7506
 Mn-Al, ferromag. π , ϵ and β phases 2=21541
 MnAs, to ferromag., first-order 3=13226
 MnAs, first-order transition 3=15753
 MnAu₂, ferro-antiferromagnetic, exchange interaction mechanism 3=20573
 MnBi, order-disorder, and mag. props., heat treatment effects 4=1798
 MnBr₂·4H₂O 0=16144
 MnCl₂·4H₂O 0=16144
 MnCl₂·4H₂O, heat capacity anomaly at 1.6J°K 1=12356
 Mn-Cu alloys, aged, f.c.t. \rightleftharpoons f.c.c. 2=12737
 Mn-Fe alloy with and without Cr, Ni, and Mo, $\gamma \rightarrow \epsilon$ transformation, stabilization 4=20712
 MnHg, crystal distortion and magnetic transition, -75°C 3=6860
 MnO₃, γ - β transform., X-ray study 3=23376
 Mn-Pt alloys 4=26315
 MnRh ordered alloy, cubic-tetragonal charge 3=15752
 MnSe, Ag doped 2=19086
 MnTe, fictitious, crystal structure, high temp. 3=23469
 Mn-Ti alloys, electron microscope examination 1=1416
 Mn-Ti, β - to α - and w- phase transformation 1=10270
 Mn-Zn ferrites, effect of Ti addition 4=7502
 Mn₃O₄-MgAl₂O₄, tetragonal-cubic spinel transformation 1=20556
 Mn₂Sb, Cr-modified, ferrimag. to antiferromag. transition, neutron diffr. study 1=1242
 Mo, ductile-brittle, pressure effect 4=23276
 Mo oxides, 500-870°C 0=18345
 Mo-Permalloys K formation and mag. and elec. props. 4=26316
 MoO₃ 1=9110
 MoO₂-MoO₃ system, crystal structure, atomic 4=7631
 Mo-Re alloys, supercond., mag. and resistive 4=18586
 Mo-Ti, β - α , habit planes and orientation 0=16312
 N, critical opalescence, X-ray scatt. obs. 4=29676
 N¹⁴ in ethylenediamine crystals, at 180°K and liq. N₂ temp. from n.q.r. 4=7359
 NH₄ fluoroberyllate, -100°C 3=17981
 NH₄ halides, high pressure 1=9099
 (NH₄)₂BeF₄, ferroelec., n.m.r. data 2=10711
 (NH₄)₂BeF₄, ferroelec. phase transition 3=17941
 (NH₄)₂BeF₄, ferroelec. transit. 2=14916-17
 NH₄Br, modifications II and III, X-ray meas. 4=23419
 NH₄Br, I \rightleftharpoons II, differential calorimetric meas. 0=16334
 NH₄Br, I \rightleftharpoons II, dilatometric investigation 0=16335
 NH₄Cl, I \rightleftharpoons II, differential calorimetric meas. 0=16334
 NH₄Cl, I \rightleftharpoons II, dilatometric investigation 0=16335
 NH₄Cl, I \rightleftharpoons II, X-ray study 3=6810
 NH₄Cl-MnCl₂-H₂O solid solns., e.s.r. of Mn²⁺ 4=28875
 NH₄F 1=7833
 NH₄F, f.c.c. \rightarrow b.c.c., rel. to temp. and pressure 4=13478
 (NH₄)₂H₃IO₆, ferroelec., n.m.r. data 2=10711
 NH₄H₂PO₄, rel. to dielectric props. 2=18766
 NH₄HSO₄, ferroelec., n.m.r. data 2=10711
 NH₄HSO₄, ferroelectric and specific heat, -2.55°C 3=20101
 NH₄I, I-II transition energy and temp., direct meas. 4=26545
 NH₄NO₃, crystalline, study by i.r. spectroscopy 4=10419
 NH₄NO₃, dielectric observation, -100° to 130°C 1=1356
 NH₄NO₃, at 125.8°C and 84.1°C 0=17899
 NH₄PF₆, 20°-300°K, calorimetric data 3=12927
 (NH₄)₂SO₄, ferroelec., n.m.r. data 2=10711
 (NH₄)₂SO₄, ferroelec. transit. 2=14916-17
 (NH₄)₂SO₄, -50°C 3=17981

Phase transformations—contd

- (NH₄)₂SiF₆, cubic-hexagonal, rel. to thermal props 4=12645
 Na, allotropic transf. due to plastic deformation 0=3170
 Na, elec. cond. rel. to pressure over 500 kbar 4=1559
 Na, elec. resistivity of two low-temp. phases, 15-50°K 0=7914
 Na, martensitic, effect on electronic spec. heat 1=913
 Na, martensitic, meas. rel. to thermoelec. power 2=12551
 Na, martensitic transform. in 30°K range 4=6745
 Na, martensitic transformation, spec. ht. study 0=7851
 Na, volume change 0=21188
 NaCN, n.m.r. studies 4=23294
 NaCl, crystallization, "Morphodrome" diagrams 3=16042
 NaCl, to cubic CsCl-type, under high press. 3=16015
 NaCl, structure change to CsCl-type at 18 000 kg/cm² 2=23804
 NaCl, structure change to CsCl-type at 18 000 kg/cm² 3=6811
 NaCl, X-ray diffr. study, to 100 kbar 2=8811
 Na-K-Cl-Br ternary system, phase diagram 1=20614
 NaN₃, crystal structure change at 19°C 4=26566
 NaNO₂, critical scatt. of X-rays, meas. 4=20716
 NaNO₂, ferro- to antiferroelec., from specific heat temp. var. 4=17769
 NaNO₂, ferroelec. 2=4091
 NaNO₂, ferroelec. phase transition, X-ray study 3=25405
 NaNO₂, ferroelec. transforms., 163°C 4=7512
 NaNO₂, ferroelectric 1=14557
 NaNO₂, ferroelectric, X-ray study 3=13397
 NaNO₂, new phase between ferro- and paraelectric phases 1=20560
 NaNO₂, 163°C, study by polarized i.r. absorpt. 2=2238
 NaNO₂, 163°-178°C 4=1663
 NaNO₂, X-ray and neutron diffract. study 3=1336
 NaNO₃, anion rotational disorder, above 275°C 4=29019
 NaNO₃, i.r. investigation 4=20717
 NaNO₃, model, rel. to Na²³ n.m.r. data 2=10724
 NaNO₃, X-ray diffr. study, to 100 kbar 2=8811
 NaNbO₃, 360°-635°C 4=10438
 NaNbO₃, 20-700°C, X-ray study 2=2341
 NaNbO₃(1-x).KTaO₃x, rel. to ferroelec. data 2=14919
 Na(Nb_{1-x}Ta_x)O₃ 3=13394
 Na(Nb_{1-x}V_x)O₃, ferroelec. 2=12571
 NaSH, n.m.r. study 4=7511
 NaSbO₃, pyrochlor-ilmenite, meas. 4=13501
 NaTaO₃, 22°-680°C 3=23377
 NaYF₄, crystal structure, 670°C 3=23455
 Nb, involving interstitials 4=17766
 Nb oxides, and structure, from X-ray and electron diffr. 3=13458
 Nb-N terminal solid soln., metal-gas equil. 3=11298
 Nb and Nb-base alloys, oxides 3=11287
 Nb-O solid soln., electron microscopic investigation 4=30805
 Nb₂O₅, polymorphism, X-ray diffr. study 1=1398
 Nb-Sn, constitution diagram 4=13498
 Nb-Sn, 800-1000°C 3=8893
 Nb-Sn, supercond. 2=21536
 16% Nb-Zr alloy, $\beta \rightarrow \alpha$ transformation, reversibility 4=23281
 Nb-Zr, sepn. into two b.c.c. phases 2=21535
 Nd, allotropy at high press. 4=26560
 Nd in Mg, supersat. solid soln., decomposition effect of plastic deformation 4=10435
 Ni films, f.c.c. to h.c.p., by neutron irradiation 1=19822
 Ni films, neutron irradi., f.c.c. to h.c.p. change 0=10338
 Ni, metal-insulator-metal, under high compressions 4=6928
 Ni, neutron effect 4=23282
 Ni nitrides, by N insertion 3=1322
 Ni, strain-ageing meas. on stress-strain curves 4=13433
 Ni-Al bronze, β - α , non-equil. segregation 3=18352
 Ni-B system, 300-550°C 4=15742
 Ni-Be, aged, orientations of new phases 3=16099
 Ni-Be alloy, "hot" ageing and recovery 4=2112
 Ni-C-Fe crystals, martensite formation on surface 4=15805
 Ni-Cd system, liquidus curve 4=16291
 Ni₃Co, ordering, effect on Debye characteristic temp. 4=1982

Phase transformations—contd

- Ni—Cr alloy, short-range ordering, room temp.
-600°C 4=1998
Ni—Cr alloys, formation of K-state 2=10909, 15058
Ni—Cr films, vacuum deposited, structure changes rel. to annealing temp. 4=26562
Ni—Cr, irradi., structural 4=1996
Ni—Cr (21.4 wt%), K, neutron effects, 4=23282
Ni—Fe alloy, f. c. c. → b. c. c. lattice 4=9954
Ni—Fe alloy, by N atom insertion 3=1323
Ni—Fe alloy, plastically deformed and heat treated 5=26524
Ni—Fe (50/50), ordering due to neutron irradi. 4=13207
Ni—Fe (72%), $\gamma \rightarrow \alpha$, X-ray diff. obs. 4=23271
Ni₃Fe, ordering, on annealing, and mag. anisotropy change 3=23155
Ni₃Fe, ordering, effect on Debye characteristic temp. 4=1982
Ni₃Fe, short-range order, rel. to heat treatment and plastic deformation 4=23285
Ni—Ga, mag. props., temp. var. 4=4327
Ni—In, mag. props., temp. var. 4=4327
Ni—Mn alloy, ordering, effect of plastic deform. 3=5133
Ni₃Mn alloy, ordering, effect on saturation magnetization 4=28825
Ni₃Mn, disorder to order transformation 1=6535
Ni₃Mn, effects of order on Hall consts. 2=6422
Ni₃Mn, at ~110°K 0=17890
Ni₃Mn, order—disorder, from Mössbauer effect 3=13528
Ni₃Mn, ordering, effect on Debye characteristic temp. 4=1982
Ni₃Mn, ordering kinetics 3=3329
Ni₃Mn, ordering kinetics 4=1997
Ni—10 at % Mo, close-range order (K-state) formation 4=23284
Ni—Mo alloys, K-state formation, effect of atomic defects 4=23283
Ni(NH₃)₆-halides, from thermal props. below 1°K 4=22494
Ni—P solid solutions, acid deposited, on heating, X-ray diff. obs. 3=20876
Ni—Pt alloys, order—disorder, rel. to plastic deformation 4=13499
NiRh₂O₄, crystal, 380°K, from mag. susceptibility 3=23196
Ni—Se layers, 4=7505
Ni—Se, thin layers, 20°–400°C 2=12879, 19027
Ni—Sn, mag. props., temp. var. 4=4327
Ni—Ti, phase growth and coagulation in ageing, kinetics 2=8855
Ni—Ti, supersaturated solid solns., decomposition 1=15133
Ni—Ti—Cr, supersaturated solid solns., decomposition 1=15133
NiRh₂O₄, crystal struct., atomic, tetragonal distortion 4=23460
Ni₂SiO₄, high press., olivine—spinel 4=30798
Np, allotropic 0=12056
Np, α — β latent heat 0=2789
Np, pressure-temp.—resistance props. 4=7500
O, solid, crystal structure, atomic 4=7633
O—H system, solid-gas equil. meas. 2=11541
O₂, solid, 0–19 000 kg/cm², 4–120°K 0=12055
P, black 3=13399
P, Bridgman, Krebs and processed black 4=10436
P, pressure and temp. depend. 1=6686
P, I—II, at high press., region of indifference 4=13510
P, red to black, at high press., elec. resist. study 1=3729
PH₃, solid, at 10°K 4=10186
P₂O₅, melt allotropic 3=21311
P₂O₅, reversible transition 1=20398
Pb alloys, ageing mechanism 1=15151
Pb, liquid, temp. depend. of short-range order 2=1134
Pb supercond. films, 2nd order, mag. field effects 4=29835
(Pb, Ba)(Ti, Zr)O₃, ferro- and paraelectric phases 4=15739
Pb—Bi (88:12) films, metastable, from supercond. var. 4=23274
Pb(Mg_{1/3}Nb_{2/3})O₃—Pb(Ni_{1/3}Nb_{2/3})O₃ 1=6195
PbNb(Zr, Ti, Sn)O₃, ferroelectric—antiferroelectric phase changes 4=4216
PbS, due to press., rel. to elec. cond. 2=23257
PbTe, due to press. rel. to elec. cond. 2=23257
PbTe—SnTe alloy system 4=23275

Phase transformations—contd

- PbTe—SnTe, solid solns. 2=17055
PbTiO₃—BiFeO₃, Curie temp. shift 2=2205, 4090
PbTiO₃—LaFeO₃ system 3=20852
PbZr, TiO₃ system, transit. near 75°C 2=17039
PbZrO₃, modified with Ti⁴⁺ and Sn⁴⁺, ferroelectric to anti-ferroelectric transitions 4=26123
Pb(Zr_{0.85}Ti_{0.15})O₃, with 1 wt. % Nb₂O₅, ferroelectric, FE₁—FE₂ 3=22998
PbZr_{0.95}Ti_{0.05}O₃, and velocity acoustic waves 70–80°C 3=15618
Pd—H, isotherms hysteresis 3=25750
Pd—W, Pd—Mo, K-state formation 2=21093
Pr, allotropy at high press. 4=26560
Pt—Al, 3 new phases, crystal struct. 4=23286
PtBi, 420° to 630°C 3=18332
PtBi₂, 420° to 630°C 3=18332
Pt—Mo alloys 2=23880
Pu, α — δ , correspondence matrix 4=4511
Pu, equilibrium temps. 0=21226
Pu, magnetic, ~55°K and Young's modulus temp. var. 3=20691
Pu, pressure-temp.—resistance props. 4=7500
Pu, substruct. form. at high temp. 4=29165
Pu—C, < 50 at % C, 500–1500°C, diagram 4=7508
Pu—Ce 4=29802
Pu—Eu mixed oxide system, from crystal structure atomic 4=7605
Pu—Ga system 4=29015
Pu and δ Pu—Al, order-disorder 1=20622
Pu—Ti alloys, $\beta \rightarrow \alpha$ transformation kinetics 4=29017
Rb, elec. cond. rel. to pressure over 500 kbar 4=1559
RbCl, rel. to press., transparency meas. 2=23803
RbF, f. c. c. to CsCl-type, 9–15 kbar 3=5077
RbHSO₄, ferroelectric transition. 0=7980
RbI, polymorphic, press. effect calc. 2=14922
RbNO₃, with absence of ferroelectricity, mechanism 4=4202
RbNO₃, thermal transformations 3=1252
RbNO₃, transit. energies and temps. 2=8762
RbPb₃, order—disorder, specific heat data 3=12927
Re—Al, diagram, new phase ReAl₄ 3=20882
Re—Mo, atomic order in 2 σ -phases 3=25752
S, β — γ , -88.5°C, from solubility in methanol and petroleum 4=23288
SF₆, solid phase under press. 2=4357
Sb, at high pressures 4=29003
Sb, 90 k bars 4=4501
Sb, up to 70 kbar 3=19067
Sb¹²³Cl₃ crystal compound, 140°K, from n. q. r. freq. discontinuity 4=4433
Sc—Y system, solidus, hexagonal to b. c. c. 4=5443
Sc—Zr system, solidus, hexagonal to b. c. c. 4=5443
Se, β -modification 1=10257
Se, in crystallization 1=14967
Se glass transformation from amorphous state 1=20637
Si, at high pr. metallic modifications 3=11210
Si, rel. to pressure 3=18228
SiC, polymorphism 4=4521
SiC, structures and different c-dimensions 4=2089
SiF₄, solid to 20 000 kg/cm² 0=14042
SiH₄, solid phase under press. 2=4357
SiO₂ (Cristobalite), α — β inversion, neutron irradi. 0=15878
SiO₂—Al₂O₃—Li₂O glasses, volume hysteresis 2=6783
Sm, due to high pressure, meas. 4=17768
Sn—base alloys, cell to dendrite transition 0=16338
Sn, β to α , effect of impurities on kinetics and incubation period 4=7515
Sn, $\beta \rightarrow \alpha$, review 4=7514
Sn film, resistive, supercond., rel. to thermal conductance into liq. He 4=24470
Sn, fusion curves to 10⁵ atom 0=9840
Sn, grey and white, interreln. 3=11209
Sn, grey \approx white, in Sn—Hg alloys 0=727
Sn, supercond., edge effect elimination 4=24502
Sn supercond. films, 2nd order, mag. field effects 4=29835
Sn superconducting films, magnetic 3=19124
Sn, superconducting, hysteresis 3=9687
Sn, white—b. c. c. form, under pressure 3=13452
Sn, white to grey, kinetics 2=21458
Sn, white—grey, kinetics, volume pressure effects 1=14940
Sn, white, at 113–115 kbar 2=23877

Phase transformations—contd

- Sn-Hg alloys, white to grey transformation 0=21231
 Sn-Pb alloys, 2-phase transition 3=13540
 Sn-Pb(0.87%), superconducting, filamentary, complex susceptibility detection 4=414
 SnS films, normal orthorhombic to cubic and h.c.p. structures 4=29189
 SnSe, second order transition 1=14935
 SnTe, high press. 4=17770
 Sr, $\alpha \rightarrow \beta$ and $\beta \rightarrow \nu$ 3=1216
 Sr perovskite-type cpds., ferroelectric and puckering transitions 0=13654
 Sr perovskites, complex, optimal conditions 4=9963
 Sr, at 35 kbar to b.c.c., rel. to Yb 4=4624
 Sr-Bi titanates, -183° to 160°C, X-ray investig. 3=25653
 SrCl₂, from enthalpy var. with temp. 4=8501
 Sr₂FeNbO₆ 3=20773
 Sr₂FeTaO₆, at 250°C, X-ray study 3=18226
 Sr(NiW) O 3=8864
 SrS, vaporization rel. to thermodynamic props. 4=16301
 SrTiO₃ 4=17348
 SrTiO₃, elastic and dielec. consts. 3=5055
 SrTiO₃, ferroelec., microwave loss effects 2=8468
 SrTiO₃, 4.2° K by X-ray diffr. 4=23293
 SrTiO₃, microscopic examination, liq. He temp. 3=17940
 SrTiO₃, n.m.r. study 3=8791
 SrTiO₃, tetragonal-to-cubic temp. from Gd³⁺ e.s.r. 2=18945
 SrTiO₃-Bi₂O₃-3TiO₂, rel. to dielec. props. 3=15620
 Ta, superconductivity type 4=18604
 Ta-Pd alloys, intermediate phases 4=7513
 Ta-Rh, rel. to constitution diagram 4=15744
 Te-Al, diagram 3=20882
 Te, up to 50 kbar and 500°C 4=26568
 Te, high press. 4=13503
 Te, liquid to metallic, 10 800 kg/cm², 482°C 3=19066
 Th, carbide-iodide, allotropic 3=23378
 Th, and Th alloys, f.c.c. \rightarrow b.c.c. 4=29020
 Th-Ce-Al system 1=15124
 Th-Mo alloy 3=8896
 Th-Zr, quenching tempering 2=4439
 Ti alloys, β , to martensitic α , stress induced 4=17771
 Ti alloys, intermediate type, elec. cond. variations 4=28537
 Ti alloys in quenching, β - ω martensitic 3=8892
 Ti, α - β , rel. to energy loss in electron scattering 3=2040
 Ti, α -phase, containing O, ordering 3=6815
 Ti, $\beta \rightarrow \alpha$, martensitic aspects 4=26569
 Ti at 882°C α - β 1=10227
 Ti, h.c.p. \rightarrow b.c.c. rel. to elastic moduli 4=26530
 Ti, heat of transform. meas. 2=21548
 Ti, at high pr. 3=13451
 Ti, resistivity change, voltage signals 2=4451
 Ti, solid-solid, 0-90 kbar 3=20887
 Ti, spurious transformation 4=10440
 Ti-Al-Si system 2=17045
 TiAu₂-Au system, phase diagram 2=17031
 Ti-(8%)Mn alloy, structural changes, rel. to wear 3=20890
 Ti-Mo alloy, martensitic phases 3=23477
 Ti-Mo and elastic consts., Young, shear, density 4=1964
 Ti-Nb alloys, metastable β -phase, decomposition 4=26531
 Ti-Nb and elastic consts., Young, shear, density 4=1964
 TiNi, low-temp. changes, rel. to mech. props. 3=13519
 Ti-Ni system, $\beta/\alpha + \beta$ boundary 4=23295
 TiO, ordering, rel. to vacancy behaviour 3=6815
 brookite(TiO₂), reconstructive, due to neutron irradi. 4=26564
 TiO₂, brookite-rutile, rel. to particle size 2=10779
 Ti-V and elastic consts., Young, shear, density 4=1964
 Ti-Zr alloy, heat of transform. meas. 2=21548
 Ti-Zr alloys, β - α , high vacuum and temp. X-ray camera 0=13972
 Ti-Zr alloys, martensitic transformation 1=4064
 Ti-Zr alloys, martensitic transformation 1=7874
 Ti, polymorphic, at high pressures 3=6814
 Ti, rel. to press. 2=10777
 Ti, press.-temp. diagram, transform vols. calc. 4=30806
 TiNO₃, I \rightleftharpoons II, energy and temp. 3=11197
 TiNO₃, polymorphic, etch pit study 2=21047
 TiNO₃, thermal transformation 3=1253

Phase transformations—contd

- Tl₂Te₃-Bi₂Tl₃ 3=18343
 U and alloys, α - β thermal cycling, effects 0=4580
 U alloys, proposed phase nomenclature 1=20587
 U, α - β 3=25652
 U, $\alpha \rightarrow \beta \rightarrow \alpha$, effect on preferred orientation 2=4452
 U, $\alpha \rightarrow \beta$, $\beta \rightarrow \gamma$, sintered and massive samples 4=17772
 U, α - β cycling, deformation 3=1354
 U, α - β , kinetics of structural change 2=10911
 U, $\alpha \rightleftharpoons \beta$, mechanisms, review 3=5129
 U, $\alpha \rightleftharpoons \beta$, nucleation and growth mech. 2=6823
 U, α - β , irradi., release of Kr⁸⁵ 2=4457
 U, α -phase, recryst. on cold-rolling 4=10410
 U, β - α kinetics, Cr, Mn, Mo additions 2=4456
 U, changes in photoelec. props. 2=3072
 U-fission alloys containing Tc 3=5130
 U-fission-product alloys 0=14072
 U, rel. to deformation 4=28960
 U, up to 45 kbar pressures 3=8795
 U, oxidized in air 3=3250-1
 U, sub-grain boundary formation 1=1414
 U, transformation temps. 0=18377
 U, transition in α -type at 42°K 1=15135
 U-C low carbon alloys, phase diagram 1=20586
 UC₂ 4=13611
 UC₂ (tetragonal) to U₂C₃ (cubic), mechanism 3=3324
 U-Cd, U-Zn, Ce-Zn, effusion balance invest. 2=6822
 U-Cr alloys, β - α , cooling mechanism 3=3322
 U-Cr alloys, $\beta \rightarrow \alpha$ transformation 4=30871
 U-Cr alloys, quenched from β -phase, by isothermal dilatometer 3=6858
 U-Eu mixed oxide system, from crystal structure, atomic 4=7604
 U-9 wt% Mo alloy, radiation-induced 0=14071
 U-Mo alloy, $\gamma \rightarrow (\alpha + \gamma')$ 4=13506
 U-Mo alloys, morphology of α pseudograin 4=29167
 U-Mo, metastable phases, origin 2=4455
 U-Mo, quenching, martensitic transform. 2=4454
 U-Mo(1-3.5 wt. %), $\gamma + \beta$ and $\gamma \rightarrow \alpha$ 4=7518
 U₂Mo, irradi., γ' - γ structure 2=4442
 U₂Mo, irradiation-caused 1=1415
 U-Mo-Nb alloys, transform. kinetics 2=4453
 U-Mo-Nb, U rich, ($\beta + \gamma$)/ γ boundaries, 675, 700, 720°C 4=7517
 U-N diagram and UN nuclear reactor fuel prod. 4=12321
 U-Nb alloys, rel. to cooling 3=8894
 U-Nb, γ - β , rel. to cooling 3=8888
 U-Nb, retained β -phase \rightarrow α -phase in U 3=16100
 U-O system from U₃O₈ to UO₂, temp. var. 4=6991
 UO₂, high temp. substoichiometry 2=21534
 U₄O₉, X-ray diffrn. study 3=15445
 UO₃-U₂O₅, rel. to elec. props, 25°-200°C 3=25371
 U-Pu-Mo, thermal behaviour 2=17043
 U-6 wt.% Zr, kinetics 2=4433
 U-Zr alloys 4=7516
 V, strain ageing, dislocations, effect 4=29021
 V, rel. to thermoelec. power anomaly 3=13140
 V-Mo-C alloys 2=17034
 VO, metal-to-insulator, effect of press. 3=1254
 VO₂, thermal effects 4=20718
 V₂O₃, metal-to-insulator, effect of press. 3=1254
 V₂O₃, metal to insulator, press. var. 4=17773
 V₂O₃, neutron diffr. study, 168-533°K 0=6363
 V₂O₃, semiconductor to metal 4=25993
 V₂O₃, metal to insulator, press. var. 4=17773
 W-C system, at 1300° and 1760°C 4=26570
 WO₃, below room temperature 1=9100
 WO₃, crystal growth and evaporation from vapour (700-1800°C) 1=9111
 WO₃, monoclinic-triclinic transformation near 17°C 0=18375
 Xe, adsorbed in porous Vycor glass, from expansion 4=10630
 Y-Fe garnet, by differential thermal anal. 3=8796
 Y, Fe oxide mixtures, by differential thermal anal. 3=8796
 Y-Zn system, solid-liquid 4=5444
 Yb 3=13038
 Yb, f.c.c. to b.c.c. 3=6718
 Yb, f.c.c.-b.c.c., to 40 kbar meas. 4=29022
 Yb, at h.p. 4=17767
 Yb, 20-40 kbars pressure, rel. to elec. props. 3=17899

Phase transformations—contd

- Zn, recrystallization, polygonization, from stress-strain relations 4=7519
 Zn-Al alloy, rel. to plastic deformation 0=16230
 Zn-Al system (40-75 wt% Zn), high-temp. X-ray diffractometer study 4=23299
 ZnO, high-pressure polymorph 3=3254
 $\text{Zn}_2\text{P}_2\text{O}_7\cdot\text{Mn}$ and $\text{Zn}_2\text{P}_2\text{O}_7\cdot\text{Cu}$ crystals, e.s.r. study 4=26572
 ZnS, hexagonal crystals 0=1880
 Zn-Sb alloys, X-ray diffr. analysis 3=8895
 $\epsilon\text{-Zn}_3\text{Sb}_2$, 405, 437°C, from discontinuities in thermo-electricity 3=20436
 ZnSnAs_2 , at 650°C 2=23417
 ZnSnAs_2 , order-disorder, and conductivity thermal var. 3=20118
 ZnSnAs_2 , 635°C 3=11267
 ZnS: Cu, Cl 4=10445
 ZnS: Mn^{2+} , sphalerite-wurtzite, rel. to heat treatment, e.s.r., and luminescence 4=20596
 ZnTe-CdTe, liquid, diagram, and viscosity and elec. cond. 4=11185
 ZnTe-HgTe, rel. to ZnTe concentration 4=15798
 Zn-Tl alloys, phase diagram at low Tl concentrations 1=9147
 Zr, β to α , crystal dislocation regrouping, electron microscope obs. 4=1486
 Zr, β - α , habit planes and orientation 0=16312
 Zr, rel. to deformation 4=28960
 Zr, h.c.p. -b.c.c. cycling, and whisker growth 4=13554
 Zr, h.c.p. \rightarrow b.c.c. rel. to elastic moduli 4=26530
 Zr, heat of transform. meas. 2=21548
 Zr, at high pr. 3=13451
 Zr, internal friction study 2=21544
 Zr-rare-earth alloys, h.c.p. -b.c.c. rel. to composition 2=21546
 Zr, resistivity change, voltage signal 2=4451
 Zr, solid-solid, 0-90 kbar 3=20887
 Zr-Al alloys during gettering activation process 4=21200
 Zr-Al-Si system 2=17045
 ZrC, $\sim 2200^\circ\text{C}$, fruitless search 4=17774
 ZrC, $\sim 2200^\circ\text{C}$, fruitless search 4=17775
 ZrH_2 1=14939
 Zr-Nb (15%), ω phase, electron microscope obs. 4=13507
 Zr-Nb, heat treatment 2=19090
 ZrO_2 films, monoclinic-tetragonal 4=23298
 ZrO_2 , rel. to irradiation 4=4512
 ZrO_2 mixtures with Y, Mg, Ca, Ce oxides, initial temps. 4=23296
 ZrO_2 , monoclinic-tetragonal 3=25654
 ZrO_2 , monoclinic-tetragonal, diffusionless 4=13509
 ZrO_2 , orientation relationship 4=23297
 ZrO_2 , phase change and recovery, radiation-induced 4=4512
 ZrO_2 , polymorphic transform. under cooling, kinetics 4=29023
 ZrO_2 , radiation induced, necessity of impurities 4=17776
 ZrO_2 solid solutions, irradiation-induced 0=21211
 ZrO_2 , tetragonal, pressure and heating effects 4=10443
 ZrO_2 , U-doped, radiation effects 2=18623
 ZrO_2 -CaO, order-disorder, from elec. conductivity charge 4=17778
 ZrO_2 -CaO, order-disorder transition 3=25728
 ZrP , β - α , unit cell dims. study 4=2003
 Zr-Th alloys, $\beta \rightarrow \alpha$ phase transformation 4=29024
 Zr-U-H alloy, transform. kinetics 2=4458
 ZrZn_2 , ferromag. transit. and elec. resist. 2=2118
 Zr- ZrO_2 system 2=4459

Phonographs

See Sound reproduction.

Phosphorescence

See Luminescence.

Phosphors

See Luminescence; Luminescent devices.

Phosphorus

- absorption spectrum in Si 2=23557
 adsorption on Si and Ge, elec. diffraction study 4=20824
 analysis, spectrochemical, in Cu and in Al alloys 0=6428
 atom, mag. hyperfine const. calc. 4=25507
 atoms, aspherical scatt. factors in sp^3 , sp^2 and sp valence state 4=26626
 atoms, μ -mesic, de-excitation 2=22930

Phosphorus—contd

- atoms, μ -mesic, de-excitation 3=6373
 atoms, P^{31} , h.f.s. by spin-exchange optical polarization 2=22911
 black, crystal structures at high pr. 3=13399
 black, crystalline, electrical and optical props. 3=17891
 Bridgman, Krebs, and processed black, transformations and elec. props. 4=10436
 creep, rel. to pressure, in white P 4=15712
 determination in low-alloy steels using VC1 vacuum quantumeter 4=7795
 diffused layers in p-type Si, concn. profiles 1=7643
 diffused in Si, dislocation distrib. near jn., meas. 4=28471
 diffused in Si, distribution 3=2833
 diffusion-doping in Si tunnel diodes 3=20361
 diffusion in Fe, α , γ , δ , 1250-1350°C 4=17442
 diffusion in Fe, radiometric study 4=20294
 diffusion in Fe, 700-890°C, alloying effects 4=20296
 diffusion in GaAs, rel. to GaP-GaAs formation 3=20227
 diffusion in KCl, and electrolytic migration 1=14314
 diffusion in Si 2=18600
 diffusion in Si, concn.-depend., calc. 4=9993
 diffusion in Si, dislocation prod. 4=22590
 diffusion in Si, distrib. 2=21072
 diffusion into Si, effect of oxide layers 0=6059
 diffusion in Si, fast mechanism 3=2832
 diffusion, in Si, ion bombarded 3=22823
 diffusion in SiO_2 film 0=11642
 diffusion, in Si, P distrib. 1=3687
 diffusion in Si, P_2N_4 as diffusion source 4=22625
 diffusion in Si, process 2=18601
 diffusion into Si through SiO_2 films 4=28483
 diffusion in Si, to thin layers, concn. profile 2=23208
 dislocations in Si due to phosphorus solute diffusion 1=14270
 donor, in Si single crystals, stacking faults 4=28574
 electrical resistance, at press. up to 200 000 atm, red-black transform. 1=3729
 electron affinity, calc. 0=9745
 gettering effect on Si p-n junctions 0=18032
 ions, forbidden transition probabs. calc. 3=25055
 ions, P^- , lowest config., Hartree-Fock calc. 4=12377
 ions, range in solids and gases 2=7674
 mass spectra of red P 2=1393
 mesic atom, μ^- -meson lifetime 1=17300
 mesic atoms, μ -decay in black and red P 2=14232
 mesonic X-ray lines, rel. to μ -meson mass. 0=11559
 monolayer on Si, struct. 2=19106
 μ^- -polarization, search, red P 3=15314
 multipole spectrum 4=19949
 phase transformations, pressure and temp. depend. 1=6686
 phase transitions, I-II, at high press., region of indifference 4=13510
 positive ions, 5-25 keV, sputtering of Cu 1=8363
 red, surface interaction with alkyl iodide vapours, desorption 0=3305
 red, thin film deposition method 4=29186
 resistivity rel. to pressure up to 3×10^5 kgm cm^{-2} 3=2902
 solid white, n.m.r. relaxation times 3=5050
 spectrum, in Si, compensated, i.r., vibr. absorpt. 4=4274
 spin-spin coupling with protons 3=719
 supercooled, crystallization waves 3=9658
 thermodynamic props., for gaseous state (1 atm, 100-1000°K) 0=19200
 valence electrons; approx. wave-functions 0=469
 As, Mn, Ga contamination, neutron activation detm. 3=1398
 in Cu-Al alloys, effect on ordering 4=1985
 P-polythene, neutron meas. 3=2284
 P^{32} beta spectrum 2=?509
 P^{31} in PCl_5 , effect on n.m.r. of rotation of specimen 3=25584
 in S, paramag. relax., meas. 4=28882
 in Si, i.r. absorpt. impurity lines, width and temp. depend. 4=28673

Phosphorus compounds

- adsorption and desorpt. of phosphate anion on Pt, multipulse potentiodynamic meas. 4=30890-1
 apatite halophosphates, colour centres and luminescence 1=17569

Phosphorus compounds—contd

- carboxyl phosphate, quantum mech. calc. of electron distribution 0=7736
 dihydrogen phosphates, electro-optical behaviour compared to CuCl 4=10171
 diphosphate ion, diffusion in var. liquids 0=3511
 ludlamite, mag. transition, low temp., para to anti-ferromag. 4=17698
 molecular groups in crystals, i.r. vibration frequencies 3=20483
 orthophosphates, Cu-activated, luminesc. and cryst. struct. 2=8578
 phosphate phosphors, intensity-temp. dependence 0=2961
 phosphates, neutron irradi. annealing 3=22872
 phosphates, 7, i. r. spectra meas. 4=13059
 phosphomolybdic acids, var. H₂O, atomic struct., from n.m.r. 4=23461
 phosphoryl and thiophosphoryl halides, potential consts. and thermodyn. props. 3=2634
 trifluorophosphine, thermodyn. props., 12°K to b.p. 2=13484
 CF₃PF₄, F¹⁹ spectrum 0=17781
 H₃PO₄, D₃PO₄, and their salts, i.r. spectra 4=22870
 H₃PO₄, Al, electrolysis, luminescence, flash spectra 3=10984
 H₃PO₄, γ-ray irradi. at 77°K, atomic H and H₂ yields 0=14137
 H₃PO₄, molar sound velocity 0=19133
 H₃PO₄, n.m.r., splitting and widths of p reson., ~1G 4=1307
 H₃PO₄ solns., dielec. const. 4=21147
 H₃PO₄, thermally dehydrated, Raman spectra and structure 3=15695
 P³² isotope concentration in rain water 1=13680
 P(CH₃)₃, reaction with BF₃ 1=6569
 [P(CH₃)₄]₂HgBr₂, ferroelec. props. 2=4093
 P(CN)₃, crystal struct., atomic 4=29128
 PCl, centrifugal distortion of bond distances and angles 2=14233
 PCl₃, dipole moment and ionic character, calc. 1=14119
 PCl₃, force constants, from i.r. data 1=13980
 PCl₃, gas, mol. struct. rel. to temp. 2=22955
 PCl₃, mol. struct. of vapour 2=6122
 PCl₃, molecules, thermal vibr. 2=8083
 PCl₃, thermodyn. props. and force consts., spectral data 2=12329
 PCl₃, vibrational potential consts. 2=6123
 PCl₃, mean ampl. of vibr. 4=15358
 PCl₃, bond length differences, theory 3=10497
 PCl₃, mol. potential consts., calc. 4=9724
 PCl₃, n.m.r. spin-lattice relax., rotat. sample 3=20683
 PCl₃, nuclear resonance of P³¹, chemical shift 1=6430
 PCl₃, PF₅, potential field and force constants 0=1501
 PCl₃, thermal conductivity of dissociating system 3=9503
 PCl₄F, PCl₃F₂, PCl₂F₃ and PF₅, structures, from i. r. and low-temp. 4=25679
 PCl₄, P³¹ n.m.r. for rotating crystal, chemical shifts due to (PCl₄)⁺ and (PCl₄)⁻ 1=10187
 PCl₂ON PCl₃, n.m.r., double, and P³¹-P³¹ homonuclear decoupling 4=9770
 PD₃, mean vibration amplitudes 1=14000
 PD₃, vibr. relax., by u.s. velocity dispersion 3=22567
 PF, dipole moment and ionic character, calc. 1=14119
 PF₄ e.s.r. in NH₄PF₆, rel. to γ-irrad. 3=20652
 PF and PF₃, electronic spectra 2=16520
 PH, analysis of (1,0) band of ³Π₁-³Σ⁻ system 0=11520
 P-H ions in PH₄ halide crystals, i.r. spectra 2=8095
 PH molecule, ²π state 2=3755
 PH₃, force constants and interaction constants 0=20600
 PH₃, i.r. spectra 2=8095
 PH₃, phosphine, near u.v. absorption spectra 3=19996
 PH and PH₂ radicals, lower electronic levels 4=28200
 PH₂ and PD₂, electronic absorpt. spectrum 4=20168
 PH₃, mean vibration amplitudes 1=14000
 PH₃, molecule, SCF MO one-centre basis set 4=20047
 PH₃, PD₃, molecular props. 0=4187
 PH₃, quantum-mech. theory, semiempirical 3=25112
 PH₃, solid, i. r. absorpt. spectrum showing new phase transition at 10°K 4=10186
 PH₃, theory of intensities of i.r. spectra 0=4203
 PH₃, Urey-Bradley force field 3=22552
 PH₃, vibr. relax., by u.s. velocity dispersion 3=22567
 PH₄⁺, molecule, SCF MO one-centre basis set 4=20047

Phosphorus compounds—contd

- PN, bands of A'π-X'Σ⁺ system, rel. transition probability 4=9726
 PN, molecular vibr. r-centroids of A'π-X'Σ⁺ system using Morse potential 4=9725
 P-N compounds, P³¹ n.m.r. chemical shifts rel. to structure 4=9771
 P₂N₆, diffusion source for P diffusion in Si 4=22625
 (PNCl₂)₃, Cl³⁵ nuclear quadrupole resonance 3=23264
 (PNCl₂)₄, cryst. struct. 2=15031
 P-Ni films, elec. cond. 3=10725
 PO, potential and dissociation energies 3=17582
 PO radical spectrum in P₄ + O reaction 4=23638
 PO, u. v. doublet systems analysis 2=16519
 PO₂ groups, characteristic vib. freqs. 3=12838
 PO₂, molecular vibr., mean ampl. 4=25665
 PO₃⁻ ionic radical, e. s. r. and struct. 2=2017
 PO₃³⁻, potl. consts. calc. 2=22934
 P₂O₅, crystal structure 4=23462
 P₂O₅, diffusion in Si from azeotrope with water 2=18602
 P₂O₅, effect on BiO polymorphism 4=23253
 P₂O₅, melting and crystallization 3=23420
 P₂O₅, molecular structure, electron diffraction study 0=17855
 P₂O₅, reversible phase transition 1=20398
 P₂O₅, thermodynamic props., 12-324°K, calc., from specific heat 4=9858
 P₂O₅, viscous flow and melt allotropy 3=21311
 P₂O₁₀, mol. struct. 2=22951
 10 P₂O₅. 90 M₂O₅ (M = Nb, Ta), tetragonal phase 4=26666
 P₂O₁₀, crystal structure 4=26667
 PO₄ ions, adsorption by Zr, P³² tracer meas. 4=4677
 POCl₃, i. r. absorpt. intensity of symmetrical vibrations, effect of O¹⁸ 4=25680
 P₂O₅-GeO₂, molecular structure 4=15353
 P₂O₅-GeO₂-H₂O crystal struct. from i. r. spectra 4=17814
 PO₂H₂⁻ ions, n.m.r., ~1G 4=1309
 P₂O₅-SiO₂, molecular structure 4=15353
 P₂O₅-SiO₂-H₂O, crystal struct. from i. r. spectra 4=17814
 P₂O₅, Ti₂O, 2H₂O; 2P₂O₅, Ti₂O, 3H₂O and P₂O₅, 2Ti₂O, H₂O, solubility diagrams 4=15725
 PT₃, mean vibration amplitudes 1=14000
 PT₃, wave-numbers, rotational distortion const., thermodynam. props. 0=17741
 PYZ₂ (Y, Z = H, D, T), wave numbers, rot. distortion const., thermodynamic props. 1=6000

Photochemistry

- See also Photographic process.
 acetone, far-u.v. photolysis 4=29231
 acetone, flash photolysis. 3=25835
 acetone, flash photolysis with filtered light 1=6574
 acetone, with HI, photolysis 2=12980
 acetylene, 1-butyne and propyne, Hg-photosensitized decomp. 4=4708
 actinometer, ferrioxalate, quantum yield 4=10649
 alcohol-H₂O₂ mixtures, u.v.-irrad., free radical formation, e.s.r. study 0=20662
 alkali halides, F-centres, transform. 2=23215
 alkali halides, precipitation reactions in crystals 1=2556
 alkali halides, transformation from F- to F₂-centres 0=15857
 alkali halides, U → F conversion 2=23221
 alkyl hydroperoxides, dissociation, e.p.r. study 0=8314
 all yl-type-alkyl-type radicals change 4=4712
 ammonia, photolysis in solid matrix 0=14128
 anils, transient species in photolysis 4=15847
 anthracene-electrolyte interface, photoelectrolytic effects 3=23549
 apparatus for extreme u.v. 3=3404
 aqueous azide solns., photolysis 3=6922
 aromatic acids, u. v. attack, eosin sensitized 4=7770
 azoethane, flash photolysis 2=19156
 azomethane, determination of methyl affinities 1=2559
 benzophenone, photoreduction 0=14130
 biacetyl 0=14129
 biacetyl, photo-oxidation 0=14127
 biacetyl vapour, at 4358 Å, primary process 2=6890
 biacetyl vapour, photodecomposition 1=7917
 1,3 butadiene, photolysis, primary processes and photo-polymerization mechanism 4=17868
 n-butane, photolysis in vacuum u. v. 4=4709

Photochemistry—contd

butane, photosensitized isomerization, reaction kinetics 4=13739
 butene-1, mol. rearrangement in Hg-photosensitized reaction 2=19158
 butene-2, Hg-photosensitized decomp. at low press. 3=8971
 cellulose, colour changes 2=6891
 charge transfer complexes in solns., dissociation, from e.s.r. 4=4706
 chem. reacting systems interacting with radiation, thermodynamics 1=20752
 chlorination of H_2 , CH_4 , $CHCl_3$, and C_2H_6 , isotope effect 3=11356
 chlorophyll, luminescence 1=3872
 chlorophylls a and b, photo- and semiconduction 1=14313
 colour centre formation in ionic crystals 2=23211
 crystals for different photographic emulsions, property variations 3=1396
 cumene, reaction with anthracene, chrysene and pyrene 0=8317
 cyanates, NCO free radical formation, in flash photolysis 1=856
 cyclobutyl, reactions in cyclobutane/acetone mixtures 2=4551
 1,3-cyclohexadiene : 1,3,5-hexatriene system, internal conversion 3=11355
 cyclopropanes, Hg(3P_1) sensitized reaction 1=20754
 diazomethane, in solid matrix, chemiluminescence of ethylene 0=13723
 diborane, photolysis at 1849 Å 2=19157
 diethyl ketone- CCl_4 mixtures, photolysis 3=18455
 9,10-dihydroanthracene, reaction with anthracene, chrysene and pyrene 0=8317
 γ -(2,4-dinitrobenzyl) pyridine 2=8925
 α - and γ -(2,4-dinitrobenzyl) pyridine, flash photolysis 2=19160
 γ -(2,4-dinitrobenzyl)-pyridine, photochromotropism 0=16381
 2,4-dinitrotoluene, isomerization, acid catalysis of fading. 3=25836
 dissociation rate of vibronically excited molecules, calc. 0=15683
 dyes, in rigid media, delayed fluorescence 4=1789
 electron transfer in frozen solid solns., e.p.r. study 2=6686
 electron transfer processes in solution, mechanism 0=10357
 eosin-phenol system, primary processes in 0=4725
 ethane, photolysis at low conversions 4=13740
 ethane, solid, vacuum photolysis at 77°K 2=19154
 ethane, u.v. photolysis 1=6573
 ether solutions of K metal and of naphthacene dianion flash photolysis 3=16180
 ethyl radicals, reaction with I atoms 3=8972
 ethylene, Hg-photosensitized reaction at high temp. 3=8970
 ethylene, vac.u.v. photolysis 2=4549
 flash-photolysis apparatus for u.v. region 4=4710
 flash photolysis system 0=3317
 flash photolysis, review 2=15155
 fluorescein, aq. soln., various ionic forms 3=3809
 fluorescent yield, in sensitized reactions 2=19163
 formic acid reaction with chlorine, test for intermediate 1=7918
 free radicals and reactive molecules, stabilization in water clathrate lattice 4=9784
 gaseous polyatomic molecules, primary processes 0=14129
 gas-phase reactions, new approach to rate theory 3=11357
 glyoxal, photolysis at 4358 Å 4=25756
 halide solutions, flash photolysis, absorption spectrum of dihalide ion 0=10357
 halogen ion, di, formation, in glasses, by u.v. 4=4707
 halogens in soln., transient species in flash photolysis 0=6414
 hydrazoic acid, photolysis in solid N 0=21288
 hydrocarbons, aromatic, photoionization by u.v. in boric acid glasses 0=21290
 intense bursts from discharge lamps, effect 2=19162
 ionosphere, F region 2=15245
 ionosphere, F2 region, 1958 eclipse data 0=16447
 ketene, dissociation 0=15683
 ketene, photolysis 2=6230
 Keynon-Banfield radical, rel. to photocond. 2=14584

Photochemistry—contd

light source, He plasma, 584 Å 4=27305
 light source for photolysis 0=479
 light source, vac. u.v., H lamp 3=14330
 matrix isolation, photolysis of hydrazoic acid 0=3320
 mesonaphthodanthrene oxidation 0=21289
 methane, ethane and ethylene, at wavelengths below 900 Å 3=13618
 methane, photolysis, effect of pressure 4=17870
 Methane, photolysis, by vacuum u.v. 3=25834
 methane, vac.u.v. photolysis 2=19155
 methyl free radical prod. 0=4710
 4-methyl-2-hexanone, photolysis 2=23968
 methyl iodide, gas-phase photolysis, reactions of hot methyl radicals with added organic cpds. 4=28271
 methyl isopropyl ketone photolysis 1=20757
 molecules at second triplet level, reactions, evidence 4=10647
 monochloroethyl and trichloromethyl radicals, recombination and disproportionation 3=8974
 nitrous oxide photolysis in far ultraviolet 1=6575
 organic compound formation by u.v. irradiation of simple gas mixtures 1=6576
 organic cpd. formation, in simple gas mixtures 0=3318
 ovalbumin, u.v. attack, eosin sensitized 4=7770
 ozone, quantum efficiency in yellow-red light 2=21591
 phenol, free radicals from flash photolysis 0=6413
 phenanthrene, from photolysis of cis-stilbene 3=23551
 photochemical reactions, sensitized, dissociation 2=4552
 photochlorination reactions, interpretation 2=19159
 photochromism of N-3-pyridylodnone 2=2452
 photochromism, review 4=13736
 in photo-ionization region 3=13618
 photo-isomerization of spiropyran to merocyanine 1=10297
 photolysis of ethylene and butane by vac. u.v. 1=12681
 photolysis, flash, 50 kV 8 kJ apparatus, damping effect 4=26761
 photolysis, methyl azide, methyl-d, azide in solid A, CO_2 1=20755
 photolysis, N_2O and CO_2 mixture 4=10634
 photosensitized oxidation of phenol by dyes 1=7919
 photosynthesis, semiconductivity theory, evidence 1=6060
 2-picoline N-oxide, photolysis 2=15156
 planetary atmospheres, rel. to gaseous absorption coeffs., 1850 to 4000 Å 4=11249
 plants, green, photosynthesis mechanism, e.s.r. studies 1=9212
 propane, vac.u.v. photolysis 2=23969
 pyridine N-oxide, photolysis 2=15156
 reaction kinetics, avoidance of explicit solns. of diff. equn. 4=29229
 saturated hydrocarbons, photolysis, theory 4=29230
 sec-butyl acetate, photolysis 2=23968
 stilbene, photoisomerism, rel. to u.v. spectra 2=14675
 styrene, polymerization, photo-sensitized by anthracene 0=8316-17
 surface reactions on phosphors with atmos. gases, rel. to background spectra 1=10113
 triplet state energy transfer 3=13619
 u.v. monochromator 2=7356
 u.v. resonance line source, 2450 Mc/s excited discharge 4=14349
 upper atmosphere of Jupiter 2=24103
 viologens, free radicals, e.s.r. spectra 3=20028
 Ag, colloidal, bleaching inside AgCl crystals 0=9913
 Ag halides, interchangeability derivations, electronic mechanism 4=23670
 Ag halides, photochemically coloured, absorption 1=8985
 Ag halides, precipitation reactions in crystals 1=2556
 Ag halides, spontaneous formation of Ag nuclei 2=22068
 Ag halides, trapping of positive holes, rel. to photographic process 1=9490
 AgBr, absorption spectrum, with divalent ion impurities 2=2227
 AgBr, paramagnetic resonance 0=6415
 AgBr, print-out effect, defect electron behaviour 3=3406
 AgBr, sensitizers 0=10358
 AgCl, Cu-doped, rate of volume photolysis 3=11358

Photochemistry—contd

- AgCl, with divalent impurities, photochem. response 1=5046
 AgCl, sensitized crystals, at -253°C 0=10356
 AgCl, with traces of CuCl, photographic process 0=19465
 Ba azide, photolysis in solid state, mechanism 1=2558
 BaTiO₃, photosensitivity 0=4726
 CF₃Br₃, flash photolysis, CF₃ radical study 1=2317
 CH₂, solid state reaction with CO₂, i.r. study 2=15157
 C₂H₂ ionization 4=23671
 C₂H₆-acetone-d₃ mixtures, photolysis and pyrolysis 1=7916
 CH₃NO₂, photolysis, and CH₃O radical formation 4=22435
 CN, radical formed from C₂N₂, kinetics of disappearance 2=20882
 CO, a³Π level, excited by iodine lamp 4=13738
 CO oxidation, ZnO photosensitized, kinetics, activation energy 4=17869
 CO₂, dissociation by single flash 0=1961
 CO₂, photolysis 0=21287
 CdI₂, photolysis 0=18066
 CdS, Cd separation by u.v. photolysis 2=4553
 CdS, changes in traps, rel. to origin 2=10381
 CdS, elec. and photoelec. meas. 3=3407
 CdS, from luminescence rise and fall curves 4=7771
 CdS, luminescence temp. depend. 3=15705
 CdS photocond. cells, reactions due to strong illum. 1=5031
 CdS, rel. to quenching of photocond. 2=4062
 Cl₂, and optica-acoustic effect 0=19215
 Cl₂ + O₂, photolysis, free radical prod. 0=1535
 ClN₃, in solid A, i.r. photolysis 1=12680
 Dy³⁺ in CaF₂, Dy³⁺ → Dy²⁺ photo-reduction by γ-rays 4=23679
 Ge electrodes, effect of illumination 0=21286
 Ge electrodes, photochemical processes in cathodic polarization range 0=21281
 HCO, radical formation 0=5930
 H₂-D₂ exchange, in presence of rare gases 0=749
 HI, photolysis at 1849 Å 4=23672
 HN₃, photolysis in solid CO₂, i.r. spectra 3=3402
 HN₃, solid, photolysis, N chain cpds as inter-mediate 0=4727
 HNC, photolysis from CH₃N₃, i.r. identification 3=22584
 HNCO and DNCO, photolysis, low-temp. i.r. study of intermediates 4=23674
 HNO₂, i.r. isomerization 3=16159
 HO₂, intermediate, i.r. spectroscopic evidence 3=17586
 H₂O, decomposition using anthracene crystal 1=1488
 H₂O, formation of H₂ in photolysis 0=3319
 H₂O, vac. u.v. photolysis 2=4550
 H(²P) atom, photosensitized reaction with N₂ 2=17096
 Hg photosensitization, electron energy transfer 3=25053
 Hg photosensitized decomposition of n-butane 1=20753
 Hg 6(³P₀), with nine gases, spectroscopic meas. 2=6877
 Hg6(³P₁), reactions with hydrocarbons, D isotope effect 3=8973
 I, flash photolysis 1=20735
 K halides, with O complexes 0=8009
 KBr crystals, with OH⁻ and SO₄²⁻ ions, new absorption bands rel. to irradi. 2=19161
 KBr, U₂-centre 3=10696
 KBr, u.v. irradi. at 15° K, colour-centre prod. 1=7601
 KBr, V₁ centres 1=7602
 KCl crystals, F-centre to M-centre photochemical conversion kinetics 4=25972
 KCl crystals, with OH⁻ and SO₄²⁻ ions, new absorption bands rel. to irradi. 2=19161
 KCl crystals, photochem. reactions 4=26760
 KCl, U₂-centre 3=10696
 KCl, u.v. irradi. at 15° K, colour-centre prod. 1=7601
 KCl, V₁ centres 1=7602
 KI, aq. soln., flash photolysis, electron transfer mechanism 0=10357
 NH₃, flash photolysis in vacuum u.v. 4=7769
 NH₃, photodissociation 4=4711
 NH₃, primary photolysis at 1470 Å 4=23676
 NH₃, vac. u.v. photolysis 2=4550
 N₂O, photosensitized decomposition by Hg 6(³P₁) atoms, isotope effect 0=15650
 NO + O reaction, quantum yield 4=13720

Photochemistry—contd

- NO₂ flash photolysis, conc. of vibrationally excited O₂ 4=23675
 NO₂, photolysis 3=18456
 NO₂, photolysis, 4047 Å, temp. var. 3=25833
 N₂O, photolysis 1=9174
 NO₂Cl, photodecomposition 1=20756
 NaCl, U₂-centre 3=10696
 NaN₃, kinetics of photolysis 1=20758
 NaN₃, solid state 1=17579
 NaN₃, solns. with mercuric salts, photolysis 4=2166
 NaNO₂, solns. with mercuric salts, photolysis 4=2165
 O₂, photodissociation in Schumann-Runge system 0=17721
 O₃, flash photolysis, reactions of excited O and O₂ 0=8319
 O₃, with NO 0=8315
 O₃, photolysis, O₃^{*} distrib. and relaxation 4=10648
 O₃, reactions in gas phase 2=4548
 O₂-CO photolysis in solutions, 77°K 4=13734
 O(¹D)-CO photolysis, 77°K 4=13735
 PbI₂, decomposition, and image recording 4=21323
 PbI₂, photodecomposition 4=26202
 S₂Cl₂, flash photolysis 0=16382
 SO₂ and SO₃, flash photolysis 0=8318
 Si-KOH boundary 3=6923
 ThBr, with green pinacryptol desensitizer 1=15201
 ZnS, under u.v., darkening and bleaching 4=13737
 ZnS, Zn separation by u.v. photolysis 2=4553
- Photoconductivity**
 a.c. impedance for blocking layers, analysis 2=21184
 rel. to absorption and emission of radiation 2=4056
 adsorption effects 1=3738
 alkali antimonides, properties 0=20927-8
 alkali halides, additively coloured 1=17828
 alkali halides containing U-centre, u.v. region 4=4226
 alkali halides, due to u.v. 3=20248
 alkali halides, plastically deformed, decrease 1=14271
 alkali halides, U → F conversion 2=23221
 alkali halides, vac. u.v. 3=10964
 alkali metal azides, 1400-10 000 Å 3=25415
 anthracene 2=14744
 anthracene, carrier generation 2=23449
 anthracene, carrier generation 4=22530
 anthracene, carrier mobility 2=4027
 anthracene, carrier prod. and mobility 0=13620
 anthracene, carrier trapping 4=22531
 anthracene, for charge carrier drift mobility meas. 4=22528
 anthracene, charge injection effects 2=14579
 anthracene crystals, photocurrents, ruby-laser excited 4=20433
 anthracene doped with anthraquinone, anthrone, or naphthacene 4=15448
 anthracene, effect of gases, N₂, O₂ 2=6494
 anthracene, with electrolyte contact, photoelectrolysis effects 3=23549
 anthracene, exciton-exciton interaction 4=15572
 anthracene, exciton-exciton interactions 2=14580
 anthracene, exciton processes 4=1439
 anthracene, exciton production 0=9999
 anthracene, free carrier generation via exciton-exciton interactions 3=10887
 anthracene, generation of carriers, single exciton process 4=15463
 anthracene, generation of free carriers 1=2424
 anthracene, hole and electron drift mobilities 0=15997
 anthracene, hole-injection energy-balance 0=10000
 anthracene, meas. and exciton model 3=2970
 anthracene, mechanism 3=8568
 anthracene, positive hole injection 0=4371
 anthracene, reabsorption of light, effect 2=6491
 anthracene, sensitized 3=13129
 anthracene, rel. to singlet-singlet and singlet-triplet interactions 4=7078
 anthracene, space-charge-limited currents 2=14578
 anthracene, surface impurities effect 2=4059
 anthracene, temp. and elec. field effect on free carrier photo-generation 4=22809
 anthracene thin layers, adsorbed I₂, air and water vapour effect 4=30630
 anthracene, thin layers in vacuum, meas. 1=17631
 anthracene, and trap energy distrib. 4=1690

Photoconductivity—contd

- anthracene, trapping centres, conductivity glow-curve study 1=2422
 anthracene, voltage, illumination and electrode separation depend. 0=18065
 anthracene, wavelength depend. 1=6175
 anthracene, X-ray and u.v. 3=6628
 applications, displacement recording system 2=3128
 aromatic nonionic crystals, photoconductivity and inter-molec. interaction 4=22810
 barrier-layer cells, effect of contacts 1=17789
 benzene 2=21922
 blood pigments, photocurrent 350-650 μ 2=16718, 21158
 boric acid, rel. to electrode photo-effect and absorbed moisture 2=8434
 capacitance change in phosphor-containing condenser 0=3715
 capture cross-sect. determ. by optical quenching 4=28636
 β -carotene cis-trans isomers, activation energies 1=3787
 β -carotene, effect of O_2 adsorption 1=6180
 β -carotene isomers 1=8965
 β -carotene photocond. cell, colour response 4=28653
 carrier density fluctuations with one kind of trapping centres 1=7633
 carrier lifetime in photoconductor, determination 4=20429
 carrier thermalization, steady-state distrib. function 0=17905
 cationic dyes, dark conductivity 3=25416
 cells, excess photon noise in single beam meas. 0=14954
 cells, vacuum emission, for precise photometric meas. 3=3862
 chalcogenides, photoelectric properties 1=11321
 charge-transfer complexes 4=7079
 chlorophyll a 3=20401
 chlorophylls a and b 1=14513
 chlorophyll a, spectral distrib., rel. to layer thickness 3=20400
 chromic oxide 2=8434
 conference (Cornell Univ., 1961) 2=4056
 conference, (New York, 1961) 2=6486
 crystal, latent image formation and decay 3=5544
 crystals phosphors, relaxation processes 0=1743
 cuprite, depend. on wavelength and surface conditions 4=7065
 cuprite, red and blue illuminated, reduced and enhanced conductivity 0=15988
 detectors for radiometric observation of i.r. atomic emission spectra 1=797
 diamond, due to imperfections 3=2975
 diamond, excitation spectra, temp. depend. 2=14719
 diamond, type IIb semicond., optical phonon effects 3=10933
 diamonds, rel. to energy level scheme 1=14210
 diamonds, semiconducting 4=28642
 9,10-dichloroanthracene, sub-threshold photocurrents of high quantum yield 1=10062
 dielectrics, by γ -irrad., mechanism 3=4950
 dielectrics, neutron and γ -ray induced 4=17513
 diffusion e.m.f. and anomalous Dember effect 4=1675
 dye photoconductors, e.s.r. study 3=23021
 dye sensitization, energy transfer 1=17798
 dyed gelatin 3=20413
 dyes, sensitization in glass 0=20926
 dyes, used for sensitizing photographic materials 0=10358
 electric field inhomogeneities, layer-like pre-breakdown 4=1676
 "Electrofax" materials 0=4387-8
 electromanometer 1=18340
 electron and hole fluctuations, nonthermal equil. 4=9887
 electron processes, kinetics 1=6079-82
 electrophotographic device, using electret layers 0=10001
 and electrophotographic image, latent 3=17908
 electrophotographic layers, dynamic props. 0=11728
 electrophotographic recording system, photocond. thermoplastic 4=26157
 energy dependence near direct band gap 2=95, 8496
 ether solns., red edge, spectral distrib. 2=17482
 exciton 1=947
 excitons in semiconductors 0=6112
 F-centres, internal photoeffect in elec. field 3=15453
 F'-centres, photoionization theory 3=20243
 ferrocene 4=17532
 ferrocene, hole photoconductivity 4=26154

Photoconductivity—contd

- field-effect modulation in quasi-intrinsic semiconductor 1=2420
 field ionization of traps 0=1740
 filaments, photoconductive decay, influence of transverse modes 0=7954
 filters in decay experiments 0=615
 fine structure rel. to exciton absorption spectrum 2=8400
 fluctuations, symposium 0=20876
 free electron excitation to higher states 2=8402
 gain band-width product 0=618
 gain and trapping, pulse excitation studies 4=4223
 glass 4=22731
 glass, review 1=7682
 grain-boundary photoresponse 0=18063
 graphite-caesium cell 2=12546
 haemoglobin 3=20413
 n-hexane, photocurrent, under u.v. irradiation 1=15903
 impurity and intrinsic types, inelastic carrier scatt., lifetime and mechanism 1=1031
 impurity photocond., kinetics 2=10523
 impurity semiconductors, rel. to local-level parameters. 1=12456
 impurity type, kinetics, effective cross-sections of local centres 1=1102
 impurity type, kinetics, impurity centres, effective cross-sections 1=6173
 infrared detectors, comp. 2=7457
 inhomogeneous semiconductors, bulk photo-effects 0=18059
 insulating photoconds. noise during carrier generation 2=21186, 23448
 isobutylene 4=27189
 isopentane 4=27189
 Keynon-Banfield radical, by u.v. 2=14584
 large-signal effect, theory 4=12989
 lifetimes of free electrons and holes 0=20892
 light amplifiers, space-charge currents 0=3795
 for light demodulation of microwaves, by h.f. current in CdSe 4=16199
 longitudinal, strongly absorbing crystals, calc. 3=17952
 luminescence kinetics, special cases 1=17907
 luminescent inorganic subs., electron kinetics calc. 4=12980
 magnetic field effects, and crystal imperfections and charge carriers 4=17415
 for meas. trapping levels, fast 3=17846
 mechanism and use in power amplification 0=7055
 mechanisms, review 2=14411
 mercuric selenide, 0.420-0.715 μ irradiated 1=19907-8
 mercuric selenide, 0.420-0.715 μ irradiated. 2=6489
 metal point-semiconductor, pressure depend. 0=15992
 metals, in normal or supercond. state 2=8402
 methychlorophyllide a, temp. var. 4=17533
 α -methynaphthalene layers, u.v. activated 4=22811
 methyl-2-pentene-1 4=27189
 microcrystalline powders, mechanism 1=3784
 mobility in insulators, effect of photoexcitation 1=2421
 model, reaction kinetic, with five transists. 2=6487
 molecular crystals, theory 1=2419
 molecular crystals, triplet-state processes 3=3060
 n-type semiconductor, photocurrent rise, with 2nd fast recomb. centre 4=1673
 negative resist. and high elec. field capture rates 2=8332
 non-linear relax. processes rel. to trapping levels 2=4057
 "non-linear" relaxation processes rel. to trapping levels 1=19896
 nonuniform excitation, analysis 3=20394
 optical detector and demodulator, analysis 4=15575
 optical freq. mixing in bulk photoconductivity, quantum theory 3=20397
 optics conference, Jena (Nov., 1958) 1=224
 optics conference, Jena (Nov., 1958). 1=9464
 org. molec. crystals in triplet state 3=4951-2
 organic crystals 0=1572
 organic crystals, charge injection effects 2=14579
 organic crystals, molecular, hole mobility 4=9888
 organic dye films, cond. excited states 2=6492
 organic dye films, cond. processes 2=6493
 organic dyes, effect of H_2 0=1685
 organic films, polymer $\sim 1\mu$ thick 3=25420

Photoconductivity—contd

organic insulators, neutron and γ -ray induced 4=17513
 organic liquid semicond., u.v. excited, elec. field depend. 1=5280
 organic mol. crystals, charge carrier prod. 4=4224
 organic polymers 4=30631
 organic semicond. materials 2=23304
 organic semiconductors, dark conductivity, singlet excitation state 0=13619
 organic single crysts. 2=8428
 p-n devices, recomb. const. and depth, from spectral data 0=18062
 p-n junction solar cells, efficiency limit 1=6170
 p-n junctions, spectral response, recomb. parameters 0=15908-9
 p-n-p photodiode, relaxation processes, at low illumination 0=4367
 p-n photoeffect, minority carriers, diffusion length 4=30654
 p-n photoelements, characteristic and quantum yield 0=11720
 phase displacement with exciting radiation 3=20393
 phosphors, powdered, continuous meas. method 2=2190
 phosphors, superlinear rise 0=9986
 phosphors, temp. and excitation depend. 0=10071
 photocell, rectifying, arbitrary generation function 2=8382, 14565
 photoconductors, classification rel. to weak excitation 2=8403
 photoconductors, in jetting contacts, role 2=8410
 photocurrent noise, effect of mobility fluctuations 4=12981
 photocurrent saturation mechanism 4=10121
 photocurrent saturation in strong elec. field 2=8403
 photoelectrets, formation of latent electrophotographic images 0=10021
 photoelectrets, temperature effects 1=7695
 photoelectrets, theory 1=7694
 photoelements, absolute spectral response 0=15054
 photographic Ag halide materials, 10^{10} c/s 4=21324
 photo-Hall effect, temp.-depend., meas. apparatus 2=17739
 photomagnetic effect, applic. to minority carrier lifetime meas. 0=15981
 photopotential calc. at various interfaces and free surface 4=22794
 photopotential across space-charge layer, theory 4=22793
 photoresistor bridge, measurement of small d.c. voltages 0=19596
 photovaristors, differential, preparation technique 4=17540
 phthalocyanine 0=6144-5
 phthalocyanine complexes 2=18751
 phthalocyanine crystals 2=16825, 18829
 phthalocyanine crystals, intensity depend. 3=23019
 phthalocyanine crystals, and spectra, absorpt. 3=20495-6
 phthalocyanine, kinetics 0=20936
 phthalocyanine, metal-free, α and β forms 4=1691
 phthalocyanine, metal-free crystals, bulk currents 3=8528
 phthalocyanine, metal-free single crystals 3=10890
 phthalocyanine, rel. to temp. 2=21197
 pigments, crystalline, transport of charges liberated by light 1=6060
 pinacyanol, films, wavelength depend. 1=3783
 pinacyanol, quantum yield 0=1684
 polyethylene, amorphous, cross-linked 4=20680
 probe, photoconductive for elec. and mag. fields 4=3097
 propane 4=27189
 pyrene solid molecular complexes 4=7079
 quasi-Fermi statistics 1=3852
 quenching, field effects 2=10524
 recombination constants, from photoconductivity spectrum 0=13634
 relaxation, role of trapping centres 0=20925
 relaxation times meas. near 10^{-6} sec. 3=16885
 response of photocond. imaging devices with floating electrodes 3=24067
 review 4=22790
 review of processes and state of knowledge 2=10522
 rise, theory with ref. to re-emission of trapped electrons 2=2189
 ruby, rel. to photocond. of sapphire 4=10132
 sapphire, at 350°K and 5 W/cm² 4=10132
 saturated photocurrents, rel. to space-charge-lim. dark currents 4=28637

Photoconductivity—contd

saturation of current, rel. to defects and charge carriers 2=14577
 in semiconductor parameter meas. 4=1585
 in semiconductors 1=3794
 semiconductors, carrier lifetime det. in presence of trapping 0=2865
 semiconductors, use in determ. of other props. 1=14425
 semiconductors, effect of surface recomb. 0=617
 semiconductors, rel. to exciton motion 2=2216
 semiconductors, and free carrier absorpt. obs. 4=22831
 semiconductors, impurity, rel. to capture levels 3=15628
 semiconductors, impurity and intrinsic photocond. kinetics 2=21193
 semiconductors, impurity and intrinsic photocond. kinetics 3=2968
 semiconductors, impurity photocond. 2=18729
 semiconductors, inhomogeneous, bulk effect, theory 3=2095
 semiconductors, use for local level study 3=2878
 semiconductors, local level study, use 2=21125
 semiconductors, mag. field effect 2=18728
 semiconductors, use in meas. of minority carrier parameters 1=17669
 semiconductors, use in meas. of minority carrier parameters 1=14426
 semiconductors, mech. from photocurrent noise study 2=18730
 semiconductors, mechanism, recomb. of defect sites 1=3867
 semiconductors with metal contacts 4=22790
 semiconductors, "monopolar", kinetics 2=23460
 semiconductors, organic, two-exciton ionization 3=20396
 semiconductors, photocond. through reverse-biased p-n junction, theory 0=1682
 semiconductors, powdered, using photodielectric effect 0=20924
 semiconductors, "quasi-monopolar" 2=10525
 semiconductors, sensitization by organic dyes 2=6488
 semiconductors, rel. to small forbidden-energy gap 2=23447
 semiconductors, spectrum for additive absorpt. 4=26139
 semiconductors, rel. to trapping centres 2=23453
 semiconductors, trapping levels, minority carriers lifetime 0=1680
 semiconductors, trapping, theory 0=13586
 sensitization of photo-effect at dye-semiconductor contact 0=6131
 sensitizing centres, cross-section ratios 1=14498
 serum albumin 0=15970
 simple photoconductor, response to square light pulse 3=10886
 solid-state photodetectors for coherent light 4=15574
 solids, rel. to defect states chem. origin and elec. charact. 2=23443
 solids, photo-processes, fluctuations 2=8430
 space-charge polarization in photocond. insulators 3=15627
 space research on dielectrics 4=17511
 spectra and kinetics, investig. apparatus 4=424
 spectral distrib., defect term spectroscopy 2=6311
 for spectroscopic recording, using CdS 4=18405
 stationary, in surface recomb. rate study, surface potl. depend. 1=1032
 storage light amplifiers, with optical feedback 0=2974
 sulphates, visible and u.v. meas. 3=8570
 sulphide films 4=20810
 sulphide phosphors 0=20887
 sulphide phosphors, relax., reaction kinetics 3=4953
 sulphides, reaction-kinetics model 1=19910
 superconductors, rel. to frequency and temperature 4=5497
 superlinear intrinsic, two recombination levels, calc. 4=30653
 thermoplastic photoconductive optical image recorder 3=19030
 theory, based on carrier mobility variations 2=23446
 theory, based on carrier mobility variations 3=6624
 theory of two-step excitation 0=661
 thermally stimulated currents in photoconductors, theory and applic. 0=4368
 thin films, effect of thickness 1=14499
 trans-stilbene, hole photoconductivity 4=26154
 trapping centres, capture cross-section 2=6299

Photoconductivity—contd

- trapping level effects, for insulating crystals and semiconductors 0=18060
 trapping levels, introduction, effect on nonequilib. electron lifetime 4=1575
 trapping, rel. to persistent internal dielec. polarization 2=4089
 trapping and recombination, meas. by light modulation tech. 2=8399
 triphenyl methane dyes, quantum yield 0=1684
 triphenylamine, hole photoconductivity 4=26154
 triphenylmethane dye halides, dark conductivity 3=25416
 triphenylmethane dyes, carrier "sticking" levels 4=26155
 tryptaflavine, films, wavelength depend. 1=3783
 two-carrier, gain and light-dark current ratio 4=4221
 II-VI semiconductors, surface props. 1=14461
 ultrasonic absorption, review 3=10594
 unipolar photoconductors, kinetics 4=1672
 unipolar photoconductors, recombination centre parameters 4=1671
 X-ray image amplification 0=5541
 X-ray image intensifier, with photoconductor electro-luminescent phosphor 0=3617
 X-ray induced, spurious constancy with beam intensity 4=10118
 A^{III-VI} compounds, at low temps. 2=8413
 A^{II-VI} compounds, charge transfer, light induced, by e.s.r. 2=8416
 A^{III-VI} compounds, single crystals 0=11722
 Ag azide 4=17493
 Ag halides 0=20871
 AgBr 2=21198, 23471
 AgBr 3=2969
 AgBr 3=6636
 AgBr, effect of Br₂ and Cl₂ gases 1=3727
 AgBr, electron Hall mobility down to 4°K 2=23472
 AgBr, electron mobility and lifetime 2=4070
 AgBr, electron mobility and scatt. processes at low temp. 0=15994
 AgBr, grains, from emulsions, electronic carriers 0=1617
 AgBr, rel. to illumination, 77°K 2=23470
 AgBr, rel. to latent-image formation 3=11948
 AgBr, transient, with and without mag. field 3=8529
 AgBr and AgCl, rel. to optical absorption 2=8519
 AgCl 2=21198
 AgCl 3=2969
 AgCl crystals, effect of recrystallization on the temperature dependence 1=3792
 AgCl, and darkening 0=20940
 AgCl, divalent cation impurities effect 2=23473
 AgCl, doped with Cu₂Cl₂ or NiCl₂, at low temp., rel. to trapping 1=7676
 AgCl electrode, photo-impedance 1=14521
 AgCl, electron Hall mobility, down to 4°K 2=23472
 AgCl, electron mobility in high elec. fields 3=8387
 AgCl, hole migration, after air and O₂ annealing 1=1110
 AgCl, under pulsed X-ray irradi., 80-280°K, electron lifetime and mobility 1=3793
 AgCl₂, doped, effect of infrared irradiation 1=14635
 Ag-Cs photocathodes, fatigue effects 1=17805
 AgI 2=21198
 AgI 3=2969
 Ag₂O, spectral distrib. rel. to prep. method 4=22806
 Ag₂S layers, light and dark currents, explanation 4=28647
 Ag₃SbS₃ 4=26152
 AlP 1=17717
 As₂(S-Se-Te)₃ alloys, e.m.f. 2=18731
 As-Se alloy films 0=15991
 As₂Se₃, amorphous films 0=6136, 15949
 As₂Se₃ films 2=18692
 As₂Se₃ films, storage phenomena 4=28638
 As₂Se₃, rel. to Cu and Ag impurity 4=1677
 4As₂Se₃. As₂Te₃ glass 0=15903
 As₂Se₃. Se₂Te₃ glasses 0=15902
 Au films on p-type GaP photoelec. positive hole range 3=908
 BaN₆, u.v., spectral distrib. 3=25450
 Bi 3=8572
 Bi, shallow impurity traps and electron transfer dynamics at low temp. 0=18035
 Bi-Sb alloys 3=8572

Photoconductivity—contd

- Ca halophosphates, colour centre meas. 4=22626
 Ca halophosphates, with Sb and Mn 0=9993
 Ca oxide coated cathodes, spectral sensitivity 2=3073
 CaF₂, photoconductivity, in electric fields 3=20406
 Cd films, electron capture by lattice defects 2=12540
 Cd sulpho-selenide solid solns., imperfections 4=12987
 CdI₂ 0=18066
 CdIn₂S₄ 1=10066
 CdIn₂S₄, Cu and Au activated 1=3786
 CdIn₂S₄, plus Cu 1=14501
 CdIn₂S₄, spectral response, temp. dependence 0=7961
 CdO layers, visible and u.v. regions 0=11758
 CdS 0=20914
 CdS 1=10057
 CdS 2=12541, 14581
 CdS, annealed in vacuum and S vapour 0=18068
 CdS, annealed in var. atmos., Al, In, Ag, Cu, Au-doped 1=12459
 CdS in blocking electrodes, true photocond. 3=17955
 CdS cell, large area 2=8445
 CdS cells, preparation effects, review 4=7064
 CdS cells, slit, γ excitation, in gas discharge 4=4228
 CdS, rel. to crystal growth conditions 1=14963
 CdS crystals, Ohmic contacts problem 4=12984
 CdS crystals, 300°-70°K 3=13202
 CdS crystals, X-ray, spectral distrib. meas. 4=12986
 CdS, Cu impurity effect 2=18740
 CdS, cubic and hexagonal 3=6631
 CdS, current noise and distributed traps 1=7671
 CdS, dark polarization 3=20404
 CdS, decay time, meas. rel. to temp. and illumination 1=19901
 CdS, deformed, spectral response 2=18847
 CdS, effect of crystal thickness, growth conditions and light polarization 1=7666-7
 CdS, effect of deuteron bombardment 0=1662
 CdS, effect of hydrostatic pressure 3=15588
 CdS, effect of optical excitation 1=6176
 CdS, effect of stoichiometric defects 1=14509
 CdS, electron injection and extraction 2=8411
 CdS, enhanced by i.r. and elec. field 1=14508
 CdS evaporated films, props. 4=15567
 CdS, by excitation in fundamental absorption edge, mechanism 1=19900
 CdS, excitation intensity depend., superlinearity 0=16079
 CdS, excitation spectra 4=10122
 CdS, exciton structure, n=1, 2, 3 states obs. 4=7063
 CdS field-effect transistor, free hole density rel. to temperature 3=13137
 CdS, rel. to field emission spectrum 3=16972
 CdS, films 3=22941
 CdS, films, current pulse generator 4=26148
 CdS films, effect of prep. method 1=17793
 CdS films, electron irradi., photoshift 0=7956
 CdS, films, preparation 4=26147
 CdS films, preparation and sensitization 1=11323
 CdS films, with and without Cl doping 1=10058
 CdS, fine structure of response spectrum 1=17794
 CdS, fine structure of spectra 0=7955
 CdS, fluctuations due to shallow traps 0=4369
 CdS, gain, response time, effect of chemisorption, meas. 4=30900
 CdS, gain and trapping studies 4=4223
 CdS, as γ -detector 0=313
 CdS, γ -ray conductivity 2=23457
 CdS, γ -ray conductivity 3=6629
 CdS, γ -ray induced 0=15983
 CdS, due to γ -rays 1=19903
 CdS, H₂ effect 2=649
 CdS, heat-treated in vacuum and O₂ 2=4060
 CdS, high fields in shadow regions 2=23454
 CdS, highly doped, low temp. 1=19874
 CdS, i.r. quenching 0=2910
 CdS, i.r. quenching and new peak 2=16751, 18735
 CdS, image sharpness recognition 4=15573
 CdS, rel. to imperfections. 2=12544
 CdS, improved performance, various methods 0=2908
 CdS, impurity photocond. 2=10523
 CdS, impurity scatt. of electrons 4=1598
 CdS, increase near In, Ga contacts 3=17956
 CdS, induced i.r. impurity cond., rel. to local-level parameters 4=1678

Photoconductivity—contd

- CdS, influence of H atmosphere 2=648
 CdS, infrared quenching 1=14504
 CdS, insulated crystals, meas. by a.c. impedance 0=2906
 CdS, internal friction generation, theory 2=10739
 CdS, after ionic bombardment 1=17721
 CdS, light or X-ray probe pos. effect 2=21191
 CdS, long-range effects, rel. to exciton transport 2=23452
 CdS, long-wavelength sensitivity, rel. to heat treatment 3=17954
 CdS, longitudinal effect 2=23458
 CdS, at low temp. 2=18738, 23455
 CdS, lux-ampere characteristics 1=7669
 CdS, meas. with contact-free microwave method 4=30661
 CdS, mechanism 4=4292
 CdS, "memory" effect 0=1677
 CdS, mixed ambipolar and exciton diffusion 0=13525
 CdS, mobility in, effect of photoexcitation 1=2421
 CdS, modulated excitation, photocond. spectrum 3=23012
 CdS monocrystals 2=647
 CdS monocrystals, effect of glow discharge 2=6600
 CdS, nature of current 4=26146
 CdS, negative 3=903
 CdS, new rectifier effect 4=30657
 CdS, ohmic contact, rel. to intensity 2=8435
 CdS, ohmic contacts, zone scanning 3=17953
 CdS, ohmic and nonohmic contacts 1=14511
 CdS, oscillatory currents in u.s. flux 4=7062
 CdS, phenomenological quantum yield 4=1681
 CdS photocells, lifetime and photochem. reactions 1=5031
 CdS, photocells, preparation methods and efficiency 0=9989
 CdS, photochem. reactions and quenching 2=4062
 CdS photoconductive films, sintered, effect of heat-treatment 1=14505
 CdS, photocurrent saturation meas. 4=10120
 CdS, photoelectret state in single crystal 4=12971
 CdS and photoelectric emission, nonequilibrium 3=19308
 CdS, photoelectromag. effect 2=650
 CdS, photoelectron Hall mobility 4=17528
 CdS, photoelectron trapping coefficient β , determination 3=13130
 CdS, photoexcitation and i.r. quenching, role of contacts 1=19902
 CdS, photoresistors, capacitance, equiv. cct. 4=7081
 CdS, photoresistors, dark conductivity 2=21189, 23456
 CdS photoresistors, improved contacts 4=17536
 CdS, photoresistors, preparation and characteristics 4=26156
 CdS, photosensitivity 0=18037
 CdS, polycryst. films, rel. to sintering 3=904
 CdS, polycryst., photocurrent carriers 3=905
 CdS, polycrystalline layers, activation temp. depend. 4=7061
 CdS, prep. of photosensitive monocrystals 2=16989, 18734
 CdS, pulse excit., effect of background illum. 2=10526
 CdS, pulse generation 4=10123
 CdS, pure and As doped, rel. to hole props. 2=8442
 CdS, quenching effect of photocond. decay 0=20932
 CdS, in recomb. coeff. meas. 1=3761
 CdS, relaxation, effect of trapping levels 0=18067
 CdS, response to 1-100 eV quanta 1=14502
 CdS, response speed and photosensitivity 1=11324
 CdS, review 1=2436
 CdS, saturation 0=13630
 CdS, sensitization by dye films 1=17797
 CdS, shadow region, elec. field effect 3=13131
 CdS, shallow traps, frequency factor and energy distrib. 0=9991
 CdS, short pulse, and trapping levels, fast 3=17846
 CdS single crystal, avalanche breakdown 1=10060
 CdS single crystal, fast recomb. mechanism 4=26144
 CdS single crystals, effect of i.r. radiation 1=7668
 CdS, single crystals, mechanism 0=13632
 CdS single crystals, pulse photoconduction, carrier lifetime 1=11322
 CdS single crystals, surface states rel. to photoconductive process 4=28421
 CdS, sintered cells, fabrication 0=2913
 CdS, sintered film, effect of O on photoconduction 1=12458

Photoconductivity—contd

- CdS, sintered layers 0=2912
 CdS, slow growth, trapping cross-sections 1=5785
 CdS, space-charge-limited currents 1=17792
 CdS, spectra structure and related phenomena 2=8414
 CdS, spectral depend. 3=23395
 CdS, spectral dependence 0=18088
 CdS, spectral distrib., ambient gas effects 0=9992
 CdS, spectral distrib., annealing effects 3=11262
 CdS, spectral distrib., rel. to γ -irrad. 2=10528
 CdS, spectral distrib., mech. 2=18741
 CdS, spectral response, surface treatment effects 0=15984
 CdS, strong elec. field effect 2=10529, 12542
 CdS structure near adsorption edge 1=14510
 CdS, rel. to surface conductivity 1=17799
 CdS, trapping and diffusion in surface region 0=13631
 CdS, 2-4 μ , mechanism 0=14985
 of CdS-type photoconductors in vicinity of absorption edge 1=5024
 CdS in visible light and γ -rays 2=16752, 18736
 CdS, during X-irrad. 2=6497
 CdS, X-ray effect 2=2191
 CdS, X-ray effect on spectral distrib. of current 2=12545
 CdS, X-ray pulse induced, in single crystal 2=12543
 CdS, by X-rays, linearity 2=10530
 CdS: Ag, nonuniform excitation 3=20394
 CdS, CdS: Cu, improvement on growing in Ar 4=1679
 CdS-CdSe, Ag-activated 2=18739
 CdS, CdSe, rel. to crystal growth conditions 1=14963
 CdS and CdSe, rel. to elec. fields 2=6496
 CdS-CdSe, i.r. quenching, temp. and composition depend. 1=6177
 CdS-CdSe, monocrystals 0=7957
 CdS_xCdSe_{1-x}, ohmic and nonohmic contacts 1=14511
 CdS_xCdSe_{1-x}, spectral distrib., 20° and 77°K 1=1104
 CdS-CdSe, transient effects 3=2972
 CdS-CdTe, effect of CdTe 0=621
 CdS: Cu, Ga, photosensitive centre, e.s.r. study 3=23224
 CdS: Cu, Cl, i.r., optical activation 4=28639
 CdS:Ga:Cu, rel. to hole ionization energy of imperfections 0=1663
 CdS:I, vapour-grown, after treatment effects 2=6495
 CdS:I:Cu crystals, gain rel. to photon energy 4=12985
 Cd(S:Se):Cu, spectral response rel. to composition 1=14506
 CdSe, rel. to crystal growth conditions 1=14963
 CdSe, excitation spectra 4=10122
 CdSe, exciton structure, n=1, 2, 3 states obs. 4=7063
 CdSe films, response and dark-sensitivity 4=4229
 CdSe, gas discharge effect 4=30659
 CdSe, heat treatment and impurities effects 2=10531
 CdSe, image sharpness recognition 4=15573
 CdSe, impurity photocond. 2=10523
 CdSe, light or X-ray probe pos. effect 2=21191
 CdSe, longitudinal effect 2=23458
 CdSe, meas. with contact-free microwave method 4=30661
 CdSe, mobility in, effect of photoexcitation 1=2421
 CdSe, negative photodiode effect, 20° and -180°C 3=10889
 CdSe, 0.5-2.5 μ 0=18113
 CdSe, ohmic and nonohmic contacts 1=14511
 CdSe photocond. detector, microwave signal-to-noise ratio 4=30660
 CdSe, photoionization in fundamental absorpt. region 4=26143
 CdSe, photosensitized, i.r. response 0=18061
 CdSe, saturation and osc. effects for local illum. 4=10124
 CdSe single crystals 4=22797
 CdSe single crystals, photoconductive mixing 4=4230
 CdSe, sintered, in light amplifier 0=2973
 CdSe, spectral depend., 77° and 26°K 1=1103
 CdSe, theor. explanation 3=10888
 CdSe + Ag, single crystals, minority carrier lifetime 0=7958
 CdSe-Se junctions, X-ray effect 2=23469
 CdSO₄, effect of CdS inclusion 1=8286
 CdTe, films, effect of additives 3=20407
 CdTe, Hg doping effect 2=16753, 18733
 CdTe, impurity photocond. 2=10523
 CdTe, impurity photocond. kinetics 2=4063
 CdTe, impurity photoconductivity, kinetics 1=19904

Photoconductivity—contd

CdTe, n-type, with In or Ga, max. rel. to photon energy and energy at absorption edge 2=16720
 CdTe, n and p-types 3=15628
 CdTe, p-n junction photocells 0=11723
 CdTe, p-n photocells, u.v. quantum yield 0=15987
 CdTe, p-type 1=12445
 CdTe, photocurrents in p-n junctions 2=680
 CdTe, photosensitized, i.r. response 0=18061
 CdTe-HgTe 1=3708
 CdTe-HgSe, forbidden band width var. 4=4225
 (Cd,Zn)S layers, sintered 3=23016
 (Cd,Zn)S, shift in excitation peak rel. to CdS 1=10061
 Co phthalocyanine crystals, and spectra, absorpt. 3=20495-6
 Cs films, rel. to thickness and temp. 3=15550
 Cs-Bi cpds., photosensitivity 1=15142
 CsBr, containing colour centres 4=4231
 Cs₃Sb, theory 1=17791
 CsSb and Cr₃Sb, spectral sensitivity and effect of O₂ 0=11709
 Cu phthalocyanine crystals, and spectra, absorpt. 3=20495-6
 Cu phthalocyanine meas. 4=10137
 CuCl crystal, rel. to exciton 4=26240
 CuFeS₂ 3=1027
 Cu₂O, carrier recomb. and impurity-centre struct. 2=10615
 Cu₂O, depend. on O content, rel. to semicond. props. 0=6138
 Cu₂O, exciton-induced, structure in photocond. spectrum 1=17800
 Cu₂O, long duration, due to O vacancies 3=18029
 Cu₂O, neg. effect in long-wave region 3=2971
 Cu₂O, negative near point contact 3=20402
 Cu₂O, negative photoconductivity 1=6179
 Cu₂O, quantum yields for inherent and impurity absorption 4=7066
 Cu₂O, relaxation time, temp. var., energy structure 3=20403
 Cu₂O, spectral dependence, at 77°K 1=20005
 Cu₂O, spectral response, effect of surface treatment 0=1679
 Cu₂O, spectral response, fine structure 0=1678
 Cu₂O, rel. to temp. and wavelength, activ. energies 3=4954
 GaAs, cells, spectral characteristics 0=9994
 GaAs, appl. to constant current supply 1=2926
 GaAs, p-n junction 2=18746, 23463
 GaAs, p-n junction photocell 3=17914
 GaAs p-n junctions, long-wavelength edge 4=28643
 GaAs, p-n junctions, photoresponse near band edge 3=10848
 GaAs, p-n junctions, spectral photoresponse 3=13135
 GaAs, photodiode, for visible region 0=16830
 GaAs, photoelectronic analysis 0=6139
 GaAs, photopotl., polarization curves 2=16754
 GaAs, photo-response, 78°-295°K 4=10127
 GaAs, semi-insulating 2=8395
 GaAs, spectral response 3=13134
 GaAs, surface, and barrier height, ambient sensitivity, 4=1602
 GaAs:Cu crystals 1=12446
 GaN, doped 1=3861
 GaP, Cu-doped 2=14554
 GaP, p-type, rel. to energy level system 3=15632
 GaP, temp. var., exciton effects 4=28644
 GaSb, osc. with photon energy, phonon mechanism 4=17529
 GaSe 0=1681
 GaSe 2=18745, 23462
 GaSe, impurity, relaxation, kinetics 3=20412
 GaSe-GaS, solid solns., rel. to composition 0=15989
 Ge 4=4150
 Ge, Au-doped diodes, photocurrent-voltage characteristics 4=6964
 Ge, Au-doped, hole-capture in deep acceptor levels 2=8419
 Ge, Au-doped, n-type 2=18675, 21131
 Ge, Au-doped, 60-300°K 0=6140
 Ge, Au, Mn-doped, recombination props. 2=8398
 Ge, Au- and Sb-doped, kinetics 3=20411
 Ge, Au- or Zn-doped, as i.r. detector 0=7960

Photoconductivity—contd

Ge, and capture by deep impurity centres, negative, temp. var., n 3=23017
 Ge cleaved surfaces 1=1047
 Ge, compensated, impurity photocond. 2=10523
 Ge, cross-section for photon and electron capture 3=15630
 Ge, Cu-doped 2=8407
 Ge, Cu-doped, carrier generation and recomb. 3=13132
 Ge, Cu-doped, impurity kinetics 3=20410
 Ge, decay of spreading resist. meas. 4=1610
 Ge, rel. to deep radiation defects prod. by 1 MeV e's 3=20409
 Ge, diode, due to change in surface lifetime 1=19892
 Ge, diode, due to change in surface lifetime 2=6475
 Ge, effective electron capture cross-section of Fe⁻ ions 4=6960
 Ge, effect of X-rays, quantum yield meas. 1=19849
 Ge, electric field quenching, 1.8-2.5 μ, freq. depend. 3=17959
 Ge electrodes, sensitivity rel. to quantum energy 4=12988
 Ge and excess-carrier lifetime, depend. on majority density 3=17848
 Ge, external elec. field effect 0=15924
 Ge, extrinsic, with phonon emission 3=13133
 Ge, field effect 1=14450
 Ge, field effect, condenser photo-e.m.f. 2=6498
 Ge films, effects of electronic interact. with CO 3=25346
 Ge films, effect of small amounts of O₂ 3=13062
 Ge, γ-irrad., relaxation, trapping level effects 1=7670
 Ge, hot-carrier recomb. 2=8404-5
 Ge, impurity cond., rel. to electron irradi. 4=10128
 Ge, impurity conductivity in Cu-doped material 3=17859
 Ge, impurity, modulation, rel. to recomb. 2=21144
 Ge, impurity, photocond. 2=21194
 Ge, impurity photocond. 3=2976
 Ge, interband, duration time of carriers in splitt-off band 1=3790
 Ge, internal photoeffect, rel. to elastic wave attenuation 4=1391
 Ge, internal photoeffect, rel. to microhardness 4=4463
 Ge, investigation of properties 1=11325
 Ge, investigation of properties 1=17801
 Ge, junction photodiode, threshold sensitivity and noise 0=9995
 Ge, light-induced plasticity effects 1=3974
 Ge, in long-wave radiation, 2-4°K 0=20898
 Ge, max. spectral response, minority carrier diffusion length 3=909
 Ge, modulation, carrier diffusion length meas. 3=20313
 Ge, n-type, action of light on surface potl. 1=3786
 Ge, n-type, Au-doped, carrier lifetimes by photocond. and photo-e.m. effects 2=8420
 Ge n-type, γ-ray irradi., expt. and theory 2=8436
 Ge, n-type, γ-ray irradiated, expt. and theory 1=19905
 Ge, negative effect in mag. field 1=5026
 Ge, negative effect in mag. field 1=10063
 Ge, negative, in mag. fields > 10 kOe 3=17958
 Ge, negative photocond., at low temp. 2=16755
 Ge, Ni-doped, effect of In contacts 1=10064
 Ge, Ni-, Mn-, Au-doped, generation-recombination noise 2=8431
 Ge, p-n junction, photocurrent fluctuations 2=16756, 18744
 Ge, p-n junctions, spectral photoresponse 3=13135
 Ge, p-type gold-doped, time constants 1=2425
 Ge, p-type, irradiated 3=15628
 Ge photodiode, semiconductor, high-speed 2=23482
 Ge photodiodes with barrier layer 4=4232
 Ge, photodiodes, short time constants, high sensitivity 0=20900
 Ge photoresistors, antireflection coatings 1=10068
 Ge, photovoltaic evaluation of homogeneity 1=14514
 Ge, plastic deform. and ht. treatment effect, 150°-300°C 4=30664
 Ge, rel. to photoelectromagnetic effect 4=26150
 Ge, recombination props. of Mn ions, meas. 3=17853
 Ge, 2nd and 3rd Cu levels, activation energies rel. to temp. 3=17849
 Ge single crystals, time depend. 3=17966
 Ge, spectral response 3=13134
 Ge, spectral response, 0.5-2 μ 0=13635
 Ge, spectral response, surface treatment effects 0=15990
 Ge, spectrum and surface charge geometry 4=22695
 Ge, rel. to surface levels 1=17496

Photoconductivity—contd

Ge, surface states, 170-305°K 1=14434
 Ge, Te-doped, below 150°K, rel. to electron capture and trapping 4=1604
 Ge, temp. depend., surface-state kinetics 0=18021
 Ge, two-carrier, gain and light-dark ratio 4=4221
 Ge-type semiconductors, relaxation characteristics 0=6133
 Ge, universal time constant 1=12460
 Ge, X-ray effects, quantum yield meas. 2=4064
 Ge: Au, kinetics, 55-170°K 4=1684
 Ge—GaAs heterojunctions 4=28586
 Ge—Si alloys, i.r. response, use in detectors 0=2911
 Ge, Zn—Cu-doped, for i.r. recomb. processes 2=8406
 Ge, Zn-doped, carrier lifetime 2=6456, 10467
 Ge, Zn doped, liquid He temps., impurity centre transitions 4=15569
 GeS, photocond. spectrum, 2=21244
 GeS, photocond. spectrum 3=2990
 GeSe 2=8520
 Hg vapour, Joshi effect rel. to irradiation and absorption of light 1=18473
 HgI₂, effect of contacts 1=17789
 HgIn₂S₄ 1=10066
 α-HgS 0=18071
 HgS 2=12583, 14655
 HgS 3=17962
 HgS, α-phase, effect of impurities 4=7073
 HgS, photocond. cells, X-ray effect 2=23469
 α-HgS, 600-100 mμ and X-rays 3=6600
 α-HgS, 600-1000 mμ and X-rays 2=23405
 HgSe, photoelectromag. effect and i.r. detection 2=130
 HgTe—CdTe, i.r. 2=10534
 HgTe—CdTe, 0.6-2 μ 4=15593
 I, space charge limited hole currents 2=14525
 I, sustained space charge limited currents 2=8422
 I vapour, Joshi effect, positive and negative co-occurrence 1=18472
 InAs, 1-7 μ 0=19499
 InP 2=16757, 23465
 InS 2=12547
 In₂S₃, meas. 4=20374
 In₂S₃, spectral response, temp. dependence 0=7961
 InSb cells 1=7653
 InSb, carrier lifetime det. 1=1075
 InSb, electron-hole creation, quantum eff. 2=21195
 InSb, generation-recombination noise 2=8431
 InSb, i.r. detector, nanosec time response 4=8497
 InSb detectors, characteristics 4=14445
 InSb, large-signal effect 4=12989
 InSb, n-type, due to r.f. radiation 2=14583
 InSb, n-type, due to r.f. radiation 3=6634
 InSb, n-type, impurity photocond. 2=8417
 InSb, n-type, impurity photocond. with mm radiation 1=3791
 InSb, osc. in excitation spectrum, and optical phonons 4=17531
 InSb, osc. with photon energy, phonon mechanism 4=17529
 InSb, oscillatory cond. in Ag- and Au-doped crystals 1=12461
 InSb, p-n junctions, effect of surface state 1=19906
 InSb, p-type 0=4370
 InSb, p-type, with deep acceptor impurities 2=8418
 InSb, p-type, noise power spectrum 2=8432
 InSb, photocell, nuclear radiation exposure 0=14881
 InSb, relative quantum efficiency 0=2905
 InSb, review 1=6158
 InSb, single-crystal i.r. detectors 0=8840
 InSb, spectral distrib. 0=16039
 InSb, thin layers, 100°-350°K 4=1685
 InSb, use as detector and optical freq. mixer of laser radiation 4=10131
 K cyanides of Fe, Mn and Ni 0=4372
 K ferricyanide monocrystals, absence 2=3999
 K ferrocyanide monocrystals, absence 2=3999
 K halides, coloured, pulse and steady photocond. 2=8424
 K halides, in fund. absorption range 2=8427
 KBr, additively coloured, pulse 1=11232
 KBr, with anionic impurities 3=25464
 KBr, with Br⁻ ions, hole photocond. 2=8425
 KBr[Cl], excited F_A colour centres, lifetime 4=25974
 KBr, colourless, due to strong elec. field 1=19897
 KBr, colourless, due to strong elec. field 2=8433
 KBr, electrolytically induced 0=6054

Photoconductivity—contd

KBr, Hall effect 1=14385
 KBr, transient, F-centre lifetime 2=6387
 KCl, additively coloured, at >10°K 1=5027
 KCl, additively coloured, transient effect meas. 4=7074
 KCl, colloid centres 0=11634
 KCl, colourless, due to strong elec. field 1=19897
 KCl, colourless, due to strong elec. field 2=8433
 KCl, at cyclotron resonance of 35 Gc/s 3=20149
 KCl, electron Hall mobility, down to 4°K 2=23472
 KCl, F-band bleaching, photoconductive sensitivity 4=20431
 KCl, F-band, rel. to γ-irrad. 3=23020
 KCl, F-centre, decrease on bleaching 0=13553
 KCl, due to F- and F'-centres 2=10535
 KCl, F and M centres 0=20937
 KCl, fundamental absorption tail rel. to temp. and Br content 2=8517
 KCl monocrystals, γ-irrad. 2=4066
 KCl, pulse, at pre-breakdown 2=12572
 KCl, transient, F-centre lifetime 2=6387
 KCl:Tl phosphors 0=8016
 KCl U-centres, exciton-induced 1=10019
 KCl, x-irradiated, photocurrent carrier mobility 1=1108
 K₂Cr₂O₇, photoactivation-photoelectret state rel. 4=30665
 K₂Cr₂O₇, photocond. state study 4=30666
 KI, dark current rel. to plastic deformation 2=4067
 KI, intrinsic 2=8426
 KI, transient, F-centre lifetime 2=6387
 Mg fluorogermanate, enhancement by u.v. irradiation 1=7675
 Mg fluorogermanate, growth, rel. to u.v. irrad. 3=25837
 Mg fluorogermanate, rel. to u.v. irrad. 3=2978
 Mg₂Ge, surface barrier photoresponse 4=26207
 MoS₃, thin crystals at 77°K 3=10957
 Na, soln. in liq. NH₃ 2=2731
 NaBr, colloid centres 0=11634
 NaCl, coloured 0=18072
 NaCl, colourless, due to strong elec. field 1=19897
 NaCl, colourless, due to strong elec. field 2=8433
 NaCl crystals, X-ray 3=4955
 NaCl, polarization and elec.-field distrib. 3=10869
 NaCl, space charge polarization meas. 4=28651
 NaCl, X-irrad. and heat treated 0=6142
 NaCl, X-ray irrad., impurity effects 2=18752
 NaCl, X-rayed, effect of previous heat treatment 1=11326
 Na—DNA, highly polymerized, elec. cond. 4=12840
 Ni phthalocyanine crystals 3=20495-6
 Pb oxide layers 2=6501
 PbI₂ 4=26202
 PbI₂, extinction between 170°-190°C 3=17960
 PbI₂, rel. to photodecomposition 3=2921
 PbO, contact influence on photocond. 2=8412
 PbO films, treated with S, Se, Te, i.r. region 1=3770
 PbO layers 2=2192, 8438
 PbO, n—PbS—p—PbO films, surface, in Resistron charge-storage tubes 3=25419
 PbO, nature of photoactive centres 2=10532
 PbO, optical activation energy, rel. to temp. 3=17978
 PbO, overshoot, space-charge model 2=18748
 PbO single crystals 3=6635
 PbO, rel. to surface sorption 2=4065, 8439
 PbO, Vidicon target, fatigue model 2=23466
 PbS 3=2977
 PbS, angular response in i.r. 2=21196
 PbS, cells, current fluctuations 0=7964
 PbS, cells, effect of temp. on response 0=7965
 PbS, cells, nuclear radiation exposure 0=14881
 PbS, chemically precipitated 0=619
 PbS, correl. with i.r. recombination radiation 2=8440
 PbS, decay time, temp. dependence 1=7674
 PbS, detector in near i.r. atomic spectrograph 2=2879
 PbS films 1=1080
 PbS, films, hole mobility and crystal size 0=20935
 PbS, films, noise and signal response 0=7963
 PbS films, quantum yield, spectral meas. 4=12990
 PbS films, slow component in strong light 4=12991
 PbS films, at 10¹⁰ c.s. temp. depend. 2=6500, 10533
 PbS i.r. photocell for stellar photometry 1=36
 PbS, i.r. photocells, polycrystalline 0=7962
 PbSe, i.r., polycrystalline 0=7962

Photoconductivity—contd

- PbS layers 2=18750, 23467
 PbS layers, excess conductivity 4=7072
 PbS layers, for i.r. detect., prep. and performance 4=1695
 PbS layers, rel. to intercrystallite energy barriers 4=4233
 PbS, layers, 10 Gc/s 0=18050
 PbS, layers, p-n junctions 0=10934
 PbS, 1-6 μ 1=1107
 PbS photoconductors, surface properties 1=1106
 PbS photodetectors, model for 4=7082-3
 PbS, photoresistance 2=18749
 PbS photoresistors, local sensitivity 1=14515
 PbS photosensitive surface, rectifying action 1=7673
 PbS point diodes, photocurrent excitation for const. voltage, transient region 4=7071
 PbS, sensitized surfaces, majority carrier model 2=6499
 PbS, rel. to surface props. 1=17802
 PbS, var. with incidence 4=7070
 PbS, 584-3000A 2=8429
 PbS:Ti₂S evap. films, spectral response 3=23018
 PbSe films, doped with Ag 1=8956
 PbSe layers 1=2547
 PbSe layers, sensitive to 4.8 μ 3=15633
 PbSe, 1-6 μ 1=1107
 PbSe, photocond. detectors 2=8447
 PbSe, spectral response, crystal size effects 0=11727
 PbTe, i.r. polycrystalline 0=7962
 PbTe, 1-6 μ 1=1107
 PbTe, photocell, nuclear radiation exposure 0=14881
 PbTe, photoresistors, stoichiometric preparation 0=9996
 PbTe, spectral response, crystal size effects 0=11727
 RbI, intrinsic 2=8426
 S, films on glass, effect of Hg vapour 0=18073
 S, monocrystals, 4400-9000A 0=7918
 S single crystal, up to 10 000 atm 4=10136
 SbI₃ 4=1720
 Sb₂S₃, amorphous layers, mechanism 0=15949
 Sb₂S₃ films, effect of thickness 1=14499
 Sb₂S₃, impurities, influence 1=19898
 Sb₂S₃, impurities, influence 2=4058
 Sb₂S₃, kinetics, -100° to +100° C 3=20398
 Sb₂S₃, kinetics at room temp. 2=23450
 Sb₂S₃, kinetics at room temp. 3=6627
 Sb₂S₃ layers 4=4227
 Sb₂S₃, photoelectronic analysis 0=6139
 Sb₂S₃, spectral and temp. depend. 2=8350
 Sb₂S₃-Bi₂S₃ films, spectral distrib. 0=601
 Sb₂S₃-Sb₂Se₃ layers, spatial charge redistribution 1=14500
 Sb₂S₃-Sb₂Se₃ layers, spatial charge redistribution 1=17790
 Sb₂S₃-Sb₂Te₃ system 2=18732
 Sb₂S₃-Sb₂Te₃ system 3=15585
 Sb₂Se₃, 400-1200 m μ 0=620
 Sb₂Se₃, photocurrent 2=6461
 Sb₂Se₃, photosensitized, i.r. response 0=18061
 Sb₂Se₃, spectral distrib. temp. depend. 0=599
 Se, amorphous films 0=15991
 Se, amorphous, films 2=16823
 Se, amorphous, Hg-treated, trapping levels 4=1686
 Se, amorphous, photocarrier mobility meas. 2=10537
 Se, amorphous, spectral distrib. of anomalous photocond. 4=30667
 Se, cells, thermodynam. props. meas., differential microcalorimeter 0=10813
 Se, current-voltage, rel. to space-charge lim. currents 4=1619
 Se, effect of Tl and TlCl 0=7966
 Se films, space-charge limited currents meas. 4=20432
 Se films, Hg-bearing, amorphous, non-photoconductive layers 1=14517
 Se films, Hg-bearing, amorphous, non-photoconductive layers 1=17803
 Se, hexagonal, photocurrent rel. to saturation applied field 4=10133
 Se, hole photosensitivity 0=6134
 Se, negative, quenching effects 1=19909
 Se photocells, turnover phenomena 3=6607
 Se, photo-excitation and carrier-trapping meas. 4=22804
 Se, spectral distrib., rel. to band struct. 2=23107
 Se, vitreous, positive and neg. response 3=13081
 Se xerographic plate, photoinduced discharge 3=15613

Photoconductivity—contd

- Si, charge-carrier diffusion length 0=9965
 Si, decay, effect of Cu and quenching from 800° C on recombination 1=17707
 Si, decay of spreading resist. meas. 4=1610
 Si, doped with Ga, In, Sb, recombination processes 2=8397
 Si, field effect, condenser photo-e. m. f. 2=6498
 Si, rel. to Hg, W, Mo, Pt impurities 4=10067
 Si, In-doped, decay 3=17833
 Si, internal photoeffect, rel. to microhardness 4=4463
 Si, lux-ampere characteristics, rel. to trapping levels 4=10134
 Si, modulation, carrier diffusion length meas. 3=20313
 Si, n- and p-type, remnant impurity photocond. 3=23022
 Si, n-type, rel. to fast-electron irradi. 4=1687
 Si, n-type monocrystals 0=6141
 Si, n-type, shallow-imp.-doped, trapping lifetimes and extrinsic photocond. 2=8421
 Si, negative effect 2=652, 23474
 Si, rel. to neutron irradi. 2=8396
 Si, neutron-irradi. p-type, kinetics 2=8401, 10536
 Si, nonlinear effects rel. to surface states 2=10538
 Si, oscillatory decay, on increasing sweeping current 4=4234
 Si p-n junction, spectral dependence minimum 4=10078
 Si, p-n junctions, photoresponse 0=18031
 Si, p-n junctions, photoresponse near band edge 3=10848
 Si, p-n junctions, spectral photoresponse 3=13135
 Si p-n photocell, 650 MeV proton effect 4=28648
 Si, p-type, minority-carrier lifetime 1=3758
 Si, p-type, neutron-irradi., defect level calc. 2=651
 Si, p-type, nonlinear depend. 3=2979
 Si, photocells, reduction of reflection coeff. by SiO₂ layer 0=10031
 Si, photocells, surface-barrier, props. 2=18754
 Si photoelements, effect of crystal orientation 1=1109
 Si, photo-ionization, quantum yield, wavelength and temp. depend. 0=15993
 Si, quantum efficiency, impact ionization 3=20416
 Si, quantum efficiency, spectral and temp. depend. 0=13638
 Si, rel. to recombination velocity 1=17709
 Si, solar cells 2=10544
 Si, surface-barrier diodes 2=2195
 Si real surface, light-excited, relaxation, 190°-620°K 4=10066
 Si, spectral response 3=13134
 Si, stationary, and recombination velocity 1=14518
 Si, stationary, and recombination velocity 1=17804
 Si, structural defects after electron irradi. 3=22764
 Si, surface, minority carrier trapping 3=20415
 Si, and surface recomb., effect of etching 4=4174
 Si, α -trapping centres in n-type, max. after annealing 1=14457
 Si, vacuum-cleaned surfaces 1=1066
 Si, Zn-doped, n-type, carrier recombination, 90°-200°K 4=6986
 Si, Au- and Cu-doped, rel. to activation by simple defects 4=10135
 Si-Au reversed-biased surface barrier diodes, oscillation under continuous illumination 4=4236
 SiC, α -modification 2=8441, 14584
 SiC, n- and p-type, kinetics 3=8571
 SiC, n and p-type, relaxation 3=15634
 SiC, p and n-type, spectral response 3=13136
 SiC, photo-e. m. f. due to impurity and intrinsic excitation 2=10539
 SrNa₂ u.v., spectral distrib. 3=25450
 SrO.2B₂O₃ and SrO.4B₂O₃, lead-activated, by u.v. excitation 3=2925
 Ta₂O₅ 1=12498
 Te, electron lifetime and surface recombination velocity 3=877
 Te, generation-recombination noise 2=8431
 Te, photocond. decay, carrier recombination and trapping 0=6143
 Te, in radiation detector, sensitivity 2=7460
 Te, single-crystal i.r. detectors 0=8840
 Te single crystals 4=12994
 TiO₂, rutile 3=17963
 TiO₂(rutile), chemisorbed O₂ effect 4=22800
 TlAsSe₃, glassy effect of I and Ge impurities 3=15635
 Tl(Br, I), 21° to 90°K 1=19911
 TlCl, low temp. 3=10891

Photoconductivity—contd

- TlCl, spectrum 4=17609
 TlI, dye sensitized, rel. to temp. 4=12993
 Tl₂S, collision recomb. in decay of photoconductivity 1=12463
 Tl₂S, i.r. photocells, polycrystalline 0=7962
 TlSe, kinetics, rel. to local recombination and trapping centres 4=1609
 Tl₂Se, As₂Se₃, glasses 0=15902
 Tl₂SeAs₂Te₃, vitreous, retained in dark 3=20418
 Zn oxide, effect of photo desorption of oxygen 2=12548
 ZnCdS, with grain boundary layers, a.c. 2=21184
 ZnIn₂S₄ 1=10066
 ZnIn₂S₄, absorption edge, max. response, current rise-time 2=23475
 ZnIn₂S₄ and ZnIn₂S₄: Cu single crystals 4=28738
 ZnO, adsorption effect 2=16759, 18753
 ZnO, decay 1=11327
 ZnO, decay kinetics, chemisorption model 2=2193
 ZnO, field effect mobility, effect of light 2=16733
 ZnO, films, sensitization with eosin 4=15570
 ZnO, kinetics, effect of binders 3=17964
 ZnO, O photodesorption study, temp. depend. 0=18074
 ZnO, optically sensitized 2=10540
 ZnO, photodielectric effect, 3rd type 3=23023
 ZnO, ruby-laser induced 4=26153
 ZnO, as surface phenomenon 2=8415
 ZnS, monocrystals, high-voltage photoemission 0=15995
 ZnS phosphors 3=25487
 ZnS phosphors, u.v.-excited, i.r. effects 3=23110
 ZnS, space-charge-limited currents 1=17792
 ZnS:Al³⁺, correl. with e.s.r. meas., model 3=18128
 ZnS—CdS mixed monocrystals, composition depend., spectral response 1=1111
 ZnS—CdS, 3400–5100 Å, CdS depend. 2=6502
 ZnS: Cu, Cl, from capacitance changes, rel. to green and blue emissions 3=911
 ZnS:Cu, comparison with luminescent properties 1=10112
 ZnS:Cu, i.r. enhancement and quenching 1=6182
 ZnS:Cu, rel. to luminescence 3=25422
 ZnS:Cu, partly-illuminated, meas. reproducibility 2=23476
 ZnS:Cu, u.v. irradiat. 3=15614
 ZnS:Cu/Cl, rel. to preparation method 2=2253
 ZnS:Cu:Co, i.r. sensitivity, mech. 2=12627
 ZnS:Cu:Pb:Cl, rel. to luminesc. 2=4071
 ZnS:Gd, trapping, paramag. resonance detection 0=11729
 ZnS:In crystals 4=7189
 Zn Se, negative photocond., mechanism 1=2426
 ZnSe, photoelec. and opt. props. (400–800 mμ) 0=13671
 ZnSe—CdSe, spectral response 0=15996
 ZnTe, photoelec. and opt. props. (400–800 mμ) 0=13671

Photoelasticity

See also Double refraction, mechanical.

- ADP (ammonium dihydrogen phosphate) 1=12483
 analysis from Newtonian theory of axial elasticity 0=694
 Araldite, under dynamic loads 1=3821
 Araldite, at l.f. 0=8109
 Araldite, meas. of characteristics 0=12063
 Araldite varnish, optical response 1=15765
 barite, dispersion 0=6170
 bending waves, exponential near fields 0=14715
 CR 39, under dynamic loads 1=3821
 celluloid, birefringence in photoplasticity 2=10576
 complex variable, calc. method 2=1094
 conference summary, Nottingham (1963) 3=18761
 consts. in presence of axial tilt det. 1=19953
 creep of materials used 4=2624
 crystals 1=6442
 elasto-optic constants, ultrasonic meas. 2=10575
 epoxyresins, free from edge effect 4=8126
 frozen-stress work, composite model materials 2=2662
 gelatin 0=16194
 gelatine-glycerin, as a photoelastic material 0=907
 glass plate stresses, measurement 1=11725
 glass, stress meas., in ultrasonic machining 4=2756
 glasses, meas. of small changes 1=10607
 i.r., image converter, optical bench 4=111
 improved method 0=4971
 isoclinic photographs, trajectory drawer 4=18442
 light modulator, photoelastic 3=16747
 material properties, mechanical and optical, desirable 4=2623

Photoelasticity—contd

- materials for joined structure models 3=5396
 materials research appl. 3=13320
 use in meas. of Poisson's ratio of birefringent materials 0=16196
 mech. damping-illumination, correl. for CdS plate crystals 0=1715
 Moiré method use for three-dimensional meas. 4=24123
 oblique incidence, analysis 4=110
 optical behaviour of viscoelastic materials under various temp. and loading conditions 1=3820
 in optically active media 1=97
 photoextensometry, static and dynamic meas. 4=112
 plane photoelasticity, problems 4=5117
 for plastic deformation obs., coatings 4=23101
 plastic models for 3-dimensional stress analysis 1=11726
 Plexiglass, fracture, a typical cleavage surface colours 4=26525
 polarization equation, using cycle ellipses 4=14406
 polymers, study 0=5187
 polymethyl methacrylate 0=4398
 polymethyl methacrylate, birefringence rel. to stretching 3=17982
 quartz, elasto-optic constants 2=10575
 reflection techniques to meas. layer thickness 4=8125
 residual stresses, study method 1=11724
 resins, synthetic, non coincidence of optical and mechanical singularities 4=26461
 rheology of materials used 4=2624
 scattered light photoelastic polariscope, rel. to stress analysis 4=24398
 shaft with transverse hole, determination of bending stresses 1=11721
 shells, photoelastic investigation methods 1=11722
 singularities, non-coincidence of optical and mechanical, for synthetic resin 4=26461
 use in strain gauges 3=14092
 stress analysis, notched specimens 4=7378
 stress-optical methods, 3-dimensional 1=11723
 stroboscopic method for watching stress propagation 0=2143
 styrene derivatives and copolymers, optical constants 0=8257
 surface coating technique for stress meas. 3=23814
 symposium, Berlin (1961) 3=16557
 technique for strain meas. on flat surfaces 1=1713
 technique for studying plane states of strain 0=19435
 television charge storage tubes 1=7091
 thermal stress, resin meas. 4=116
 three-dimensional, scattered light method 4=16258
 vibrating bodies, photoelastic examination 1=97
 viscoelastic materials, creep and relax. contraction ratio 4=23094
 wurtzite and zinc blende, model 1=20300
 AgCl crystals, study of reverse bending 0=21110
 BaF₂ 3=916
 BaSO₄, elasto-optic constants 2=10575
 CaF₂, elasto-optic constants 2=10575
 Ge, coeff. meas. 0=7996
 Ge, dislocation and stress distribution 1=20321
 Ge, meas. and calc. 1=17869
 Ge, rel. to minimum stresses 2=8483
 LiF 4=13422
 LiF, stress-optic coeff., dispersion 1=14576
 MgO 4=23174
 NaCl 4=13422
 NaCl, photoelastic constants, temp. variation 1=11354
 Rb halides, rel. to K halides 1=12482
 Si, coeff. meas. 0=7996
 Si, rel. to minimum stresses 2=8483
 ZnS, piezo-, elasto-, and electro-optic constants 1=7702

Photoelectric emission

(Heading introduced in 1962)

See also Electron emission

- alkali antimonide 4=573
 alkali halide phosphors, excited by u.v. 2=22250
 alkali metal azides, 1400–10 000 Å 3=25415
 alkali metal—Sb [Bi] cpds, energy distrib. 4=3028
 alkali metals, volume effect, theory 2=3074
 angular distribution, rel. to γ-ray energy 4=3808
 atomic Au, ang. distrib. from L subshells 4=30389
 atomic, a.g. distrib. calc., relativistic 4=25542
 atomic, in determination of h/e 3=1575

Photoelectric emission—contd

atomic, forward emission, theory 2=20755
 atoms, K-shell, forward and backward 3=2588
 atomic, K-shell, high-energy calc. 3=12773
 atomic, meas., reduction of Compton back-ground 4=30210
 atomic, photoelectric edges, apparent positions 4=12389
 atoms, K-shell cross-sections, 200 keV-2 MeV 4=17254
 borosilicate glass, induced by high intensity laser beam 4=14749
 cathode, massive, X-ray photoeffect rel. to fluorescence yield 3=6663
 cathode, X-ray photoeffect, rel. to fluorescence yield 2=14704
 cathodes, dielectric, X-ray 3=19311
 from charged particles 3=9731
 for chemical analysis, using X-rays 4=23686
 convertors, photon-electron, energy distribution 4=24730
 crystal momentum conservation implications 4=14746
 delayed, rel. to electron trap analysis 2=3892
 distribution, not Poisson for Poisson incident photons 4=19085
 dye coatings, kinetic energy distrib. 2=5371, 11695
 electron distrib. from partially polarized Gaussian light 4=19084
 electron motion near conductors 4=3108
 films, alkali antimonide, electron diffraction camera 4=15785
 films, Cs₃Sb, K₃Sb, (Na₂K)Sb, (Na₂K)CsSb, effect of n irradiation 3=14632
 gases, electronegative, photoelectric current, meas., accuracy 4=14572
 Geiger-Müller counters, photoelectron back diffusion 4=19326
 K-shell, for γ -rays of 0.5 MeV 3=2587
 K-shell, saddle point calc. for multiple integrals 4=28144
 metal films, on Si, rel. to photon energy 2=22251
 metal surfaces on alkali halide crystals, meas. 4=11696
 metals, energy distrib., calc. 2=3071
 metals, films, and electrons and holes, hot, m.f.p. 3=20264
 metals, into liquid dielectrics, var. with illumination, electric field 4=571
 metals, measurement and O₂ and H₂O effects 2=17868
 metallic contact to CdS single crystals 4=12853
 microscope, for luminescence study 4=7167
 mobility of electrons, effect of space charge 4=11255
 multialkali metal oxide cathodes, emission characteristics 4=8813
 multialkali metals, sensitivity enhancement by mirrors 4=8815
 opaque objects, meas., electronic camera 2=13590
 optical signals, modulated, detect. 4=21271
 organic semiconductors 4=574
 photocathodes, activation 2=9615
 photocathodes, complex, quantum yield 4=8809
 photocathodes, for solar short-wave radiation 2=19299
 photocathodes, under X-rays 2=13589, 17866
 photo-exoemission, effect of temp. 4=24732
 in photographic process 2=1284
 photomultiplier electron transit times 4=29966
 photomultipliers, Venetian blind-type, noise 4=29965
 phototubes, pulse operation 4=576
 polarization effect, study with electron image converter 2=7647
 quartz, after crushing and coloration 3=14634
 quartz, induced by high intensity laser beam 4=14749
 review 4=11698
 from semiconductor surfaces, law 3=7633
 semiconductors, rel. to BaO adsorption 2=22241
 semiconductors, photoemission from space-charge region, theory 2=2132
 semiconductors, review 3=19312
 semiconductors, theory 2=17870-1
 silica, fused, excitation by u.v. 4=8806
 solid-state photodetectors for coherent light 4=15574
 spectrochemical analysis, intensity-conc. dependence 4=29239
 surface effect, rel. to secondary emission by surface effect 4=19090
 transport of excited electrons, integral eqn. 4=8829
 X-ray effect, using pulse-amplitude distrib. analysis 3=19309

Photoelectric emission—contd

X-rays, 0.7-30 keV 3=14638
 Ar shock tube, from walls, precursor creation 4=18340
 Ag films, dispersed 2=11698
 Ag films, by X-rays, 0.28-9 keV, effective depth 3=21864
 Ag films, yield meas. 2=17867
 Ag halides 3=12940
 from Ag layers, thin, by γ -rays, ang. distrib. 3=8204
 Ag, thin layers, emission velocity distrib. 3=9835
 Ag, X-rays, 0.7-30 keV 3=14638
 Ag-O-Cs photocathodes, threshold spectral sensitivity region rel. to layer structure 4=11694
 AgS photocells, FESSU, characteristics 4=17539
 Al, Ag, Ta and W, yield for soft X-rays 2=208
 Al films 2=5369
 Al films, yield meas. 2=17867
 Al, photo-exoemission, effect of temp. 4=24732
 Al, thin layers, emission velocity distrib. 3=9835
 Al, X-rays, 0.7-30 keV 3=14638
 Al₂O₃ films, delayed thickness var. 4=24733
 Au films, depth depend. 2=1482
 Au films, efficiency rel. to thickness and obs. wavelength 4=3030
 Au films, rel. to film thickness 3=425
 Au films, by X-rays, 0.28-9 keV, effective depth 3=21864
 Au films, yield and work function 3=426
 Au, Ge, Cu, X-ray excited, energy distrib. rel. to secondary emission 4=8808
 Au, rel. to range-energy reln. of hot electrons 4=22534
 Ba adsorpt. on polycryst. Au, characts. 4=24731
 Ba layers on W, in polarized light 4=8810
 BaNb₃ u.v., spectral distrib. 3=24550
 BaO, expts. 4=29964
 Be films, by X-rays, 0.28-9 keV, effective depth 3=21864
 BeO layers, external photoeffect 3=24337
 from Bi layers, thin, by γ -rays, ang. distrib. 3=8204
 C atoms, photoionization cross-sections, calc. 4=25543
 Ca oxide coated cathodes, spectral sensitivity 2=3073
 CaCO₃ (Iceland spar), after crushing and coloration 3=14634
 CaF₂ (flourite), after crushing and coloration 3=14634
 Cd, thin films and single crystals 4=22849
 Cd, vacuum u.v., crystals and films 4=7119
 CdS 4=1724
 CdS, exciton induction rel. to electron spectrum 2=5372
 CdS, nonequilibrium and photoconductivity 3=19308
 CdS, quantum yield, spectral dependence 2=22252
 CdTe, current v. photon energy tail, rel. to impurities 2=9620
 CdTe thin films 4=22857
 CdTe and CdS, props. relation 2=9620
 Cr films, depth depend. 2=1482
 Cr, by X-rays, effect of X-ray polarization 3=14630
 Cr₂O₃, energy distrib. 2=5370, 11694
 Cs polycyclic aromatic cpds. 3=16975
 Cs, pure, in u.h.v., and work function 4=11697
 CsAu, 1.6-6.2 eV, band structure 2=5373
 Cs-Rb-Sb cathode 4=27564
 Cs-Sb, composition depend. 4=26142
 Cs-Sb film, ang. distrib. 3=19313
 Cs-Sb films, rel. to composition 3=8495
 Cs₃Sb cathode, var. with colour 4=8807
 Cs₃Sb cathodes 2=13585
 Cs₃Sb cathodes, efficiency in polarized light 2=5374
 Cs₃Sb, film, effect of n irradiation 3=14632
 Cs₃Sb, semiconducting, anomaly 4=572
 Cu, and crystal electron band struct. 4=20242
 Cu, in region around K-absorption edge 3=6351
 Cu, X-rays, 0.7-30 keV 3=14638
 GaAs 2=11696-7, 13587-8
 GaAs thin films 4=22857
 Ge, calc. from energy bands 4=20247
 Ge, electron beam caused threshold shift towards longer wavelengths 3=19314
 Ge films, by X-rays, 0.28-9 keV, effective depth 3=21864
 Ge and Si, momentum conservation, polarization evidence 4=14748
 InAs, spectral characteristics, rel. to adsorpt. of BaO 2=1483
 K, normal and selective effects, energy distrib. calc. 2=3075
 K α emission, from layer adsorbed on Pt 2=22272
 K films, depth depend. 2=1482
 KBr:In, heat treatment effect 4=1766

Photoelectric emission—contd

- KCl, extreme u.v., 10-50 eV meas. 4=3032
 KCl films, by X-rays, 0.28-9 keV, effective depth 3=21864
 KCl, X-ray effect, Auger fields for Cl and K 3=14633
 K-Sb films, rel. to composition 3=8495
 K₂Sb, film, effect of n irradiation 3=14632
 LiF, extreme u.v., 10-50 eV meas. 4=3032
 Mg, films, energy distrib., var. with wavelength, thickness 4=575
 Mg, thin layers, yield 4=16522
 Mg₃Sb₂, 248-800 μ 2=2213
 Mg₂Sn, spectral characteristics, rel. to adsorpt. of BaO 2=1483
 Mo, in Ar, Ne, work functions 4=568
 Mo, rel. to angle of incidence and polarization state of radiation 4=11695
 Mo, field depend. 2=7643
 NaBr:In, heat treatment effect 4=1766
 NaCl crystals, additively coloured, elec. field effect 4=24721
 Na₂CO₃ 3=19306
 (Na₂K)Sb, (Na₂K)CsSb, film, effect of n irradiation 3=14632
 Nd, ang. distrib. 2=7646
 Nd, ang. distrib. 3=5694
 Ni ribbon, temp. var., anomalous near Curie point 4=3031
 Ni sheet, extreme u.v., 10-50 eV meas. 4=3032
 Ni, in Ar, Ne, work functions 4=568
 NiO, energy distrib. 2=5370, 11694
 PbS 2=8429
 PbS, in near and vac. u.v., yield and distrib. 4=5698
 PbS, vacuum u.v. 3=8596
 Pt, X-rays, 0.7-30 keV 3=14638
 Sb-Cs, dark? 3=9836
 SbCs₃ cathode, fatigue 2=15945
 Sb₂Se₃ 2=9621
 Se photocells, cosine error correction 4=18376
 Si 2=17871-2
 Si, rel. to band bending 3=9834
 Si, band structure, electron, determ. 3=6491
 Si, calc. from energy bands 4=20247
 Si, rel. to energy band structure 3=4960
 Si, influence of band bending 2=23367
 Si surfaces, cleaved, heated and sputtered, comparison of props. 4=14747
 Si, volume and surface effects, rel. to doping 3=9833
 SiO₂, polarized light effect 2=7648
 Sn, into Ge 2=7645
 SrNb₃, u.v., spectral distrib. 3=25450
 from SrO-coated cathodes 3=12238
 Te thin films 4=22897
 Ti, by X-rays, effect of X-ray polarization 3=14630
 U, ang. distrib. 2=7646
 U, ang. distrib. 3=5694
 U, changes at phase transformations 2=3072
 W, BaO-coated 2=13586
 W cathode, 10-50 eV 3=14631
 W points, laser induced 4=8811
 ZnO, energy distrib. 2=5370, 11694
 ZnS, var. with excitation energy, and reflection coeff. 4=7161
 ZnTe, asymmetries for (111) and ($\bar{1}\bar{1}\bar{1}$) faces 2=7644

Photoelectricity

- See also Photoconductivity; Photovoltaic effects.
 acetylene polymers 2=23371
 alkali antimonides, photoemission 1=1907
 alkali antimonides, properties 0=20927-8
 alkali halides, photoelectron energy distrib. 0=17029
 alkali halides, selective photoemission 0=5339
 alkali metal photocathodes, response to plane-polarized light 0=19712
 alkali metal films, selective 3=20466
 anthracene, laser induced, carrier release mechanism 4=7077
 anthracene, ohmic and non-ohmic 4=7076
 anthracene, photodepolarization, nonlinear 3=20399
 anthracene, var. wavelength, and traps. 4=15571
 atomic K-shell cross-sections, polarization 2=3709
 atomic photoeffect, K-shell, relativistic, ang. distrib. 0=17718
 atomic photoeffect, applic. to γ -ray intensity determ. 0=7688
 atomic photoeffect, at high energies, total cross-section calc. 0=5892
 atomic photoeffect, from L-shell, calc. 0=15678

Photoelectricity—contd

- atomic photoeffect with large momentum transfer, calc. 1=11078
 atomic photoeffect, Sauter theory, connection with bremsstrahlung as inverse process 0=2513-16
 atomic photoelec. effect, connection with h.f. bremsstrahlung spectrum 1=479
 atomic photoelec. effect, use in precision γ -ray spectrometers 1=2030
 beryllium bronze, photoemission curve 1=13108
 bronze, outgassing effects, 3000-250 A 3=21865
 cascade intensifiers, image fluctuations 0=8785
 cathode emission, effect on cold-cathode glow discharge 1=18801
 cell, d. c. excited gas discharge, Joshi effect 4=29876
 charge storage tubes for astronomy 1=5125
 cosmic rays high energy primaries, nuclear photoeffect 1=16923
 counter-tube cathodes, change of spectral yield curve during operation 0=9229
 crystal generator, of low frequency pulses 2=21201
 detectors, relative spectral sensitivity 0=16824
 electron emission, Richardson eqn. and thermionic emission eqn. 1=18918
 electron emission, surface and volume effects of polarized light 1=18921
 emission yield of 1.54-13.3 A X-rays 1=13109
 gases, currents in plane parallel capacity 3=7250
 in Geiger-Müller counters, and back diffusion 3=5899
 h.f.s. recording system, Fabry-Perot 1=18607
 at high energies, 1s-electron emission, total cross-section 0=4177
 image converter for thermal radiation 1=4635
 image converters 1=7092
 image converters, effect of surface charge on photoelectric emission 1=3003
 image intensifier using secondary electron emission 0=10757
 image intensifiers 1=5126
 image intensifiers with electron-optical demagnification 2=1502
 image storage methods, comparative study 1=5124
 image storage tubes 1=5126
 instruments, error elimination 1=18580
 insulators, photoemission, compensation for surface charge effects 1=16381
 interference band recording 0=16895
 interference fringe measurement, indicator setup 1=18610
 Joshi effect, mechanism 4=27500
 laser radiation detect., noise effects 3=1810
 laser radiation detection fluctuations 4=5354
 light fluctuations detection meas. theory 4=27281
 light, small anisotropy meas., appl. 1=18559
 metal films, photoemission 0=9075
 metal-semicond. systems, photovoltaic response 3=25387
 metal surfaces, mixing theory 4=26138
 metal, two-photon surface effect, perturb. theory 3=6625
 metallic thin films, photoelec. sensitivity 3=6626
 metals, inner, and free electrons 3=22897
 metals, with intersecting bands, nonthreshold internal photoeffect 4=6915
 metals, photoelec. yield oscill. in mag. field 0=11719
 metals, solar extreme u.v. exposure, analysis of photoelectrons 0=10451
 metals, treated as volume effect 1=16373
 microscope, scanning 3=16753
 NBS VUV research programme 3=9591
 optical, detector entropy, counting uncertainty contribution 4=21272
 organic dyes, solid films 1=5491
 organic dyes, solid films, freq. depend. 0=17028
 phosphors, photocapacitative effect meas. 4=22792
 photocathodes, commercial types, absolute spectral response 0=15054
 photocathodes and dynodes, temp. depend. 0=2380
 photocathodes, local sensitivity, effect on output pulse 0=2381
 photocell proportionality law departures 1=9636
 photocells, efficiency, solar energy utilization 0=9987
 photocells, i.r., semiconducting single crystal 0=266
 photocells, linearity tester 2=13432

Photoelectricity—contd

photocells, temperature dependence of response 2=1484
 photocells and tubes, and other devices, review 2=15955
 photodielectric effect, u.v., effect of i.r. 4=20428
 photoelectric camera, for astronomical work 0=18591
 photoelectric cross-sections, calculation 0=7687
 photoelectric detector, count distribution, rel. to photon fluctuations 0=5124
 photoelectric double-slit interferometer for solid film investigation 0=3641
 photoelectric effect, relativistic, Hall's formula 0=20540
 photoelectric measurement of galactic distances 0=18835
 photoelectric micrometer; random fluctuations in extinction 1=17988
 photoelectric mixing as spectroscopic tool 1=4454
 photoelectric observations with Michelson interferometer 0=16887-8
 photoelectric photography 0=18592
 photoelectric photometer at Turin observatory 0=18586
 photoelectric photometry in astronomy 0=18595
 photoelectric recording of time-resolved spectra 0=3631
 photoelectric spectrophotometer 0=3632
 photoelectron polarization by magnetic materials 0=2379
 photoelectronic gamma-ray spectrometer, spectra sensitivity 1=477
 photoelectronic image intensifiers, review 1=16389
 photoelements, fatigue and other props. 1=3795
 photoemission from compound photocathodes, effect of light polarization 0=19722
 photoemission of semiconductors, effect of conduction type 1=13113
 photoemissive cells, excess photon noise in single beam meas. 0=15954
 photoionization in atomic L-shells 0=9774
 photomagnetic effect in semiconductors, rel. to minority carrier parameters 1=14426
 photomagnetic effect in semiconductors, rel. to minority carrier parameters 1=17669
 photomagnetic effect, monopolar, non-stationary 1=19912
 photometry applications 1=1805
 photometry, rel. to stellar applications 4=24335
 photomultiplier, FEU-13, optimum regime 0=7143
 photomultiplier, for nanosecond region 0=19723
 photomultipliers, characteristics 0=7140, 17031
 photomultipliers, counter symposium 0=15057
 photomultipliers, detection of Raman spectra 0=3618
 photomultipliers, effect of temp. 0=17151
 photomultipliers, fast, and coincidence system for time meas. 0=19725
 photomultipliers, fatigue in scintillation counters 0=17152
 photomultipliers, local sensitivity 0=19726
 photomultipliers, luminescent effect in tube faces 0=2462
 photomultipliers, noise reduction 0=3731
 photomultipliers, optimum optical density for "shot" noise limited spectrophotometers 0=1034
 photomultipliers, pulse dispersion reduction 0=17143
 photomultipliers, resistance strip magnetic for extreme u.v. 0=7144
 photomultipliers, response speed 0=19724
 photomultipliers, for scintillation counters, characteristics 0=17138
 photomultipliers, for scintillation spectrometry 0=3789
 pinacryptol, films on Ni 0=19718
 pinacyanol, films on Ni 0=19718
 plane of polarization, rotation, meas. method 0=19457
 polarimeter, highly sensitive, appl. 1=18623
 polarimeters, rotation measurement by 3=5534
 polarized light effects, photoemission fluctuations, theory 1=4482
 polyvinylene foil 4=12995
 pressure changes automatic recording 2=4975
 proton current meas., by photosensitive devices 0=20142
 pyrometers, radiation and optical, limits 3=1859
 Raman line intensity meas. 0=16864
 recording of interference bands 0=16896
 saturation hole migration to killer centre hopping mechanism 4=22791
 Sauter's formula by means of Born's approximation 1=812
 scintillation multipliers, resolving power 0=3790-1

Photoelectricity—contd

semiconducting emitters, various, comparison 0=19719
 semiconductor cells as i.r. detectors 0=8838
 semiconductor clean surfaces, photoelectric emission 1=6146
 semiconductor minority carrier diffusion length meas. 4=9892
 semiconductors, analysis of spectral sensitivity 0=6130
 semiconductors, effect of external elec. field 2=21185
 semiconductors, homogeneity anal. method 3=15567
 semiconductors, inorganic, sensitization by adsorbed pigments 1=6060
 semiconductors, and local-centre parameter meas. 3=20295
 semiconductors, photomagnetic e.m.f., edge effect removal 0=6132
 semiconductors, spectral yield rel. to accelerating field, theory 1=18922
 semiconductors, universal surface recombination velocity 1=3740
 semiconductors, various internal effects 2=23445
 semiconductors, various internal effects 3=2967
 Schottky diodes, photoelec. det. of image force dielec. const. 4=26081
 simple det. of Planck's consts. 2=4906
 solar batteries 0=6265, 14950
 solid-state photodetectors for coherent light 4=15574
 spectral distrib. meas. 0=7141
 spectral line profile recording, microsec time-scale 4=18401
 spectroscopy by photocell, proposal 3=5520
 stabilizer for magnet currents 0=2308
 steel, stainless, outgassing effects, 3000-250 A 3=21865
 surface effect for one or two photons, theory 4=17527
 teaching expt. for undergraduates 1=17788
 technique for measuring eye movements 0=3379-80
 transverse photomagnetic effect in semiconductors 1=11328
 two-photon photoelec. effect study 4=26137
 weak photocurrent measurement 1=13108
 X-ray photocell 0=5340
 X-ray photoelectron yields for various substances 1=2990
 AgCl, Dember effect in u.v., temp. depend. 3=2948
 AgCl, rel. to investigation of colloidal Ag present 4=1688
 AgCl, photoelectret state formation 3=15623
 AgI layers, quantum efficiency 0=15055
 Ag-As-S alloys 1=5025
 Ag-O-Cs cathode, sensitivity, reflectivity, transmittance 4=3029
 Ag-O-Cs photocathodes, i.r., preparation and props. 0=9073
 Ag-Cs photocathodes, thermo- and photoemission maxima 0=5338
 Al, abraded, photo-stimulated exo-emission of electrons 1=16356
 Al, during anodic oxidation, assoc. with electro-luminescence 0=9065
 Al, photoelectron quantum yield, 1.4-13A° 1=10730
 Al, photoelectron quantum yield, 1.4-13A° 1=4634
 Al, photoemission after mech. working or X-irradiation 1=16374
 Al, photostimulated electron emission on reaction with NaOH or KOH 1=16376
 Al, vacuum u.v., 6 to 30 eV 3=13145
 Al and Ag photocathodes, effect of surface treatment on emission 1=16377
 Al₂O₃ layers, photostimulated exo-electron emission 1=16375
 Au film cathodes, quantum yield, optimum thickness 1=13119
 Au, mean free path of photoexcited electrons 2=18747
 Au, outgassing effects, 3000-250 A 3=21865
 Au, yield data, vacuum u.v., 8 to 24 eV 3=13145
 Be, outgassing effects, 3000-250 A 3=21865
 Bi films 0=9074
 Bi-Ag-O-Cs photocathodes, chemical and phys. props. 1=10731
 Bi-Cs, photoemission rel. to temp. 1=10732
 Bi₂Te₃, and work function 0=13636
 Ca, photoelectron quantum yield, 1.4-13A° 1=4534
 Ca, photoelectron quantum yield, 1.4-13A° 1=10730
 CdS, carriers, shubwegs 4=22795
 CdS, effect of neutron irradiation 3=4917

Photoelectricity—contd

CdS, electrically stimulated currents after illumination 1=7678
 CdS films, electron irradi., photoshift 0=7956
 CdS, with high impurity concn., props. 3=906
 CdS, hole contribution 4=22796
 CdS, p-type photoconductivity and infrared quenching 1=10056
 CdS photocathode, for u.v. integrating meter 0=12472
 CdS, in photochemical reactions 3=3407
 CdS, photodielec. effect, 50 c/s-300 kc/s 4=26145
 CdS, photovoltage model 3=25421
 CdS, properties rel. to electrodes and non-symmetrical illumination 1=14503
 CdS, pure, sensitivity, spectral depend. 2=10527
 CdS, sensitivity, effect of admixture of gold 1=19899
 CdS, sensitivity, effect of admixture of gold 2=4061
 CdS single crystal, current oscillations induced by light irradi., local 4=28640
 CdS single crystals, u.v. excitn. 3=2974
 CdS, sintered, in photocells and resistors 4=30658
 CdS, X-ray effects, 15°, -176°C 3=20405
 CdSe, oscills., current, for localized illum. 4=10125
 CdSe single crystals, current oscillations, undamped, light beam present, expt. 4=28641
 CdTe, films, e.m.f., "single crystal", on NaCl, KCl, KBr 3=17957
 CdTe films, photoelec. props. 0=15986
 Cs₃Bi, with adsorbed BaO 1=13111
 CsI, photoelectron energy distrib. at 11.3 eV incident energy 0=17029
 CsNa₃K₃Sb cathode, photoemission temp. dependence 1=13112
 Cs-Sb layers, var. with Cs content 3=8574
 Cs-Sb photocathodes, fatigue at high light level 1=13118
 CsSb, photoemission and crystal structure 1=16382
 CsSb and Cs₃Sb, photoelec. emission and effect of O₂ 0=11709
 Cs₃Sb, improved sensitivity, by optical method 1=13110
 Cs₃Sb, photocathodes, effect of light polarization 1=19063
 Cs₃Sb, structure in energy distrib. of photoelectrons 0=1544
 Cs₃Sb, theory 1=17791
 Cu, I-treated, photoemission curve 1=13108
 Cu, photoelec. yield, rel. to d-band density of states 4=12692
 Cu, photoelectron quantum field, 1.4-13A° 1=10730
 Cu, photoelectron quantum yield, 1.4-13A° 1=4634
 CuI layers, quantum efficiency 0=15055
 Cu₂O, sensitivity, spectral distribution 1=12457
 GaAs, effect on props. of 1 MeV electron beam 4=25984
 GaAs solar cells, radiation props. 4=7067
 GaAs, and work function 0=13636
 GaP-Au semicond. diodes and barrier height 4=10080
 Ge, amorphous and crystalline 1=13115
 Ge, amorphous and crystalline, with Ba oxide films 0=11725
 Ge, with Ba oxide layer, V-I characteristics 0=11724
 Ge bicrystal, photoresponse, temperature and bias effects 4=28645-6
 Ge, Cs-treated, photoemission of electrons 0=7139
 Ge diode, mag. field effects on current 3=20408
 Ge, electron escape depth 1=13114
 Ge, field induced photoemission and hot-electron emission 0=17030
 Ge, films, photoelectron emission 1=17872
 Ge, after heat treatment or exposure to oxygen 3=4174
 Ge p-n junctions, noise due to illumination 3=22958
 Ge photocell, position sensitive, for astronomical spectra measurement 1=12734
 Ge, photodielectric effect 4=7068
 Ge, photogalvanomag. effects, fields to 200 kOe 4=30663
 Ge, photomagnetolectric effect, spectral distrib. 0=13635
 Ge, spectral response, rel. to surface recomb. 2=12511
 Ge, surface recombination rate measurement 0=18003
 Ge, V-I characteristics 1=13116
 Ge, and work function 0=13636
 Ge and Si induced photoemission 1=18924
 HgTe 1=116
 InAs, n-type, photoemission props. 1=13107
 InAs, n-type, photoemission props. 1=16380
 InSb, and work function 0=13636

Photoelectricity—contd

InSb p-n junctions 3=879
 In₂Te₃, response spectra of α - and β -modifications 1=11366
 K halides, pure, electron affinities 3=3034
 K, inner, var. with wavelength 3=22897
 K, internal, quantum transition absorpt. 3=17976
 KBr, u.v.-irradiated, delayed electron emission 1=10069
 KCl, additively coloured, photoemission of electrons 3=24336
 KCl photoemission rel. to time 1=18920
 KCl, u.v.-irradiated, delayed electron emission 1=10069
 K₂Cr₂O₇, photoelec. state study 4=30666
 K₃Sb, structure in energy distrib. of photoelectrons 0=1544
 Li, K-absorption cross-section 3=704
 Li, X-ray photoelec. absorption, rel. to total cross-section 1=6220
 Mg, photoelectron quantum yield, 1.4-13A° 1=10730
 Mg, photoelectron quantum yield, 1.4-13A° 1=4634
 MgO, photon energy depend. 1=2988
 Mo, photoelectron quantum field, 1.4-13A° 1=10730
 Mo, photoelectron quantum yield, 1.4-13A° 1=4634
 NaCl, coloured, photoelectric electron emission 0=18072
 NaCl, pure, electron affinities 3=3034
 Na-K-Sb photoelectric system 1=7677
 NaCl: Cd, photoelectric emission at 300-700°K 1=4998
 NbO sandwich photocell, small 4=17534
 Ni films, photoemission, effect of oxygen 0=19720
 Ni, outgassing effects, 3000-250 A 3=21865
 Ni oxide films, photoemission, effect of hydrogen 0=19720
 Pb, atomic photoelec. effect at high energies, calc. 0=5891
 Pb films 0=9074
 Pb, photostimulated electron emission on reaction with NaOH or KOH 1=16376
 PbI₂, spectral var., and image recording 4=21323
 PbS, e.m. wave absorption, rel. to applied elec. field 4=1736
 PbS, ion beam effects 4=4162
 PbS photo-e.m.f. effect of absorbed oxygen 1=10065
 PbS photosensitive surface, photoelectric effect mechanism 1=7673
 Pt, photoemission curve 1=13108
 Pt, yield data, vacuum u.v., 8 to 24 eV 3=13145
 S, destruction by adsorption of H₂O 4=4219
 Sb photocathodes, with alkali metals, spectral characteristics and sensitivity 0=15056
 SbCs, photocathodes, spectral response 1=16378
 Se barrier-layer photocells, fatigue and temperature effects 1=8343
 Se, depolarization, nonlinear, and carrier parameters 3=20417
 Se films containing S, electrets, depolarization 3=23006
 Se, photocell, int. resistance and capacitance at low temp. 0=7067
 Se photoelements, spectral sensitivity, effect of external resistance 4=7075
 Se, photometer elements 0=1147
 Si, amorphous and crystalline 1=13115
 Si, amorphous and crystalline, with Ba oxide film 0=11725
 Si detector transient response meas. by GaAs laser 4=17537
 Si, energy converter 0=20938
 Si, induced negative resistance, high resistivity n-type 4=4235
 Si, inner effect, quantum efficiency in vac. u.v. 4=12992
 Si, photoelectron quantum field, 1.4-13A° 1=10730
 Si, photoelectron quantum yield, 1.4-13A° 1=4634
 Si, photoelements, energy diagrams 0=9997
 Si, photoemission, effect of conduction type 1=13113
 Si, photoemission induced by internal elec. field 0=12627
 Sn films 0=9074
 Si solar cells, radiation props. 4=7067
 Sn, photostimulated electron emission on reaction with NaOH or KOH 1=16376
 Sn, Pb and Cd disordered films 1=16383
 Sn, vacuum u.v., 6 to 30 eV 3=13145
 SrF₂, photoemission curve 1=13108
 Ta, elec. field depend. 0=1148
 Ta-Ta₂O₅ electrode, γ -irradiated 2=3969
 Ti, photoelectron quantum field, 1.4-13A° 1=10730

Photoelectricity—contd

- Ti, photoelectron quantum yield, 1.4-13A 1=4634
 TiO₂ (rutile), electron transfer in, onset of field emission 0=13579
 Tl₂Se, As₂Se₂ layers, photo- and cathodo-electret states 4=26133
 U, photoelectrons from inner shells, ang. distrib. 1=19600
 U, external conversion of γ -rays from Ta¹⁸² 1=19421
 W-Ba system, photoelec. emission 1=13106
 W-BaO system, photoelec. emission 1=13106
 Zn, photostimulated electron emission on reaction with NaOH or KOH 1=16376
 ZnS, Demer effect, rel. to vacancy conc. 3=20161
 ZnS, induced electron emission, origin 1=18917
 ZnS phosphors, photodielec. meas. and models 4=28808
 ZnS, photovoltage model 3=25421
 ZnS:Mn, rel. to red luminescence 3=15711
 ZnTe films, photoelec. props. 0=15986

Photoelectromagnetic effects

- (Heading introduced in 1962)
 apparatus for meas. 3=7411
 crystals, e.m. waves, allowance for surface excitons 3=20465
 metal cathodes, X-ray, secondary emission effects 3=19310
 monopolar, non-stationary 2=4073
 organic single crystals 2=8428
 p-n junctions, photomag. effect 3=2980
 p-n junctions, photomag. effects 2=6503
 p-n junctions, theory 3=17965
 photomagnetic effect, in semiconductor parameter meas. 4=1585
 semiconductors, graded-gap, calc. and meas. 3=17951
 semiconductors with non-equil. concns. 3=17841
 semiconductors with nonparabolic band structures, theory 4=22799
 semiconductors, photocond. compensation of photomag. effect 2=18669
 semiconductors, theory 2=23479
 semiconductors, theory 3=6637
 semiconductors, volume effect 2=23478
 theory for large signals 2=4074
 Bi 3=8572
 Bi, laminar 2=14586
 Bi-Sb alloys 3=8572
 Cd_xHg_{1-x}Te solid solution, i.r. spectra, rel. to composition 3=17997
 CdS, anomaly, rel. to hot electrons 2=8443
 CdS crystals, 300°-70°K 3=13202
 CdS, photo-Hall effect 2=8408
 CdS, pure and As doped, rel. to hole props. 2=8442
 CdSe, photo-Hall effect 2=8408-9
 CdTe-HgSe, forbidden band width var. 4=4225
 Cu₂O, spectral behaviour rel. to band structure 2=10541
 GaAs, 140-300°K 2=4075
 GaAs, photo-Hall effect 2=8408
 GaAs, semi-insulating 2=8395
 Ge, Au-doped, n-type 2=8420, 18675, 21131
 Ge, Au and Mn doped 2=8398
 Ge elements, prep. by optical polishing 3=4956
 Ge and excess-carrier lifetime, depend. on majority density 3=17848
 Ge, long-term variation 4=10129
 Ge, n-type, odd and even, in high fields 4=10130
 Ge, odd effect 2=2194, 23481
 Ge, rel. to photoconductivity 4=26150
 Ge single crystals, e.m.f., time and thickness depend. 3=17966
 HgSe, i.r. detection 2=130
 InP 2=16757, 23465
 InP, photo-Hall effect 2=8408
 InSb, in alternating field, at room temp. 2=23480
 InSb, in alternating field at room temp. 3=8638
 InSb, due to carrier recomb., theory 4=20430
 InSb, i.r. detector, nanosec. time response 4=8497
 InSb, noise 2=4036, 6466
 InSb, p-type 2=16725, 18708
 InSb, p-type, at 80°K, departure from theory 2=4074
 InSb, 6° to 77°K 4=7069
 InSb, stationary, theory 4=22799
 PbS 3=2977
 Se, vitreous, photo-Hall effect, n-type cond. 4=22805
 Si, p-type, nonlinear depend. 3=2979

Photoelectromagnetic effects—contd

- Te, meas. analysis 4=28652
Photographic light sources
 flash lamps, Xe and Ar fitted, persistent u.v. radiation 4=8409
 flash-tube for cinematography 1=9495
 for high speed photography 3=11945
 nanosecond duration, energy >0.1J 1=12993
 photoflash lamp, IFK-15-1 4=14415
 shadowgraph, 450 J spark discharge 0=14994
 spark apparatus, < 1 μ sec flash 4=16261
 Al-O combustion reaction 0=8790
 Xe flashtubes, thermal radiation characteristics 4=14442
Photographic materials
 See also Nuclear track emulsions.
 absorption, light, Ag grains in deposits 3=21576
 acutance detm. by Fraunhofer diffraction 4=332
 astronomical emulsions, cooling during exposure 2=6972
 blackening gradients, electronic detm. 3=16727
 blackening law for electron beams 1=9498
 chemical and γ -radiation fog 0=12731
 choice, for colour photography 1=8246
 colour, in electron microscope 4=2101
 colour, graininess and chromaticity discrimination 0=185
 comparison of Ag halide and non-Ag halide systems 1=2895
 contrast transfer function, meas. 1=1812
 definition, "microcontrast" concept 3=11955
 desensitization as function of pressure, applied to strong pressure wave meas. 4=24302
 drying by vacuum desiccator 0=19238
 effect of Cd on electrical props. of Ag halide grains 4=18437
 "Electrofax" properties, review 0=4387-8
 electrophotographic, using electret layers 0=10001
 electrophotographic, photocond. props. 0=11728
 emulsion-developer systems, point-spread functions study 4=21321
 emulsion grains with cores 2=13468
 emulsion, light scattering, influence on exposure of top elementary layer 4=18438
 emulsion, transparency statistical distrib. meas. 4=21320
 emulsion turbidity effect in spectrum line photometry 3=1842
 emulsions, approx. sine-wave response 1=11848
 emulsions, bromide and bromo-iodide, response, influence of recombination 4=11373
 emulsions, contrast transfer function of light diffusion in emulsions 0=12502
 emulsions, crystallographic grain surfaces 2=17658
 emulsions, det. of water drop size 1=12853
 emulsions, diffusion halo 0=8813
 emulsions, distrib. of latent image specks in grains 4=21322
 emulsions, effect of β -rays 0=12733
 emulsions, elec. cond. rel. to photochem. sensitivity 3=3899
 emulsions, for electrons, resolving power det. 2=850
 emulsions, fine-grained, prep. 0=12737, 12740
 emulsions, fine-grained, for ultrasonograms 0=14746
 emulsions, Fourier analysis of adjacency effect 0=3662
 emulsions, grain dislocations, u.s. field effect 2=5192
 emulsions, grains, dark cond. and photoelectronic carriers 0=1616-17
 emulsions, granulometric study 2=7414
 emulsions, "ideal model" of random-dot samples, 1=8245
 emulsions, information theory 2=17657
 emulsions, latent image localization 2=15755
 emulsions, luminescence, temp. depend. 3=16813
 emulsions, in optical demonstr. of Bragg's law 2=7403
 emulsions, resolving power rel. to grain 3=5541
 emulsions, resolving power rel. to object contrast 2=15754
 emulsions, sharpness meas., diff. technique 2=17660
 emulsions, spectral line broadening 2=17622
 emulsions, thickness meas. 0=1049
 emulsions, thickness, resolving power depend. 0=12504
 emulsions, ultra-fine, polyvinyl-alcohol based, effect of Cl⁻ 0=12739
 emulsions, unsensitized, internal-image reciprocity-failure curves 4=333
 equal-density lines, reproduction accuracy 1=18629-30

Photographic materials—contd

film in bubble chamber, flying spot film meas.
machine 4=5910
film, clamped, vibrations excited by light 1=4425
films for astronomy and spectroscopy, visible and i.r.
sensitivity 3=9631
films, polaroid, for X-ray diffr. crystal orientation
meas. 4=2010
films, resolution determination 0=14860
films, shrinkage 1=9493
films, u.v., far, low fogging, for spectrometry 3=24064
glasses, silicate, Ag halide sensitized, photochromic
reversible 4=29202
gradation and inertia of Hurter and Driffield,
theory 1=8244
grain coarseness, standard and meas. methods 3=5540
granular nature of emulsions, density meas.
limitations 0=6931
granularity, power spectrum, diffr. meas. 4=2858
granularity, r. m. s., meas. 4=8462
granularity, Selwyn coeff., structural theory 4=2857
granularity, rel. to transparency, statistical model 1=246
granularity, Wiener spectrum optical analysis 2=13467
granulation of plates after exposure to electrons 0=12730
grey photographic film, thickness meas. 0=6941
information capacity of Kodak films 1=16128
image transparency var., distrib. and correl.
functions 4=11375
ion beam plate blackening 4=24401
latent image distrib. 3=1396
latent images, internal and external, topography 3=24063
Lippman plates, for stationary light waves 3=24068
use in mass spectrometry as detectors 4=3061
microfilms, for type character production 2=11513
modulation transfer function, image quality theory 4=14411
nuclear emulsions, grain size, during
precipitation 1=9708
nuclear emulsions, reduction of spurious
scattering 0=15207
particle track emulsion production with excess Ag
ions 1=1999
photoconductors, high-resist. electrophotographic image,
latent 3=17908
photoelectrets, electrophotographic process 3=15622
plates, curved, angle meas. device 1=2550
plates, sensitization for u.v. 0=16904
protective paper, effect on X-ray diffraction photo-
graphs 0=12014
radiation response, ionizing 3=14390
resolving power, calc. 2=13465
Sceptre, electron-flux X-ray film, calibration 3=2068
Schwartzschild index, of Ilford Q plates, for ions of
medium mass 2=19734
sine-wave response 0=19397
sonographic characteristics 4=288
spectrophotometry, use of photometric sphere 0=8793
transfer function, rel. to optical system aperture 3=21575
ultrasound effects on exposed and unexposed film 4=14412
wavelength-independent dosimeter film 0=19978
X-ray emulsion, solarizing, rate depend., sensito-
metric props., number and structure of developed
grains 4=11378
X-ray films, commercial, comparison 4=3081
X-ray microscopy, Ag-activated nitrocellulose as
recording material 0=21254
Ag halide, absorpt. spectrum, fine struct. meas. 4=22890
Ag halide dispersions, particle size change. 3=25839
Ag halide grains, crystal imperfect, X-ray diffr.
exam. 4=12721
Ag halide photoconductivity meas., 10^{10} c/s 4=21324
Ag halides, F and F' centres 2=13466
Ag halides, irradiation in electric field, Ag nuclei
growth 0=3663
AgBr emulsion, latent image of incident fast
electrons 0=14861
AgBr micro crystals, twinning and growth 4=13519
AgBr monocrystals, Bi-doped, meas. 4=18440
AgBr, print-out effect, defect electron behaviour 3=3406
AgBr, ripening retardation by Cu ions, mechanism 4=5403
AgCl, Cu-doped, rate of volume photolysis 3=11358
PbI₂, print-out between 170°-190°C 3=17960
Se xerographic plate, photoinduced discharge 3=15613
ZnO, electrophotographic, charging in discharge 4=18443

Photographic materials—contd
sensitivity

aerial film, sine wave response approx. 3=3898
antifogging and sensitizing action of noble metal
salts 3=11952
blackening rel. to exposure, general eqns. 3=11956
bromide emulsion, pure, exposed at low temp. 3=9630
cyanine dyes, into visible and i.r. spectra 2=9411
densitometer spot-profile definition, Callier
effect, granularity 1=18634
density-exposure curves, for use with image
intensifier 0=19467
density-intensity calibration in electron diffraction
studies 0=10791
density-intensity calibration in electron diffraction 4=5703
desensitization theories review 4=16260
development centres, distrib. and sulphur sensitization
mechanism 4=14413
distribution, grain size depend. 0=19466
dye sensitiizers 0=10358
to electron beams 0=12732
electron camera emulsions, linearity 2=15765
electronography, latent-charge films 2=17670
to electrons, intensity det. of conversion lines 2=22749
emulsion with Br excess, Villard effect 3=3900
emulsion and glass in contact with quartz,
resensitization 1=18632
emulsion, lateral diffusion of spectral lines 3=1843
emulsion response to i.r. 0=8812
emulsions, chromatic sensitivity, average curve 2=19676
emulsions, effective speed 4=5406
emulsions, prep. by bromination of Ag hydrosols 1=7179
emulsions, hypersensitization and latent image 2=15755
emulsions, under light and ionizing irradiat. 2=17659
emulsions, for long astronomical exposures 2=930
emulsions, quantum sensitivity of microcrystals 2=17662
emulsions, sensitivity distribution, determination 1=9492
emulsions, sensitization techniques 3=7361
equivalent quantum efficiency expression for information
capacity 4=5404
films, information efficiency 3=3922
hypersensitization with triethanolamine 0=12738
hypersensitization with various organic cpds. 0=12744
Ilford Q2 plates 1=19077
Ilford Q₂ plates, as ion detectors 3=5725
images, granularity, theoretical laws 3=24065
ionization relations determined for particle
tracks 0=2469
line-spread function as fourth-power cosine
function 1=13004
mass-spectrometer plates, N₂ and H₂ density
curves 2=9653
mass spectroscopy, mass depend. for positive ions 2=19735
nuclear emulsions, hypersensitization 0=19984
nuclear emulsions, sensitivity to light and α -particles,
from 20 to -196°C 1=414
nuclear emulsions, sensitivity to X-, α - and β -rays 1=5619
photo-emulsion, hypersensitization gains in
near i.r. 1=18631
plates, Ilford Q₁ sensitivity 1=9711
precipitation conditions effect 2=9415
quantum efficiency 1=4484
quantum sensitivity of emulsion grains 1=16125-6
quantum, to X-radiation 1.54-113 Å 3=3902
reciprocity, unusual, layers with 3=5543
response to successive exposures of different types
of radiation 1=16129
sensitization, with various chemical complexes and
cpds 0=12745-6
small isolated details, reproduction investigation 1=18633
spectral sensitization, dye properties 3=11950
spectral sensitization, recent theory 3=11949
spectral sensitization, temp. depend. 2=9412
spectrophotometric film, calibration 2=5134
sub-microsec exposures, characteristic curves 2=11510
sulphur sensitization, high-intensity reciprocity failure of
AgBr grains 4=14414
sulphur sensitizing mechanism in emulsions 3=11946
theoretical limits 2=11511
theory, present status 3=11951
in u.s. field visualization 2=9416
var. with emulsion and developer props., exposing
radiation, temp., and wavelength 3=11944
wavelength dependence of Λ -transformation 0=5189

Photographic materials—contd**sensitivity—contd**

- X-ray films, blackening curve 3=9632
- to X-rays, ultra-soft, of certain films 0=8815
- AgBr, sensitization by triethanol amine 2=17661
- ZnO, electrophotographic props. 3=9629

Photographic process

See also Photochemistry.

- contrast improvement, electronic copying 4=8470
- diatomic reaction theory 0=19464
- double exposure, effect of second on first 0=5190
- dye images, light absorpt. by heterogeneous systems 3=5539
- electrophotographic image formation on photoelectrets 0=10021
- electrophotographic image, latent, photoconductors, high-resist. 3=17908
- electrophotographic latent image, two formation mechanisms 3=5544
- electrophotographic processes, ZnS and ZnO films 0=13661
- electrophotography, half-tone process 2=11512
- electrophotography, memory effects 2=15757
- electrophotography, symposium review (Nov. 1960) 3=16815
- emulsion grains with cores 2=13468-9
- emulsion microcrystals, foreign centre separation 3=3903
- equivalent quantum efficiency, macroscopic and microscopic approaches 3=21578
- exposure criteria for threshold signal detect. 4=18444
- exposure of top elementary layer of emulsion, light scattering influence 4=18438
- glasses, Ag-containing, after u.v. and γ -irrad. 3=24066
- halation by reflection in photographic layers 4=18439
- half-tone transparencies, screen structure removal, by filtering 1=1832
- Hurter's theory, review including deep emulsions 2=9413
- image, effect of vibration 3=16812
- image formation, effect of lens-sensitive material system 0=3601
- image quality, Fourier spectral analysis 0=19370
- image production by charged particles 1=19079
- images, statistical props. meas., implications of methods chosen 4=11376
- Kalvar process 2=15759
- latent image, due to β -rays, effect of temp. 0=15214
- latent image, due to light and β -rays, effect of temp. 0=12764
- latent image, electrophotographic, formation in ZnO layers 2=15756, 19733
- latent-image fading, in K.5 emulsions 2=11842
- latent image, formation by charged particles 0=12780
- latent image, formation by fast electrons in AgBr 0=14861
- latent image, formation by light and elec. field pulses 0=12506
- latent-image formation, mobile Ag ions 3=11948
- latent image formation, study by simultaneous infrared exposure 1=2896
- latent image, Herschel effect, review 2=15758
- latent image, inhibition of fading with triethanolamine 0=12738
- latent image, nuclear emulsions, due to light flashes 0=12763
- latent image, repression, effect of H_2SO_4 and KBr 0=15213
- latent image, thermally-induced fading, activation energy 0=10789
- latent images arising from pressure and halide substitution 4=5405
- limits and possibilities 2=1286
- Mitchell theory of photographic sensitivity 3=11947
- modulation transfer function, meas. 3=21577
- nuclear emulsions, automatic Ag conc. control in fixing baths 1=2000
- optical frequency response theory 1=4486
- photoconducting imaging devices with floating electrodes, response 3=24067
- photoelectric process 2=1284
- photography of electron and ion-optical images, polymerization method 4=4644
- photopolymer, visible latent image 3=5538
- photosensitive layer, ultrasonic softening 4=27343
- picture quality rel. to modulation transmission function 3=7360
- printing, sine-wave response techniques 1=11847

Photographic process—contd

- quantitative description, and physical behaviour of grain 1=18628
 - rel. to image simulation 4=21319
 - reproduction, fine-detail, analysis 4=8465
 - sensitivity, and applied elec. fields, review 2=5195
 - systems analysis, three-stage model 0=3660
 - systems analysis, transfer function measurements 1=4485
 - xerography, charging of ZnO layers, effect of dielec. breakdown 2=6529
 - xerography, elec. fields calc. 4=14416
 - Ag halides, interchangeability derivations, electronic mechanism 4=23670
 - Ag halides, light effect on dielectric loss 2=14599
 - Ag halides, spontaneous formation of Ag nuclei 2=22068
 - Ag halides, trapping of positive holes, rel. to Mitchell theory 1=9490
 - AgBr, displacement of latent-image centres 2=20961
 - AgBr, e.s.r. study 2=16933
 - AgBr, Hall mobility of holes 0=6955
 - AgBr, and hole mobility 4=4010
 - AgCl, with CuCl traces, e.s.r. study 0=19465
 - AgCl, darkening and photoconductivity 0=20940
 - PbI₂, decomposition, and image recording 4=21323
 - ZnS layers, in d.c. fields 2=6644
- development**
- Acufine developer for astron. use 3=5542
 - adjacency effect, contrast transfer of periodic structures 0=12503
 - automatic, for nuclear emulsions 1=10822
 - automatic, in second Soviet spaceship 2=19360
 - centre structure, Ag⁺ ion—lattice reaction 4=8467
 - contact development and grain structure of tracks 0=12781
 - corrosion during fixing, avoiding 0=194
 - density growth in solarization and re-reversal regions, AgBr 3=14383
 - developability of Ag halide crystals, effect of surface defects 0=4292
 - developing device 0=12748
 - diffusion of developer, effect of ultrasonics 0=8816
 - use of diphenyl iodonium nitrate 0=12756
 - discrimination between particles at high γ -intensities 0=202
 - dosimeter film, use of fixing developer 2=19736
 - effect of acoustic streaming 1=11815
 - electrokinetic measurement, on Ag, AgBr, Ag₂S 2=1381
 - electronography, latent-charge films 2=17670
 - emulsion—developer systems, point-spread functions study 4=21321
 - emulsion grains, Ag growths in elec. field 2=11509
 - emulsion grains, print-out process 0=8814
 - equal-density lines, reproduction accuracy 1=18629-30
 - ferro-oxalate-based developers, props. 0=15215
 - image contrast control, by colour development 2=4715
 - latent image, internal, differential development 4=11374
 - mechanical developer for mass-spectra plates 2=1287
 - mechanism 3=11953
 - monolayer characteristics 2=5194
 - noise, photon, and informational assessment 3=14389
 - nuclear emulsion plates, apparatus 0=19986
 - nuclear emulsion stacks 1=13256
 - nuclear emulsions, development defect study, using amidol 1=13249
 - nuclear emulsions, development in domestic refrigerator 0=15212
 - nuclear emulsions, effect of processing on spurious scattering 0=19982
 - nuclear emulsions, effect of temperature and pH of developer 0=12774
 - nuclear emulsions, effect on track resolution 0=12778
 - nuclear emulsions, effect on track structure and fog 0=5188
 - nuclear emulsions, fog formation 1=7180
 - nuclear emulsions, fog formation 1=10821
 - nuclear emulsions, gamma background eradication in nuclear emulsions 0=17165
 - nuclear emulsions, processing 0=17170
 - nuclear emulsions, processing of given volume 0=193
 - nuclear emulsions, reduction of spurious scattering 0=15207
 - nuclear emulsions, tanning development 0=192

Photographic process—contd
development—contd

nuclear emulsions, thick, compact processing plant 0=15211
 prints, visual contrast, calc. 3=14382
 reflexion prints, quality 3=14381
 review 3=11954
 sound, accelerating action 1=16127
 theory, review 0=12505
 thick emulsions, quality improvement 1=7181
 variation of emulsion background fog with pH 0=191
 Ag ion transport process 2=16645
 AgBr monocrystals, Bi-doped, meas. 4=18440
 AgBr, 690 m μ absorpt. band 2=13466

Photography

See also Cameras; Cinematography; Lenses, photographic; Radiography.
 aerial photograph exposure determination 2=15760
 aerial photographic targets, evaluation 3=18968
 angular variation of exposure for a Lambertian source 0=3597
 "average" outdoor conditions, illum., contrast, spectrum and colour 0=3661
 autoradiography between metal powders and X-ray films 1=18635
 brightness distribution in photographs 1=6945
 of Cherenkov rings produced in a gas 3=10081
 cross-hatching, removal 2=15753
 curve follower, for photographic images 2=9234
 densitometer wedge for low optical density measurements 0=6902
 detection, recognition and resolution in photographic systems 4=27344
 detection recognition review 4=14410
 distant objects, effect of air turbulence 1=13003
 electronography, latent-charge images technique 2=17670
 electrophotographic props. of ZnO 3=9629
 electrophotographic recording system, photocond. thermoplastic 4=26157
 electrophotography, iso-opacity 2=17671, 19732
 electrophotography, mechanism and methods for half-tones 2=11512
 engineering, applications to photographic systems 4=8461
 evaluation, for reconnaissance 4=14409
 faint sources, contact tube 0=6957
 half-tone picture, information content and continuous tones prep. 2=17669
 Herschel i.r. reversal effect in elec. field 3=3901
 image converter, high-speed, 20 n sec exposure, brightness gain 50 4=18445
 image evaluation, isogradient apparatus 1=4483
 image formed by scattered and incident standing waves 4=11363
 image quality evaluation, convoluted spot-diagrams 2=7416
 image simulation 4=21319
 information measurement, in practical systems 2=15752
 irregularities, plane, spherical and aspherical surfaces 4=8398
 latent image structure 2=13466
 low brightness, with electro-optical intensifiers 2=1288
 micro, automatic, 35 mm film 3=14388
 microphotometric evaluation, 2-dimensional, of images of small objects 2=22070
 moon, far side (book) 0=6569
 optimum image wavelength, uncertainty principle approach 1=18574
 photoelectric, astronomical use 0=18591-2
 photogrammetry, methods and apparatus, review 2=11508
 pictures, spacial frequency distrib., Fourier analysis 1=18636
 quality and definition, roles of sharpness and graininess 2=1285
 quality determination 2=7413
 recording of electron-microscopy images, new method 1=20705
 resolving power, as function of emulsion thickness and lens aperture 0=12504
 response data, vector analysis application 3=16723
 review of recent optical developments in Japan 4=24400
 scattered-light pictures, contrast advantages 2=5193
 scientific, in Russia 1=9489
 sensitivity increase, improved systems 1=2895

Photography—contd

shutters, contrast transmission function 4=5408
 slit images, long but narrow, prod. by scanning technique 4=5409
 spatial filtering of granularity, qualitative and quantitative results 4=8463
 test-object, sine-wave, prod. and use 4=27342
 thermoplastic photoconductive image recorder 3=19030
 wide angle tracking 0=8781
 X-ray diffraction Weissenberg photographs, spot-size correction for inclined beam 4=15775
 Se, electro, electron and hole role 3=20417
 Se evaporated films for optical filters, with emulsions 1=9491
 ZnS:Ag screens, contact with Li⁺Li⁺F 2=6868

applications

aerial photography, transfer characts. of motion and air conds. 3=11961
 of artificial satellites, mirror-lens objectives 1=18229
 astrometry, sources of error 3=7011
 astronomical photometry, with Schmidt telescope 1=9280
 in astronomy, colour emulsions 2=13089
 in astronomy, integral brightness det. 2=924
 aurora, colour films of 3 layer subtractive type 0=16462
 black and white films, subjective method of colour prodn. 3=3693
 bubble chamber, (liquid H₂), tracking 3=4300
 bubble chamber photos, data extraction and processing 3=532
 bubble chamber techniques 1=4749
 bubble-chamber tracks 4=16768
 bubble chambers 1=3097
 bubble chambers 3=533
 bright field, H-bubble chamber 4=5913
 cinephotomicrographic study of etching 1=7844
 cloud chamber tracks, rel. to simultaneous pulse and ionization meas. 4=781
 colour, for Lichtenberg figures 3=5597
 contact photography, use in study of feeble light sources 0=6957
 contrast transmission of large ampl. sinusoidal signal 3=9633
 conversion lines recording, intensity det. 2=20317
 crystal patterns in polarized light 1=1383
 crystallographic X-ray intensity recording, errors 4=7587
 diagram reduction, two-dimensional 1=10596
 diffraction intensities, integrated, meas. 3=9615
 drop collision and coalescence investigation 4=30910
 earth surface motion, technique 3=9004
 electron beam oscillographs, recording 3=9852
 electron beam oscillographs, recording 3=16980
 electron beam study using fluoresc. powder 4=8830
 electron diffraction camera 3=23530
 emulsions as computer storage media 3=11962
 eulogismographic nonlinear image processing for pattern recognition 4=27346
 eye movements during convergence and divergence 0=14347
 for faint artificial satellites 2=1030
 faint objects, contact photography, image converters 2=19737
 flow visualization, colour schlieren systems 3=271
 gases, electron avalanches obs. 3=12077
 in high-energy physics 2=2903
 highly plane surfaces, topography survey 2=2872
 image-processing experiments 1=12977
 image-velocity sensing with parallel-slit reticles, theory 4=5410
 images, half-tone, dot structure removal, properties 1=16131
 interference fringes, records, rapid meas. 3=14362
 use in interferometric prod. of coarse moiré gratings 1=5353
 lens representation, by reflected wave pattern 2=19679
 lens representation by reflected wave pattern 3=1799
 lightning, 100 m distant, 2 μ sec exposure 4=2206
 liquid surface waves, wall, amplitude meas. 4=24145
 luminous cloud triangulation, in upper atmos., instrumentation 4=17917
 mass spectrometer data recording, increased sensitivity 4=24762
 metals, optical constants 0=16031

Photography—contd
applications—contd

- microimage, factors controlling quality 2=15763
 microphotographs, multiple, lab. technique 4=24402
 molecule stereo models, orthogonal projections 4=21327
 moon, reverse-side photography, technique and results 1=18031
 motion analysis methods, high-speed 3=21291
 motion study, selection of technique 2=15764
 multiple scattering, microphotometric investigation 3=24718
 neutrons, thermal, photographic detectors 3=12477
 particle photography, 1957 and 1958 international conferences 0=2260-1, 17169
 perspective pairs, aerial photographs, with distortion 2=9361
 photoelastic isoclinics meas., trajectory drawer 4=18442
 photogrammetry, distortions 1=4488-9
 photometry 4=21301
 photometry, simple method, fogging exposure meas. 3=18959
 photometry, slit width effect on background correctn. 3=1843
 photometry of spectrum lines, effect of emulsion turbidity 3=1842
 photomicrography, review 2=19692
 plasma, r.f., Schlieren photog. 3=4146
 pulse amplitude analysis 0=5245
 radioactive materials photography 4=338
 random signals, recording method 2=1349
 recording of charged particle showers 4=16987
 recording, electronic information from instruments 0=17182
 recording, in mass spectrography 0=12806
 recording of ultrasonic shadows and beams 1=4416
 ruby laser, transverse mode study 4=27707
 satellite photography with Schmidt camera 3=9385
 sea surface 0=14788
 selection of technique for study of motion 2=15764
 smoke plumes, quantitative study, equi-densitometry 0=5191
 solar, from manned balloon 0=16540
 solar, λ 3500-9000 Å 0=18768
 space vehicles, near moon, light level criteria 1=2669
 spark-chambers, automatic scanning 1=10825-6
 spectrochemical analysis, intensity-blackening curve detm. 3=1405
 stationary sound pressure field meas. 0=16793
 stellar photography, comparator, universal 2=931
 stellar positions meas., effect of atmosph. dispersions 4=10802
 stray light meas., theory and expt. 3=9581
 threshold signal detect., exposure criteria 4=18444
 u.s. fields, stationary, acoustic image conversion 0=6884
 vapourization obs., C, by laser, 30 MW 3=21627
 velocity measurement, of high-speed objects 2=2670
 Venus observations, simple method 2=24100
 Weissenberg camera, integrating, for crystal structure determ. 4=23401
 X-ray diffraction prints, prep. of positives 3=13435
 xerography, reciprocity failure 0=6956

colour

- astronomy, compensations 3=16314
 aurora photography, using new film 0=4812
 chromaticity calculations, optics of thin films 1=8246
 colour reproduction theory and separation filters 4=18441
 use in colour schlieren analysis 1=6960
 crystallites, on film, after several years 3=14386
 densitometry for colour print evaluation 0=2259
 dye images, theory 3=5539
 electron optical mass-thickness meas. 3=25799
 emulsions, applic. to astronomy 2=13089
 films, in electron microscope 4=2101
 image contrast, from multicolour development 2=22072
 Land photographs and colour theory 1=21141
 Land's experiments explained mathematically 0=3375-6
 Land's two-colour system 0=3374
 use for Lichtenberg figure study 3=5597
 Lichtenberg figures 2=19930
 reproduction by computation and expt. 4=336

Photography—contd
colour—contd

- schlieren method for wind tunnels 3=271
 stars, review 4=23838
 X-ray dosimetry 0=349

high-speed

- aerial, image quality, reduction of influence of movement 4=8464
 analysis of short times, technique 3=14387
 applic. to pulsed gas discharge investigation 0=9041
 of artificial satellites, mirror-lens objectives 1=18229
 compression of deuterium plasma 1=18888
 electric spark study, in ultraviolet 2=15762
 electronic photographic recorder 4=337
 exploding ribbon blast shutter 3=11957
 Fabry-Perot rings from ruby laser 2=22053
 framing camera photographs, image-smearing errors 3=19031
 high-gain image-intensifier system, fast shutter action 2=2903
 image-converter camera, ultra-high-speed 1=4487
 light production by explosively driven shock waves 4=11295
 light source, N discharges, high pressure pulse 4=24356
 light sources 3=11945
 using maser, optical, ruby 3=11960
 optimum frame rate for given phenomenon 0=2262
 photometric study of flash tube 0=169
 projection of SFR camera photographs 4=16262
 Raman spectra, using image intensifier 4=24368
 recording time-resolved spectra 0=6936
 review 4=16263
 review of methods 0=19463
 rotating-mirror cameras, control and trigger system 4=334
 of ruby laser action 2=16813
 ruby laser emission study 3=14336
 of ruby laser exit face 2=4125
 ruby laser appl. for flying bullet 3=1841
 schlieren-camera combinations 2=19738
 shock-excited surface deformations in solids 0=19258
 shock waves, in liquids, with compressed A flash source 0=19127
 shutter, fast-opening ($<45 \mu\text{sec}$), large-aperture 3=14384
 shutter, $2 \mu\text{sec}$ 4=8426
 smear camera technique for free-surface velocity measurement 1=9497
 spark shadowgraph technique, improvement 0=189
 spectrograph, mechanical shutter for extremely short exposure times 0=16862
 splash of water drop, falling into water-glycerol mixture 0=8644
 streak camera for laser studies 4=2859
 stroboscopic, use of tachometer 3=3905
 use in studies of ultrasonic wave scattering 0=12462
 sub-microsec. exposures, characteristic curves 2=11510
 transparent drops, moving, motion picture method 4=8468
 ultrahigh, image-dissecting camera 3=3904
 ultrahigh-speed, instrumental methods review 3=21579
 50 000 pictures/sec framing camera 3=11959
 He cloud chamber, photoelec. triggering system 3=2172

infrared

- emulsion response 0=8812
 metal temperature measurement 1=6969
 using persistent internal polariz. in phosphors 2=9414

Photomagnetic effects

See Photoelectromagnetic effects.

Photometers

See also Spectrophotometers.

- airglow, all sky, photoelectric 3=18547
 airglow, portable 0=8416
 altazimuth, using photomultiplier 3=9100
 astronomical, photoelectric 4=10801
 for aurora observations, automatic 2=6951
 auroral intensity in IYQS, meas. 4=29316
 detector, thermal, with periodic bias current 2=3165
 differential, for solar magnetograph 1=17989
 use for diffusion coeff. determ. of glow clouds from grenades 4=10737
 double-beam intermittent system, with vibrating mirror 1=4428
 dynamic high-speed 2=11465

Photometers—contd

- for electron emission, field, CdS 3=18960
- electrophotometer, night-sky luminance, automatic recording 1=10330
- field, with nine-element filter wheel 4=11322
- filter photometer for reflection meas. 0=2223
- flame, pneumatic annular atomizers 3=21549
- fluorometer, phase 2=2874
- for galaxy mapping 2=15290
- integrating, for use underwater 2=1243
- intensity recording microphotometer, for astronom. applic. 1=7973
- interference fringe meas., photoelec. indicator setup 1=18610
- light scattering, for liq. mixture study 4=27283
- light-scattering, rel. to meas. of absolute scatt. of liquids 4=14330
- for luminescence studies 0=19392
- microphotometer, use for accurate wavelength meas. 4=14373
- microphotometer, automatic recording, spectrometer driven 1=11839
- microphotometer, intensity recording 3=11485
- microphotometer, Möll, true-intensity attachment 2=22010
- microphotometers, direct intensity curve recordings, astronom. applic. 0=4844
- modulation photoelectric type, high sensitivity 0=19357
- night airglow type, calibration 4=20862
- nuclear emulsion track instrument 1=16638
- omnidirectional, for spherical illumination 4=8369
- for optical density meas. of integrating Weissenberg reflections 3=23999
- photocell, FEK-01, for high-intensity beams 3=23998
- photodiode, Ge point contact, for 1000 Mc/s 3=886
- photoelectric, battery-operated, integrating 1=227
- photoelectric, for determination of U in NaF beads 2=17107
- photoelectric, double r.f. modulation 0=14781
- photoelectric, with electronic refrigerator, for astronom. telescope 2=11098
- photoelectric, high-precision 1=2836
- photoelectric, use as microdensitometer and micrometer 2=13086
- photoelectric, multicolour, for satellites 3=16726
- photoelectric photometer, Turin observatory 0=18586
- photoelectric, for weak sources, standardization 3=1787
- photomultiplier, absolute calibration 1=4429
- photovoltaic, with digital recorder 1=12964
- pneumatic cell, sensitivity rel. to gas pressure 2=2932
- polarimeter, photoelectric, with birefringence compensator 4=14402
- polarimetric, automatic multichannel 4=331
- prismatic attenuators, for large intensity-ratio comparison 2=15717
- ratio, using simple optical system 3=3863
- recording microphotometer, for images down to 1 μ 4=8402
- scanning, for night airglow 2=4662
- for scattering asymmetry meas. 1=4431
- selenium, design, properties 0=1147
- semiconductor junction device, photosensitive 4=1694
- sky brightness, continuous recorder 3=1446
- for stars, overlapped by other stars, additional apparatus 2=6973
- torsion pendulum type for laser beams 4=16200
- u.v., extreme, using planar analyser and electron multiplier 3=14631
- u.v., middle and vac., spectral detectors 3=14306
- u.v., modification of visible-light instrum. 4=3938
- visual heterochromatic instrument 1=10576
- visual, for use in solar research 3=9140
- Woolaston, polarization, for astron. telescope 0=16515

Photometry

- See also Brightness; Densitometry; Illumination; Spectrophotometry.
- alkali metal analysis, flame, enhancement 4=2173
- angular variation of exposure for Lambertian source 0=3597
- apparatus with revolving light bulb 3=234
- application of image convertors 1=6947
- astronomical, magnitude and colour of stars 4=30968
- astronomical, by light modulation 4=15913
- astronomical, multicolour, information content 2=4710
- astronomical, photographic, with Schmidt telescope 1=9280

Photometry—contd

- astronomical photographs, integral brightness det. 2=924
- auroral arc observation 0=6470
- auroral ht. meas., photoelec. scanning system 4=29279
- auroral photographs, photoelectric analysis 1=21035
- for auroral studies 0=791
- automatic intensity distribution meas. 3=23997
- automation of measurements on nuclear emulsions 0=17164
- B8, B9 type stars, U, B, V, H β photometry 3=11561
- below 1200 Å, using Al, In, Sn film filters 4=21290
- book 2=15714
- bridge circuit for absorption meas. 0=6911
- celluloid film thickness measurement 1=9358
- cepheids in Small Magellanic Cloud 0=18831
- Chalonge microphotometer, improvements 0=19390
- chemical analysis, flame, absorptive 4=2172
- daylight factor meter 0=14784
- diffraction image, of line source, total luminance, meas. 4=29737
- direct-reading, intensity meas. by thermistor bolometer 0=8764
- distribution of fluorescence from disk-shaped cuvette 1=4430
- effect of filter pass-bandwidths on relations between different systems 0=8763
- extended celestial sources, use of 120° field mirror system 1=5122
- eyepiece, photometric, for microscope 4=14343
- filters, bandwidth, effects on detected energy 3=18585
- flames, atomizing chambers 2=11003
- flash intensity meas., digital pulse integrator 0=8789
- of flash tube, by high-speed streak camera 0=169
- fluorescence emission anisotropy meas. 3=11900
- fluorescent materials, incident-emitted radiation, relationship 3=18019
- galaxies, colour, UBV, of spirals and ellipticals 4=26920-1
- heterochromatic photometry, review 1=4427
- history of photometric quantities 1=8212
- homochromatic, neutral filter grading 0=5129
- i.r., stellar, using PbS photocell 1=36
- of image convertors 1=6947
- use of integrating sphere; distinction between absorption and scattering 0=5134
- integrating sphere for sky photometry 4=29295
- interferometric, for spectral photographs meas. 4=14357
- invention, discussion of claims 3=11879
- kinetic theory, appl. 3=9499
- laser radiation detection, photoelectric fluctuations 4=5354
- lasers, GaAs, light efficiency meas. device 4=3213
- light-intensity meter, wide-range log circuit 0=148
- light source colour temperature measurement 3=9587
- light spot tracking, using Si p-n junction 2=22011
- limiting distance rel. to light intensity distrib. 1=5335
- luminance and intensity, definitions 1=12963
- lunar surface, theoretical function 4=2395
- lunar surfaces 4=2394
- magneto-optical double resonance, light intensity difference meas. 3=5533
- of Mars, interpretation of investigations 1=18040
- Mars, multicolour photometry in 1958 1=6700
- measurement of cloud chamber track ionization, photometric method 4=14986
- micro, with extremely high resolution 4=14331
- microphotometers, photoelec., for single monocrystal studies 0=6161
- microphotometry, of images of opaque objects 2=22005
- microphotometry, meas. with interference microscope 0=6920
- microscopic 4=26684
- in microscopy of biological specimens 1=4426
- modulated optical signals, by photoelectric emission 4=21271
- moon, photometric peculiarities 2=942
- nebulae, photoelectric observations 1=2640
- neutral attenuators for photometry 1=16049
- null modulation method, review 0=3596
- oscilloscope procedure, rapid 2=11464
- of particle tracks for ionization meas. 4=16765
- photoelec. receiver sensitivity meas. 1=11827
- photoelectric, use for astron. purposes at twilight 1=15404

Photometry—contd

photoelectric, in astronomy 0=18595
 photoelectric detector entropy, counting uncertainty contribution 4=21272
 photoelectric, diffuse nebulae 0=6616
 photoelectric, precise meas. procedures 3=3862
 photoelectric, rel. to stellar applications 4=24335
 photoelectric, review 1=1805
 photographic 4=21301
 photographic, grain size importance 0=150
 photographic, of large areas, use in astronomy 1=18560
 photographic, of large areas of images 2=22071
 photographic, use in porosity determination 1=12660
 photographic, simple method, fogging exposure meas. 3=18959
 photographic, slit width effect on background correctn. 3=1843
 photographic, wide-range 3=9575
 photometric equivalent of radiation for scotopic vision 1=9229
 photometric scale rel. to the radiometric 4=11323
 photomultipliers, hum. cancellation, due to light source 3=24177
 photon counters for u.v. 0=3598
 photon detection, time-correlated, by coincidence counter 0=12468
 photovoltaic cell amplifier, transistor 3=19134
 planet Jupiter, electronic camera, surface features 3=18612
 planet Mars 3=18600
 planet Mars 3=18601
 planet Saturn, electronic camera, surface features 3=18612
 planet, Venus 3=18622
 planets, major, colour, photoelectric obs. 3=16342
 planets, Mars, Venus, Moon, multi-colour program 3=16340
 planimeter, photoelec., for leaves 4=8006
 plasma emission, radial distrib. 1=11937
 primary standards of light 2=15715
 radiometer calibration, methods 2=19672
 radiometry, optical 3=11880
 receivers near sources, collection efficiency 4=2820
 reflectance standard 3=1786
 resolution of two sources of strongly different intensities 0=8776
 rotating shutter for beam modulation 1=6956
 scintillators, large, light-yield meas. 3=24001
 semiconductor diodes for, appl. of photomagnetomech. effect 2=6483
 sharpness recognition, by CdS and CdSe photocond. cells 4=15573
 solar cells calibration for GaAs laser meas. 4=16705
 solar surface, correction for scattered light 2=7004
 sources, standard homogeneous, isotropic, total quantum flux 4=5357
 spectrophotometers, i.r., photometric calibr. 4=8413
 standards and unit of light, review and work of NPL 2=19673
 star trail photographs for rapid var. detection 4=13879
 stars, colour, atmospheric extinction 4=26905
 stars, giants and supergiants, 3-colour 3=9225
 stellar, characteristic curve in focal method 0=18795
 stellar, use of emulsion thickness for intensity meas. 0=1049
 stellar, infrared 2=4709
 stellar, photoelectric, as Eridani 0=12311
 stellar, photoelectric, wide pass-band, role of absorption lines 0=14440
 stellar photographic magnitudes, transformation 1=7971
 stellar, R Canus Majoris 0=14441
 stellar, at 10μ 4=23860
 stellar, three-colour, AO Cassiopeiae 0=12310
 sunspots, sun, lines and colour temp. 3=18627
 telephotometric systems, review 3=23655
 terminology 4=5361
 three-colour, in astronomy, stellar appl. 2=11100
 three-colour, of black body 0=8513
 time resolution, photoelectric 4=11340
 toroidal fluorescent lamps, light distrib. 0=14785
 total fluxes due to mutual reflections between diffusing surfaces 1=5337
 tungsten lamps, radiant intensity derivation 0=205
 two luminous fields, illumination equality control 3=21514

Photometry—contd

variable shutter device for optical transmission meas. 1=18561
 Venus, in u.v. and i.r. 0=8490
 very faint stars, observ. limitation 3=16317
 voltage stabilizer, electrolytic cell operation 2=19832
 in weight determination of submicroscopic particles 2=7164
 xerographic, reciprocity failure in ZnO and Se 0=6956
 zodiacal light, three-colour photometry 1=5146
 MgO smoked plate, luminance factor 2=15716
 Ne, gas discharge tube, line-source, ang. distrib. 3=16757

light sources

calibration, radioactivated source 4=20862
 extended, light collection and calibration 0=10747
 flame, for absorpt. meas., burner 2=21601
 flash lamp optical, quality, pre-excitation effect 4=11337
 full-radiator lamp to replace W strip as pyrometric standard 4=24336
 low-level, for photoelectric photometry 0=19358
 standard, primary, diffraction in meas. 4=14329
 test pattern source for image tubes, variable-pattern 4=16201
 voltage stabilizer 3=9698
 voltage stabilizer 3=16888
 Xe lamp, standard, pulsed, high intensity source 3=24000

Photomultipliers

(Heading introduced in 1961)
 Allen-type, use for photoelectric emission yield measurements 1=13109
 amplitude fluctuations gain/potential distrib. between dynodes, 56 AVP 3=21866
 amplitude resolution, pulsed light source 2=7649
 anode current dependence on magnetic field 4=16529
 astronomical pulse-counting appl. 3=9146
 astronomical, temp. regulation and effects 3=5695
 astronomical, temperature effects 4=10804
 for automatic nuclear track analysis 2=3234
 behaviour against short light-pulses 2=1487
 in brightness temp. measurement 2=11522
 calibration, absolute 1=4429
 choice of operating mode 3=16977
 circuit for output stage 3=24185
 circuits, for precision spectrophotometry 4=11497
 coincidence cct. for slow phosphors 1=4539
 with continuous strip surfaces 2=18009
 cooling apparatus 4=19089
 coupled with interferometer, for plasma temp. meas. 4=18913
 current and voltage pulse maxima 4=16527
 dark current, mechanism, meas. 1=2998
 dark-current reduction by cooling to -196°C in cryostat 3=19316
 dark currents, rel. to residual gas pressure 4=21564
 use in determ. of instant of photon emission 1=6948
 developments 2=18007
 discrimination between fast neutron and γ -ray pulses 2=13818
 dynode secondary emission, field enhanced, for high-speed counting 2=18008
 dynode, venetian blind type 2=5375
 dynode voltage regulator, transistorized 4=8818
 dynodes, use of KCl films 4=11702
 electron multiplication statistics 1=4636
 electron, statistical properties 3=19317
 electron transit times 4=29966
 end-window types, response, temp. and wavelength depend. 1=2999
 evaluation, rapid test set 2=3076
 FEU-33, time parameters 3=1805
 FEU-52 and FEU-53 3=2020
 fast-acting, optimum resolving time 4=578
 fast clipped pulse production 1=16386
 fast response, high gain, for scintillation counting 1=5492
 fatigue and saturation behaviour 4=3034
 fatigue, identification with Malter effect 4=8819
 53 AVP type, with NaI crystal, gain 1=19065
 54 AVP, use in capture γ -ray detection 1=16385
 56 AVP, 14 stage photomultiplier 4=16528
 flat front window 2=20019
 flexible connecting light pipes 4=18393

Photomultipliers—contd

fluctuations compared with effects of spectral amplitude selection 1=16073
 fluctuations in counting rate, l.f. 3=7634
 fluctuations, single electron, increase with cathode—first dynode voltage 4=19088
 use in frequency transformation 4=16531
 gain, rel. to pulse height, time intervals 2=15946
 gain, resolution, depend. on counting rate 3=9838
 gain stabilization 2=2979, 5609
 gain stabilization circuit 3=24174
 gain variations, reversible, by different counting rates 2=1486
 γ -ray and X-ray detector for 0.1-3 MeV 3=4373
 for γ -rays, low-energy 2=18096
 gating circuit for, linear 2=2988
 gating method, fluorescence lifetime meas. 1=2458
 gating by μ sec pulses 4=16526
 grid-controlled, properties and applications 2=1488
 high-current operator of R.C.A. type 2059 3=9840
 high-current output, for γ -scintillation counters 1=2997
 high-speed, for nuclear physics 2=18005
 high-temperature operation, in oil-well logging 1=2996
 Hornyak buttons, γ -backgnd. rejection 2=18013
 i.r., intermittent response 3=7635
 i.r., slow transient response 2=17873
 image converters 1=7092
 image intensifiers 1=5126
 image intensifiers 1=7092
 in image intensifiers, channelled systems 1=3002
 image intensifiers, review 1=16390
 image intensifiers, transmission secondary emission image 2=18010
 in image intensifiers, with transmitted secondary-electron mult., for low light-levels 1=3001
 in image intensifiers, with transmitted secondary-electron mult. 1=3000
 in image intensifiers, 2- and 3-stages, electrostatic focusing 1=7090
 intrinsic noise control 3=14639
 irradiance linearity corrections 4=11699
 Lallemant, spectral sensitivity variation 3=19315
 as light modulation detectors, 56 AVP 3=21509
 light pulse adjustment 2=7650
 use of light-pulse generator for obs. of performance 4=16530
 light source, pulsed, short, for meas. resolution 3=9586
 light source (W lamp) hum cancellation 3=24177
 Louvre-type, light pulse characteristics 3=9837
 magneto-optical double resonance detector units 3=5533
 manufacturing developments 1=16384
 measurement of stability, two-channel 4=24734
 millimicrosecond, time and amplitude props. 2=22254
 nanosecond period light-pulse meas. 4=3033
 noise reduction, for use in β -ray spectrometer 2=22243
 use in obs. of phase transitions in incandescent materials 4=2872
 operating characteristics for large-diameter 4=24735
 operating characteristics, 7 in. diameter 3=19319
 optimum working conditions det. 3=9839
 output current pulses, amplitude distrib. 3=19320
 output modulation circuit 3=3979
 parameter dependence on temp. 4=579
 particle detectors, for mag. analyzers 3=19508
 photocathodes, dynamic fatigue investig. 4=8816
 photodetectors, u.v., description 3=7337
 photoelectronic image intensifiers, review 1=16389
 photometry applications 1=1805
 for photometry, time resolution 4=11340
 photomultiplier, modification for use in u.v. 1=13117
 photomultipliers, influence of temperature 1=1908
 photomultipliers, behaviour to h.f. light modulation 1=2991
 photon detector for scintillation counting 1=13232
 pulse analysis, detailed, circuit for fast device 2=5266
 pulse height distrib., cathode wavelength sensitivity, temp. var., IP21 3=19318
 pulse obs. with sampling oscilloscope 3=24340
 pulse recording, on mag. tape or with automatic voltmeter 2=13523

Photomultipliers—contd

pulse shaping, standardization, for optimum timing information 2=19863
 use as quadrant star-tracker sensor 4=21563
 for recoil nuclei wide beams study 2=20196
 refrigerator, liq. N 3=1863
 response profiles, comparison of two tubes 1=16387
 review 4=11698
 review, R.C.A. developments 1=2993
 review of recent types, parameters and uses 3=16976
 rise-time characteristics, use in counters 2=1485
 rise time meas., H disch. tube breakdown 4=18652
 for scintillation counters, characteristics 1=8401
 for scintillation counting 1=2995
 in scintillation counting 2=18006, 20020
 in scintillation counting, E.M.I. developments 1=3079
 in scintillation counting, light-gathering efficiency 1=4746
 sensitive to 1300A 2=20018
 sensitivity distribution over cathode and first focussing control voltage 4=19087
 for short-life plasma investigation 4=522
 side-window type of photocathode, linearity characteristics 4=5699
 single electron response pulses, amplitude distrib. 3=24339
 single-electron statistics 2=18011
 single electron spectra 4=14750
 single-electron statistics 3=17102
 spectral sensitivity, temp. effect 4=580
 stability improvement of FEU-35 model 3=2019
 stability of parameters rel. to counting rate 4=16524
 stability, rel. to operating conditions 4=16523
 stabilization, dynode system 2=17874
 statistical effects of transit times and secondary emission 2=15947
 statistics, multiplication times 4=19086
 subnanosecond, high-current 2=22253
 subnanosecond, with short accel.-decel. region 3=4180
 technique for spark study 1=10678-9
 temperature dependence 2=7789
 testing, simple light pulser 1=16388
 thermal noise reduction, use in liquid scintillation counter 3=2156
 time characteristics, multipliers with large cathodes 3=24338
 time-of-flight of electrons, measurement 4=14751
 time resolution characteristics meas. 4=577
 time response, limitations 3=9706
 time spread, measurement 4=16525
 transit time investigations 3=4181
 transit-time spread, cathode uniformity 1=2994
 tritium determination by d.c. meas. 1=19400
 Venetian blind-type, noise 4=29965
 X-ray spectroscopy, use 3=5802
 1100 to 2200A detector, construction 1=10733
 Cu—Be dynode, for ion counting 3=12264
 FEU-38, 51, with multialkali photocathodes, characteristics 4=8814
 K14FS 50, time characteristics rel. to operating voltage 4=8817
 Sb—Cs photocathodes, polarization selectivity 4=581
 SbCs, photocathodes, spectral response 1=16378
 Si dynode multiplier 1=18923
 VÉI-2, 4, with multialkali photocathodes, construction and performance 4=8812

Photons

See also Cosmic rays, photons; Gamma-rays; Nuclear reactions due to photons; X-rays.
 absorption in liq. hydrogen, 155-255 MeV 0=11149
 absorption by nuclei, oscillator model 0=15588
 absorption by neutron-proton pairs 2=18314
 angular distribution function, in cascade 1=19315
 angular distribution function, in cascade 3=4488
 atomic photoelectric effect for arbitrary photon polarization 0=2513
 avalanches, in lasers, from population inversion 4=14930
 bare-mass, incompatibility with gauge invariance 1=2012
 beams, fluctuations, rel. to photoelec. detector count distrib. 0=5124
 charge upper limit of 5×10^{-17} e, Mössbauer meas. 4=12598

Photons—contd

coalescence, in nuclear Coulomb field 3=24672
 coherence props. of blackbody radiation 1=226
 coherence, quantum theory 3=16725
 coherence theory, recent advances 4=298
 combination of two neutrinos, theoretical basis 4=11971
 Compton scatt. on protons, π^0 decay as intermediate state in 0=5582
 Compton scattering, in quantum electrodynamics tests, at short distances 1=423
 correlation experiments, linear and quadratic 3=21512
 correlation expts., coincidence counting technique appls. 3=21511
 correlation, polarization and resolving time effects 0=10745
 correlation theory 3=11876
 counter with control grid, development 1=9742
 counter, 100-300 A, design and performance 4=30205
 counters, non-linearity effects at high intensities 4=6004
 counting correlations in beams 4=29561
 cyclotron radiation from relativistic particles with arbitrary velocity distrib. 1=3157
 cyclotron radiation from relativistic particles, collision effects 0=15316
 decay into two photons in mag. field 0=2510
 density oscillation in a resonance medium 4=11840
 description by Regge trajectory in electron scatt. 3=5987
 detection, with Ge phototransistor, i.r. 0=8831
 detection, visible to i.r. theory 0=8830
 detector, scintillation, total absorpt., GeV region 3=10097
 detector, vacuum u.v. photoionization type 3=21537
 diffusion processes 3=22097
 displacement operators, rel. to integrals of motion 2=13724
 elastic scattering, by nuclear Coulomb field 0=20096
 elastic scattering, polarization effects 0=17278
 electric dipole moment, longitudinal, upper limit 2=5597
 in electromagnetic fields 4=21817
 electron interaction in terms of equation coupling 1=7194
 electron-pair creation, quantum field theory 0=7277
 electron-photon cascades, diffusion 0=7315
 electron-photon cascades, factorial moments, asymptotic behaviour 0=5545
 electron-photon cascades, initiation 0=9462
 electron-photon cascades, as stochastic problem 1=2038
 electron-photon gas, quantum field theory approach 1=5236
 electron-photon showers, in air and Al 0=20264
 electron-photon showers, in Pb, lateral and ang. distrib. 0=9472
 elementarity, possible tests 4=27823
 elementary nature, from γ -e scattering 3=24673
 as elementary particles, appl. of Ward-Takahashi eqns. 1=7202
 emission, elec. field induced from Ge 3=855
 emission from irradiated dielec. slab 4=26231
 emission, by fast particle interacting with elementary excitations 4=3367
 emission from nucleus, recoilless, following transition sequence 1=17395
 emission theory, rel. to extent of photon 2=21988
 energy meas. in Xe bubble chamber, 20-1000 MeV 4=19464
 extension of functional theory 0=5488
 extreme u.v., detection with photomultiplier 0=7144
 fluctuations in photon streams 0=5123
 forward scattering by bound electrons 0=9325
 Furry theorem 0=12825
 fusion with electrons, interaction energy 0=7314
 gas, theory 2=15470
 in glow discharges, rel. to electron emission 3=7632
 Green's function, contrib. of strong interactions 4=867
 Green's function, Redmond procedure 0=5529
 heavy photon, (f^0), possible existence 4=5922
 high-energy, charged-particle beam production, theory 0=20095
 high-energy physics, review lecture 3=14932
 infrared divergences 0=11089, 18953
 inner composition, and quantum number 3=14933
 instant of emission, photomultiplier determination 1=6948
 intense fields, first or second-order perturb. theory 4=22315

Photons—contd

interactions, current conservation and low energy limit 0=343
 interactions, $\gamma + d \rightarrow p + p + \pi^-$, at 1 BeV, cross-sections 0=17399
 interactions, $\gamma + p$, at 1.1 BeV, evidence against B^0 prod. 0=17363
 interactions, $\gamma + p$, at 1.1 BeV, multiple meson prod. 0=13039
 interactions, $\gamma + p \rightarrow \pi^0 + p$, 900-1200 MeV cross-sections 0=15415
 interactions, $\gamma + p \rightarrow \pi^0 + p$, at high energy, recoil proton polarization 0=17397
 interactions, π^+ production on H, 600-900 MeV forward diff. cross-sections 0=17398
 lead converters, efficiency for 50-500 MeV 0=1236
 light, neutrino theory, photon as "bound state" of two neutrinos 4=30202
 Lilienfeld radiation from metals by 2-12keV electrons 1=16427
 low-energy emission, in ep scattering 1=19175
 macroscopic causality in expanding universe 3=21085
 magnetic Compton spectrometer, theory 2=3304
 magnon interactions 0=13725
 mass determ. by Mössbauer effect, review 4=30502
 mass, rel. to electron bare mass. 4=30203
 mass, energy and momentum 4=9153
 mass, finite, 2-dim. model, not determined by gauge invariance 4=24969
 mass, and Schwinger's model 4=21735
 massive, rel. to gauge invariance 3=14855
 massive and massless, in gauge-invariant theory 4=21734
 as massless particle, rel. to space reflection 0=17274
 meas. of small sources, effect of ionization chamber size 0=17136
 model, composite e^+e^- model 2=3297
 momentum effect in magneto-optics of excitons 0=7997
 monochromatic (nearly), prod. by e^+ annihilation 2=18316
 monochromatic, by positron annihilation 2=3320
 monochromatic source, using positron annihilation 0=7320
 nature, as fundamental particle 2=20286
 as neutrino-antineutrino system, 4-component wave-function 0=3944
 neutrino theory (Jordan) 3=16724
 new space-time reflection theory 1=464
 noise, in photographs, and informational assessment 3=14389
 nonlinear electromagnetism, functional theory of particles 0=3914
 in nucleon pair production 2=20333, 22500
 optical transition radiation from protons entering metal surfaces 0=20099
 in optics, comparison of particle and wave concepts 1=1804
 packets, and Lennuier effect, theory 1=11825
 packets, theory and Lennuier effect 0=14780
 pair creation, demonstration of qu. mechanics in the large 1=3232
 pair production in crystals, angle of divergence 1=19760
 paradox of Einstein, Podolsky and Rosen 0=14517
 photodetachment cross-section for H^- 0=14960
 photodisintegration of deuterons 0=5622
 photoionization of hydrogen gas 1=1889
 photon-electron showers, direct production from μ -meson interactions 3=14998
 photon fluid model, relativistic cosmology 3=1505
 photon gas, mixed with material gas, relativistic dynamics 0=953
 photon propagation function in quantum electrodynamics 0=12822
 photon propagator, independence of physical charge in high-energy limit 0=20027
 photon propagator, structure theorem 0=323
 photoproduction of π -mesons on nuclei 1=12098
 π^0 -photoproduction on protons, experimental set-up 1=7264
 from positron annihilation, 15 MeV, linewidth 2=9828
 production, by charged particle scattering 1=2037
 production, by charged particle scattering 1=3152
 production in Compton effect 4=19462
 production, forward, by 9 GeV π -p interact. 4=16939
 production, He ion beam on W, 25-100 eV 3=21900
 production, ion beam on W, He, Ne ions, 25-100 eV 3=21900

Photons—contd

production, monochromatic, by positron annihilation 1=13372
 production in multiple particle prod., e.m. process 3=19593
 production in multiple particle prod., e.m. process 3=19594
 production, multiple, in quantum electrodyn., formalism 2=9811
 production, Ne ion beam on W, 25-100 eV 3=21900
 production of π^+ on D at 500-1000 MeV 0=15413
 production of π^0 -mesons on C at 160-200 MeV 0=13044
 production of π^0 -mesons on protons at 245 MeV 0=13045
 production, in p-p reactions at 23.1 GeV 2=22506
 production, from positron beams, annihilation radiation 2=3321
 production, by radiative electron capture by In in Si 2=2157
 production, unification with e prod. 4=28017
 propagator, canonical, asymptotic form deriv. 2=18057
 propulsion of space vehicles 0=12334
 quantum electrodynamics, scattering 3=12390
 radiation from charge moving in inhomogeneous medium 1=19163
 radiation field effects, rel. to galactic red shift 2=2605
 radiative corrections due to soft photons 1=10830
 radiative corrections to pair production at high energies 1=490
 resonance in deformed nuclei 0=5766
 Regge-pole character, possible exptl. tests 4=862
 as Regge poles 3=22050
 Reggized, scattering theory 3=19574
 from relativistic charged particle traversing diffuse boundary 1=19162
 relativistic quantum theory 3=4327
 rest mass, rel. to electrodyn. quantization 3=536
 ruby, excited luminescence 3=4991
 scattering, on deuterons, 50-120 MeV, corrections to impulse approx. 0=12891
 scattering, on deuterons, quasi-elastic 0=15315
 scattering, on electrons 0=7295
 scattering, on Hg atoms, polarization, calc. 0=17692
 scattering, in homog. mag. field 0=322
 scattering, by K-level electrons of Hg 0=15314
 scattering, on nucleons, dispersion relations 0=7319, 7296
 scattering, on nucleons, one-meson approxm. 0=11132
 scattering, on protons, dispersion relations 0=11130
 scattering, unification of equal-frequency photons in presence of matter 0=7316
 scintillator, plastic, response in 1-10 keV range 4=19465
 self-energy, gauge-invariant, Meissner effect analogy 4=866
 self-energy, in lowest order, study from quantum electrodynamics 3=24586
 self-mass, formal paradox in quantum electrodynamics 0=12820
 single beam meas., photoemissive or photoconductive cells, excess noise 0=14954
 "size", quantum electrodynamics at small distances 0=11077
 from slowly moving particle system, work done against radiation field 0=5530
 space-time reflections 1=5622
 spin density, in classical e.m. theory 0=3834
 spin inertia effect, waveguide detection, and gauge invariance 3=19599
 spin, inertial effect from critical reflection of polarized beam 4=3365
 spin inertia effects 4=16846
 spin, inertia effect 4=25052-3
 splitting into two, in nuclear Coulomb field 3=2231
 spontaneous emission from electrons 1=5624
 superlight-velocity optics 0=7326
 time-correlated, detection, by coincidence counter 0=12468
 Townsend discharge, absorption 3=4029
 in Townsend discharge, absorption 4=18712
 transport theory 1=18315
 trisection into 3 photons, gravitational field effects 2=22392
 u.v. radiation counters 0=3598
 velocity in finite degree of freedom theory 4=14999

Photons—contd

velocity meas., moving sources, secondary re-emission 3=18958
 velocity meas. in vacuo, energy depend. investigation 0=12467
 wave description 1=16664
 wave eqns. and observables, canonical form 4=16839
 weight, apparent, det. using Fe^{57} γ -ray resonant absorption 0=10570
 weight 2=7837
 from Ag foils, ang. and spectral distrib. 4=22552
 in Hg vapour glow discharge, contribution to electron emission 1=9531

interactions
 (subheading introduced in 1961)
 absorption, high energy in universe 10^{12} eV 2=22473
 "beat" generation near charged particles 3=7302
 boson pair production, cross-section 4=5958
 boson photoproduction, all possible expts., theory 2=3264
 Cherenkov radiation, no analogue for photons moving in rectilinear channel in medium 4=27632
 in cosmic ray extensive air showers 3=19719
 deuteron photodisintegration near threshold 3=19710
 on deuterons, π^-/π^+ ratio from threshold to 194 MeV 1=527
 doublet parity, and its conservation 2=11871
 e.m. cascades and polarization of medium 3=12432
 electron pair prod. on nuclei, calc. 3=17257
 electron-photon cascades, stochastic theory 1=18287
 electron triplet production, in H_2 at 323 MeV 2=5627
 with electrons and atoms 2=9767
 electrons, scattered by intense polarized beam, from laser, obs. possibility 3=12448
 with electrons, transfer of helicity 1=12073
 exchange contrib. to e-p scatt., $p + \bar{p} \rightarrow e^+ + e^-$, calc. 3=17247
 gravitons, first approx., by general relativity 3=5349
 with heavy vector mesons 3=24771
 high energy absorption in universe 10^{12} eV 1=16737
 hyperons, π -photoprod., dispersion rels. calc. 3=22196
 interactions, $\gamma + n \rightarrow \pi^- + p$, total cross-section near threshold from $\gamma + d$ 1=531
 interference between two sources, var. numbers 4=21265
 interference in visible, shortwave and radio regions, paradox, review 1=18557
 isobaric model, gauge invariance in Hamiltonian form 3=10073
 lepton production process, pseudoscalar term 4=30170
 meson prod., on baryons, asymptotic relation calc. 4=16922
 mesons, scalar, prod., unitary symmetry model 3=22155
 mutual interactions in vacuum 3=9573
 with neutral vector meson, Green's function diagonalization 1=16826
 with neutral vector meson, Green's function diagonalization 2=22544
 neutral vector meson, two-field coupling 4=822
 neutrons, pion prod., integral eqns. 3=4422
 non-linear, from masers, optical, review 3=17093
 nucleon-photon vertex parts, integral representation 3=14889
 nucleons, boson pair production cross-section calc. 4=19403
 nucleons, K prod., resonance model 2=22626
 nucleons, multiple pion production 2=5714
 nucleons, $\rightarrow N + 2\pi$, (π, π) resonance obs. 2=7892
 with nucleons, π production, fermion Regge poles 4=3445
 pair and triplet production, at 5-90 MeV 2=3322
 photon-gas processes, cross-section meas. 3=9509
 photon-photon absorption 2=3298
 photoprod. of pions in deuterons 1=5751
 photoprod. of strange particles and hyperons 1=16910-1
 photoproduction of high-energy particles and Regge-pole hypothesis 3=22088
 prod. of electron pairs 0=11150
 production of intermediate boson pairs, cross-section 4=5958
 production of intermediate vector bosons, calc. 3=10074
 production of π^0 in hydrogen at 200-300 MeV 3=10147
 production of π^0 -mesons in He 1=12097
 proton, Compton scatt., dispersion theory 2=22472
 protons, pair-production, cross-sections 2=20288

Photons—contd

interactions—contd

- protons, Σ^0 production, rel. to Σ^0 lifetime meas. 2=9928
 ruby, colour changes on laser irradi. 4=22628
 scattering of electrons, to 5 BeV, radiative corrections 1=9748
 strange particle photoproduction 3=22203
 transformation into neutrino pairs 2=3299
 transformation into neutrino pairs 3=2232
 transition strength functions, new resonances 3=15173
 triplet prod. in emulsion at 90 MeV, momentum and ang. distrib. of recoil electrons 1=16763
 two-photon, kinematical aspects, gauge and Lorentz matrix elements 1=19205
 two-pion bound state, possible photoproduction and detection 1=5757
 $d + \gamma$ (12–30 MeV), and mesonic effects? 3=12513
 $\gamma + \text{Fe}^{56} \rightarrow W^+ + \text{Fe}^{56}$ (W =vector boson) 4=5939
 $\gamma + \gamma$ or $\gamma + (A, Z)$ neutretto prod. in stars, small calc. cross-section 4=7952
 γ - $\pi\pi$ vertices, evidence from π prod. by electron annihilation 0=9418
 $\gamma + n \rightarrow \pi^- + p$ to $\gamma + p \rightarrow \pi^+ + n$ ratio and γ - π - p coupling 4=6005
 $d\gamma, \pi^-/\pi^+$ photoproduction ratio 4=6102
 η photoprod. on protons, resonance model 4=3473
 $y + d \rightarrow \pi^0 + d$, at 500 MeV, impulse approx. 2=5708
 $\gamma + d$, pion photoprod., dispersion relations study 3=7890
 $\gamma + d \rightarrow \pi^0 + d$, 500 MeV, rel. to model with 3D wave contrib. 4=9303
 $\gamma + d \rightarrow \pi^\pm + 2N$, rel. to π - π resonance 2=20385
 $\gamma + e^- \rightarrow e^- + \nu + \bar{\nu}$, neutrino emission from stars 1=8445
 γ - γ , as explanation of galactic light red-shift 2=22467
 $\gamma + \gamma \rightarrow \gamma + \nu + \bar{\nu}$, in stellar neutrino emission 3=24689
 $\gamma + \gamma \rightarrow \nu + \bar{\nu}$, forbiddenness for local coupling 1=5700
 $\gamma + \gamma \rightarrow \nu + \bar{\nu}$, at high stellar temps. 1=2636
 $\gamma + \gamma \rightarrow \gamma + \nu + \bar{\nu}$, at high stellar temps. 1=2636
 $\gamma + \gamma \rightarrow \nu + \bar{\nu} + \gamma$, reaction rate, method of calc. 1=5700
 γ -H, 167–212 MeV, rel. to π^+ prod. 2=5713
 γ -H, 167 to 212 MeV, rel. to π^+ prodn. 3=4428
 $\gamma + \text{He}^4 \rightarrow \pi^0 + \text{He}^4$ 2=5615
 $\gamma + \text{He}^4 \rightarrow \pi^+ + T + n$, no evidence for H^4 state with $T = 2$ 4=12079
 $\gamma + \Lambda \rightarrow \Lambda + \pi$, cross-sections 2=22563
 γ -N, possible cross-section maximum 2=20419
 $\gamma + N \rightarrow \gamma + \pi + N$, dispersion relations 2=262
 $\gamma + n \rightarrow K^+ + \Sigma^-$ 1=10925
 $\gamma + N \rightarrow Y + K$, resonance model 3=24797
 $\gamma + N \rightarrow N + \pi + \pi$, at 450–700 MeV, resonance model 1=19247
 $\gamma + N \rightarrow \pi + N$, at high energies, helicity formalism 4=19547
 $\gamma + n \rightarrow \pi^+ + n$, 185 MeV, π^+ ang. distrib. 2=7882
 $\gamma + n \rightarrow \pi^- + p$, data from $\gamma + d$, from threshold to 184 MeV 1=527
 $\gamma + N \rightarrow 2\pi + N$, isospin analysis 1=9757
 γ -N, pion prod., π - π interact. effects 3=15016
 $\gamma + n \rightarrow p + \pi^-$, proton polarization 3=10115
 $\gamma + p$, high energy, μ , e prod. and comparison 3=22157
 $\gamma + p$, pion photoprod., dispersion relations study 3=7890
 $\gamma + p$, K^+ meson prod. 2=22625
 $\gamma + p \rightarrow K^+ + \Sigma^0$, even $K\Sigma$ parity deductions 1=13498
 $\gamma + p \rightarrow \eta + p$, 978 MeV, $\eta \rightarrow 2\gamma$ branching ratio 3=22187
 $\gamma + p \rightarrow n + \pi^+$, energies up to $(\frac{1}{2}, \frac{3}{2})$ resonance threshold 3=2294
 $\gamma + p \rightarrow n + \nu + e^+$ in stars 3=23693
 $\gamma + p \rightarrow n + \pi^+$, $\rightarrow p + \pi^0$, contrib. of Born terms 1=13470
 $\gamma + p \rightarrow p + \pi^+ + \pi^-$, rel. to γ - 3π vertex 3=7894
 $\gamma + p \rightarrow p + \pi^- + \pi^+$, 300–800 MeV, rel. to interaction current 3=6035
 $\gamma + p \rightarrow \pi^0 + p$, 550 to 1050 MeV 4=6095
 $\gamma + p \rightarrow \pi^+ + n$, at const. momentum transfer 4=21892
 $\gamma + p \rightarrow \pi^+ + n$, 165–212 MeV 3=6033
 $\gamma + p \rightarrow \pi^+ + n$, 200–260 MeV, fixed momentum transfer 3=22166
 $\gamma + p \rightarrow \pi^+ + n$, 200–450 MeV 3=22164-5
 $\gamma + p \rightarrow \pi^+, \pi^0 + n, p$, surface of cross-section against photon energy and π angle, contours 3=22167
 $\gamma + p \rightarrow \pi^+ + \pi^- + p$, π - π resonance 2=5709
 $\gamma + p \rightarrow \pi^+ + p$, 600–800 MeV 2=22558
 $\gamma + p \rightarrow p + \omega$, search for 1=7268
 $\gamma + p \rightarrow p + \pi^0$, in H, 600–800 MeV 2=22557

Photons—contd

interactions—contd

- $\gamma + p \rightarrow p + 2\pi^0$, effect of $(\gamma, 3\pi)$ vertex 3=7895
 $\gamma + p \rightarrow p + \pi^0$ or $n + \pi^+$, ≤ 4 BeV, reson. effects 4=25161
 $\gamma + p \rightarrow p + \pi^0$, 910 MeV 2=22520
 $\gamma + p \rightarrow p + \text{low-mass anomaly}$ 3=10151
 $\gamma + p \rightarrow p + \pi^0$, recoil p polariz. meas. 2=11976, 13799
 $\gamma + p \rightarrow p + \eta^0$ reaction, search for 3=7914
 $\gamma + p \rightarrow p + \pi^0$, recoil proton polarization 1=8483
 $\gamma + p \rightarrow p + \pi^0$, 740–1140 MeV 2=20389
 $\gamma + p \rightarrow \pi^0 + p$, for polarized γ , π - π interaction effects, calc. 1=8485
 $\gamma + p \rightarrow \pi^0 + p$, at 260–400 MeV, recoil proton transverse polarization, calc. 1=3207
 $\gamma + p \rightarrow \pi^0 + p$, up to 800 MeV 1=16779
 $\gamma + p \rightarrow \pi^- + \pi^+ + p$, cross-sections and ang. distrib. at forward angles 1=2093
 $\gamma + p \rightarrow \pi^+ + n$, 600–800 MeV 1=16779
 $\gamma + p \rightarrow p + \pi^+ + \pi^-$ at 1.2 BeV 1=13471
 $\gamma + p \rightarrow p + \pi^0 + \pi^0$ and $\rightarrow n + \pi^+ + \pi^0$, at ~ 1 BeV, ang. distrib. 1=2092
 $\gamma + p \rightarrow p + \text{meson}$, rel. to Lee and Yang theory 1=16823
 $\gamma + p \rightarrow p + \pi^+ + \pi^-$, 2-body mass spectra 4=25088
 $\gamma + p \rightarrow \Lambda^0 + K^+$, K^+ "particle" exchange approx. 3=15041
 $\gamma + p$, π^+ prod., no need for $\gamma\pi\rho$ 4=16930
 γ - π - p coupling from $\gamma + n \rightarrow \pi^- + p$ to $\gamma + p \rightarrow \pi^+ + n$ ratio 4=6005
 γ - 3π interaction and ω , ρ meson decay rates 3=6077
 $\gamma\pi\rho$ coupling const., from double photoprod. expt., theory 3=10072
 μ pair prod. in carbon, by 1000 MeV bremsstrahlung of electrons 3=7879
 μ photodissociation, charged vector boson prod., calc. 1=8470
 μ prod., very high energy beams, by bremsstrahlung 4=16924
 π pairs, electromag. production, theory 2=1707
 π photoprod. on hydrogen, 550–900 MeV 3=19669
 on π , photoprod. of π , strip approx. 4=3439
 π photoproduction by polarized photons, π ang. distrib. and polarization, calc. 1=7266
 π^+ photoproduction on H and D at 340 MeV, relative yields 1=8484
 π prod., by $\gamma + N$, matrix element meas. 4=6096
 π prod. on D at 240 MeV 1=3208
 π prod., high energy, 0° mechanism 4=27873
 π prod. on p at high energy, contrib. of Born terms 1=13470
 π^0 prod., and life meas. poss., for small forward angles 4=15086
 π prod. from p, Be, off-shell corr. 4=30249
 π prod. by polarized photons on polarized protons, cross-sections, calc. 1=526
 π^+ photoproduction on H at 500–820 MeV at backward angles 1=7267
 π^0 photoproduction on protons, rel. to $(\gamma, 3\pi)$ interaction 1=12099
 π^+ photoprod. on He^4 3=4425
 π^+ photoprod. from hydrogen, 187 MeV 3=7889
 π^+ , photoprod., 152–162 MeV 3=2299
 π production on C at 205–335 MeV, yields and π^-/π^+ ratio 1=8482
 π production, on nucleons, Mandelstam representation 2=1706
 π production on nucleons, theory 2=3377
 π^0 production, low-energy, evidence for retardation term 2=13846
 π^0 production, π - π interaction 2=3376
 π^0 production, search for spin-1 intermediate meson 2=3380
 π^+ production, on H, near threshold 2=3378
 π^+ production, on H, using polyethylene target 2=304
 π^+ production from p, at 160–200 MeV 3=4423
 d, π^0 prod., low angles, 190–220 MeV 3=24766
 p, π^0 prod., low angles, 190–220 MeV 3=24766
 $p\gamma, \pi^+$ prod. of 33.8 MeV, abs. cross-section 4=6101
 $p + \gamma \rightarrow K^+ + \Lambda$, exchange contrib. isolation 4=21931
 $p + \gamma \rightarrow K^+ + \Sigma^0$, low-energy 3=17334
 $p + \gamma \rightarrow \eta^0 + \pi^+$, 2–3 BeV and η^0 lifetime meas. 4=25164
 Ar, ionization, from M, to L edges 4=14575
 BeV electron scattering, cross-sections 1=13394
 D, π^-/π^+ threshold ratio 3=2294
 9 GeV, in emulsion, Σ^\pm prod. and decay 1=19282

Photons—contd

interactions—contd

- 27 GeV jets, formula for primary energy 1=12089
 H^3 disintegration, up to 9 MeV 4=15109
 He, disintegration meas. 3=6095
 $He^3(\gamma, p)D^2$, $He^3(\gamma, n)2p$, γ energy var. 4=27915
 $He^3 + \gamma \rightarrow p + d$, 8.5-22 MeV, 90° differential cross-sections 3=19716
 $He^3(\gamma, p)d$, 10-30 MeV, peaks 4=15113
 $He^3(\gamma, p)d^2$, $He^3(\gamma, n)2p$, up to 170 MeV 3=19715
 He^4 , pion photoproduction, ang. correl. 4=3443
 He^4 , π^+ photoprod. 3=4425
 $He^4(\gamma, np)D^3$ 3=6093
 $He^4(\gamma, p)H^3$, angular distribution for 23-32 MeV γ 3=6092
 K photoproduction, analysis in Mandelstam representation 1=12112
 N, K-photoprod., dispersion rels. calc. 3=22196
 on N, photoprod. of π , strip approx. 4=3438
 N, photoprod. of pion pairs 4=3440
 Si^{28} , excitation of electric dipole states, calc. 4=17045
 < 1150 MeV, photodissociation of complex nuclei 2=428

polarization

(subheading introduced in 1961)

- atomic photoeffect, K-shell, polarization correl. 4=17255
 bremsstrahlung, of electrons on protons 1=19169
 calculation, by equiv. photon method 3=2237
 circular, analyser using rapidly alternating mag. field 4=9165
 circular, bremsstrahlung, in mag. Fe target 4=15040
 circularly polarized beam, critical reflection rel. to spin inertial effect 4=3365
 in (d, $p\gamma$) stripping reactions, det. by distorted wave method 2=479, 22848
 γ -rays, plane, meas. method 4=17082
 linear, meas. by pair production, theory 2=9813
 linear polarization of gamma-rays, meas. 1=13799
 meas. methods 1=8447
 measurement, electron pair prod. asymmetry in crystals, multi GeV 3=17234
 polarized beams, prod. and nuclear reactions 2=12179
 positronium annihilation, demonstration of qu. mechanics in the large 1=3232
 radiation from fast electrons with oriented spins in mag. field 4=11967
 in Σ^0 hyperon decay, pair prod. anal. 2=12012
 spurion postulate rejected 2=7819
 vacuum, effects 1=8439
 μ^- -mesons nuclear radiative capture 3=17488
 Eu^{152m} decay, circular 3=15085
 6 GeV beams, in crystal (001) plane 3=572
 from He excitation by p and H 4=22316
 6 MeV, rel. to electron-pair prodn. 4=9183
 by Pb scatt. ~ 1 MeV, reconciliation with theory 4=22105
 $Si^{30}(p, \gamma)P^{31}$, 1514 to 3435 keV 4=12224
 Y^{90} , β decay, first forbidden, internal bremsstrahlung, circular, calc. 3=22332

scattering

(subheading introduced in 1961)

- by atoms and nuclei in crystals 1=17395
 coherent scatt. on nuclei at 1.17 and 1.33 MeV, Z depend. 1=8694
 Compton γ -p scattering, near π^+ and π^0 threshold 2=22565
 Compton scatt., virtual, on N, amplitude 4=21818
 Compton scattering, Klein-Nishina formula 1=7210
 Compton β - γ coincidences, angular correlation 1=16728
 Compton effect, polarization phenomena 1=16731
 Compton γ -p scattering near π^+ and π^0 threshold 1=16853
 Compton, several photons, intensity effects 4=19461
 Coulomb field (Delbrück), small angle, pair prod. calc. 4=3370
 d-photodisintegration, cross-sections and polarization 4=19603
 Delbrück, amplitude calcs. 4=30204
 Delbrück scatt., small-angle, low-energy theory 4=11884
 Delbrück scattering by nucleus, angular distrib. 4=30147
 double Compton effect, numerical study 2=9812
 double Compton scattering, γ -e correl., prod. of 2 circ. polarized γ 1=476
 electric multipole, rel. to nucleon electric polarizability 1=13405
 electrons, free, in intense laser beam, theory 4=9169

Photons—contd

scattering—contd

- with electron pair production, ang. and energy distrib. 4=17114
 by electrons, relativistic, high energy photon prodn. 3=14934
 by electrons, scatt. amplitude, nonlinear effects 3=10075
 γ -e, non-linearity intensity 3=19600
 γ - γ , high energy, theory 2=22469
 γ - γ scattering, high energy, theory 1=16733
 γ -N, amplitude, and crossing symmetry 1=16734
 γ -p, elastic, η -meson and scalar boson contrib. 3=17233
 γ -p, rel. to f_0 meson resonance 4=15060
 γ -quanta on oriented nonspherical nuclei 3=4620
 heavy nuclei, bremsstrahlung scatt., rel. to giant resonance 4=22104
 gas molecules, classification and review 3=7245
 graviton creation in mag. field and Coulomb scatt. 3=5349
 in imperfect crystals, diffusion effects, energy broadening 2=595
 in imperfect crystals, diffusion effects, energy broadening 3=4859
 inelastic, by Coulomb field, with electron pair prod. 4=16847
 inelastic-high energy, in Coulomb field of nucleus, pair production 1=5887
 interference between resonant and Rayleigh scattering 2=22783
 by K-shell electrons, in Au and Sn 2=20756
 laser photon beams on γ -quanta, high-energy 4=9154
 meson- γ , matrix elements, l. r. singularities 4=5925
 mutual interactions in vacuum 3=9573
 nuclear Coulomb field, at high frequ., theory 3=22363
 (n, γ) reaction γ -rays, varying energy for photonuclear resonant scatt. 4=21821
 N- γ , Compton scatt., dispersion relns. 4=6000
 by nuclei, deformed, cross-section relations, sum rule 1=8692
 on nuclei, elastic, dispersion formula 2=3548
 nucleon Compton, high-energy, using Regge hypothesis 4=19463
 on nucleons, amplitude and crossing symmetry 2=22470
 by nucleons, Compton, dispersion relations 1=16729
 on nucleons, Compton, fixed-angle dispersion relns. 2=11917
 nucleons, Compton scatt., dispersion relns. rel. to expt. 4=6001
 nucleons, partial wave dispersion relns. 2=16180
 on nucleus, Coulomb field, inelastic 2=7840
 on nucleus, dispersion relations 2=20584, 20586
 on oriented nonspherical nuclei 2=5885
 p- γ , for polarized protons and photons, phenomenological analysis 4=11960
 photon-photon, by double dispersion relns. 4=19372
 photon-photon, at high energies, asymptotic expression 4=6007
 photon-photon, neutral pion contribution 1=13374
 photon-photon, resonance scatt., cross-section, calc. 1=19165
 photon-proton elastic scattering above 300 MeV, analysis 1=16730
 on photons, invariant functions, factorization 4=831
 by photons, possible laser ~ 40 GeV γ obs. 4=2856
 proton Compton effect, two-pion exchange 2=1673
 on protons, elastic, expt. and calc. 2=1671
 on protons, elastic, above 300 MeV 2=13756
 on protons, 50-300 MeV, model 2=7855
 resonance induced scatt. near Cherenkov cone 4=11959
 resonance-line photons 4=29371
 S-matrix theory with gauge invariance 4=15031
 by spin- $\frac{1}{2}$ particle, elastic, ang. and energy depend. 3=571
 on spin $\frac{1}{2}$ particles, Regge poles 4=3368
 on spin $\frac{1}{2}$ system, low-energy cross-section 1=16732
 Thomson, high intensity non-linearity 3=19600
 rel. to transport theory 1=18315
 on zero-spin particle, quadratic terms in scatt. amplitude 4=25054
 from Al at 25 MeV, elastic, near particle threshold 1=17070
 As, near particle threshold energy, elastic 3=12653
 B^{11} , resonant scatt. by 2.14 MeV state 3=15171
 Bi, near particle threshold energy, elastic 3=12653

Photons—contd**scattering—contd**

- from Bi at 25 MeV, elastic, near particle threshold 1=17070
- C¹², excitation of 15.1 MeV level 3=24919
- from Ca at 25 MeV, elastic, near particle threshold 1=17070
- from Cd at 25 MeV, elastic, near particle threshold 1=17070
- Cd, near particle threshold energy, elastic 3=12653
- Co⁶⁰ photons, Compton scatt., ang. distrib. 3=22099
- from Cu at 25 MeV, elastic, near particle threshold 1=17070
- Fe, near particle threshold energy, elastic 3=12653
- H, atomic, coherent, calc. 3=4715
- Hg¹⁹⁸, 412 keV, nuclear reson. fluoresc. 3=19796
- on Ho¹⁶⁵, 11-19 MeV bremsstrahlung 3=10322
- from K at 25 MeV, elastic, near particle threshold 1=17070
- KCl, zone-refined 2=8423
- Li⁷, evidence for H⁺ and Li⁺ 4=1005
- Mg, near particle threshold energy, elastic 3=12653
- by Mg, resonant scatt. of 12.5 MeV γ -rays 1=2203
- Ne atoms, from laser, double interaction with both laser modes 4=25541
- from Ni at 25 MeV, elastic, near particle threshold 1=17070
- in Pb, elastic, at 9 MeV, diff. cross-section 2=20585
- from Pb at 25 MeV, elastic, near particle threshold 1=17070
- from S at 25 MeV, elastic, near particle threshold 1=17070
- Sb, near particle threshold energy, elastic 3=12653
- from Si at 25 MeV, elastic, near particle threshold 1=17070
- from Sn at 25 MeV, elastic, near particle threshold 1=17070
- Sn¹¹⁶, resonance, 1290 keV 3=2429
- in U, elastic, at 9 MeV, diff. cross-section 2=20585
- Zn, near particle threshold energy, elastic 3=12653

Photophoresis

- boundary motion differences 4=18375
- measurement, var. with particle radius, gas pressure 4=11320

Photovoltaic effects

- alkali antimonide, high blue-sensitivity 4=573
- anthracene, in modulated light, temp. depend. 1=2423
- Becquerel effect in binary compounds 0=9985
- blocking and diffusion photo-e.m.f. 4=4222
- bulk photoelectromagnetic effect in non-homogeneous semiconductor 1=14519
- Carnot cycle derivation 0=16968
- cells, amplifier, transistor 3=19134
- cells, cosine correcting device 0=19598
- chlorophyll and analogues, on ZnO, CdS, Pt 0=1676
- classification 0=20931
- contact potential effect 0=20930
- contact potential type 4=30655
- crystal interface shape determination, method 1=15055
- crystal-violet 3=25418
- electricity direct conversion conference 4=14563
- electrolytes, ion-exchanger membrane 4=2163
- exciton polarization, by low elec. fields, H-like model 0=13629
- fast-response photocapacitors 0=622
- insulators, bulk photovoltaic effect, X-ray induced 4=26140
- K halide crystals, additively coloured, photocapacitance effects 2=23468
- lateral photoeffect, used in tracking system 2=21200
- light penetration, rel. to recomb. carriers motion 2=23261
- localized centres, effective cross-sections 1=6174
- Onsager relations 2=23444
- oscillations, in semiconductors 2=21187
- p-n boundaries, spectral distrib. 4=7022
- p-n junction, nonuniformly illuminated, photovoltage 3=23024
- p-n junction, non-uniformly irradi. 0=11721
- p-n junctions, barrier-layer photoeffect 2=21167
- p-n-p phototriode, relaxation processes, at low illumination 0=4367
- phthalocyanin crystals 2=16825, 18829

Photovoltaic effects—contd

- photocell, use in tripping single-stage impulse generator 2=1351
- photocells, bicrystal, for meas. on lasers 4=7080
- photodiffusion effect, due to nonuniform distrib. of recomb. centres 4=1674
- photoelectromagnetic effect 0=1683
- photoelectromagnetic effect, in anisotropic cubic crystals 0=15982
- photoelectromagnetic effect, in semiconductors, with complex energy bands 1=1101
- photomagnetic effect, applic. to minority carrier lifetime meas. 0=15981
- photothermal effect in semiconductors, theory 1=7634
- phototriode, theory 3=20419
- platinocyanides, and non-monomolecular processes 3=18030
- pressure theory 4=28654
- in pulsed light, non-stationary voltage meas., cross-sections of localized centres 1=1100
- radiative recombination light sources, pipe transfer of radiation 4=24350
- semiconductors, with anisotropic mobilities 2=14520
- semiconductors, photoelectromag. effect, carrier lifetime det. in presence of trapping 0=2865
- semiconductors, with position-dependent band gaps 2=14519
- semiconductors, pressure dependence 0=2866
- semiconductors, sign reversal, theory and meas. 4=10119
- semiconductors, surface effects 0=18064
- solar batteries 0=14950
- solar cell, spectral response 1=10067
- solar cells, theory and appl., review 2=19889
- solar energy conversion, effect of temperature 0=7967
- solar energy, converters, efficiency 3=15637
- solar energy converters, efficiency of various semicond. 0=2312
- solar energy converters, test lamp 0=10759
- sulphide films, spectral response 4=20810
- sulphide semiconductors, surface sensitivity of rectification 1=1079
- surface effect, injection level and temp. depend., graphical anal. 4=12876
- II-VI cpds., photovoltaic heterojunctions 3=20420
- AgBr 2=21198
- AgBr 3=2969
- AgBr-electrolyte systems 2=16758
- AgCl 2=21198
- AgCl 3=2969
- AgCl, Dember effect (crystalline photoeffect) 0=20941
- AgI 2=21198
- AgI 3=2969
- AgS films, due to contact potential 4=28650
- Ag₂S layers, positive and negative effect 4=28647
- AlP 1=17717
- Au-CdS photocells 2=10542
- Au-CdTe barrier cells, rel. to CdTe cond. band. min. 4=17400
- Au and Cu photoemission into CdS 3=23013
- Bi chalcogenides 1=6178
- Bi, photoelectromagnetic effect 0=6137
- CdS, at Au or Al contacts, opposite sign to surface barrier 4=15568
- CdS crystals 0=7959
- CdS, Cu-coated 1=17796
- CdS, evap. layers, barrier effect 0=20929
- CdS, with high impurity concn., props. 3=906
- CdS with metal-film coatings, potentials 3=907
- CdS, p-n junction 2=14582
- CdS, obs. at sandwich cells 3=8569
- CdS, photovoltage model 3=25421
- CdS rel. to surface props and light 4=1680
- CdS, surface photovoltage and surface states 2=21190
- CdS, voltage reversal at low light intensities 1=14507
- CdS:Cu, hole conduction 0=4356
- CdSe, elec. pulse generation at low temp. 2=18737, 23451
- CdSe films, contact potential, wavelength depend. 3=23014
- CdSe layers, meas. 2=21192
- CdSe, pressed-powder pellets 1=7665
- CdSe, surface potl., spectral depend. 1=17795
- CdSe crystals, spectral distrib., (x from 0 to 1) 4=12983
- CdS_xSe_{1-x} films, (x from 0 to 1) 4=12982

Photovoltaic effects—contd

Cd_xSe_{1-x}, vert. illum., spectrum, var. with x 3=23015
 CdTe evap. films, high voltage 3=2973
 CdTe films, high-voltage 4=1682
 CdTe films, at high voltages 0=2312
 CdTe films, photo-e. m. f., rel. to structure 2=21188, 23459
 CdTe monocrystalline films, photo-e. m. f. rel. to phase composition 4=10126
 CdTe, photo-e. m. f. of thin layers 1=6178
 CdTe solar cells 2=8444, 14587
 CdTe-HgTe 1=3708
 Cs₃Sb films 1=14512
 Cs₃Sb layers, photo-e. m. f. effect 4=30656
 Cs₃Sb photocathodes 2=13585
 α -Cu phthalocyanine, surface photovoltage meas. 4=28422
 Cu-CdS cells, photoemission 0=9990
 Cu-CdS photocells 2=10542
 Cu in CdS, photojunctions, analysis 1=10059
 Cu-CuO contacts 4=7010
 Cu₂O, influence of heat treatment 0=13633
 Cu₂O, variation with temp. 2=23461
 Cu₂O, variation with temp. 3=6630
 GaAs, exciton polarization 0=13629
 GaAs films, obliquely evap., illum. var., O effect 4=17530
 GaAs, junctions, solar conversion 0=16969
 GaAs, photo-Hall effect in high-resistivity crystals, temp. depend. 3=6632-3
 GaAs, p-n junction, nonlinear 3=20421
 GaAs, p-n junction photocell 3=17914
 GaAs solar cells, effects of electron and proton irradiation 4=17538
 GaAs, surface, and barrier height, ambient sensitivity 4=1602
 Ga(As_{1-x}P_x), response of surface barriers 4=9901
 GaP, p-n junction, spectral sensitivity 1=17775
 GaP, p-n junctions 0=13708
 GaP, Zn-doped, p-n junction 2=21199
 Ge, appl. to study of surface homogeneity 2=12510
 Ge, bulk effect meas., applications 2=23464
 Ge, carrier concentration gradient 1=1042
 Ge, e. m. f. in impurity excitation region 2=18742
 Ge electrodes, photosensitivity rel. to quantum energy, erratum 4=22798
 Ge, external elec. field effect 0=15924
 Ge film obliquely deposited in vac., spectral sensitivity 4=26149
 Ge-(KBr-methylformamide solution) interface 3=10781
 Ge-mica capacitors, effect of elec. field 1=12439
 Ge, n-type, even photomagnetolectric effect 1=5030
 Ge p-n junction, effect of mag. field 1=7672
 Ge, p-n junction, transient photo-e. m. f. 2=18743
 Ge, p-n-p structures, sign reversal 4=10119
 Ge, photomagnetic effect, universal time constant 1=12460
 Ge, polycryst. layers, photo-e. m. f. 4=30662
 Ge: Cu, optical charge exchange, e. m. f. kinetics and spectrum 4=1683
 Ge, wavelength depend., effect of adsorbents 1=3789
 H₂O, photo-decomposition using anthracene crystal 1=1488
 InSb, detectors, detectivity and preamplifier details 0=14883
 InSb, In and Cd alloyed p-n junction, photovoltaic cell 0=11726
 InSb, 1-7 μ photoelectromagnetic effect 0=19499
 InSb p-n junctions 3=879
 InSb, p-n junctions, i. r. sensitivities 0=18069
 KCl, photoelec. Hall effect in additively coloured crystals, 4-114°K 1=5028
 Nb oxide films 0=9998
 PbS, film, current-induced photo-e. m. f. 3=17961
 PbS, films, with electron bombard. 0=15897
 PbS layers 3=25417
 PbS, layers, electron microscope study 0=18070
 PbS layers, e. m. f. and structure 3=3356
 PbS photosensitive surface, photo-e. m. f. 1=7673
 PbS, sensitized surfaces, majority carrier model 2=6499
 PbS, surface potential, changes on illumination 3=20414
 PbSe, p-n junction 2=8446
 S, electrets, polarization in darkness, initial elec. field effects 3=25411
 Sb chalcogenides 1=6178
 Sb₂S₃ films, h. v. photo-e. m. f., 90°-350°K 4=26141

Photovoltaic effects—contd

Sb₂S₃-Bi₂S₃, 20-30 V/cm e. m. f.'s 3=15629
 Sb₂S₃-Sb₂Se₃, 20-30 V/cm e. m. f.'s 3=15629
 Sb₂S₃, 20-30 V/cm e. m. f.'s 3=15629
 Sb₂Se₃, 50-80 V/cm e. m. f.'s 3=15629
 2Sb₂S₃-Bi₂S₃, 20-30 V/cm e. m. f.'s 3=15629
 Se barrier-layer cell, temp. rise 2=6504
 Se, barrier-layer cells, 16 types, slow response 0=2909
 Se, barrier-layer cells, X-ray response 1=14516
 Se, rel. to electron voltaic effects 2=638
 Se, photocell, e. m. f. in open circuit at low temps. 0=13637
 Se photocell, sensitivity variation with magnetic field, as function of temperature 1=8966
 Se photocells, for low-intensity illumination 2=10545
 Si cells, changes prod. by particle irradiation 3=912
 Si, e. m. f. in impurity excitation region 2=18742
 Si, rel. to electron voltaic effects 2=638
 Si films giving high voltages 4=22802
 Si films, high photovoltages 4=22803
 Si, at liq. N₂ temp. 1=6181
 Si-mica capacitors, effect of elec. field 1=12439
 Si, n-type, ext. elec. field effects 0=594
 Si, p-n effect, amplification and quenching 4=26151
 Si p-n junction, thermally oxidized, γ -irrad. effects 3=4930
 Si, p-n-p structures, sign reversal 4=10119
 Si photodiode, current-induced impurity photo e. m. f. 4=1693
 Si, P-doped solar batteries 1=7663
 Si, as radiation tracking transducer 2=22011
 Si solar cells, forward characteristics, efficiency 2=9522
 Si solar cells, 4.6-4.8 MeV proton effects 4=17535
 Si solar cells, effects of electron and proton irradiation 4=17538
 Si solar cells, impurity effect on radiation damage 4=28649
 Si solar cells, radiation resistance of p-type cells 2=4077
 Si solar cells, X- and γ -irradiated 1=1095
 Si, spectral depend. 4=6987
 Si, surface meas., rel. to minority carrier lifetime 1=19860
 SiC films, high photovoltages 4=22803
 SiC, p-n junction photo-e. m. f. 2=4069
 SiC, p-n photoeffect 3=13136
 SiC, p-n-p structures, sign reversal 4=10119
 α -SiC, photoelec. props of alloyed p-n junctions 0=20939
 SiC, semicond., p-i-n junction and V-I characts., p-n luminescence 3=13082
 SiO₂ p-i-p junctions 3=10849
 Sn, hole photoemission into GaAs 2=16723
 Ta₂O₅, p-i-p junctions 3=10849
 ThBr, effect of green pinacryptol 1=15201
 Ti oxide films 0=9998
 Ti oxide films, p-n junction photovoltaic effect 4=4237
 TiO₂(rutile), chemisorbed O₂ effect 4=22800
 TiO₂(rutile), u. v. 4=22801
 ZnCdS, positive hole motion 1=12464
 ZnO, rel. to adsorbed gases 2=16853
 ZnS, anomalous, theory 2=4072
 ZnS, anomalous rel. to polar props. 4=22807
 ZnS, effect of polarized light on photocurrents and photovoltages 0=2907
 ZnS, photovoltage model 3=25421
 ZnS:Cu, photoelec. polariz., effect of i. r. 2=23477
 ZnSe 3=11011
 Zr electrodes coated with Ag, Au or Sn 3=15636

Physical chemistry

(Heading introduced in 1961)

in aerodynamics and space flight, conference 2=2442
 chem. equilibrium, vectorial formulation 2=15125
 compound semiconductors 2=4006
 electronegativity, orbital calc. for neutral atoms 2=10960
 free radicals, thermodynamic properties 1=15193-4
 hot atom interactions, statist. theory 2=23971
 hydration-dehydration of polyelectrolyte solutions 1=15865
 ionic association, statistical theory 3=13606
 microwave spectroscopy, applications 4=1235
 molar boiling point elevation 1=11608
 n. m. r., principles and use, review. 3=25139
 optical methods 4=17850

Physical chemistry—contd

- phase equilibrium, in liq.-solid and liq.-vapour systems, comparison 2=8906
- phosphors, effect of activators, defects and structure 2=8548
- Poisson transform. of $\sum_{j=1}^N F(\cos 2\pi j/N) \cos 2\pi jn/N$ 3=21196
- reaction kinetics, basic laws 1=15191
- reactor for reaction kinetics of high boiling liquids in gas phase 1=10293
- semiconductors, review 4=28297
- thermal analysis, differential microcalorimeter 2=19138
- CO₂-H₂O system, in turbulent motion, mass transfer conc. effect 3=16152

Physical effects of radiations

- See also under individual radiations, e.g. Neutrons, effects.
- acoustic, testing of large components, 160dB 2=15705
- adsorption by solids, action of light 1=4082
- alanine single crystals, free radical p-d exchange reaction e.s.r. study 4=23043
- alkali azides, u.v. irradi., colour centres 2=3961
- alkali halide ionic crystals, colour centres, props. 4=28496
- alkali halides and azides, crystallite growth on cleavage planes 3=20254
- alkali halides, crystal decomposition rel. to electron irradi. 3=17808
- alkali halides, defect formation mechanism 2=10373
- alkali halides, formation of interstitials, theory 0=1593
- alkali halides, induced expansion 2=23226
- alkali halides, interstitial defects, X-ray diffr. study 2=18572
- alkali halides, irradi. stability, rel. to divalent impurities 4=6895
- alkali halides, point defect formation 3=22730
- alkali halides, scintillation due to heavy particles, secondary-electron effects 2=23615
- alkali halides, u.v. irradi., interstitial metal atoms ionized 2=8253
- alkali halides, vacancy production by Varley mechanism, theory 4=9947
- alkaline ice, O⁻ radiolysis, rel. to e.s.r. new singlet 3=23233
- alloys, non-fissionable, rel. to phase changes 2=21547
- amorphism in crystalline cpds., by electrons 0=1609
- anthracene, effect on scintillation props. 2=6636
- anthracene solutions, u.v. radiation, effect on fluorescence 1=18419
- apatite halophosphates, colour-centre prod. by short u.v. 1=17569
- apparatus, 1 MeV electron accelerator 0=19821
- apparatus for specimens, low temp. 4=11441
- aspects in nuclear energy, encyclopaedia 3=4285
- atomic collision cascades symposium 4=30597
- atomic displacement, classical scatt. treatment 2=15458
- use of atomic reactors 0=20523
- benzene solutions, u.v. radiation, effect on fluorescence 1=18420
- beta-irradiated samples, activity loss due product diffusion 1=644
- binary materials, knock-on cascades and point defects 3=8419
- ε-caprolactam, irradiated, e.s.r. study, radical formation 4=4400
- ceramic plates, Young's modulus change, meas. method 4=20631
- ceramics, from radon and decay products 4=6298
- ceramics, reflectivity 3=8585
- ceramics, volume and mechanical strength changes 4=10374
- channelling effects, long-range, in irradi. crystals 3=22874
- chlorobenzene solutions, u.v. radiation, effect on fluorescence 1=18420
- conductivity changes, theory 4=4087
- conference, Toronto (1963) 4=16713
- crystal damage, dynamics 3=22852
- crystal damage obs. by surface and decoration techniques 4=28468
- crystal defect production by local melting 0=20852
- crystal defects; approx. to rigid spheres 3=8417
- crystal imperfection cascade, distrib. of interstitials and vacancies 4=9943

Physical effects of radiations—contd

- crystal lattice damage by fission fragments 3=22857
- crystal lattices, fission fragment damage, track contrast 4=25978
- crystal lattices, fission fragment damage 3=20253
- crystals, covalent, optical, defect props. 4=28507
- crystals, directional depend. of defect number 3=20250
- crystals, due to fission products electron diffr. effects 4=12817
- crystals, effect on melting and solution, dislocations 3=20188
- crystals, f.c.c., focusing collisions 3=2844
- crystals, fission fragment damage 3=22855
- crystals, focused collision sequences, rel. to thermal spikes 4=6894
- crystals, focusing effect of lattice structure, appl. to proton-bombard. of Au 0=13564
- cyclohexane, ion pair average energy loss 4=24252
- L-cystine dihydrochloride, free radical prod., e.s.r. study 4=20591
- damage experiments, analysis, Monte Carlo calculations 3=10403
- damage in ionic crystals, investigation by optical absorpt. 4=28442
- damage to Mylar plastic 0=2477
- damage to plastic scintillators 0=663
- damage in solids, conference, Venice (1962) 4=6888
- damage in solids, dynamics 0=20856
- damage study, single-crystal X-ray diffraction technique 3=10699
- damage theory 4=30588
- defects in solids, calc. method 3=4894
- on deformation of Zn single crystals 4=23226
- diamond, colour changes from charged particles 3=20252
- diamond, damage, luminescence 2=20986
- diamond, electron bombard., ionization effects 0=9925
- diamond, 5032A centre, fluorescence 2=4165
- diamond, optical and elec. props. 2=23558
- dielectric liquids, elec. cond. and related props. 4=27191
- dielectric properties, reversible changes 3=15609
- dielectrics, electrical effects of electron bombardment 1=3809
- dielectrics, polarization 3=17923
- dimethyl-diphenyl siloxane 1=11138
- diodes, thermionic, inert gas, neg. resist. effects 3=2025
- dislocation formation, by fission-fragment bombard., electron microscope study 2=21037
- displacement cascade theory, channelling effect 3=13019
- displacement threshold, rel. to sputtering threshold, for 20 metals 0=12653
- by e.s.r. 1=13190
- effect on flatness of plane filled-epoxy mirrors 1=4434
- ejection of atoms from monocrystals by ion bomb. 1=17590
- elastic displacement, atomic, theory 4=4087
- on electret-forming materials 3=17947
- energy dissipation sharing between electronic and atomic motion 3=8463
- engineering materials 0=7674
- f.c.c. lattices, focusing collisions, dislocations 0=1585
- f.c.c. metals, dynamic stages of radiation damage 4=30590
- f.c.c. lattices, assisted focusing collisions 3=8465
- ferrites, mag. props., rel. to irradi. 2=21340
- ferromagnetic solids, point defects 4=1456
- ferromagnetics, neutron irradiation, mag. props. modification 0=8058
- ferromagnetics, crystal point imperfections, mag. obs. 4=25920
- films, solid, adsorption and desorption 3=6896
- fissile material, growth of gas bubbles 0=9903
- fissile materials, rel. to swelling 4=9609
- fissile and non-fissile materials, expt. design 2=10425
- fission gas emission, during temp. changes in reactor 2=20692
- fission products in crystals, electron diffr. effects 4=12817
- fission recoil effects 0=20509
- focusing collision chains, in f.c.c. lattices 1=7604
- focusing collisions in a linear chain of atoms 1=17588
- foils, optical emission due to charged particles 2=14751
- free radicals, radiation-induced, microwave saturation 2=4269

Physical effects of radiations—contd

Frenkel defects, radiation annealing, statistical model 4=22564
 γ -rays, prod. by electrons 1=16825
 γ -sources, effective use 3=2396
 gas mixtures, binary, ion yields interpret. 4=455
 glass, charged-particle damage tracks 3=22850
 glass, coloration prevention 0=8459
 glass, conference, Rochester (1962) 3=6549
 glass, irradi. in nuclear reactor 0=1759
 glass, radiation shielding, discoloration 0=8254
 glass, reflectivity 3=8585
 glass, review 1=7682
 glass, surfaces, ionic bombardment 3=17810
 glass, Si 104, increase in opt. absorption 1=19070
 glass surface attack, by positive ion bomb. 2=4487
 glass surface, α -damage 4=12831
 glass, surface structure, effect of ultrasound 0=21215
 glass, u.v., transmittance charges 1=19963
 glutamic acid hydrochloride, by 50 keV X-rays, paramagnetic resonance 1=14797
 glycine, free radical production 0=499
 glycine sulphate, ferroelec. props. 2=6520
 graphite, Ar and air ion irradi. 3=17806
 graphite, crystal interstitial clusters induced, flux level effects 4=6898
 graphite, damage, dark field electron microscopy 2=23940
 graphite, dimensional changes, effect of compressive stresses 4=25464
 graphite, displacement energy threshold for atoms, from e⁻-bombardment, 15°K 4=22647
 graphite, effect of interstitial compounds 0=13567
 graphite, elastic atomic collisions, focusing conditions 2=12487
 graphite, energy release, reaction kinetics 4=12832
 graphite, evolution of interstitials 4=1466
 graphite, hardening 2=23766
 graphite, hardness changes 0=11988
 graphite impregnated with UO₂ particles, stored energy 1=12235
 graphite, impurity nucleation of damage 4=28450
 graphite, ion-bombardment 3=22851
 graphite, irradi. at power reactor temps. 4=1532
 graphite, lattice parameter change 2=20902
 graphite, neutron-bombarded, stored energy 0=11649
 graphite, neutron-irrad., interstitial annealing and displaced-atom formation 3=788
 graphite by neutrons, graphitization changes 1=17586
 graphite, in nuclear reactor, decreasing damage with increasing annealing freq. 4=9615
 graphite, polycrystalline, rel. to thermal conductivity 4=1412
 graphite, in power reactors, stored energy 2=1947
 graphite, reactor-radiation induced creep 4=28955
 graphite, review 1=4975
 graphite, stressed, effect on strain 2=23742
 graphite, thermal expansion, accommodation 3=8371
 graphite, vacancies and interstitials, bond energy 3=8425
 graphite, vacancy loops 3=20194
 graphite, vacancy loops, rel. to Ni-irrad. 3=17705
 gray tin, neutron irradiation, 'thermal spike' study 1=7607
 haemoglobin, ultrasonic irradi. 0=18528
 Hall effect and elec. cond. meas., in reactor pile 2=5250
 halophosphate phosphors, effects of u.v. irradi. 3=10991
 handbook 3=2146
 n-heptane, ion pair average energy loss 4=24252
 n-hexane, ion pair average energy loss 4=24252
 i.r. detection elements, nuclear radiation exposure 0=14881
 induced voltage from space-charge, theory 4=4087
 inert gases, solid, trapping sites, i.r. effects 4=9819
 influence on spark breakdown 0=7106
 inorganic solids, conference (1961) 2=10424
 inorganic solids, review 2=12473
 insulators, internal polarization 3=20371
 integral eqns. governing energy transfer 3=25305
 intensity effect, on F-centre production in NaCl 2=18616
 investigation by damping capacity 1=10206
 ionic crystals, Rn²²² and Xe¹³³ labels, thermal release 3=823
 ionizing radiation, internal friction of quartz 3=23302
 irradiation experiments, design 2=12483

Physical effects of radiations—contd

irradiation hardening of Cu and Ni 1=1004
 lactose, free radical production 0=500
 laser ejected vapour from solids, mass spectrum 4=21361
 laser, momentum transfer and cratering effects with solids 4=22638
 lattice damage, directional distribution 0=1608
 lattice damage, statistical theory calc. 2=611
 liquids, insulating, electrical conductivity 4=11211
 local radicals in glasses, conc. and separation rel. to radiation 1=17363
 low temp. studies, stored energy meas. with neutron and deuteron bombard. 4=30587
 low temperature techniques 2=10427
 magnetic materials, review 1=7762
 magnetic materials, soft and permanent, review 4=17643
 on malonic acid 0=13571
 mechanical props. of irradiated solids 0=4545
 metal films, fission fragment damage 3=17802
 metal films, fission fragments, thermal processes 2=12484
 metal films, temperature rise rel. to electron irradi. 3=17807
 metals and alloys, vacancy precipitation, review 4=12733
 metals, channelling effect and cascade theory 4=4088
 metals, conductivity, elec., summation effect for cascades 4=25999
 metals, damage, defect interacts. 4=1533
 metals, damage, nature 3=8466
 metals, defect production 0=7904
 metals, defects due to direct collision processes 2=12415
 metals, diffusion, by heavy energetic particles 3=8457
 metals, displacement cascades, effect on residual resist. 4=12845
 metals, electron-irrad., elec. resistivity changes 2=16678
 metals, f.c.c., atomic displacements 4=1338
 metals, f.c.c., point defects, review 3=8420
 metals, hardening, "depleted zone" mechanism 2=20993
 metals, h.c.p., focusing collision chains 3=22883
 metals of high purity 3=15531
 metals, local heating by nuclear particles 1=19816
 metals, multiple thermal spikes, theory 1=17514
 metals, multiple thermal spikes, theory 2=8209
 metals, neutron irradi. property effects 1=10021
 metals, point-defect clusters 2=6317, 12416
 metals, point defect production and annealing 3=22723
 metals, radiation damage, vacancy behaviour 4=30593
 metals, review 3=4895
 metals, review 3=4897
 metals, sputtering by U²³⁵ fission fragments 3=8152
 metals, strain relaxation by irradiation 2=23768-9
 metals, thermal spikes 2=6323
 metals, thin polycryst. films, model for fission-fragment damage 4=22639
 metals, variation of damage parameters, point-defect resistivities 2=18624
 melting, cavity formation, plastic deform. 1=12407
 methacrylate, u.s. irradi., trackless focal alterations 2=11213
 mica, Ar and air ion irradi. 3=17806
 mica, charged particle tracks, electron micr. study 3=2842
 mica, etched tracks from spallation recoils 2=18051
 mica, by fission products, track visualization by electron microscope 0=19979
 mica, fission-product tracks 2=2107
 mica, phase transformation nucleation 2=16977
 mild steel, defect clusters, rel. to fission fragments 3=17803
 minerals, rel. to Pb^{206,207}/U^{238,235} diffusion 4=4079
 naphthalene, electret state, i.r. irradi. effect 4=1668
 noble metals, damage threshold energies at 10°K 0=6066
 nuclear fuels, metallic, damage 2=20723
 nuclear resonance, prod. by acoustic waves 0=13125
 nylon, strength props. of drawn and undrawn 0=11980
 nylons 6-6 and 6-10, low temp. dielec. loss 1=17822
 optical antipodes, rotatory power, effect of 2 MeV electrons 1=11355
 optical erosion of condensed matter, review 4=17455
 optical transmission change, rel. to low-energy dose 2=7798
 organic crystals, free radicals prod. 2=12485
 organic cpds., e.s.r. studies, tritium as an internal radiation source 1=12307

Physical effects of radiations—contd

organic soln. luminescence, quenching 4=24221
 PVC, electron-irradiated, colour changes 1=10103
 particle stopping by elastic collision 4=22637
 particle decay in condensed matter at high energies 3=22095
 Permalloy magnetic films, hysteresis, anisotropy, He³ effects 4=13216
 phase transformations, necessity of impurities 4=17776
 on photographic materials, ionizing 3=14390
 Pile Grade graphite at 450°C 3=10433
 primary knock-on atom, resting point distrib. 3=4893
 plastic films, mass-thickness changes in electron microscope 2=12945
 plastics, bubble formation 1=19818
 polarons in aqueous media, optical absorption, effective mass and radius 4=5209
 polyethylene, e.s.r. study of radical species 0=16176-7
 polyethylene, effect on contact charging 0=10860
 polyethylene, γ -irrad., X-ray study of action of heat 0=4681
 polyethylene terephthalate, biaxially orientated, reactor irradiation, strength decrease 0=18274
 polyethylene terephthalate, reactor irradiation, tensile strength 0=18273
 polyethylenes, electron-irradiated, dynamic mech. props. 1=9080
 polymer solutions, u.s. irrad., cavitation 2=19558
 polymers, permeability to gases, reversible changes 0=12064
 polymers, review 1=7603
 polymethylmethacrylate, protection against radiation damage 1=8920
 polythene, alkyl radical e. s. r. 4=28276
 polythene, electrical conductivity 1=17636
 polyvinyl chloride, elec. props. change 0=4310
 polyvinylalcohol, paramagnetic resonance spectra 1=20226
 porous materials, swelling 2=21086
 pulse irradiation of semiconductor devices 0=583
 quartz, defects, obs. by u.s. and lattice wave interaction 4=20263
 quartz and fused silica, optical absorption 0=16060
 quartz, reactor-radiation effects 2=20987
 quartz, thermoluminescence 0=16117
 quartz and vitreous silica, surface refractive index changes 0=13569
 quartz, by X-ray scatt. and diffr. 3=8473
 racemates and antipodes, optical activity rel. to electrons from different sources 3=2996
 racemates and optical antipodes, optical props., electron effects 3=10920
 radiation damage, theoretical developments 1=6120
 radioactive heating of moon's interior 0=14396
 radioactivity, specific, calc. 2=18273
 radioluminescence from β -radiation 0=2962
 from radon and decay products in ceramics 4=6298
 range of radiation-induced primary knock-ons 0=9922
 reactor damage, monitor using sputtering 2=14178
 reactor fuel alloys, irradiation effects 0=12084
 reactor materials and radiation damage conference 3=12716
 reactor-radiations, strength of materials 3=18209
 recoil atoms in ionic solids 3=8475
 review 0=20849
 Rochelle salt, effect of 21.5 kc/s ultrasound 2=16972
 rocksalt R-centre bleaching by α - and X-rays 1=1001
 rubber, natural, 1000 Å-thick films, spherulite morphology 3=20919
 ruby, colour changes on laser irrad. 4=22628
 sapphire, size change 0=1895
 semiconducting devices, permanent damage, equivalence of particles 4=17498
 semiconducting materials, elec. props. and defects 4=10040
 on semiconductor detectors, in fission fragment meas. 4=22249
 semiconductor defects 0=20850
 semiconductor devices 2=21183
 semiconductor films, refr. index, effect of light 2=18793, 21227
 semiconductor, microwave Faraday effect 3=2875
 semiconductors 2=21126
 semiconductors, adsorptive props. 2=12948
 semiconductors, defect annihilation, kinetics 3=22710
 semiconductors, defects and effects of defects 4=1535

Physical effects of radiations—contd

semiconductors, disordered regions rel. to elec. props. 2=23287
 semiconductors, displacement threshold 4=30594
 semiconductors, introductory lectures 4=30615
 semiconductors, n-type, space charge 2=6441
 semiconductors, review 4=20345
 semiconductors, review 4=30591
 semiconductors, surface cond. variations 1=3738
 shock wave rear ionization 4=18329
 silica, fused, photoelectric emission due to u.v. irrad. 4=8806
 silica, fused, radiation-induced coloration 0=16073
 silica gel, colour centre prod. 0=4299
 silica, gross structural changes 0=15877
 silica, vitreous, density changes due to neutron irrad., annealing frequency factors 1=7606
 silicone dielectrics, γ -irradiation 0=2173
 slowing down of high-energy particles 2=14478
 solids, atom distribution due to primary excited atom 3=17799
 solids, atomic displacement theory, rel. to Auger effect 2=12460
 solids, charged particle tracks, etching 3=2843
 solids, charged particle tracks, investigation 3=17801
 solids, conference, Varenna (1960) 4=25976
 solids, conference, Venice (1962) 3=6547-8
 solids, conference, Venice (1962) 3=10697
 solids, by corpuscular irrad., review 3=2
 solids, displaced atom form., p, e and n up to 1000 MeV 4=28648
 solids, electron and hole centres production 2=14410
 solids, energetic atom range 3=8462
 solids, focusing collision chains, assisted 3=22884
 solids, focusing collision chains, theory 3=22882
 solids, Frenkel defects, high densities, structures 4=25926
 solids, inner electron ionization by fission fragments 2=5307
 solids, irrad., light emission on dissolution in certain liquids 1=1744
 solids, mechanical response to extreme s.m. radiation 2=11398
 solids, nuclear radiation effects rel. to slow charged particle fluxes 3=8464
 solids, primary damage, review 4=28502
 solids, rel. to their properties and radiation's properties; review 3=2841
 solids, radiation damage, slowing-down processes, classical scatt. theory 0=17686
 solids, radiation damage, theory 3=17800
 solids, range of atoms, Monte Carlo calc. for Thomas-Fermi potential 4=25977
 solids, surface heterogeneity 1=20660
 solids, survey 0=6064
 solids, temp. distrib. changes 2=16619
 solids, theory 4=30589
 solids, theory of displacement cascades 0=2820
 solids, vacancy defect distribution 4=17424
 sonoluminescence 0=19163
 specimen damage in electron microscope 3=20971
 stainless steel, defect clusters, rel. to fission fragments 3=17803
 steel, damage, mech. props. 2=23770
 steel, SA-212B pressure-vessel, mag. props. 3=11037
 steels, boron, bubble formation 2=23224
 on β -succinic acid 0=13572
 swelling, coalescence of gaseous pores 4=9610
 Szilard-Chalmers reaction, radiation damage, isothermal annealing 0=2837
 techniques of study, Windscale work 4=12815
 Teflon, neutron-irradiated, F¹⁹ n.m.r. line width 0=4529
 temperature distribution, theory 4=4087
 thermocouples, effect on calibration curves 4=29796
 thermostimulated e.m.f. on electron bomb. of hydrocarbons 1=17642
 total ionization of gases 1=16258
 transistors, surface effects, data and model 4=17505
 transistors, transient, charge-control equiv. ccts. 4=17507
 transition elements, pile-irradiated, at low temp. 0=2831
 2,2,4-trimethylpentane, ion pair average energy loss 4=24252
 uranium deformation at low temps. 1=10022

Physical effects of radiations—contd

urea compounds, e. s. r. study 2=2106
 visible and u.v. emission of metals under proton and positive-ion bomb. 1=18951
 vitreous structure 2=8869
 water, radiation nucleation of bubbles 3=23864
 wax, carnauba, electrets 4=1668
 wurtzite structure, range of tunnel trajectories 3=22848
 Zircaloy-2, tensile strength 3=11170
 Ag, colloidal, bleaching by 540-650 mμ light 0=9913
 Ag, defect clusters, rel. to fission fragments 3=17803
 Ag halides, electron-hole production 3=12940
 Ag single crystals, disorientation by ion bombard. 1=17591
 AgCl, effect of u. v. on internal friction 2=18984, 23737
 AgCl, lattice distortion, rel. to u. v. irradi., 25°C 4=9953
 Ag—Cs photocathodes, fatigue effects 1=17805
 Ag, In¹¹¹ impurities, γ-ray ang. correl. 4=22463
 Al alloys, damage, low-temp. 3=22860
 Al containing Li⁶, neutron irradi., He precipitation along dislocations 1=11245
 Al, damage, low-temp. 3=22860
 Al, dislocation loop growth on irradi., with fission fragments 3=6520
 Al, length change, yield stress, decrement and modulus, resistivity, 4°K 3=10698
 Al, loop movement, rel. to fission fragments 3=17803
 Al monocrystal, atomic ejection sequences by Ar⁺ ion bombardment, 50 keV 3=2845
 Al, vacancy and interstitial loops rel. to fission fragment bombardment 3=17706
 Al and Cu, volume changes induced by fission 4=4094
 AlFe, pile-irradiated, annealing study of magnetic anisotropy 0=3044
 Al—Zn alloy, d-irradi., Guinier—Preston zones 4=23248
 Au, focused collision sequences, rel. to temp. 2=12486
 Au films, interstitial damage, rel. to Ar ion bombardment 3=17712
 Au films, structure 2=6849
 Au foils, crystal stacking fault disappearance on O⁻ ion bombard. 4=20285
 Au foils, transition radiation and optical bremsstrahlung, rel. to electrons 3=20536
 Au, low temp. study 4=30587
 Au, point defects, rel. to electron-irradi. 3=22726
 Au, Ar ions, annealing Stage III interstitial mechanism 4=15472
 B₂H₆, at low temp., effects of r.f. discharge 0=1914
 BaCrO₄, imperfections 3=13016
 BaO-coated cathodes, u.v. irradi. effects on elec. cond. 1=18913
 BaTiO₃, Po²¹⁰ irradiated, potl. distrib., movement of interstitials 4=25982
 BaTiO₃-type ferroelectrics, temp. depend. dielec. props. 0=4384
 Be, effect on thermal conductivity 2=2058
 Be, gas bubbles at grain boundaries 3=8471
 Be oxide, reactor irradiation 2=3971
 BeO, annealed after irradi., point defects 4=12722
 BeO, defect clusters and disloc. loops 2=18569
 BeO, defect configurations rel. to heavy-atom bombardment 3=22865
 BeO, elastic consts. 3=5057
 BeO, internal stresses, by X-ray diffraction 3=6550
 BeO irradiated, long wavelength neutron scattering 1=19823
 BeO, mechanical fracture stress/lattice strain relation 4=13394
 BeO, stored energy, by calorimetry 3=9648
 Bi, in contact with Sn, melting 3=15525
 C¹¹ loss from plastic foils after nuclear formation, diffusion of gaseous products 1=11008
 CaCO₃ (calcite), neutron irradi., cross-relaxation, stimulated spin-echo meas. 1=7792
 CaF₂:Sm, increase of Sm²⁺ by X- or γ-rays 2=6399
 CaF₂: Sm³⁺(Y³⁺), u.v., colour centre prod. 4=22627
 CaF₂: Tm, luminescence, mechanism 4=22918
 CaF₂: Tm, Yb, X-irradiated, paramagnetic res. 1=20203
 Cd, in contact with Bi, melting 3=15525
 Cd, in contact with Sn, melting 3=15525
 Cd, ion damage, direct observation 1=12389
 Cd, irradiation growth 2=20995
 CdS, d.c. conduction and u. s. absorption 2=3833

Physical effects of radiations—contd

CdS, surface effects of light 3=8924
 CdS, u. s. attenuation, effect of light 0=11574
 Ce glass, photoionization 1=14349
 Cl₂, optico-acoustic effect 0=19215
 Cr₂O₃, elec. conductivity 3=2909
 Cs oxide cathodes, i. r. irradi., fatigue effects 3=2018
 Cu alloys, damage, low-temp. 3=22860
 Cu-base alloys, rel. to diffusion-controlled reactions 3=11291
 Cu, bent, dislocations, etch pit study 3=2808
 Cu, calc. 0=20856
 Cu, damage, low-temp. 3=22860
 Cu, damage, point defect migration, thermally activated 0=17925
 Cu, defect clusters, rel. to fission fragments 3=17803
 Cu, deuteron-irradi., stored energy release below 80°K 1=7605
 Cu, electron irradi. damage, rel. to energy 3=8468
 Cu, internal friction, electron irradi. 3=8758
 Cu, intrinsic close-pair defects, energy depend. 1=17505
 Cu lattice, collision effects of Cu atom, machine calc. 4=28506
 Cu, length change, yield stress, decrement and modulus, resistivity, 4°K 3=10698
 Cu, neutron irradi., energy release at 600–700° C 1=7608
 Cu, point defects, rel. to electron-irradi. 3=22726
 Cu, recovery 3=22751
 Cu single crystals, radiation hardening 1=20391
 Cu—Al neutron irradiated, effect on electrical resistivity 1=19821
 CuZn alloy, Zn diffusion, Ne⁺ ion irradiation effect 1=14322
 CaWO₄: Nd, photolytic colouring 4=22643
 Fe, C precipitation 2=15070
 Fe, C precipitation 4=15735-6
 α-Fe, damage dynamics, computer analysis 4=6890
 Fe, damage by Fe atoms, channelling effects 4=15504
 Fe, defects study by mag. after-effects meas. 2=12475
 Fe, diffusion magnetic viscosity due to neutron irradiation 1=1227
 α-Fe, effect on precipitation and hardening 1=12652
 Fe, neutron irradiated, resistivity 0=20864
 Fe, study using mag. props. 2=21084
 Fe—Ni alloy orientation superlattice formation in mag. field 0=13769
 Fe—Ni alloys, neutron-irradiated in mag. field 0=10168
 Fe—Ni, defect study by mag. after-effects meas. 2=12475
 Fe—Si (4%), domain wall velo. 3=11068
 Fe—(3%) Si, magnetic relaxation rel. to n-irradi. 3=1042
 GaAs, conduction pulses on γ-ray bombard. 0=17287
 GaAs, length changes 3=22861
 GaAs, reactor irradi., annealing props. 4=6899
 Ge, conductivity and Hall coeff. rel. to defects 3=22859
 Ge, conductivity, rel. to K-ion bombardment 3=17851
 Ge crystal, point defects, mobility 4=30553
 Ge, defect prodn. and alteration, rel. to electron irradi. 3=22724
 Ge, elec. props. and defects 4=10040
 Ge, excess carrier pairs, effect on lattice constant 2=2214
 Ge, by Kr⁸⁶ ions, retention in crystals 2=18627
 Ge, length changes at low temp. 2=3967
 Ge, n-type, electron removal rate, by fission neutrons 1=8941
 Ge, by neutrons and Xe⁺ ions, displacement spike recrystn. 4=17461
 Ge, patterns due to heavy-ion irradi. 3=22877
 Ge, recomb. radiation quenching by i. r. light 4=6782
 Ge, recombination and trapping centres 2=2150
 Ge, review 4=20345
 Ge and Si, damage annealing theory 2=8266, 14483
 H₂, ionization, recombination and mobility 3=16911
 H₂O₂, aq., quickly frozen, orientation 2=4258
 He particles on solids, cavity induction and exfoliation 4=10008
 In, in contact with Sn, melting 3=15525
 In₂S₃, elec. conductivity 0=2898
 InSb, length changes 3=22861
 Ir hexachlor-complex, Szilard—Chalmers reaction, Ir¹⁹² recoil species 0=12109

Physical effects of radiations—contd

- K halides, doped, trapped paramag. N oxides, e.s.r. 1=14350
 KBr, effect of neutron irradiation on diel. and optical props. 1=12468
 KBr, u.v., interstitials and thermal cond. 2=21088
 KCl, additively coloured, M-centre formation 3=4892
 KCl, birefringence induced by light in coloured crystals 4=1741
 KCl, crystal decomposition rel. to electron irradiation 3=17808
 KCl, hardening by irradiation 3=16008
 KCl, imperfections, rel. to electron and X-irradiation 3=22708
 KCl, M-centres, temporary bleaching effect 4=1530
 KCl, radiation-induced precipitation sites 0=17978
 KCl, single crystal, u.v.-irradiation, electron microscope study 0=18424
 KCl, Sr doped, elec. conductivity 4=25991
 KCl, u.v., effect on thermoluminescence 2=12639
 KCl, u.v., interstitials and thermal cond. 2=21088
 KCl, V₂ centres, u.v. light bleaching meas. 4=22636
 KCl, X-ray induced conversion in absorption bands 1=17580
 KI, crystal decomposition rel. to electron irradiation 3=17808
 LiF, colour centres, line and band spectra 3=6540
 LiF, e.s.r., resolved h.f.s., two types of paramag. centre 1=3935
 LiF, effect of neutron irradiation on elec. conductivity 1=10020
 LiF, electrical props. 1=17634
 LiF, fission-fragment damage, surface structures 3=22863
 LiF, hardening, cleavage made easier 2=2329
 LiF, by neutrons, Li precipitation 1=19820
 LiF, rel. to light transmission 1=19964
 LiF surface damage by fission fragments 3=17804
 LiF surface fission-fragment tracks and directional effects 4=28511
 LiF: Ni, e.s.r. of Ni²⁺ and complexes 4=28885
 LiH, u.v., polarization of Li nuclei 2=3815
 LiH, interstitial defects, X-ray diffraction study 2=18572
 Mg fluorogermanate, photoconductivity growth, rel. to u.v. irradiation 3=25837
 Mg fluorogermanate, u.v. irradiation, rel. to photoconductivity 3=2978
 Mg titanate, reactor irradiation, effect on elec. cond. 2=14507
 Mg titanates, dielectric losses 1=19926
 MgO, defect cluster and dislocation loops 2=18569
 MgO, impurity ions formed by u.v. and X-rays 1=17536
 MgO, point defects and absorption bands 3=22717
 MgO, slip bands, and microhardness rel. to electron irradiation 3=17761
 MgO, u.v. irradiation, induced V_i centres for catalysis of H₂ + D₂ = 2HD, e.s.r. study 4=30901
 Mo, damage recovery 3=8470
 Mo, defect clusters and loops, rel. to fission fragments 3=17803
 Mo fission fragment damage, tracks 3=15526
 Mo, irradiation damage and recovery 0=7906
 Mo, lattice expansion, recovery 0=20851
 Mo, tensile props. after neutron irradiation 1=20377
 MoS₂, crystal imperfections prod. by collimated fission products 4=12820
 NaCl, dislocation pinning by visible light 2=21035, 18646
 NaCl, effect of neutron irradiation on diel. and optical props. 1=12468
 NaCl, reactor irradiation, internal energy increase 3=13017
 NaCl, vacancies creation, detection by F-centre coloration 0=1594
 NaCl, visible illumination, dislocation unpinning effect 2=10389
 NaCl:Ca, X-irradiated, thermal props. 0=2833
 Na-CMC polymer soln., viscosity change 0=2170
 NaF: Ni, e.s.r. of Ni²⁺ and complexes 4=28885
 NaF, OH⁻ doped, vac. u.v. absorption 4=7159
 NaN₃, stacking faults and decomposition 1=19796
 NaNO₂, crystal dislocations, due to O release 4=17431
 NaNO₂, e.s.r. of NO₂ 4=10329
 Nb, irradiated, mech. props. 0=16232
 Nb-U alloys, in reactors 4=9613
 NH₄OHCl, Cl₂ e.s.r. 4=28869
 Ni, domain wall velo. 3=11068
 Ni, Kossel line studies 2=10429
 Ni, neutron-irradiation, K-absorption spectrum 0=13471

Physical effects of radiations—contd

- Ni²⁺, in AgBr, AgCl, paramag. reson. and relax., liquid H temps. 3=13307
 Ni-Cr, structural transformations 4=1996
 Ni-Cu (30%), domain wall velo. 3=11068
 Ni and Ni-Fe alloy, study using mag. props. 2=21084
 NO₂, optico-acoustic effect 0=19215
 Pb, in contact with Bi, melting 3=15525
 Pb silicate glasses, cond. elec. and dielectric loss 4=17515
 Pb, superconducting ring, trapped flux decay rel. to irradiation 3=3955
 PbL₂, dislocation loops due to fission fragments 2=23185
 PbL₂, fission-fragment tracks 3=25306
 Pt film damage by neutron irradiation 1=3700
 Pt foils, damaged by fission fragments 2=612
 Pt foils, dislocation loops, fission and α -particle irradiation 3=8437
 Pt foils, fission damage 3=25275
 Pt, foils, loops and dots, rel. to U fission fragment, neutron and α -bombardment 3=17701
 Pt, neutron irradiation, focusing collisions along twin boundaries 1=11246
 Pt phthalocyanine, disarray caused by fission fragment 1=19817
 Pt, prismatic loops 3=22767
 Pu, cond., elec., self-irradiation 4=22680
 Pu, crystal imperfections due to self irradiation, saturation 4=12834
 Pu, elec. resistivity 2=23238
 Pu, self-damage accumulation 3=22856
 PuO₂ and Pu₂C₃ lattice expansion, self-damage 2=23172
 S and Se org. cpds, u.v.-irradiation, free radical comparison 4=30473
 S²⁻, in BaSO₄, effect on solubility 0=14646
 Sb, microhardness decrease, rel. to i.r., irradiation 3=18218
 Se, amorphous, G and Q elastic changes 1=14849
 Se, amorphous, G and Q elastic changes 1=20306
 Si, A-centre lattice vacancies, e.s.r. and i.r. absorption 1=3656-7
 Si, compacted, ionization expansion, theory and meas. 4=6889
 Si, conductivity and Hall coeff. rel. to defects 3=22859
 Si, defect i.r. absorption spectrum 3=23076
 Si, defects 3=22725
 Si, elec. props and defects 4=10040
 Se, filamentary crystal growth, illumination effect 2=10802
 Si, by Kr⁸⁵ ions, retention in crystal 2=18627
 Si, Li, doped defects 3=22704
 Si, lattice defects induced by reactor irradiation 1=14347
 Si, lattice defects induced by reactor irradiation 1=17593
 Si, length changes at low temp. 2=3967
 Si, n and p-type, defect introduction rates 3=6551
 Si n-type crystals, annealing of damage 1=14458
 Si, minority carrier lifetime 4=28513
 Si p-n barrier layers, avalanches release 4=12932
 Si, p-type, spectrometry applications 1=3154
 Si, p-type, surface prop. changes, rel. to Li ion irradiation 2=21146
 Si photovoltaic cells, changes prod. by particle irradiation 3=912
 Si, review 4=20345
 Si solar cells 2=4077
 Si solar cells, impurity effect on damage 4=28649
 Ti, irradiation growth 2=20995
 TiH₂, microhardness decrease in i.r. illum. 4=7396
 TiN, lattice const. changes by u.v. 4=1545
 U alloys, irradiation effect on corrosion resistance 0=14068
 U α , crystal dislocation networks, electron microscope obs. 4=4059
 U carbides, unit cell size and elec. cond. change 4=13611
 U, crystal dislocation, followed by heat treatment 4=4058
 U, density changes 2=20724
 U, dimensional instability mechanism 0=11650
 U, effect of irradiation on creep 1=11514
 U, "growth" and fission process 4=30596
 U, growth rates 4=22654
 U, growth, twinning mechanism incorrectness 4=7464
 U, irradiation creep, mechanism 3=2795
 U, irradiation growth 2=6392, 6398, 20995
 α -U, irradiation-induced growth 0=13938, 18308
 U, irradiation-growth after mechanical working 3=8480

Physical effects of radiations—contd

- U, swelling 2=21085, 23884
 U, swelling on annealing following irradiation 4=12835
 U, swelling due to heating after irradiation 0=8265
 U, tensile props. 0=10271
 U, weakly rad., point defects and fission spikes 4=1534
 U²³⁵, pore size and distribution, caused by fission gases, 200°C 3=22457
 on UAl₄, fission fragment damage, electron microscope examination 3=13015
 UC, burnup studies 1=13905
 UC, rel. to use as reactor fuel 2=12271
 U-Cr alloy, dimensional stability during burnup 0=14070
 UC and UN, fission fragment damage, X-ray diffraction study 2=6326
 U₂MO alloys, crystallographic analysis of disorder 2=4442
 U₂Mo, phase change and disordering 1=1415
 UO₂, damage, electron microscope study 1=17587
 UO₂, diffusion of Xe increase 4=6879
 UO₂, electron microscope study 3=22847
 UO₂, evolution of microstructure during fuel rod irradiation 3=25650
 UO₂ film damage by neutron irradiation 1=3699
 UO₂ film damage by neutron irradiation 1=3700
 UO₂, microstructural changes, rel. to burn-up 3=20960
 UO₂, under reactor conditions 3=20959
 UO₂ reactor fuel pellets, cracking 2=22873
 UO₂ temp. spike defects due to neutron flux 1=17515
 UO₂ thermal conductivity 2=3860
 U₃O₈, e.m.f. with contact oxides 2=6485
 U-Zr-Nb reactor fuel, water corrosion after irradiation 0=14069
 V₂O₅, thermoelec. power 2=18761
 W, irradiation damage and recovery 0=7906
 W surface adsorption rel. to electron bombardment 3=18395
 Zn, irradiation growth 2=20995
 Zn, patterns due to heavy-ion irradiation 3=22877
 Zn phosphors, α -ray bombardment on luminescence 1=11409
 Zn, strength and plasticity 4=10404
 Zn titanate, reactor irradiation, effect on elec. cond. 2=14507, 18646
 Zn treated with Hg, dislocations rel. to electron and γ -irradiation 3=20178
 ZnCdS:Mn, luminesc., prior sensitization 3=10994
 Zn-Mg titanates, dielectric losses 2=4096
 ZnO:Li, u.v.-induced centre, e.s.r. 3=13310
 ZnS, u.v. irradiation in different gases 3=10969
 Zr and alloys, data manual 2=22875
 Zr, internal irradiation, on mech. props. 4=4494
 Zr, irradiation growth 2=20995
 ZrO₂ film damage by neutron irradiation 1=3700
 ZrO₂, phase change and recovery 4=4512
 ZrO₂, phase transformations, necessity of impurities 4=17776
 ZrO₂ solid solutions, induced phase transformations 0=21211
 Zr-Pu alloys, growth 2=3975

Physics

- See also Nuclear physics.
 anniversaries (in 1960) 0=6640
 anniversaries in 1963 3=5311
 and archaeology, book 1=6756
 calculability hypothesis 1=1681
 career for women, in USA 2=19363
 in China, 1949-59 review 0=3432
 contradiction and its removal in physics 1=18234
 cumulant functions, in theor. physics 2=4911
 curricula for undergraduates, conference 2=7096
 dictionary, English-German 4=14002
 dictionary of physics and electronics 1=8031
 education of 19th century scientist 0=856
 engineering curricula, revision 0=857
 exhibition, Inst. of Physics and Phys. Soc. (1961) 1=4226
 Exhibition of Inst. of Physics and Physical Society (1961) 1=6755
 experimental science projects in science fairs 0=6639
 German-English dictionary 4=5002
 graduate examinations 0=22
 history teaching 4=27005
 i.r., brief review 4=8364

Physics—contd

- Indian Inst. of Science Golden Jubilee Volume 1=2678
 interrelationship between physical quantities 1=1672
 laws of physical laws 1=10406
 in Latvian SSR 1=53
 mathematical methods of physics, textbook 4=27014
 mathematical representation of entities 2=4910
 modern physics and social problems 2=21777
 nature of physics, and its relation to other disciplines 0=3431
 from Newton to Schrodinger 2=9139
 1963 Institute of Physics and Phys. Soc. Craftmanship Competition 3=9314
 1963 Institute of Physics and Phys. Soc. Exhibition 3=9313
 non dimensional quantities, metrological problems 2=21779
 Physical Society Exhibition (1959 and 1960) 0=3434, 8534
 propulsion method of toy boat 3=9638
 punched cards for personal ref. files 0=18896
 recent past 2=1
 relations to contemporary philosophy 4=8001
 research in non-Ph.D. granting institutions (USA) 3=5
 response of distributed thermally activated system 3=9327
 Soviet, review 3=21185
 teaching philosophy 0=6638
 truth, meaning of 0=27
 two aspects of science (British Association, presidential address) 0=16558, 18895
 in Ukrainian educational institutions 3=18686
 unity, lecture by N.Bohr 3=21186
 universality, weak interactions 1=2005
 Ge, at liq. N₂ temp. 1=6181
- Physics fundamentals**
 See also Cosmology; Field theory, classical; Field theory, quantum; Fundamental particles; Indeterminacy; Mechanics; Parity; Probability; Quantum theory; Relativity; Thermodynamics; Units.
 abstract potential spaces, for repres. of expt. systems 2=13242
 action principle, for classical mechanics 2=2593
 action as space coordinate 0=10553
 adiabatic invariants, approx. constancy 2=4919
 algebraic structures in physics, existence 1=18235
 angular momentum, proper variables 2=1067
 antiparticles, sign of inertial mass 0=2503
 axiomatic formulation of theories 0=863
 basis of non-destructive testing 1=6065
 boundary value problems, linear 2nd-order partial diff. eqn. soln. 0=6642
 CPT theorem, rel. to K⁰-meson props. 3=10010
 causality and analyticity 2=19376
 causality, rel. to elem. particle theory 3=5330
 causality and Kramers-Kronig relations 1=15593
 causality and the Lorentz group 1=5199
 causality and multiply-connected space time 3=20
 causality and non-local Lagrangians quantum electrodynamics 1=13280
 causality and non-local Lagrangians in quantum electrodynamics 1=16648
 causality, requirement for systems with constrained inputs 0=4960
 causality and second law of thermodynamics 1=8088
 chirality conservation 2=5574
 classical mechanics, modified Hamiltonian-Jacobi theory 2=2600-2
 conceptual aspect of operations between magnitudes 1=9305
 conceptual structure 3=16476
 conference, Cargèse lectures (1962) 4=5001
 conformal tensor calculus, review 3=5317
 conservation laws and correlation functions 1=15744
 conservation laws in generally covariant theories 0=8556
 conservations laws of charge, baryon number and lepton number, exp. basis 0=5518
 constants and time scales, macro and micro, self-interaction appl. 4=2525
 continuum mechanics and irreversible thermodynamics 0=6689
 dimers on a plane lattice, statistical mechanics 2=1071
 Dirac monopole, rel. to parity in e.m. interact. 3=22054
 discrete space-time, 4-space with universal constants 1=4237

Physics fundamentals—contd

- elementary quantities and uncertainty principle, use in teaching 2=9140
- ellipsoidal distributions of mass 1=6761
- entropy and uncertainty 2=13240
- equivalence, strong, proposed test 3=5350
- evolution equation, of physical system 2=1041
- experimental systems, parametric evolution 2=1049
- faster-than-light phenomena, review 2=15460
- Fermat principle in five dimensions 1=7141
- field theory of matter 4=24959
- flux and flux density, meaning 1=9696
- force, unified field with physical constants eqn. 0=4926
- fundamental particle constants and physics laws, relation 3=14926
- gauge fields, external sources 4=5014
- general wave equation, correspondence with Hamiltonian system 2=9189
- generalizations beyond quantum mech. 3=1609
- generalized coordinates and forces 2=15459
- global symmetry, group structure 1=9729
- global symmetry, test for strong interactions 1=10911
- gravitational constant, abs. status 2=17340
- gravitational and inertial mass 0=6641
- gravitational and related constants 2=19394
- hypercharge conservation 2=3262
- inertia, Sciama-Park theory, fundamental constants 0=14485
- information and entropy equivalence 1=6791
- interactions, particles and fields, unifying principle 4=5015
- interrelationship of physical quantities 0=4924
- invariance, under coord.-dependent units transformation 2=9156
- invariance under transformations rel. to conservation laws 3=3709
- invariance principles, logical foundations 0=4927
- irreversibility and direction of time 4=27001
- irreversibility, theory 0=6688
- isotopic spin conservation, test 1=9776-7
- Larmor's "aether and matter" reconsidered 0=16559
- law of decay and first moment of energy distribution 0=14487
- laws of nature, present knowledge 4=11003
- laws of physical laws 1=10406
- Lee-Tang vector field and isotropy of universe 2=13717
- Mach's principle, relativistic theory of gravitation 2=1051
- magnetic monopoles and parity violation 3=21205
- mass-energy cycle on micro and macroscale 4=4837
- mass, gravitational and inertial 1=1679-80
- mass and negative masses 2=9153
- mass-zero eqns., norm. invariance under conformal group 4=18040
- matter-antimatter processes in cosmology 3=3532
- matter and point set theory 0=6643
- matter, possibility of half-life 2=15464
- matter with super light velocity, theory 1=10828
- mechanical analogue of Zeeman effect 1=10302
- model with additional space dimension 4=18039
- momentum and conservation laws 0=4923
- multipole fields 0=30
- objective existence postulate to avoid consciousness interaction difficulties 4=14001
- parametric processes, quantum fluctuations and noise 2=1046
- physical equations from conceptual point of view 3=13985
- physical laws, mathematical forms 0=858, 14484
- physical quantity in external field rel. to that in Green's temp. function technique 4=5016
- Poincare's epistemological sum 0=14486
- potential surface discontinuities, sphere and circle theorems 0=12347
- potential theory, integral equation methods 3=23733
- predictability of microscopic complex systems 3=3650
- principles of Bayes, of increasing entropy, and of retarded quantized waves 1=6792
- quantum theory and complementarity 1=10418
- quantum theory of photon rel. to classical Helmholtz diffraction eqn. 1=18262
- radiation absorption by particle 1=15754
- radiation, force terms and wave momentum 4=8025
- red shift theory and nature of Planck's constant 1=18004

Physics fundamentals—contd

- role of experiment and theory in cognition 1=10404
 - scale times and lengths 1=5185
 - scale transformation rel. to conservation laws 4=8024
 - separations $< 10^{-13}$ cm 2=3368
 - significance of Euler's aberration formulae 1=15594
 - size concept in large-scale physics 1=18005
 - solid angle calculations 1=15387
 - solution of basic problems by geometry (book) 0=10548
 - Sommerfeld-Runge law in 3 and 4 dimensions 3=21
 - space dimensionality problem 3=7105
 - space-time continuum, dubious role in macroscopic physics 4=11002
 - space-time discontinuum in h-c- I_0 theories 3=9328
 - space-time, macroscopic nature 2=4908
 - space-time reflections, new theory 1=463-4
 - space and time reflections in relativistic theory 0=5476-7, 5491
 - space-time variables, removal proposal 4=16018
 - spatial isotropy, significance, non-variation of fine structure const. 2=17338
 - spectral moments and continuum perturbation theory 2=2596
 - spin in classical and quantum theory 1=4262
 - spin and statistics, connection 2=1045
 - spinor space, differential eqns. of physics 0=12348
 - square, visualized as curvilinear curve, physical possibilities 3=1577
 - stochastic model of physical systems 1=15666
 - Sturm-Liouville eqn., canonical and Hamiltonian formalism 0=16511
 - super-weak interactions, stability of matter 0=20035
 - symmetries, in classical and modern physics 2=4903
 - symmetry in laws of nature, discussion 0=17209
 - system specified by three classes of states, interactions 2=15461
 - systems of interacting elements, cooperative processes 1=18299
 - systems with many degrees of freedom, stability problems 2=11243
 - systems of units 1=4233
 - tacit knowledge, bearing on philosophy 3=7080
 - thermodynamics, statistics and information 1=5207
 - thermodynamics of isolated particle 1=18283
 - time, direction 2=9144
 - time and energy as conjugate variables 3=21208
 - time flow direction 4=1
 - time internal, definition using Newton's 1st law 0=4985
 - time-reversal, invariance in β -decay 0=2651, 2644
 - time-reversal, invariance, test of, search for μ -meson elec. dipole moment 0=9393
 - time reversal as operation of antisymmetry 1=11691
 - time-reversal, in strong interactions 0=2488
 - time symmetry in physical laws 2=13241
 - triality principle, extension to globally defined fields 3=11688
 - uncertainty principle for time and energy criticism 1=8052
 - universal constants, gravitational and e.s. forces 2=17
 - universe asymmetric behaviour in time rel. to symmetry of physical laws 3=1
 - unstable systems, exponential decay law 1=16611
 - wave functions, definition 2=3286
 - Wiener-Hopf eigenvalue eqn., solution in finite and infinite ranges 0=12233
 - Wiener-Hopf problems, "kernel" approx. 0=864
- Physiology**
- See also Biological technique and instruments; Blood; Hearing; Vision.
 - "cold" stimulator, transistor circuit 3=9699
 - eye, cell maintenance and preservation 3=5289
 - finger tapping, in response to flashing light, visual latency 1=15380
 - human heart, mathematical pulsatile model 3=3644
 - human respiratory tract, air-borne particle retention 3=3643
 - Korotkoff sounds in humans 1=12705
 - muscle research, capacitance transducer 0=21403
 - nerve excitation, rel. to flows through charged membranes 4=23668-9
 - neural inhibitory units for eye and skin 0=18566
 - neurophysiological time analysis 2=17756

Physiology—contd

- neurophysiology, gating system for photographic printout of counts 0=12216
- perception, model for brain functioning 2=13206
- reaction times lengthened by reduced blood flow 3=21148
- respiratory curve response, analogue computation 2=13205
- respiratory waveform simulator, servo-operated 1=4140
- signal detectability as interpretive tool for psycho-physical data 0=16502
- skin response to vibratory stimulation 2=13208
- skin, sensitivity to vibration 3=3648
- skin, vibration sense, dynamic properties, l.f. investigation 0=16499
- vibrations, effects 0=8727
- vibrotactile threshold rel. to contactor area 4=10943
- weightlessness as sense experience 3=16440

Piezoelectric oscillations

- acoustic transducers, effects of static stress 1=17856
- application, in u.s. light modulator 2=17599
- coupling detection by r.f. spectroscopy 3=24504
- crystal plates, forced vibs. 3=3844
- crystals, sources of sound 0=14733
- effect of mag. field 4=20425
- elastic wave propagation, in piezoelec. media 2=15680
- even harmonic of thickness resonance oscill. 3=14233
- ferroelectric disks, poled, Poisson's ratio meas. method 4=7364
- infinite plate, longitudinal thickness vibrations 1=5042
- infinite plate, wave propagation 3=9538
- one-dimensional oscillations, equiv. circuit 1=8200
- pickup for rubber viscoelastic props. det. 0=10270
- piezoelec. semiconductor, sound fluctuation growth in const. elec. fld 4=11092
- piezoradiators, degenerated vibrations and doublet splitting of eigenfreqs. 2=2809, 7273
- plate, idealized and loaded, response to elec. signals 0=12460
- plate, static deform., natural freqs. 3=16678
- plates, thickness vibs. 3=7267
- quartz, AT-cut plates, r.f. vibrations 3=21470
- quartz crystals, during Ag^+ and Cu^+ conduction 3=25412
- quartz crystals, slotted 3=15625
- quartz cylinder, in torsional mode, liquid helium viscosity meas. 0=16937
- quartz, effect of d.c. field 1=17855
- quartz, effect of surface finish, energy loss reduction 1=15172
- quartz, rel. to elastic constants 2=21393
- quartz, hypersonic resonance from 3000 to 10 000 Mc/s 4=7053
- quartz, optical harmonics, freq. ratio meas. 2=17605
- quartz oscillator, BT-type, high Q 4=14252
- quartz oscillators, freq. rel. to Cs time standard 0=10547
- quartz, plated crystal oscillator for sputtering meas. 1=4671
- quartz plates, analysis 0=19254
- quartz plates, bending, longitudinal and thickness vibrations 0=19255
- quartz, polarizing field effect on frequency theory 2=16796
- quartz, spin-lattice interact., phonon prod. 2=18952
- quartz toroid for standard-frequency generators 4=18021
- quartz, rel. to ultrasonic image conversion 1=6919
- quartz ultrasonic, oscillatory behaviour 2=7274
- quartz, visual observation of modes 3=21469
- Rochelle salt, unirrad. and γ -irrad., damping 2=16797
- semiconductors, elastic wave propag. 2=1220
- thickness-mode resonator, with electromechanical coupling 3=7266
- transducer, damped and layered, operation 4=24315
- transducer responses, periodic step input 3=23007
- transducers, semicond. stress, tranverse piezoresistance appl. 1=14495
- transducers with transient mech. force and elec. voltage 3=21468
- triglycine sulphate bars, damping 2=16797
- Varikond, resonances 2=14629
- Al_2O_3 crystal damping effect of $NaNO_3$ film 2=678
- $BaTiO_3$, test source of liquid pulses 2=19659

Piezoelectric oscillations—contd

- $BaTiO_3$, rel. to ultrasonic image conversion 1=6919
- CdS , coupling to acoustic wave 3=8587
- K_2 tartrate (DKT), effect of d.c. field 1=17855
- KH_2PO_4 , optical harmonics, freq. ratio meas. 2=17605
- $NaClO_3$, single crystal, shear vibr. due to h.f. mag. field 4=22784
- $NH_4H_2PO_4$, elastic resonances, optical observation 4=15562

Piezoelectricity

- See also Electrostriction; Piezoeristance.
- accelerometer, 1.5–150 kc/s 4=29507
- accelerometer sensing elements 2=14618
- in acoustic transducers, review 0=5090
- acoustic waves coupled to drifting carriers 4=20207
- anisotropic media, transformation of consts. 0=6290
- anthracene 0=11747
- ball drop method for determ. of piezoelectric modulus 4=7056
- bibliographical review (1960) 2=5289
- cancrinite 0=634
- cantilever, bending problem for end loading 2=15876
- ceramic acoustic transducers, effect of high coupling in equiv. network 4=16180
- ceramic disk, coupling factor 1=6920
- ceramic materials, rel. to polarization state 2=21210
- ceramic sphere, thin walled, high pressure 2=14610
- ceramics, applications 3=13110
- ceramics, $BaTiO_3$, for fine movement control 3=7418
- ceramics, effect of strong a.c. fields 2=14627
- ceramics for transducers, dynamic tensile strength 1=20376
- collagen, erratum 4=28635
- collagen fibres, direct and converse effects 4=12975
- crystal, energy loss of charged particle by u.s. radiation 4=22556
- crystal film thickness monitor 0=3481
- crystal piezomodulus, by "grain-of-sand" method 2=677
- crystal stability, theory 1=19936
- crystals, effect on non-uniform deformation and acoustical scattering of carriers 4=7057
- crystals, low-temp. meas., precise cryostat 2=7483
- crystals, phonon radiation by moving charged particles 4=6719
- crystals, screw dislocations, elec. potential and charge 4=6845
- crystals, as sound sources 1=1789
- cubic crystals, Raman scatt. of light 2=12606, 14691
- current meas., bridge circuit 3=3974
- detection, using f.m. 2-capacitor circuit 1=16218
- device, for measuring static and dynamic forces 2=2671
- digest of literature (1958) 0=2300
- disks, use in interferometric optical modulator 4=24386
- and elasticity, crystals, tensor symmetry 3=17948
- electrets, polycrystalline titanates 1=6199
- electrets, theory, effect of electrode-specimen gap 0=18105
- electrical generation methods, review 1=11894
- electromechanical coupling factor 4=5304
- electromechanical coupling factor, duality of 4=5305
- equations of state of second-order electromechanical effects 4=26135
- ferroelectrics, polarization meas. 0=7977
- gravitational wave generation 0=6655
- guanidine aluminium sulphate, inverse 3=23008
- historical role in ultrasonics 3=14253
- homogeneous medium, various props., space-time variations 0=10024
- ice 1=3811
- impacted quartz, charge/stress relationships 1=7696
- ionic crystals, piezoelec. tensor calc. 2=4303, 8700
- L-rhamnose monohydrate 0=13650
- laser beam mixing in piezoelec. crystals, nonlinear effects 3=7359
- laser modulator 4=19272
- lead titanate zirconate, electroelastic consts., variation 4=15563
- liquid crystal phases, rel. to dielectric states 1=17831
- materials, bibliography 3=13102
- materials, crystal chemistry, 18 substance groups 1=4031

Piezoelectricity—contd

- meas. of coupling coeff. and Q of ceramics 0=16029
 nucleic acids 1=6129
 optical maser modulator, piezoelec. 3=3875
 perovskite ferroelectrics, acoustic and X-ray excitation 3=22993
 phonon wave, collective, and stimulated emission by supersonic electrons 4=20181
 photoelectrets 0=11747
 pickups for acceleration meas., upper frequency limits 4=5009
 piezoelectric crystals, Raman scattering 3=15693
 piezoelectric oscillator manometer 1=6817
 piezogalvano-magnetic props., crystal symmetry effect 4=30601
 plasma and nonlinear interband effects 2=16637
 polarized annular disk, deformation 2=21421
 polymers, appearance of charges during deformation 3=20388
 polymers, organic, semiconducting 3=852
 polymers, 20 natural and synthetic 3=20392
 potential fields round screw dislocations 4=28634
 probe for plasma pressure transients 1=4615
 proteins 1=6129
 quartz, anomalous dielec. breakdown effect 2=12574
 quartz-containing rocks, field measurement 0=2928
 quartz, dynamic determination of constants 1=5041
 quartz, electric field, d.c., reson. freq. change, and elastic consts. change 3=23009
 quartz, general two-dimens. eqns. 2=10566
 quartz, under high transient stresses 2=1374
 quartz plate vibration in stationary electric field 1=187
 quartz, principle coefficient, on hard-sphere model 1=10083
 reflection light, harmonic prod. obs., GaAs, Te 3=18956
 resorcinol 0=633
 reverse piezoelectric effect for recording interferometer scanning 0=16877
 Rochelle salt 1=10078
 Rochelle salt 2=6532
 Rochelle salt, constants, unipolarity and temp. depend. 1=3806
 Rochelle salt, effects of γ -irradiation 1=14554
 Rochelle salt, effects of γ -rays 2=12565, 14609
 Rochelle salt, rel. to optico-acoustic effect 0=20972
 Rochelle salt, piezoelec. polarization and domain structure 0=13664
 rubber, on vulcanization 3=25409
 scatt. of conduction electrons, i.r. absorption, calc. 1=14606
 salicylidene aniline crystals 4=22781
 second harmonic generation of laser line 2=22012
 semiconductor rectifying contact, piezoelec. effect 1=1052
 semiconductor strain gauges and transducers 4=7058
 semiconductors, current saturation, nonlinear theory 4=28542
 semiconductors, piezoelectric, absorption of sound 3=17653
 semiconductors, piezoelectric, acoustoelectric effects 4=4133
 semiconductors, piezoresistance meas. 2=19827
 semiconductors, rel. to u.s. propag., theory 4=12626
 semiconductors, stress dependence of piezoresistance 1=17787
 semiconductors, rel. to supercond. transform. 2=11552, 13502
 semiconductors, u.s. amplification by d.c. field 2=18784
 semiconductors, use in u.s. amplifiers 4=22488
 semiconductors, ultrasonic amplification conditions, review 4=3988
 semiconductors, V-I char., drift velo. carrier current saturation 4=26020
 sinusoidal pressure generator 0=3586
 solid state devices, review 2=16586
 sorption detector, piezoelectric 4=29197
 sound absorption, theory 2=23055
 spherical shell, polarized, radial deformation 2=19876
 stress analysis for hollow rotating quartz cylinder 4=21068
 stresses and elec. field in rotating disk 2=16795

Piezoelectricity—contd

- symmetry changes during direct and inverse responses 3=20390
 synthetic materials, review 0=7988
 technique using transient high-stress conditions 2=1374
 terpene monohydrate crystals, properties 0=13952
 tetragonal crystals, Raman spectra 2=21254
 tetragonal crystals, Raman spectra 3=3025
 thiourea 0=2921
 titanate system, mixed, props., temp. and press. depend. 0=1714
 tourmaline, Z-cut, sensitivity and reproducibility to 7 kbar 4=22782
 transducer, depletion layer, analysis 4=24316
 transducer, electromech. coupling coeff. meas. 3=5494
 transducers, spherical, prestressed electrodes 3=5504
 transducer, transient performance 1=8201
 transfer coefficients, ultrasonic emitters 2=2818
 tranverse contraction coeff., meas. method 4=7055
 triglycine sulphate 2=679, 4104, 6531
 triglycine sulphate, effect of d.c. field on elastic constant 2=14623
 triglycine sulphate, effect of γ -radiation 3=17949
 triglycine sulphate, electrostrictive constants 3=15624
 triglycine sulphate, rel. to ferroelec. props. 2=23508
 triglycine sulphate, inverse effect, a.c. field and temp. depend. 3=28391
 triglycine sulphate, 10°-80°C meas. 4=7051
 various (49) substances, crystallization and props. 0=641
 and velocity, acoustic waves, u. s. 4=6738
 vibrating body reson., and elastic consts. meas. 4=15683
 wood, piezoelec. texture 1=17858
 woods 4=22783
 zincblende structure, lattice theory with electron polariz. 2=12575
 (Ba, Pb)TiO₃, composition depend. 1=20504
 (Ba, Pb)(Ti, Sn)O₃, props. 0=21236
 Ba, Sr and Pb metaniobates in Na niobate 0=630
 (Ba, Sr)TiO₃, piezoresistance negative peak near Curie temp. 1=10085
 BaTiO₃ 2=16790
 BaTiO₃, asymmetric hysteresis loops 2=16798
 BaTiO₃, contrib. to permittivity 2=14625
 BaTiO₃, rel. to Cr₂O₃ doping 2=16791
 BaTiO₃, cut at 45° to polarization dim. 2=4107
 BaTiO₃, rel. to depolarization charge 0=10019
 BaTiO₃, doped with Cr, Bi oxides 2=16792
 BaTiO₃, effect of flexural stresses on piezoelec. props. 1=12480
 BaTiO₃, effect of pressure 0=11748
 BaTiO₃, microprobe, u.s. fields study 3=1777
 BaTiO₃, modified, press. of 0-10 000 psi effect rel. to acoustic projectors 4=26117
 BaTiO₃, moduli, effect of elec. field 2=672
 BaTiO₃, piezoelectric modulus, determ. by ball drop method 4=7056
 BaTiO₃, polycrystalline, at high press. 2=4106
 BaTiO₃, polycrystalline pressure hysteresis 2=14628
 BaTiO₃, polycrystals 1=2433
 BaTiO₃, polycrystals 1=6197
 BaTiO₃, use to drive Se rectifier 1=1092
 BaTiO₃-BaHfO₃, 60-700 μ thick, d₃₃, modulus 3=17939
 BeO, correl. to internal crystal structure 4=10525
 BeO crystals, polar character 3=10884
 Cd pyroniobate, rel. to temp. and elasticity 4=4459
 CdS 0=16027
 CdS, current saturation, hypersonic wave generation 2=23377
 CdS, electron-phonon interactions and cyclotron resonance 4=20258
 CdS, meas. and model 3=8556
 CdS piezoelectric scattering rel. to phonon drag 1=17857
 CdS, plate crystals, investigation of mech. props. 0=1715
 CdS, u.s., free carrier trapping effect 4=21236
 CdS, values of d₃₃ and d₃₁ 1=10084
 CdS:Cu, ultrasonic transducer with diffused layer 3=9566
 CdSb, anisotropic, temp. var. 4=17524
 CdSe, rel. to layer structure 1=7867
 CdSe, meas. and model 3=8556
 CdTe, meas. and model 3=8556
 GaAs, and effective ion charge 4=1670
 GaAs, piezoresistance coeffs. 2=23394

Piezoelectricity—contd

- Ga_{2-x}Fe_xO₃, ferromag. resonance of piezoelectric form 1=6395
 Ga_{2-x}Fe_xO₃, simultaneous with ferromagnetism 0=11825
 GaSb, piezoresistance, pressure depend., n-type 0=9977
 Ge, impurity cond. 3=13058
 Ge, piezoresistance, pressure depend. p-type 0=9977
 Ge, piezoresistance, review 3=2965
 Ge, Sb-doped, low temps. 2=12513
 Ge:Sb, piezoresistance, 4-7°K 0=20903
 InSb, piezoresistance, pressure depend., intrinsic and p-type 0=9977
 KD₂PO₄, constant 3=17943
 KNbO₃, 3=16033
 LiH₃(SeO₃)₂, piezoelectric constants 3=10881
 Mg₃B₇O₁₃Cl, around phase transform., and anti-ferroelec. 4=4201
 MgSO₄·7H₂O crystals, temp. depend. 0=11749
 NH₄H₂PO₄, rel. to temp. 2=18766
 NaCl, elec. potential due to plastic deformation 3=900
 NaNO₂ constants measured by resonance 4=28630
 NaNO₂ single crystals 3=23002
 NaNO₂ single crystals, -50° to +230°C 3=10885
 Pb titanate zirconate ceramics, 4.77°K 2=8474
 Pb titanate zirconate ceramics, for transducers 2=17548
 Pb zirconate titanate ceramic ferroelectric resonators, piezoelectric coupling 4=28629
 Pb-Ba metaniobate solid solns., various ions added 2=14635
 Pb-Ba and Pb-Sr zirconate-titanate, finite strain response 4=7054
 Pb₂FeNbO₆ 2=18769
 Pb₂FeTaO₆ 2=18769
 PbNb₂O₆-BaNb₂O₆-SrNb₂O₆ 0=6154
 PbO-Nb₂O₅-Nd₂O₃ system 2=14634
 PbO-TiO₂-ZrO₂ system 3=3255
 PbTe and PbSe, 78-293°K 2=18783, 21225
 PbTiO₃ ceramics, props. and transducers 1=17854
 PbZrO₃ ceramics, props. and transducers 1=17854
 Pb(ZrTi)O₃, modified, press. of 0-10 000 psi effect rel. to acoustic projectors 4=26117
 Pb(Zr-Ti)O₃, piezoelectric ceramic, props. modified by A¹B⁵⁺O₃ or A³B³⁺O₃ 4=12974
 Pb(Zr,Ti)O₃, piezoelec. generation of elec. pulse 1=16250
 SbSI, in ferroelec. range 4=12973
 Se, polycrystalline samples, temp. meas. 0=5095
 Si, n-type, heavily doped, resist. meas. 4=12912
 Si, piezoresistive pressure transducers 3=887
 Si, piezoresistance, rel. to pressure to 2000 kp cm⁻² 3=2965
 Si transistor, current gain change rel. to applied stress 4=28603
 (Sr, Pb)(Ti, Zr)O₃, props. 0=21236
 Te, piezoresistance 1=17448
 Te, 77-450°K 2=4105, 8473
 TiO₂ p-n junction films 3=13127
 ZnO 0=16027
 ZnO piezoelectric scattering rel. to phonon drag 1=17857
 ZnS, meas. and model 3=8556
 ZnS, piezo-, elasto-, and electro-optic constants 1=7702
 ZnS-type crystals, properties 1=899
 ZnSe, meas. and model 3=8556
 ZnTe, meas. and model 3=8556

Piezoresistance

(Heading introduced in 1963, for earlier entries see Piezoelectricity)

- metal films, var. strain-sensitivity coeff. 4=25997
 semiconducting devices, recent advances review 3=22969
 semiconductors, 4=15527
 semiconductors, diffused layers 3=10753
 BaTiO₃, secondary piezoresistivity 3=10879
 Bi, elastoresistance meas. 4=26032
 Bi films, var. thickness and impurity 4=20355
 Cr-Si films 4=26502
 GaSb, p-type, piezoresist. 77°-350°K 4=12892
 Ge, diffused layers 3=10753
 Ge doped with As, 1.3°K with uniaxial compression 3=10765
 Ge films 4=26502
 Ge, rel. to impurities, 77° to 600°K 4=6963
 Ge, low temp., donor conc. var., four-valley model 4=20387

Piezoresistance—contd

- Ge, n-type, degenerate, valley splitting 3=10787
 Ge, n-type, impurity conduction 4=12896
 Ge, p-type, in impurity conduction region 4=28559
 Ge, piezoresistance of n- and p-type, review 4=26046-7
 Ge polycrystalline films 4=6958
 Ge, Sb- and As-doped, rel. to compression, 1° to 300°K 3=22931
 K 4=20332
 Li 4=20332
 Na 4=20332
 PbSe, rel. to band structure 3=15594
 PbSe, rel. to energy band structure 3=15592
 PbTe, rel. to band structure 3=15594
 PbTe, rel. to energy band structure 3=15592
 PbTe, 4.2-300°K, p-type 4=6981
 Si diffused layers, n- and p-type 3=10798
 Si, n-type 4=1621
 Si, n-type, resistance and Hall effect 3=15582
 Si, P-doped, meas. method, 20° to 150°C 4=12914
 [SN]_x polymer, rel. to semiconductivity and spectra 4=15545

Piles, nuclear fission

See Nuclear reactors, fission.

Planets

See also Solar system.

- airglow 4=13820
 asteroid families, mean lifetimes 3=11516
 Asteroid Hilda (153), orbit variations 3=16361
 asteroid Thule, motion 3=1510
 asteroids, capture by earth, vel. modif. 2=13093
 asteroids, connection with zodiacal light 0=18721
 asteroids, counts, reduction 2=13112
 asteroids with high inclination and eccentricity, secular perturbations 3=5242
 asteroids, Kirkwood gaps, theory 3=13867
 asteroids, motion under influence of sun and major planet 2=24079
 asteroids, photometric studies 2=15318
 asteroids, rapidly rotating, formation 0=6571
 asteroids, rapidly rotating, origin 1=18043
 atmosphere, diffusion, gravit. effects 3=13647
 atmosphere, dissipation 1=6701
 atmosphere, escape layer, minor constituents lifetime 1=2600-1
 atmosphere, fluorescent scattering 4=10739
 atmosphere models, radiation transfer, scatt. 3=16339
 atmosphere, non-grey, model 3=16346
 atmosphere, particulate matters 3=16351
 atmosphere, reflectivity, varying "local albedo" calc. 3=16344
 atmospheres, and ambia 2=4715
 atmospheres, cloud formation criterion 4=17991
 atmospheres, fluorescent scattering 4=10880
 atmospheres, i.r. reflectivity 0=18705
 atmospheres, isotropic scattering in, H-functions 0=19002
 atmospheres, knowledge from optical techniques, review 4=17990
 atmospheres, light reflection and transmission 2=21991
 atmospheres, light scattering 4=2398
 atmospheres, line-broadening and polarization 2=2545
 atmospheres, scattering functions, tables 3=16345
 atmospheres, NO content 2=13111
 atmospheres, primitive, solid C and org. cpds. formation, thermodyn. data 2=17259
 atmospheres, review 4=2397
 atmospheres, vertical thermal structure, satellite data 2=12993
 atmospheric fluorescent scattering, rel. to u.v. spectrum 2=15310-11
 atmospheric gaseous absorption coeffs., 1850 to 4000 Å 4=11249
 Bode's law, application to major planet satellites 4=4884
 chemical element occurrence 1=15411
 cold state, radius, condensed matter 0=16532
 conference Liège (1962) 3=13862
 convection, interior 4=30974
 coronae, and atmospheric evaporation 4=2399
 cosmic ray meas. in vicinity of planets, for mag. field determination 0=9488
 dayglow spectra 4=7977

Planets—contd

density distribution, theory 2=19282
 disturbing functions, Laplace coefficients 2=6977
 dwarf, magnetic field 3=5237
 e. m. Doppler-freqn. spectrum from rotating planet 4=15953
 early history, rel. to meteorite isotope shift 3=2
 earth and planets, seen from space vehicle, perspective 2=2573
 effects of far u.v. solar radiation 2=15347
 exosphere, density distrib. 1=2602
 exosphere, density distrib. analysis 3=16239
 exosphere, density distrib., theory 1=18038
 exospheres, distribution of density 0=835
 exospheres, neutral gas density distrib. 0=14398-9
 ferroelectric, for moon obs. 3=16349
 formation by dissipation of solar nebula 4=7966
 formation during spectral transition gF to dF 1=15418
 formation from nebula, role of crystal growth theory 4=4881
 formation, from small objects left behind in gas outflow 4=7965
 Galilean satellites, brightness temp., 8-14 μ 4=23895
 gas escape, selective, kinetic theory 3=21099
 general perturbations, in rectangular coordinates 3=23669
 gravitating, nonhydrostatic stresses 2=17260
 gravitational spheres, radii 4=10876
 i.r. spectra, meas. methods 4=29426
 i.r. spectroscopy 2=9060
 Icarus (1566), position observations 0=12274
 interior constitution, review 3=16335
 interior models, cores, thermal histories, comparison 3=16336
 internal structure 2=15313
 interplanetary distance meas. 0=6574
 interplanetary travel, electrostatic propulsion 0=12333
 interplanetary travel, escape from orbit, calc. 0=12335
 interplanetary vehicles, guidance technique 2=11204
 ionospheres, radioastronomy study 0=18624
 items, radar bouncing, for astron. unit meas. 4=26818
 Jupiter, analogy to terrestrial equatorial stratospheric wind reversal 4=4886
 Jupiter, anomalous behaviour of NH_3 bands 4=29428
 Jupiter, apparent brightness temp. 3=25983
 Jupiter, atmosphere, light polarization of the poles 4=15872
 Jupiter, atmospheric activity 3=18614
 Jupiter, atmospheric and equatorial activity, photometric study 4=15930
 Jupiter, atmospheric H_2 content and quadrupole bands, rel. intensities 4=9703
 Jupiter, belts, latitudes (1959-60) 2=4744
 Jupiter, black body temp. 0=18625-6
 Jupiter, brightness, 1960 data 1=4193
 Jupiter, brightness-temp. distrib., 8-14 μ 4=23895
 Jupiter, chemical composition, structure 3=16337
 Jupiter, cyclotron radiation, rel. to exosphere structure 3=3621
 Jupiter, cyclotron radiation by trapped electrons 0=14383
 Jupiter, decameter radiation, solar corpuscular origin 1=1658
 Jupiter, decametre bursts, theory 2=24170
 Jupiter, decametre radiation, polarization 3=25980
 Jupiter, decametre radio storms, theory 3=21132
 Jupiter, decametre, wavelength obs. 2=13177
 Jupiter, decametre-wavelength observations 1=11685
 Jupiter, decametric bursts, long baseline interferometry 3=13923
 Jupiter, decametric emission, dynamic spectra 3=9268
 Jupiter, decametric radiation 1957-61 3=13922
 Jupiter, 8 mm emission 3=5273
 Jupiter 18Mc/s burst rel. to spin-flip transitions 3=7046
 Jupiter, ephemeris for physical observations near conjunction 0=12266
 Jupiter, equatorial band, 1958 obs. 2=6990
 Jupiter, equatorial spectra, line inclination 4=17993
 Jupiter, exosphere, electron density 3=11593
 Jupiter, 0.9-2.5 μ 2=13105, 17253
 Jupiter, 5-38 Mc/s radiation 3=25979
 Jupiter, 4.8 Mc/s emission 2=15404
 Jupiter, 1400 Mc/s radiation 4=4940
 Jupiter 1430 Mc/s emission, temp. 2=13176

Planets—contd

Jupiter, 3600-8900 A, high dispersion 0=14397
 Jupiter, Galilean satellite position meas. 4=13918
 Jupiter, $H\alpha$ flashes, search 3=18609
 Jupiter, hydrogen content of atmosphere 2=11110
 Jupiter, i.r. spectrum 2=13105, 17253
 Jupiter, ionosphere 0=8472
 Jupiter, magnetic field 1=2660
 Jupiter, motion, mass correction to Saturn 0=12265
 Jupiter, NH_3 lines, anomalous inclination 3=11515
 Jupiter, NH_3 spectral band 4=23894
 Jupiter, 1958-1961 observations 2=15315
 Jupiter, 1959 and 1960 observations 3=18597
 Jupiter, 1961, observations 2=17258
 Jupiter, 1962 3=13866
 Jupiter, non-thermal radiation 0=832
 Jupiter, north equatorial belt thickness, periodicity 3=23677
 Jupiter, orbit approx. by fifth degree polynomial 4=7978
 Jupiter, origin of colours 0=3411
 Jupiter, photometry, electronic camera, surface features 3=18612
 Jupiter, polar caps, polarization, wavelength depend. 3=16341
 Jupiter, polarized decimeter radiation, source 3=3620
 Jupiter, presence of ring of comets and meteorites 2=24102
 Jupiter, r.f. emission, theory 0=3766
 Jupiter, radar study, high-echo area 4=29472
 Jupiter, radioastronomy 3=18655
 Jupiter, radio bursts, decametric, polarization 3=25982
 Jupiter, radio emission 1=1659
 Jupiter, radio emission, decametric 4=26964
 Jupiter, radio emission, decametric, cause 3=18658
 Jupiter, radio emission, decimeter wave 3=7048
 Jupiter, radio emission, dynamic, repeatability 3=18657
 Jupiter, radio emission, 18 and 22 Mc/s 3=9270
 Jupiter, radio emission, 18-23 Mc/s observations 0=18622
 Jupiter, radio emission, 408 Mc/s 0=18639
 Jupiter, radio emission, ionospheric modification 0=18638
 Jupiter, radio emission, 960 Mc/s, polarization and angular extent 0=12254
 Jupiter, radio emission, 1430Mc/s, variations 3=7047
 Jupiter, radio emission 178 Mc/s 4=7988
 Jupiter, radio emission and radiation belts 3=21130-1
 Jupiter, radio emission, red spot origin 0=18640
 Jupiter, radio emission, 30 Mc/s surges 0=8483
 Jupiter, radio emission, 38 Mc/s 3=9269
 Jupiter, radio emission, 31 cm emission 0=6553
 Jupiter, radio emission at 3.3 cm 3=9271
 Jupiter, radio emission 3-68 cm, theories 0=8471
 Jupiter, radio emissions, decametric, mag. field configuration 3=25981
 Jupiter radio obs., 610 Mc/s, flux density 4=2458
 Jupiter, radio obs., sporadic, 5-86 Mc/s 4=29473
 Jupiter, radio obs., 26.3 Mc/s, 2 components 4=30977
 Jupiter, radio-observation from satellites 0=10543
 Jupiter, radio outbursts, occultation theory 4=4941
 Jupiter, radio polarization, mag. moment, correction 3=18613
 Jupiter, radio polarization at 16 Mc/s 4=23939
 Jupiter, radio sources, rotation period charge 4=4942
 Jupiter, radio spectrum 1=18172
 Jupiter, radio spectrum, 18-20 Mc/s, drifting pips 4=23938
 Jupiter's radio emission 1=20955
 Jupiter, radiowave polarization and mag. pole-orientation 3=18656
 Jupiter, Red Spot, hydrodynamic model 3=18610-11
 Jupiter, red spot origin 1=15430
 Jupiter, ring, cometary and meteoritic, postulate 3=23678
 Jupiter and Saturn, right ascensions 2=17256
 Jupiter, shape calculation 2=4743
 Jupiter, source of decimeter radiation 1=18171
 Jupiter, spectrum in blue region 3=16359
 Jupiter, spectrum, CH_4 band variations 3=21101
 Jupiter, spectrum, 9000-10 100 A 4=20909
 Jupiter, spectrum, scattered solar Lyman- α 4=2400
 Jupiter, sporadic disc radiation from amplified whistlers 4=10911
 Jupiter, structure and composition 4=26927
 Jupiter, tables of satellites 2=13106
 Jupiter, temp. study 0=8473
 Jupiter, 10 cm observations 1=5168

Planets—contd

- Jupiter, 10 cm observations, 1961-3 4=23937
 Jupiter, 10 μ radiation measurements 3=13903
 Jupiter, three radio sources 3=18654
 Jupiter, 22.2 Mc/s emission, fine structure 2=4841
 Jupiter, upper atmosphere photochemistry 2=24103
 Jupiter, wet adiabatic model atmospheres 4=4885
 layered oblate, free modes, theory 3=11495
 logarithmic distance/number law, also for satellites 4=17989
 Lyman- α night-time observations rel. to interplanetary H cloud 1=15415
 magnetism, origin, earth alone among dwarfs 4=10877
 major, spectra energy distrib. photoelectric obs. 3=16342
 major, spectroscopy on comp., thermal and kinematic props. 4=17992
 Mars, albedo 3=18601
 Mars, astrolabe obs. 3=13863
 Mars, atmosphere, comparison with earth's 0=10494
 Mars, atmosphere, formation of Lyman-Birge-Hopfield bands of N₂ 4=10880
 Mars, atmosphere and haze 1=15428
 Mars, atmosphere, NO₂ and blue haze 3=18598
 Mars, atmosphere, NO₂ content 4=7980
 Mars, atmosphere, optical boundary 3=18605-6
 Mars, atmosphere, ozone 3=18608
 Mars, atmosphere, particulate matters 3=16351
 Mars, atmosphere, presence of N oxides suggested 1=1632
 Mars, atmosphere, upper and ionosphere, photo-chemical calc. 4=13919
 Mars, atmosphere, upper, models, deductive 3=18604
 Mars, atmosphere, vertical distrib. of neutral gases 4=2401
 Mars, atmosphere, water vapour meas. 3=13864
 Mars, atmosphere, water vapour, particle layers 3=18603
 Mars, atmospheric conditions 2=13110
 Mars, atmospheric solar radiation scattering 4=7979
 Mars, average surface temp. estim. 3=7022
 Mars, composition, theory. 3=25860
 Mars, contrast studies, in red, green and blue light 2=944
 Mars, dark areas, fine structure, seasonal changes 2=19285
 Mars, darkening wave causes 4=23896
 Mars, decametric radiation 3=5272
 Mars, dust and haze formations 1=18039
 Mars, global dimensions 3=3550
 Mars, gravitational energy, Betti-Ritter formula extension 4=29425
 Mars, H₂O and CO₂ lines analysis 4=10882
 Mars, heat balance on surface 3=9178
 Mars, i.r. absorption by atmosphere 0=10493
 Mars, i.r. spectra 4=10881
 Mars, interior composition, rel. to earth's core and mantle 4=7972
 Mars, internal constitution 3=1514
 Mars, interplanetary vehicles from earth, photon propelled 0=12334
 Mars, multicolour photometry in 1958 1=6700
 Mars, 1954 and 1956 oppositions 1=15427
 Mars, obs. from Stratoscope II 4=23897
 Mars, oppositions (1960-80) 2=13109
 Mars, origin of desert colour 0=8493
 Mars, photometric and colorimetric studies, lithological interpretation 1=18040
 Mars, photometry, multi-colour program 3=16340
 Mars, precision mapping 3=23675
 Mars, probe for detecting micro-organisms 3=21102
 Mars, probe radio transmission, signal/noise ratio, calc. 0=10544
 Mars, R.A. and semidiameter determinations 0=18703
 Mars, radiometric observations 0=6572
 Mars, reflection spectra, correction 3=9179
 Mars, reflectivity, rel. to atmosphere contents 2=9061
 Mars, reflectivity, at centre of disk 2=15316
 Mars, reflectivity, spectrophotometry 2=9061
 Mars, review, i.r. absorption by atmosphere 0=10493
 Mars, right ascension det. 2=6989
 Mars, spectrum in blue region 3=16359
 Mars, spectrum, 3200-6100, light region, violet layer, due to scatt. 3=18602
 Mars, surface and atmosphere, from photometry, three models 3=18600

Planets—contd

- Mars, temp. study 0=8473
 Mars, temp., surface and atmosphere 3=18607
 Mars, theory suggesting N oxides in atmosphere 1=1632
 Mars, upper atmosphere 3=3548
 Mars, upper atmosphere 4=4887
 Mars, Venus and Earth, atmospheres, review 4=2397
 Mars, and Venus, navigation theory for round trips 2=11183
 Mars, vision effects on obs. 4=15931
 Mars, water in free-state 2=24098
 Mars, water in free-state, amount 3=3549
 Mars, water vapour detection 3=23674
 Mars, water vapour, rel. to Fe₂O₃ hydration equil. 3=23676
 Mars, yellow haze, various props. 2=21701
 Martian airglow, source, emission rate and apparent brightness, estimates 4=29429
 mass-radius relation 0=18847
 Mercury, atmosphere, particular matters 3=16351
 Mercury, composition, theory. 3=25860
 Mercury, decametric radiation 3=5272
 Mercury, detection of exospheric phenomena 4=2402
 Mercury, diameter meas. 2=21702
 Mercury, erosion, by meteoric impacts 3=16352
 Mercury, internal constitution 3=1514
 Mercury, magnetic field 1=15426
 Mercury, man, from motion of Enke-Baklund comet 1=2605
 Mercury, microwave emission 3=3623
 Mercury, motion, Thiry and Lichnerowicz theory 0=32
 Mercury, perihelion advance, calc. 1=15648
 Mercury, thermal equilibrium 1=2603
 Mercury, transit 1=4192
 Mercury transit across sun, Lyot heliograph obs. 1=15429
 Mercury, transit, obs. (Nov. 7, 1960) 2=17255
 meteor impact, evapor. and condensation processes 0=6996
 meteor impact and time correl. 4=13917
 methane, metallic ammonium, H₂O and Ne, densities at planetary pressures 3=21100
 microwave emission, and radar obs., review 2=11160
 minor, diameters 2=21704
 minor, 1959-60 observations 2=15312
 minor, orbit, secular and crit. effects, by nonsingular set of vectorial elements 4=13977
 molybdenite, ion-bombardment 3=22851
 motion equations, in rectangular coords., integration 2=17251
 motion, mass anisotropy 2=4742
 natural satellites, orbits calc. 3=5245
 of nearby stars, radio communication with, search frequencies 0=4846
 negative ions, radiative formation and destruction 3=4003
 Neptune, constitution 1=9255
 Neptune, constitution 3=16338
 Neptune, pressure-induced dipole H₂ lines 4=10883
 noble metals, interstitial configurations rel. to deuteron-irrad. 3=22755
 noble metals, recovery 3=23345
 oblate, motion of a satellite 1=4225
 observation of motion, relativistic approximations 0=10469
 observations 1959-60, conference 3=9139
 optical dispersion in spherical atmosphere 3=23592
 orbits around sun, survey of calc. method 2=9059
 orbits, planets and satellites, astronautic chart 0=12264
 origin 3=3544
 origin, chondrules 2=15317
 origin, dynamical calculations 1=12739
 in other galaxies, existence of advanced societies 0=12247
 outer planets, phase and oblateness corrections 2=6988
 planet-satellite systems, mass rel. to ang. momentum 3=11585
 planetary exploration, programme 1=18225
 planetary nebulae, Zanstra's theory 3=9245
 Pluto, orbit approx. by fifth degree polynomial 4=7978
 Pluto, orbit stability 2=4729
 point defect cluster migration 3=22728
 polyethylene, elec. cond. 3=10866
 polyethylene, internal motion, n.m.r. study 3=13546
 polymers, mol. wt. distrib. 3=8325
 polypropylene, thermal props. rel. to γ -irrad. 3=2728
 precession, corrections 0=12263
 radar echo theory 1=15559

Planets—contd

- radar reflection theory 1=15557
- radar reflections 2=11154-5
- radar studies 4=13943
- radar studies, symposium 0=14382
- radiation belt, possible existence 0=10423
- radiation energy transfer in atmospheres 2=6559
- radiation, far i.r. detectors 3=16349
- radiation, h.f., l.f. noise, obs. by nearby probe 3=16348
- radiation, microwave, as research tool, review 3=18599
- radiation, scattered solar Lyman- α and HeI obs.
possibility 3=16343
- radio emission 1=12779
- radio emission, meas., satellites appl. 2=9109
- radio emission, origins 3=23708
- radio emission, thermal, polarization calc. 4=23936
- radioastronomy 0=18615, 18627
- radioastronomy developments, in USA 2=9108
- radioastronomy, review 3=18652
- radius vector, general relativity corrections 2=19283
- revolution period and dist. from sun, logarithmic
order 4=26926
- satellite and space probe meas., review (1963) 4=10932
- satellite orbits, uniformity props. of families 4=4842
- satellites, dissipative interaction through tidal
friction 1=10381
- satellites, dynamical properties 1=6751
- satellites, exploration techniques 0=10490
- satellites, natural eccentricities, secular changes 4=2473
- satellites, secular acceleration 0=18704
- satellites, survey 0=12267
- satellites, tidal friction effects on orbits 1=10376
- Saturn, atmospheric activity 3=18614
- Saturn, brightness, 1960 data 1=4193
- Saturn, correction to mass 0=12265
- Saturn, decametre-wavelength observations 1=11685
- Saturn, 18-23 Mc/s observations 0=18622
- Saturn, equatorial spectra, line inclination 4=17993
- Saturn, i.r. spectrum 2=13105, 17253
- Saturn, microwave spectrum 3=5274
- Saturn, 0.9-2.5 μ 2=13105, 17253
- Saturn, 1961 observations 2=17258
- Saturn, 1962 3=13866
- Saturn, orbit approx. by fifth degree polynomial 4=7978
- Saturn, photometric study (1943-58) 0=4880
- Saturn, photometry, electronic camera, surface
features 3=18612
- Saturn, R.A. determination (1959) 0=18702
- Saturn, radio detection at 3.45 cm 1=43
- Saturn, radio polarization, 3200 Mc/s 4=23940
- Saturn, rings 0=16520
- Saturn, rings, B, optics and geometry 3=18615
- Saturn, rings, B-ring, absolute brightness 0=18701
- Saturn, rings, optical properties 0=16534
- Saturn, rings, shadow effect, generalization 2=4727
- Saturn, rings, shadow effect phase curves,
theory 2=945
- Saturn, rings, shape calculation 2=4743
- Saturn, rotation 2=9062-3
- Saturn, spectrum, scattered solar Lyman- α 4=2400
- Saturn, structure and composition 4=26927
- Saturn, 10 μ radiation measurements 3=13903
- Saturn, visual observations (1958) 0=8492
- Saturn's rings, stability 4=13920
- Saturn, 3.45 cm radiation emission 1=8018
- solar parallax determination by radar echoes from
Venus 1=10394
- solar system scale, by solar parallax
measurements 1=10374
- as sources of interplanetary debris 2=6979
- space research possibilities 0=3433
- spectra, and CH₄ bands, i.r. 3=15363
- spectra, i.r., tracking system for balloon-borne
obs. 4=29427
- spectra, major 4=17992
- spectral intensities of H₂, H₂O, and CO₂ gases 4=25640
- sputtering rates under solar-wind bombardment 3=23667
- stellar navigator for interplanetary guidance 2=11203
- stresses, non-hydrostatic, as function of radius 1=18037
- surface conditions 0=16533
- surface features, observation problems 1=1631

Planets—contd

- Sydney catalogue 0=12296
- telescope observation balloon born, Stratoscope II 3=16350
- telescopes, refracting, objectives design 3=9141
- temperature, review 2=15314
- thermal props. 0=8489
- thermodynamical theory 1=15424
- Trojan orbits, three-body problem, det. and
survey 1=18023
- Trojan, periodic orbits, stability features 2=17252
- Uranus, constitution 1=9255
- Uranus, constitution 3=16338
- Uranus, decametric radiation 3=5272
- Uranus, orbit approx. by fifth degree polynomial 4=7978
- Uranus, pressure-induced dipole H₂ lines 4=10883
- Venus, absolute photometry, in u.v. and i.r. 0=8490
- Venus, aeolosphere and atmosphere 1=18042
- Venus, airglow 1=6699
- Venus, airglow, re-examination 2=4746
- Venus, apparent brightness temp. 3=25983
- Venus, apparent radio radiation at 11 m 0=10479
- Venus, apparent rot. vel. 3=11594
- Venus, atmosphere 0=14378
- Venus, atmosphere, calc. of magnitude phase angle
rel. 4=13921
- Venus, atmosphere, CO₂ absorption 3=13865
- Venus, atmosphere, comparison with earth's 0=10494
- Venus, atmosphere, light polarization, wavelength
var. 4=15872
- Venus, atmosphere, necessity for allowing for
scattering 3=18621
- Venus, atmosphere, particulate matters 3=16351
- Venus, atmosphere, spectroscopic temp. and
press. meas. 2=24101
- Venus, atmosphere, temp. 2=4745
- Venus, atmosphere, temp. and circulation 2=4745
- Venus, atmosphere, temp. distrib. 3=16357
- Venus, atmosphere, temp. and pressure, from CO₂
vibr.-rot. band 3=16356
- Venus, atmospheric CO₂ 2=17259
- Venus, atmospheric microwave absorption and
emission 1=2659
- Venus, atmospheric spectrum, ~10 μ , space
obs. 4=13922
- Venus, atmospheric structure, CO₂ content 2=6991
- Venus, atmospheric structure, photometric
structure 2=946
- Venus, black body temp. 0=18626
- Venus, brightness temp. at 8.6 mm radiation 3=11591
- Venus, brightness temp. of illuminated side, 8 mm 4=29475
- Venus, brightness temp. map 3=16360
- Venus, charged particles, spacecraft meas. 3=18616
- Venus, chem. composn. of atmosphere 4=15932
- Venus, cloud layers, microwave properties 4=7858
- Venus, clouds 1=10379
- Venus, CO₂ in atmos. 1=15425
- Venus, CO₂ band 2=17254
- Venus, CO₂ spectrum, rel. to temp. and press. of
atmosphere 2=24101
- Venus, cusp caps 2=13107
- Venus, cusp, Cytherean caps, auroral origin? 3=18623
- Venus, decametre-wavelength observations 1=11685
- Venus, decametric radiation 3=5272
- Venus, development, theory 3=25860
- Venus, dichotomy of disk due to atmosphere 0=18699
- Venus, eastern elongation (1960-61) 2=24099
- Venus, 8 mm bandwidth emission 2=1011
- Venus, 8 mm emission 3=5273
- Venus, 8-13 μ 0=6573
- Venus, 4 mm emission 2=24171
- Venus, 4 mm radio emission 3=3622
- Venus, 4.3 mm radiation 3=11592
- Venus, 4-33 mm emission, brightness temp. 2=17304
- Venus, glaciation, from high albedo 3=9180
- Venus, gravitational energy, Betti-Ritter formula
extension 4=29425
- Venus, i.r., rel. to atmosphere structure 2=6991
- Venus, i.r. Mariner 2 radiometer experiment 4=10884
- Venus, i.r., by Michelson interferometer 2=13108
- Venus, i.r., obs. 1-13 μ 3=16354
- Venus, i.r. photometric mapping, through 8 to 14
micron atmospheric window 4=4888
- Venus, i.r. spectra 4=10881

Planets—contd

- Venus, i.r. spectrum, atmosphere composition 3=11517
 Venus, i.r. spectrum, photometry, 1-2.5 μ , CO₂ bands 3=16353
 Venus, infrared radiometry by spacecraft 3=18617
 Venus, internal constitution 3=1514
 Venus, mag. field, spacecraft meas. 3=18619
 Venus, mag. field strength 3=5244
 Venus, magnetic field 1=15426
 Venus, Mariner 2 microwave radiometer results, temp. 4=13954
 Venus, markings, illuminated globe exper. 0=8491
 Venus, Mars and Earth, atmospheres, review 4=2397
 Venus, microwave absorption and emission, brightness temp. 0=16535
 Venus, microwave emission, rel. to atmospheric parts 2=17305
 Venus, microwave, and plasma instabilities 3=11595
 Venus, microwave radiometry by spacecraft 3=18618
 Venus, microwave temperature 2=4747
 Venus near superior conjunction, 10 cm obs. 3=5275
 Venus, neutron leakage flux and nitrogen abundance 2=19284
 Venus, night side emission spectrum 0=18700
 Venus, observation of detail 1=10380
 Venus, occultation of Regulus, study of atmosphere 1=15
 Venus, period of rotation, radar meas. 3=18620
 Venus, photographic obs., simple method 2=24100
 Venus, photometry 3=18622
 Venus, photometry, multi-colour program 3=16340
 Venus, polarization, wavelength depend. 3=16341
 Venus, radar cross-section 4=13948
 Venus, radar cross-section var., 38 Mc/s 4=13949
 Venus, radar depolarization expts. 2=19350
 Venus, radar depolarization and surface roughness 4=13951
 Venus, radar echoes 1=10395
 Venus, radar exploration 1=15560
 Venus, radar investig. 2=4842, 13174
 Venus, radar obs. 4=29474
 Venus, radar obs., astron. unit determ. 3=9272
 Venus, radar obs., c.w., rot. 4=13947
 Venus, radar obs. libration fading, echo area, 50 Mc/s 4=13950
 Venus, radar and radiometric 1962 obs. 4=13946
 Venus, radar reflections, astron. unit det. 2=13175
 Venus, radius, meas. 2=947
 Venus, radar scatt., and surface small mean slope, ang. velo. 4=13952
 Venus, radar zero Faraday rot. 4=13953
 Venus, radial velocity det. 1=18041
 Venus, radial velocity, by electronic photography 1=18041
 Venus, radiative transfer in atmos. 3=21267
 Venus, radio brightness distrib. 3=16426
 Venus, radio echoes, solar parallax det. 0=4872
 Venus radio (8.6 mm) observations 0=18621
 Venus, radio emission at 3.3 cm 3=9271
 Venus, radio obs., intensity versus phase angle, temp., rot., ~20m 4=13956
 Venus, radio obs., 10.6cm, lack of polarization 4=2468
 Venus, radio obs., rot., radius, A.U., U.S.S.R. 1962 4=2459
 Venus, radio obs., temp., 8.6 mm 4=13945
 Venus, radio obs., temp., 2 cm 4=13958
 Venus, radio obs., and temp., size, ~10m 4=13955
 Venus, radio obs. and temp., 1.2 cm 4=13959
 Venus, radio obs. and temp., 8 mm 4=13960
 Venus, radio obs., temp., 8.5mm 4=13957
 Venus, radio obs., 3 cm, effect of solar illum. phase 3=18653
 Venus, radioastronomy, high-surface temp., explanation 3=21129
 Venus, radiometric observations 0=6573
 Venus, radius, determination 3=5243
 Venus, review 0=10493
 Venus, review 1=5136
 Venus, right ascension (1960-61) 2=17257
 Venus, rotation, from radioastronomy 3=11518
 Venus, spectrum in blue region 3=16359
 Venus, spectrum, O₂ bands, search 3=16355
 Venus, study of atmosphere 0=14378
 Venus, surface and rotation, radar study 2=21703
 Venus, temp., radio obs., enhancements 3=21127-8

Planets—contd

- Venus, temp., radio and optical data 3=16358
 Venus, temp. study 0=8473
 Venus, vertical distrib. of neutral gases 3=21097
 Venus, violet and u.v. photography, rel. to rotation period 2=6992
 Venus, water vapour obs. 3=21098
 visibility in daylight at high altitudes 0=843
- Plasma**
 See also Discharges, electric; Electrons; Ions; Space charge; Thermonuclear reactions.
 a.c. conductivity, ion correl. effects 3=9769
 in a.c. mag. field, axial and radial compression, discharge 0=17008
 absorption coeff. at radio frequencies 0=19692
 absorption of e.m. waves, gyroresonance mechanism 0=12707
 absorption of e.m. waves in non-homogeneous plasma 1=5600
 absorption of light, in non-uniform plasma 3=5674
 absorption of microwaves and microwave conductivity 3=14577
 absorption of radiation by ionosphere 3=3488
 acceleration of cluster by h.f. field, conditions 4=18888
 acceleration, with coaxial electrodes 2=1457
 acceleration, in coaxial waveguide 0=19653
 acceleration, in discharges, with shock-wave prod. 1=18840
 acceleration by e.m. reflection 4=24655
 acceleration in electric field using Hall effect 4=18818
 acceleration, with electrodeless conical ring-discharge 3=21811
 acceleration, by h.f. elec. field 0=10907
 acceleration into high vacua, mag. driven valve 0=3577
 acceleration, luminous phenomenon, refl. study 3=23971
 acceleration, by parallel electrode discharge 3=19261
 acceleration, by r.f. field gradient 2=17838
 acceleration, in r.f. field plus static mag. field 4=21550
 acceleration by radiation 4=4879
 acceleration, for space propulsion 2=3054
 acceleration by static mag. and e.m. fields 4=19054
 acceleration, symposium 1=10694
 acceleration, symposium 2=1414
 acceleration, by travelling e.m. waves 2=15928
 acceleration, by travelling mag. wave 2=11680
 accelerator, coaxial, particles moving against electrodyn. acceln. 3=24307
 accelerator, particle analysis by retarding field method 3=7591
 accelerator, steady state, crossed-field 1=10715
 accelerators, efficiency 1=16343
 accelerators, electrode drag, conductance 2=3055
 accelerators, electron beam scattering and electron inertia induction 2=3148
 accelerators; electron beam scattering and electron inertia induction 3=2113
 accelerators, for space vehicle guidance and propulsion 2=3056
 accumulation in device fed by energetic-ion trapping 1=18892
 accumulation in magnetic traps, ultra-low pressure neutral gas 3=12107
 acoustic compressional wave propag. 3=7548
 adiabatic compression, choice of apparatus 3=21795
 adiabatic invariance 2=19368
 adiabatic invariant, charged particle in reflection 1=18831
 adiabatic invariants, approximate constancy 3=390
 adiabatic theory of charged-particle motion, review 4=665
 adiabatic trap, β -particle behaviour 1=9591
 aerial, slotted-sphere, effect of plasma sheath 2=3157
 aerials in, elec. or mag., rel. to radiation 2=13688
 afterglow, absorption and reflective powers 2=1420
 afterglow, dielectric const. 3=7550
 afterglow, electron temp. meas., gated radiometer 4=5631
 afterglow, narrow-band resonances 4=18847
 air, arc electrode contamination effects 2=3037
 air, electron-atom and electron-ion scatt. cross-sections 2=3007
 air, electron density calc., rel. to ionization reactions 2=3004
 air, equilibrium flow, hypersonic, composition data 2=3032
 air, ionized by shock waves, elec. cond. 1=16276

Plasma—contd

air, 1-30 atm., 1000-30 000°K; composition, density, enthalpy and specific heat 1=10700
 air plasma, in shock tube 1=11935
 air, spectrographic analysis 4=18856
 air, thermodyn. equil. at high temps. 3=4118
 air, thermodynamic equil. at $(2-10) \times 10^4$ °K 3=24275
 air, thermodynamic parameters calc. 3=21818
 air, weakly ionized, electrons in e.m. fields 2=15887
 alkali, elec. cond., high press. with free valence electrons, calc. 4=11644
 alkali metals, current-induced instability 2=13563
 alkali vapour plasma source 1=288
 Alpha apparatus 1=9602-7
 Alpha apparatus, construction and energy flow 1=9603-4
 "Alpha" apparatus, construction and energy flow 1=5477-8
 in "Alpha" apparatus, various props. 1=4617
 in "Alpha" apparatus various props. 1=9528
 Alpha apparatus, optical emission spectra and motion of ions 1=9605-7
 "Alpha" machine, optical emission spectra and motion of ions 1=5479-81
 Alfvén hydromagnetic waves, propagation 0=3843
 ambipolar diffusion, in weakly ionized system 3=24282
 amplification of microwaves by streaming plasma 1=10716
 amplifier, negative resistance 2=11678
 angular momentum relations, in magnetic field 2=19936
 anisotropic, conservation principles deriv. 2=11642
 anisotropic, intrinsic loss at edges 4=735
 anisotropic slab, absorption of microwaves 1=18857
 anisotropies induced by elec. field 1=10722
 anisotropy, particle velo. distribution 3=21769
 anode spots in l.p. discharges 0=16984
 anomalous diffusion effect in gas discharge 1=9533
 anomalous Doppler effect 1=18854
 anomalous Doppler effect 3=400
 apparatus, pulse generator, 30 kW, 500 μ sec 1=4588
 apparatus, for superfast pinch, with converging mag. piston 1=5464
 application of dynamics of classical many-body systems 1=9346
 application of modified Debye-Hückel theory 1=9543
 approach to equilibrium, irreversible processes 1=9541
 in approximately homog. mag. field, particle motion 0=12646
 arc, burning in A and He atmos., charged particle conc. 2=17844
 arc, d. c., in gas at increased pressure, atom diffusion 2=513
 in arc discharge, decay theory 0=10893
 arc discharge, h.v. electron extraction 0=15073
 arc, electron temp., rel. to collision ionization theory 2=3018
 arc flame jet, temp. meas., in terms of Fe spectrum 3=16921
 arc, metal iodide-Hg, spectral characts. 4=18785
 arc, microwave Doppler shift study 3=5645
 arc plasmas, atomic concentration determination 1=2289
 argon discharges, elec. resistance and light output 1=7079
 argon jet, heat transfer rates 0=2371
 argon jets, subsonic, power dissipation, temp. 3=5663
 argon 'plasma stream' generation, 15 000°K 0=1125
 argon, r.f. discharge, refractive index meas. 0=3778
 argon, thermal and electron properties 0=1126
 Astron device, energy balance 3=12200
 in Astron, E-layer structure 2=15930
 in astrophysics 0=3403
 in astrophysics, review 1=15726
 atomic level shifts and width broadening 4=1199
 atomic particle current emission, investigation 4=8701
 atomic spectral line width 4=18860
 atoms, energy level shifts 2=517, 22890
 auroral bombardment, theory 1=21044
 in axial magnetic field, particle loss, calc. 2=197
 axial stability and localization of constrictions in alt. e.m. field, calc. 0=15017
 axially symmetric, equilibrium and stability 2=3028
 axially symmetric, hydromagnetic stability, necessary criterion 2=179
 axisymmetric system of charged particles 3=14756
 in B-1 Stellarator, kinematics of ohmic heating 1=312
 backward e.m. waves, on isotropic slabs 2=5471

Plasma—contd

backward wave propag., in air-bounded non-mag. cylinder 0=10930
 ball lightning 0=16490, 21393
 beam generation, density and potential distrib., static theory 4=8677
 beam, long-wavelength, instability 1=301
 beam, mag. barrier penetration, calc. 3=19423
 beam-plasma system, electron beam generated, in neutral gas 3=21815
 beam of neutral ion-electron plasma, penetration across mag. barrier 4=504
 beam-plasma interaction in l.p. Ar discharge 1=13081
 beams, density modulated, in mag. field aurora theory 0=16461
 beams, quasi-thermalization 1=5502
 behaviour in mag. field without mag. surfaces 3=7675
 behaviour, theory 2=17816
 bibliography 3=12098
 bibliography 4=490
 bibliography, annotated, for 1958-62 3=9766
 bibliography of current research 4=16458
 binary distribution function, evolution eqn., nonequilibrium state 1=2962
 blobs, interaction with transverse mag. fld. 4=27520
 body moving in, collision effects 4=506
 Bogolyubov formalism, correlation functional representation 4=29901
 Bohm diffusion coefficient from instability meas. 4=2974
 Boltzmann equation, for ionized rarefied gas, in strong fields 1=7050
 Boltzmann eqn., linearized, particular solution 3=14565
 Boltzmann eqn., spherical harmonics formulation 1=15740
 Boltzmann-Vlasov eqn., Lagrangian formulation 0=1138
 Boltzmann-Vlasov eqn. for quantum plasma 0=15006
 book on theory 4=24627
 boundary layer between plasma and mag. field 1=18850
 boundary layer, effect of external magnetic field 2=7611
 boundary with mag. field, location, correction 3=16307
 boundary value problems 2=3038
 bounded, collective electron instability 3=21763
 bounded, particle dynamics 3=12220
 break-up, diffusion mechanism, in mag. field, He data 1=4603
 bremsstrahlung cross-sections in plasma frequency neighbourhood 4=11611
 bremsstrahlung, from electron in Coulomb field 4=512
 bremsstrahlung, friction, relation between 2=13557
 bremsstrahlung, generation, internal absorption 3=5682
 bremsstrahlung, from high-temp. plasmas, relativistic calc. 2=193
 bremsstrahlung losses, e-e and e-ion collisions 0=15026
 bremsstrahlung losses, no coherence effects 3=21789
 bremsstrahlung losses, relativistic electron temperatures 1=8322
 bremsstrahlung, nonrelativistic, Gaunt factors 3=1969
 bremsstrahlung and recombination radiation, emission 4=2980
 bremsstrahlung from relativistic plasma, var. with temp. 4=5615
 bremsstrahlung spectrum and cond., electrical, calc. 3=14563
 broadening and shift of spectral lines of He and A 0=13417
 Brownian motion in mag. field, diffusion 4=502
 bulk-, surface-, and "string" instabilities, growth and properties 3=7538
 bumpy torus 0=7123
 bumpy torus, Ar, afterglow 3=19270
 bunch, movement along guiding electrodes 3=399
 bundle movement along guiding electrodes 3=19250
 burst acceleration by mag. field 4=11643
 C-Stellarator, u.h. vacuum system 1=4619
 cable, e.m. wave propag. 2=7763-5
 caesium plasma cell, performance 1=1912
 caesium recombination radiation, in homogeneous magnetic field 1=18890
 capacitor banks, low-inductance, for D pinches 1=5476
 cathode drop, theory, review 2=206
 in cavity resonator, forces on charged particles 1=1906
 charge correlation function in mag. field 1=4595

Plasma—contd

charge excitation of motion in magnetic field 1=304
 charge moving in vacuum over plasma, energy loss 3=14746
 charge, nonlinear energy losses 4=14648
 charged part. transition radiation 3=5681
 charged-particle beam interaction, electrostatic instabilities, in mag. field 2=17826
 charged-particle beams, two-stream instability 2=5358
 charged particle bunch, polarization energy losses 4=11594
 charged particle collision integrals in mag. fld. 3=5829
 charged-particle density, meas. 2=19911
 charged-particle drift, in const. grad. mag. field 0=5314
 charged-particle emission, in mag. field 3=21772
 charged-particle energy losses 2=13566
 charged particle energy losses 3=5673
 charged particle interaction with all electrons 4=8678
 charged particle interact. with totality of electrons, theory 4=14645
 charged particle motion in absence of mag. field 1=1958
 charged particle motion in alternating fields 3=387
 charged-particle motion, in axially symm. magnetostatic field 1=16506
 charged-particle motion, in inhomogeneous mag. field 2=9582
 charged-particle transition radiation 2=9588
 charged particles in a.c. fields, time-averaged effects 1=4698
 charged particles in cusped geometry, trajectory analysis 3=19246
 charged particles energy loss, theory 4=11584
 charged-particles, in mag. field, Brownian motion 2=7591
 charged particles passing through, energy losses 0=10906
 charged particles relax., fluctuating velocity distrib. 4=27551
 charged particles, temp. relaxation 4=11591
 Cherenkov and anomalous Doppler effects 2=9563
 Cherenkov and cyclotron radiation, theory 2=191
 Cherenkov(hydromagnetic and magnetoacoustic) waves 1=4606
 Cherenkov radiation 1=10704
 Cherenkov radiation absorption 1=3159
 Cherenkov radiation of fast moving charge 3=12436
 Cherenkov radiation in, at high temp. 0=1268
 Cherenkov radiation for particle moving parallel to field in plasma 4=5616
 circuit dynamics 0=5303
 circular conductor, in mag. field, equilibrium configurations 0=9168
 circular current, relativistic radiation 2=15931
 with circulating currents, in crossed elec. and mag. fields 4=21501
 classical and quantum, dynamic behaviour 1=9538
 classical, variational approach 1=11923
 cloud, structure, in e.m. driven shock tube 4=18826
 cm wave refraction, meas. 2=13565
 coaxial accelerator, current sheet, planarity 3=7599
 coherent energy loss of electron beam, meas. 4=16508
 coherent light transmission 3=12138
 in coil, impedance calc. 0=10900
 coils, elec. field, calc. 2=235
 cold, highly ionized, on magnetic field, diffusion and recombination 1=16322
 cold, interaction with guided e.m. waves 0=17017
 cold, magnetoactive, Cherenkov radiation spectra 2=7594
 cold, nonlinear space charge effects 3=12101
 cold planetary body, condensed matter, physical state 0=16532
 collapse accelerators with internal injection 1=13095
 collective and collisional correlations, kinetic eqn. 3=4122
 collective description and Landau damping 3=7618
 college course, outline 4=11006
 colliding streams, mutual interactions, perturbation theory 0=12605
 collision-free, gas law and conductivity, formulae 1=10702
 collision-free, hydromagnetic disturbances 0=19679
 collision-free shocks, thickness and speed meas. 0=10904
 collision integral for charged particles in mag. field 3=5654
 collision of two plasma streams, stability 0=17013
 collisionless Boltzmann eqn., soln. 0=16621

Plasma—contd

collisionless, nearly spatially uniform, Boltzmann eqn. 1=15723
 collisionless, scalar pressure assumption 1=18851
 collisionless, shock wave models 1=8328
 collisions, close, kinetic eqn. 3=5650
 collisions, conservation laws and correlation functions 1=15744
 collisions, in cusped mirror-geometry mag. fields 2=17832
 collisions, effect on localization of electrons in high-freq field 4=8673
 column, dynamic stabilization 1=502
 column in ext. longitudinal mag. field, theory 1=9578
 column with heat losses at electrodes, temp., theory 1=9577
 column irradiated with microwaves, magnetic effects 2=3035
 column, in longit. mag. field, radial distrib. of various quantities 3=19235
 column, stationary state at high temp. and pressure 1=11919
 column, thermally inhomogeneous 4=18811
 columns, confined by mag. flds shock waves, longitudinal 3=7530
 comet dynamics 2=15319-20
 in cometary heads 3=3553
 completely ionized, test particles 0=3774
 completely ionized, in variable mag. field, kinetic eqn. soln. 0=9033
 composition and energy distrib. meas. 3=7588
 composition and thermodynamic props., gas mixtures at high temp. 4=24634
 compressible, variational principle 2=5331
 compression in axially-symmetric mag. fields 0=2367
 compression by azimuthal currents 3=7564
 compression in cusp geometry 1=18869
 compression, in direct conversion of heat 2=9519
 compression, fast Bz, rotation and instability 3=7570
 compression heating in linear z-pinch 1=18880
 compression, magnetic, of cylindrically symm. plasma 2=11654
 compression, magnetic, with end losses, theory 2=17840
 compression, magnetic, and X-ray emission 2=3046
 compression, radial and axial, in a.c. mag. field 1=4598
 compression, rapid, by own mag. field 1=7059
 conductivities, thermal, elec., high temp. review 4=236
 conductivity, a. c., theory 4=29906
 conductivity, complex, and stability, hydrodynamic theory 4=24643
 conductivity dependence on frequency and collision time 1=8326
 conductivity, elec., h.f., non-uniformity error 4=21499
 conductivity elec., Lorentz gas 4=21498
 conductivity, electrical, meas., by magnetic probe 3=5598
 conductivity, electrical, meas., without electrodes 3=5677
 conductivity and electron relax. rel. to radiative effects 3=5671
 conductivity and equation of state studies 0=14984
 conductivity, high-freq., in presence of direct current 3=1978
 conductivity, high-frequency, in magnetic field 3=19244
 conductivity in hot plasma 1=9557
 conductivity kernel and perturbation accrual along particle histories 4=2969
 conductivity, microwave, in mag. field 0=12607
 conductivity, in presence of a drift 3=16939
 conductivity of seeded atm. pressure plasmas, calc. 1=16309
 conductivity tensor and dispersion eqn. 3=1962
 conductivity, thermal and electrical, from temp. profile 3=7589
 conductivity thermal, Grad approx. appl. 4=5598
 conductivity, thermal, relativistic plasma in mag. field 4=14647
 conductivity and velocity meas., mag. probe 3=1995
 conference (Culham Lab., 1963) 4=5589
 conference, ionization in gases, Munich (1961) 3=1928
 conference, Leatherhead, (1962) 3=7450
 conference, Paris (1963) 4=11507
 conference, Salzburg (1961) 3=7494
 conference (Salzburg, Sept. 1961) 2=15908
 conference, Salzburg (1961) 4=5588

Plasma—contd

conference, Tarrytown (1962) 3=5649
 conference, Uppsala (Aug. 1959) 0=2314
 configurations, in axially symmetric mag. fields, low β density plasma 1=2967
 confined electron streams, zero ion temp. 2=3043
 confined, hot, high density, steady state 3=14556
 confined hydrogen plasma, relativistic electron beam device for fusion 0=19670
 confined, by r.f. field, self-consistent calc. 3=7555
 confinement using alternating magnetic field 3=12146
 confinement, analysis of transition region to mag. field 2=1437
 confinement, configs. of h.f. e.m. and magnetostatic fields 3=4141
 confinement, corrugated mag. field 2=5345
 confinement, cusp, cylindrical multipolar 3=16947
 confinement, cusped magnetic traps, review 2=15923
 confinement, by d. c. mag. field and external force 2=13569
 confinement by diffuse reflecting wall 3=9375
 confinement by dipole mag. field rotating at 1.3 Mc/s 3=4140
 confinement, e.m. trap, conditions for low-density plasma 3=19274
 confinement by electromagnetic waves 0=7121
 confinement of electron gas by mag. field 1=13089
 confinement, electrostatic 3=19272
 confinement and energy balance in a rotating plasma 0=19667
 confinement by external magnetic fields 0=3763
 confinement, by h.f. elec. fields 2=17842
 confinement, h.f. em. and static mag. fields, resonance, theory 3=14589
 confinement, heating by magnetoacoustic waves 0=11035
 confinement, and heating, by orthonormal pinch 2=15921
 confinement, helical conductor in torus or linear system 0=16997
 confinement in helically invariant mag. field 3=21940
 confinement in Heliotron B mag. field 3=1990
 confinement, by Heliotron mag. fields 2=22224
 confinement by Heliotron magnetic field 1=16334
 confinement, with high mag. field at periphery 1=18884
 confinement, in mag. bottle 2=5346
 confinement by mag. and e.m. fields, device 3=21794
 confinement in mag. field rel. to thermonuclear fusion 0=3757
 confinement by mag. fields, errors 3=9801
 confinement, mag. mirror, of exploding-wire plasma 1=18870
 confinement, by mag. mirrors, adiabatic approx. 2=22221
 confinement, magnetic mirror, rate of particle loss from ends 0=15008
 confinement magnetic mirrors and cusps, Ne¹⁹ tracer study 3=7568
 confinement, magnetic, motion and particle number 3=24292
 confinement, magnetic, multipole field configs. 2=3044
 confinement, magnetic surface properties 2=15959
 confinement in mirror mag. fields 1=10719
 confinement by multiple fields 1=13091
 confinement, new method using axial mag. field 1=16333
 confinement, optimum energy 3=12176
 confinement, in pulsed mag. cusps 1=7082
 confinement by pulsed mag. field, 3 keV D plasma 1=5467
 confinement, by r.f. e.m. fields 0=19666
 confinement, by r.f. fields 2=11670, 13567
 confinement by r.f. fields, treatment of dense plasma as a metal 1=5461
 confinement, r.f., 1-dimensional theory 3=9796
 confinement by r.f. standing wave 1=10708
 confinement, reflection of high-temp. plasma by mag. field layer 3=19273
 confinement, region of mag. surfaces bounded by separatrix 2=19972
 confinement, in resonant cavities, analogue study 2=5347
 confinement, of rotating magnetized plasma 1=11946
 confinement, self, adiabatic approx. 2=19965
 confinement by standing e.m. wave 0=12610
 confinement, static magnetic mirrors 3=7567
 confinement, in steady electric and magnetic fields 1=9564
 confinement, steady-state, effect of mag. field 2=15922
 confinement, for thermonuclear reactions 0=7677

Plasma—contd

confinement, in theta pinches, framing-camera evidence 1=5466
 confinement time 2=7606
 confinement in toroidal theta pinch 3=7569
 confinement transition region separating plasma from mag. field 3=7566
 confinement, in ZETA, spectrosc. study 2=5349
 conservation eqns. in presence of radiation 3=12102
 constitutive eqns., plasma-like medium 3=21847
 containment, "corkscrew" device for changing particle mag. moments 1=10717
 containment of dense plasmas, h.f. potential well 1=4612
 containment, heating and energy-loss reduction, mirrors and external injection 0=259
 containment, by mag. field 0=255
 containment by r.f. and d.c. field combinations 0=5322
 containment, self-consistent reversed field sheath 1=10710
 containment studies, C-stellarator 3=12187
 containment studies, C-stellarator, coils, stresses and temp. 3=12189
 containment studies, C-stellarator, power supply 3=12188
 containment, three-dimensional, by orthog. standing waves 3=19428
 containment, by travelling-wave focusing 0=1135
 continuously flowing, e.m. acceleration 1=16303
 continuum description, equil. props. rel. to net charge density 4=11569
 continuum theory, charge density function rel. to thermodynamic and equilibrium props. 4=11583
 contracting conducting cylinder, mag. flux, time depend. of radius 1=7045
 contraction, in pulsed discharge 1=7044
 contraction, to sphere, residual flux 1=7060
 contraststreaming, instability, resonance distrib. functions 2=7599
 convection, of positive column, with mag. field 2=17833
 convection, turbulent, in mag. field 2=15913
 convection of weakly ionized plasma in nonuniform external mag. field, theory 4=11581
 convective flexure of plasma conductor 3=21777
 convective instability 0=15013
 convective, instability theory 2=7600
 converter, direct thermal to electrical 3=7423
 converters, space-charge instabilities 2=1500
 cooperative interactions, plasma-wave turbulence, shock-wave prod. 1=5442
 correlation function soln., two-body 4=24631
 correlation functions, quasilinear approx. 4=16504
 cosmic plasma jets, and hyperthermal wind tunnels 2=24142
 and cosmical electrodynamics 0=16520
 Couette flow, in mag. field 0=19652
 Coulomb interaction, in plasma with anisotropic temp. 2=19940
 Coulomb interaction in uniform mag. field 3=7509
 Coulomb interactn., in uniform mag. field 3=386
 Coulomb scattering of charges in strong mag. field 0=19683
 Coulomb scattering in magnetic field 0=19618
 covering magnetic line source, anisotropic 2=13689
 created by ionizing electron beam props. 2=17817
 "crowbarred" rotating, magnetohydrodynamic swirls 2=19948
 current constriction mechanism 0=5302
 current flow between electrodes immersed in low gas press. plasma 4=18938
 current-layer diffusion in one-dimensional pinch 3=1989
 current sheet formation, and implosion 2=3039
 current transport eqns., effect of ionization of molecules 0=19685
 current-voltage behaviour 3=5655
 currents bet. moving plasma and cold electrodes 3=21755
 cusp compression experiment 3=12147
 in cusp-mirror magnetic field, behaviour 2=22225
 cut-off theory of one- and two-component plasmas 1=15735
 cyclotron emission from non-Maxwellian distrib. 1=8323
 cyclotron frequency, in varying magnetic field 2=3882
 cyclotron frequency in varying magnetic field 3=2776
 cyclotron instability, for anisotropic ion vel. distrib. 1=7071
 cyclotron instability, in uniform mag. field 3=24315
 cyclotron radiation 3=7607

Plasma—contd

- cyclotron radiation analyser 2=19861
 cyclotron radiation, ang. distrib., at high temp. 1=4607
 cyclotron radiation of electrons 3=12112
 cyclotron radiation emission, spectral and ang. distr. 0=2500
 cyclotron radiation in fusion reactors 1=9618
 cyclotron radiation, h.f. tail 1=16323-4
 cyclotron radiation from hot plasma 0=3773
 cyclotron radiation from hot plasma 1=9573
 cyclotron radiation, incoherent, at high temp., 1-particle model 1=4608
 cyclotron radiation linewidth for Coulomb interact., nonadiabatic case 4=8705
 cyclotron radiation from single particle near walls and sheaths 4=5614
 cyclotron radiation, by Vlasov eqn. 3=9786
 cyclotron resonance 1=16311
 cyclotron resonance in magnetic field of helix 3=12122
 cyclotron resonant, harmonic generation 0=258
 cyclotron waves of ions due to h.f. e.m. waves 1=5487
 cyclotron waves of ions due to h.f. e.m. waves 1=11959
 cylinder in low density, moving plasma, static potl. 3=7533
 cylindrical configuration, in rectangular waveguide 4=24664
 cylindrical, elec. field diffusion 2=17825
 cylindrical, electron density det. from e.m. wave diffraction pattern 1=8320
 cylindrical, electron and ion layer motion 2=17831
 cylindrical gaseous conductor in mag. field, stability 0=5313
 cylindrical, in longit. mag. field radial distrib. parameters 3=4119
 cylindrical; magnetoacoustic resonance 3=397
 cylindrical, pinch motion 3=19262
 cylindrical, rotating about axis, stability 2=183
 cylindrical, stability in magneto-hydrodynamics 2=17829
 cylindrical, with volume current, stability 0=10911
 D.C.X. machine, fast ion lifetimes 1=16349
 in DCX-1, instrumentation 2=7627
 in DCX, proton energy distrib. 2=15929
 DCX-2, accumulation by high-energy injection 3=12203
 damping of Raleigh-Taylor instabilities in thetatron, discharge 1=18826
 damping of satellite wake in ionosphere 0=15129
 data from space vehicle study of outer ionosph. 2=19213
 Debye—Hückel potential, bound states 4=18791
 Debye—Hückel potential, energy levels 3=3746
 Debye—Hückel theory, corrections 1=4275
 decay, anomalously fast, in mag. field 4=14644
 decay in cylindrical container in mag. field 4=18899
 decay, by diffusion of particles in mag. field 3=14591-2
 decay in toroidal mag. field, effect of drift, meas. 4=11600
 decay in toroidal mag. field, theory and expt. 4=18813
 decaying, diffusion in mag. field meas. 4=14643
 decaying, optically thin, excited atoms and radiated power 3=21779
 dense, electric field distribution 1=300
 dense, ionization—equilibrium eqn. of state 3=3590
 dense, ohmic heating, theory and expt. 4=18805
 density distribution, stationary, in e.m. field 1=7067
 density fluctuations, in magnetic field 1=18819
 density profiles, microwave determination 0=5321
 detonation generated 1=12915
 detonation-generated, propag. characteristics 0=1133
 deuterium, directed flow into vacuum magnetic cusp field 0=15033
 deuterium, electron density, interferometric meas. 3=7582
 deuterium, fusion experiments 0=17645
 deuterium, high-current, in longit. mag. field 0=5312
 deuterium, hot, production and containment 3=12150
 deuterium, ion cyclotron waves 0=15046
 deuterium, magnetic compression, efficiency of pre-ionization 1=2969
 deuterium, moving magnetic field behind shock front 0=1196
 deuterium, in Scylla, high-temp., X-ray spectra meas. 3=7581
 development by injection of fast particles 3=12105
 device similar to Berkeley Homopolar, description 1=16345
 devices, scaling relations 1=16341

Plasma—contd

- devices, thermoelectric, theoretical and practical aspects, review 1=11904
 diagnostics, microwave scanning 1=18889
 diamag. instability, large ion Larmor radius 3=7546
 diamag. moment, by spin resonance technique 0=19693
 diamagnetic instability, large ion Larmor radius 2=19955
 diamagnetism of a gaseous discharge, study by e.s.r. and n.m.r. of foreign substances 1=7074
 dielec. permeability, spatial dispersion, relativistic isotropic plasma 3=4127
 dielectric coeff., Lorentz polariz. term 3=4112
 dielectric const. and equil. correl. function theory 4=11568
 dielectric const., longitudinal 3=14564
 dielectric const., space dispersion 1=10695
 dielectric function for classical system 3=16549
 dielectric permeability, spatial dispersion relativistic isotropic plasma 2=185
 dielectric tensor calc., moving and finite temp. plasmas 4=14634
 dielectric tensor of inhomog. plasma, theory 3=21787
 dielectric tensor suscept. for population inversion 3=8202
 diffraction, electromag. waves, conducting cylinder clad by plasma 3=19446
 diffuse linear pinch, hydromagnetic stability 0=15014
 diffusion, abnormal, perpend. to mag. field 3=388
 diffusion across a mag. field, appl. of fluctuation theory 1=7077
 diffusion across mag. field, collisional 4=499
 diffusion across mag. field, nonlinear ambipolar, theory 4=11595
 diffusion, across mag. field, effect of oscillations 4=546
 diffusion across magnetic field 0=19668
 diffusion across magnetic fields 1=2970
 diffusion, ambipolar inertia-controlled 3=5462
 diffusion, ambipolar, and vol. recomb., rel. to electron density 4=14641
 diffusion, ambipolar, in weak mag. fld. 3=7603
 diffusion, anomalous, across mag. field 2=7602
 diffusion anomalous, with current in magnetic field 3=14573
 diffusion, anomalous, in ion cyclotron reson. 4=29909
 diffusion, anomalous, in mag. field 4=16470
 diffusion, anomalous, from microinstabilities 3=5652
 diffusion break-up in mag. field 0=17015
 diffusion charge carriers, approx. calc. 3=21761
 diffusion of charged particles across magnetic field 1=4604
 diffusion of charged particles across mag. field 4=11601
 diffusion of charged particles in mag. field 3=21790
 diffusion, charged particles, stable, mag. plasma 4=8693
 diffusion coeff. and long range forces 1=5446
 diffusion-controlled column, Schottky's theory 2=184
 diffusion-controlled column, transport phenom. theory 2=11638
 diffusion, current effects, classical and Bohm enhanced density—rad. rel. 4=27514
 diffusion, decay in mag. field 2=22220
 diffusion decay in mag. field 3=14575
 diffusion, decay in mag. field, non-linear equ. soln. 4=21496
 diffusion decay in mag. field, theory 4=29908
 diffusion, due to excitation of ion-acoustic oscillations 3=21842
 diffusion for high ionization, rel. to ion density, meas. 4=11597
 diffusion, instability 2=11653
 diffusion of ions across mag. field 1=11931
 diffusion, with loss due to electron-ion recombination 2=7592
 diffusion, in mag. field 2=188
 diffusion in a mag. field 4=501
 diffusion in mag. field, Cs, not Bohm 4=27515
 diffusion in mag. field, like-particle collisions 3=24286
 diffusion, in mag. field, low temp., survey 2=22208
 diffusion in mag. field rel. to pressure and extension 4=500
 diffusion in mag. field, transverse, meas. 4=11599
 diffusion in mag. fld. 3=7522
 diffusion in magnetic field, effect of "drift" waves 3=24322
 diffusion in magnetic field, rel. to Coulomb collisions 3=19239

Plasma—contd

- diffusion meas. from line source in mag. field 4=11598
 diffusion perpendicular to magnetic field 4=8691
 diffusion processes, carrier distribution 0=7111
 diffusion processes, column in longit. mag. field 0=15023
 diffusion, "resonance", in mag. field, Brownian motion theory 4=11596
 diffusion in stellarator 1=9616
 diffusion in systems with particle losses 1=9553
 diffusion theory in magnetic field 3=403
 diffusion theory, stochastic methods 3=12124
 diffusion, transverse, in inert gases in mag. field 4=5602
 diffusion, turbulent, in strong mag. field due to drift instab. 4=5666
 diode energy converter, with Cs electrodes 2=19887
 diode, film boiling liquid metal anode 2=17776
 diode fuel element, neutron flux in cathode 2=22161
 diode, inverted, coaxial; design 2=13575
 diode, kinetic theory for low plasma density 3=14511
 diodes, cathode processes, as m.h.d. energy converter 3=21816
 diodes, planar, stability 4=443
 dipole field bounding surface, computation by moment technique 2=9577
 dipole resonances in mag. field 4=2973
 direct conversion of electricity, appl. 3=5618
 discharge current flow, in coaxial source 4=24640
 discharge with refl. electrons, charged particle loss 4=14587
 discharge gas in spark discharge, I, V and spectral line intensity 1=283
 discharge plasma, H and H₂ densities by mass spectrograph 1=16432
 in discharge tube, breakdown obs. due to shock waves 2=9555
 discharge tube, sheath formation by r.f. fields 3=21800
 in discharge tubes, plasma potential and noise 0=19630
 discontinuity decay, collision temperatures 1=7057
 dispersion relations, detm. by variational technique 3=19243
 dissipation, rel. to wave propagation, growth, decay 3=7540
 dissociation of molecular ions by high elec. and mag. fields 1=8862
 Doppler effect, in mag. field 2=20161
 double ion beam instabilities, during turbulent heating 3=16985
 double layer potential 4=11552
 double-stream instability, propag. 3=9775
 drift instability, by collisional relax. of high-energy particles 3=5651
 drift velocity, across confining mag. field 2=195
 drifted, transverse e.m. waves, instability 3=17693
 drifting, e.m. refractive index, rel. to ionosphere 1=5599
 drifting, longit. propag. anisotropy of electroacoustic waves 1=18863
 drifting, magneto-ionic theory 2=22201
 drifting, probe characteristics 3=19280
 drops, stabilization by e.m. waves 1=299
 duoplasmatron as ion source 2=17893, 20038
 dynamic friction, ion wave radiation reaction 3=21762
 dynamic pinch, shock model 1=9585
 dynamical friction and diffusion coeffs. 3=14576
 dynamics, differences between derived eqns. 2=5338
 dynamics and electric field correlation 0=17011
 dynamics, idealized problem, rel. to geomagnetic storm theory 1=21095
 dynamics of ionized gases, one- and two-particle distrib. functions 1=10665
 dynamics of sparkover arc in liquid dielectrics 1=16292
 dynamics, variational principles 1=18846
 e.m. acceleration of plasma slug 1=11933
 e.m. dispersion for Cauchy equil. distrib. 3=9794
 e.m. energy containment and transport, review 2=9565
 e.m.f., moving in mag. field 0=1129
 e.m.f., in turbulent ionized gas 2=19894
 e.m. field amplitudes, calc., axi-symmetric problems 3=12296
 e.m. field, effective force 3=17049
 in e.m. field, h.f. and const. mag. field, calc. 4=16478
 e.m. field, h.f., interact. with cylinder 3=1981
 in e.m. field, h.f., non-uniform, radial pot. meas. 4=16479
 e.m. field, 0.6 to 6 Mc/s, interaction 3=14579
 e.m. field penetration 0=10908

Plasma—contd

- e.m. fields, interactions review 2=7593
 e.m. interactions nonlinear, polarizing effect 3=404
 e.m. properties, quantum field theoretical model 2=9581
 e.m. pulsations, slowly varying, propag. 0=9180
 e.m. radiation from intense linear discharge 4=16477
 e.m. radiation, from internal elec. dipole 2=22326
 e.m. radiation, from internal source 2=1436
 e.m. radiation, in magneto-ionic media 2=1592
 e.m. radiation production, rel. to interaction with intense linear discharge 4=510
 e.m. radiation, from rotating electrons, in mag. field 0=5316
 e.m. radiation into vacuum, and plasma wave velo. 4=21508
 e.m. ray gradient effect, on electrons and atoms 2=17965
 e.m. ray gradient effect on electrons and atoms 3=5834
 e.m. resonances of sphere in mag. field 3=7537
 in e.m. shock tubes, accel. and decel. 4=507
 e.m. wave absorption, cyclotron frequencies 0=12613
 e.m. wave absorption, non-resonant 0=9058
 e.m. wave absorption, quantum and classical 3=16941
 e.m. wave absorption, temp.-diagram technique 1=18867
 e.m. wave absorption, temp.-diagram technique 3=405
 e.m. wave cyclotron absorption 3=16940
 e.m. wave damping in mag. field 0=2366
 e.m. wave excitation across plasma particle beam 3=21788
 e.m. wave excitation by charged-particle beam 1=16325
 e.m. wave guiding along magnetic field 3=9941
 e.m. wave incoherent scattering by free electrons 3=7702
 e.m. wave interaction at free space boundary 3=9789
 e.m. wave interactions, study using Boltzmann's eqn. 1=15725
 e.m. wave propag. along mag. field in warm plasma, theory 3=1984
 e.m. wave propag., amplitude modulation 3=500
 e.m. wave propag. in annular columns 3=4276
 e.m. wave propag., appl. to semiconductors 3=6568
 e.m. wave propag. in beam-plasma system 3=2127
 e.m. wave propag., energy equipartition 3=7556
 e.m. wave propag., in homog. mag. field, slow waves 0=9055
 e.m. wave propag., limit cases 3=4132
 e.m. wave propag. in mag. field 1=16313
 e.m. wave propag. in magneto-ionic columns 3=501
 e.m. wave propag. near equil., without mag. fields 3=9788
 e.m. wave propag., non-linear 3=9792-3
 e.m. wave propag., nonlinear effects, review 1=2982
 e.m. wave propag. normal to mag. field 1=18868
 e.m. wave propag. normal to mag. field 3=4138
 e.m. wave propag. in plasma moving in mag. field 0=12708
 e.m. wave propag. in plasma in waveguide 0=17005
 e.m. wave propag. and transport phenomena 3=7549
 e.m. wave propagation in, boundary conditions for normal incidence, 10 possible modes 1=8391
 e.m. wave propagation, in bounded anisotropic plasma 2=17834
 e.m. wave propagation, circularly polarized 2=1418
 e.m. wave propagation, effect of positive ions 2=7616
 e.m. wave propagation in, during motion in ionized gas, wave degeneration at l.f. 0=19910
 e.m. wave propagation, effect of elec. and mag. fields 1=18866
 e.m. wave propagation, rel. to geometric optics hypoth. 2=5343
 e.m. wave propagation, low-temp., under constant mag. field 2=3057
 e.m. wave propagation, in magneto-plasma slabs 2=22332
 e.m. wave propagation, with nonlinear cond. 2=9590
 e.m. wave propagation, in nonuniform sheath 2=19959
 e.m. wave propagation in plasma-filled half-space 1=4729
 e.m. wave propagation, in plasma waveguide 2=5342, 16030
 e.m. wave propagation and production 0=3766
 e.m. wave propagation, in region of ion cyclotron reson. 2=22212
 e.m. wave propagation, slow surface waves 2=16031
 e.m. wave propagation, in strong mag. field 1=5598
 e.m. wave reflection 2=11790
 e.m. wave refl., at indep. moving media boundary 3=5844
 e.m. wave reflection and absorption 1=18852
 e.m. wave reflection, moving in dielec. medium 0=9057
 e.m. wave reflection from, moving and stationary 1=19042

Plasma—contd

- e.m. wave reflection, from moving and stationary plasma 2=22347
- e.m. wave reflection by plasma half-space 3=19253
- e.m. wave reflection, in slow waveguide 2=9591
- e.m. wave scatt. by bounded column 3=9791
- e.m. wave scattering, by electrons, rel. to degeneracy 2=5355
- e.m. wave scattering, in nonequil. state, theory 2=17837
- e.m. wave scattering, infinitely long magnetized cylindrical plasma 0=17018
- with e. m. wave slotted sphere aerial, with acoustic rad. 4=30063-4
- e.m. wave stability, with interacting particle beam 1=18864
- e. m. waves, absorption by sheath, wind tunnel appl. 2=3166
- e. m. waves, dispersion relations, spin and exchange corrections 2=9569
- e. m. waves interaction 1=18865
- e. m. waves interaction, analysis 3=5667
- e. m. waves, interaction with non-uniform plasma 2=3034
- e. m. waves, matching at gradual boundaries 3=1986
- e. m. waves, negative absorption, theory 3=4137
- e. m. waves, nonlinear interaction 0=2444
- e. m. waves, nonlinear interaction in static mag. field 2=7615
- e. m. waves, permittivity, magnetically active plasma, with large refractive index 3=14584
- e. m. waves in plasma stream in medium of high refr. index 3=1985
- e. m. waves, polarization, by crystal optics matrix method 2=11669
- e. m. waves scattering, by plasma-coated sphere 2=3170
- earth as a magnetic mirror machine 1=6598
- effect of cont. elec. field, particle distrib. function 0=1130
- effect on thermionic emission, electrons 4=5697
- effective collision frequencies, and W_H τ values of electrons 2=3040
- effective collision frequencies and $\omega_H \tau$ values of electrons 3=1977
- effective cross-section definition, application 0=10604
- effects of energetic H atom beam, cascade processes 4=12409
- ejection, from electrodeless discharge 2=9602
- elec. arc, electrode substance, equil. concn. 3=1952
- elec. conductivity, complex value calc. 1=16306
- elec. cond. and diffusion across mag. field, theory 1=15720
- elec. cond. at high temp. 0=19691
- elec. cond. for specified electron-ion interaction 1=15719
- elec. cond., tensor, in const. mag. field, temp. correction 1=16305
- elec. conductivity tensor in mag. field 1=16304
- elec. conductivity, variational calc. 1=17660
- elec. microfield distrib. functs. 3=5660
- electric current, restricted to filament, production 2=1415
- electric discharge shock tube diagnostics 1=5475
- electric field correlation 1=18823
- electric field, h.f., strength meas. by Stark effect 4=11625
- electric field heating, threshold 2=22217
- electric field measurement, h. f. Stark effect 2=19984
- electric fields, singularities 3=4110
- electric microfield distribution functions 2=17827
- electric micro-field, Fourier analysis 0=10901
- electric microfield, quantum mech. description 3=394
- electric microfield, statistical distribution 1=11926
- electric pot., between two electrodes, on excitation to high speeds and turbulence 3=9767
- electric propulsion, electron bombard. ion sources 2=22232
- electric resistivity from electron temp. 4=11589
- electrical conductivity, effect of electrostatic instabilities 2=11668
- electrical conductivity, and electron relax., rel. to radiative effects 2=9585
- electrical, conductivity, h. f., emission, absorpt. coeffs. 2=11667
- electrical conductivity, h. f., fully ionized plasma 3=7606
- electrical conductivity, h. f., negative values 0=15030
- electrical conductivity, meas. at high electron density 2=1446
- electrical conductivity, relaxation effect 4=21500
- electrical conductivity, in strong elec. field, runaway electron retard. 2=1427

Plasma—contd

- electroacoustic waves, longit. propag. anisotropy 1=18863
- electrode material influx, effect on spectral reproducibility 2=17807
- electrodynamic acceleration 0=15037
- electrodynamics, linear 3=21769
- electrodynamics in uniform mag. field, quantum 3=4129
- electromag. wave propagation in moving plasma 1=3066
- electromag. wave radiation, plasma clad current filament 3=19438
- electromagnetic wave absorption, in const. mag. field, quasilinear approx. 3=24283
- electromagnetic waves, polarized, thermal effects, 35 kMc/s 3=9784
- electromagnetic waves, polarized, transmission and reflection, hot, mag. confined 3=19252
- electro-negative, Langmuir probe operation 0=9039
- electron acceleration 2=7603
- electron-atom elastic collisions, temp. dependence 1=18793
- electron beam in, electromag. props. 2=17835
- electron beam electrostatic instability when entering temp. effect 4=29969
- electron beam emerging, current-modulated, e. m. radiation 1=18856
- electron beam, helical, self-modulation 3=7608
- electron beam injection, equil. solns. 2=17822
- electron beam injection, nonlinear phenom. calc. 2=11621
- electron beam, intense instability 2=213
- electron beam, intense, instability 3=436
- electron beam interaction, distance in which beam acquires plasma distrib. 4=5629
- electron beam interaction, energy loss 3=9780
- electron beam interaction in magnetic field, rel. to instability 4=8782
- in electron beam melting, spectroscopic obs. 4=16294
- electron beam, modulated, amplification in 2=3041
- electron beam penetration 2=1460
- electron beam-plasma system, instabilities and decay 2=22199
- electron beam u.v. oscls. in optically active medium 4=19009
- electron beams, effects 3=9779
- electron, Boltzmann-Vlasov eqn. 0=15006
- electron, Bohm-Pines theory, subsidiary conditions 0=11595
- electron broadening, adiabatic approximation 2=5333
- electron bunches, intense, interaction in mag. fld. 4=14640
- electron charge-density fluctuations in a mag. field 1=9547
- electron collision frequency, meas. in dense plasma 2=22228
- electron conductivity, rel. to velocity depend. of collision freq. 3=14763
- electron Coulomb collisions, inelastic cross-sections 3=24371
- electron cyclotron radiation, Coulomb interact. 3=7602
- electron densities, high, meas. 3=9611
- electron density amplification in magnetic bottle 0=3761
- electron density and collision freq., microwave meas. method 3=1994
- electron density and collision frequencies, microwave meas. 3=410
- electron density, det. by Stark effect, continuum intensity, optical refractivity 2=19980
- electron density, and distrib., meas. methods 2=5353
- electron density fluctuations, calc. 1=262
- electron density gradients, e. m. reflection and transmission 1=3057
- electron density from group velocity 0=10913
- electron density, high impedance meas. 3=12182
- electron density, by interferometry, in Sceptre IV 3=5679
- electron density, long. var., hot-cathode Hg discharge 3=19204
- 1-electron density matrix kinetic eqn., graphical 0=20086
- electron density meas., cavity method for high densities 1=13094
- electron density meas. by Faraday effect 3=4150
- electron density, meas. method 2=19976
- electron density, meas. by microwave interferometry 2=9597, 9600, 15925
- electron density meas. by microwave polar interferometer 3=4148

Plasma—contd

- electron density meas., microwave reflection 3=12181
- electron density meas. simultaneously with confining mag. field meas. 0=12616
- electron density meas. techniques and apparatus up to 10^{19} e/cm³ 3=4149
- electron density, mm wave determination 2=1443
- electron-density profiles, mm-wave meas. method 3=19229
- electron density ramps, e.m. wave refraction 1=16331
- electron density and temperature meas. in magnetic compression experiments 3=12158
- electron diffusion, current step phenomena 1=9598
- electron diffusion, in mag. field 0=1128
- electron diffusion in mag. field 1=9599
- electron distrib. function calc., with multiple modulated fields 4=14625
- electron distrib. function, in mag. field 1=7055
- electron distrib., microwave diagnosis 3=4136
- electron distribution function, in periodic elec. field 3=24281
- electron drift, instability through ions in mag. field 2=11650
- electron energy distrib. 0=7117
- electron energy distrib. in H discharges 1=16315
- electron energy distrib., in He, Ne and A 1=16316
- electron energy distrib., meas. by triple probes 0=1134
- electron energy distrib., from synchrotron radiation data 1=7068
- electron energy distribution, meas., effect of probe size 2=9599
- electron energy distribution meas., probe circuit 2=1397
- electron energy distributions, anomalous exchange rate, evidence 3=24268
- electron excited, beam-plasma interaction, energy losses 0=10923
- electron fluid, strong space-charge forces 2=19942
- electron gas, classical, in positive ion distrib., thermal equilibrium 0=15019
- electron gas, hot, conductivity tensor, dissipative part 4=27511
- electron heating in crossed elec. and mag. fields 4=11577
- electron heating at cyclotron frequency 3=12209
- electron-heavy particle collision model 1=16318
- electron-hole within semiconductor, magneto-oscillatory effect 0=18057
- electron, interactions with charges in a mag. field 3=7534
- electron interactions, in l. p. region 2=1422
- electron-ion, charge-particle diffusion, across mag. field 0=17016
- electron-ion gas at high density, electrostatic interaction 0=13507
- electron-ion, low-density, neutral, synthesis and props. 1=18828
- electron-ion, negative absorption rel. to free-free transitions 3=1982-3
- electron-ion recombination, in dense plasmas 2=3029
- electron-ion relax. times, theory 4=24630
- electron and ion runaway 0=3775
- electron and ion temperature relaxation, in strong magnetic field 3=14572
- electron and ion temp. relax. in mag. field, theory 4=16462
- electron and ion temps., relax. in mag. field 4=11603
- electron loss mechanism, microwave study 2=22229
- electron, in mag. field, complex Doppler effect 0=9052
- electron, in magnetrons, instability 0=9081
- electron mobility, rel. to resistance 2=9537
- electron mobility rel. to resistance 3=5633
- electron parametric resonances 2=20039
- electron and particle densities behind hypersonic shock waves 0=16775
- electron-photon gas, kinetic theory 4=18794
- electron and photon relax. in mag. field 3=22107
- electron plasma, heavy charged particle heating 3=414
- electron plasma, interact. with charged particle, in mag. field 1=18832
- electron plasma, in magnetic field, dielectric permeability tensor, quantum theory 2=187
- electron plasma in magnetic field, dielectric permeability tensor, quantum theory 3=402
- electron plasma, periodic electrostatic fields 3=21873
- electron pressure, exptl. obs. 2=17819
- electron, radiation of charged particles 1=10723
- electron radiation moving in helical path 3=24308

Plasma—contd

- electron recomb. coeff. in dense low-temp. plasma 4=18798
- electron relax. rate to Maxwellian velocity distrib. 4=11590
- electron sheet in time-periodic mag. field, stability 1=5445
- electron system, excitation spectrum, collisional effects 4=2972
- electron systems, Dirac, virial theorem 1=19103
- electron temp. and cond. in high current toroidal discharge 4=29955
- electron temp. meas., microwave method 3=19279
- electron temp. meas., spectroscopic 3=24303
- electron temp., near anode, in l.p. discharge 0=9037
- electron temp., press. depend., effect of ionization of molecules 0=19685
- electron temp. spatial distrib. in low-press. mag. fld. 4=18702
- electron temperature, and density, meas. 2=15926
- electron temperature and plasma density, direct c.r.t. display 0=19688
- electron temperature, under strong a.c. field 2=17818
- electron temperature, in strong shock wave 2=198
- electron thermal motion, effects on polarizability 3=14605
- electron transport, Boltzmann eqn. soln. 2=15888
- for electron tube r.f. coupling of electron beam 4=19199
- electron, turbulent elec. field fluctuations 3=389
- electron velocities, non-Maxwellian 3=4109
- electron velocity distrib., det. from bremsstrahlung spectra 1=3163
- electron velocity distrib., effect of interelectron collision 0=10903
- electron velocity distrib., inelastic collisions effects 0=9044
- electron velocity distrib. in strong elec. fields 0=9045
- electronic distrib. function, from Fokker-Planck eqns. 4=8675
- electronic distribution function for anisotropic, inhomogeneous plasma, in alternating elec. field 3=7517
- electrons, high density, measurement method 1=13093
- electrons, high-energy, particle surfaces in a stellarator 1=16348
- electrons moving in spiral, radiation 3=22106
- electrostatic field correlation functions rel. to transport props. 4=18803
- electrostatic instabilities, effect on elec. cond. and temp. 2=11668
- electrostatic instabilities in inhomog. plasma 1=11941
- electrostatic interactions, thermodynamic effects 2=3031
- electrostatic resonances of hollow plasma 3=21764
- electrostatic sound waves, collision damping 3=16929
- emission, absorption and elec. cond. 2=7565
- emission-line profile meas. from damped Z pinch 4=18863
- emission by plasma, radial distrib. 1=11937
- emissivity, microwave, effect of turbulence 4=18864
- energy balance and confinement, experiments 3=12172
- energy bound 3=19245
- energy conservation 0=10900
- energy conversion mechanism in bounded magnetized current-carrying plasma 1=11925
- as energy-conversion medium 3=24271
- energy dissipation mechanisms 3=7507
- energy distrib. of escaping particles, meas. 4=523
- energy loss of a charged particle, effects of ionic collective motions 1=2968
- energy loss of moving charges 4=27508
- energy loss, radiation and particles, meas. separately 3=16956
- energy loss by synchrotron radiation 1=11938
- energy losses, time depend., determ. by bolometric methods 4=18486-7
- energy losses, in torus, measurement 1=2977
- energy transfer, hot ions to cold electrons 3=12121
- energy transfer in quantized plasma 4=18804
- enhanced electron-ion interaction, positive column study, in longit. mag. field 1=2964
- equations of motion, corona, interplanetary theory 4=20922
- equations, similarity solns. 2=175
- equations of state 4=18793

Plasma—contd

equation of state, classical, high temp., low density 3=21258
 equation-of-state, classification of diagrams 1=9545
 equation of state, density depend. 0=10895
 equation of state and energy-level shifts of atoms 3=14566
 equation of state deriv. from virial theorem 4=497
 eqn. of state at high temp. 0=19656
 equation of state, validity of Debye-Huckel theory 4=24633
 equilibrium of a column in a magnetic field 3=7532
 equilibrium configurations of Larmor radius size 1=18835
 equilibrium configurations of Larmor radius size 3=4116
 equilibrium configurations in toroidal plasma systems 1=10706-7
 equilibrium in cylindrical symmetry 1=9561
 equilibrium of electrons, plasmons and phonons 2=3881
 equilibrium in helical mag. field 0=9032
 equilibrium maintenance by instabilities 1=9550
 equilibrium props. at high temp., appl. of giant cluster expansion theory 0=18991
 equilibrium props. of partially ionized plasma 1=9558
 equilibrium, in spatially periodic mag. field 4=14696
 equilibrium statistical mechanics, chemical potential rel. to micropotential distrib. function 4=11582
 equilibrium theory, from kinetic theory of electron gas 4=18792
 evolving, electron density meas. 0=7113
 excitation, of bounded plasma, by electron beam 2=19944
 excitation, long-wavelength modes 3=12139
 excited states population, metastable atoms effects 4=11609
 expansion, electro-acoustic velocity 2=7604
 expansion in external magnetic field 4=27519
 expansion meas., slow, into vacuum 4=8668-9
 expansion, positive ion acceleration 1=18789
 exploding wire, mag. mirror confinement 1=18870
 exploding wires, interaction with microwaves 3=4103
 exploding wires, jacket, creation process 3=4102
 exploding wires, pinch effect 3=4139
 exploding wires under water, temp., and ionization 4=21520
 expt., capacitor bank, spark-gap switching 3=3972
 expulsion of plasma ring from magnetic "mirror" 1=5457
 expulsion of plasma ring from magnetic "mirror" 1=11943
 external electric and magnetic fields, effects 4=8775
 Faraday rotation, electron density measurements 1=9597
 fast ion thermalization 1=2960
 fast ion, thermalization, analytic solution 3=19248
 fast magnetic compression 0=19664
 fast particle motion, weak stationary turbulence effect 4=29907
 filament, current-carrying, eqns. of motion 3=21796
 filamentary structure, with force-free mag. fields 2=9692
 finite, diffusion in uniform mag. field 0=17014
 fission into two filaments in hot plasma 1=18827
 flames, caloelectric effect 3=19184
 flames, intermediate gas region 3=14399
 in flares, solar, cosmic ray prod. by pinch effect 1=26
 floating multiple probe systems 2=19975
 flow across mag. fld., convective instability 4=19049
 flow, almost one-dimen., magnetohydrodyn. 3=7514
 flow in axial magnetic field 0=7119
 flow behind shockfront in T-tube 4=18831
 flow, chemical reaction effects 4=16138
 flow, forbidden zones, theory 3=16936
 flow, in high-current arcs, streaming velocity 0=19644
 flow, high-energy, in magnetic guide field 4=18824
 flow at high temp., experiment and theory 3=7587
 flow into perpendicular magnetic field 4=18821
 flow, magnetogasdynamic, between coaxial cylinders with potential between 3=17044
 flow, 1-dimensional, between parallel plane walls 2=3042
 flow, quasi-one-dim., magnetohydrodyn. 3=21791
 flow round three-dimensional dipole 4=2976
 flow, slip, macroscopic electron-ion energy exchange 4=14637
 flow stability of longitud. plasma in mag. field 0=7126

Plasma—contd

flow, stationary, axially-symmetrical, across azimuthal mag. field 4=16472
 flow, through mag. barrier 1=18847
 flow, transverse to magnetic field, short-circuiting 2=17823
 flow into vacuum in mag. fields 1=4597
 flow into vacuum magnetic cusp field 0=15033
 flowing, e.m. field interaction 3=16945
 flowing ionized gas, electrode heating 2=20131
 flowmeter, absorbing 3=21802
 fluctuating microfield and multiple collision 1=8330
 fluctuations 3=5653
 flute disturbance stabilization, by Coriolis force 2=15927
 flute type instability 0=12618
 focusing method 1=5470
 focusing method 1=11947
 Fokker-Planck coefficients, including cyclotron radiation 3=12109
 Fokker-Planck coefficients, relativistic 1=7076
 Fokker-Planck coeffs. for one-dim. plasma 3=4115
 Fokker-Planck eqn., cartesian tensor expansion 4=2599
 Fokker-Planck eqn. formulation incl. excitation effects 4=11585
 Fokker-Planck eqn., friction and diffusion coefficients 1=16320
 Fokker-Planck eqn., soln. 0=19657
 Fokker-Planck equation 0=9024
 Fokker-Planck equation for plasma with constant mag. field 1=9546
 forces due to h.f. field, with static inhomogeneous mag. field 4=14697
 formation by h.f. e.m. fields, and pinches, orthogonal 3=14590
 formation by low-energy ion injection and cyclotron heating 1=8333
 formation in side arm of T-shaped shock tube 4=5288
 free-electron removal method 2=15933
 free energy at infinite dilution 4=18796
 free-space discharge prodn. at focal point of e.m. standing wave 3=7592
 friction and diffusion coeffs. of Fokker-Planck eqn. 1=16321
 front velocity in shock tube 4=18832
 fully-ionized, ohmic heating, electron-ion collisions 0=10898
 fully ionized, quadratic Stark effect on non-H lines, review 4=18853
 fully ionized, r.f. probe meas. 3=7575
 fusion reactions in unconfined plasma 0=20532
 G-factor, microwave detm. 3=4152
 γ -rays of discharge in mag. trap 3=7512
 gas density, electron concentration, interferometric method 2=199
 gas-discharge, radiation energy loss 0=15025
 gas filter for cutting off particles from radiation 3=24274
 use for gas flow visualization. 3=157
 gas, radially constricted between electrodes, temperature estimation 1=8332
 general equation, with electrons, positive and negative ions; boundary value problem 3=7495
 general theory 0=2357
 generation and amplification of millimetre waves, survey 3=5835
 generation, by collective beam-plasma interact. 2=22204
 generation, in discharge, with thermionic cathode in mag. field 2=7605
 generation, by elec. arc, in space propulsion 2=11635
 generation, high-pressure, and temp., by mag. compression 2=9566
 generation, highly ionized with low-impurity level 2=15909
 generation, in hollow-cathode discharge 2=17794
 generation, by mag. trapping of energetic atoms 2=15912
 generators, based on d.c. arc, review 2=19974
 glow discharge, positive column electron and gas temp. 1=16284
 gravitational instability, of magnetized plasma 2=7619
 Green's functions, Schwinger's method derivation 1=7072
 Guernsey-Balescu eqn., rel. to relax. time 4=14630
 guiding centre approx. to particle motion 1=16405
 guiding centre motion and plasma behaviour in Bumpy Torus mag. field 4=16474
 gun, acceleration between coaxial electrodes 2=1457

Plasma—contd

gun, current sheet 2=7630
 gun, electrodeless 3=12207
 gun, electrostatic high-energy type 1=18891
 gun, fast-acting valve design 3=19285
 gun, hydromagnetic 1=16342
 gun, inductive 3=21809
 gun, ion-energy distrib. meas. 2=11677
 "gun", mag. operated, calc. 3=9808
 guns, shock-wave phenomena 1=11777
 guns, two coaxial, high vel. source 3=7520
 gyro-electric-magnetic medium, e.m. wave propag. 2=22202
 h.f. heating, in axial mag. field 0=10899
 h.f., mass separation and pinch effects 3=24294
 h.f. potential well for dense plasmas 1=4612
 h.p. discharges, probe meas. of local potentials 0=16992
 Hall effect in cylindrical column 4=18825
 Hall effect, mechanical analogy 1=5562
 Hall instability, slightly-ionized plasma 3=24272
 Hamiltonian and other systems, asymptotic theory with nearly periodic solutions 3=11669
 heat transfer in cooled tube 1=18842
 heat transmission, through flowing gas, from solid 0=5053
 heat wave propagation, with frontal radiation 0=10798
 heating by acoustic fields 1=9595
 heating by anomalous dispersion of Alfvén waves in inhomog. mag. field 4=5670
 heating of circularly polarized waves, exptl. verification 3=16951
 heating by collapsing magnetic fields 3=12173
 heating, collision-free 0=3758
 heating conditions, by optical generator radiation 4=11645
 heating and confinement, high power r.f. pulse generator 4=8596
 heating by current saturation 0=9036
 heating, by cyclotron resonance 1=7058
 heating by e.m. fields, magneto acoustic reson. 3=7613
 heating, e.m. wave, circularly polarized 3=21786
 heating by h.f. field of travelling wave 4=5665
 heating by ion cyclotron 1=9617
 heating by laser, correlation regime 4=27544
 heating due to longitudinal current 4=5668
 heating, by mag. shock compression 0=4155
 heating, by magnetic piston 1=7419
 heating, by microwave absorption, sheath configuration 0=12602
 heating, ohmic, of positive ions in impure plasma 1=9596
 heating, in periodic elec. field 3=24281
 heating, by polarized r.f., trapped in pulsed mirror field 3=9783
 heating, turbulent 4=16464
 heavy charged-particle passage through, energy loss 2=9581
 heavy-current toroidal discharge tubes 0=5305
 helical instability of linear discharge plasma 3=12088
 in helical waveguide, slow-wave propag. 1=4724
 helix situated in a plasma, dispersion characteristics 1=12018
 high- β injection, into magnetic mirror field 2=1439
 high compression and neutral injection experiments, diagnostic techniques 2=7625
 high-current discharge in weak magnetic field, mechanism 3=12108
 high-current pulse discharges in conical chambers 0=5306
 high-current pulsed discharges 0=5320
 high-density, high-temp., production methods, by controlled magnetic compression 3=12163
 high-energy density, high press., investigation 0=5319
 high-energy particle magnetic trapping, ion trajectory and magnetic field calc. 3=12154
 high-energy particles, drift instabilities rel. to collisional relaxation 3=7526
 high-energy pulsed discharges, neutron and X-ray production 0=5317
 high-frequency, generation and oscillations obs. 2=1465
 high-power pulse discharges, spectroscopic study 0=5318
 high speed beams in vacuum arcs 4=29935
 high temp. 0=2359
 high-temp., Fokker-Planck equation 1=16319
 high temp. gaseous, production 0=2310
 high-temp. N, O, and air, absorption coeffs. 0=7120
 high temp. prod. in jets, He, Ar 3=21602

Plasma—contd

high-temp. rotating, review 0=4156
 high-temperature, dynamics, review 1=16330
 high-temperature, lifetime detm. on basis of neutron emission duration 3=1997
 high temperature plasma, stationary states, kinetic approx. 3=19235
 high-temperature, production problems, and collective interactions 4=496
 high temperature production torch, h.f. 3=7590
 highly-dense, spectroscopy, short-time, methods 3=7580
 highly-ionized, neutral atom density meas. by line radiation absorption 3=7579
 historical review 3=9764
 hollow pinch model using liquid conductor 1=9678
 Holtsmark microfield distrib., rel. to collision parameter cutoff 0=257
 Holtsmark theory generalization, considering "broadening" ions' thermal motion 4=18858
 homogeneous, interacting with radiation field, kinetic equations 4=21512
 homopolar device, stationary flow 2=5357
 "hot" component concn. meas. with "free" probes 3=21807
 hot, cyclotron radiation 0=10918
 hot dense, probe meas. at low voltages 4=528
 hot, and dense, radiation 2=7235
 hot-electron plasma, by beam-plasma interaction 3=16937
 hot, gas insulation, theory and expt. 3=12198
 hot, homogeneous and slightly ionized, conductivity tensor 1=16308
 hot, incoherent scatter 4=521
 hot, produced by electrolytic condenser bank 3=5656
 hot, stimulated-emission effects 4=509
 hydrodynamic eqns. 3=7497
 hydrogen, 1-30 atm., 1000-30 000°K; composition, density, enthalpy and specific heat 1=10701
 hydrogen plasma bremsstrahlung, Gaunt-factor 1=9569
 hydromagnetic equilibrium, theory 1=5566
 hydromagnetic gun 0=9034
 hydromagnetic Rayleigh-Taylor stability 1=18887
 hydromagnetic waveguides 0=11026
 hydromagnetic waves in discharge plasma 0=5383
 hydromagnetic waves excited by moving charge 0=5325
 interacting ions and dipole particles 2=11301
 with interacting particles, spectra, collective energy losses 1=2963
 interaction, and cm wave generation 0=19919
 interaction with charged-particle beam 1=2965
 interaction with charged-particle beams 2=11647, 19945
 interaction with charged-particle beam 3=21792
 interaction with a charged test particle, distrib. function of field particles 1=5440
 interaction of cold plasma with guided e.m. waves 3=7553
 interaction with e.m. field in cavity resonator 3=12136
 interaction with electron beam 2=11665
 interaction with electron beam, microwave amplification 1=5441
 interaction with electron beam, 1000-3000 Mc/s 1=257
 interaction with electron beams 0=12619
 interaction with electron beams 3=9781
 interaction with electron-ion beam, gain 3=24284
 interaction with electron-ion beam in mag. field 4=19011
 interaction with external current and flux 3=7598
 interaction with ion beam, wave excitation 2=9574
 interaction with l.f. e.m. waves 1=11939
 interaction with microwaves 1=9572
 interaction with microwaves 2=5340
 interaction with modulated charged-particle beam, radiation 2=190
 interaction with modulated electron beam 2=5341
 interaction with moving body 2=3049
 interaction with oblique e.m. waves 2=16042
 interaction with pulsed electron beams up to 8.5 amp. 4=16507
 interaction with radio wave at high temp. 3=7554
 interaction with radio waves 1=11940
 interaction with resonant cavity 3=14776
 interaction with standing e.m. wave, and const. mag. field 2=5339
 interaction of streaming plasma with dipole mag. field 4=18819

Plasma—contd

- interaction with test particle, energy loss 2=3027
- interaction with three-dimensional dipole 4=14692
- interaction with two-dim. mag. dipole 3=4125
- interface with neutral gas, coupling of m. h. d. to e. m. and acoustic waves 4=29912
- interference spectrometry, 0.1-10 mm 3=9957
- interferometer, microwave, reflected, modulated 4=30050
- interpenetrating, e. m. waves 2=15919
- interpenetration of two ionized gas clouds 1=13079
- interpenetration of two ionized gas clouds 3=16907
- interplanetary, direct obs. 2=12055
- interplanetary, flow round earth 3=9287
- interplanetary, investigation, instrument 1=15582
- in interplanetary rocket propulsion 1=16340
- interplanetary, solar effects 2=12091, 15302
- interstellar 0=3404
- inverse skin effect 0=1092
- ion accel. in beam, by fast electrons in mag. field 4=5600
- and ion accelerators, comparison 0=12615
- ion-acoustic waves, excitation, in periodic elec. field 3=24281
- ion beam injection, energy losses, in homog. mag. field 0=15011
- ion beam injection into magnetic trap, electrostatic 3=7651
- ion beam interaction and thermalization 4=11642
- ion beam neutralization by electron injection 3=12128
- ion beam neutralization by injection of electrons 1=18776-7
- ion beams, radiation emission in mag. field 2=5388
- ion centrifuge, currents calc. 2=19938
- ion cyclotron radiation, theory 2=192
- ion cyclotron resonance 0=10924
- ion cyclotron resonance, in r. f. field absorpt. 2=17843
- ion density, meas. 2=1416
- ion density, meas. by double probe in mag. field 1=8324
- ion diffusion from P.I.G. discharge transverse to mag. field, new instability 1=11956
- ion and electron distrib. functions and mobility for weak ionization 4=11512
- ion-electron relaxation in a high mag. field 1=244
- ion-electron relaxation in magnetic field 1=8319
- ion energy and density, in e. m. trap 3=19274
- ion energy distrib. from h. f. sources 0=12641
- ion energy, at high temps., thin-foil meas. method 2=9601
- ion energy in Zeta-type device 3=1999
- ion injection, fast, energy loss calc. 2=9570
- ion, maximum bound principal quantum number 4=11573
- ion motion, SCEPTRE III spectroscopic studies 1=235
- ion relax., fast, Butler-Buckingham rel. to Boltzmann calcs. 4=27512
- ion reson., r. f. probe obs., hot cathode Hg discharge 4=14681
- ion resonance in multicomponent cold plasma 1=7070

Erratum

For entries beginning "i. r. absorption" to entries beginning "insulation" see pages 1844b and 1845a

- vibrations 0=17886
- ionic level shifts and width broadening 4=1199
- ionization, admixture interaction effects, thermal excitation 3=24269
- ionization ahead of cylindrical shock waves 3=1759
- ionization, effect of microfield of particles, theory 4=11570
- ionization energy lowering for different component temps. 4=11574

Plasma—contd

- ionization energy reduction in thermodyn. equil. 3=7604
- ionization eqn. for medium temp. and density 3=16933
- ionization, equilibria, spectral line intensity 2=1419
- ionization front driven by a mag. field, radiation 4=18835
- ionization, generalized Saha equations, non-equilibrium 4=11562
- ionization losses, from fast particles 4=2938
- ionization, magnetoacoustic waves method 2=3063
- ionization, and phase eqn., at high-temp. and press. 2=15916
- ionization potential, effective, of atoms, contrib. of highest atomic states to continuous emission 0=19680
- ionization potential, effective, of atoms in interior 1=18829
- ionized electric fields, equations, singular and regular solutions 3=9772
- ionized gas, ion-neutral particle momentum transfer 3=21718
- ionized, high-velocity, interaction with transverse mag. fld. 4=18823
- ionized, in mag. field, r. f. radiation 0=19682
- ionized, transport eqns., statistical theory 0=2362
- ionized vapour jet, production of continuous current 0=19671
- ionized vapour stream, direct conversion of heat 2=17778
- iono-acoustic emission 4=508
- ionosphere, perturbations due to travelling bodies 2=8991, 19218
- ionospheric, diffusion 4=10756
- irregularities in weakly ionized gas, movement theory 3=23605
- irreversible processes 0=3776
- irreversible processes 3=18847
- irreversible processes in quantum plasma 1=9540
- irreversible processes, for quantum plasma, equilibrium 1=2961
- irreversible processes and the Schlüter force equation 1=9542
- irreversible processes, statistical mechanics 0=10614-16
- irreversible processes in strong magnetic fields 1=5448
- irreversible processes, theory 2=22205
- irreversible transport phenomena, new approach 3=19242
- jet accel. by gradients of h. f. and static mag. fields 4=5605
- jet, arc stabilized by air vortex, for propulsion 3=408
- jet, arc stabilized by mag. field, for propulsion 3=409
- jet, of generator, structure invest. 3=9809
- jet, H₂ and H₂ line shapes 3=2000
- jet heater, descrip. and results 2=3052
- jet piercing of magnetic fields 0=256
- jet from pulsed discharge, structure obs. 3=14569
- jet, 7kW, production 0=3779
- jet, stable, for spectroscopic source 3=1820
- jet, transfer across mag. barrier, temp. meas. 3=9800
- jets, arc-heated, 5-20 kW, temp. distrib. 3=21810
- jets, in blow-lamp, temp. det. 2=19979
- jets, high-purity, arc heating device 3=4156
- jets, light sources for spectroscopy 2=109
- jets, mag. field structure in, plasma blob accel. 4=24719
- jets, "plasma pipe", far i. r. emission, rel. to frequency 2=22231
- jets, propag. vel. and luminosity fluctuation 2=19990
- jets, pseudo-high-energy positive ions 3=7518
- jets, rotating, in discharge in mag. field 2=9592
- jets, stable, formation, with force-free mag. flds 3=7560
- jets, temp. meas., spectroscopic 3=4151
- jets, water-stabilized, electron density and temp. 3=2000
- Joule-heated, thermoelectric effects 4=14628
- Joule heating of electron gas 0=7127
- Joule heating in stable pinched plasma 1=1902
- kinetic coefficients, derivation 2=177
- kinetic coeffs, derivation 3=385
- kinetic energy of diffusing particles 1=18816
- kinetic eqn., convergent classical 4=5595
- kinetic eqn., convergent, from generalized Master eqn. 4=8681
- kinetic eqn. at high temp., effect of binary and ternary correlations 1=11922
- kinetic eqns. including radiation in mag. field 4=24632
- kinetic eqn. for inhomog. plasma far from equil. 4=27509
- kinetic eqn. in mag. field by expansion of BBGKY eqns. 4=11567

Plasma—contd

kinetic eqn. for rapid processes 1=4593
 kinetic eqn. in strong static mag. field 3=5665
 kinetic eqn. in weak static elec. and mag. fields 3=5664
 kinetic eqns. for fully ionized plasma 3=16925
 kinetic eqns. in uniform electric field 4=24104
 kinetic equations 2=591, 11643, 13559, 19937
 kinetic equations, Fokker—Planck analysis, criticism 3=12110-11
 kinetic master equation 4=29904
 kinetic props. with large radiation press. and electron—photon drag 3=21782
 kinetic props. of plasma with large radiation press. 4=24636
 kinetic stage, ternary correlations 4=18806
 kinetic theory, quantum and exchange corrections 4=11563
 kinetic theory, superposition of dressed test particles 4=16460
 kinetic theory, test particle method 4=16461
 kinetics, basic, theory 3=9765
 Kirchhoff's law and radiation props. 3=391
 l.p. discharges, various effects in air and H 0=16978
 l.p. plane symmetric discharge 0=5308
 laboratory and cosmic scale 0=2358
 Lagrangian density, for 1-fluid inviscid compressible plasma 1=4592
 laminar arc-heated flow, cooled anode in contact 4=14732
 Landau damping, theory 1=15723
 Langmuir probe characteristics, effect of r.f. signal 3=24300
 Langmuir probe data, rapid reduction, circuit 3=5678
 Langmuir probe, for "drifting" and "accelerated" Maxwell distrib. 2=22230
 Langmuir probe, electron transit-time effects 3=16952
 Langmuir probe and microwave electron density meas. 3=12184
 Langmuir probe, modulated, characteristics 3=16953
 Langmuir probe, stagnation point 2=13574
 Langmuir swept probe system, electron temp. and ion density meas. 1=279
 large amplitude waves in collision-free plasma 0=12623
 Larmor circle model, Boltzmann eqn., electron—ion diffusion 1=7051
 "Larmoron" concept 0=15004
 by laser beam absorption 4=29867
 laser prod., on Al, C, W 4=18881
 lasers, h.f., multiple probe meas. 4=8971
 layer props., from e. m. wave transmission coeff. 4=29923
 lifetime in low-pressure discharge, in radially increasing mag. fld. 4=18696
 light, meas., by guide, fibre 3=21808
 light as a probe, effect of longitudinal oscillations on atomic spectra 1=10686
 and lightning ball 3=13686
 linear diffuse pinch, hydromagnetic stability 1=306
 linear pinch devices 0=19659
 linear pinch, electron density, microwave reflection study 1=1904
 linear pinch, stability 0=19658
 linear pinched discharge, effect of electrodes 1=9594
 linear pulse discharged, dynamic behaviour 2=3051
 linear pulse discharges, high-current, elec. props. 2=9572
 linear pulse discharges, multiple cylindrical plasma 2=22213
 local thermal equilibrium, validity 3=19233
 local thermodynamic equil., departures, theory 4=11575
 localizing and heating by resonance method 1=10713
 long-wavelength excitation, classification 2=19962
 in longitudinal mag. field, contracted column and distrib. plasma effects 0=17010
 longitudinal waves in mag. field—plasma interface 3=14578
 longitudinally magnetized, electric wave propagation 1=9570
 loop in axially symmetric field 0=15031
 loops, in h.f. induction discharges 0=14986
 Lorentz gas, complex conductivity model 3=1625
 Lorentz gas, Hall effect 1=16307
 Lorentz, in mag. field, electron distrib. 0=2364-5
 Lorentzian, electron distrib. function analysis 3=369
 Lorentzian, inhomog. and anisotropic, statistical mechanics, electron distrib. 0=15005

Plasma—contd

loss reduction and confinement, by r.f. fields 2=17841
 lossless dissociating, for use with DCX-type device 4=24714
 low-density, elec. field along mag. line of force 4=8696
 low-density, flow, rel. to Hall effect 4=27513
 low-energy, low-density, e. m. field interaction model 4=14661
 low pressure, electron behaviour and beam scattering, mechanism 3=7500
 low-pressure, instability conditions 2=7595
 low-pressure, vacuum - u. v. investigation 4=18855
 luminescence and density in magnetic trap with opposed fields, expt. 4=8735
 luminosity, in e. m. shock tube 4=18827
 luminous phenomena when ionized air channel exploded 3=4124
 luminous, in shock tube, contact surface effects 4=29702
 Luxembourg effect, in free space columns 3=9805
 mm-wave diagnostics 3=19230
 machines, present outlook 1=8805
 macroscopic characteristics 3=19275
 mag. confinement, turbulence 3=9802
 mag. and elec. field distrib. for pulse currents of 500 kA 1=9583
 in mag. field, h.f. response probes 0=17019
 in mag. mirror machine, multichannel ion analyser 0=19798
 magnetic annular arc 3=1954
 magnetic bremsstrahlung in high-temp. plasma 0=19681
 magnetic bremsstrahlung, from plane layer, in mag. field 1=7056
 magnetic compression 1=5468
 magnetic compression, amplitude and polarity effects 3=12165
 magnetic compression, dynamical behaviour, theory 3=12167
 magnetic compression, fast, density distrib. meas. 3=12166
 magnetic compression waves in collision-free plasma 1=11957
 magnetic confinement 1=9587
 magnetic confinement, perturbation analysis 1=5460
 magnetic confinement of thermonuclear reactions 0=13383
 magnetic containment in axially symmetrical cusp fields 0=15009
 magnetic field, crit. 4=18815
 magnetic field diffusion in Zeta 1=9611
 in mag. field, dispersion eqns. for electron flux 4=29915
 magnetic field excitation by hydrodyn. motions 3=21843
 in magnetic field, for ion beam intensification 1=11980
 magnetic field meas., Zeeman-effect 3=16955
 magnetic field (990 kc/s) penetration in H plasma 3=14585
 magnetic field—plasma interact. to simulate geomag. storm 4=7936
 magnetic field, solenoidal, and stream, interaction 3=24288
 magnetic field topology for thermal insulation 3=21793
 magnetic fields, transient, meas., appl. mag.-optical effect 2=1450
 magnetic flux diffusion, eqn. 2=9583
 in magnetic grid, zero internal field, reactor system 1=7066
 magnetic microfield, statistical distrib. 1=4591
 magnetic mirror configuration, electron model 2=19988
 magnetic mirror configurations, stability, rel. to conducting wall 3=12205
 magnetic mirror confinement 1=18872
 magnetic mirror devices for plasma containment 0=19662-3
 magnetic mirror geom., pitch angle diffusion 3=9810
 magnetic mirror machines, motion of charged particles, stability 0=3837
 magnetic mirror machines, end losses 1=11953
 in magnetic mirror system, potential 1=18871
 magnetic mirror trap, electron model 1=7061
 magnetic mirrors, anomalous plasma losses, wall currents 1=18873
 magnetic probe meas., errors 3=9804
 magnetic probe, multicoil 3=16954
 magnetic probes study, mag. field plot data 0=3760
 magnetic properties, behind strong shock-wave front 2=9586
 magnetic shock waves 3=7529
 magnetic sound 1=4627

Plasma—contd

magnetic "surfaces" in cylinder and curved stellarator section 3=14724
 magnetic trap, with rotating mirrors 0=17002
 magnetic trap with rotating stoppers 1=4620
 magnetic traps, with corrugated field 1=7064
 magnetically accelerated, Rayleigh-Taylor instabilities 1=18888
 magnetically compressed, characteristics rel. to trapped field 3=12156
 magnetically confined, instability waves 1=9621
 magnetized, collision with non-ionized gas 1=5447
 magnetized, confinement and energy balance 1=7080
 magnetized, current-carrying; energy conversion mechanism 3=7527
 magnetized, energy balance and confinement 1=5459
 magnetized, energy balance and confinement 1=11946
 magnetized, interaction with neutral gas, rotating machine 1=2980
 magneto-acoustic resonance 1=4629
 magnetoacoustic resonance investigation with double electric probes 1=18858
 magnetoacoustic resonance, mag. field spatial amplification 2=19953
 magnetoacoustic resonance, mag. fld. spatial amplification 3=7544
 magnetoacoustic wave absorption, in const. mag. field 3=24283
 magnetoacoustic waves 4=14671
 magnetoacoustic waves, attenuation, anisotropic case 1=18862
 magnetoacoustic waves, in cylindrical column 2=19954
 magnetoacoustic waves in cylindrical column 3=7545
 magnetoacoustic waves, excited by charged particles 2=22211
 magnetoacoustic waves in non-isothermal plasma, dispersion eqns. 4=14672
 magnetoactive, dispersion of ion cyclotron waves 2=1435
 magnetoactive, in elec. field, e. m. fluctuations 2=189, 22219
 magnetoactive, moving-electron radiation 0=10919
 magnetoactive, passage of charged particles 2=11648
 magnetoactive, radiation from spiralling electron 2=22210
 magneto-acoustic resonance, heating by oscillating mag. field 0=19695
 magneto-compressional disturbance, in tepid plasma 2=1431, 11652
 magneto-fluid dynamic shock waves 1=10779
 magnetohydrodynamic channel, cross-field, end currents 2=9705
 magnetohydrodynamic eqns., derivation 1=13083
 magnetohydrodynamic power generator 0=9182
 magnetohydrodynamic shock in absence of particle collisions 1=11934
 magnetohydrodynamic shock wave propagation 1=5453
 magnetohydrodynamic toroidal system with scalar pressure, stability criterion 3=12129
 magnetohydrodynamic wave coupling, theory 4=29911
 magnetohydrodynamic waves, attenuation, anisotropic case 1=18862
 magnetohydrodynamics, engineering aspects, conference 4=14871
 magnetohydrostatic stability criterion 2=5457
 magnetomechanical effect, rotational, at low press. 3=21781
 magnetoplasma in a.c. field, transport coeffs. 3=9774
 magneto-plasma dynamic channel flow, induction-coupled 4=18822
 magnetoplasma effects in solids 1=7564
 magnetoplasma, electronic thermal cond. meas. 3=5668
 magnetoplasma halfspace, field of horiz. mag. dipole 3=21978
 magnetoplasma, microwave radiation 3=12115
 magnetoplasma, radiation from moving charge 3=24270
 magnetoplasmas, microwave reflection 3=24289
 magnetoresistance and Hall effect 2=18659, 21120
 magnetoresistance, high-field, for stratified medium 4=12866
 magnetosphere, energization theories 3=13699
 magnetosphere, ring currents 2=24051
 many-body collisions, effect on thermonuclear reaction rate 1=3478
 many-component, particle and heat fluxes calc. 4=8690
 mass and energy losses, of charged particles 2=11721

Plasma—contd

Maxwellian, drift instabilities 0=17006
 Maxwellian and magnetically confined, soln. 2=13571
 Maxwell's eqns. for cold plasma, solution 3=382
 mean free path, new formula proposed 1=9539
 meas., transients, by reflection e.m. waves, pulse 3=24301
 measurement, cavity method 3=19278
 measurement, density, by refractive index, laser interferometer 3=19276
 metal-derived, acceleration 1=16339
 metal, liquid, and thermal expansion-surface energy rel. 4=18174
 metal surface in contact, arc initiation 0=16991
 metallic, gaseous, equation of state 3=16927
 in metals, collective coordinate theory 4=12711
 metals, slowing-down of protons and μ^+ 3=22691
 in metals, spin fluctuations 1=7562
 in meteor trails, concentration near meteor 0=18712
 microfield and micropotential distrib., virial expansion formulae 1=10697
 microfield problem, Gaussian distrib. 4=518
 microfield, theory, Holtsmark-like distrib. function 3=12099
 microfields 1=16312
 microscopic theory, position correlations, radiation problems 1=15720
 microwave amplification in beam-plasma interaction 4=8671
 as microwave amplifier 2=7607
 microwave attenuation by cyclotron resonance 1=13087
 microwave diagnosis, electron distrib. 3=4136
 microwave diagnostic system, multiple-probe 3=4153
 microwave diagnostics, sources of error 2=19957
 microwave, elec. field as function of time 0=19669
 microwave emission, absorpt. at cyclotron harmonics 2=22237
 microwave emissivity of turbulent plasma with non-parallel orientation of turbulence elements 4=21506
 over microwave horn ground plane, rel. to radiation pattern 2=13687
 microwave interacts. 3=21488
 microwave meas., use of focusing lenses 3=7576
 microwave noise emission, thermal 3=1968
 microwave propag. 1=2987
 microwave propag. with parallel mag. field 3=7551
 microwave propagation 2=1602
 microwave propagation through magnetoplasma 1=7156
 microwave propagation, parallel to mag. field, electron motion effects 2=7614
 microwave radiation 3=7536
 microwave radiation, anomalous, at cyclotron resonance in partially ionized plasmas 4=5613
 microwave reflection from small-diam. columns 3=21785
 microwave resonance, in cylindrical plasma 2=17828
 microwave resonance in hot column 3=9782
 microwave scattering, Born approx. 2=22203
 microwave scattering, harmonics predicted 3=232
 microwave transmission at 8.7 mm 1=19023
 microwave transmission, 8.6 mm, circularly polarized 2=19958
 microwave transmission meas. of electron props. 3=9795
 microwave whistler mode propagation (in Zeta), diagnostic use 0=10916
 microwaves in ionized gas 0=2360
 migration across mag. field, transport theory 3=21774
 millimetre wave noise 3=4131
 mirror device (B-66), ion cyclotron waves 1=11960
 mirror instability for finite particle gyro-radius 3=12152
 mirror machine, electrostatic potentials 1=10714
 mirror machine experiments and atomic cross-section meas. 3=12204
 mirror machine, fusion reactions, self-sustaining, critical conditions 3=14601
 in mirror machine, velocity-space instabilities 1=7085
 mirror machines, synchrotron radiation 1=7084
 in mirror system, trapping and containment 3=16948
 mirror systems, electrodynamic injector 2=9603
 mirror systems, ion velocity distrib. 2=1438
 mirror systems, scattering losses 2=7621, 11679
 mirror systems, temporary capture of ions 2=17848
 model, one-dim., numerical expts. 3=9770
 model, 1-dimensional, as identical charge sheets 2=9571
 modern kinetic theory 3=7496
 in molec. ion injection mirror machine, O.G.R.A. 0=5840

Plasma — contd

momentum change techniques, in props. meas. 2=3048
 motion across mag. field 1=13084
 motion across magnetic field with electric field present 1=5452
 motion of charged particle, induced fields effects 4=505
 motion of charged particle in rotating mag. field 0=11021
 motion of charged particle, wake, in mag. field 4=2968
 motion, near container walls, microwave study 1=4616
 motion in curved mag. field 1=18848
 motion in curved mag. field 3=19267
 motion across magnetic field 1=303
 motion in front of shock wave 3=18897
 motion and heat transfer eqns., in mag. field 0=19651
 motion of rarefield plasma in inhomog. mag. field 1=18845
 motion in strong mag. field 0=15127
 motion of thin body in, without mag. effects 1=2966
 motions in e. m. field, non-stationary, calc. 3=12135
 moving body, electric potential 2=9121
 moving body in, electron density disturbance, e. m. wave scatt. 1=16581
 moving-body problem, review 0=3448
 moving, e. m. wave reflection, theory 3=12141
 moving, electrical impedance of immersed electrodes 3=21760
 moving, energy transfer with mag. field 2=9686
 moving, nonlinear mag. interaction effects 3=9773
 moving striations, in d. c. discharge, theory 2=19910
 moving striations in microwave discharge 1=18839
 multicharged ion behaviour, in const. elec. field 2=176
 multicharged ion behaviour, in const. elec. field 3=4117
 multicomponent, density fluctuations 1=18820
 multi-component, ionic flow, e. m. disturbances 1=3049
 multicomponent, ohmic heating, theory 3=1966
 multi-component plasma, statistical-mech. treatment 0=12603
 multi-component, single-fluid m.h.d. eqns., Ohm's law 3=21783
 multicomponent, statistical mechanics, dynamics, magnetohydrodynamics 1=16302
 multiple aperture slits for molecular beams 1=4958
 multiply-charged ions, spectral line width and location 4=18845
 multi-quanta recombinations, electron transitions 1=7027
 negative glow, as cathode for electron tubes 0=15068
 negative glow of cold cathode discharge, electron energies 0=9043
 negative radiation temp. at cyclotron resonance 4=18848
 negative radiation temperature at cyclotron resonance 3=9787
 with net charge 2=5334
 neutral atom flux from "Alpha" 1=9609
 neutral atom flux from Alpha, energy meas. 1=9610
 neutral atom flux, measurement 1=9608
 neutral gas density, by fast-ion gauge 2=9594
 neutral system, free energy, statistical theory 1=11710
 neutrino pair emission by hot plasma, calc. 3=7824
 neutron emission in deuterium pinches 1=9589
 neutron energy spectrum, D, cyclotron heated, mag. mirror 3=19913
 nitric oxide, 1-30 atm., 1000-30 000°K; composition density, enthalpy and specific heat 1=10700
 nitrogen, conductivity, thermal and electrical 3=7589
 nitrogen, 1-30 atm., 1000-30 000°K; composition, density, enthalpy and specific heat 1=10700
 noise effects, on Langmuir probe characteristics 2=9598
 noise radiation in cm and mm wavelength range 4=8702
 noise radiation and scattering from cylindrical column 3=383
 noise spectrum of column in longitud. mag. field 3=24285
 noise temperature 2=9596
 noise, theory 2=19947
 non-adiabatic magnetic traps 1=9600
 in nonadiabatic transverse pinch, dynamics 0=1104
 nondissipative, Hamilton's variational principle 3=19234
 non-equilib., cylindrical, noise power radn. 3=4130
 nonequilibrium, density fluctuations 3=13771
 nonequilibrium, interaction of charged particles 4=19045

Plasma—contd

non-isothermal, correlations 3=21767
 nonisothermal, fully ionized, transport phenomena, theory 4=16465
 non-isothermal, kinetics 3=7501
 nonisothermal, magnetogasdynamic equations 4=29913
 non-isothermal, magnetohydrodynamic single-fluid eqns. 2=5337
 non-isothermal, magnetohydrodynamic single fluid eqns. 3=4126
 nonisothermal, no collisions, magnetohydrodynamic eqns. 1=18853
 non-linear effects in electron plasmas 1=9566
 nonlinear effects in inhomogeneous plasma 4=27531
 nonlinear phenomena in alternating e. m. field 1=9565
 nonthermal, electrostatic potential gradients 3=4120
 non-thermal, spectroscopy, problems 3=7504
 non-Maxwellian, uniform, electrostatic instabilities 0=9025
 nonuniform cylinder, cyclotron resonance 4=27528
 nonuniform, radio emission by plasma oscillations 1=10725
 nuclear fusion research, microwave diagnostics 2=19978
 number densities, a. c. and d. c. components, microwave meas. 3=21803
 Nyquist formula, Debye length and microfield 3=7525
 i. r. absorption, in argon jet 2=1459
 ideal, electrical behaviour 0=9028
 ideal, motion of weak discontinuities 0=15128
 impedance of short cylindrical dipole 2=21643
 impulse discharge into hollow cylindrical gas sheath 3=7561
 impulse from exploding wire accelerator 0=7114
 impulsive compression, magnetohydrodynamic effects 0=15039
 impurity atom, life history, calc. 3=21770
 impurity introduction processes 3=12106
 impurity ions, multiply charged, heating 3=24273
 impurity-radiation, from non-Maxwellian spherical plasmas 4=18844
 incompressible, variable acceleration, Taylor instability 3=7531
 induced theta pinch, instability 1=9593
 induction pinch, instability rel. to magneto-acoustic oscillations 1=18886
 induction pinch, instability, rel. to magneto-acoustic oscillations 2=22223
 induction torch, heat transfer 3=21593
 in inert gases, moving striations, successive prod. 0=2335
 inertia-limited zone, stationary soln. 2=22214
 infinitely cond. plasma expanding in mag. field 1=4594
 infinitely conductive, motion in frozen-in mag. fld, Lagrangian and Hamiltonian methods 3=12194
 infrared radiation from shock-wave plasmas 1=15944
 inhomogeneous, absorption of cyclotron waves 2=9573
 inhomogeneous, charge density fluctuations, plasma confinement 0=5309
 inhomogeneous, interaction with electron beam 4=18945
 inhomogeneous, micro-instabilities, with and without diffusion 0=5310
 inhomogeneous, mirror-type microinstabilities 3=1970
 inhomogeneous, scattering and conversion cross sects. 3=499
 inhomogeneous, stability in magnetic field 1=9548
 inhomogeneous, stability in magnetic field 3=12120
 inhomogeneous, in waveguide, e. m. wave propag. 3=7709
 injected into cusped magnetic field, experimental studies 3=12119
 injected magnetic compression 2=5351
 injection, into closed magnetic traps 2=22227
 injection, into cusp mag. field 1=7081
 injection, of H ions 2=13570
 injection machines, potential and energy distrib. 3=1998
 injection into mag. bottle, arc plasma prod. 1=16344
 injection into mag. field of cusped geometry 0=17000
 injection, from pulsed discharge into vacuum 2=3050
 injection from pulsed discharge into vacuum 3=1996
 injection, separation of emission light 3=12175
 injection and trapping in cusped magnetic field 1=10712
 injection, into vacuum, at high density, expt. 2=9575
 instabilities associated with anisotropic velocity distributions 1=9551
 instabilities, critical fluctuation observation 2=11683

Plasma—contd

- instabilities, non-magnetohydrodyn. 2=17824
- instability, with anisotropic ion vel. distrib. 1=7063
- instability, of beam of charged-particles in electron plasma 2=11649
- instability, under charged-beam interaction 2=201
- instability in crossed elec. and mag. fields 3=9776
- instability, electromagnetic 3=7552
- instability at electron gyro magnetic freq. 0=3764
- instability, and gain criteria 2=15918
- instability, with mag. neutral point 3=7516
- instability, nonthermal plasma 3=7586
- instrument for neutral gas density meas. 3=24297
- instability, under charged beam interaction 3=4171
- instability, in uniform mag. field, weak temp. anisotropy 0=19677
- instrumentation 2=7538, 7624
- insulation from wall effects by a hot gas 1=1905
- Ogra, cyclotron and thermal radiations 3=12202
- OGRA, electron loss rate, anomalous 3=21812
- in Ogra, exper. data 2=7632, 8053
- OGRA, fast ion lifetimes 1=9614
- in Ogra, formed by H_2^+ fast ion beam injection 3=12201
- OGRA-type device, critical current for burn-out 1=9613
- "Ogrenok" trap, adiabatic 3=14602
- ohmic heating by condenser discharge 3=7600
- ohmic heating in stellarator, charged particle loss 0=11475
- ohmically heated, electrostatic instabilities 1=9552
- one-component, Debye-Hückel free energy, functional integrals applic. 4=14062
- one-dimensional model, thermodyn. equilib. 2=20111
- one-element, three-component composition, kinetic theory 4=11576
- one-particle distrib. function, kinetic eqns. 4=27510
- one-species, correlations, quantum treatment 4=11565
- optical absorption coeff. 0=10915
- optical refraction meas. with laser beam 4=18882
- optical study, Mach-Zehnder interferometer 3=12183
- optically thick, atomic ion recomb., theory 3=364
- optically thick plasma, non-thermal line radiation 4=18851
- optically thick in red regions 3=16924
- optically-thick; spectral line-shape detm. 3=7578
- optically thin, electron-atomic ion recomb. 2=11620
- optically thin, temp. and density meas., spectroscopic techniques 3=7577
- "Orekh" magnetic temp. behaviour 3=12148
- origin in magnetically driven shock tubes 1=10539
- "over-thermal" elec. field fluctuations, spectroscopic study 0=5311
- P.I.G. reflex generator, pulsed, linear 3=19259
- P.I.G. reflex generator, pulsed, toroidal 3=19260
- p-n junctions, microplasma phenomena 1=11304
- pair correlation 2=7598
- pair distrib. function outside equil. 4=11566
- pair distribution func., in mag. field, cluster integral theory 1=4273
- parallel-plate capacitor, impedance at h.f. 3=24266
- parameter measurement, in mag. field 2=17846
- parameter measurement, oscillographic method 2=19982
- parametric amplifier, use as nonlinear propagating medium 0=15139
- parametric amplifier theory 2=9567
- partially ionized, attractive two-body interactions 2=5332
- partially ionized, equilibrium props. 0=17007
- partially ionized gas, elec. conductivity, electron and ion motions 1=2946
- partially ionized, transport props. in mag. field 4=11588
- particle acceleration, and breakdown, in alternating mag. field 2=7617
- particle acceleration, by hydromagnetic shock wave 2=186
- particle collision cross-sections, meas. 2=22200
- particle collisions in high-temp. plasma 1=4605
- particle diffusion across magnetic field 0=17087
- particle distrib. fluctuations, theory 3=5669
- particle distribution fluctuations, theory 2=7610
- particle and heat fluxes perp. to mag. field, theory 4=5601
- particle loss, in pinched discharge, in axial mag. field 2=197
- particle motion, in axisymm. fields, nonadiabatic 2=19969
- particle motion, in mag. inhomogeneity, adiabatic invariant 1=18988

Plasma—contd

- particle motion in magnetic bottle, computer solution 4=2994
- particle propag. in fully ionized plasma, theory 3=7510
- particle scatt., low-energy, effect of target temp. on diff. cross-section 1=471
- particle, single, kinetic eqn. and dyn. friction 2=11646
- partition function divergence rel. to ionization potential 4=11571
- partition function as integral over phase space 4=11572
- passage of relativistic particle beam, kinetic theory 4=5597
- penetrating, plasma focusing, effect of mag. field 2=182
- penetration into vacuum, boundary meas. with electron beam 4=2988
- Penning discharge, e.s. gradients 1=13088
- Penning discharge, thin sheath near anode 3=7453
- Perhabsatron S-4, energy loss 1=5465
- permittivity, screening ranges and skin-layer depth 0=19678
- perturbation, density, response of drifting plasma 4=18799
- Pharos, compression expt., temp. and density meas. 3=7563
- PHAROS, high-energy magnetic compression experiment 3=12159
- Phillips pulse discharge, spectr. study 2=22181
- phonons and plasmons, electron-ion coupling in metals 1=9994
- photon-electron interaction, phenomenological treatment 1=18918
- photon transport, theory 1=18315
- physically bounded, current density 3=1974
- pinch, azimuthal, radial contraction 3=12143
- pinch, boundary-layer formation 0=10897
- pinch buckling 1=5469
- pinch, Cariddi, orthogonal, obs. 3=12169
- pinch, circuit dynamics 0=16998
- pinch collapse, fully ionized, validity of magnetohydrodynamic approx. 1=2973
- pinch, conductivity of linear discharge 2=9593
- pinch device, for low temp. plasma studies 2=3047
- pinch discharge, alternating, stability 3=12171
- pinch discharge, properties 1=7032
- pinch discharge stabilization 1=307
- pinch, with distrib. current, stability 0=10896
- pinch, dynamics in mag. field 2=15924
- pinch effect, collapsing current sheet 0=9030
- pinch effect, columnar, stability 1=4611
- pinch effect, from Euler-Lagrange eqns. 1=8331
- pinch effect in free molecular stream 1=6656
- pinch effect, hollow, hydromagnetic instability 1=18882
- pinch effect in InSb electron-hole plasma 1=5023
- pinch effect in l.p. Hg arc 1=4583
- pinch effect, linear, hydromagnetic shock waves 1=16336
- pinch effect, linear stabilized, runaway electrons 0=16999
- pinch effect, mechanism 0=5301
- pinch effect, relativistic 1=18879
- pinch effect, review 1=511
- pinch effect in solar flares, rel. to cosmic ray generation 1=18089
- pinch effect, superfast 1=5464
- pinch effect, toroidal, energy loss 1=5465
- pinch effect, tubular, dynamic effects 1=18881
- pinch effect, tubular, with thin current layer, stability 1=4611
- pinch, equilibrium, effect of finite cond. 3=9803
- pinch excitation of ruby laser, Ar pinch 4=8995
- pinch, from exploding wire 2=7588
- pinch expt., stabilized, long linear 3=21801
- pinch in ext. longitudinal mag. field, theory 1=9578
- pinch formation, e.m. diffusion in cylindrical column 1=11944
- pinch, hard-core liquid model, stability 1=18877
- pinch with heat loss to electrodes and by bremsstrahlung, theory 1=9577
- pinch, inductive, radial motion of plasma 2=196
- pinch, initial stages, residual neutral atoms 2=19967
- pinch instabilities 3=21949
- pinch instability, sinusoidal, growth 3=2107
- pinch instability, 0-pinch 1=2974
- pinch, inwardly accelerating, stability 2=11672
- pinch, linear, end effects 3=12170
- pinch, linear fast, theory and expt. 1=16335
- pinch, linear, instabilities, optical obs. 3=5676
- pinch, linear, shock wave, collisionless 3=14586

Plasma—contd

- pinch, linear, stabilized, axial conduction and radiation losses 2=194
 pinch mechanism, linear 1=9586
 pinch, 1-dimensional, current-layer diffusion 3=14587-8
 pinch, orthogonal, meas. 3=12168
 pinch, orthogonal, "quasi relativistic" electron layers 3=14590
 pinch, orthogonal, Schlieren photography 3=7585
 pinch, rotating, axisymmetric stability 3=9797
 pinch, slow, magnetohydrodynamic stability of discharge core 1=10709
 pinch with a small rotation, stability 1=2971
 pinch, in solar flare 2=974
 pinch, stability with anisotropic pressure 3=12144
 pinch, stable dynamic, formation, studies in D,H,A 1=2975
 pinch stability, with anisotropic particle vel. distrib. 1=18885
 pinch, stabilized, with skin effect, collapse phase, theory 1=9579-80
 pinch, sustained and diffuse, time consts. 3=24293
 pinch, θ , coil, with edge effect compensation 3=19264
 pinch, θ , light scattering, using maser, optical, ruby 3=19256
 pinch, θ , neutral gas effects, H 3=19271
 pinch, theta, study using mag. pick-up loops 3=12145
 pinch, theta-type, apparatus, observations 2=1442
 pinch, toroidal, harmonics of Kruskal limit and field diffusion 2=3045
 pinch, toroidal, with a reversed field 2=5348
 pinch tube, Rayleigh-Taylor instability 1=11948
 pinch, tubular, low-pressure, stability 2=11673
 pinch, tubular, stability 3=14593
 pinch, weakly twisted equilib., finite conductivity effect 2=7623
 pinch, z , analogy with cavity co-axial, reson., and TE_{0mn} modes 3=19441
 pinched discharge, particle runaway corrections 0=3775
 pinched gas discharges, H arc initiation 1=16293
 pinched, linear, surface instabilities 0=19655
 pinched viscous, stability 3=7562
 pinches and rings, stabilization, focusing technique 3=24295
 pinches, streak-camera record superposition 3=7584
 pinches, transverse, instability mechanisms 1=1903
 plasma betatron 1=9661
 plasma betatron, self-consistent field theory 1=9601
 plasma bunches in waveguide, behaviour 1=10718
 plasma column in electromag. field, condition for non-central Maxwellian solutions 0=15020
 plasma column in electromag. field, diffusion velocities 0=15021
 plasma column in microwave cavity 1=9571
 plasma-electron beam system, electromag. props. 2=17835
 plasma gun coaxial 3=12197
 plasma guns, dynamics 1=18824
 plasma jet, for high temp. research, review 0=12606
 plasmajets of N, A and He, i.r. spectra 1=11070
 plasma-loaded waveguides, mode coupling 3=9935
 plasma ring experiments 0=7115
 plasma ring gun experiments 1=9612
 plasma thermionic element, theory 0=15067
 plasma torch, induction-coupled 1=7083
 "plasmascopes" 3=12127
 plasmatron, using 600 A argon arc 1=16346
 plasmoid acceleration, electrodynamic method using images 4=16469
 plasmoid acceleration by magnetic field 1=11932
 plasmoid, e.m. field interaction, resonance 3=24290
 plasmoid injection into magnetic trap 1=9590
 plasmoid, Cherenkov energy loss, non-linear theory 4=29922
 plasmoid motion along mag. fields 0=15032
 plasmoid motion in external mag. field, expt. 4=29916
 plasmoid production at plasma res. freq. 0=5324
 plasmoid rotation in theta-pinch 3=5675
 plasmoid source, coaxial, of small aspect ratio 2=19973
 plasmoid sources, conical 3=14567
 plasmoids, from Bostick source, thermocouple meas. 4=2989
 plasmoids, dense, in toroidal mag. field, motion 4=14639
 plasmoids, electrodynamic accelerator 2=9603
 plasmoids, generation and accel. 3=21780

Plasma—contd

- plasmoids, high density, interaction with mag. flds. 4=11605
 plasmoids, microwave probing method 3=24302
 plasmoids, moving in mag. field, stability and containment 3=21784
 plasmoids, in spatially periodic mag. field 3=7547
 plasmoids, stabilization 2=13573
 plasmoids, theory 2=11651
 plasmoids, visual study, rel. to purification 4=18918
 plasmon frequency, dispersion coeff. 3=6501
 plasmons, higher random phase approx. 3=16553
 Poisson-Boltzmann eqn., validity 1=16301
 polarizability, first harmonic, resonance behaviour 4=11623
 poloidal magnetic flux, amplification 1=8334-5
 positive column electron density distrib., microwave meas. 3=4147
 positive column, electron diffusion by temp. gradient 3=12100
 positive column, Hall effect and electron drift vel. 4=29905
 positive column, internal mag. field meas. 4=11673
 positive column in mag. field, abnormal diffusion 1=13072
 positive column, rel. to negative ions 3=7495
 positive column, non-contracted, negative ion effects 3=1971
 positive ion space charge, potential distrib. 0=17046
 positronium formation, ionization, excitation, in H 4=18921
 positronium plasma, Maxwellian solutions 2=15910
 positrons, containment in asymmetric mirror geometry 3=12199
 positrons containment in a mirror machine 0=19654
 potential distrib. in cylindrical r.f. cavity, meas. using ion beam 1=5472
 potential measurements, by ion beam probe 2=9595
 potential probe, using electron time-of-flight 2=11675
 potential troughs, in axial mag. field 0=14985
 power generation, conference 3=21966
 Poynting vector 2=22198
 pre-heating, use of magnetic traps 1=11951
 pre-heating, use of magnetic traps 1=5456
 pressure tensor calc. for fully-ionized plasma 4=5591
 probe, use of atomic spectra 1=10696
 probe characteristics, drifting plasma 3=12180
 probe current step increase with mag. field 0=2331
 probe curves, second deriv. automatic plotting 3=12185
 probe, det. of positive-ion density in ionosphere 2=6942
 probe, electrostatic, in strong mag. field 1=11949
 probe, Langmuir chars., display, circuit 3=14800
 probe, Langmuir, dynamic studies, review 3=1993
 probe, magnetic, coil alignment, mechanical 3=14599
 probe, magnetic, for high-density meas. 3=7583
 probe meas. in dense plasma 1=5471
 probe meas., rel. to diffusion loss 3=7573
 probe meas., exptl. errors 3=24299
 probe meas., penetration of ion sheath 3=24298
 probe measurements, for m.f.p. < probe dimens., at medium pressures 0=19690
 probe, negative characteristic in a magnetic field 3=5634
 probe, piezoelectric, for pressure transients 1=4615
 probe, resonant microwave, for charge density meas. 2=200
 probe, scintillation, for electron energy distrib. 2=1452
 probe theory at medium and low pressures 3=4154
 probes, boundary layer, elec. field 0=15035
 probes, electrostatic 2=7626, 19983
 probes, Langmuir, theory 0=15036
 probes, microwave, for oscillations detection 2=1466
 probes, with non-uniform work function, theory 3=7572
 probes on space vehicles, rel. to ionospheric meas. 3=7571
 probes, spherical, electron collection, theory 2=1445
 produced by button-type source, mag. field behaviour 3=9777
 production by collision of shock waves 4=18829
 prod. in detonations in air 0=12457
 production by e.m. driven shock waves, review 3=7684
 production by neutral-atom injection, eqns. and numerical solns. 3=1964
 production with 10^{10} W laser pulses 4=24628
 prod. by travelling resonant mag. field 1=16332
 propagation phenomena, linear and nonlinear 4=16631
 propagation, through dispersionless dielectric 0=9205

Plasma—contd

propulsion by means of travelling sinusoidal magnetic field 1=16338
 propulsion from pinch collapse 1=16337
 propulsion by rapidly varying field 0=15034
 puff expansion in longitudinal magnetic field 4=18800
 pulse conduction in decaying plasma 1=8327
 pulse discharge, high-pressure diam. meas. 2=11641
 pulsed accelerator, partition of energy 0=12609
 pulsed reflex discharge, equilibrium mechanism 3=4041
 pulsed reflex discharge, P.I.G. type, high-density 3=4042
 pure, high-temperature, in quasi-stationary systems, production 3=12106
 pyrotron, electron energy distrib., scintillator probe 2=1452
 quantum, diamag. suscept. for arb. disturbances 3=19231
 quantum, dielec. tensor theory 4=16496
 quantum, h.f. e.m. absorpt. in mag. field 3=14580
 quantum, kinetic theory 2=19459
 quantum mechanical kinetic equation 4=2587
 quantum plasma, theory 4=5085
 quantum, quasilinear eqns. 4=8676
 quantum, transport coeffs., Green function method 3=21759
 quasineutral, entropy gradient rel. to vorticity 4=27516
 quasineutral, potential eqns., rel. to Crocco's theorem 4=27517
 r.f. emission spectrum by dielec. const. approach 4=18866
 r.f.-force devices, high impedance, theory 2=19989
 r.f. probe, resonance phenomena, theory 3=21806
 r.f. propag. in uniform mag. field 3=4133
 r.f. reflectance, from sheath 2=5486
 r.f., Schlieren photography 3=4146
 r.f. wave emission 1=10783
 radial, in axial mag. field 0=7211
 in radial discharge tube, effect of mag. field, transverse 4=24645
 radial distrib. in positive column in mag. fld. 3=19240
 radially constricted between electrodes, stability criterion 1=18782
 radiation, admixture interaction effects, thermal excitation 3=24269
 radiation by charge moving near cyclotron resonance 3=19255
 radiation, coherent and incoherent 0=9047
 radiation, of currents passing through plasma boundary 2=11662
 radiation, cyclotron emission from non-Maxwellian distrib. 1=8323
 radiation damping theory for const. mag. field 4=5756
 radiation emission and absorption, general theory 4=24649
 radiation emission and absorption near plasma frequency 4=18850
 radiation field and Q of resonant cylindrical column 1=10698
 radiation of high-temp. collision-dominated plasmas 3=7506
 radiation by impurities, hot rarefield 3=12137
 radiation, incoherent, microwave, theory 0=2370
 radiation intensities, automatic transform. into radial distrib. by data processing system 4=11608
 radiation from ions in nonisothermal plasma in mag. field 4=14656
 and radiation, kinetic eqns. 0=9046
 radiation, l.f., by ions and electrons in mag. fld. 3=16938
 radiation laser, emission and pumping, review 3=22007
 radiation law, non-Maxwellian distrib. 2=7596
 radiation from line source 3=7601
 radiation losses, from impurities in hot plasma 2=22206
 radiation losses in pinch experiments 4=8698
 radiation magnetogasdynamics, plane couette flow 4=18816
 radiation, microwave, incoherent, in a mag. field, calc. 1=7075
 radiation, microwave, from non-Maxwell plasma 3=5657
 radiator in, near-zone elec. field, with external mag. field 2=1453
 radiation, noise, microwave spectroscopy 4=21505
 radiation, non thermal, from impurity atoms 4=14653
 radiation, nonthermal impurity, from spherical plasma 3=7605
 radiation of a PRK-4 lamp in far i.r. 4=24650
 radiation and particle loss in hydrogen-plasma 0=15024

Plasma—contd

radiation scatt., incoherent, effect of Coulomb collisions 4=11632
 radiation scatt., incoherent, quantum electrodynamics 4=11631
 radiation temp., Kirchhoff's law, non-Maxwellian distrib. 1=2959
 radiation temperature in mag. field, r.f. meas. 3=4121
 radiation temperature, microwave meas. 1=2978
 radiation theory, continuum, equivalent sources 2=11663
 radiation theory, refl. at metal boundaries 2=11664
 radiation transfer, with electron collisions, semi-infinite 3=513
 radiation, transverse e.m. waves, from super-thermal electrons 4=18862
 radiation from uniformly moving charge, theory 4=8709
 radiation, vacuum, u.v., after mag. compression 3=7505
 radiative heat transfer, by bremsstrahlung, opacity depend. 1=7052
 radiative transfer, resonance lines, Doppler-broadened 3=9813
 radiative transfer, without thermal equil. 3=14562
 radio emission, from plasma shock waves 2=20137
 radio frequency slow mode propag. 3=12134
 rapid compression with axial currents 0=5307
 rare gas, cylindrical, pulsed, confinement 3=7558
 rarefied, gap flows, classification 2=7609
 rarefied, high-temp., convection instability and stabilization effect 3=1979
 rarefied, in mag. field, Boltzmann eqn. 1=7062
 rarefied, magnetohydrodynamic waves, damping by "near" collisions 2=1433
 rarefied, magnetosonic waves 1=13086
 rarefied, resonance impurity radiation 4=18859
 rarefied, shock-wave front fine-structure 2=15917
 rarefied, with short-range and Coulomb forces, free energy 1=13078
 rarefied, in strong mag. field, instability 1=16328
 Rayleigh-Taylor instability 2=19952
 recombination meas. by Langmuir probes 4=2950
 recombination radiation in diffuse decay in mag. field 4=24651
 in rect. waveguide, e.m. wave propag. 0=303
 re-entry vehicles, sheath, microwave study 2=4880
 reflection of e.m. waves by moving plasma 1=5455
 reflection of e.m. waves by moving plasma 1=11928
 reflection of e.m. waves in slow-wave waveguides 0=5410
 refraction, microwave, cylinder, parabolic density profile 3=12140
 refractive index, by laser phase measurement 4=2985
 refractive index, wavelength dependence 1=5473
 relations with astrophysics 1=5150
 relativistic beam passing through, small amplitude motion 0=17003-4
 relativistic charged particle, motion, in discharge mag. field 0=10982
 relativistic, cyclotron and aperiodic instabilities 2=13561
 relativistic, cyclotron and aperiodic instabilities 3=5659
 relativistic, cyclotron emission and optical props. 1=9556
 relativistic, dielec. props., e.m. wave propag. 1=7054
 relativistic, e.m. wave reflection and absorption 2=1424, 22216
 relativistic electron beam, motion analysis 0=9083
 relativistic, electron dynamics and mag. field reversal 2=13562
 relativistic flow, stationary, in mag. field 4=16475
 relativistic kinetic eqn. 0=12614
 relativistic, one-particle distrib. function 2=17851
 relativistic, polyliquid hydrodynamic eqns., with radial particle braking 4=18107
 relativistic, in variable fields 1=13076
 relativistic virial theorem 3=24291
 relaxation distance, det. 2=1449
 relaxation phenomena 3=21757
 relaxation phenomena, unified theory 3=21758
 relaxation, thermal, in one-species one-dimensional plasma 4=14629
 relaxation, unified theory, general collision terms 4=27507
 relaxations, unified theory, quantum effects 4=11579
 relaxations, unified theory for 2-component plasma 4=494
 relaxation in weakly turbulent plasma, theory 4=14627

Plasma—contd

- research, review 1=287
 resistance, effect of electrodeless regions 4=8674
 resistance, variable, for generation, up to 400 A d.c. 3=9694
 resonance, correlation between extinction bands of solids 0=7876
 resonance field distrib., hysteresis and nonlinear effects 4=5607
 resonance lines, Doppler broadened, radiative transfer 4=21504
 resonance plasma and electron density meas. 3=19251
 resonance processes in magnetic traps 1=9615
 resonance rectification meas. using probe 3=21805
 resonance study, rel. to freq. and diam. 3=7611
 resonant behaviour, hollow, cylindrical plasma 3=9771
 resonant behaviour, plasma slab 2=17836
 resonator, eigenfrequ. and damping eval. 3=9807
 "restoring" boundary between plasma and mag. field 1=5444
 "restoring" boundary between plasma and mag. field 1=8329
 review 2=5327, 19931
 review, fusion problem and instabilities 2=22197
 review of plasma physics 4=2970
 review of present research 4=21493
 review of recent work at Conference, Salzburg, Sept. 1961 3=384
 review of u.h.f. investigation methods 1=9559
 ring configuration, contraction to ball, residual flux 1=7060
 ring configuration, in e.m. field electrodeless discharge theory 1=7047
 ring configuration, equilibrium 1=7039
 ring configuration, of finite conductivity, drift compensation 0=19675
 ring configurations, long-wave instabilities, dynamic stabilization 0=19673
 ring current, stability 1=7049
 in ring discharge, electrodeless, pulsed, with mag. bias flds. 3=7499
 ring discharge, pulsed electrodeless 2=11676
 ring-shaped conductor, in mag. field, stability 0=19674
 ring-shaped configuration, stability, in mag. field 1=4614
 ring-shaped, in mag. field, stability 0=15015
 ring stability, with non-uniform current distrib. 2=17830, 19946
 ring stability, rel. to disturbances independ. of azimuth 2=9580
 rings, electrodeless generation, accel. 2=3053
 rocket exhaust, e. m. props., effect of solid particles 4=10933
 rockets, hypersonic, ionized shock layer 2=4878
 rotating, acceleration in axially-symmetrical channels 4=27518
 rotating, confined, momentum balance 3=9798
 rotating cylindrical config., stability 3=14571
 rotating cylindrical layer in crossed field 4=503
 rotating, elec. and mag. field distrib. 4=18797
 rotating, high-temp., eqns. for drift and currents in cylindrical geometry 1=9563-4
 rotating, homopolar type, instabilities 3=21732
 rotating, hydromagnetic props. 2=1455
 rotating, Ixion III, energy and velocity limiting effect 2=1456
 rotating, limiting velocity 1=16329
 rotating machine, constant burning voltage, for various I and p 1=2980
 in rotating magnetic field, nonrelativistic motion 2=180
 rotating, magnetic mirror containment 0=5315
 rotating magnetic polarization 0=7112
 rotating partly ionized, interaction with neutral gas 3=12118
 rotating pinch, stability 1=2972
 rotating, production in Homopolar V 3=4157
 rotating, quasi-stationary conditions, mag. fields 2=15915
 rotating, in thermo-nuclear device 0=15126
 rotating, voltage characteristics 1=18825
 rotation, between 2 coaxial cylindrical conductors 0=9171
 rotation in crossed fields, effect of Hall current 4=18802
 rotation in crossed fields, effect of ion wind 4=18801
 rotation, in mag. field parallel to symmetry axis, at low press. 1=265

Plasma—contd

- rotation, nonstationary, in mag. field 2=181
 rotation produced by electrodeless gun 3=9799
 rotation-symmetric flow, magnetogasdynamics 2=1574
 rotation, in theta-pinches 2=13572, 19968
 runaway electrons in weak elec. field, theory 1=18830
 runaway process, transport theory 1=15724
 runaway and suprathermal particles 1=9562
 Saha eqn. for ion densities, generalization 1=10666
 satellite sheath, effect on aerial breakdown 2=4884
 satellite sheath cross-section change 2=4879
 satellite sheath, re-entry, radio interference 2=4883
 scaling laws, 10 dimensionless parameters, Π -theorem method 1=3048
 scatt. theory, mag. induced anisotropy and inhomogeneity 3=393
 scattering of e.m. waves 1=16314
 scattering of e.m. waves by bounded plasma 3=9790
 scattering, e.m. waves, peaks, minor, microwaves, and e density meas. 3=19254
 scattering, electromag. waves, including collisions, calc. 3=16942
 scattering of plane waves, by plasma sphere, Mie theory 4=5659
 scattering pot., calc. 0=2363
 scattering of radiation 0=19684
 scattering of radiowaves, incoherent 0=19931
 Sceptre IIIA, electron temp. ($\sim 10^6$ deg K) 0=8857
 Sceptre III deuterium discharge, proton energies 1=9619
 Sceptre III, N V emission spectrum 1=13945
 Sceptre IV discharge fluctuations 1=11954
 Sceptre pinch, periodic mag. field fluctuations 0=19636
 screw instability of plasma column 1=13080
 Scylla expt., effect of preionization and initial mag. conditions 1=10721
 Scylla expt., X-ray continua and line spectra 1=8820
 Scylla magnetic compression experiment, stability and heating studies 3=12206
 Scylla I theta-pinch, X-ray spectrum 15-25A 3=24296
 seeded flame, elec. conductivity, in strong elec. fields 3=19241
 seeded, gas-phase and surface phenomena 4=18814
 self-constructed, theory, new data 3=12157
 self-gravitating, stability, with and without mag. field 2=11657
 semicond., oscillator phenomena 3=2879
 semiconducting, non-linear effects, dispersion theory 3=10744
 semiconductor, growing helical density waves 3=8504
 semiconductor, pinched, moving, Doppler effect, e.m. waves 3=17827
 in semiconductors, helical instabilities, calc. 3=13051
 sheath, around re-entry vehicle, telemetry effects 2=4885
 sheath coating cylinder, plane wave scatt. 3=7703
 sheath formation, Bohm's criterion application 1=9576
 sheath, formation, ion current limits 2=13558
 sheath, Harrison-Thompson condition 2=19939
 sheath round metal sheet, d. c., r. f. potential meas. 4=5626
 sheath, separation regions of oppositely-directed mag. field 2=7618
 sheath study with electron-beam probe 3=7574
 sheath, transition in l.p. arcs 2=1410
 sheath transition in magnetic field 1=5454
 sheaths, one-dimensional, distrib. calc. 3=406
 sheet, e.m. wave propagation 1=376
 sheet, and elec. or mag. dipole, as e.m. wave source 1=16550
 "sheet," one-dim., elec. field statistics 3=11713
 sheet pinch, finite-resistivity instabilities 3=12177
 shock blast wave of electron gas in neutral plasma 4=27526
 shock, mag. flux transport 4=29918
 shock prod., e.m., non-reproducible 4=16476
 shock structure, diffusion effects 0=10905
 shock structure, diffusion effects 2=3033
 shock structure in longitudinal mag. field 1=9567
 shock tube, discharge between coaxial cylinders, velo. meas. 3=14252
 in shock tube, e. m., prod. by shock, small amount 4=5289
 in shock tube, microwave study 1=289
 shock-tube wave phenomenon, fast dynamical 3=1955

Plasma—contd

shock tubes, ionization, origin 1=18460
 shock velo. radial var. in cylindrical geometry 4=24647
 shock-wave acceleration 2=9587
 shock-wave conditions, discontinuous flow 4=14649
 shock wave crossing mag. field, charge separation effects 4=19026
 shock-wave front moving across mag. field, stability of structure 4=8697
 shock wave front struct., numerical integration 4=18840
 shock wave struct., inclined to mag. field 4=11607
 shock wave struct. in mag. field 4=18838-9
 shock wave struct., no mag. field, ion and electron gas model 4=27525
 shock waves, behaviour 2=13358
 shock waves, collisionless 1=18841
 shock waves, collisionless, in mag. field 4=5609
 shock wave, collisionless, in weak mag. field 3=12132
 shock wave propag. in unpinch geom. 3=1991
 shock wave and solitary wave structure 0=17021
 shock-wave structure, bimodal distrib. 3=21489
 shock waves, without collisions, laminar theory 4=18833
 shock waves, converging cylindrical, front struct. 4=18841
 shock waves, cylindrical, from explosion 4=27524
 shock waves, e.m. driven, radiative attenuation 3=1758
 shock waves, 4 theorems for possible flows 4=2978
 shock waves, in high-temp. dense plasma 2=7601
 shock waves in high temp. dense plasma 3=5661
 shock waves, low density, compress. and heating, models 4=27523
 shock waves, stiffening and freezing-in, for elec. discharge in liquid 4=5287
 shock waves, strong, similarity solution 3=7542
 shock waves, strong, in transverse mag. field 3=7541
 shock waves, structure 0=11034
 shock waves in, structure, for collisional dissipation and electron beam instability 4=18837
 shock waves, two-fluid model 3=1973
 shock waves, weak, structure 3=1980
 shock waves, weak, structure, theory 2=5344
 shread (plasmoid) formation in mag. fld 3=7524
 similarity between phenomena in electron beams and plasmas 4=16534
 single-component, h. f. elec. cond., correl. effects 4=5599
 slabs of plasma, as e.m. waveguide 2=13685
 slow waves, dispersion 3=5850
 slowly decaying, microwave analysis 0=5295
 slowly decaying, Schmdts virial theorem 1=9544
 solar, contraction, rel. to flare generation 1=18092
 solar corona, sporadic radio-emission, noncoherent mechanism 2=1007
 solar, expanding, e.m. props. 2=17238
 solar flare cloud, internal structure 2=13099
 solar flares, plasma ejection 2=12053
 solar, interaction with geomag. field 0=21316
 solar, interaction with terrestrial magnetic field 1=15358
 solar, Mariner II expt. 3=7028
 solar, mixing with earth's magnetic field in van Allen zone 1=11652
 solar prominence and corona formation theory 0=6592
 solar spicules, solar outer atmosphere heating 0=18762
 solar, streaming through geomag. field 2=12054
 solar supercorona clouds, radio observation 2=1005
 in solar system 0=10487
 solid, polarization rot. by drift current 4=20253
 solid-state, collective behaviour, theory 1=19847
 solid-state, transverse instabilities under steady elec. and mag. fields 3=25258
 solid-state waveguide in transverse mag. field 4=27656
 solid-state waveguide in transverse mag. field, theory 4=27657
 solids, acoustic wave amplification, u.s. 3=22633
 in solids, rel. to characteristic electron-energy losses 1=6100
 solids, valence electrons interaction with fast electrons 4=12712
 source, for high-vacuum 2=17847
 source interaction with uniform magnetic field 4=18820
 sources, hydrogenous, highly ionized, design and construction, 3=24306
 sources, survey 0=19769

Plasma—contd

space charge sheath, elec. field 3=12113
 space-charge wave propag. const. rel. to hydrostatic pressure 3=398
 space-charge waves, collision damping 0=3771
 space charge waves, collision damping, calc. 3=5666
 space charges, macroscopic, prod. and distrib. 2=19933
 space dispersive props. 1=10695
 space distrib. of electrons, e.m. wave reflection method 1=293
 space vehicle propulsion 2=7045
 space vehicles, sheath, conference 2=2576
 spark discharge, shock wave propagation 1=18786
 spark discharges, shock wave propagation, theory 1=18785
 spark, thermodyn. balance and composition det. 2=11645
 spatially homogeneous, Bogoliubov's eqn. 0=15018
 spatially inhomogeneous, microscopic instabilities, kinetic examination 3=12125
 spectra, asymmetric self-reversible line profile 4=11610
 spectra from highly ionized atoms, grazing incidence meas. 4=25490
 spectra, two types of atoms 3=9812
 spectral broadening, due to r^{-3} potential 4=18861
 spectral cinematographical methods, development 3=7327
 spectral line broadening, statist. theory 4=14650
 spectral line form, rel. to self-reversing line contours 2=7364
 spectral line intensities, optically thin approx. criteria 4=18852
 spectral line profiles, functional description 0=3626
 spectral line self-absorption, extension of limits of applicability 3=19282
 spectrochemical analysis. 3=25841
 spectroscopic investigation, electron-optical system 2=19981
 spectroscopic investigation, under fast mag. compression 2=11639
 spectroscopic investigation methods 1=10699
 spectroscopic investigation methods 1=11952
 spectroscopic light source, impurity free, 250 cm long 4=13752
 spectroscopic meas. of temp. and density 3=9806
 spectroscopic methods of determining temperatures 0=19687
 spectroscopic study 0=19686
 spectroscopy, high-density corrections 3=1961
 spectroscopy, time-resolved 2=1451
 spectrum, Al III broadening and shift 4=18846
 spectrum, forbidden He line 2=1416
 Spitzer's equations, suggested modifications 2=1430
 stability, against ribbon-type perturb., in mag. field 1=7046
 stability and boundary conditions 0=15016
 stability of boundary with vacuum 1=18838
 stability of bunches in waveguide 1=18883
 stability calculations, fundamental error 0=12611
 stability, of column in longitud. mag. field 2=19941
 stability, with continuous density distrib. 1=13090
 stability criteria, Lyapunov 3=12117
 stability in current-carrying plasma 1=11942
 stability of cylinder in h.f. mag. fields 1=4613
 stability, effect of Coulomb scattering 1=18849
 stability, electrostatic, of non-Maxwellian plasma 2=13560
 stability, under electrostatic perturbation 1=18875
 stability in field of mag. dipole 0=19676
 stability, with frozen-in nonuniform mag. field 3=7515
 stability, gravitational, effect of finite resistivity 3=21778
 stability of higher order correl. functions, elec. and mag. field vars. 4=21533
 stability, hydromag., rel. to mag. surfaces 3=1975
 stability, hydromagnetic, effect of inertia term 2=19950
 stability in inhomogeneous mag. field 2=9579, 19964
 stability in inverse pinch discharge 3=1992
 stability in longitud. mag. field and with conducting casing 1=9581
 stability, low pres. plasma, no mag. surfaces 3=14594
 stability, at low pressures, in toroidal systems 0=7124
 stability, in mag. dipole field 1=5458
 stability, in mag. field, inhomog. plasma 3=24314
 stability, in mag. field, rarefied l.p. plasma 3=24313
 stability, rel. to near-by equilibria 3=12131
 stability, "normal mode" method 2=15911

Plasma—contd

stability of plasma with anisotropic particle-velocity distrib. 1=4602
 stability of plasma boundary in magnetic fields 1=10711
 stability, potl. energy in mag. field 3=14596
 stability, review 2=11644
 stability, of sharp pinch and unpinch 2=1440
 stability of toroidal system 1=7078
 stability, in travelling wave, effect of mag. field 2=11674
 stability, in vacuum, many-valued scalar mag. potl. 0=17012
 stabilization, dynamic, passing current, effect of mag. field 3=7513
 stabilization, using guard conductors 1=7065
 stabilization of "universal" instability in weakly non-uniform plasma bounded by a mag. field 3=14595
 stable and confined 2=5352
 stable confinement 0=7122
 stable, in discharge of inverse-pinch type 3=21765
 stagnation-point Langmuir probe 0=9038
 Stark broadening of H-like ion spectral lines, calc. 1=8809
 Stark broadening of H spectral lines, calc. 0=1480
 Stark broadening of heavy-element isolated spectral lines 3=701
 Stark broadening, of neutral He lines, calc. 2=3698
 Stark broadening of spectral lines 0=1479
 Stark profiles, of H and He 2=3700
 static equilibrium stability 2=11671
 stationary configurations in mag. fld. 4=491
 stationary cylindrical configuration, in long. and self mag. field, e-e interaction 1=296
 stationary, diffusion in mag. field 3=12123
 stationary flow, in mag. field, finite amplitude wave 3=24280
 stationary state, low pressure, in ambipolarelectric field 4=5590
 stationary state, in self-consistent mag. field 2=22209
 stationary state, in self-consistent magnetic field 1=18837
 stationary states, kinetic approx. 2=22215
 statistical line broadening 2=1958
 statistical mechanical invest. 4=77
 statistical mechanics, Boltzmann and Jökker-Planck eqns., review 0=12604
 statistical mechanics, Mayer expansion 1=5203
 statistical thermodynamics 1=18815
 steady-state, highly-ionized, prod. device 3=7593
 steady states of high temp. plasma, theory 4=8684
 steady-state processes, non-linear theory 0=7128
 steady-state, quiescent, highly-ionized, generation and meas. 1=8324
 stellar plasma 0=2361
 stellerator, charged-particle loss during ionization 1=2979
 in Stellarator, deviations from kinetic equil. 2=1454
 stellarator, interchange instability 3=19284
 stellarator, loss of charged particles 3=12153
 in Stellarator, mag. field calc. 2=17849
 stellarator, Model C, containment time 3=12190
 in Stellarator, r.f. heating and vacuum system 2=19987
 in Stellarator, rotational transforms 2=13576
 stellarator S-1, with helical magnetic fields 3=19283
 Stellarator synchrotron radiation from runaway electrons 1=9620
 stellarator-type devices, magnetic confinement 0=19661
 stopping power for a charged particle, effects of ionic collective motions 1=2968
 stopping power for fast charged particle 3=12103
 stopping power on moving particle, calc. 4=5081
 stopping power, quantum statistics 2=4958
 stratification waves, physical mechanism 3=9735
 stratified, as model of ionosphere for e.m. wave reflection 3=16256
 stream interaction with dipole, cavity production, rel. to radiation belt meas. 4=4796
 stream production, from $(\text{CN})_2\text{-O}_2$ flames 2=3036
 streams interacts, in transverse mag. field 4=29917
 streams, three dim.-less parameters 3=12244
 streaming cylindrical incompressible, hydromagnetic stability 0=9035
 streaming in inhomogeneous mag. field 4=21502
 streaming, in line-current mag. field, interactions 1=3047

Plasma—contd

streaming, low density, at magnetic barrier 1=4596
 streaming through magnetic dipole field 3=16935
 streaming plasma, interaction with magnetic dipole field 1=10705
 in strong mag. field, energy principles for equilibrium and stability 1=15721
 strongly ionized, charged particle distrib. function, spherical harmonic technique 4=11508
 strongly ionized, in hollow cathode discharge 3=21773
 strongly ionized, production with pinch effect in cusped field 0=19672
 sun, flares, electron density, from cosmic ray proton interactions 3=11546
 and sun, spectra, u.v., identification with θ -pinch and Zeta discharge 4=29439
 superbarrier reflection 2=226
 superbarrier reflection 3=4210
 superfast pinch experiment 1=310
 superkinetic eqn. for spatially inhomog. plasmas 4=11564
 super high frequency probe method for charge conc. 0=15028
 in supernovae outbursts, theory 4=2367
 supersonic flow fields in r.f. excited plasma tunnel 3=24305
 supersonic streams, seeded with electronegative gases, props. 4=16468
 surface boundary conditions, for rapidly changing parameters 4=29903
 surface properties, microwave cavity meas. 2=1444
 survey of experimental studies, optical methods 1=9554
 survey of experimental studies, probe methods 1=9555
 survey of 1958 Geneva papers on high temp. plasmas 0=19665
 swirl, due to Hall effect, theory 4=29914
 synchrotron radiation, ang. depend. 1=4609
 synchrotron radiation avoidance by confinement geometry 0=16997
 synchrotron radiation losses 2=19943
 synthesized, space charge instabilities 1=3007
 TA 2000 torus, impurity ion far u.v. emission 3=5680
 tangential burst, stability 2=5336
 teaching, bibliography 2=9562
 temp., meas. by double probe in mag. field 1=8324
 temp. variations during self-heating by D and T thermo-nuclear reactions 0=3759
 temperature, rel. to current electron conc. 4=16459
 temperature distrib. between particles for partial ioniz. 3=24267
 temperature, effect of electrostatic instabilities 2=11668
 temperature equalization rate 3=14604
 temperature measurement, det. from e.m. wave phase velocity 2=19977
 temperature measurement, by determ. of particle velocities 2=5356
 temperature, second maximum due to admixture interaction 3=24269
 ternary (electrons, ions, neutral atoms), magnetohydrodynamics 0=15038
 test particle model 4=24629
 test particle, return to equilibrium 1=8321
 theoretical and experimental studies at A.E.I., U.S.S.R. 1=9575
 theory applied to many-electron atom 2=3683
 theory of fully ionized column with external particle prod. 3=9768
 theory, meas. and expt., review 2=15907
 theory, operational methods appl. 4=16463
 thermal agitation and turbulence 2=2678
 thermal arc, use as known radiation source 3=10447
 thermal conductivity 4=18807
 thermal conductivity, calc. 1=5443
 thermal conductivity, Chapman-Enskog method 2=5329
 thermal conductivity, eqn. 2=1417
 thermal conductivity tensor 0=1127
 in thermal converter diodes, kinetic theory 2=11707
 thermal, dynamical eqns. and transport relationships 1=5450
 thermal, electric discharges, dynamic props., theory 4=8665
 thermal fluctuation theory 4=29902
 thermal isolation, mag. field topology 2=22226
 thermal radio radiation 3=12133
 thermalization 2=9578

Plasma—contd

thermalization of fast injected ions 1=11927
 thermally luminous, transition probability 2=178
 thermionic converter plasma diode potential distributions 1=1911
 thermionic converter, resistance 3=4155
 thermionic generator with ion injection 3=7421
 thermocouples, efficiency 0=9040
 thermocouples, open-circuit voltages 0=2311
 thermocouples, for 1600-2600°K hot-junction temp. 0=1139
 thermodynamic functions, det. theory 2=5330
 thermodynamic functions of low-temp. plasma 1=4590
 thermodynamic props. of partially degenerate fully ionized gas 1=9340
 thermodynamic props. of unipositive gaseous elemental ions 100-50 000°C, calc. 0=14972
 thermoelectric power meas., low temp. 3=19277
 thermonuclear, cross-sections and rates of various reactions 0=17638
 and thermonuclear fusion, conference report 2=5326
 thermonuclear, heating of positive ions, by electron beam 0=15027
 thermonuclear, ion injection into magnetic mirror 0=3762
 thermonuclear, mass analysis of neutral flux 3=24996
 thermonuclear processes 0=5836
 thermonuclear reactions, controlled, Harwell work since 1958 3=7597
 and thermonuclear reactions, investigations at U.S.S.R. Academy of Sciences 1=5439
 and thermonuclear reactions, investigations at U.S.S.R. Academy of Sciences 1=13077
 theta discharge, equilibrium config. 1=18876
 θ pinch, added hexapole mag. flds and preionization effects 3=19266
 theta-pinch configs., wall-stabilization effects 3=21798
 theta pinch, conical, azimuthal mag. field 3=21797
 θ pinch, containment 3=19265
 theta pinch, electron density and mag. field distribs. 3=12178
 theta-pinch end loss 1=10720
 theta-pinch, fast 3=12160
 theta pinch, hard X-rays emission before breakdown 3=12179
 theta pinch, mag. fld. diffusion thru initial stages 3=7565
 Θ pinch, neutron prod. without reversed trapped field 3=4144
 theta pinch, rotational instability 3=21799
 "theta" pinch, wedge-type instability 1=18878
 θ pinches, ionization rates and impurity radiation losses 4=18958
 thetatron, reversed field heating, calc. 3=413
 thin, ion and electron currents 0=15010
 thin, of variable density, properties 0=15007
 three-component, energy dissipation, mag. field depend. 3=21783
 three-component system, transport properties 3=16928
 three-component, transport eqns. in mag. field 4=16471
 time for thermodynamic equilibrium in arc discharge 0=3749
 time variation in fusion systems, energy balance 0=17637
 "Tokamak 2" apparatus, X-ray detection 1=1901
 "Tokamak" toroidal apparatus, second version 1=5462
 torch discharge, high frequency, heat losses 0=5299
 torch, induction-type, for growth of refractory crystals 2=2365
 toroid, with distrib. current, in mag. field, stability 0=10910
 toroidal apparatus, field error elimination 3=21814
 toroidal arc, confinement 1=11945
 toroidal β device, electron spectrum, and O emission min. 3=21817
 toroidal column, equil. in mag. field 4=493
 toroidal configuration, in changing long. mag. field 1=5463
 toroidal, with conducting aperture limiter, equilibrium 4=536
 toroidal current-carrying, equilb. 3=19268
 toroidal discharge, excited by travelling e.m. field, instability 2=9584
 toroidal discharge excited by travelling e.m. fld., instability 3=5670
 toroidal discharge in H_2 , Joule heat losses 1=5474
 toroidal discharge in H_2 , Joule heat losses 1=11950

Plasma—contd

toroidal discharge, He II line profile 2=7620
 toroidal discharge with rapid programming 3=19247
 toroidal discharge, in rapidly changing longit. mag. field 1=309
 toroidal discharge in strong mag. field 0=9029
 toroidal discharge in varying longitudinal mag. fld. 3=12208
 toroidal, equilibrium configurations 1=9588
 toroidal fast-compression, rotational transforms, using shaped single-turn coil 2=19970
 toroidal, heating, in oscill. mag. field 0=1136
 toroidal, m.h.d. stability, energy integral 3=21775
 toroidal magnetohydrodynamic stability 3=16949
 toroidal metal tubes, disturbing mag. fields at gaps 3=21813
 toroidal pinch discharge, mag. field, temp variations 3=5637
 toroidal pinch, equilibria, particle model 1=4610
 toroidal pinch expts., rel. to ignitrons 3=4143
 toroidal pinched discharge, energy loss 2=1441
 toroidal, spectra min. at peak current, electron temp. var. 4=18865
 toroidal, stability 3=12130
 toroidal stabilized pinch, review 0=19660
 toroidal, striking voltage var. with freq. 4=5587
 in toroidal surface, equilibrium 1=19000
 toroidal systems under scalar pressure, stability 1=18992
 torque on plasma, in terms of mag. stress 2=19949
 torus, elliptical, equilibrium, magnetohydrodynamic 3=19258
 in a torus, magnetohydrostatic equilibrium 1=308
 torus with surface currents, stability calc. 3=1976
 Torus TA2000, ionization 3=7595
 transformer, ohmic heating 2=19831
 transient pinch, similarity solns. 3=19233
 transition radiation fields calc. for electron refl. 4=29921
 transition radiation rel. to temp. 1=18836
 transition radiation, rel. to temp. 2=22207
 transition region to confining mag. field, analysis 2=1437
 transition region structure, self-consistent microscopic eqns. 1=18833
 transport coefficients, correlation effects 2=1417
 transport coefficients for fully ionized plasma 3=7508
 transport coefficients, in magnetic field 1=11930
 transport coeffs. 1=18821
 transport coeffs. det. by Grad method 3=14568
 transport and containment, in high-freq. and magnetic wave-guides 3=12174
 transport cross-sections for cut-off Coulomb potential 4=14632
 transport eqns. in strong external field 1=16310
 transport equation 1=5449
 transport equations, relativistic, wave dispersion eqns. 0=9031
 transport phenomena, radiation process effects 3=14583
 transport phenomena, variations 2=13556
 transport processes, in mag. fields, 2nd order theory 0=2368
 transport processes, unified theory calc. 4=498
 transport processes in fully ionized plasma 1=4599
 transport properties, macroscopic, alkali-metal plasma 4=11593
 transport properties in strong magnetic field 1=8325
 transport props., effect of neutral particles 1=18822
 transport props., radially constricted 3=16926
 transport theory, runaway process 1=15724
 transverse compression waves in stabilized discharge 0=3769
 transverse motion in magnetic fields 3=12127
 trapping, in cusp configurations, for high and low β -injection 0=9026
 trapping instabilities in slight inhomog. plasma 3=1988
 trapping in radially increasing magnetic field 3=12149
 in travelling-wave excited discharge, radial electron density 2=22188
 travelling wave interaction in plasmas 1=9568
 in tube, effect on e.m. waves in helical waveguide 0=17110
 turbulence 1=5451
 turbulence 3=7523
 turbulence in incompressible flow, characteristic functional 1=16327
 turbulence, in mag. mirror system 1=18874

Plasma—contd

- turbulence in r.f. discharge 3=7470
 turbulent, elec. conductivity 3=1963
 turbulent, electrodynamic props. 3=16932
 turbulent, energy spectrum of charged particles compared with neutral 4=8672
 turbulent heating by e.m. wave absorption 3=1987
 turbulent, interaction with charged particles 4=21503
 turbulent particle loss, in strong mag. flds. 2=15932
 turbulent processes, quasi-equilib., kinetic description 3=396
 turbulent processes, quasi-equilib., kinetic description 3=5662
 turbulently heated, spectra and electron temp. 4=8717
 two-electron correlation function, solution 1=7073
 two-fluid model 0=16731
 two-particle correl. function, time depend. calc. 4=5596
 two plasma collision 3=12126
 two-temperature, currents and heat fluxes, kinetic eqns. 4=8689
 u.s. absorpt. in crossed elec. and mag. fields 3=9778
 u.s. propagation, dispersion relation 2=19956
 u.v. spectroscopy, high-temp., review 3=14337
 unstable, kinetic eqn. 3=21833
 unstable, 2-particle correl. function 3=21766
 v.h.f. and d.c. currents in a gas, correction 0=3765
 vacuum u.v. radiation physics, conference 3=5515
 valve, fast gas, for injection expts. 3=4158
 Van Allen radiation belts, ring currents calc. 1=21072
 Varena 1959 conference 1=5438
 velocities, ang. distrib., from discharges 2=7569
 velocity shear in mag. field, eddies 3=1965
 virial theorem 0=12612
 virial theorem 3=7543
 viscosity coefficient, in mag. field 2=9576
 viscosity, Grad approx. appl. 4=5598
 viscous, Couette flow, Langmuir potl. 2=19951
 viscous props. in mag. field 0=15022
 viscous rotating, boundary effects 3=16934
 Vlasov eqn., agreement with previous results 4=5592
 Vlasov eqn., integration 3=7511
 Vlasov eqn., nonlinear, dispersion reln. 4=11578
 Vlasov eqns., soln., in externally uniform mag. field 4=5594
 Vlasov equation, nonlinear, integration, rel. to Landau damping 2=5335
 Vlasov, transverse e.m. waves theory 3=14581
 Vlasov, transverse waves in ext. mag. field 3=14582
 vortex rings, exptl. evidence and theory 3=395
 wake of satellite in ionosphere 0=9023
 wall stabilization effects in theta-pinch configurations 3=412
 warm plasma, conductivity, rel. to frequency and temp., theory 0=1137
 warm, quiescent, wave analysis 2=19963
 warm, wave excitation, by a current source 4=511
 water vapour, decaying, microwave study 0=5294
 water vapour, 1-30 atm., 1000-30 000°K; composition, density, enthalpy and specific heat 1=10701
 wave interaction in inhomogeneities 1=7069
 wave motion, with anisotropic pressure, analysis 2=15920, 19961
 wave phenomenon, fast dynamical, in shock tube 3=1955
 wave propag., collision and temp. effects 4=2979
 wave propagation, quasi-one- fluid theory 3=9785
 wave propagation in, review 1=515
 in waveguide, e.m. wave propag., perturbation theory 0=12703
 in waveguide, excitation, by coaxial line 4=16657
 waveguide filled with plasma, excitation 3=7712
 waveguide, h.f. field radial distrib. meas. 4=19236
 waveguide, nonlinear theory 3=19455
 waveguide, plasma-filled, wave structure 3=24476
 waveguide, wave propag. and electron beam interaction 3=7707
 in waveguides, e.m. wave propagation behaviour 1=12019-20
 waveguides, plasma-filled, fast wave propag. 3=2129
 waves, absorption 0=3768
 waves, adiabatic, under mag. field, theory 2=1432
 waves, with anisotropic press., Chew-Goldberger-Low approx. 0=9163
 waves in electron clouds 0=19916

Plasma—contd

- waves, in electron streams 2=20010
 waves, excitation by charged particle beams 2=19960
 waves, in plasma with particle-velocity anisotropy 1=4601
 waves, propagation across a density discontinuity 0=3767
 waves, propagation, partially ionized medium 2=7612
 waves, self-similar, one-dimensional, along mag. field 2=13564
 waves, self-similar, one-dimensional, along mag. fld. 3=5672
 waves, transverse and longitudinal, coupling mechanisms 1=2986
 weak interactions 0=2372
 weakly ionized, charge-particle motion, hydrodynam. description 2=22218
 weakly ionized, e. m. perturbation, rel. to elec. cand. and electron heating 4=4810
 weakly ionized, electron temperature spatial distribution in homogeneous mag. fld. 4=5603
 weakly-ionized, kinetic theory 4=492
 weakly ionized, stability in uniform mag. field 3=14574
 weakly and strongly ionized, kinetic theory, review 2=203
 "weakly" unstable, finite Larmor radius stabilization 3=12151
 weakly unstable, kinetic theory, nonlinear Vlasov and BBGKY eqns. 4=21494
 X-ray continua and line spectra from highly stripped atoms 1=8820
 X-ray emission, in Sceptre III A 2=7631
 X-ray emission, soft, from theta pinch 4=18868
 X-ray spectr. meas. at high temp. 3=7503
 X-rays, hard, radiated, in strong mag. fld., rel. to E/p 4=11612
 X-rays prod. after plasma injection into mag. trap with cusp field 4=14737
 z-pinch compression, non-cylindrical, dense, high-temp. 3=12162
 z-pinch discharge, numerical calc. rel. to magnetic probe meas. 3=12161
 zero-temp. plasma, nonlinear oscills. and nonstationary flow 0=12620-1
 zero temperature, energy and pressure 2=5328
 zeta, e.m. radiation emission, sub-millimetre 1=9574
 Zeta, electron temp. and density rel. to pres. and mag. fld. 3=7594
 Zeta, energy loss processes 2=7628
 Zeta, radiation 0.1-2.0 mm wavelength, spectrosc. investig. 3=7594
 A, accelerated, velocity and impulse 1=9560
 A, confinement by periodic mag. field 2=13568
 A, discharge, l.p., plasma potential, probe meas. 1=18807
 A discharge, probe meas. in positive column 1=18797
 A, due to e.m. driven shock wave, spectr. study 2=11640
 A, enthalpy-entropy diag. to 10⁶ °K 2=9564
 A, flowing, thermodyn. phase changes theory 2=11637
 A, ion drift from plasma, influence of mag. field 2=1394
 A jet, elec. and optical studies 3=24276
 A, jets, energy content rel. to power input and gas flow 1=18893
 A, linear pulse discharges 2=22213
 A, partition function cutoff and ionization potl. lowering 2=1423
 A plasmajet, power output 2=1458
 A, shock-ionized, mag. field interactions 1=1970
 A, spectral line intensities 2=17845
 A, temperature spectroscopic 3=7502
 Ar, absorption coeff., continuous, 4000-7000 Å, 8000-24 000 Å 3=1972
 Ar, absorption oscillator strengths of CI-multiplets between 1100 and 1800 Å 4=19953
 Ar afterglow, dielec. const., meas. and theory 4=11641
 Ar, axisymmetric, interferometric analysis 4=16467
 Ar, bumpy torus, afterglow 3=19270
 Ar, deionization in magnetic field 3=19249
 Ar, effect of 1 or 2% Fe on plasma temp. 4=11633
 Ar, gun 3=19238
 Ar, hydromagnetic waves, fast, expt. 4=14714
 Ar jet, line broadening of ArI 4=9635
 Ar, K seeded, elec. cond. at atmospheric press. 4=24638
 Ar, metastable, excitation of N₂ 3=8263
 Ar, partition functions, thermodynamic props. 3=21819

Plasma—contd

- Ar, produced by shock waves, mag. driven, spectra 4=24648
 Ar, quenching by SF₆, electronegative seeding 3=19237
 Ar, shock-heated, elec. cond. between electrodes 4=11586
 Ar, in shock tube, thermodyn. state, spectral meas. 4=27527
 Ar supersonic streams, seeded with electronegative gases, props. 4=16468
 Ar, thermal transport, shock tube studies 4=16466
 Ar—Cs, elec. cond. and heating field 4=27545
 Ar—Cs, energy density rel. to plasma temp. 4=11633
 Ba, production 3=392
 Ba, spectrum, ionized, and temp. and electron densities, var. with current 4=8708
 Bi, solid state, cyclotron resonance, and Alfvén wave damping 3=4854
 C arc, viscosity, 5000-10 000°K 2=19985
 Cs, apps. and props. 4=8670
 Cs, classical diffusion, stellarator test 4=11680
 Cs, cold, diffusion across mag. field, electron density 1=4600
 Cs, conductivity, electrical, effect of electrode film barriers 3=21820
 Cs, diffusion, current effects, classical and Bohm enhanced density—rad. rel. 4=27514
 Cs, diffusion in mag. field, not Bohm 4=27515
 in Cs diode, mag. field effect 3=19166
 Cs, disintegrating, volume recombination 3=24278
 Cs, effect on thermionic energy converter 3=24206
 Cs, electrode work function, rel. to thermodynamic chemical potential 3=21820
 Cs, electron mobility, scatt. cross-sections 3=12186
 Cs, electron-neutral atom elastic scatt. theory 2=19991
 Cs, use in expts., survey 4=18790
 Cs gas discharge, probe characteristics meas. by 1-, 2-, 3-, and 4-electrode probes 4=14688
 Cs, generation of low-temp., highly ionized plasma 1=2981
 Cs, highly ionized, quiescent, generation and application 2=5354
 Cs, interaction with electron beam, microwave amplification 1=5441
 Cs, ionization, mobility, scatt., in weak plasma 4=21497
 Cs, partly ionised, viscosity 4=24562
 Cs, quiescent, steady-state generation 3=4107
 Cs, recombination, electron-ion, higher densities 3=21821
 Cs-seeded plasmas, elec. cond. meas. near thermal equil. 3=24279
 Cs, steady-state, quiescent, highly-ionized, generation 1=8324
 Cs, temp. and density meas., by spectroscopy 2=1447
 Cs, weakly ionized, Onsager phenomenological coeffs., calc. 4=5593
 Cu vapour wrapped with N or Ar, contraction and emission 3=7557
 D, and D + 6% O₂, electron temp. 1=8820
 D, density meas., with T ion beam 4=2990
 in D discharge, conductivity 1=7038
 D, electron density, interfer. meas. 2=5350
 D, electron temp. in strong shock wave 2=198
 D, fast-moving plasmoids 4=11604
 D, high-temp., threshold ion energy 2=9601
 D, from high vel. plasma guns 3=7520
 D, highly ionized, prodn. for compression experiments 3=12164
 D, injection, into cusp mag. field 1=7081
 D, ionization and heating, rel. to impurities 4=8686
 D, Joule heating in strong magnetic field 4=8685
 D, mag. field meas. during fast compress. 2=11655
 D, near-pure, from toroidal apparatus "Tokamak 2" 1=1900
 D pinches, meas. techniques, low-inductance capacitor banks 1=5476
 D pinches, neutron emission mechanism, energy of accelerated deuterons 1=9582
 D pinches, theta-type, framing-camera evidence for confinement 1=5466
 D pinches, transverse, instability mechanisms 1=1903
 D, in Scylla, emission of neutrons, protons, tritons, light, and X-rays 0=13385-7
 D, thermalization of fast injected ions 1=11927
 D, thermonuclear reaction yield, plasma parameters depend. 1=7410

Plasma—contd

- D theta pinches, impurity radiation losses 4=18958
 D in Thetatron discharge, rapid axial contraction 3=12155
 D, 3 keV, confinement by pulsed mag. field 1=5467
 D, transverse pinch, neutron-producing mechanism 1=2976
 D, two-temp. plasma, transfer coeffs., calc. 4=14631
 D in Zeta, trace-ion energies, spectroscopic studies 4=8700
 D-D fusion, in hot plasma 2=7629
 D*, trapping, prolonged confinement 2=19971
 D₂, heating by fast magnetic compression 4=8694
 D₂, highly-ionized, steady-state, development and study 3=7498
 GaP diffused junctions, microplasma obs. 4=4030
 H, anomalous resistance 3=12114
 H, arcing behaviour of metals 2=3020
 H, attractive two-body interactions 2=5332
 H atoms, ionization and excitation 1=19595
 H, Balmer line Stark broadening 3=4108
 H, Balmer lines, pressure broadening 4=28110
 H, Balmer spectrum interpretation 2=1398
 H, condensed in high vac., by high pot. field, apps. 4=27497
 H, contra-streaming, instability 0=3777
 H, cool, recomb. and ionization rates 3=21771
 H, disintegrating, space distrib. of electrons 1=293
 H, in electromag. T-tube, Stark profiles 2=3700
 H, electron collision freq., meas. 2=22228
 H, electron-ion recombination 2=3029
 H, electron velocity distrib. 0=5274
 H, energy emitted in spectral lines at equilibrium 3=19232
 H, enhanced diffusion by ion cyclotron reson. 4=29910
 H, equation of state 4=18795
 H, equil. composition and eqn. of state 4=8683
 H, equil. emissivity calc. for up to 10⁴°K 2=9568
 H, fast-moving plasmoids 4=11604
 H, flow through mag. field, polarization and pondermotive force effects 4=16473
 H, high density, arc, mag. probe meas. 4=5606
 H, high temp., impurity radiation losses 1=18855
 H, high-temp., threshold ion energy 2=9601
 H, highly ionized, generation devices 3=1967
 H, highly ionized, ionic conductivity 0=12586
 H, incoherent microwave radiation at 3000 Mc/s 0=2370
 H, injection, into cusp mag. field 1=7081
 H, ionization times of impurities 0=10902
 H, isothermal, thermodynamic props. 1=18843
 H-like ions, excited levels, population densities 4=2971
 H line broadening in arc and shock tube 3=18861
 H, line profiles and ratios using rapid scan spectrograph 4=27315
 H, Lyman α , wing profile meas. 4=28108
 H, magneto-ionic theory 2=5483
 H, moving, elec. cond. decay 2=19934
 H, negative absorption and generator props. 4=5617
 H, partially ionized, eqn. of state 1=18834
 H, partially ionized, equilibrium props. 0=17007
 H, pinched, radiative losses from impurity ions 0=1131
 H, prod. by shock waves in SUPPER II 4=27521
 H, produced by impulsive discharge, spectroscopic study 1=260
 H, produced by shock waves, mag. driven, spectra 4=24648
 H, profiles of Stark-broadened Balmer lines 3=8176
 H, pulse discharge, ohmic heating 4=5608
 H, pulse discharge, spectral study, high temp. parameters 0=10914
 H, pure, prod., by mag. filtration 3=21822
 H, recombination through electron-electron collisions, calc. 1=18774
 H, as r.f. high-current proton source 2=11943
 H, radiative thermal cond., mean opacity 2=19932
 H, recombination radiation 1=7053
 H, recombination rates 2=19935
 H, run-away electrons meas. 3=12104
 H, shock-heated, temp. and density 0=19689
 H, spectra, line asymmetry 3=12753
 H, spectrographic analysis 4=18856
 H, Stark broadening of spectral lines 0=1480
 H, toroidal pinch, energy loss 2=7622
 H, toroidal Z-pinch, X-ray emission, rel. to runaway electrons 4=8703
 H, discharge, motion of striations 3=19196

Plasma — contd

- H₂, fully ionized, dispersion relations 3=4123
 H and D discharges in B.3. stellarator, electrostatic instability 0=17001
 H-H⁺-e collisional-radiative recombination, at low temp. and density 4=8682
 H-H⁺-e decaying plasma, recombination and energy balance 4=18808
 H⁺ and He⁺, cyclotron and parametric resonance 1=6096
 He afterglow, electron-atom momentum transfer, 10⁻³eV, 4.2°K 4=14638
 He, decaying, ionization processes 3=14517
 He, deionization rate in mag. field, ion and electron diffusion 1=11912
 He, diffuse lines, pressure broadening 4=28110
 He, discharge, microwave study 2=15899
 He, due to e.m. driven shock wave, spectr. study 2=11640
 He, electrodeless discharge in a torus, insulation from wall effects by hot gas 1=1905
 He, in electromag. T-tube, Stark profiles 2=3700
 He, electron collision freq. meas. 2=22228
 He, electron density and temp. from line profile meas. 4=18857
 He, electron-gyrofreq. harmonics emission 3=7465
 He, electron-ion recomb. to excited bound states 4=5565
 He, electron-ion recombination 2=3029
 He, electron temp. and percentage ionization, spectroscopic determ. 4=16486
 He, energy balance parameter meas. 4=531
 He, fast-moving plasmoids 4=11604
 He, high-temp., threshold ion energy 2=9601
 He, highly ionized, in steady-state 2=17820
 He, incoherent microwave radiation at 3000 Mc/s 0=2370
 He, injection, into cusp mag. field 1=7081
 He, ion drift from plasma, influence of mag. field 2=1394
 He, ion recombination in mag. field 3=14603
 He, in magnetic field, ion diffusion 1=13082
 He, magnetically driven shock wave production, spectroscopic study 1=261
 He, pinch, cine film study, mechanism 1=9586
 He pinch, linear, spectroscopic meas. 3=7559
 He prod., for 584A source 4=27305
 He, pulsed, anomalous afterglow of H 4=29920
 He, rate processes, simult. differential eqns. 4=14633
 He, recombination 3=4106
 He, recombination at low temp. in B-1 Stellarator 1=11924
 He, shock-heated, temp. and density 0=19689
 He, shock tube, wavefront 2=5048
 He shock waves, electron density and temp. 3=1752
 He, spark discharge, electron conc. meas. 2=19986
 He, Stark broadening of ion spectral lines, calc. 1=8809
 He, in theta pinch, electron temp. meas. 3=12142
 He, toroidal discharge, external elec. data 2=17839
 He, weakly ionized, spectrosc. investigation 4=18854
 He II spectrum displacement, blue 4=530
 He-Cs, microwave diagnostics, up to 3000°K 3=4135
 He-He⁺-e decaying plasma, recombination and energy balance 4=18809
 Hg, acceleration in r.f. field gradient 1=305
 Hg cylindrical column, noise radiation and scattering 3=383
 Hg, d.c. discharge, search for electrostatic sound wave modes 1=11961
 Hg, decaying, electron gas cooling 2=1426
 Hg, electron mobility, temp. var., transport cross-section effects 3=19236
 Hg gas discharge, probe characteristics meas. by 1-, 2-, 3-, and 4- electrode probes 4=14688
 Hg, ionization rates 0=7069
 Hg, jet, pinch instabilities, camera study 2=5464
 Hg, l.p. arc, probe meas. 2=3017
 Hg, low pressure, forces on ion-bombarded electrodes 0=15086
 Hg, number densities, a.c. and d.c. components, microwave meas. 3=21804
 Hg, pulsed probe meas. 2=1448
 Hg vapour discharge, fluctuations 1=16326
 Hg vapour, low-pressure, electron and ion density hysteresis effects 3=24287
 Hg⁺ large diameter plasma beam production 1=4618
 InSb, electron-hole, thermal pinching 3=25261

Plasma — contd

- in InSb, injected, in longit. mag. flds 3=10821
 InSb, pinch effects at 77°K 0=1672
 InSb, self-pinch distrib., microwave probe obs. 3=25366
 K, diffusion, current effects, classical and Bohm enhanced density-rad. rel. 4=27514
 K vapour, fully-ionized, transport props. meas. 4=11587
 Kr, anode-glow mode, negative resistance rel. to Ramsauer effect 3=5635
 Kr, behind shock wave 2=63
 Kr, local by applied magnetic fields, effects 3=12116
 Kr, shock produced, coupling of microwaves 3=16943-4
 Kr II line broadening meas. 3=10454
 Li, electron-ion, synthesis and props. 1=18828
 Li, use to enhance the excited-state population of a H-atom beam 4=6494
 N, condensed in high vac., by high pot. field, appls. 4=27497
 N IV ions collective motion, spectr. meas. 3=24304
 N, pulse discharge, ohmic heating 4=5608
 N, spectral line intensities 2=17845
 N, spectrum, Stark effect of local fields 4=9645
 N, Z-pinch discharge 2=19966
 N₂, afterglow, intensity change with time 2=15898
 N₂, arc heated, spectral continuum meas. 4=14652
 N₂, azimuthal discharge, whirl-like columns 3=4142
 N₂, heavy-particle temps., spectral meas. 4=14676
 N₂ jet, anode spot movements 3=14539
 N₂, vortex stabilized arc, spectral emission, narrow-band distrib. 4=18843
 NO, electron removal by recombination, attachment, and ambipolar diffusion 2=3030
 Na, production 3=392
 Na, solid, self-pinch instabilities 3=16950
 Ne constricted discharge, temp., electron conc. 1=13092
 Ne d.c. glow discharge, plasma conductivity 1=16287
 Ne discharge, pos. column, electron energy distrib. function 2=168
 in Ne discharge, temp. and electron density meas. 1=313
 Ne, electron collisions, energy depend. and frequ. 4=24586
 Ne, electron density, rate of fall 4=24664
 in Ne glow discharges, striation wave 0=2336
 in Ne positive column 1=4581
 Ne II line broadening meas. 3=10454
 Ne-A, diamag. moment, by spin resonance technique 0=19693
 Ne(78%)-He(22%), low-pressure, weakly ionized, electron mobility 3=14525
 Ne-Hg, meas. of temp. and electron density 3=14597
 O arc, Stark-broadened spectral lines, shifts and widths 3=24277
 O VIII Lyman spectrum, from theta pinch 4=19963
 O, spectra, Stark effect of local fields 4=9646
 O₂, decay, by recombination and electron capture 4=21495
 O₂, isothermal, ambipolar diffusion at high temps. 4=14642
 O₂, at 1-30 atm. 1000-30 000°K 0=7129
 O and N, electron energy distrib. 1=16317
 Si p-n junctions, micro, at crystal dislocations, stair rod 3=20351
 Si, p-n junctions, microplasma phenomena 4=7002
 Ti gun with hydrogenated electrodes, spectrum 3=7519
 Xe, anode-glow mode, negative resistance rel. to Ramsauer effect 3=5635
 Xe, high-pressure, radial temp. and mobility 3=19192
 Xe, shock-heating 1=169
- confinement**
 (subheading introduced in 1964)
 adiabatic trap with combined magnetic field 4=5686
 adiabatic trap with hybrid magnetic field 4=5644
 annular high-frequency discharge, compression by rising mag. field 4=8736
 ball lightning, plasmoid model 4=26800
 blobs, trapped by transverse mag. fld. 4=27520
 boundary shape between plasma and mag. field, self-consistent method of calc. 4=16490
 in "bumpy" current-carrying system 4=3059
 bunch passage through adiabatic trap with magnetic mirrors 4=544
 charged particle motion in corrugated mag. fields 4=29938

Plasma—contd

confinement—contd

charged particle motion in screw-symmetric mag. field 4=29939
 collisionless sheath in cylindrical geometry 4=8730
 column, r.f. 4=27546-7
 in combined mirror-cusp fields, stable equilibria 4=5649
 current sheath, collisionless, exact theory 4=8729
 cusp with axial conductor insulated from plasma, NIMFA I 4=21528
 cusp, pinch injection 4=24675
 cusp, in toroidal trap, with additional perpendicular field 4=18965
 device with reversed field 4=29957
 in discharge electric, h.f., induction, by bell-shaped mag. field 4=11548
 electron-hole plasma, self-pinch, theory 4=24677
 electron-hole, thermal pinching, time depend. 4=6810
 electrons, 5 keV, in simple mag. mirror 4=21527
 equilibria of toroidal plasmas, use of virial theorem 4=11647
 finite pressure and min. B 4=24672
 by h.f. fields, for fusion 4=8728
 forces due to h.f. field, with static inhomogeneous mag. field 4=14697
 heating in toroidal systems 4=29936
 helical instability suppression by mag. field, elec. field obs. 4=27555
 high frequency, expt. 4=14691
 inductive pinch, interaction of moving streams 4=24676
 injection and trapping meas. 4=16492
 inverse stabilized, electrode sheath effects 4=18944
 by mag. field, layer solution, stability 4=533
 in magnetic adiabatic trap, effect of local field perturbations 4=542
 magnetic bottle, charged particle motion 4=8743
 magnetic bottle with circular homogeneous field 4=8894
 magnetic field, dense plasma with current 4=21529
 magnetic field interaction with plasma clusters 4=24684
 magnetic fields, d. c., hydromag. approx. validity 4=14689-90
 magnetic, instability, due to resistivity gradient 4=14726
 magnetic, max. press. 4=18941
 magnetic mirror, reflection of jet 4=14698
 magnetic mirror traps, filling technique 4=5600
 magnetic mirrors, traps without losses 4=11654
 magnetic, periphery increasing, mag. moment invariance 4=24685
 magnetic quadrupole trap, injected, obs. 4=5648
 magnetic traps 4=8744
 magnetic traps, boundaries of motion 4=5645
 magnetic trap, with cusp field 4=14737
 magnetic traps with cusped-field, h. f. field applic. 4=27548
 magnetic traps, methods of filling with fast ions 4=18966
 magnetic trap, necessity for inward increasing field 4=11653
 in magnetic trap with opposed fields, expt. 4=8735
 magnetic trap particle motion, with secondary e. m. field 4=5646
 magnetic traps, review 4=24673
 magnetic well stability at finite plasma press., theory 4=29941
 maintenance and stabilization by h. f., e. m. fields 4=29937
 in mirror-cusp fields, equilibrium and stability 4=19029
 mirror, electron cyclotron reson., for trapping 4=24686
 mirror machine, adiabatic, effect of local mag. perturb. 4=16512
 mirror machine, adiabatic, plasmoids motion 4=16513
 mirror machine, DECA 1, props. 4=29956
 mirror machine with spatially periodic helical mag. field, resonance trapping 4=14699
 mirror system, mag., particle injection and accumulation 4=541
 particle distrib. trapped in mag. tube of force 4=5758
 particle motion in mag. field increasing towards periphery 4=534
 periodic multipoles 4=21521
 pinch, azimuthal, betatronic electron acceleration 4=8742
 pinch, azimuthal, H, mag. probe studies 4=21524
 pinch conditions at high temp. 4=496

Plasma—contd

confinement—contd

pinch, cylinder oscillation 4=11662
 pinch discharge, toroidal "hard core" 4=5685
 pinch expts, radiation losses 4=8698
 pinch, gas-insulated, stability 4=3006
 pinch, hard-core, compression by shock waves 4=18949
 pinch, linear, effect of capacitor arrangement on symmetry 4=5642
 pinch, linear, nonlinear wave motion 4=14695
 pinch, linear, unstabilized, shock waves, preceding snowplough 4=18836
 pinch, self-similar motion 4=539
 pinch stability, compressibility effects 4=24680
 pinch stability, theory and experiment 4=8740
 pinch switch, inverse, gas-triggered 4=11652
 pinch, toroidal, apparatus, equipped for mag. field programming 4=21542
 pinch, toroidal, equilibrium state 4=538
 pinch in toroidal plasma, twin-channel instability 4=5678
 pinch, toroidal, with reversed field, build-up and breakdown processes 4=21523
 pinch, tubular discharge, experimental study 4=8741
 pinch, ultra fast, large current skin effect 4=5640
 pinches, stabilized and hardcore, magnetic flux surfaces, particle motion 4=8739
 plasmoid isolation mechanism, h. f. 4=18947
 plasmoid movement at zero-point mag. field 4=18946
 plasmoids, axially symmetric force-free 4=18948
 r. f., one-dimensional theory 4=2991
 r.f. plasmoids, space charge aspects 4=11648
 rotation in θ -pinches, mechanism 4=5604
 runaway electrons in an ideal Lorentz plasma 4=14635
 self, necessity for gravitation 4=21522
 sheath eqn., collisionless, exact soln. 4=8731
 sheath, field meas. by beam probing method 4=18943
 sheath, r.f. theory 4=18942
 sheath, second, at cathode of low-pressure arc. 4=18945
 sheath theory, boundary-valued one-dimensional 4=24674
 sheath, thin, simulation by plane of wires 4=16491
 sheaths, structural model 4=8732
 shock front, luminous, pressure discontinuity in front 4=5286
 shock waves, low density, compress. and heating, models 4=27523
 slab, heat and momentum balance 4=18810
 slow expansion of column without mag. field 4=11634
 by spiral mag. field, ion Larmor radius and stability 4=564
 stability, linear pinch and hard core, meas. 4=11651
 stabilization by h.f. field, low-pressure plasma 4=535
 stabilization in trap with magnetic plugs 4=11646
 static e. m. field, rel. to plasma density, velo. and pressure 4=5647
 static mirror field, nonadiabatic injection 4=5650
 theta pinch with additional cusp field 4=21526
 theta pinch axial contraction shock 4=5639
 theta pinch, "balanced" mag. probe meas. 4=5637
 theta-pinch behaviour, computer programme, physical model 4=2993
 theta-pinch, breakdown phenomena 4=18957
 θ -pinch comparison with trapped mag. fields 4=29940
 theta-pinch, deformation rel. to mag. field inhomogeneity 4=18960
 θ -pinch, deuteron energy meas. from fusion reactions 4=24679
 theta pinch, drift in Ioffe multiple field 4=14694
 theta-pinch, electron density distrib., time variation 4=537
 theta pinch, electron density time- and space-resolved meas., from continuum emission 4=18955
 θ -pinch, electron temp. from impurity line radiation 4=18953
 theta pinch, flip instability avoidance 4=5641
 theta pinch, Hall rotation 4=2992
 theta pinch, i. r. emission, 70-250 μ data 4=5643
 θ -pinch light scatt. spectrum 4=24659
 θ -pinch, local parameter determ. by light scattering 4=18919
 theta-pinch with low trapped mag. fld, electron temp. and density 4=18952
 theta pinch, O VIII Lyman spectrum 4=19963

Plasma—contd

confinement—contd

- theta pinch, partially ionized, three-fluid model 4=18951
- theta-pinch pre-ionization system, microwave investigation 4=18950
- Θ -pinches, rotation mechanism 4=16495
- theta-pinch, slow, early rotation obs. 4=21525
- θ pinch, spectral line profile meas. 4=27317
- θ -pinch, turbulent motion detection by shadowgraph technique 4=18924
- theta pinch, X-ray emission, soft 4=18868
- toroidal, by axial mag. field with high rate of rise 4=8733
- toroidal discharge, electron density distrib. 4=24683
- toroidal, by mag. field, rotating, calc. 4=8734
- toroidal pinch discharge, stability, theory and experiment 4=8738
- toroidal pinch, magnetic compression 4=2977
- toroidal pinch, runaway electrons 4=18964
- toroidal plasma with conducting aperture limiter 4=536
- toroidal plasma, 2-stream instability, energy absorption 4=16493
- in traps with mag. mirrors, local field perturbations 4=543
- vacuum pump, getter-ion, grids 4=18967
- weak diffuse, constriction by l.f. and d.c. radial fields 4=18940
- Z-pinch, axial streamers 4=18962
- Z-pinch, critically damped, growth and decay meas. 4=18917
- Z pinch, damped, emission-line profile 4=18863
- Z-pinch, dynamic, thermal energy density, spectroscopic studies 4=18963
- Z-pinch, excitation of $m = 0$ instab., meas. 4=19043
- Z-pinch, linear, collapse stage, analogue study 4=8737
- Z-pinch, linear, pressure meas. 4=24681
- Al and Cu foils, z-pinch production 4=18351
- Ar, 5.4 kJ linear Z-pinch, collapse stage meas. 4=8737
- Ar pinch, shock waves 4=11649
- Ba, ion density meas. by resonance line radiation scattering 4=16487
- D, θ -pinch, influence of C impurity ion radiation 4=18961
- D theta pinches, ionization rates and impurity radiation losses 4=18958
- D, Θ -pinches, ionization rates and power loss by impurities 4=16494
- H, neutral, in θ -pinch, radial and time-resolved 4=18956
- H, toroidal Z-pinch, runaway electrons 4=8703
- He, pinch contraction, cylindrical shock wave current density meas. 4=18828
- He, Ar, Xe z-pinch at high gas densities 4=14693
- N, 5.4 kJ linear Z-pinch, collapse stage meas. 4=8737
- N₂, delayed implosion of Z-pinch 4=540
- Ne VII and VIII spectra in theta pinch, rel. to solar spectra 4=15283

devices

- (subheading introduced in 1964)
- acceleration by ionization displacement currents 4=19053
- acceleration by magnetic piston produced by travelling wave 4=19052
- acceleration, in r.f. field plus static mag. field 4=21550
- acceleration of rotating plasma 4=566
- acceleration by u.h.f. field and static field 4=19054
- accelerator, coaxial, Hall currents and vortices 4=5689
- accelerators, distributed charge exchange application 4=19056
- accelerator, e. m. wave, guided 4=27558
- accelerator, magnetohydrodynamic c.w. travelling wave accelerator 4=19057
- accelerator, snowplow eqns., small-time solns. 4=11650
- accelerator, travelling magnetic piston, magnetic insulation 4=19055
- adiabatic trap with combined magnetic field 4=5686
- adiabatic trap with hybrid magnetic field 4=5644
- Alpha assembly, discharge chamber, energy transfer to wall 4=3014
- Alpha apparatus, electrons, ordered motion 4=14730
- "Alpha", spectral investigations 4=8788
- Astron electron accelerator, 150 A 4 MeV 4=21604
- arc heaters, vortex stabilized, high-voltage 4=14622
- blobs from coaxial injector, structure 4=27506
- blobs, from coaxial source, energy spectra and structure 4=24637

Plasma—contd

devices—contd

- blob source, coaxial fast 4=21547
- blob source, conical, with pulsed gas injection 4=21546
- bunch generation by railtrack acceleration 4=21549
- C-Stellarator discharge, interpretation of impurity radiation 4=11681
- C Stellarator, Doppler temps. rel. to time, meas. 4=16515
- C Stellarator, effect of helical field on plasma behaviour 4=5688
- C stellarator, gas inlet valve, for pressure distrib. 4=18302
- C—stellarator, particle confinement and power balance 4=16514
- C Stellarator, plasma behaviour, effect of helical field, erratum 4=16516
- collisionless plasma duoplasmatron, for wave propagation studies 4=19063
- confinement device with reversed field 4=29957
- conical electrode source, energy spectrum 4=29958
- DCX-type, injection of lossless dissociating plasma 4=24714
- DCX-1, proton-trapping from Lorentz dissociation of H₂⁺ 4=5687
- dense, highly ionized source, coaxial, gas-fed, hollow electrode arc 4=19061
- dense plasma machines, diagnostics using mm and sub-mm techniques 4=18906
- diode, low-density, theory 4=21574
- diode, plane weakly ionized, potential distrib. 4=14626
- diode, review and recent designs 4=3603
- diode, transit-time oscill. in electron-ion stream 4=8765
- discharge, high current toroidal, electron temp. and cond. 4=29955
- electron tubes, multistream, nonlinear Hermite function expansion theory, for t.w.t. 4=21646
- generator, wall-constricted, axial flow 4=14736
- guns, acceleration and blob structure 4=19070
- gun, coaxial, 2 pulses 4=21548
- gun, electrodeless, three-coil 4=11682
- gun, impurity distrib. and energy spectrum, e.s. analysis 4=3015
- gun, rail-type, for short-lived puffs 4=14735
- gun, two-stage, repetitively fired, coaxial, characteristics 4=19068
- high-enthalpy flows, gasdynamic instrumentation 4=14739
- high-speed flows expanded from plasma states, gasdynamic diagnosis 4=14677
- homopolar cell, V-I characteristics 4=24718
- injection, highly excited H 4=19976
- injection, highly excited neutral atom prod., calc. corr. 4=24716
- injector, coaxial, plasmoid structure 4=19069
- ion source, negative ions 4=8846-8
- jet, air, characteristics and cutting appl. 4=14738
- jet from capillary discharge, characteristics 4=19071
- jet, energy and mass spectra of ions 4=567
- jet, recombination, de-excitation 4=21551
- jets, converging, meas. in induction discharge 4=8793
- jets, cylindrical, stability in mag. field 4=8791
- jets, effect in double electrode spark-gap 4=18764
- jets in magnetic fields 4=19072
- jets, in pulsed discharge 4=8792
- jets, u.s. 4=19073
- Levitron, toroidal "hard core" pinch discharge 4=5685
- m.h.d. generator, maximum efficiency 4=18666
- MHD generators, accelerators and shock tubes, non-equilib. monatomic plasmas, electron-ion reaction rates 4=19058
- MHD generators, with non-equilib. ionization in alkali metal vapours and seeded gas, theory 4=18663
- magnet, 10 kG, air cooled 4=3089
- magnetic mirror machine, electron and ion spectra 4=8790
- magnetic mirror, production of hot dense plasma 4=21543
- magnetic trap with cusp field 4=14737
- mirror machine, adiabatic, effect of local mag. perturb. 4=16512
- mirror machine, adiabatic, plasmoids motion 4=16513
- mirror machine, DECA 1, confined plasma props. 4=29956
- mirror machine, neutral injection, instabilities 4=24715
- mirror machines, stable against interchange modes 4=5651

Plasma—contd

devices—contd

- NIMFA I, cusp with axial conductor insulated from plasma 4=21528
 nuclear fusion reactors, review 4=21545
 OGRA, cyclotron instability, calc. 4=555
 Ogra mirror-machine, hydrogen ion source 4=19059
 pinch switch, inverse, gas-triggered 4=11652
 plasma diode, stability diagrams 4=27463
 plasmatron, spectroscopic characts. 4=29959
 plasmoids, electrodynamic acceleration in coaxial system 4=14636
 powder—plasma transformation by photolysis 4=19062
 Q machine, effect of ion loss on diffusion, Ce plasma 4=14733
 Q-1 source for low temp., fully ionized, quiescent plasma, apparatus and theory 4=8789
 rail accelerator, density meas. by schlieren photography 4=14734
 Sceptre IV, electron density, interferometric meas. 4=16444
 Sceptre IV, megajoule discharge system 4=14728
 Scylla 1 theta pinch, mag. field meas., external probe 4=529
 shock tube, coaxial electromagnetic, acceleration mechanism 4=18334
 shock tubes, electromagnetic, luminous front thickness 4=18842
 source, cathode in mag. field 4=19064
 source, conical induction type, of plasma clusters 4=24717
 spectrochemical analysis source, jet, for alkali earths 4=10672
 spectroscopic light source, mag. stabilized jet 4=5389
 stabilization, by h. f. fields, for fusion 4=8728
 Stellarator with helical windings, mag. surfaces, effect of transverse mag. field 4=19066
 Stellarator, mag. field line resonance motion 4=19067
 stellarator, particle losses of Cs plasma 4=11680
 SUPPER II, H plasma prod. by shock waves 4=27521
 Table Top III, plasma instability with rotational effects 4=5676
 thermionic convertor, Coulomb scatt. effects 4=24540
 thermionic converter diodes, fission-heated 4=5548
 thermionic convertors, influence of CsF atmosphere on W electron emission 4=18662
 thermionic diodes, low-voltage arc mode investigations 4=18661
 theta-pinch apparatus, breakdown 4=18954
 570 kJ theta-pinch, plasma properties 4=24678
 torches and furnaces, high-temp. prod., conference 4=24420
 Tokamak, ion temps., spectral meas. 4=14731
 toroidal Joule heating windings, correction 4=8785
 toroidal pinch apparatus, equipped for mag. field programming 4=21542
 toroidal, "Tokamak", stability increase with strong, longitudinal mag. field 4=8786
 Zeta, D plasma loss 4=8787
 Zeta, neutron energy spectra 4=3013
 Zeta, spectroscopic investigation, 0.1 to 2.0 mm 4=8699
 Zeta, spectrum, 16-400 Å 4=19065
 Ar arc, 50-60 A, 11000-12000°K 4=24666
 Ar gun, two-stage, repetitively fired, coaxial, characteristics 4=19068
 Ar plasma jet, excitation temp. meas. using transition probabilities of lines 4=12382
 Ce diodes, in-reactor tests 4=27465
 Cs, diode, radial potential and electron density 4=21575
 Cs-filled thermionic converter, low-freq. oscillations, expt. 4=11504
 Cs and K thermal plasma production 4=8671
 Cs thermoelectric converter, Cs pressure influence 4=444
 Cs-vapour dispenser 4=21544
 H arc, low-density plasma for mol. ion dissociation 4=5690
 H, high-density, clean, almost fully ionized, generation by whirl stabilized arcs 4=19060
 He gun, two-stage, repetitively fired, coaxial, characteristics 4=19068
 He jet, spectroscopic invest. 4=5618
 N₂ gun, two-stage, repetitively fired, coaxial, characteristics 4=19068

Plasma—contd

electromagnetic wave propagation

(subheading introduced in 1964)

- absorption, rel. to instability of one-dim. packets 4=5627
 absorption, near ion cyclotron reson. 4=24652
 absorption, microwave data, near ion cyclotron reson., mag. field depend. 4=24653
 absorption, quantum derivation 4=16482
 afterglow plasma, narrow-band resonances 4=18847
 anisotropic plasmas, temp. and collision effects 4=18874
 atmospheric gases, magnetoplasmas, microwave gyro-interaction 4=18879
 beam—plasma amplifier for mm waves 4=16509
 in beam—plasma system in mag. field 4=516
 boundaries and nonuniformity effects 4=18871
 Brownian plasma 4=18873
 cables, anomalous dispersion, cause 4=18892
 Cherenkov heating in high temp. plasma 4=8695
 collisional dissipation at cyclotron harmonics 4=8718
 column with general impedance bdy. conditions 4=14665
 communication effects, correlation simulation 4=16651
 conductivity, quantum effects, dense plasma 4=8715
 conference, Paris (1963) 4=18671
 conference, San Diego (1963) 4=14624
 coupled e.m. and acoustic fields, scalar Green's function represent. 4=21513
 coupled e.m. and acoustic waves 4=29929
 coupling of magnetohydrodynamic to e.m. waves at a discontinuity, nonpropagating field (erratum) 4=5625
 coupling bet. plasma wave and radiation at vacuum boundary 4=21508
 cyclotron harmonics, relativistic dissipation 4=11629
 cyclotron reson. regions, refractive indices 4=11630
 cyclotron wave damping in nonuniform mag. field 4=14664
 in cylinder, compressed 4=14717
 cylinder, plasma-coated conducting, scatt. 4=24847
 cylind. sheath 4=3178
 cylindrical plasmas, propagation along mag. field 4=515
 diffraction by conducting plane, calc. 4=27644
 diffusing slab, fully ionized, rel. to frequ. 4=14659
 dipole radiation in medium and plasma slab 4=5621
 dispersion and absorption by hot inhomog. cylinder 4=18872
 dispersion anomaly 4=719
 dispersion curves with collisions, calc. 4=18977
 dispersion relation rel. to electromag. instability 4=24702
 Doppler effect in inhomog. anisotropic ionized gases 4=8712
 dynamic, nonlinear, harmonic radiation 4=27666
 e.m. energy coupling to bounded one-dim. inhomogeneous plasma 4=18880
 e.m. and plasma waves, coupled, excitation by ring source 4=18870
 electrical wave excitation, by transverse e.m. wave 4=2981
 emission and absorption near plasma frequency 4=18850
 energy transfer of right circularly polarized wave 4=18876
 extra-ordinary mode, Fresnel eqn. generalization 4=16480
 fluid-mechanical sources, ext. mag. field effect 4=27633
 focusing by anisotropic plasma interface 4=29924
 free energy in mag. field and plane polarized wave 4=14662
 guide cylinder, in strong mag. field, hydrodynamics at high phase velo. 4=19235
 guided, anomalous dispersion due to radial inhomogeneities 4=18893
 h. f. conductivity, effect of neutral particles 4=24644
 half-space, line source radiation characts. 4=24823
 harmonic excitation and re-radiation from non-uniform regions 4=519
 hollow cylinder resonances, asymmetry effects 4=11622
 hot, graphs 4=11613
 immersed aerials pattern, redistribution into side lobes 4=3153
 from immersed electric dipole 4=722
 incoherent, Boltzmann eqn. calc. 4=11235
 inert gases, magnetoplasmas, microwave gyro-interaction 4=18878
 inhomogeneous rarefied plasma in mag. field 4=8750

Plasma—contd

electromagnetic wave propagation—contd

- interaction and dynamic nonlinear phenomena, conference 4=14657
- interaction of longitudinal and transverse waves 4=27530
- interaction, nonlinear, with wave in mag. field 4=5628
- ion gyroresonance, plasma energy absorption from h. f. field 4=24661
- isotropic, reflection, interactions 4=27665
- kinetic theory for field and particle fluctuations 4=8692
- laser radiation large-angle scattering 4=18883
- layer in stat. mag. fld, non-linear interact. with e.m. wave, mixing theory 4=24656-7
- light-light scatt. theory 4=29927
- light-light scattering, quantum calc. 4=27337
- light-off-light scatt. theory 4=27532
- light mixing 4=18885
- light scatt., freq. shift for relativistic plasma 4=14668
- light scatt., from laser, for electron density meas. 4=8719
- light scatt., laser, width, for electron temp. meas. 4=14670
- light scatt. by Θ -pinch, spectrum 4=24659
- light transmission for inhomogeneous plasma, linear absorption method applicability 4=11348
- long waves assoc. with disturbances 4=16484
- lossless, at high freq. rel. to electron gyrofreq. 4=3177
- low-press. plasma with metal boundary, slow-wave propag. 4=11628
- magnetoacoustic resonance, theory and expt. 4=11658
- in magneto-active plasma, analysis 4=14658
- magnetoactive plasma, dispersion relation for refractive and absorption indices 4=11795
- magnetoplasma, electric vector, soln. from conductivity tensor and wave eqn. 4=5620
- magneto plasma-filled waveguide, analysis 4=5622
- magnetoplasma, hot, Appleton-Hartree theory, generalized 4=18976
- magnetoplasma, lossy, v.l.f. refln. 4=16670
- magnetoplasma, microwaves, 8.6 kMc/s 4=2984
- magnetoplasmas, nonlinear e.m. wave propagation 4=11614
- magnetoionic, radiation resist. of elec. dipole 4=24849
- microwave emissivity, effect of turbulence 4=18864
- microwave interaction, multidimensional nonlinear theory 4=16481
- microwave, interaction with thermally ionized plasma 4=8716
- microwave phase shift and attenuation 4=11624
- microwave radiation, from magnetoactive plasma 4=14654-5
- microwave reflection coeff. meas. for electron density determ. 4=27539
- microwave refl. coeff. rel. to electron density, collision freq. and cyclotron freq. 4=14663
- microwave reflection, nonuniform plasmas 4=11615
- millimeter guided wave propag. along mag. field, u.h.f. method 4=18994
- modulation by acoustic waves 4=27529
- mutual nonlinear interaction of several waves 4=520
- negative absorpt. at cyclotron freq. 4=29928
- negative absorption due to electron stream Coulomb scatt. 4=11619
- nonequilibrium plasma, e.m. wave transformation and scattering 4=11626
- nonlinear transverse waves, theory 4=514
- oblique rays in plasma cylinders, tracing 4=21507
- optically thick plasma, non-thermal line radn. 4=18851
- oscillations 4=14711
- overdense bounded magnetoplasma, expt. analysis 4=24658
- PIG discharge, electron cyclotron frequency harmonics 4=18849
- partly ionized gas, scattering, theory 4=5623
- penetration in turbulent heating, spectral meas. 4=8717
- perturbation, convective instab. in gravity field 4=8764
- phase shift by glow in hollow conductor, current var. 4=21659
- polarization effects, hot and cold cathode discharges 4=8711
- polarized, right circular, along mag. field lines 4=5619
- positive column afterglow, quasi TE_{11} mode absorp-tion 4=14904
- positive column, electrostatic resonance analysis 4=18886
- power scattered from density fluctuations 4=2983

Plasma—contd

electromagnetic wave propagation—contd

- progressive wave non-linear model for mag. field presence 4=29925
- propagation velocities 4=18975
- quantum and classical plasmas, absorption 4=11621
- r. f. emission, not in thermodynamic equilibrium 4=8704
- r. f. scattering, incoherent 4=18884
- radiation by charged particle in helical orbit 4=27634
- radiation noise spectrum from cylinder, scatt. TM, TE waves 4=18889
- radiation from point source 4=8707
- radiation, in steady mag. field 4=721
- radiation from uniformly moving charge, theory 4=8709
- reflection and absorption of e. m. wave by bounded plasma 4=8714
- reflection acceleration 4=24655
- reflection delay for freq. meas. 4=14666
- reflection, fluctuation effects 4=16483
- resonance effects, due to e. m. wave-plasma cylinder interactions 4=18887
- resonances associated with slow e. m. standing waves 4=5635
- resonances, h. f., of a slab condenser system, meas 4=14673
- right angles to external mag. field, calc. 4=18875
- rocket exhausts containing K and Cs in supersonic flow 4=18905
- scattering, by flare, comparison with approx. 4=14893
- scattering, incoherent, from hot plasma 4=521
- scattering of laser, by laser driven oscills. 4=21509
- scattering by perfectly conducting cylinder in compressible plasma 4=14669
- scattering by plasma fluctuations 4=560
- scattering, resonant, by plasma cylinder 4=14667
- scattering, for thermal nonequil., rel. to number-density fluctuations 4=11627
- secular and nonsecular behaviour of cold plasma equations 4=11620
- shock-produced, microwave refl. 4=29919
- slabs, along mag. field 4=517
- in slabs and columns 4=18890
- slow waves in plasma guides and cables 4=18891
- source of collisionless plasma for wave studies 4=19063
- space vehicle communication effects, axial mag. field effect 4=24824
- in "spoke-wheel" magnetic field 4=11617
- stability of e. m. perturbations propag. across mag. field 4=2982
- strong microwave interaction 4=18877
- surface-charge wave resonance on cylinder, from micro-wave absorpt. 4=5624
- surface wave spectrum on vacuum boundary of magnetized plasma 4=21510
- surface waves along slabs 4=8710
- theory approx., for strong mag. field 4=29926
- thermal radiation, equil. black body theory 4=18478
- third harmonic, non-linear growth 4=21511
- transmission coeff., rel. to layer props. 4=29923
- transport equation, electrical, frequency and wavelength dependent 4=11592
- transversal, rel. to longitudinal plasma wave generation 4=18995
- transverse to longitudinal conversion at boundary with dielectric 4=14886
- transverse waves along applied mag. field 4=18869
- two-fluid compressible, electro-acoustical wave excitation 4=29930
- underground explosion, e. m. pulse generation from expanding plasma 4=13773
- use in confinement investigation 4=14691
- varying large amplitude field, energy absorption 4=8779
- at velocity discontinuity, reflected and transmitted components 4=24654
- vertical dipole field in void above plasma 4=8902
- Vlasov eqn., nonlinear, dispersion reln. 4=11578
- waveguide, cylindrical, nonlinear theory 4=14903
- waveguide, plasma-filled, microwave propagation 4=11616
- waveguide properties, gas-electron beam system 4=24660
- in waveguide, reflection, at open end 4=24852
- whistler mode, instability due to gyrating electron stream 4=11618

Plasma—contd

electromagnetic wave propagation—contd

- whistler modes, origin interactions 4=27667
- whistlers, for nonisotropic relativistic component 4=10911
- Ar afterglow plasma, 928° Mc/s 4=14660
- Bi, Alfvén waves in solid, cyclotron resonance 4=12716
- Cs and K thermal plasma, l.f. waves 4=8671
- H, effect of spectral lines on radiant ht. cond. coeff. 4=21330
- Ne plasma cavity, microwave Faraday effect 4=18894

measurement technique

(subheading introduced in 1964)

- arc-jet meas., collimated total radiation probe 4=14682
- ballistic or ball-throwing device for density and momentum meas. 4=21516
- C Stellarator, Doppler temps. rel. to time, meas. 4=16515
- camera, for directed motion 4=27537
- column electron density by surface wave resonances 4=27535
- complex permittivity, low and high freq. 4=18915
- conference, San Diego (1963) 4=14624
- correlation techniques 4=16651
- decay in mag. field, resonator method study 4=18899
- dense plasma diagnostics, microwave reflection method 4=18901
- dense plasma machine diagnostics, mm and sub-mm techniques 4=18906
- density, comparison between microwave and probe methods 4=11635
- density in D plasma, by T ion beam 4=2990
- density distrib., electrons, by moveable modulated dipole reflector 4=14674
- density distribution, low pressure high temp. plasma 4=14198
- density, by microwave phase shift meas., relativistic errors 4=8723
- double probe meas. using microwave TR 4=16489
- e.m. wave short pulses 4=14679
- elec. conductivity 4=24641-2
- electron density, by laser scatt. 4=8719
- electron density, microwave free space method with lens antennas 4=5632
- electron density profiles, microwave meas. 4=18908
- electron density spatial distrib., by microwave free space method 4=8721
- electron density in transient plasma by microwaves, attenuation correction 4=5634
- electron and ion temps., determ. by u.s. method 4=24662
- electron temp. and density at low pressure, magnetic flux meas. 4=18898
- electron temp. meas. for non-thermodynamic equilb. 4=29932
- electron temperatures, spectroscopic method 4=2986
- electrostatic analyser, for blob energy anal. 4=24637
- emission-line profile meas. from damped Z pinch 4=18863
- energy spectrometer, as diagnosis tool 4=18904
- errors in microwave meas. due to incomplete focusing 4=16488
- far infrared density meas. 4=18909
- flame-temp. meas. rel. to low-temp. dense plasmas 4=29933
- flows, high speed, microwave diagnostics 4=18903
- frequency, from e.m. wave reflection delay 4=14666
- high-enthalpy flows, gasdynamic instrumentation 4=14739
- high-speed flows expanded from plasma states, gas dynamic diagnosis 4=14677
- high-temp. plasma, electron temp., spectroscopic determ. 4=8722
- interactometer, free-space microwave system for diagnostics 4=18907
- interferometer, microwave, for density 4=18920
- interferometry, microwave 4=524-5
- ion density decay, magnetoacoustic meas. 4=11658
- ionic temperature, rapid measurement 4=18913
- ionization-front in T-tube, propagation meas. by 3 cm microwaves 4=5610
- IXION-type, with crossed elec. and mag. fields, rotating velocity meas. 4=18922
- Langmuir double-probe, for unstable plasmas 4=27541
- Langmuir probes, approximation for ion current 4=11636

Plasma—contd

measurement technique—contd

- Langmuir-probe characteristics, semi-logarithmic, rapid meth. 4=11640
- Langmuir probe, characteristics in strong mag. field 4=5636
- Langmuir probes, dynamic properties 4=11637-9
- Langmuir probes, improvement of techniques and errors 4=27542
- Langmuir probe in mag. field, electron current 4=18927
- Langmuir probe for variation meas. by sampling 4=24671
- laser interferometer, appl. 4=27327
- laser radiation scattering, large-angle, for electron vel. distrib. and density 4=18883
- magnetic field meas., by Zeeman effect 4=18916
- magnetic probes, "balanced", theta pinch 4=5637
- microwave cavity method for gaseous plasmas 4=18936
- microwave diagnostics in electrodeless discharges 4=14680
- microwave diagnostics theory 4=14678
- microwave dual interferometer 4=18902
- microwave method, shock tube ionization 4=24663
- microwave reflection probe for high electron density determ. 4=27539
- microwave switch use at high powers 4=27538
- microwave techniques, free-space, comparison 4=27536
- neutral atomic particle emission meas. 4=8701
- number density meas., r.f. method 4=14675
- optical maser probing theory 4=18910
- optical refraction meas. with laser beam 4=18882
- peaking strip probes, h.f. properties 4=21518
- photoelec. interference spectroscopy and image intensifiers for time, spatial, and spectral resolution 4=18895
- photoelectric multipliers, for short-life plasma investigation 4=522
- pickup-coil for mag. field meas. in Scylla 1 theta pinch 4=529
- plasmoids, instant. velocity, by microwave refl. 4=14684
- plasmoids, microwave meas. methods 4=5630
- plasmoids, visual study in mag. field 4=18918
- positive ion collection by immersed probe 4=8726
- positron annihilation 4=18921
- potential meas., continuous, 0-4 kV 4=16485
- probe, electric, for high-current shock discharges 4=528
- probes, electrostatic, spherical, in slightly ionized gas, asymptotic theory 4=527
- probe, H-molecular beam 4=8724
- probes immersed in discharges, h.f. noise 4=5638
- probe for interplanetary plasma 4=20965
- probe ion current calc. without neglecting electron density 4=18931
- probe meas. of plasmoids 4=18937
- probes, moving cylindrical, current collection 4=24670
- probes, noise processes 4=18707
- probe particle collection depletion at high press. 4=18926
- probe perturbation of density and potential 4=18928
- probe, r.f., finite transit time effect 4=18935
- probe, r.f., for ionospheric and exospheric electron-density meas. 4=7905
- probe, r.f., resonance in d.c. 4=21517
- probe, resonance, for immediate electron density, temp. and collision freq. meas. 4=18930
- probe, resonance, in mag. fld., theory 4=27540
- probes, review, lab. and space vehicles 4=21519
- probes, shot noise due to electron and ion current, theory 4=8725
- probes, spherical electrostatic, continuum theory 4=526
- probe, for stellarator 4=8727
- probe, wide band, electron density meas. 4=18933
- r.f. field, by electron beam interactions 4=8720
- r.f. probe for electron-density meas. 4=5635
- rail accelerator, density meas. by schlieren photography 4=14734
- resonance probing in mag. fld. 4=27543
- resonator appl., Fabry-Perot, focussed 4=24668
- rocket exhausts containing K and Cs in supersonic flow 4=18905
- rotating plasma, between coaxial electrodes, with crossed elec. and mag. fields 4=18923
- ruby laser light magnetorotation, rel. to electron density determ. 4=18911
- sheath, field meas. by beam probing method 4=18943

Plasma—contd

measurement technique—contd

- use of short e.m. pulses, transmission and refl. 4=14679
- sheath r.f. characts. 4=29931
- slow expansion of column without mag. field 4=11634
- spatial resolution, spectroscopic method 4=18912
- spectral line profile, photoelec. recording 4=18401
- spectral line self-absorpt. meas. technique 4=24665
- spectrograph, rapid scan, rel. to H plasma 4=27315
- Stark effect quadrupole shift, and profile asymmetry 4=27533
- supercritical electron densities, microwave method with waveguide 4=24664
- temp., electron, by light scatt., laser, width 4=14670
- temperature, electron, by refrigerated Langmuir probe, errors 4=18934
- temp., spectral, errors, superiority of "normalized" over "two-line" method 4=5633
- temperature, electron, using Stark effect 4=21515
- thermocouple probes, for blob energy meas. 4=24669
- θ -pinch, local parameter determ. by light scattering 4=18919
- θ -pinch, Schlieren technique of diagnostics 4=18900
- θ -pinch, time resolution, spectroscopic technique 4=18959
- time-of-flight spectrometer, for blob energy anal. 4=24637
- transient discharges, emission line profiles, interferometric meas. 4=18917
- turbulence detection by shadowgraph technique 4=18924
- velocity meas. of continuously flowing plasma 4=14683
- velocity meas. by Doppler frequency shift 33 kMc/s 4=18914
- very hot electron plasma, electron density and energy distrib. determ. 4=18929
- in Ar plasma, W Langmuir probe, work function lowering 4=14685
- Ar, seeded, electrode phenomena, tensor cond., electrode heating 4=18925
- Ar, shock heated, Hall e.m.f. meas. 4=18897
- Ar, shock ionized, electron conc. and temp. meas. by floating double probe 4=18896
- Ba, ion density meas. by resonance line radiation scattering 4=16487
- Cs, high-freq. resonance probe meas. 4=18932
- by H atomic beam, fast, for gun plasmoids 4=27534
- H plasma, probe contamination 4=2987
- He jet, spectroscopic invest. 4=5618
- He, pulsed, electron—optical radiation recording 4=21514
- N and Ar plasmas, material functions calc. and meas. 4=29934
- Xe, use of vac. u.v. radiation as probe 4=14686
- Xe, vac. u.v. radiation absorpt. as probe 4=14687

oscillations and instability

(subheading introduced in 1964)

- absorption, at cyclotron resonance 2=11659
- absorption and reflection spectrum 0=5409
- accelerated, pinched electron streams 0=9027
- accelerated plasma, stability criterion 4=561
- acoustic oscillations, quantum theory 1=18860
- acoustic oscillations, quantum theory 3=4114
- acoustic phenomena, excited by pulsed discharge 2=5366
- acoustic wave propag. by r.f. breakdown 4=19019
- acoustic wave propagation, ultrasonic 3=4113
- acoustical motion in rarefied plasma, theory 4=19018
- adiabatic waves associated with non-diagonal pressure tensor terms 3=12215
- afterglow plasmas, acoustic resonances 4=19020
- Alfvén-wave propagation experiments 2=1470
- Alfvén waves in air, velocity and amplitude 1=9622
- Alfvén waves, anomalous dispersion in inhomog. mag. fields, heating 4=5670
- Alfvén waves for inhomogeneous plasma 4=29943
- Alfvén waves of large amplitude, instability 4=16637
- Alfvén waves, review 2=20002
- Alfvén-waves in solid-state plasmas 1=19751
- Alfvén waves, steepening 4=19025
- Alfvén's waves, instability 3=5822
- in alkali halides, optical data evidence 3=10908
- alternating currents, second harmonic, microwave generation 2=11658
- amplifier, with electron beam, in waveguide and axial mag. field 4=30044

Plasma—contd

oscillations and instability—contd

- with amplitude-depend. freqs. 3=12212
- analytic methods and approximations 3=21954
- anisotropic, longitudinal, dispersion eqn. 3=24309
- anisotropic plasma, collective energy losses 2=9608
- anisotropic plasma, collective energy losses 3=5684
- anisotropic plasma, instability 3=7624
- anisotropic plasma, longitud. oscill., dispersion eqn. 4=8751
- applications for generators, amplifiers, and heating 2=11665
- atmosphere, outer, calc. rel. to geomag. micropuls. 2=15261
- attenuation, effect of radial resistivity variation 2=17855
- attenuation, nonlinear theory 3=2006
- auroral bombardment mechanism 4=7887
- axisymmetric nonlinear oscill. of cylinder 3=9822
- backward wave mode, tubular plasma 3=19257
- backward-wave oscillations, in waveguide 2=15938
- beam edges in non-uniform plasma 4=24699
- beam-plasma discharge, transient r.f. 4=5652
- due to beams, electron, ion, plasma along mag. field, unstable transverse propagation 4=553
- beam-plasma fields, exploration with transverse electron beam 1=18898
- bounded plasma, microwave cond. 2=9589
- betatron oscillations with general field 1=16451
- binary correlation effects on frequency 1=11922
- boundary value normal mode soln., oscs. 4=11661
- bounded region, Boltzmann-Vlasov eqn. 2=20000
- bounded plasma, free oscillations 1=4621
- bounded plasma in weak external mag. field 1=18896
- branching equilibria and stability criterion 4=5779
- in Cs thermionic converters 1=11968
- charge density waves in wake of moving particle in mag. field 4=2968
- charged-particle beam, excitation 2=17856
- with charged-particle emission 3=21772
- charged particle—turbulent plasma interact. 4=29944
- charged particles relax., fluctuating velocity distrib. 4=27551
- circularly polarized waves, macroscopic theory, verification 4=18981
- coherent interaction of plasma with electron beam, meas. 4=16508
- in cold-cathode reflex discharge, instability freq. resolution 4=19032
- colliding electron beams, stationary cyclotron waves 4=584
- colliding plasmas, in collapse accelerators 1=13095
- in colliding plasma streams 0=12605
- collision damping, by Guernsey's eqn. 3=16957
- collision damping, theory 2=20001
- collision-induced, with isotropic velocity-space distribution 4=18979
- collisional damping 3=7619
- collisional damping 3=24311
- collisional damping (erratum) 4=5663
- collisional damping, 2-particle distrib. function 3=19290
- collisionless, electron energy streaming 4=18993
- collisionless, magnetized; longitudinal wave energy absorption 1=18904
- collisions, effect in weakly ionized gas 2=11681
- column, cylindrical, magneto-acoustic 3=16966
- column equilib. for axial non-symm. calc. 4=39951
- column, quasi-periodic density fluctuations, 0-200 kc/s in crossed fields 4=18996
- column, thermal instability, normal mode analysis 4=11672
- composite, filamentary plasma surrounded by similar 4=3011
- compression waves in static mag. field 0=15045
- conditions, period, column 4=11657
- conduction electrons in liquid metals 3=23903
- conducting string in mag. field, stability 3=24324
- conductivity, freq. var., for long waves 4=19004
- conductivity var., and MHD generator 4=11602
- confined, linear pinch and hard core, meas. 4=11651
- confinement, magnetic, instability due to resistivity gradient 4=14726
- convection instability, diluted plasma, various models 4=558
- convective instability, in flow across mag. fld. 4=19049
- convective instab. in gravity field 4=8764

Plasma—contd

oscillations and instability—contd

- in corona discharge tubes 3=21745
- and coronal radiation, theory 1=18154
- correlation functions, higher, stability 4=8770
- counterstreaming plasmas, transverse wave instabilities 4=8766
- coupled e.m. and acoustic fields, scalar Green's function represent. 4=21513
- coupling to e.m. waves at boundary 3=9818
- coupling mechanisms, between longitudinal and transverse waves 1=2986
- coupling between slow waves and helix 2=17857
- crystals, plasmon frequency rel. to Coulomb interaction, damping and temp. 4=9929-31
- current density in magnetic field 3=24326
- current sheaths, electrostatic oscill., fine structure 4=8729
- cyclotron, Hg plasma, prod. by electron beam 4=18867
- cyclotron instability, anisotropic ion vel. distrib. 3=21830
- cyclotron instability in OGRA 4=555
- cyclotron instab. in streams for wave amplification 4=19041
- cyclotron oscillation by two electron beam collision 4=19013
- cyclotron oscillations, excited by electron beams 1=5486
- cyclotron oscillations, excited by electron beams 1=11958
- cyclotron resonance absorption, line shape 3=2003
- cyclotron resonance, ion, frequency sweep detect., Heliotron B 3=24323
- cyclotron, unstable, in cylindrical shell 1=18902
- cyclotron wave nonconvective instability 3=4162
- cyclotron waves, absorption meas. 2=9573
- cylinder under pinch effect 4=11662
- cylindrical fully-ionized plasma, radial oscill., stability 0=5323
- cylindrical gravit. instability in mag. field 4=24705
- cylindrical plasma oscs. with axial field and current 4=5661
- cylindrical plasmas, l.f. oscill. excitation 4=18997
- DCX-1, radiation and ion energy distributions 3=12196
- damping, Landau's theory 1=10727
- damping, linear theory 1=18901
- damping rel. to non-radiative dissipation theory 1=13048
- damping of quantized longitudinal electron oscillations 3=4169
- dark, plasma, ionic waves, longitudinal, excitation 3=4161
- density fluctuations, hydrodynamic theory 4=5656
- detection, low mag. field, using microwaves, Langmuir probes 2=1466
- deuterium cylindrical plasma, hydromag. waves 3=19291
- device stabilization by h.f. fields, for fusion 4=8728
- diamond, reson. rel. to electronic excitation 4=17408
- dielectric permeability, high-frequency 1=18844
- dielectric permeability, high-frequency 3=416
- dielectric theory, extension to exciton problem 3=25256
- diffusion from stellarator 3=12195
- diffusion waves, stationary in longitudinal mag. fld. 3=21841
- dipole excited, acoustic, optical 4=8768
- dipole oscillations, splitting in presence of weak mag. field 4=5655
- dipole resonance, in magnetic field 3=21839
- discharge column, Tonks-Dattner resonances mechanism 4=19016
- in discharge, flow, ions, near cathode 4=24610
- discharge, reflex, enhanced diffusion 4=19048
- dispersion and attenuation, non-linear effects 4=19002
- dispersion curves with collisions, calc. 4=18977
- dispersion equation criteria for existence and nature 4=5672
- dispersion equation longitudinal modes, weakly ionised gas 4=14700
- dispersion formulae, rel. to causality principle 2=9604
- dispersion relations 1=9623
- dispersion relations in stationary plasma 1=16350
- disturbance, following short current pulse 4=19036
- disturbances prod. by compression and mag. field 0=10912
- double-stream, investigation 4=8777
- "drift", effect on diffusion, in magnetic field 3=24322
- drift instabilities rel. to resonant particle energy absorpt. 3=21846

Plasma—contd

oscillations and instability—contd

- drift instability, collision effects, finite Larmor radii 4=21538
- drift instability for high plasma pressure 4=5682
- drift instability, in mag. field, nonlinear theory 4=3012
- drift instability, non-uniform plasma in a mag. field 3=16960
- drift wave instability, temp.—density grads. rels. 4=27552
- drift waves instability conditions 4=2974
- drifting plasma, low-frequ., theory 3=24319
- e.m. field interaction effects, review 2=7593
- e.m. field, varying large amplitude, energy absorption 4=8779
- e.m. fluctuations with and without strong magnetic fields 1=18907
- e.m. fluctuations with and without strong magnetic fields 3=417
- e.m. induced reson. 4=14711
- e.m. wave excitation when electron vel. is directed rel. to ions 3=21849
- e.m. wave generation, third harmonic, in e.m. field 1=4623
- e.m. wave nonlinear interaction with plasma layer in static mag. field 1=3067
- e.m. wave propagation, through plane plasma slab 2=7613
- and e.m. wave reflection 4=16483
- e.m. wave scatt., effect of collisions, theory 4=560
- effect of Coulomb collisions on longitudinal oscillations 4=8745
- eigenoscillations, freq. and damping coeff. 2=9581
- elec. discharge in microwave helix 1=18784
- in elec. field, instability of longit. oscill. 1=4626
- electric field diffusion, using Vlasov eqn. 2=3058
- electric field fluct., turbulent, in electron plasma 3=24310
- in electric and magnetic fields, uniformly applied, behaviour 1=18897
- and electricity, direct conversion 4=11502
- electro-acoustic coupled wave excitation by ring source 4=18870
- electroacoustic wave, quasisteady approach 3=24320
- electrodeless discharge, pulsed 3=14542
- electrohydromagnetic waves in fully ionized gas 1=7087
- electromagnetic instability 4=24702
- electromagnetic, on interaction with neutral ion beam 4=11665
- electromagnetic wave radiation, by longit osc. self interaction 4=554
- by electron-beam coherent interaction 4=556
- electron beam energy losses in 32 solid cpds. 3=2780
- electron-beam excited, l.f. and h.f. correl. 3=19293
- electron-beam excitation 4=8776
- with electron beam, helical, in mag. field, theory 4=27557
- electron beam interaction in mag. field 3=21847
- electron beam interaction in mag. field 3=21848
- electron beam interaction, transverse field 4=19008
- electron beam interaction, wave spectral density 1=16353
- electron beam-ion interaction 4=18984
- electron beam, neutralized, with a boundary 2=211
- electron beam penetration effects 4=19038
- electron beam—plasma system 4=8782
- electron beam prod., dispersion relation 3=21832
- electron beams, large number of, longitudinal oscillations 0=9050
- electron beams, velocity-modulated, space-charge waves 2=7662
- electron cyclotron harmonics, long. oscs. 4=24696
- electron cyclotron reson. in mirrors, for trapping 4=24686
- electron cyclotron resonance, theory, non-linear 4=24687
- electron density fluctuations, effect of collisions 4=14701
- electron distribution function, general stability conditions 1=18818
- electron—electron interaction effect on osc. freq. 4=16505
- electron exchange effects on dispersion relation 0=12608
- electron excited, energy losses 0=10923
- electron gas, degenerate, surface oscillations 0=17906
- electron gas, electron-exchange effects on plasma freq. 1=3641-2
- electron gas, rel. to i.r. divergencies 3=7149
- electron gas, impurity effects 2=19998

Plasma—contd

oscillations and instability—contd

- electron gas, in mag. field, quantum dispersion eqn. 1=18903
- electron gas, in mag. field, spin effect calc. 4=9925
- electron gas, theory using dielec. const. 1=6393
- electron, in high mag. field, with density grad. perpendicular to field 4=18982
- electron-hole plasma, cylindrical, in mag. field 2=2069
- in electron-ion beams, instability conditions 0=9053
- electron and ion, low-voltage beam-controlled devices 3=14608
- electron-ion oscillations, nonlinear theory, stability 1=4625
- electron-ion plasma, longitudinal oscillations 0=7125
- electron-ion plasma, one-dimensional steady-state nonlinear motion 4=14706
- electron and ion resonance, review 3=7616
- electron-ion, two-stream instability 3=22915
- electron, longit. osc. instability in mag. field 4=24698
- electron osc., on beam injection, non-linear theory 4=14703
- electron oscillations, non-linear, exact soln. 0=9051
- electron oscillations, between plane electrodes 2=7634
- electron oscillations, microwave excited 1=2987
- electron oscillations in non-uniform plasma 1=7086
- electron-phonon systems, non equilibrium, in external magnetic field 3=16967
- electron plasma, interact. with charged particle, in mag. field 1=18832
- electron plasma, non-linear theory of oscillation modes 0=7128
- electron plasma without sheaths, two-beam excitation 0=15044
- electron resonances in mag. field, meas. 3=7614
- electron, turbulent elec. field fluct. theory, addendum 4=14709
- electron wave - e.m. wave coupling 3=11213
- electron waves in mag. field, collision effects calc. 4=8753
- electronic resonances, UHF probe meas. 4=19015
- electrons, high density, measurement method 1=13093
- electrons, longitudinal oscillations, damping 4=8749
- electrons in solids, effect of crystal size 0=15831
- electrostatic, in current-carrying and counterstreaming plasmas 4=19042
- electrostatic ion waves in inhomog. plasma, normal modes 4=24694
- electrostatic oscill., rel. to intrinsic instability regimes 4=21539
- electrostatic sound wave modes, search for in Hg d.c. discharge 1=11961
- electrostatic, spectrum, in strong mag. field 3=16959
- electrostatic stability 4=19033
- electrostatic, in velocity gradient, adjacent-stream method 4=3004
- electrostatic, in velocity gradient, slipping-stream model 4=3003
- electrostatic waves, beam-plasma systems 4=11676
- electrostatic waves, damping, collisionless, meas. 4=19001
- ellipsoid characteristic oscillations in const. mag. fld. 4=14702
- ellipsoidal plasma, l.f. dispersion eqn. 4=24691
- energy loss 1=5465
- enhanced diffusion and oscillations in weakly ionized plasma, new instability 1=11956
- equilibrium and stability in mirror fields 4=19029
- excitation by charge moving in moving medium 0=9155
- excitation, by electron beam 4=24690
- excitation, by electron beam, anomalous scattering 0=10922
- excitation of e.m. waves by external current 0=15042
- excitation, by electron beam, spectroscopic detection 2=22233
- excitation, by ion beam, ion velocity effect 4=3002
- excitation, l.f., by charged particle excitation 4=18989
- excitation level for oscills., theory 4=21531
- excitation, in mag. field, by charged object traversal 1=2983
- excitation mechanism 0=7116
- excitation, by modulated ion beam 0=15011
- excitation, by motion of thin body, without mag. effects 1=2966
- excitation by mutual interaction of particles 1=18895

Plasma—contd

oscillations and instability—contd

- excitation near ion cyclotron frequ. 3=9819
- excitation, two-beam method 2=13578
- experiments using low-voltage electron beam 3=14607
- external electric field effects 3=21826
- external electric and magnetic fields, effects 4=8775
- extraordinary wave dispersion equation 2=3061
- extraordinary wave dispersion eqn. 3=2008
- extraordinary wave propagation, gyrotopic props. 1=18905
- Fermi gas, temp. effects 1=2715
- finite amplitude waves, nonstationary, in cold plasma 4=18969
- flow of plasma resulting from oscillations, calc. 4=11581
- fluctuation development, with unstable distrib. function 2=9609
- fluctuation development with unstable distrib. function 3=5685
- fluctuations of a plasma, theory 1=18900
- flute instability, axially symm. with finite ion Larmor radius, theory 4=39952
- flute instability, theory 4=11670
- forced, effect on diffusion 4=546
- frequencies, for ellipsoidal plasma 3=9821
- frequency det., gas trapping efficiency, plasma temp. 3=2004
- frequency multiplication with "piston" 2=237
- frequency rel. to surface diffusivity, from e.m. scattering analyses 3=16961
- fully ionized gas, low-freq. instabilities in crossed fields 4=19050
- gas-insulated plasma, stability 4=3006
- Gaussian equil. density distrib., vibr. 3=9815
- generation in strongly ionized gases 1=8339
- glow discharge, self-generated potential waves 2=17852
- glow, moving striations rel. to metastable atoms 3=4164
- gravitational instability of inhomogeneous plasma, optical-geometrical approx. 4=24704
- gravitational instability in mag. field 4=2975
- gravitational stability of cylinder in uniform rotation 4=4831
- gravitational stability, viscous, heat cond., rot. 4=26890
- growing electrostatic oscill., stability against, for slight inhomog. 1=2984
- growing transverse waves in a magnetic field 3=14606
- and growing waves, new analytic method 4=19037
- gyro-dominated plasma, fluctuations, in crossed elec. and mag. fields 4=19034
- gyrotropic plasma, Landau damping, whistler attenuation 2=2490
- h.f. oscillations in bounded plasma 0=15043
- h.f. in thermal plasma 4=14712
- Hg discharge 0=19701
- helical instab. of positive column in mag. field 4=11673
- helical instability suppression by mag. field, elec. field obs. 4=27555
- homogeneous and inhomogeneous cold plasmas, secondary resonance spectrum 4=19017
- homogeneous, relax. time and soln. of Guernsey-Balescu eqn 4=14630
- in hot cathode discharge tubes, radiation 3=7536
- hot nonuniform column, resonance oscillations 4=8758
- hydrodynamic fluctuations and correlations 4=27554
- hydrodynamic and magnetoacoustic waves, effect of particle colls. 3=4126
- hydrogen plasma, feebly ionized 0=12617
- hydromagnetic local instability in incompressible plasma 4=24706
- hydromagnetic stability problem, rel. to Hall effect 4=8917
- hydromagnetic wave propag. near ion cyclotron resonance 3=19291
- hydromagnetic waves, compressional, in waveguide 4=11659
- hydromagnetic waves of finite amplitude 1=5484
- hydrothermomagnetic waves, in weakly inhomog. plasma 4=16497
- inert gases, electron oscillations near boundary, pressure depend. 0=10921
- inertial oscillations in stabilized pinch with skin effect 1=9579-80

Plasma—contd

oscillations and instability—contd

- infinite length cylinder, self gravitating, hydromag. instability 4=5669
- inhomogeneous cold plasma, in gravity field 4=8763
- inhomogeneous hot plasma, small oscillations in mag. field 0=9056
- inhomogeneous medium, scattering and conversion cross-sections 3=499
- inhomogeneous plasma, cyclotron oscs. 4=27553
- inhomogeneous plasma in helical field, kinetics, line curvature and shear 4=5675
- inhomogeneous plasma, in mag. field 3=24314
- inhomogeneous rarefied plasma in magnetic field 4=8750
- inhomog. rarefied plasma, in strong mag. field 4=563
- initial value problem for longitudinal and transversal oscillations 3=4159
- injected in Ge 3=25257
- instabilities due to Compton effect at low densities 4=11669
- instabilities, gravitational resistive, with finite Larmor radius 4=8783
- instabilities induced by resistivity gradients 3=16965
- instabilities, kinetic, in mag. field 4=14724
- instabilities in one-dimensional plasmas 4=16511
- instabilities in plasma-beam system in mag. field 3=7625
- instabilities due to resist. gradients at low pressures 4=24707
- instabilities, role in solar flare origin 4=2449
- instability due to coupling between two normal modes 4=19040
- instability due to distrib. function anisotropy, quasilinear theory 4=5683
- instability, dissipative 4=11679
- instability, drift, in helical mag. field 3=21829
- instability growth rates, limits 4=11675
- instability of inhomogeneous cold plasma 4=19047
- instability, rel. to ionospheric field-aligned irregularities 4=10751
- instability due to r.f. magnetic field superimposed on d.c. field 4=11580
- instability, longit., in inhomogeneous plasma 4=29948
- instability in magnetic mirror trap, exptl. 3=12214
- instability of one-dim. packets, rel. to e.m. absorption 4=5627
- integral equation 4=3005
- intense beam instability, causing ion acceleration across mag. fld. 4=11678
- interacting fermions, collective oscillations 1=9630
- interaction of charged particle with nonequil. plasma 4=19045
- interaction and dynamic nonlinear phenomena, conference 4=14657
- interaction with electron beam, microwave amplification theory 4=685
- interaction of monoenergetic beam, nonlinear theory 3=21845
- interaction, nonlinear, between plasma waves 4=24688
- interaction with pulsed electron beams up to 8.5 amp. 4=16507
- interaction between two osc. modes, waveguide excited 4=14715
- interactions, with charged-particle beam, at l.f. 2=201
- interactions, with charged-particle beam, at l.f. 3=4171
- interstellar matter, with Hall effect, magnetogravitational instability 4=23886
- interstellar matter instability, cylindrical in another plasma, in mag. fields 4=10860
- ion-acoustic oscillations, in anisotropic plasma, in mag. field 0=19696
- ion-acoustic oscillations, diffusion across mag. field 3=21842
- ion acoustic oscillations, thermionic energy converters 4=11716
- ion acoustic waves in electron cyclotron reson. plasma 4=29946
- ion acoustic waves, propag. and damping 3=4128
- ion beam interaction 4=19010
- ion beams, in mag. field, in rarified gases, space-charge oscill. 0=10976
- during ion beam neutralization 2=20005
- ion beams, excitation in fixed mag. field 2=9574

Plasma—contd

oscillations and instability—contd

- ion cyclotron reson. instability, effect of finite temps., for confined cylinder 4=5679
- ionic cyclotron resonance 4=2996
- ion cyclotron resonance in dense plasmas 1=16351
- ion cyclotron resonance, expt. review 4=19005
- ion cyclotron resonance, nonlinear theory 2=20003
- ion cyclotron 2 stream instability drift velo., collision effects 4=24701
- ion cyclotron waves, excitation and propag. 3=7622
- ion cyclotron waves, excitation and propagation 4=8780
- ion cyclotron waves in "magnetic beach" geometry 4=8781
- ion cyclotron waves in moving plasmoid, meas. 4=19006
- ion-cyclotron wave, plasma cylinder in weak field 4=8713
- ion-electron temperature relaxation 2=1468
- ion osc., Hg hot cathode, and ion density meas. 4=14713
- ion oscillation, in h.f. e.m. field, kinetic theory 0=9049
- ion oscillations, detection 0=19697
- ion oscillations, effect of collisions 4=16503
- ion oscillations, longitudinal, in hot plasma 1=2985
- ion oscillations, in multistream plasmas 2=17853
- ion plasma wave, h.f. propag. 3=4163
- ion wave collisional damping 4=24695
- ion-wave instabilities, critical current, charge exchange effect 2=5362
- ion waves, in bounded plasma 2=19997
- ion waves, existence 4=8773
- ion waves in Hg d.c. discharge, search for 1=11961
- ion waves, l.f. inhomogeneous plasma 3=16964
- ionic sound waves, dispersion relation, expt. 4=8772
- ionic sound wave velocity meas. 4=19021
- ionic sound waves, observations 1=18861
- ionic vibrations in plasma with molecular ions 4=18990
- ionization-recombination instabilities 4=19035
- ionized atmosphere, moving body excitation 2=3060
- ionosphere, role in ionosph. wind 2=24032
- ionosphere, wave generation by solar corpuscular streams 2=884
- ionospheric phenomena, role in 4=10755
- jets, cylindrical, stability in mag. field 4=8791
- Kelvin-Helmholtz instability, compressibility effect 4=29947
- kinetic, due to more probable higher energy levels, at unusual velos. 4=5680
- kinetic equation, using electron-electron correl. 2=5363
- Knudson plasma, unstable states 4=24713
- Krook equation with elec. forces, Green's function 3=12221
- l.f. fluctuations, frequency spectra 2=1467
- l.f. generation, near sheath, with ion temp. > electron temp. 2=204
- l.f. oscillations observations 4=21530
- Landau absorption 2=19992
- Landau damping, to all orders 2=1462, 15937
- Landau damping, rel. to collective description 3=7618
- Landau damping, effect of collisions 1=16355
- Landau damping, in electron beams 2=7662
- Landau damping, existence in electron plasma 2=1461
- Landau damping and frequency gaps 1=8336
- Landau damping when greater than collision damping, expt. 4=5667
- Landau damping in inhomog. plasma, one-dim. model 4=18872
- Landau damping, longit. waves, calc. from macroscopic equations 4=2998
- Landau damping, nonlinear, bounded plasma 3=21823
- Landau damping, for non-Maxwellian vel. distrib. 2=3059
- Landau damping, 1-dimensional plasma 3=21825
- Landau damping, physical derivation 3=14609
- Landau damping, rel. to plasmon-electron interact 3=391
- Landau damping, quantum corrs. 4=3000-1
- Landau damping, relation to energy absorbtion 3=7617
- Landau damping, in relativistic gas 2=1463
- Landau damping, rel. to resonant electron behaviour 2=15936
- Landau damping, and resonant energy absorption 2=19994
- Landau damping rel. to Vlasov eqn. soln. 2=5335
- Langmuir, nonlinear oscillations, electron plasma 2=20007
- Langmuir probes, electron density variations 2=18386

Plasma—contd

oscillations and instability—contd

- Langmuir waves, unstable correl. functions 4=16504
 Larmor radius stabilization effect 4=3010
 linearized, in arbitrary electron velocity distributions 0=12622
 linearized, with arbitrary electron distributions 1=4624
 linearized theory 0=9048
 local pulse disturbance in d.c. positive column 4=18980
 localized oscillations and concn. gradients 2=1464
 long-wavelength oscill., in mag. field, with Coulomb forces 4=11655
 longitudinal 1=9627
 longitudinal, amplification, rel. to electron stream negative absorption of Cherenkov radiation 4=559
 longitudinal, in bounded slab, hydrodynamic analysis 4=8754
 longitudinal, effect on atomic spectra, use as a probe 1=10696
 longitudinal, in electric field 1=9628
 longitudinal, generation by transversal e. m. waves 4=18995
 longitudinal, initial value problem 2=20009
 longitudinal in mag. fld., dispersion relation 4=8760
 longitudinal, nonlinear, stability calc. 3=14613
 longitudinal oscillations 4=8747, 11663
 longitudinal oscill. with collective correl., theory 4=11667
 longitudinal oscillations, excitation, nonisotropic ionic velocity distrib. 4=24689
 longitudinal oscillations, instability 0=12625
 longitudinal oscill., nonlinear coupling to transverse waves 4=16501
 longitudinal oscill. stability for anisotropic velocity distrib. 4=18999
 longitudinal, propagation, rel. to thermal effects and collisions 3=7539
 longitudinal, resonance frequ. in finite plasma 3=2001
 longitudinal—transverse wave coupling existence and effects 4=18880
 longitudinal wave propag., extension 4=21532
 longitudinal waves, dispersion reln. 3=7509
 longitudinal waves excitation in bounded plasma 3=21828
 longitudinal waves, phase vel. and damping const. without boundary, theory 4=18973
 longitudinal waves, scattering of e. m. waves 0=11053
 low frequency, interaction with fast particles 3=24317
 low-frequency, in mag. field 3=9823
 low-frequency waves in unbounded plasma 3=21837
 in low pressure inhomog. plasma, dispersion relation 4=545
 m. h. d.—e. m. wave coupling at discontinuity 3=16963
 m. h. d. stability, gyration radius and collision effect 4=29950
 MHD wave, fast, above ion cyclotron freq., meas. 3=5683
 m. h. d. wave reflection at boundary between anisotropic plasmas 4=14646
 $m = 0$ instab. excit. in Z-pinch, meas. 4=19043
 mag. field, long., dispersion relations, calc. 3=19292
 in mag. field, stability criterion 3=14611
 in mag. field, strong, electron beam, h.f. 4=18991-2
 in magnetic field 4=8759
 in magnetic field, initial-value problem 2=5361
 in magnetic field, theory 1=10724
 magnetic sound 1=4627
 in magnetized plasma 0=10920
 magnetoacoustic and electron waves, theory 3=16958
 magneto-acoustic resonance 0=19695
 magnetoacoustic resonance 1=4628
 magneto-acoustic resonance 1=4629
 magneto-acoustic resonance 4=8778
 magnetoacoustic resonance, heating 3=7613
 magnetoacoustic, resonance, high field amplitude 3=21831
 magnetoacoustic resonance investigation with double electric probes 1=18858
 magnetoacoustic resonance in strong magnetic fields 1=18859
 magnetoacoustic resonance, in strong magnetic fields 2=22222
 magnetoacoustic resonance, theory and expt. 4=11658
 magneto-acoustic, in 3-component plasma 0=19694
 magnetoacoustic waves 4=14671
 magnetoacoustic waves absorption 3=24327

Plasma—contd

oscillations and instability—contd

- magnetoacoustic waves, rel. to r. f. oscillations 2=3063
 magnetoactive plasma, charged-particle excitation 2=11648
 magnetohydrodynamic, electrodynamic, and acoustic coupling 2=15995
 magnetohydrodynamic and magnetoacoustic waves 2=5337, 22239
 magneto-ionic, characteristic eqn. for stability 4=3007
 magnetoplasma, hot, Appleton-Hartree theory, generalized 4=18976
 magnetoplasma stability, planar diode configuration 4=21535
 magnetoplasmas, microwave, gyro-interaction 4=18878
 magnetostatic waves 3=14812
 many-fermion system, linear response function treatment 2=4960
 marginal stability conditions for stationary motions 4=19031
 meas., by reflection, e. m. waves, pulse 3=24301
 metal films, plasma resonance 2=23126
 in metal films, radiation absorpt. 3=12952
 metal films, resonance due to fast electron 3=8407
 metal foils, quantum theory 2=6305
 metal model, acoustic absorpt., quantum description 2=2050
 in metals, Coulomb problems, use of renormalization group 1=6091
 metals, due to electron bombardment 2=4187
 metals, electron "quasi plasma frequency" ν 4=12713
 metals, magnetoplasma, anomalous skin effect 3=8411
 metals, magnetoplasma reson., l.f., meas. 3=8409
 in metals, plasma dispersion law 1=6092
 micro-instabilities in magnetically confined, inhomog. plasma 4=29949
 microwave, backward-wave, in H plasma with electron beam 1=8387
 microwave cavity, partially filled with plasma, resonances 2=7736
 microwave energy detector 2=5497
 microwave generation of harmonics in plasma resonance 4=5654
 microwave interactions 2=5340
 microwave radiation from dense plasmas 3=7535
 microwave scattering, theory 1=16568-9
 microwave scattering from unstable plasma waves 3=4168
 in mirror machine, obs. of instability with rotational effects 4=5676
 mode-coupled damping of oscill. 4=8755
 molecules, long linear conjugated 0=20708
 molecules, very long conjugated, π -electrons oscill. 4=6555
 moving streams, in inductive pinch, collision effects 4=24676
 multi-species, natural resonances in external mag. field 3=4170
 natural oscillations of bounded plasma 4=8756
 near cyclotron frequency, long mag. field 0=10925
 near ion resonance, ion-electron scatt. effects 0=10899
 by neutral atom injection, ALICE mag. mirror 3=16969
 nonconvective instabilities, damping, r.f. probe meas. 3=7575
 non-degenerate electron plasma, in mag. field 0=17009
 nonisothermal plasma in mag. field, ion radiation 4=14656
 nonlinear, in changing e. m. field, review 2=203
 nonlinear effects in oscs. 4=11656
 non-linear effects, theory 1=8337
 non-linear electrostatic in cold plasma 0=19700
 nonlinear, influence of ion motions 2=1471
 non linear Landau damping 4=14708
 nonlinear limit to unstable waves, theory 4=27550
 nonlinear longitudinal, dispersion reln. 2=15934
 nonlinear longitudinal, in external magnetic field 4=548
 nonlinear oscill. due to longitud. current 4=5668
 nonlinear oscillations, higher-order analysis 4=8746
 nonlinear oscillations of rarefied plasma 1=18899
 nonlinear, propag. along mag. field 3=7623
 nonlinear, relativistic limits 2=11682
 nonlinear stationary waves, relativistic plasmas 3=21824
 non-linear, theory 0=3770, 11037, 19699
 non-linear travelling-wave perturbations 3=19289
 non-linear time-dependent 1=11955

Plasma—contd

oscillations and instability—contd

- nonlinear treatment, absence of Landau damping 2=22234
- nonlinear wave phenomena 4=16498
- non-steady state, e. m. fluctuations 2=5365
- in non-steady state, electromag. fluctuations, theory, contrib. 3=4172
- in nonuniform plasma 0=10927
- non-uniform plasma, low-pressure, in mag. field 3=19288
- observation with rotational effects in a mirror machine 4=5676
- oscillations, close collision effect 4=18972
- oscillations rel. to h. f. conductivity 4=18971
- oscillation non-linear stability 4=8748
- oscillations, effects of pair correl., using BBGKY hierarchy 4=11668
- oscillations, spatially growing, electrostatic turbulence effect 4=18987
- oscillations of 3-component assembly, mag. field present, using BGK collision model 4=14705
- oscillations in weakly inhomog. plasma, dispersion reln. 4=5664
- oscillators, dead space dependence 2=9605
- PIG cold-cathode, "two-beam"-type instability 4=19039
- P.I.G. discharge, standing wave modes 3=21733
- P.I.G., discharge standing wave, theory 3=21734
- pair distrib. function outside equil. 4=11566
- parallel plate problem, with density variation 4=18998
- parametric amplification from non-linear coupling 4=547
- parametric, and harmonic generation in discharge 4=557
- particle beam, charged, excitation, nonlinear theory 3=5687
- particle dynamics in bounded region 3=12220
- particle and field fluctuations in e. m. field 4=8692
- perpendicular to constant magnetic field 0=12624
- perturbations with Cauchy equilb. distrib. 3=12222
- pinch, compressibility effects 4=24680
- pinch stability, theory and experiment 4=8740
- pinch, stabilized, with infinite conductivity and zero skin thickness 1=9581
- pinched, azimuthal, "m=3" instabilities 3=12211
- plane wave solns. of Vlasov equation, no Landau damping 4=14704
- plane waves scatt. by plasma sphere, Mie theory 4=5659
- plasma—air boundary, surface waves, conditions for existence 4=16499
- plasma—beam system, magnetodynamic instab. 3=21834
- "plasma cable", e. m. wave propag. and Langmuir sheath 0=15041
- plasma column under forced oscillation, thermonuclear reactor 1=10728
- plasma created by ionizing electron beam 2=17817
- plasma cylinder, inf. homog., in axial field 0=10928
- plasma diode relaxation oscillations 1=11969
- plasma—electron beam system in resonant cavity, wave prodn. 4=19007
- plasma interact. with charged particle beam, instability 4=29954
- plasma waveguide, cylindrical wave "decay" instability 4=24710
- plasmoids, h. f., mag. field-free, obs. 2=1465
- plasmoids, r. f. potentials, 15 Mc/s 3=4167
- plasmons, analogy with vector boson theory 3=9368
- positive column instability in mag. field 1=9533
- positive column, ionization striations instability mechanism 4=18736
- positive column, stability in time-dependent mag. field 4=8648
- positive ion heating, by electron beam 0=15027
- propagation, along internal mag. field 2=20006
- propagation, along mag. field, in viscous plasma 2=22238
- propagation, in compressible, isotropic electron plasma 2=11666
- propagation, growth, decay, rel. to dissipation 3=7540
- proton-beam excited waves 4=19012
- proton beam interaction, Hartree—Appleton approx. 4=8784
- pulsating currents, comparison with semiconductors 2=1421
- in pulsed electrodeless discharge 2=11684
- quantum, diamag. suscept. for arb. disturbance 3=19231
- quantum, dispersive props. in mag. field 4=16496
- quantum mech. effects and dispersion reln. 3=7615

Plasma—contd

oscillations and instability—contd

- quasi-linear theory 3=12217
- quasi-linear theory 3=21827
- quasilinear theory 4=16502
- quasi-linear truncation study method limitation 4=5662
- r. f. discharge, electronic and atomic densities rel. to time 4=18714
- r. f. forced oscillations, in collision-free plasma 0=19703
- r. f. plasmas, helical structures 4=19028
- r. f. plasmoid, rel. to dipolar resonance 4=18716
- r. f. probe, plasma resonance 0=19698
- r. f. radiation 1=16354
- r. f. signal phase modulation by plasma fluctuations 3=4134
- radiation by, in bounded plasma in magnetic field 0=10917
- radiation, coherent, by osc. 4=16506
- radiation from co-operative phenomena 1=9632
- radiation damping 4=2995
- radiation, effect of probes and electrodes 1=298
- radiation by large-amplitude oscillations 1=10726
- radiation from oscillations 4=5653
- radiation by phase oscill., Cherenkov-like 3=16962
- radiation, from plasma in static mag. field 2=205
- radiation scattering, non-equilib. plasma 2=19995
- radio emission in nonuniform plasma 1=10725
- radio emission in nonuniform plasmas 0=3772
- radio emission, by Vavilov—Cherenkov and synchrotron effects 2=2558
- radio noise emission by oscillations 4=8706
- rarefied, kinetics, quasilinear approx. 3=2007
- Rayleigh—Taylor, under e. m. field effect 4=19174
- reflection and refr. of hydromag. waves 3=483
- reflex discharge, long-wavelength instab. 4=24709
- relativistic, aperiodic instab., analysis 4=19046
- relativistic beam—plasma config. instabilities 4=5677
- relativistic dispersion relations 3=7612
- relativistic effects and two-stream instability 3=7620-1
- relativistic flow, stationary isolated waves, in mag. field 4=16475
- relativistic low-density plasma, theory 2=17851
- relativistic nonlinear theory 2=19996
- relativistic non-linear waves with ion beams 4=24693
- relativistic plasma, by charged particles 0=12614
- relativistic, Vlasov eqn. 2=9606
- relaxation between ion and electron temps. 4=21534
- relaxation processes, binary collision theory 2=15935
- resistive gravit., and ion gyration radius 4=27556
- resistive instability, low pressure, general mode 4=14723
- resonance, in afterglow 2=1420
- resonance densities in cylindrical column 3=21835
- resonance, different from plasma freq. 3=14610
- resonance, in inhomogeneous plasma cylinder, general theory 2=1428
- resonance interaction with rotating mag. field 3=12223
- resonances in cylindrical plasmas 4=5660
- resonance effects, due to e. m. wave—plasma cylinder interactions 4=18887
- resonances, internal, cold plasma column 4=19014
- resonances, for non-uniform electron density inside plasma volume 4=14710
- resonance oscill. in inhomog. objects, calc. 4=8762
- resonance probing in mag. fld. 4=27543
- resonances, variational soln., applic. to cylindrical and spherical systems 4=8767
- review 1=315
- review, methods of prevention 2=22197
- review, nonlinear mathematical theory 3=19287
- review, "particle" and "fluid" approaches 2=5359
- rotating filament, flute, radial var. allowance 4=21541
- rotating plasma hydromagnetic stability 4=14717
- runaway electron stream, longitudinal oscill. 3=9814
- scattering of laser by laser driven oscills. 4=21509
- screw and flute instabilities at low press. 4=565
- self-excited surface, 40-300 Mc/s 3=21840
- in semiconductor diodes 3=25379
- semiconductor, PbTe, helicon 3=13079
- semiconductors, carrier plasma oscill., coupling with lattice vibr. 2=10319
- semiconductors, electron—hole, and fluctuations, electrical, l. f. 3=20281

Plasma—contd

oscillations and instability—contd

- in semiconductors, rel. to electron-hole instabilities 3=10730
- in semiconductors, helical instabilities, calc. 3=13051
- semiconductors, magneto-plasma resonance theory 1=14406-7
- semiconductors, nonpolar, electron-hole plasma 3=15476
- semiconductors, photovoltaic 2=21187
- in sheath study with electron-beam probe 3=7574
- shielding rel. to stability, collisionless plasma 4=8679
- shock generation in collapsing cylindrical shell 3=12219
- shock-wave front moving across mag. field, unstable oscillator structure 4=8697
- shock wave instability, anisotropic, rarefied plasma in mag. field 3=16930
- shock wave study, by interaction with microwaves 1=15932
- shock waves in collision-free plasmas 3=12216
- shock waves, electron velocity distrib., kinetic theory 4=8761
- shock waves, nonequilibrium phenomena 3=16695
- shocks, converging, theory 3=12218
- shocks, radio emission 0=10480
- short range interactions rel. to semiconductor theory 1=14420
- simple oscillator 1=5482
- in single and colliding plasmas, idealizations 4=27549
- slab condenser system 3=7610
- slow longitudinal waves, non-adiabatic character, $T_e = T_i$, Landau damping 4=19003
- slow waves, non-linear theory 1=9626
- small amplitude waves, in appl. mag. field 2=5364
- solar bursts, 500-25000 Mc/s spectrum 1=8028
- solar corona 3=23704
- solids, helical instabilities, theory 3=8410
- solid p-n junctions 4=6808
- in solids, book 4=22446
- in solids, coherent excitation 1=7565
- solids, collective excitation and stability 2=20977
- solitary, in collision-free plasma 4=18974
- solitary waves along mag. field, charge separation effects 4=24697
- sound, in pinch effect, InSb, InAs, at sufficiently high currents 3=6597
- sound waves, ionic, meas. and appl. 3=5658
- sources, in high and ultrahigh vacuum 2=7635
- space-charge waves 0=1132
- stability, l.f., in nonuniform mag. field 3=9816
- stabilization of "universal" instability in weakly non-uniform plasma bounded by a mag. field 3=14595
- space charge effect on particle motion 1=10752
- spatially growing plasma waves, theory 0=19704
- spatially non-uniform, in mag. field 4=2997
- spatially nonuniform plasma in mag. field, calc. 4=18986
- spectral distrib. and correlation function 1=18906
- spectral distribution and correlation functions 2=22236
- sphere, inf. cond., in quasi-stationary e.m. field 0=10909
- spiral instability in mag. field at low-high pressure transition 4=5681
- stable motion, onset, in charged system 4=24635
- stability criteria, derivation from conservative forces 4=18988
- stability of collisionless relativistic plasma in mag. field 4=14720
- stability conditions at finite pressure 4=24703
- stability of cylindrical column 4=11580
- stability with dissipation 4=551-2
- stability, e.s., energy principle 4=14718
- stability, e.s., micro 4=14719
- stability expts. on positive Hg column in longit. mag. field 4=29953
- stability, h.f., excitation by diverging electron beam 2=5360
- stability of higher order correl. functions, elec. and mag. field vars. 4=21533
- stability, hot low-pressure plasma without mag. surfaces 4=3008
- stability integral gradient calc. 4=21536
- stability of large amplitude waves 0=9054
- stability, of longitudinal electrostatic oscillations 2=7633
- stability, low pressure, in high fields, mag. sinks 4=5671

Plasma—contd

oscillations and instability—contd

- stability, in mag. field, finite conductivity effect 4=14721
- stability of Maxwellian plasma 4=24711
- stability of pulsed rotating column 4=21540
- stability against resistive interchange modes, criterion 4=14716
- stability, rotating with anisotropic pressure 4=5673
- stability theory, asymptotic method 4=11674
- stability theory, non-uniform plasma, anomalous diffusion 4=11666
- stability, rel. to viscosity 4=3009
- stabilization, by h.f. mag. field, of cylinder carrying current 4=24712
- stabilization, ion gyro-radius 4=21537
- standing-wave excitation, by electron beam injection 0=19702
- in static external mag. field 1=5485
- in static magnetic field 1=9625
- stationary nonlinear oscillations, frequency in 3 1-dimens. cases 1=4622
- steady-state, without magnetic field, stability 4=549
- stellar, spectra broadening 1=9283
- Stellarator B-1 0=1912
- in stellarators 1=9616
- striations, moving, prod. in d.c. discharge 2=1399
- supersonic flow wave patterns, pervaded by uniform magnetic field 4=8757
- surface-charge wave resonance on cylinder, from micro-wave absorpt. 4=5624
- surface waves 2=183
- surface waves, kinetic theory, thermal spread of electrons 4=24692
- survey of experimental studies, optical methods 1=9554
- survey of experimental studies, probe methods 1=9555
- survey of experiments on kMc/s oscillations 1=9631
- Suydam instability for finite Larmor radius of the ion 4=564
- temperature disturbance with drift velocity 3=24321
- theory, meas. and expt., review 2=15907
- theory, operational methods appl. 4=16463
- thermal fluctuations, freqn. spectrum, kinetic eqns. 4=5657
- thermal instability of $m = 0$ mode of column 4=14725
- thermal plasma, large amplitude wave motion 4=18970
- thermionic diode, plasma-filled, dynamic behaviour 2=7658
- thermomagnetic waves and mag. field excitation 3=21843
- thermonuclear assembly, noise radioemission rel. to temp. 2=1579
- theta pinch, flip instability avoidance 4=5641
- theta-pinch, ring tearing-mode resistive instability 4=14727
- thin toroidal thread, in mag. field 0=15040
- thread of vacuum arc., high-freq. 2=15939
- three-component plasma, with or without mag. field 2=9610
- Tomonaga's method, applications 1=9629
- toroidal discharge 1=9633
- toroidal discharge fluctuations 4=24682
- toroidal discharges, high-current, electric and magnetic field fluctuations 4=8774
- toroidal mag. surface and corresponding MHD equilibria 4=5674
- toroidal pinch discharge, stability, theory and experiment 4=8738
- toroidal plasma, twin-channel instability at B_z field reversal 4=5678
- toroidal plasma, 2-stream instability 4=16493
- Touks-Dattner reson., radial standing wave mechanism 3=19286
- trails, fewer plasma reson. due to elec. field 4=20938
- transit-time oscill. in electron-ion stream 4=8765
- transverse drift oscillations 3=24316
- transverse, interaction and modulation 2=202, 22235
- transverse modes, with no applied magnetic field 1=9624
- transverse, nonlinear theory 2=9607
- transverse waves due to interaction with electron beam 4=11677
- transverse waves in Vlasov plasma 3=19253
- travelling wave, h.f. field, heating effect 4=5665
- tubular layer 4=562
- turbulence detection by shadowgraph technique 4=18924
- turbulence, in strong magnetic field 3=21836

Plasma—contd

oscillations and instability—contd

- turbulence, for weak nonequil., kinetic theory 3=21844
 turbulence, homog. isotropic, statist. theory in relativistic plasma 4=8769
 turbulence due to ionization instability in strong mag. fld. 4=19051
 turbulent diffusion in strong mag. field due to drift instab. 4=5666
 turbulent discharge in longitudinal magnetic field 4=8687
 turbulent, microwave emissivity theory 4=18864
 two-beam instability, review 4=590
 two-component plasma, nonlinear oscills. 2=15940
 two ion species, cold plasma 2=20008
 use of two-stream instability in beam—plasma amplifiers 4=26509-10
 two-stream instability, gaseous and solid-state plasmas 3=24312
 2-stream instability, rel. to ionospheric irregularities 3=23608
 two-wave interaction, rel. to ionosphere radio propag. 4=19244
 u.h.f. diagnosis by right circularly polarized waves 3=4145
 undamped and damped, in relativistic plasma 0=19678
 uniform plasmas, stability to longitudinal oscillations 0=10929
 unstable plasma, kinetic eqn. 3=21833
 v.h.f. interaction with conduction in Penning gauge 4=19027
 in various gases, detonation generation 0=1133
 Vlasov eqn., linearized, non-Landau damped 4=5658
 Vlasov equation, linearized, Green's function 2=19999
 Vlasov's eqn., nonlinear effects 3=9817
 volume oscillations due to external electromagnetic excitation 1=10713
 vortices, production and photography 4=19030
 wave along mag. field, e. m. wave generation 4=5628
 wave collision damping in weak field 4=19000
 wave conversion and scattering on oscillations 3=14614
 wave conversion on two-plasma boundary 4=29945
 wave-directed particle interactions 4=18978
 wave excitation, by modulated ion current 2=20004
 wave motions of small amplitude 1=5483
 wave phenomena 1=18894
 wave-probes in collisionless plasma, theory of 3=19281
 wave propag., single, along mag. field 3=24325
 wave propagation, in longitudinal mag. field 0=19705
 wave propagation in partly ionized gas 3=2009
 wave propagation 4=11606
 wave propagation velocities 4=18975
 wave props. of plasma with doubly humped velocity distrib. 3=2002
 wave radiation, by moving charge 2=3062
 wave radiation by moving charge 3=4173
 wave, unstable, along mag. field 4=550
 waves excit. by electron-ion beam in mag. field 4=19011
 waves in liquid with infinite cond., resonance 3=21958
 waves, nonlinear stationary, small-ampl., detailed solns. 4=18983
 waves, nonlinear stationary, theory 4=18968
 waves, kinetic theory 4=29942
 waves, radiation by interaction mechanisms 4=2999
 waves in slowly varying plasma, perturbation method application 4=18985
 waves, small amplitude, m.h.d. descript. 4=24700
 waves, weakly damped, in nonuniform plasma without ext. field 4=14707
 in weak magnetic field 1=8338
 weakly inhomogeneous plasma, natural oscillations 3=24318
 weakly inhomogeneous, stability 4=5684
 weakly ionized plasma, longitudinal nonlinear, monochromatic wave damping 4=11664
 weakly oscillating, kinetic processes, rel. to wave—wave interaction 4=8771
 weakly turbulent plasma, in mag. fld. 3=16968
 weakly turbulent, quasilinear theory 3=21838
 weakly unstable, kinetic theory, nonlinear Vlasov and BBGKY eqns. 4=21494
 whistler mode, instability due to gyrating electron stream 4=11618
 zero-temp. plasma, nonlinear oscillations 0=12620-1
 A, linear pinched discharge, surface instabilities, growth 0=15012

Plasma—contd

oscillations and instability—contd

- A, microwave discharge, 0.5-400 torr 2=7568
 A positive column, electroacoustic waves 0=2369
 A, shock waves due to exploding Cu wire 2=19596
 Ag films, light radiation 1=7568
 Ag films, surface oscillations 3=10633
 Ag layers, electron beam energy losses, plasma theory 1=10000
 Ar 4=14714
 Ar, coherent oscillations, 10-100 kc/s, in 1000-3000 Oe 4=24609
 Ar, low-press., ArII spectra excited by electron beams 3=7609
 Ar, magnetoacoustic resonance 4=19022
 Ar, shock ionized, electron conc. and temp. meas. 4=18896
 Au foil, decay by photon emission, after electron bombardment 3=20536
 CdS crystals, space-charge oscillations 3=783
 Cs, cylindrical, in mag. field, instability, harmonics detection 4=14722
 Cs glow discharge 4=11671
 Cs, ion acoustic waves, Landau damping meas. 4=8752
 Cs ion acoustic waves, Landau-viscous damping transition 4=19024
 Cs, ion-beam excitation 2=17854
 Cs ion-beam excitation 3=5686
 Cs and K, electrostatic oscills. near ion cyclotron freq. 2=13577
 Cs plasma diode, h. f. oscillation conversion, review 4=29865
 Cs, 10^{10} - 10^{11} cm⁻³, low-freq. wave excitation in curved mag. fld. 4=11660
 Cs⁺ collisionless stream interacting with transverse mag. field 4=24708
 D, frequency det., gas trapping efficiency 3=2004
 Ge, energies from dielec. const. 3=20436
 Ge, magnetoplasma reson., microwave 3=2893
 Ge, n-type magneto-oscillatory instabilities 2=16698
 H, toroidal Z pinch, instability, rel. to X-ray emission 4=8703
 H₂, d.c. glow 1=4578
 He discharge, in axial mag. field, charged-particle loss rate 1=16352
 He, electron-beam generated waves at cyclotron harmonics 4=16500
 He, frequency det., gas trapping efficiency 3=2004
 He, low press., He II spectra excited by electron beams 3=7609
 He positive column, electroacoustic waves 0=2369
 He, shock wave, self-ionizing, 50μ Hg, structure 4=18830
 He, shockwaves, temp. and density relations 4=5611
 Hg dark plasma, 15 Mc/s 3=4160
 Hg, in hot-cathode discharge 0=19701
 Hg, impedance characteristics 2=1425
 Hg, l.f. waves on positive column 4=19023
 Hg, low-press. Hg II, III spectra excited by electron beams 3=7609
 Hg, in r.f. probe 0=19698
 Hg, radiowave propagation, triple resonance 2=1469
 Hg-vapour discharge, microwave emission 1=13096
 Hg vapour, hot-cathode, l.f. 3=4166
 In, films, plasmon spectrum 2=12407, 14418
 InSb, electron-hole, helical instability, hysteresis 4=4028
 InSb, electron-hole, injection, p-type, 77°K 3=15591
 InSb, films, plasmon spectrum 2=12407, 14418
 InSb, helicon wave propagation, room temp. 3=10827
 InSb, hot magnetoplasma resonance 3=2775
 InSb—p, electron-hole, nonlinearities in helical instability 4=28562
 K, helicon wave—sound wave interaction 4=22549
 K, instability in mag. field for any density 4=19044
 K, ion acoustic waves, Landau damping meas. 4=8752
 K, thermal, l.f. oscill. meas. 3=9820
 KCl, rel. to X-ray absorption peaks 1=8997
 Kr positive column, electroacoustic waves 0=2369
 Ne, glow discharge, pulsed, in spectral line intensities 3=12210
 Ne, low-press., Ne II spectra excited by electron beams 3=7609
 O, discharge, spontaneous voltage oscillations rel. to positive column length 2=7590

Plasma—contd

oscillations and instability—contd

Sn oxide film 0=1623

Xe, r.f., stationary and running striations 3=4165

Plasma in solids

See Crystals, electron states; Electron gas;

Semiconductors; Solids

Plastic deformation

See also Slip.

ageing effects, general theory 3=20723

alkali halide crystals, irradiated, rel. to stress/strain relationships 3=22649

alkali halide crystals, X-rayed, luminesc. 3=4983

alkali halides, charge flow analysis 4=22755

alkali halides, rel. to internal friction and Young's modulus 4=1923

alkali metals, at low temps. 0=16215

alloys, austenitic, thermomechanical treatment 2=23885

alloys, current and future research, Russian assessment 4=11373

alloys, effect on precip. 2=830

alloys, light, high-pressure effects 3=18157

alloys, load—elongation curve, rel. to composition 3=20710

alloys, rel. to resist., elec. 2=6404

anisotropic materials, plane strain problems 2=14885

Armco ingot iron, blue-brittle 1=1508

Armco iron 3=3223

Armco iron, oriented microstresses, X-ray study 4=23213

Armco iron, temp. depend. and ageing 4=1915

Armco iron, yield point, effect of hydrostatic press., 10^3 – 10^4 atm 4=13416

Armco iron, yield stresses, temp. var. 3=8768

axially symm., principle line theory 2=10751

b. c. c. polycrystals 4=13374

bar, cylindrical, plastic strain wave propag. 3=5484

bars, elastic—plastic range, critical force 1=1320

bars, necking and stability 2=15510

beam, contrib. of primary creep 2=10759

bicrystals of f. c. c. metals 2=6730

bi-metal thermostats, elastoplastic behaviour 2=15515

 α -brass, rel. to order—disorder phenomena 1=1418-20 α -brass, resulting intragranular misorientation 2=4507 α -brass single crystals, individual slip line histories 0=16219 β -brass, anelasticity, 4. 2–300°K 0=10258

bronze, shear stress under pressure 3=13354

butyl elastomer, and rolling friction 0=4572

calcite, deformation twins 0=1897

calcite, dislocation etch pits 0=16283

calcite, X-ray line broadening 0=21130

carbides, hard, high temp. meas. 1=1550

carbon iron sheet, and annealing, causing abnormal grain growth 4=13651

cause of allotropic trans. in metals 0=3170

cellulose acetate, deformation strain 1=20345

ceramics, polycryst., microstructure effects 3=23357

ceramics, rel. to sintering 4=7380

clay suspensions, yield stress 0=16391

compression, between smooth plates, under plane strain 0=6713

compression, plane strain, between rough plates 0=6714

conference solid state physics 0=6002

contact problem for power-law strain hardening 4=1917

continuum theory, review 2=2319

crack propagation, plastic instability 4=28927

creep-resistant materials, high-temp. thermal cycling stresses 2=21447

crystal, cyclic stressing, superposition of mech. vibration, electrical effect 0=7917

and crystal imperfections, h. c. p., X-ray line breadth analysis 4=10568

crystal lattice, rel. to wavefield X-rays

propag. 4=10511

crystal point defects, dislocation loops, generation 3=17727

and crystal point imperfect., ionic crystals 4=28916

crystal, surface dislocation sources 2=10750

crystals, cracks, origin and development 1=6478

crystals, f. c. c. rel. to work hardening 3=23341

crystals, ionic, dislocation, electron product function 4=4047

crystals, non-uniform, piezoelectric effect 4=7057

crystals, plastic resistance 1=1317

crystals, rel. to ultrasonic velocity changes 3=23325

crystals, vibr., hysteresis 2=4320

Plastic deformation—contd

crystals, X-ray refl. 4=1708

cubic crystals, rel. to thermal conductivity 4=1410

cyclic, consolidating medium, stress, tensor 3=16559

cylindrical shells, critical stress 2=10742

defect conc., effect of prior deform., recovery 3=11154

deformation band propagation in homogeneous isotropic material 0=6300

diamonds, nature 4=15707

and diffusion in solids, enhanced, mechanisms 3=8447

dislocation damping, amplitude-depend., qualitative model 2=10395

dislocation effects and electrification, theory 2=18584

as dislocation motion, review 2=18993

dislocation—point imperfection interaction, u.s. meas. 3=23326

dislocation theory, rel. to earthquake energy

determ. 4=23704

due to dislocations, periodic distrib. 4=25931

displacement force meas. for materials up to 100 000 atm pressure 1=1355

Duralumin, effect on ultimate tensile strength, temp.

depend. 4=28936

Duralumin, temp. depend. and ageing 4=1915

dynamic loading of plastic shells, end conditions 0=12393

effect on magnetoresistance of Cu, Ag, Au 2=2122

effect on mosaic structure of crystals 0=16229

elastic threshold, crystals and polycrystals, difference, theory 3=18175

elasto-plastic phenomena interpreted by hereditary theory 0=8112

elasto-plastic, thermodynamic invest. 0=1852

elastoplastic body 2=15512

elasto-plastic waves on impact of bars or

cylinders 1=16007

elasto-plasticity, non-linear boundary value problem 3=7154

extrusions and intrusions, method of production during fatigue 1=6480

F-centre generation by X-rays, effect at low temps. 2=10421

f. c. c. alloys, filings, heavy faulting, by X-ray diffr. 3=8418

f. c. c. metals and alloys, initial yielding 3=11151-2

f. c. c. metals, temperature effect on yield point 1=11510

f. c. c. single cryst. at high temp. 4=28921

f. c. c. substitutional mixed crystals, yield stress effect 4=10359

fatigue, role of microplastic deform. 3=20699

faults in materials that harden when they yield, theory 0=8125

ferromag. materials, coercivity changes 0=6224

ferromagnetic films, rel. to orientation 3=20598

ferromagnetics, effect on mag. saturation process 3=8669

ferromagnetics, effect on magnetization curves 3=13247

ferromagnetics, rel. to magnetization 4=10261

and fracture, ductile—brittle transition, review 4=4454

frames, plastic limit analysis, dual linear

programming 0=8575

frictional stress, rel. to energy radiated from dislocation 3=23304

glass, scratching with needle, avoidance 0=3151

glass, rel. to viscosity meas. 4=4683

by glide on preferred planes, theory 2=16953

grains, initial state, mechanism 2=23753

graphite, rhombohedral form prod. 3=25627

gravitating sphere, pressure and shear stress distrib. 4=11141

hardening effect, rel. to dislocation interaction 2=10387

rel. to hardening, isotropic, by plastic flow 0=1854

high-speed, energy dissipation, with uneffective dislocation mechanism 3=20709

by high speed friction 1=14897

high temp., crystals and diffusion, review 3=23329

ice, crystal glide bands, non-basal 3=17763

ice, glide direction 2=795

ice single crystals 4=10381

ice, thermal etching study 2=794

ideal plastic—rigid solid, dynamic 1=14873

ideally plastic media, compressibility calc. 2=21861

impact of half space and revolution body 4=11142-3

indentation, by dies 0=16212

indentation of wedge, into semiplane, with creep 3=3228

Plastic deformation—contd

inelastic strain, contrib. of geom. kinks in dislocations 4=28463
 influence on permeability decrease in transformer steel 0=3150
 inhomogeneity, in tension 0=8114
 interior, zero external force 3=20714
 intermetallic cpds., temp. var., thermal vibrs. and hardness 4=28920
 rel. to internal friction peaks, low-temp. 3=4867
 Invar-type alloys meas., dispersion-hardened 4=13419
 inverse constitutive eqns. of rigid/plastic solid 4=27128
 ionic crystals, elec. effects, review 4=22754
 ionic and metal crystals, similarity 2=2327
 iron, Armco, rel. to dislocation density 2=6344
 iron, Armco, effect on ageing 2=12929, 15068
 iron, electrolytic, effect of temp. and strain rate 2=23747
 iron, tension deformed, structure rel. to purity 2=12849
 irons, Armco, effect on mech. props. 2=23743
 irregular deformation, regular features 4=7379
 irreversible, thermodynamics 0=6301
 Kovar alloy, effect of surface martensite 1=20364
 layer compressed between rough cylinders 1=14886
 layer with polymorphic transformation, residual deformation 2=6828
 linearized equations for beams 0=8115
 due to local melting, during irradiation 1=12407
 lubrication reduction 4=26483
 Maxwell's formula for three-dimensional and large deformations 1=9093
 mean deviation of elongation, formula 1=14872
 measurement, use of X-ray microbeam camera 3=9893
 metallic substances, Brinell ball test 0=11978
 metal cutting theory 2=14911
 metal fatigue at low temps., cross slip model 4=7387
 metal, microstruct. changes during deform. 4=15803
 metal, plastic-elastic deform., theory 2=14878
 metal, stored energy 0=21123
 metal whiskers, binary, 20-300 μ dia. 4=13378
 metals and alloys, internal friction data 4=7372
 metals, alloys, from calorimeter, liquid-gas film 3=19058
 metals and alloys, meas. during tensile testing 1=20327
 metals and alloys, rel. to annealing, review 4=12733
 metals and alloys, review 2=8732
 metals, annealed and cold-worked 0=6298
 metals, annealing, Frenkel pairs recomb. theory 4=15471
 metals, b. c. c., effect on internal friction 2=21412
 metals, b. c. c., friction-stress and yield point 3=8765
 metals, b. c. c., by slip, geometry 4=13377
 metals, b. c. c., yield point, temp. depend. 2=2324
 metals by bending 0=6303
 metals, cold-deformed, dislocation, elastic isotropism 2=21026
 metals, cold-rolled 0=16213
 metals, conference, Teddington (1963) 4=26460
 metals, conical indentations, elastic recovery 1=14926
 metals, crystal dislocation var. on annealing, equn. 4=12747
 metals, crystal lattice distortions, kinetics of relief 4=6847
 metals, current and future research, Russian assessment 4=11373
 metals, cyclic deformation meas. 3=13347
 metals, deformation in "flow areas" 0=6305
 metals, rel. to diffusion 1=3980-3
 metals, rel. to diffusion coeff. apparent enhancement 4=20306
 metals, discontinuous, and deform. rate dependence anomalies 3=23317-18
 metals, dynamic behaviour 4=30750
 in metals, effect on diffusion 2=23210
 metals, effect on diffusion 3=15505
 metals, effect on diffusion 4=1523
 metals, effect of dislocations 4=28917
 metals, effect on elasticity 4=15682
 metals, effect on mech. props. below 4.2°K 0=21122
 metals, effect of shock waves, thermodynamic description 3=9547
 metals, elastic behaviour in tensile test 0=11977
 metals, elasto-plastic deform. 2=4321
 metals, energy dissipation mechanism 0=16226
 metals, exo-electron emission 0=19712

Plastic deformation—contd

metals, extension, exponential eqn. 2=21425
 metals, f. c. c., annealing rel. to Bordoni peaks 3=23298
 metals, f. c. c., stored energy and recovery 2=23183
 metals, f. c. c., stress-strain law 3=11158
 metals, f. c. c., with variable stacking-fault energy 2=16958
 metals, f. c. c., X-ray line broadening 1=7889
 metals, fatigue, microstructural damage 3=20735
 metals of high purity 3=15531
 metals, impact compression, theoretical calc. 2=10747
 metals, initial stage 0=1855
 metals, initial stress field 1=14875
 metals, rel. to irradiation, review 3=8466
 metals, localized, rel. to grain boundary sliding 3=17774
 metals, low temp., thermal activation energies 3=25622
 metals, mechanical model 2=12839
 metals, mechanism, theory 3=15987
 metals, microstresses produced 0=10263
 metals, polycryst., nature of initial stages 3=20711
 metals, polycrystalline, slip bands and grain rotations 0=1853
 metals, rise of diffusion coeff. with plastic strain 3=25296
 metals, role of microstresses 0=10264
 metals, rel. to paramagnetic susceptibility 4=7214
 metals, pole figure construction from electron diffraction. 1=15114
 metals, polycryst., rel. to grain size, theory 2=6733
 metals, polycrystalline, rel. to u.s. propagation studies 4=29026
 metals, pseudo yield point effects 2=21419
 metals, quenched, effect on retained thermal vacancies 4=1467
 metals, self-diffusion, vacancy injection 4=28474
 metals, rel. to sintering 4=7380
 metals, stored energy and flow stress, theory 1=17509
 metals, surfaces in contact, rel. to sliding 4=23115
 metals, temp. after effects 4=23086
 metals, vacancy formation and dislocation density 4=25924
 metals, at very high press., apparatus 1=6685
 metals, X-ray refls. intensity 2=23931
 metals, yield calc., Luders band formation 4=26473
 metals, yield plateau on stress-strain diagrams 3=5062
 metals, yield strength, grain size depend., effect of orientation 4=13372
 micro-deformation rel. to macro-deform. 2=23752
 microdeformation meas. by Fourier anal. of X-ray diffraction. lines 4=15801
 modulus reduction, torsional and elastic, models 2=18982
 muscovite, static and impact deformation 0=13544
 naphthalene, kinking mechanism 1=14891
 near-brittle materials, determ. 4=23100
 Neoprene elastomer, and rolling friction 0=4572
 nichrome, "relay race" transmission 2=23759
 noble metal alloys, influence on resistivity 0=7908
 noble metals, recovery 3=23345
 nonhydrostatically stressed solids, thermodynamic theory 1=20325
 non-linear, Maxwell and Voigt models, equations 1=12587
 Nylon 66, drawing, effect of temp. and moisture 0=8116
 observation of isopachics in plane-stress by Moiré patterns 4=14007
 organic glasses, submicroscopic cracks 0=6318
 overstressed micro-regions, elastic vibrations damping 1=12592
 p-n junctions, rel. to resistance 3=10844
 Peierl's mechanism and nucleation of kink pairs 4=20751
 percussion figures in crystals 0=3157
 Permalloy, and magnetostriction 4=1837
 Perspex, dynamic yield stress 2=21430-1
 photoelastic coating obs. 4=23101
 from photoelastic effect 3=13320
 plane circular membrane 0=13911
 plane deformation, dynamical approach 1=3972
 plane deformation, dynamical approach 1=10210
 plane strain, perturbation soln. 2=6734
 plastic-elastic cylinder with free ends and internal heat generation 4=5116
 plastic equilib. eqns., charac. surfaces 2=19479

Plastic deformation—contd

- plastics, impact ductility, stress effects, initial 4=28919
 plasticine, indentation by dies 0=16212
 plates, extension and flexure, analogy with viscous fluid motion 0=8603
 Plexiglas, by press. 2=12848
 polycrystalline metals, initial stage X-ray study 2=12853
 polycrystals, steel and cermets, inhomogeneity 4=23214
 polyethylene crystals, twinning and phase transformation 4=20679
 polyethylene, mechanical loss 0=1846
 polyethylene, rel. to X-ray line broadening 1=20697
 polymers, electron emission, on tearing from base 3=24330
 polymers, exo-emission on plastic deformation 1=12590
 polymer films, softening temp., thermomechanical curves 0=8261
 polymers, rel. to sintering 4=7380
 polyolefins, crystal reorient. within spherulites 4=7448
 polystyrene blocks, deformation bands, formation 4=10396
 polytetrafluoroethylene, microstructure rel. to mech. props. 3=25800
 polytetrafluoroethylene, structural changes 2=12938
 polyvinylchloride, electrification, with heat treatment 0=16008
 porous media, mechanics 2=10748
 porous viscoelastic cylinder, fluid filled, under steady press. 0=10622
 prod. of thermo-e.m.f. in Cu, Al and mild steel 0=15999
 quartz, around $\alpha = \beta$ transform. temp. 3=15990
 quartz, stress relaxation, by He or proton irradi. 4=15507
 reactor fuel rod, elastic-plastic deformation 1=1310
 Riemannian geometry calc., vel. to disloc. 4=26468
 rigid-plastic material, hardening 1=11509
 rigid/plastic solids, constitutive laws 2=10741
 rock salt, annealed, neutron irradi. 0=18242
 rock salt crystals, initial stages 0=11979
 rocksalt, rel. to defects 0=13546
 rocksalt, electric charge flow during deformation 3=8767
 rocksalt, inhomogeneous, electrical charge flow 1=7629
 rock salt, n.m.r., variation of Na^{23} resonance intensity 0=21086
 rock salt, optical density, spectral depend. 2=18810
 rock salt, rel. to optical density spectral distrib. 3=17988
 rocksalt, residual stress distrib., near slip lines 1=12396
 rolling, temperature rise, effect on roll-torque and roll-pressure 0=13910
 rolling of viscous materials, stripe pattern 1=12844
 rubbers 0=10266-9
 semiconductors, effect of elec. fields 2=14884
 semiconductors, effect on elec. props. 1=3735
 semiconductors, Group III-V, $\{111\}$ surfaces, rel. to cold working 2=23764
 semiconductors, resistance to indentation rel. to potential 3=23365
 semiconductors, review 2=16951
 semiconductors, rel. to Seebeck effect theory 1=17807
 semi-infinite solid by circular punch 1=6459
 sharp notches, yielding 4=20634
 shear stress under pressure 3=13354
 shock waves, plastic, in infinite isotropic medium 2=4319
 silicone elastomer, and rolling friction 0=5472
 single crystals, X-ray microbeam study 0=18258
 single crystals, yield points and delay times 2=18994
 and sintering, metals, ceramics, polymers 4=7380
 slip element determination from asterisms of Laue spots 1=11516
 snow-ice cylinders under hydrostatic press. 2=23757
 solids, by high-speed liquid impact 1=20329
 spheres, thick-walled, in temp. gradient 2=15517
 square plates, simply supported, dynamic deformation 0=12391
 steel, due to stress above fatigue limits 3=25643
 steel, expansion coeff. 0=19501
 steel, α -phase, oriented microstresses X-ray study 4=23213
 steel, austenitic, influence of martensitic deformation 1=10214
 steel, Cr-Ni austenitic, effect on thermal and elec. cond. 4=12663
 steel, effect on phase composition 1=6456
 steel, effect on X-ray line profiles 4=23143

Plastic deformation—contd

- steel, rel. to hardness and dislocation density 2=16656
 steel, influence of grain size 2=2325
 steel, internal friction 0=1849
 steel, initial processes 3=8764
 steel, low-C, in yield-stress range 4=17744
 steel, Lüder's lines, yield-point elongation 2=23758
 steel, by machining, X-ray study 2=15112
 steel, mild, delayed yield, effect of grain size 3=1227
 steel, mild, normalized, yield front 4=4472
 steel, mild, rel. to thermal e.m.f. 3=13141
 steel, mild, yield point, rel. to Mn, Si, C, N additions 3=13358
 steel, rel. to Mössbauer effect magnitude 4=9810
 steel, Ni-Cr-Mo alloy, rel. to martensite formation 3=3323
 steel, residual stresses, in yield plateau region 3=20712
 steel rods, stress pulse propag. 1=16001
 steel, rolling conditions and crystal texture 4=20785
 steel, shear stress under pressure 3=13354
 steel, by shock waves, rel. to $\alpha \rightarrow \gamma$ phase transform. 2=2322
 steel, stainless, change of density on deform. 2=23746
 steel, stress, lattice, residual, X-ray diffr. meas. 3=18180
 steel, stretching, effect on magnetic hysteresis 3=20578
 steel, surface texture on rolling resistance 0=8132
 steel, yield point, rel. to brittle fracture 2=14880, 21423
 steels, 40, 40G2, 35KhGSA and 37 KhN3A, rel. to phase transformations 4=17763
 stored energy meas., deformation calorimeter 1=2508
 strain ellipsoid in case of large plastic strain 4=4443
 strain hardening debris mechanism 2=21010
 strain magnitude in localized region 4=26469
 strain, plane, boundary value soln. 3=7160
 stress analysis 0=16225
 stress relaxation interpretation 4=26470
 stressed crystal lamellae, electron diffr. pattern, theory 0=10306-7
 strip rolling, theory 1=6458
 sudden changes in various experimental methods, interdependence 3=13348
 superconductors, effect on critical field 2=2960
 superlattices, based on b.c.c. structure 3=23319
 surface deformation, study methods 1=6564
 surface stresses, micro rather than macro 4=7691
 Teflon, positronium decay, meas. 3=10636
 tetrahedral anvil apparatus, deformation and pressure calibration 4=4441
 theory of metal abrasion 0=3164
 thermoplastic films, elec. charged, wrinkling 3=23493
 III-V cpds., thin wafers, spontaneous bending 3=3219
 tilt boundary with dislocations 1=20328
 tin bronze alloys, yielding rel. to vacancy conc. 3=23327
 transition metals, b.c.c. theory 1=11506
 transition theory, strip bending 4=10360
 tubes, elastic-plastic thermal deformation 1=20341
 twinned layers 0=1861
 two-dimensional defects in plastically deformed crystals 4=22594
 two-stage hypothesis 3=11148
 uranium, irradiated at low temps. 1=10022
 vitreous silica, stress relaxation, by He or proton irradi. 4=15507
 white tin, deformation twins from tensile impact 1=14869
 wire, apparatus for modulus change measurements 1=7817
 work hardening, oriented, dependence on deformation temp. 1=10213
 yield, incompressible perfectly plastic material, calc. 3=11157
 yield strength increase, rel. to dislocation loops 3=23323
 yield stress $K_y \sigma_y$, meas. by grain-size and extrapolation 3=23312
 yield stress meas., lower 4=20635
 yielding in anelasticity 1=14890
 yielding in anelasticity, from restitution coeff. meas. 4=13366
 Ag, Ag-Mg oxide, structure 2=6817
 Ag, and alloys, stacking faults 2=8230
 Ag, compression, self-diffusion coefficient 0=2828
 Ag, crystal dislocation relaxation peaks 4=7429
 Ag, defects distrib., thermo-e.m.f. study 1=14247-8
 Ag, dislocation density 1=11206
 Ag, during abrasion with emery cloth 2=8758
 Ag, effect on elec. cond., +20° to -196°C 2=23235
 Ag, elec. cond. changes, 77-293°K 4=22682

Plastic deformation—contd

Ag, high temp. 4=28921
 Ag, latent energy at -196° and 20°C 1=9091
 Ag, latent hardening and secondary slip investigation 4=30766
 Ag, multiple glide and orientation changes meas. 3=5068
 Ag, rigidity effects, recovery 1=1335
 Ag, slip, crystal dislocations 4=26527
 Ag, rel. to stacking fault energy 3=15501
 Ag, and strength, tensile, time var., low temp., anomalous 3=20729
 Ag, temp. dependence of rolling textures 1=7873
 Ag, temperature dependence 1=1020
 Ag, thermo e.m.f. study 1=14254
 Ag, in torsion, self-diffusion 1=7598
 Ag, torsional, and change of elec. cond., law 3=8490
 Ag, torsional deformation, effect on self-diffusion 1=14321
 Ag, torsional, self-diffusion 4=9989
 Ag, vacancy supersaturation 3=13356
 Ag, void growth kinetics 2=20997
 Ag wires, effect on elec. resist. 3=13036
 Ag₂—Al, control by rate of nucleation of kink pairs, flow stress explanation by Peierl's mechanism, 4=30783
 Ag—Al, free-energy change 0=21139
 Ag—Al, single crystals, temp. depend. 0=2 1133
 AgAu, colour change 3=10962
 AgBr, compression and rolling textures 2=14927
 AgBr, study by surface dislocation loops 0=20807
 AgCd, order—disorder transformations 3=3328
 AgCl, bent samples, dislocation distrib. 4=22601
 AgCl, compression and rolling textures 2=14927
 AgCl, internal friction, temp. depend. 0=1848
 Ag Cl, point defects produced 3=12966
 AgCl, stress release, on annealing 1=11505
 Ag and Fe effect on self-diffusion 1=10012
 AgI, cold-worked, strain investigation by X-ray diffr. 4=30784
 AgMg, kink pairs, nucleation rate control of deform., at low temps. 4=30785
 Ag—Sn alloys, cold worked, lattice deformation and recovery 4=23206
 Ag-10% Sn, f.c.c., filings, heavy deform. faulting, by X-ray diffr. 3=8418
 Ag—Zn alloy stress—strain curves 3=15986
 AgZn, enhancement of non-equilib. diffusion 2=10408
 Al alloy crystals, age-hardened, yield 4=10370
 Al alloy, effect on X-ray line profiles 4=23143
 Al alloy, effect on yield condition 4=26490
 Al alloy 2024, machine stiffness effect on low-temp. plastic instability 4=30765
 Al alloys, age-hardened 3=3222
 Al alloys containing intermetallic cpds. 3=20707
 Al alloys, elongation, slip and ageing 1=3969
 Al alloys, yield point rel. to brittle fracture 2=14880
 Al, conductivity, elec., low temp. 4=22667
 Al crystal plates, by X-ray diffr. 2=12850
 Al, cyclic structure under large strain ranges 3=20740
 Al, cyclic torsion, dislocation processes 3=25609
 Al, deform. texture, new study method 4=13641
 Al, dislocation density 1=11206
 Al, effect on neutron damage, 1.8°K 3=6554
 Al, effect on X-ray diffraction lines 1=15057
 Al, rel. to electrical resistance, at 76°K 1=11252
 Al, electron emission 0=1143
 Al, electron microscope study 0=1859
 Al, exo-electron emission 2=5357
 Al, exo-emission on plastic deformation 1=12590
 Al, high temp. 4=28921
 Al, indentation tests 2=14882
 Al, induced thermal stress, -196° to $+350^{\circ}\text{C}$ 2=21426
 Al, initial stages 1=3971
 Al rel. to integrated X-ray intensity 1=20348
 Al, internal friction 0=1849
 Al, latent hardening and secondary slip investigation 4=30766
 Al, microstrain curves, moments 4=26491
 Al mono- and polycrystals, comparison 1=3975
 Al, nonuniform distrib., polycrystals study 1=12591
 Al notched foils, tearing 0=11984
 Al, $1.4-77^{\circ}\text{K}$ 1=12594
 Al, oriented, mechanism 2=21424
 Al, plastic wave propag., means and theory 2=21416

Plastic deformation—contd

Al, polycrystalline, creep processes 0=16216
 Al, polycrystalline, work-softening effect 0=4562
 Al polycrystals, surface slip band transitions 4=7386
 Al, powder, lattice defects 3=20195
 Al, quenched, rel. to dislocations 3=6515
 Al, recovery of internal friction 0=8111
 Al, single crystal formation, substructure 4=26590
 Al, single crystal plates 0=8107
 Al single crystal plates 1=14881
 Al single crystals, high temp. deformation 1=14905
 Al, single crystals and polycrystalline, activation energy and activated vol. rel. to surface condition 4=30763
 Al single crystals, preferential deformation in surface region 1=14878
 Al single crystals, recrystallization effect 4=23325
 Al single crystals, size effects tested in compression 4=30762
 Al single crystals, tensile deformation at low temps. 0=18253
 Al, $\sim 600^{\circ}\text{C}$ 3=18183
 Al(6061-T6), residual strain, rel. to unloading behaviour 4=23119
 Al, stored energy and elec. cond. 1=17508
 Al, and strength, tensile, time var., low temp., anomalous 3=20729
 Al, striations, etching, electron microscope exam., by replica 3=23534
 Al, substructure formation, high temp. high strain rate deformation 4=26492
 Al, texture, rel. to cold drawing 3=25783
 Al wires, rel. to thermal expansion 1=20520
 Al, X-ray microbeam study 0=6393
 Al—20% Ag with or without trace elements, effect on aging process 4=23250
 Al and Al alloy V-95, $1.6-300^{\circ}\text{K}$ 0=1867
 Al and Al alloys, resistance, effect of strain rate and temp. 4=28931
 Al, Al—Cu, anelasticity, $4.2-300^{\circ}\text{K}$ 0=10258
 Al—Al₂O₃ alloys, deform. induced substruct. 4=29163
 Al—Cu aged alloys, mechanism of hardening 0=18256
 Al—Cu alloy, effect on clustering 3=18182
 Al—Cu alloy, effect of θ' phase 1=14876
 Al—Cu alloy, effect on elec. resistivity and crystal defects 1=14877
 Al—Cu single crystals 0=18264
 Al—4% Cu foils, rel. to bulk material 4=4458
 Al—4% Cu with or without trace elements, effect on aging process 4=23250
 Al—Fe alloys, ferromagnetism 1=15129
 Al—Mg alloy, statically or dynamically deformed, ductility 4=15721
 Al—Mg alloys, during creep 3=3226
 Al—Mg alloys, effect on structure and properties 1=10266
 Al—Mg alloys, temp. and deformation-rate depend. 0=1931-2
 Al—Mg—Zn alloys, aged, interior fatigue deformation 0=21240
 Al—7%Mg alloy, quenched, rel. to dislocations 3=6515
 Al—10%Zn, effect on pre-precipitation 3=20896
 Au, crystal dislocation relaxation peaks 4=7429
 Au, effect on elec. cond., $+20^{\circ}$ to -196°C 2=23235
 Au, effect on elec. resistance minimum at low temp. 0=2847
 Au, effect on X-ray diffr. lines 2=23841
 Au evap. thin films 0=10331
 Au films 1=1452
 Au films, electron microscope study 0=8286
 Au films, vac. deposited, 2000-50 000 Å 4=23575
 Au, internal friction peaks, low temp. 3=3212
 Au, oriented crystals 4=26512
 Au, rel. to point defect prodn. 3=22720
 Au single crystals, activation energy and activated vol. rel. to surface condition 4=30763
 Au—20% Cd, f.c.c. filings, heavy deform. faulting, by X-ray diffr. 3=8418
 Au, vacancies conc., effect on self diffusion 4=28443
 Au wires, effect on elec. resist. 3=13036
 Au wires, rel. to excess vacancy liquidation 3=4862
 Au—Pd alloys, effect on elec. resistivity 1=14360
 Be, anisotropy and fracture 2=4343

Plastic deformation—contd

- Be, in brittle state, above 500°C 4=1930
 Be bronze, effect on ultimate tensile strength, temp. depend. 4=28936
 Be, glide elements, Lave asterisms 2=4317
 Be at high temp., twinning and recrystallization 2=6836
 Be, polycryst., microstrain, annealing effect 3=20190
 Be, rolled, and fracture, 20°-800°C 4=26498
 Be single crystals, 500-900°K 4=1929
 Be, strain hardening rate transition rel. to dislocation structure 4=17726
 Be, rel. to temp. 1=12593
 Be, twinning by high temp. rolling 2=2346
 Bi, anisotropy-induced, under press. 4=30795
 Bi, during thermal cycling 2=8728
 Bi, polycryst., under pressure to 20,000 atm. 3=16017
 Bi, twin interaction with obstacles 2=4334
 Bi₂Te₃, effect on elec. props. 2=18697
 C_γ-1% V at 200°-600°C 2=8771
 CaF₂, rel. to X-ray line broadening 4=23523
 Cd, rel. to dislocation multiplication and structure 3=23324
 Cd, effect on mech. props. 2=23743
 Cd, initial 3=18181
 Cd, polycryst., ductility 3=15994
 Cd, polycryst., -196°-200°C 3=6800
 Cd, at 78°K, recovery spectra, defect behaviour 4=13401
 Cd-Ag alloy, -196°-200°C 3=6800
 Cd-Mg alloy, -196°-200°C 3=6800
 CdTe, dislocations, two types 3=10664
 CdS, i.r. absorption bands, position 2=18847
 Co, annealing meas., Frenkel pairs recomb. 4=15471
 Co, h.c.p., line breadth meas. 3=11160
 Co, lattice strain 2=15107
 Co, lenticular and very narrow twins 3=8800
 Co and magnetic initial susceptibility and coercive force 3=20576
 Co powders, elastic anisotropy and lattice strain 3=1231
 Co, slip line patterns and hardening curves 3=18187
 Co, stress relaxation 3=18172
 Co-Ni-Mn, coercive force var. 2=23657
 Co-Pt alloys, rel. to remanent magnetization and elec. resistivity 4=22981
 Cr, rel. to electrical resistivity-temp. relationship 1=10024
 Cr, low temp. 2=8717
 Cs, 1.4-77°K 1=12594
 CsBr, single crystals, kinking, orientation depend. 0=13542
 CsCl-type polycrystals, compression texture 2=14928
 CsI, kinking mechanism 1=14891
 Cu, Al, Ni, structural changes at high temp. and strain rates 2=2320
 Cu alloy, internally oxidized 4=26509-10
 Cu alloys, rel. to stacking-fault energy 2=3924
 Cu alloys, yield point, appl. of Petch formula 4=7420
 Cu, anelasticity, 4.2-300°K 0=10258
 Cu-base alloys, yield point and Lüders bands 2=23749
 Cu, crystal dislocation relaxation peaks 4=7429
 Cu crystal, large-angle grain boundary formation 4=10378
 Cu crystals, effect of neutron irradiation 1=9092
 Cu, defects distrib., thermo-e.m.f. study 1=14247-8
 Cu, dislocation array obs. 3=15496
 Cu, dislocation distrib., etch pit meas. 4=9971
 Cu, rel. to dislocations 3=22788
 Cu, dislocations, X-ray investigation 4=22596
 Cu, effect on Ag diffusion 1=3689
 Cu effect on internal friction 2=12021
 Cu, effect on n.m.r. 1=14834
 Cu, effect on neutron damage, 1.8°K 3=6554
 Cu, effect on shear wave attenuation in mag. field 0=523
 Cu, effect on specific heat 1=7535
 Cu, effect on X-ray line profiles 4=23143
 Cu, elastic-plastic transition, det. by etch-pit technique 1=14888
 Cu, elec. resist. meas., relax. behaviour 4=10025
 Cu, elec. resist., temp. depend. 1=14358
 Cu, explosive, rel. to substruct. 4=29164
 Cu, expt. and theory 4=10376
 Cu, filing, stacking faults, by X-ray diffr. broadening 3=20208
 Cu, flow stress, rel. to strain rate 2=6735
 Cu foil crystals, rel. to dislocations 4=1936-7

Plastic deformation—contd

- Cu, formation of dislocation loops 4=28469
 Cu, formation of point defects 3=22711
 Cu, at 4.2°K, dislocation relax. 3=8757
 Cu, at 4.2-78°K, elastic modulus changes 2=18981
 Cu, generation of point defects and dislocations 1=14260
 Cu, generation of thermo-e.m.f. and effect on micro-hardness 0=15998
 Cu, high press., effect of pores 4=23146
 Cu, induced thermal stress, -196° to +350°C 2=21426
 Cu, influence on creep and damping capacity at low temps. 4=23147
 Cu, initial stages 1=3971
 Cu, internal friction, interstitial conditioned 4=1938
 Cu, interstitials prod., age-hardening data 2=10376
 Cu, latent energy of deform. 2=8733
 Cu, at liquid N₂ temp., stored energy 1=14906
 Cu, microstrain curves, moments 4=26491
 Cu, n.m.r. line broadening 0=21083
 Cu, neutron-irrad., slip lines and temp. depend. 4=10395
 Cu, plastic torsional strain cycling 4=1940
 Cu, plastic wave propag., meas. and theory 2=21416
 Cu, polycryst., screw, very high 4=28943
 Cu polycrystals, surface topography 3=18199
 Cu, polycrystalline, subgrain formation 4=30867
 Cu, polygonization 1=12377
 Cu, rigidity effects, recovery 1=1335
 Cu, rolling, texture transform., var. with deform. temp. 4=7481
 Cu, shear stress under pressure 3=13354
 Cu single crystals, activation energy and activated vol. rel. to surface condition 4=30763
 Cu single crystals, by alternating stresses, hardening 0=8124
 Cu single crystals, radius effect, 50-150 μ 4=20652
 Cu single crystals, effect on u.s. absorpt. 2=16599
 Cu, sintered, internal friction 1=9084-5
 Cu, in sliding friction 2=14913
 Cu solid solutions, effect on X-ray diffr. pattern 0=1910
 Cu, stored energy 1=6453
 Cu, stored energy meas. 3=15988
 Cu, structural changes, at low temp. 3=20945
 Cu, rel. to submicrostructure 1=10268
 Cu, substructure formation, high temp. high strain rate deformation 4=26492
 Cu, surface contact area, effect of applied press. 2=14914
 Cu targets attacked by shaped charges 0=21104
 Cu, temp., strain rate var. 4=23145
 Cu, temperature dependence 1=1020
 Cu, rel. to thermal capacity, -196°C to +120°C 2=6274
 Cu, thermo e.m.f. study 1=14254
 Cu, unloading effects in three stages, meas. 4=20654
 Cu, various rates and temps., recovery of induced thermal force 3=8777
 Cu, at very low temps., effect on elec. cond. 2=14492
 Cu whiskers 0=18254
 Cu whiskers 1=6481
 Cu whiskers, slip lines 1=1329
 Cu, yield stress, 4°K, under irradiation 3=10698
 Cu, yield stress, vacancy cluster effects 3=25618
 Cu-Ag-Au alloys, rel. to reflection spectra 4=1719
 Cu-Al, explosive, rel. to substruct. 4=29164
 Cu-Al (14.3 at. %) from density, hardness, cond. elec., temp. var. 4=7487
 CuAl₃, up to m.p. 3=20718
 σ Cu-Al single crystals, microstraining 3=20706
 Cu-(5-25%)Al submicrostructure 1=10268
 Cu-Al (6%), tension, easy glide cross slip 4=7423
 Cu-As alloy, effect on thermal and elec. cond. 0=21131
 Cu-Au, shear slip, differences between ordered and disordered alloys 4=7417
 Cu₃Au, and Hall effect increase 4=22669
 Cu₃Au, resistivity 2=8273
 Cu₃Au, yield stress rel. to antiphase domain size 3=16001
 Cu₃Au, yield point, for interrupted deform., var. with ordering, strain 3=25623
 Cu-Be crystals, age hardened 3=23315
 Cu-Co alloy, mag. anisotropy induced by cold rolling 1=10136
 Cu-3.1 wt% Co alloy, coherency loss in overaged region 4=30776
 Cu-Ge alloy, tensile deformation modes 4=7422

Plastic deformation—contd

- Cu-Ni alloys, effect on paramag. props. 2=18891
 Cu₂O, effect on fundamental absorption edge spectrum 1=12496
 Cu-Pd, shear slip, differences between ordered and disordered alloys 4=7417
 Cu-Sb alloy, mech. eqn. of state for yield 3=6870
 Cu-10% Si f.c.c., filings, heavy deform, faulting by X-ray diffr. 3=8418
 Cu-Si-(Mn) alloys, rel. to atomic rearrangements 3=22701
 Cu-Si-Mn, obs. using X-ray diffraction effects 4=10577
 Cu-(5-25%)Sn submicrostructure 1=10268
 Cu-Ti, ageing, structure changes 1=15136
 Cu-Ti alloy, rel. to phase transformations 3=5126
 Cu-Zn alloy, effect on thermal and elec. cond. 0=21131
 Cu-Zn alloy, f.c.c., torsional, diffusion rates 3=12999
 Cu-Zn alloy, identification of lattice imperfections 0=9900
 Cu-Zn, latent energy of deformation 2=8733
 Cu-Zn, polygonization 1=12377
 Cu-(5-25%)Zn submicrostructure 1=10268
 Fe alloys, with Al and Cr, coercive force var. 2=23657
 Fe, α -phase, effect of sudden change of strain rate 4=13414
 Fe, α -phase, X-ray diffr. analysis 3=17662
 Fe, anelasticity, 4.2-300°K 0=10258
 Fe, Armco, yielding 3=11176
 Fe, creep and recrystallization processes, high-temp. 4=26514
 Fe, crystal orientation, due to layer of oxide formed at high temp. 4=1945
 Fe, rel. to crystal structure change 4=28960
 α -Fe, dislocation pile-up 1=4984
 α -Fe, dislocations, irregular sub-boundary networks 0=17943
 Fe, during phase transformations, α - γ , γ - δ , wires 3=23471-2
 Fe, effect on C diffusion 1=3683
 Fe, effect on mosaic structure 0=16229
 Fe, effect on specific heat 1=7535
 Fe, electrolytic, yield and flow stress 1=20352
 Fe, Fe-C alloys, yield stress, neutron effects, Petch relation anomalies 4=10387
 Fe, at 4.2-77°K 0=8118
 Fe, hydro-extruded 3=1215
 Fe, inelastic limit, 90-300°K var. 2=23750
 Fe, latent energy of deform. 2=8733
 Fe, low C content, time-depend. props. 3=15992
 Fe(0.017 wt.% Ni, 0.004 wt.% C, 0.005 wt.% N), H yield point 2=21420
 Fe, 1.4-77°K 1=12594
 Fe, oriented, mechanism 2=21424
 Fe, polycrystalline, rel. to grain size 4=15709
 Fe, polycrystalline, upper yield stress 4=10383
 Fe, resistance to plastic deformation, effect of temp. 4=17734
 Fe single crystal plates 1=14868
 Fe single crystals 1=20350
 Fe, single crystals, brittle fracture conditions 0=18281
 Fe, single crystals, on rolling, effect of orientation 3=13359
 α -Fe single crystals, preferential deformation in surface region 1=14878
 Fe, sintered, internal friction 1=9084-5
 Fe, slip bonds in single crystals 1=14902
 Fe and slip, intercrystalline, X-ray exam. 4=13432
 Fe, stress, lattice, residual, X-ray diffr. meas. 3=18180
 Fe, technical, effects of strain-ageing 4=13415
 Fe, temp. depend., rel. to initiation by twinning 2=10756
 Fe, tensile of single crystals 0=4561
 Fe, tensile: yield strength, rel. to temp. and annealing 3=13349
 Fe, torsion 700°-1250°C, microstructural changes 3=6857
 Fe whiskers, obs. of paired screw dislocations 0=3182
 Fe whiskers, torsional plasticity, 20°K to room temp. 3=8763
 Fe wires, effect on internal friction 1=14854
 Fe, yield, comparison of single with polycrystals 4=13413
 Fe, yield plateau after deformation ageing 1=6455
 Fe, yield point, and dislocation movement length 4=23162-3
 Fe, yield point rel. to temp. and dislocation-intrusion atom interaction 3=5065

Plastic deformation—contd

- Fe, yield points, by reapplication of load at low temp. 3=11150
 Fe, yield stress, effects of neutron irradiation 3=11168
 Fe, yield stress for two strain rates 3=15991
 Fe, zone refined 0=16243
 Fe-Al (16%), and twinning 3=18236
 Fe₃Al, yielding, ductility, and deformation modes, effect of long-range order 4=17735
 Fe₃C in steel, and increase in imperfections 4=4057
 FeCo-2%V, yielding, ductility, and deformation modes, effect of long-range order 4=17735
 Fe-Cr alloy, Fe diffusion, 900-1000°C 1=14309
 Fe-Cr alloys, single crystal, tensile 3=11156
 Fe-Cr-Ni, rel. to martensitic transform. 3=20883
 Fe-Cu alloys, resistance to, in phase transformation 1=15137
 Fe-Mn alloys, effect on phase transformations 4=13493
 Fe-Ni alloy, rel. to martensitic transform. 3=20883
 Fe-Ni alloys, rel. to phase transformations 4=17763
 Fe-Ni alloys, resistance to, in phase transformation 1=15137
 Fe-Ni, mag. coercivity 1=2474
 Fe-Ni-C alloy, martensitic transformation depend. 4=17764
 Fe-Ni-Cr-Co, cold deformation, creep 0=6312
 Fe-Ni-Ti alloy, effect on ultimate tensile strength, temp. depend. 4=28936
 FeO, effect on recrystallization 2=21422
 Fe-Si alloy, influence of Si content on deformation rate 4=7431
 Fe-Si alloy, microphysical, after spark discharge 1=17529
 Fe-Si alloy, slip propag. over grain boundaries 4=20663
 Fe-Si(3%), crack nucleation, and brittleness 4=13412
 Fe-Si crystal, surface deformed by engraving or steel ball 2=6357
 Fe-Si (3.1%) crystal twin dislocation networks 4=17432
 Fe-3%Si, dislocations 2=10386
 Fe-3%Si, dislocations 3=20176
 Fe-Si (4%), due to torsion, effect on domain wall velo. 3=11068
 Fe-Si, initiation of slip 1=3984
 Fe-Si 3.25%, orientation and temp. depend. 3=20713
 Fe-Si(3.5%) and slip, intercrystalline, X-ray exam. 4=13432
 Ga, effect on crystal growth 4=29050
 Ga films, super-conductivity 0=16955
 GaAs, lattice strain, rel. to isolated defects 3=22861
 GaSb, dislocation-free 3=23322
 Ge, at and below room temp. 3=11155
 Ge, in bending, time depend. 0=13913
 Ge, delayed yield 0=2876
 Ge, dislocation arrays 3=10669
 Ge, dislocation behaviour, X-ray diffr. 2=12906
 Ge, dislocation density 2=21040
 Ge, rel. to dislocation distrib. and density 3=15490
 Ge, dislocation-free 3=23322
 Ge, rel. to dislocation motion model 2=10754
 Ge, dislocations and work-hardening meas. 4=13405
 Ge, during deformation, interaction with dislocation, electron microscope study 4=28470
 Ge, dynamic compression study 4=20655
 Ge, effect on photocond., 150°-300°C 4=30664
 Ge, 550° to 780°C in N₂ atmosphere 3=18186
 Ge, formation of dislocation 2=10959
 Ge, hole-cond. type, linear dislocation effects 0=18020
 Ge, microhardness meas., indentation micro-structure 1=20362
 Ge, microhardness meas., indentation micro-structure 2=8737
 Ge, minority carrier trapping centres 4=12673
 Ge, n-type uniaxial deform, rel. to elec. props. 2=8331, 14532
 Ge p-n junctions, reverse characteristics 0=13594
 Ge p-type, elec. of props. depend. 0=13596
 Ge point defects, Hall effect study 2=6449
 Ge, by rolling, 700°-800°C 4=23153
 Ge, rel. to Seebeck effect meas. 1=17692
 Ge, yield process and ideal easy glide 4=10379
 Hg, 1.4-77°K 1=12594
 InAs, new mode of deformation 0=21116
 InSb, bending 2=2323
 InSb, delayed yield 0=2876

Plastic deformation—contd

- InSb, dislocation-free 3=23322
 InSb, dislocation mobility 2=23189
 InSb, rel. to dislocation motion model 2=10754
 InSb, dynamic compression study 4=20655
 InSb, lattice strain, rel. to isolated defects 3=22861
 InSb, rel. to strain-rate, temp. and O content 3=1223
 InSb, uniaxial compression, effect on elec. props. 0=1858
 InSb, yield drop rel. to heating in O₂ 3=13353
 KBr, effect on thermoluminescence 3=23130
 KBr, and thermoluminescence 4=17588
 KCl, charge separation due to disloc. motion 4=9960
 KCl crystals, electrical cond. 1=19763
 KCl crystals, γ -irrad., effect on thermal bleaching of colour centres 4=30584
 KCl, effect on F-centre diffusion rate 1=8919
 KCl, effect on ionic conductivity, 25-250°C 1=8929
 KCl, effect on prod. of F, M- and V-centres 4=10002
 KCl, effect on V₂-band formation 4=20318
 KCl, effect on X-ray colour centre prod. at 5 and 78°K 0=6050
 KCl, effect on X-ray irrad. effects 3=6545
 KCl, neutron and hard irrad., effect on resist. to plastic deform. 4=10352
 KCl, rel. to thermal glow luminescence 3=969
 KCl, rel. to thermal glow luminescence 3=23104
 KCl tubular whiskers 4=28976
 KCl·CaCl₂ crystals, effect on dielec. losses 4=26103
 KCl-KBr, temp. effects 4=4484
 KI, dark current, Gyulai-Hartly effect 2=4067
 KI, effect on elec. conductivity (Gyulai-Hartly effect) 1=14390
 KI, luminescence 2=10617
 KI, n. m. r. study of recovery 2=21427
 Li, effect on electron spin resonance lines 1=6416
 Li, inducing transformation at low temp., dilatometric study, rel. to elastic props. 4=10430-1
 Li, 1.4-77°K 1=12594
 Li rel. to polymorphic transitions (1.5° to 300°K) 1=11508
 LiF, Bauschinger effect 4=13422
 LiF crystals, surface study by Berg-Barrett method 1=2509
 LiF, diamond indenter imprint 2=16970, 18991
 LiF, rel. to dislocation mobility and damping 2=12434
 LiF, rel. to dislocations around indentation 3=12970
 LiF, effect on internal friction meas. 2=21413
 LiF, effect on internal friction rel. to theory 2=10738, 14871
 LiF, effect on u.s. attenuation 2=20927
 LiF, flow stress and dislocation density 4=28467
 LiF, internal friction rel. to dislocation density 1=14856
 LiF, rel. to internal friction recovery 4=10389
 LiF, neutron and hard irrad., effect on resist. to plastic deform. 4=10352
 LiF, X-ray patterns, unusual effects 3=20948
 Mb, crystal dislocations, on heat treatment, hard particle ring sources 4=4054
 Mg alloys, yield points and heat treatment 4=15710
 Mg, rel. to dislocation density 2=6344
 Mg, wave struct. prod. by impact of high velo. steel cylinders 4=20668
 Mg-Al alloy, creep mechanisms 2=18996
 Mg, Cd, ordering kinetics 4=1995
 Mg-Mn single crystals, work hardening 3=25624
 MgO, crack propagation 0=17930
 MgO, dislocation distribution 3=25283
 MgO, fatigue deformation, slip band behaviour 4=4475
 MgO, motion of dislocations and slip 3=5071
 MgO, prod. of edge-dislocation loops 3=25277
 MgO, rolling contact stresses 3=23321
 Mg-Zn foils, precip. phenomena 2=21554
 Mn austenite, rel. to damping capacity 4=23183
 Mn steel, effect on $\gamma \rightarrow \epsilon$ transform 2=23876
 Mn-Fe alloys 4=20669
 Mn-Fe (62%), var. temp., crystal stacking fault prob. 4=20286
 Mn-Mg alloy, tensile and compressive creep deformation, effect of grain size 4=30781
 Mo, b.c.c., 4.2° to 300°K 3=20174
 Mo, crystal dislocations, var. stress 3=22772
 Mo, dislocation movement 4=25939

Plastic deformation—contd

- Mo, dislocations 0=1589
 Mo, ductile-brittle transition 2=1475, 6752, 7636
 Mo, 4.2-700°K, microstructure 2=23755
 Mo, after neutron-irradiation 1=20377
 Mo Permalloy, effect on coercive force, ageing studies 1=6543
 Mo, resistance to plastic deformation, effect of temp. 4=17734
 Mo single crystals, slip traces 4=1956
 Mo, work function of electron emission 4=8796
 Mo, yield phenomena 0=21106
 Mo-Re alloys, stacking faults study 2=23197
 Mo-35 at.% Re, crystal twinning 3=23380
 Na, 1.4-77°K 1=12594
 Na, polymorphic transformation 3=3224
 NaCl, Bauschinger effect 4=13422
 NaCl, charged dislocation behaviour 3=8435
 NaCl, charge effects on dislocations 3=25278
 NaCl, charge separation due to disloc. motion 4=9960
 NaCl crystals, caused by impact treatment 4=30787
 NaCl, diamond indenter imprint 2=16970, 18991
 NaCl, dislocation processes at surface 3=8785
 NaCl, dislocation relax. rel. to u. s. absorpt. coeffs. 4=28454
 NaCl, effect on structure 0=16366
 NaCl, elec. charge generation 3=23320
 NaCl, electrical signal due to motion of dislocations 1=5043
 NaCl, rel. to F-centre formation 3=13011
 NaCl, rel. to further crystal growth 4=13548
 NaCl, high temp., recrystallization grains 1=14874
 NaCl, influence on effect of γ -irradiation 1=11247
 NaCl, rel. to mosaic block structure 3=20209
 NaCl, point defect generation by cyclic loading 1=6483
 NaCl polished surfaces, at high temp. 2=4323
 NaCl, progressive lattice distortion, electron diffr. study 0=10306
 NaCl, single crystal, elec. effects 3=900
 NaCl single crystals, ductility, effect of atmospheric reaction 3=13355
 NaCl, single crystals, grain boundary effect 4=23209
 NaCl, spatial distrib. after impact treatment 4=4487
 NaCl, spiral configurations 4=12767
 NaCl, rel. to stress and strain 4=30786
 NaCl, rel. to thermal conductivity 4=1411
 NaCl whiskers 1=14901
 NaCl whiskers 1=20448
 NaNO₂, rel. to absorption spectrum 4=7154
 NaNO₃, twin interaction with obstacles 2=4334
 Nb, anelasticity, 4.2-300°K 0=10258
 Nb, from creep at low temps. 4=28972
 Nb crystals, pure, rel. to orientation, meas. 4=20677
 Nb, ductility at He temps. 4=23191
 Nb, effect of strain rate 3=1237
 Nb, effect on supercond. props. 2=2960
 Nb, inducement of internal friction peaks 3=23303
 Nb, rel. to O₂ in solid solution 4=1958
 Nb, polycrystalline, early stage 4=23192
 Nb, stress effect on Lüders band velocity 4=23193
 Nb, superconducting, effect on thermal cond. 0=8938
 Nb, rel. to substructure after filing 4=23194
 Nb, yield and flow stress meas., 4.2-373°K, and thermally activated flow mechanism 4=28970-1
 NbC, effect of temp., strain rate, surface and composition 4=15718
 Nb-Zr alloys, effect on supercond. 3=21667
 Nb-Zr (25%), and supercond. crit. current-mag. field var. 4=27612
 Nb-Zr(25%) and superconductive magnetization 4=11479
 Nd in Mg, supersat. solid soln., effect on decomposition 4=10435
 Ni alloys, bending and twinning 0=6302
 Ni, and annealing, rel. to elastic limit, hardness, and elec. resistivity 4=13431
 Ni austenite, rel. to damping capacity 4=23183
 Ni, cold welding, structural charges 2=8734
 Ni containing H₂, serrated yielding 4=15711
 Ni, creep effects 2=21433
 Ni crystals, mag. props. 2=10652
 Ni, cube-texture, crystal geometry of tensile deformation 4=26521

Plastic deformation—contd

- Ni, defects distrib., thermo-e.m.f. study 1=14247-8
 Ni, deformation ageing, theory 3=5072
 Ni, dislocation density 1=11206
 Ni, dislocation structure, effect of alloying 3=10658
 Ni, effect on compressive yield stress 1=10216
 Ni, effect on diffusion rate in Ni-S system 1=983
 Ni, effect of dissolved H 3=11153
 Ni, effect on H₂ diffusion 0=15869
 Ni, effect on magnetoresistance, analysis 4=28533
 Ni, effect of neutron irradi., ferromag. meas. 4=10394
 Ni, effect on sub-microstructure 0=16253
 Ni, 4.2° and 300°K, effect on creep at 700°K 4=13429
 Ni, "ghost" grain boundaries, use as markers 4=7675
 Ni, hard-worked, magnetostriction 0=1800
 Ni, influence on magnetostriction constant 1=14727
 Ni, latent energy, with slight Sn impurities 4=13436
 Ni, at liquid N₂ temp., stored energy 1=14906
 Ni, macroscopic strength inhomogeneity 0=6307
 Ni, rel. to mag. coercive force 2=18904
 Ni, mag. coercivity 1=2474
 Ni, and mag. initial suscept. 4=22996
 Ni, and magnetostriction 4=1837
 Ni, mechanical twinning 3=25621
 Ni, 1.4-77°K 1=12594
 Ni, oriented, mechanism 2=21424
 Ni, polycryst., mag. and electron micr. studies 4=4477
 Ni, polycrystalline, rel. to cell size 4=26522
 Ni polycrystals, X-ray diffr. data 0=6354
 Ni, polygonization and creep, 550°, 700° and 900°C 3=20715
 Ni, recrystallization var. time, microscopic obs. 4=26604
 Ni, residual stresses, rel. to surface flow stress 2=8730
 Ni, sintered, internal friction 1=9084-5
 Ni, and slip, intercrystalline, X-ray exam. 4=13432
 Ni, stacking faults, elec. cond. change 3=20206
 Ni, substructure formation, high temp. high strain rate deformation 4=26492
 Ni, substructures, expt. 4=10587
 Ni tapes, cold rolling, and mag. reversal 4=13208
 Ni, thermo e.m.f. study 1=14254
 Ni, due to torsion, effect on domain wall velo. 3=11068
 Ni tubes, anisotropy due to earlier loading 1=20331
 Ni tubes, deviations from plasticity laws 1=5082
 Ni tubes, deviations from plasticity laws 1=10211
 Ni, yield point, rel. to ageing 2=4325
 Ni, yield point, temp. dependence rel. to purity 3=5066
 Ni, yield stress, effect of strain rate 4=4481
 Ni-(Al, Co), mechanism 3=23332
 NiBr₂ platelets 2=10749
 Ni-Co alloy single crystals. 2=16958
 Ni-Co alloys, stacking faults, elec. cond. change 3=20206
 Ni-Co single crystals 4=4479
 Ni-Cr alloy, irregular deformation, regular features 4=7379
 Ni-Cr (18.3%), K-state, resist. rate, rel. to temp. 2=23751
 Ni-Cr (13%) and slip, intercrystalline, X-ray exam. 4=13432
 Ni-Cr with Ti, effect on resist. 2=18634
 Ni-Cu alloys, shear and diffusion deform. under creep 2=23760
 Ni-Cu alloys, stacking faults, elec. cond. change 3=20206
 Ni-Cu (30%), due to torsion, effect on domain wall velo. 3=11068
 Ni-Fe alloy, heat treatment effects 4=26524
 Ni-Fe alloys 4=20669
 Ni-Fe alloys, rel. to resistivity 4=7437
 Ni-Fe, effect on coercivity, temp. depend. 1=2475
 Ni-Fe (64%), var. temp., crystal stacking fault prob. 4=20286
 Ni₃Fe, coercive force var. 2=23657
 Ni₃Fe-(3%)Mo, rel. to K-state formation 3=13531
 Ni₃Fe, rel. to short-range order during ageing, 300°-450°C 4=23285
 Ni-Mn alloy, effect on ordering 3=5133
 Ni₃Mn, changes in magnetic saturation 0=21112
 Ni₃Mn, coercive force var. 2=23657
 Ni-Mo alloys, K-state formation, effect of atomic defects 4=23283
 Ni-Ti, magnetic study of age hardened specimens 4=23189
 Ni-Pt alloys, rel. to short-range order 4=13499
 Pb, cratering by hypervelocity steel pellets 2=6729
 Pb, deformation distribution, fatigued in vacuo 1=7825

Plastic deformation—contd

- Pb, microstresses, analysis by X-ray diffr. 3=20704
 Pb, 1.4-77°K 1=12594
 Pb, overstressed microregions 3=11142
 Pb, resistance, effect of strain rate and temp. 4=28931
 Pb, superconducting, effect on thermal cond. 0=8938
 Pb-Bi, superconducting, effect on thermal cond. 0=8938
 Pb-Te alloy, indentation tests 2=14882
 PbTe, X-ray diffr. study 3=18203
 Pt, crystal dislocation relaxation peaks 4=7429
 Pt, grain boundary component, temp. var. 4=23195
 Pt wires, deformed and quenched simultaneously 4=1462
 Pt₃Co, changes in magnetic saturation 0=21112
 α-Pu under compression, modes 4=28973
 Pu₂C₃ and PuO₂ lattice expansion rel. to self radiation 2=23172
 Re, effect on supercond. props. 2=2960
 Sb, prod. of imperfections 1=972
 Sb, twin interaction with obstacles 2=4334
 Se, effect on temp. and voltage depend. of semicond. props. 4=28567
 Si, Al-doped, rel. to internal friction 1=1303-4
 Si crystal wafer, crow track formation by mechanical force 4=28978
 Si, dislocation-free 3=23322
 Si, during cleavage, localized in surface 4=7676
 Si, effect of dislocations and O precip. 2=16956
 Si, i.r. birefringence study 0=1723
 Si, n-type, low field magnetoresistance effect 1=8950
 Si, over -196 to 1380°C range 3=5064
 Si p-type, elec. props. depend. 0=13596
 Si, trapping, recomb. centres 2=18691
 Sn, effect on superconducting transition temp. 3=19125
 Sn impure crystals under impact 1=3985
 Sn, initial 3=18181
 Sn, overstressed microregions 3=11142
 Sn single crystals, deformation twinning under impact loading 0=21115
 Sn, twin interaction with obstacles 2=4334
 Sn, white, twin production 0=4585
 Ta, dislocation var., effects of temp., struct. 4=28985
 Ta, effect on mech. props. 2=23743
 Ta, effect on resistivity 3=13037
 Ta, effect of strain rate 3=1237
 Ta, effect on superconducting characteristics 0=2292
 Ta, rel. to internal friction peaks 3=18167
 Ta, resistance to plastic deformation, effect of temp. 4=17734
 Ta rel. to supercond. resist. transition 2=9489
 Ta, twinning 0=18294
 Ta under heat and electric field 1=20662
 Ta, work function of electron emission 4=8796
 Ta, yield and flow stress meas., 4.2-373°K, and thermally activated flow mechanism 4=28970-1
 α-Ta₂O₅ boule, rel. to dielec. const. peak 4=12964
 Ti, point defect prod. 1=12380
 TiBr-TiI, single crystals, kinking, orientation depend. 0=13542
 TiC, effect of temp., strain rate, surface and composition 4=15718
 Ti-Mn alloy, statically or dynamically deformed, ductility 4=15721
 Ti-Mo alloy, martensitic phases as deformation products 3=23477
 TiNi, low-temp., rel. to phase changes 3=13519
 TiO₂, deformation by slip 3=23328
 TiO₂, fracture mechanism rel. to stoichiometry 4=13443
 TiCl₃ rel. to luminescence 3=952
 α-U 1=20354
 U, α → β phase transform. 3=1354
 U, -196°C, rel. to pre-work hardening at 20°C 4=13449
 U, cold rolling, X-ray line-shift study 3=8766
 U, crystal dislocations, followed by heat treatment 4=4058
 U, rel. to crystal structure change 4=28960
 α-U, effect of Fe and Al on ductile/brittle transform; -183° to 350°C 4=28987
 U, effect of orientation and temp. 2=4322
 α-U, rel. to grain size 4=7462
 α-U, monoclinic 1=20355
 U, 1.4-77°K 1=12594
 U polycrystals, by thermal cycling 0=16254
 α-U, by rolling above 550°C 3=13370

Plastic deformation—contd

- α -U, single crystal extended to fracture, struct. 4=23222
 U, single crystals, at -196°C 2=23756
 U, single crystals, -196°C , tension 3=15989
 β -U, slip systems, extended dislocation model 4=20688
 U—Mo alloys, deformation mechanisms 4=20687
 U—Mo alloys, resistance, temp., rate var. 4=28988
 UO_2 , in indentation expts. 2=19022
 UO_2 , stoichiometric 3=8773
 V, low-temp., rel. to grain size 3=13351
 V, yield and flow stress meas., 4.2 — 373°K , and thermally activated flow mechanism 4=28970-1
 W alloys, ductility at low temp. 4=23220
 W, effect on resistivity 3=13037
 W, particle size and strain determination 3=25785
 W single crystals, zone-melted, room-temp. slip investigation for $\sim 10\%$ deform. 4=30790
 W, thoriated, rel. to carbonization 2=18992
 W, rel. to twinning 3=18210
 WC, evidence 4=4491
 Zn, without basal slip, temp. depend. 1=14879
 Zn, without basal slip, dislocation distrib. 1=14880
 Zn, bent crystals, polygonization, effect of solutes 2=8235
 Zn, crystal dislocations, etching obs. 4=9968
 Zn, crystal fragmentation and twinning 0=13909
 Zn, crystal twinning induction 3=16026
 Zn, discontinuous yielding after prestrain 2=6738
 Zn, dislocation density anisotropy 4=1498
 Zn, dislocation loops during low-temp. pyramidal glide 1=10003
 Zn, dislocation loops, electron micr. study 3=4873
 Zn, initial 3=18181
 Zn, liq. air temp., effect of impurities 2=10764
 Zn, polycrystalline, hot torsion 4=28990
 Zn, pure and doped, critical shear stress meas. 4=20690
 Zn, rapid after-effect analysis 3=18197
 Zn single crystals, anisotropic effect of irradiation 4=23226
 Zn single crystals, Cd-doped 4=30791
 Zn single crystals, crack formation 0=688
 Zn single crystals, deformed, slip lines 4=28991
 Zn, strain hardening of single crystals. 2=14896
 Zn and Ni—Co, similarity with LiF 2=2327
 Zn—Al alloy, rel. to phase transformations 0=16230
 Zr, rel. to crystal structure change 4=28960
 Zr, point defect prod. 1=12380
 Zr, rolling texture 2=4363
 Zr sheet, anisotropy, rel. to slip 2=10746
 ZrC, effect of temp., strain rate, surface and composition 4=15718

Plastic flow

- See also Rheology.
 in abrasion of brittle solids 3=11188
 age-hardened alloy, flow stress temp. dependence 0=18263
 alkali halide crystals, rel. to irradiation 3=22649
 alkali halide crystals, reversible stress changes on illumination 4=13392
 alloys, following yield point, rel. to dislocation—point defect interaction 3=23343
 b.c.c. metals, rel. to temp., mechanisms 3=13352
 Bingham solid, between coaxial cylinders 0=16227
 cellulose acetate, flow strain 1=20345
 complete plane problem 3=93
 crystal bars, explosions at two ends 3=22778
 crystal fracture, review 3=25626
 crystalline solids, and mechanical resonance dispersion 0=18252
 crystals, rel. to dislocation interactions, analysis 4=22581
 crystals, ionic, stress, effect of metal impurity distrib., heat treatment 4=4486
 crystals, yield stress and plastic resistance 1=1317
 deformation measurement with radionuclides 3=3225
 duraluminum, dynamic yield on explosive loading 3=1224
 EI-4378 alloy, adsorbed liq. Na effect 4=23185
 elastoplastic medium, wave velocities 1=11511
 flow curves, pseudoplastic region 3=18198
 fluorspar, cleavage faces 2=12874
 frictional extrusion in plain strain 1=15764
 glass, evidence study 4=23155
 hardening, isotropic, due to plastic flow 0=1854
 high polymers, dynamic bulk and shear viscosity 1=20343

Plastic flow—contd

- ideal plastic body, statically indeterminate method solns. 2=15516, 19481
 intermediate principal stress, influence 1=1313
 ionic crystals, glide band formation and broadening 4=4446
 iron, Armco, dynamic yield on explosive loading 3=1224
 loading and deformation paths, rel. to residual microstresses 4=7385
 measurement, apparatus for metals under shear 3=11164
 measurement difficulties at low flow rates 4=7381
 mechanism of paraffin—detergent interactions 0=3158
 metallic multicomponent systems, during sintering 4=7688
 metals, b.c.c., flow stress 0=21109
 metals, on diamond indentation, meas. method 1=17837
 metals, flow stress, rel. to low-temp. hardness 3=6789
 metals, flow stress at low temps. 1=5083
 metals, hexagonal and cubic 4=13387
 metals, instability at low temps. 1=1318
 metals, nature of shear formation 0=21128
 metals, polycrystalline, under simple shear 0=8121
 metals, pseudo yield point effects 2=21419
 metals, $t^{1/3}$ law 3=6794
 metals, yield strength, grain size depend., preferred orient. effect 3=25628
 molecular rot., barriers suggested study 2=8148
 moving discontinuity surfaces in an indefinite elastoplastic medium 1=11512
 near-brittle materials, determ. 4=23100
 notched specimens, by photoelasticity 4=7378
 penetration of soil by conical solid 1=5081
 penetration of soil by conical solid 1=7824
 perfect, with account of residual microstresses 4=4447
 Petch reln., rel. to disloc. generation 3=17777
 polycrystalline metals, high temp. 2=8739
 polymers, polyethylene and ethylene copolymers, meas. difficulties 4=7381
 residual stress X-ray meas. effects 4=23098
 reversed, on unloading of indenter 4=4444
 sapphire, on abrasion 1=14927
 shock waves in plastic medium 0=993
 solid solutions, discontinuous, upper crit. temp., theory 4=23102
 steel, carbon, mechanism of flow 0=6304
 steel, rel. to grain size 3=11149
 steel, mild, effect on mag. props. 0=21048
 steel, 0.07% C, yield instability at low temps. 1=1319
 steel, Peierls—Nabarro force 1=1316
 steels, low-C, Lüders front propag. meas. 3=1225
 steels, various, dynamic yield on explosive loading 3=1224
 steels, yielding phenomena, X-ray study 2=21418
 transition metals, b.c.c., at low temps. 4=26472
 visco-plastic liquids, unsteady flow 0=4993
 viscosity, steady-state, by extrapolation of creep data 3=25636
 viscous suspension, rheopetic flow 1=20340
 yield condition, allowing for hydrostatic stress 3=25625
 yielding, discontinuous, and mobile dislocations 4=26471
 Ag, during abrasion with emery cloth 2=8758
 Ag, polycrystalline, rel. to Cottrell—Stokes law 4=23203
 Ag₂—Al, flow stress rel. to temp. 4=30783
 AgMg, flow stress rel. to low-temp. and strain rate, Peierls' mechanism 4=30785
 β -AgMg, low temp. flow-stress behaviour 4=23205
 Ag—Zn solid solutions, yield point and strain ageing 2=14888
 Al alloy crystals, age-hardened 4=10370
 Al alloy 2024, discontinuous flow, machine stiffness effect in tension at 4.2°K 4=30765
 Al, effect of electron irradi. 4=15701
 Al, effects of unloading on yield point 0=21126
 Al, flow stress 1=6452
 Al, flow stress at high temp. 1=14899
 Al, surface removal effects 4=7430
 Al+1.7% Cu alloy 1=20602
 Al-4% Cu, critical resolved shear stress 2=8729
 Al-4.5% Cu, after various heat treatments 1=20369
 (Al, Cu, Mg) system, ductility in bending and tension 4=23129
 Al—Mg alloys, discontinuous, mechanism 3=25634-5
 Al—Mg, discontinuous, mechanism 3=13369
 (Al, Mg), ductility in bending and tension 4=23129

Plastic flow—contd

Al-Zn alloy, effects of unloading on yield point 0=21126
 Au, surface removal effects 4=7430
 BaTiO₃, under mechanical impulses 4=1495
 Bi, twin boundaries, rel. to metal plasticity 4=10454
 Cd, polycryst., flow under simple shear 4=23130
 Cd, strain-rate depend. of flow stress 3=23338
 Cd, under very small stresses 3=13366
 Co, polycryst., flow stress rel. to dislocations 3=11159
 Cu, Al, non-elastic unloading 2=8706
 Cu, flow stress and dislocation density 3=794
 Cu, flow stress at high temp. 1=14899
 Cu, initiation, expt. and theory 4=10375
 Cu, neutron irradi., strain rate depend. of flow stress 3=20719
 Cu, polycrystalline, rel. to Cottrell-Stokes law 4=23203
 Cu single crystals, neutron irradi., plastic range, glide vel. meas. of annealed and unannealed probes 4=30772-3
 Cu, single crystals, static and rolling ball-indentations 2=2340
 Cu, strain hardening, temp. depend. 3=18201
 (Cu, Al) system ductility in bending and tension 4=23129
 Cu₃Au, initiation mechanism rel. to order 2=10761
 (Cu, Sn) system ductility in bending and tension 4=23129
 Fe, rel. to grain size 3=11149
 Fe, mechanism 0=6304
 Fe (0.017 wt.%Ni; 0.004 wt.%C; 0.005 wt.%N), H yield point 2=21420
 Fe, Peierls-Nabarro force 1=1315-16
 Fe, α -phase, stress, effect of temp. and strain rate 2=8731
 Fe, stresses, temp. depend. 4=17734
 Fe, tensile flow stress rel. to temp. 4=13418
 Fe-Al alloys, effect of "K-state" structure 3=23467
 Fe, yield stress, effect of Lüders front number 2=10757
 Fe-C, tensile flow stress rel. to temp. 4=13418
 Fe-Cr, tensile flow stress rel. to temp. 4=13418
 Fe-Mn, tensile flow stress rel. to temp. 4=13418
 Fe-Ni, tensile flow stress rel. to temp. 4=13418
 Ge, structure and dislocation motion 4=28950
 KCl crystals, reversible stress changes on illumination 4=13392
 LiF, effect of surface cond. on yield stress 0=21096
 LiF, for equally activated slip families 4=17739
 LiF, flow stress rel. to F-centres 3=2835
 LiF, flow stress theory rel. to dislocation mobility 3=5070
 LiF single crystals, effect of Mg impurity 2=14883
 Mg monocrystals, effect of temp. and strain rate 1=1314
 Mg monocrystals, thermally-activated glide of dislocations 1=5986
 Mg, yield strength, stress direction and preferred orient. depend. 3=25628
 MgO, cold worked and annealed 3=25277
 MgO crystals, microcracks 0=21147
 MgO, rel. to neutron-irradiation 3=18185
 MgO single crystals 0=8119
 MgO single crystals, rel. to fracture mechanism 0=21143
 Mo, stresses, temp. depend. 4=17734
 NaCl, in compression, dislocation density 1=14287
 NaCl, rel. to dislocation motion 2=16954-5
 NaCl, flow stress and dislocation density 4=28467
 Nb, flow stress rel. to temp., mechanisms 3=13352
 Nb, yield and flow stress meas., 4.2 — 373°K, and thermally activated flow mechanism 4=28970-1
 Nb, yield stress at low temps. 1=6454
 Nb, and yielding 3=23314
 Ni, polycrystalline, rel. to Cottrell-Stokes law 4=23203
 Ni, surface stress, rel. to residual stresses 2=8730
 Pb, polycrystalline, under simple shear 0=8121
 Pb, polycrystalline, under simple shear 3=6793
 Sb, twin boundaries, rel. to metal plasticity 4=10454
 SbSn, ductility in bending and tension 4=23129
 T(Al, Mg, Zn), ductility in bending and tension 4=23129
 Ta, stresses, temp. depend. 4=17734
 Ta, transition temperature 3=11163
 Ta, yield and flow stress meas., 4.2 — 373°K, and thermally activated flow mechanism 4=28970-1
 TiC single crystals, 800-2200°C 2=6731
 U carbide, flow and recovery, 1500-1900°C 2=6742
 U, polycrystals, grain-boundary flow due to thermal cycling 0=16254

Plastic flow—contd

α -U, rolled 550°-640°C 3=13370
 V, yield and flow stress meas., 4.2 — 373°K, and thermally activated flow mechanism 4=28970-1
 Zn, cyclic-induced ductility 2=21428
 Zn, surface removal effects 4=7430
 Zn, twin boundaries, rel. to metal plasticity 4=10454

Plasticity

See also Viscoelasticity.
 adiabatic 4=26478
 alkali halide crystals 0=21127
 appl. of vectors, tensors and differential geometry 3=15969
 Armco iron, elastic-plastic props. 3=9540
 axially symmetrical problem, solution 1=14886
 Cauchy problem for loading on contour, power series 4=5118
 clay, hysteresis effects, model 4=23137
 clays, meas., two new instruments 3=13360
 collision of plastic bodies 4=5120
 constitutive derivative in tensor fields 3=14074
 Coulomb materials, maximum stress 1=20330
 crystal aggregates slip, associated flow rule 1=1321
 crystal, single, theory 4=28924
 crystals, crystallographic transition, thermal 2=10901
 crystals, effects of solid and liquid surface films, cross-glide motion 1=14898
 crystals, organic, transition to plastic state 2=10306
 deep-drawing sheets, anisotropy meas. 2=21429
 discontinuous stress fields, in ideal theory 1=6811
 duralumin, under high press. 0=1856
 effect on rate of ultrasonic machining 1=9241
 effect on rate of ultrasonic machining 1=10358
 elastic-plastic body, von Mises plastic potential generalization 1=20334
 elasto-plastic materials, generalized plane strain 1=6460
 equilibrium characteristic surfaces, rigid perfectly plastic medium 4=5119
 flow laws, non-associated 3=25620
 generalization to classes of materials 2=12854
 glass fibre-viscoplastic alternate layers, theory 4=14096
 glass, review 3=6770
 Hooke's law, linear extensions 2=4972
 Huber-Mises equation solution 4=18125
 hypo-elasticity theory, examples of rotating shaft and shear 3=16562
 ideal bodies, plane strain, perturbation method 2=10752
 ideal plasticity theory, eqns. 1=3977
 ideally plastic media, plane problem, equation linearization 1=20332
 ideally plastic media, plane problem eqn. linearization 2=8719
 impact, plastic rotating body with plastic half-space 3=16558
 increase at high hydrostatic pressure 0=1857
 internal grid engraving in solids, experimental plasticity 1=1322
 investigation by damping capacity 1=10206
 loose materials, static eqns. 1=3977
 mechanical behaviour of plastics 2=23023
 metals, very pure 4=20147
 molecular crystals, conference, Oxford (April 1960) 1=14144
 moon, craters, surrounding 3=9171
 partial differential eqns., stress distrib. from crack 3=21275
 perturbation methods, plane strain in inhomogeneous solids 1=20339
 photoconductive thermoplastic optical image recorder 3=19030
 plastic potential, generalized proof of theory 1=20335
 plastic waves in elastoplastic medium 3=1749
 plastic waves in solids, shock front formation 1=168
 polycryst. media, dispersive waves, rel. to dislocation theory 1=14266
 polycrystalline, size effects 1=14887
 polymers, temp. peak due to rigidity of mol. structs. 4=17742
 Prandtl-Reuss body rel. to Maxwell body 4=23095
 pseudoplasticity, viscosity impulse theory 0=14581
 reflection of plastic wave from obstacle 3=23968
 relation between stress and elastic and plastic strains under impulsive loading 4=24125

Plasticity—contd

- rigid-plastic body, von Mises plastic potential
 generalization 1=20333
 rubber, vulcanized, fluidifying degradation 1=14885
 solids, var. with freq. and temp., meas. 4=28911
 stability of two-dimensional media for Prandtl's
 singularity 4=8127
 steel, press. var. 4=13445
 steel, under high press. 0=1856
 steels, austenitic, ferritic, ferritic-martensitic
 neutron irradiation 2=10430
 strain rate rel. to temp., equations 4=28918
 stress analysis, cylinders in contact along
 generators 4=8128
 stress analysis, plane, in elastic/plastic bodies,
 relaxation 4=27129
 stress-deformation intensity correlation 4=24124
 stress and strain-rate tensors, principal axes 0=21134
 tensile instability under complex stress 3=7158
 theory, deform. occurs by glide 2=16953
 theory, effect of residual microstresses 1=3976
 theory for a hardening material 1=3978
 theory 1=1313
 thermal-mechanical coupling, theory 3=9380
 thermodynamic theory 3=1658
 thermodynamic theory 3=18766
 thermodynamic theory, rel. in micro-relax. 2=10753
 torsion problems, solns. of eqns. 4=29575
 viscoplastic liquid, motion of spheres 0=19051
 viscoplastic oil, lubrication 0=14586
 wave propag. in plastic material, convergence 0=12452
 waves, across which accel. discontinuous 2=6717
 yielding in anelasticity 1=14890
 Al, heat generation, theory and mech. 3=9380
 Bi, rel. to twin boundary props. 4=10454
 Cr alloys, carbide strengthened, ductility at low
 temps. by tensile testing 4=30771
 Cr, and alloys with transition metals, correl. with
 antiferromagnetism 4=23028
 Cu, rel. to grain size, block dimensions, micro-
 stresses 4=23138
 Cu, plastic waves, investigation method 2=14877
 Cu-Sn, sudden drop, theory 1=10215
 Fe, superhigh plasticity 1=14883
 Fe, under high press. 0=1856
 Fe-Al alloys, rel. to quenching temp. 2=6715
 FeO 2=21422
 FeO 4=1950
 Ge filament, light-induced 1=3974
 LiF, impurity effects 1=12376
 MgO single crystals 0=8119
 MgO single crystals, effect of ageing time after
 cleavage 1=3973
 NaCl whiskers 3=20804
 NaCl-NaBr alloys, ductility 3=15993
 Pb single crystals. 2=8718
 Sb, rel. to twin boundary props. 4=10454
 Ti, iodide refined samples 2=21480
 Ti, superhigh plasticity 1=14883
 U, creep, irradiation growth, thermal cycling 2=4332
 U oxide, yttria additions, 940°C 2=4476
 W, cast, effect of recryst. anneal 3=11183
 Zn, irradiation, α , β , effects 4=1914
 Zn single crystals, temp. transition from brittle-
 ness 3=23316
 Zn, rel. to surface-active Ga coating 4=10353
 Zn rel. to surface-active melt and irradiation 4=10404
 Zn, treated with Hg, rel. to irradiation 3=20178
 Zn, rel. to twin boundary props. 4=10454
 Zn-(0-0.5%)Cd, -200° to +200°C 4=10363
 Zr, iodide refined samples 2=21480
 Zr, superhigh plasticity 1=14883

Plastics

See also Polymers.

- Araldite films, irradiation, mass-thickness var. with
 time 2=12945
 Araldite, mechanical and photoelastic
 characteristics 0=8109, 12063
 Araldite, mechanical props. 0=6287
 Araldite models for stress analysis of composite
 structures 1=18332
 Araldite photoelastic varnish, optical response 1=15765

Plastics—contd

- Araldite, Poisson's ratio, photoelastic meas. 0=16196
 Bakelite, with BaTiO₃, dielec. props., particle size
 depend. 1=3808
 Bingham plastics in laminar flow, heat transfer
 problems 1=247
 birefringence relax. hydrostatic press. effect 2=6547
 book on phys. props. 2=23023
 bubble formation by irradiation 1=19818
 caprone, swelling and partial crystallization 0=1885
 caprone, tensile strength 2=19007
 Cellophane dyed film, use in α -dosimetry 4=5895
 cellulose acetate, flow and deformation strain 1=20345
 crack growth and structure 0=6315
 crack propag. apparatus 2=797
 creep and rupture stresses, from eqn. of state 3=8761
 crosslinking prevention 0=14138
 crystallinity, absolute detm. by X-rays 3=18290
 cyanuric acid formaldehyde resins, fluorescence, on
 addition of aromatic ring compounds 3=15715
 dederon tape, use as belts of Van de Graaf
 generator 4=29858
 deformation bands in polystyrene blocks, compressive
 loading 4=10396
 deformation measurement with radionuclides 3=3225
 dielec. props. for millimetre waves 2=12556
 dielec. props., in USA, review 2=16766
 dielectric properties, 1958 digest 0=2300
 disperse systems, permeability 3=11737
 electron-irradiation mouldings, difficulties in obtaining uniform
 dose distrib. 4=17456
 electrophotographic recording system, photocond.
 thermoplastic 4=26157
 epoxy resin laminates vacuum leakage 2=1218
 epoxyresins, photoelastic, edge effect 4=8126
 flowing melts, temp. probe 3=19052
 foamed, dynamic Young's and shear moduli, 0.1-100 c/s
 meas. 0=18247
 foamed, sound absorption, frequency depend. 0=16789
 Formvar, energy loss of 169keV α -particles 3=7938
 Floroplast-4, for cells meas. low radioactivity
 levels 2=22361
 Formvar, films, irradiation, mass-thickness var.
 with time 2=12945
 friction coeff. meas. rel. to speed 4=7400
 impact ductility, stress effects, initial 4=28919
 use in low-temperature vacuum seals 1=5312
 Lexan polycarbonate, nuclear track registration, energy-
 loss rate 4=11866
 Lucite, positronium mag. quenching in 3=5992
 Lucite, refractive index at 0.86A, by recoilless
 resonance absorption 1=17868
 lucite, refractive index, 14 KeV γ 's, Mössbauer
 meas. 4=12599
 Lucite, spalling mechanism 3=11180
 luminescence, containing aromatic hydrocarbons 3=7213
 materials, use as insulators 0=19500
 mech. props. at liquid helium temps. 0=6293
 mechanical properties, electrical analogue 4=17706
 methacrylate, u.s. irradiation, "lesions" 2=11213
 Mylar, adhesive-bonded, liq. H targets 0=2477
 Mylar, energy loss of heavy ions in 1=338
 Mylar, use as liquid He container for X-ray scatt.
 studies 4=5489
 NE 102, fluorescence response to heavy ions 1=8404
 Neoprene, rolling friction 0=4572
 nuclear fission product tracks in films, electron micro-
 scope obs. 4=12819
 Nylon, combined spark and fire guard 0=6998
 Nylon, contact electrification and polarization 0=7056
 Nylon 8, with methylene bisacrylamide and
 catalyst, visible latent image prodn. 3=5538
 Nylon fibres, surface replication 0=8263, 10323
 Nylon, free radicals produced by γ -irradiation 2=14337
 Nylon, monofilaments friction coeff. rel. to
 load 2=8760
 Nylon, scanning electron microscopy for spinneret
 holes 0=6396
 Nylon 6.6 filaments, crystalline region obs. 3=20863
 Nylon 6, struct. rel. to heat 2=10928
 Nylon 66, drawing, effect of temp. and moisture 0=8116
 Nylon 66 and 610, slip obs. and interpretation 2=19002
 Nylon, strength props. of irradiation drawn and
 undrawn 0=11980

Plastics—contd

- Nylon, texture examination by X-ray diffraction 0=8250
 Nylon threads, tensile strength, simultaneous axial and transverse stresses 3=18206
 optical behaviour of viscoelastic materials under various temp. and loading conditions 1=3820
 P.V.C. specific heat, thermal cond. 0=2276
 P.V.C., thermal conductivity by non-stationary method 0=14865
 Perspex, crack propag. 2=797
 Perspex, dynamic modulus and yield stress 1=12582
 Perspex, dynamic yield stress 2=21430-1
 Perspex, elec. cond. in strong shock waves 0=6073
 Perspex, electret formation and props. 1=11346
 Perspex, refr. index, pressure coeff. 3=23036
 Perspex, formation of electrets, effect of alternating fields 0=635
 Perspex, optical props., γ ray effects 4=8405
 Perspex, tensile strength dependence on load duration 1=12600
 phosphor NE 102, fluorescent yield for 4-17 keV X-rays 3=25494
 phosphors, thin, in beta-scintillation counter 2=5515
 plastic—carbon electron-microscopes replicas 2=23944
 plastic foam, vibrational mechanical impedance 1=18540
 Plexiglas, dielectric constant and loss factor at 36.06 Gc/s and 70.86 Gc/s 4=7040
 Plexiglas films, irradi., mass-thickness var. with time 2=12945
 Plexiglass, linear compression behaviour 2=12848
 Plexiglas phosphors, anisotropy of emission 0=2948
 Plexiglas, polarization of Cherenkov radiation in 0=5539
 Plexiglass—steel boundary, absorption, u.s., 1.5-5 Mc/s 4=16183
 Plexiglas, stress waves generated by electric detonator 0=19260
 Plexiglas, u.s. attenuation 1=1786
 Plexiglas, use in radiation dosimetry 0=20367
 polyethylene, crack props. 2=797
 polyethylene, energy loss of heavy ions in 1=538
 polyethylene (Marlex-50), electron-irrad., e.s.r. study of radical species 0=16176-7
 polyethylene spheres, charge separation, thermal gradient effects 2=148
 polymer plastic resistance to erosion by cavitation 1=20394
 polymethylmethacrylate host containing aromatic mols, e.s.r. triplet state, effect of temp. 4=23054
 polymethylmethacrylate, Raman band intensities in Stokes region, temp. depend. 1=5052
 polymethylmethacrylate, surface colours following fracture 0=8260
 polystyrene-based phosphors, as neutron detectors 3=4411
 polystyrene, particle size determ. by light scattering 4=4716
 polystyrene, Raman band intensities in Stokes region, temp. depend. 1=5052
 polystyrene scintillators, γ -luminescent energy yield 0=4430
 polystyrene scintillators, pressed 2=23610
 polystyrene soln., radioluminesc. efficiency rel. to mol. wt. 4=27184
 polytetrafluoroethylene, friction on wood 0=8137
 polythene, γ -irradiated, X-ray study, action of heat 0=4681
 polythene—P mixture, neutron meas. 3=2284
 polyvinyl chloride, γ -irrad., kinetics of radical reactions 1=1489
 polyvinylchloride, plasticized, elec. breakdown, impurity effects 0=18108
 PTFE, phase transform., 75-380°K, up to 21 000 atm 0=1875
 PTFE, thermal expansion, anisotropic 0=10324
 radioactivated, by 8GeV p's, C¹¹ diffusion loss 4=19717
 rayon, viscose, tensile strength 2=19007
 rolling friction of hard cylinders 0=3477
 scintillator filaments, light attenuators 0=18150
 scintillators, absorption and luminescence spectra 0=10073
 scintillators, conc. effects 2=6638
 scintillators, efficiency 4=14962
 scintillators, light output meas. 2=8585
 scintillators in low flux detector 2=3206

Plastics—contd

- scintillators, polystyrene-based, for visual obs. of ionizing particles 3=4295
 scintillators with spectrum shifter, efficiency 4=14963
 shock wave attack, opaqueness rendering, obs. 1=20388
 solid, thermal expansion at low temp., tables 1=13010
 Teflon coatings, in vacuum systems, to reduce gas-wall interaction 4=18301
 Teflon counting-cell, for flowing radioactive solutions 0=17515
 Teflon, e.s.r., liq.-He temp. 3=20657
 Teflon, e.s.r. studies of γ -irradiation effects 0=6420
 Teflon fibres, n.m.r. absorption 0=21225
 Teflon, friction, on teflon and steel, effect of pressure 3=6808
 Teflon, positronium decay 3=4380
 Teflon, positronium mag. quenching in 3=5992
 Teflon, production of electret state 3=17947
 Terylene fibres, surface replication by rolling 0=8263
 thermal cond., meas. apparatus 2=19746
 thermal conductivities below 1°K 4=6758
 thermoplastics, rolling friction 1=11526
 thin films, sound velocity meas. 0=6859
 thiokols, liq., U. S. wave absorpt. 4=24208
 tint and greyness determination 1=245
 u.s. attenuation of longit. waves meas. 2=20924
 Vestopal films, irradi., mass-thickness var. with time 2=12945
 vitrification study by luminescent method 0=4680
 Zapoplack films, irradi. mass-thickness var. with time 2=12945

Platinum

- abrasion, theory 0=3164
 abrasion wear and friction 1=1353
 ad- and de-sorption of K, activation energy 1=20689
 adsorbed K layer, K⁺ photoemission 2=22272
 adsorption of Cl₂ and TiCl₄ 2=19120
 adsorption of CO 3=13571
 adsorption, of chloride and phosphate anions with desorpt. multiphase potentiodynamic meas. 4=30890-1
 adsorption of gases, electron diffr. study 4=23602
 adsorption of H₂ and O₂, partial molal enthalpies rel. to coverage and temp. 4=26721
 adsorption of He, Ne, A and Kr 2=8889
 adsorption of ions, radiochem. and electrochem. study 2=15105
 aerosol, charged particle mobility analysis 2=4570
 in air, accommodation coeff. rel. to pressure 4=27218
 atom, L-shell fluorescence meas. 3=4711
 atomic structure, relativistic self-consistent solution 0=9741
 band structure, effect of spin-orbit coupling 4=28412
 Bordoni peaks, rel. to deformation and annealing 3=23298
 catalysts, spectrophotometry and light scatt. 2=21595
 chemisorption of gases 1=5110
 coating for u.v. high reflectance 2=17641
 condensation in vac. microheterogeneous 2=1308, 7468
 conductivity, electrical, temp. var., 0-900°K and thermometers < 90°K 3=17819
 contact with CdS single crystals, electrical props. 4=12853
 corrosion in HBr, effect of α -rays 0=12100
 counter-tube cathode, spectral yield curve 0=9229
 crystal dislocation relaxation peaks after deformation at 4.2°K 4=7429
 damage by fission fragments 2=612
 density in liq. state 2=2701
 diffusion in Au, tracer conc., 800°C to Au m.p. 0=20846
 diffusion and desorption of Na, K, Ca impurities, thermionic emission study 0=6061
 diffusion study by impurity thermionic emission 3=4203
 dislocation relaxation 1=17533
 dispersed on alumina, L₃ X-ray absorpt. edge, crystal size and gas adsorption effect 4=7152
 e.s.r. of Pt³⁺ in Al₂O₃, Jahn-Teller splitting 4=28879
 elec. resistance anisotropy 1=3726
 elec. resistivity of films, effect of adsorbed Hg 1=17612
 electrical contacts, metal migration 3=9690
 electrical double layer, in KNO₃, KNO₃ + NaNO₃, impedance 3=16168
 electrical resist. of wire, recovery after cold working 4=15524
 electrical resistance, rel. to contact with H₂, air, Ar 4=10034
 electrodes, differential capacity, frequency var. 4=15845

Platinum—contd

electrodes, (Pd-H) α s, effect of H₂-D₂O isotope exchange 2=4546
 electromigration 3=22829
 electron diffrn. exam. of (100), (110) faces with CO absorbed 3=6899
 electron inelastic scatt. coeffs. secondary electron emission, dependence on primary energy 1=13127
 electron-microscopic decoration use 2=15120
 electron secondary emission 2=3077
 emissivity, 1.5-15 μ 0=16917
 emissivity, temp.-independent, study and interpretation 0=14875
 equations of state at high pressure 0=11549
 evaporation, for electron microscope shadow-casting technique 0=8293
 exo-electron emission, u.v. induced 2=7638
 field emission, effect of cryst. defects 2=20015, 22246
 field emission tips, annealing, polyhedron formation 4=14742
 filament, sue in electron microscopes 0=15079
 films, contact pot. and work function 2=8268
 films, effect of gas adsorption on elec. cond. 1=17611
 films, effects of parallel-plane ion bombard. 2=18622
 films, effect on slip of Ag substrate 0=21113
 films, elec. cond., effect of gas adsorption 1=17613
 films, elec. resistance, temp. var., rel. to thickness 3=15544
 films, fission fragment damage obs. 2=10426
 films, formation by sputtering 2=8880
 films, reflectance and transmittance 1=11836
 films, reflecting, for vacuum u.v. 3=19005
 films, very thin, electrical conductivity, rel. to gas adsorption 3=15549
 films, work function 2=9612
 fission fragment tracks, thermal processes 2=12484
 foil, speed of evap. in vacuum furnace 4=5472
 foils, annealed and irradiated, dislocations 3=8437
 foils, dislocations and fission damage 2=16661
 foils, dislocations and fission damage 3=25275
 foils, loops and dots, rel. to irradiation 3=17701
 friction in reciprocating sliding, low values 0=3165
 inelastic scattering of neutrons 1=13443
 internal friction peaks in stage III recovery 4=26523
 internal friction, recovery, after load removal 1=7815
 ion adsorption by mechanically and heat treated wires, foils 2=12950
 ion bombard., lattice defects 2=23170
 ion emission, secondary, by inert gas ion bombard. 0=17043
 lifetime, under load 0=16223
 magnetic suscept. and Knight shift, interpret. 4=17699
 magnetic susceptibility and electronic sp. ht. 4=28780
 in meteorites 2=24107
 Mössbauer effect in embedded Au¹⁹⁷ 1=11147
 Mössbauer effect by Fe⁵⁷ impurity, meas. 4=12579
 n.m.r. of Pt¹⁹⁵, 24°-299°K meas. 3=13315
 n.m.r. rel. to spin-spin interaction and electron configuration 2=18967
 nuclear reactor fuel, review 2=10188
 neutron irradi., focusing collisions along twin boundaries 1=11246
 optical films, preparation and properties 3=9603
 paramagnetic susceptibility, effects of s-d exchange 1=14674
 photoelectric emission, X-rays, 0.7-30 keV 3=14638
 photoelectric emission yield for 1.54-13.3 Å X-rays 1=13109
 photoelectric yield data, vacuum u.v., 8 to 24 eV 3=13145
 photoelectron emission 1=13108
 plastic deformation, grain boundary component, temp. var. 4=23195
 point defects 0=20798
 point defects in irradiated metal, review 3=8420
 preferential orientation on prod. from (NH₄)₂PtCl₆ 0=11992
 prismatic loops, rel. to irradiation 3=22767
 recoilless Rayleigh scattering in, using Mössbauer effect 0=11560
 reflectivity, u.v., absence of temp. depend. 2=18790
 resistance-temp. relationship at low temp. 0=7002
 resistance thermometer bridge 0=7003-4
 resistance thermometers 630.5-1063°K 0=8856

Platinum—contd

resistivity rel. to temp. down to liquid He temp. 1=19830
 secondary electron emission 0=5341
 secondary ion emission, A⁺ ion bombardment, 22 keV 3=24373
 self-diffusion 2=23206
 specific heat, 1.3-4.2°K 1=3606
 spectral luminous efficiency, maximum 4=29798
 sputtered by Hg⁺, ang. distrib. 0=1174
 sputtering, under Cs ion bombard., cathode sputtering ratio 4=24753
 sputtering by inert gas ions rel. to mass ratio 4=19124
 stacking-fault density meas. 4=9978
 stacking faults, energy calc. 4=12769
 suitability as thermal conductivity standard 4=11385
 surface self-diffusion and energy 2=15087
 surface tension at 1800°C 2=2692
 surfaces, catalytic action in atomic beam recomb. 2=4522
 temp. change at boundary with superfluid He 2=15838
 temp. change at boundary with superfluid He 3=5570
 thermal cond., 0-950°K, high temp. reference standard 3=25216
 thermal expansion, lattice const. changes, from Bradburn-Fürth eqn. of state 4=20219
 thermal expansion, 1.5° to 12°K 4=9864
 thermal expansion, 1.5-12°K, electronic and lattice contri., and Grüneisen parameters 4=17370
 thermionic emission, in CCl₄ and Freon 0=10936
 thermionic emission of ions, effect of ambient gas 3=14663
 thermocouples with noble metals, instability 3=1861
 thermoelec. power, effect of quenching and work hardening 2=23486
 thermo-e.m.f. study of vacancy quenching and movement 0=17955
 thermocouple, with Rh, reference tables, 0°-1800°C 4=27363
 thermoelec. power rel. to Armco iron 0=13498
 thermoelectric power, effect of lattice defects 4=20435
 thermoelectricity meas. below 1°K 0=18076
 thermometer, resistance, film 4=24414
 thin foils, X-ray spectra fine structure "melting" 3=10973
 twins in vapour-grown f. c. c. whiskers 4=4527
 vacancies, thermal formation kinetics 4=1465
 vacancy quenching, diffusion 1=960
 vapour press., heat of sublimation, b.p. 2=5216
 wire, field ionization at surface 3=12067
 wires, emissivity meas., 100°-1000°C 3=24100
 wires, internal friction peaks, at low temps. 3=18166
 work function in O, var. press., γ -ray effects 4=8797
 X-ray L intensities 1=13951
 X-ray L spectrum, emission 2=6588
 X-ray spectrum forbidden transition 1=3513
 D in introduction into metal 2=13606
 H₂ adsorption 0=4748
 Pt films, damage due to irradiation 1=3700
 Pt-C films, for electron-microscope shadowing 2=23946
 Pt-Al₂O₃-Al films, tunnel electron emission 2=13579
 Pt-Au system, Kirkendall effect and diffusion 1=14312-13
 Pt¹⁹⁴⁻¹⁹⁶ atoms, isotopic shift 4=12346
 Pt¹⁹⁵ n.m.r. in Pt metal 3=23255
 Pt¹⁹⁵ in powder, n.m. relax. and Knight shift, 20°-290°K 3=3201
 Pt¹⁹⁵, strength fn., neutron scatt., calc. 4=28036
 Pt-C shadowing deposits, study of background structure 0=18421

Platinum compounds
 alloys, dilute, with Co, Fe, Ni, or Mn, magnetic transitions 3=992
 alloys, vacancy-impurity binding energies 3=8424
 complexes with aromatic amines, bond i.r. spectra 4=25715
 magnetic susceptibilities and g-values 1=10128
 phthalocyanate, crystal lattice structure, electron microscope examination 1=9142
 platinocyanides, luminescence, photovoltaic effect, and non-monomolecular processes 3=18030
 superconductivity 3=24148
 trans-[Pt(C₂H₄)(NH(CH₃)₂Cl₂)]₂, crystal structure 0=8235
 Pt alloys, low temp. thermoelec. 2=6508
 Pt complexes, transmission of electronic effects through the heavy metal atom 1=869
 Pt-dimethyl-glyoxime, structure 0=3252
 Pt ethanolamine compounds, luminescence 1=3855

Platinum compounds—contd

- Pt hexabromo-complexes, (Br⁸⁰)₆ separation 2=17101
 Pt phthalocyanine, molec. disarray caused by fission fragment 1=19817
 Pt(II) nitrohalides, i.r. absorpt. spectra 2=18842
 Pt-Ag, effect of spark discharges on structure 0=16352
 Pt-Al, phases, 3 new, crystal struct. 4=23286
 Pt-Al₂O₃, catalyst, surface structure, 300° to 1300°C 3=18367
 Pt-Au alloy, mag. susceptibility and electronic sp. ht. 4=28780
 Pt-Au, props. and energy-band structure 1=1441
 Pt¹⁹⁵-Au, Ir solid solns., n. m. r. decay osc., and coupling meas. 4=13350
 PtBi, crystal lattice structure 3=18332
 PtBi₂, crystal lattice structure 3=18332
 PtBr⁸, mol. vibr. calc., from Raman spectra 4=9738
 Pt-C, form of graphite crystals 0=18407
 Pt-C, phase structr. by electron diffraction 3=1370
 Pt-C system, e. s. r. study of spin/gram and isotopic activity 4=30902
 [Pt((C₂H₅)₃P)₂HBr], crystal structure 0=8236
 PtCl₄²⁻, mean amplitudes of vibr. from Raman freqs. 4=15318
 Pt-Co alloys, thermodynamic props., 1200-1400°C 4=23237
 Pt-Co, magnetic domain structure 1=14709
 Pt cobaltite- and pyrite-type compounds, superconductivity, > 1°K, semiconductivity 3=21663
 Pt₃Co, slip 0=21112
 Pt, with Cu, Sn or Fe, thermoelec. power at low temps. 1=3796
 PtCuZn₃, structure 1=5098
 PtF₆, hindered mol. rot. in liq. and solid phases 2=8077
 Pt-Fe alloys, thermoelec. power at ≈ 1°K, rel. to refrigeration 2=22105
 Pt-Fe, mag. structure rel. to chem. order 3=8696
 Pt₃Fe, superlattice struct., stability 2=6832
 Pt₃Fe, thermal spikes, size meas. 3=22853
 Pt₃Fe, unit cell dimensions 3=25745
 Pt₃Ga, structure 1=5099
 Pt₃Ga₇, structure 1=5098
 PtGe₂, structure 1=5098
 Pt₂Ge₃, structure 1=5098
 PtGe, structure 1=5099
 PtH electronic-band spectra, by exploding wire method 4=25635
 Pt-Ir, electrical contacts, metal migration 3=9690
 Pt-Ir alloy, mag. susceptibility and electronic sp. ht. 4=28780
 Pt-Ir, props. and energy-band structure 1=1441
 Pt-Mo alloys, phase study 2=23880
 Pt(NH₃)₄CuCl₄, single-crystal structure 1=4056
 Pt-Pd alloys, absorption of H and D, lattice const. 4=26720
 Pt-Rh wires, emissivity meas., 100-1000°C 3=24100
 α-[Pt₂(SCN)₂Cl₂(P(C₂H₅)₃)₂], crystal structure 0=8237
 Pt-Se, elec. resist., temp. depend. 0=10282
 PtS and PtTe, low temp. heat capacities 1=19717
 PtS₂ and PtTe₂, low temp. heat capacities 1=19718
 Pt₃Si, structure 1=5099
 PtSn₂, n.m.r., Knight shift 2=6706
 PtSn₄, Pt¹⁹⁵ resonance Knight shift 3=5051
 Pt-10% Rh wires, emissivity 2=1306
 Pt-W alloys, use (over 340°C) for strain gauges 3=6771
 Pt-W, magnetoresistance, 1.2-4.2°K 2=23069
 Pt-W, superconductivity 3=3962
 Pt-W technical alloys, hardness 2=23793
 Pt-W-Cu, tests for high-temperature strain gauges 3=11747

Pleochroism

- alkali halide crystals, electron irradi., coloration depth 0=13550
 amethyst 2=18800
 aniline hydrobromide, u.v. absorpt. 3=4965
 aniline hydroiodide, u.v. absorpt. 3=4965
 azobenzene crystals, dichroic ratio 2=18816
 biotites, effect of heat 0=13666
 calcium fluorophosphate, dichroic colour centres 1=7600
 circular dichroism, photoelectric measurement 1=10609
 complexes of trigonal symm., model and data analysis 4=12419
 di, measurement, sensitive, down to 1850 Å 4=16256
 dichroism, CdS, ZnS mixed crystals, spectrum 2=6552, 10596

Pleochroism—contd

- dichroism, circular, in optically-active crystals. 2=8485
 dichroism, circular, qualitative theory 0=18111
 dichroism, electric, use in meas. of molecular moments 1=14118
 dichroism, KCl, A-centre reorientation obs. 2=607
 dichroism, KCl:Sr, Z-bands 1=8918
 dichroism, KCl, Z, and F bands 1=11243
 dichroism, in light scattering of suspensions and solutions 0=939
 dichroism, liq. crystals., rel. to degree of order 2=49
 dichroism, in mol. crystals, effect on luminesc. 2=10614
 dichroism, NaCl: Sr, Z-bands, 1=8918
 dichroism, optically active crystals, exciton absorpt. region 2=18808
 dichroism, particle system with 3 energy levels, incident radiation intensity depend. 0=16075
 dichroism, polymers, axially oriented, in i.r. 0=6166
 dichroism, pp'-azoxyanisol, rel. to order 2=49
 dichroism, sheet polarizers, advances 2=9410
 dichroism, soln. of polar mols. 2=20780
 dyes in films, di, on polarized light irradi. 4=17586
 minerals; colour change meas. rel. to orientation 3=922
 mono-, di- and tri-ethanolamine complexes of Fe, Ni and Cu, dichroism 0=13693
 moscovite, i.r. 3=13164
 orientation dichroism in viscous solns. 4=29629
 polarization, dichroism 3=18017
 polyethylene, oriented crystalline 1=14608
 polymers, helical, unusual circular dichroism curve 4=17327
 polystyrene, dichroism, in terms of orientation functions 1=10093
 quartz, coloured, synthetic 3=17987
 ruby, dichroism, circular, microwave modulation 1=1149
 solutions, viscous, photodichroism, reversible 3=16625
 3-methylpentane-isopentane solutions, dichroism 4=14167
 topaz (blue), expt. and theory 2=4129
 viscous solns. of complex organic cpds., reversible orientation 3=23881
 BaTiO₃, dichroism 0=2932
 CaF₂:Eu²⁺(0.01%) crystal, dichroism, 4.2°K, > 10 kOe 3=17983
 CdSb, i.r. meas. 3=923
 Co III complexes, circular dichroism 4=22398
 [Co(NH₃)₆]Cl₃, microspectrophotometric study 2=18825
 CsBr, F centre, mag. 4=25971
 CsBr and first excited state, spin-orbit splitting 4=28499
 CsCl, F centre, mag. 4=25971
 Ge containing O, i. r. absorpt. band, dominant, stress-induced dichroism 4=28485
 KCl, dichroism of M band 0=17964
 KCl, dichroism of N₁ band 2=18620
 KCl, K-centres, dichroism 2=18618
 KCl:LiCl, A-centre, dichroism meas. 3=17794
 KCl:OH, additively coloured, dichroism 2=10419
 KCuCl₃ and NH₄CuCl₃, 3=18314
 Mg(Ni)F₂, and mag. dipole transitions 3=19993
 Na uranyl acetate, circular dichroism 2=16804
 NaNO₃, dichroism, in u. v. and i. r. 4=13057
 O₂¹⁶ mol., in dipole transition, rel. to parity 2=16517
 Pt hexahalide complexes, electron transfer spectra 0=20650
 Si containing O, i. r. absorpt. band, dominant, stress-induced dichroism 4=28485
 Si, n-type, magnetodichroism 4=1712
 Zn_xCd_{1-x}Sb, i. r. meas. 3=923

Plutonium

- air contamination filters, background α-discrim. 4=9429
 in the air, det. using α-β coincidence method on air filters 1=7332
 allotropic transformations 0=21226
 α-phase, elec. cond. > 300°K 2=23237
 assay in process wastes, by γ-monitor 3=21021
 atom, hyperfine and isotopic structure 3=15290
 atomic scatt. factor for X-rays 2=15010
 conductivity, elec., α-Pu low temp. var. anisotropy 4=20335
 conductivity, elec., β phase, 5-425°K 4=6930
 conductivity, elec., low temps., high press. 4=15522
 conductivity, elec., self-irradiation effects 4=22680
 conductivity, elec., temp. var. down to liquid He temps. 4=6918

Plutonium—contd

- crystal face angles, α Pu 4=7533
 crystal imperfections due to self irradiation, saturation 4=12834
 crystal structure, α and β forms 3=25706
 crystal structure, atomic, < 50°K, absence of phase transform. 3=20833
 diffusion, in Al, 600°K 1=17561
 diffusion in Mg 4=1517
 elastic fatigue limit 4=7449
 elastic (Young's) modulus, 4.2-300°K, and mag. transition ~ 55°K 3=20691
 elec. resist. anomaly, interband scatt. theory 2=6412
 elec. resist. rel. to self. irradiat. 2=23238
 elec. and thermal props. rel. to order-disorder change 1=20622
 electronic structure and props. 2=23105
 evaporation by fission fragments 0=5812
 ground state from atomic spectrum analysis 1=8817
 h.f.s. and electron levels 0=7700
 Hall effect of α and δ phases 2=625
 Hall effect in α -phase, 78°-388°K 3=17824
 heat capacity, effect of self-induced radiation damage 2=23076
 lattice structure and thermal expansion, δ and η 4=7638
 metallurgy, conference 1=7871
 monitor, continuous, for airborne particles 0=5456
 neutron diff. nucleon coherent scatt. 2=10832
 phase diagram, triple points to 35 kbar 4=2001
 phase transformation, α - δ , corresp. matrix 4=4511
 pure and stabilized, substruct. metallography 4=29165
 radioactive heat generation rate in metal 2=20572
 use in radioactive ionization gauge 4=16158
 resistivity at 0.75°K 0=1084
 self-damage accumulation 3=22856
 self-irradiation and annealing 4=1537
 specific heat from room temp. to melting point 4=9849
 spectrum, arc, ground-state multiplet 3=6354
 spectrum, ground-state multiplets, arc, calc. 4=1213
 spectrum in 1.6-2.1 μ region 1=811
 structure rel. to anisotropic thermal expansion 3=10606
 thermal diffusivity determ. 4=17443
 thermoelec. power, 20°K-room temp. 2=12552
 thermoelectric power determination 0=18082
 thermo electric power rel. to temp. 4=17542
 thermoelectricity, temp. var. down to liquid He temps. 4=6918
 thin films prepn. for neutron cross-section meas. 3=11321
 utilization in nuclear reactors 4=17228
 X-ray emission spectrum 1=7718
 X-ray M absorpt. spectrum, and PuO 4=7146
 X-ray M-absorption spectrum 3=8610
 X-ray spectra 2=706
 X-ray spectra, h.f.s. 1=14615
 β -Pu, crystal structure 3=13448
 α Pu, dilatation and thermoelectric power at low temp. 4=15435
 α -Pu, mechanical props. in compression 3=25602
 δ -Pu, negative exp., effect of alloying 3=22669
 α -Pu, plastic deformation mechanisms 4=28973
 δ -Pu, self-diffusion coeff., 350°-440°K 4=22624
 δ -Pu, struct. 2=21510
 α -Pu, with and without Pu²³⁸, self-irrad. effects 4=22651
 Pu I, h.f.s. 4=9647
 Pu I second level system, new pair levels with Pu II and ionization potential 4=3798
 Pu²³⁸, absorption spectrum in La trichloride and La ethylsulphate 3=8601
 Pu²³⁸, electronic energy levels, theory and expt. 4=22310
 Pu²³⁹ as fuel for fast reactor 3=22458
 Pu²³⁹, h.f.s. and nuclear mag. moment 0=20589
 Pu²³⁹, mass 0=15669
 Pu²³⁹, optical h.f.s. and magnetic moment 3=15289
 Pu²³⁹, reactivity change on high irradiation 1=19566
 Pu²³⁹, reson. neutron absorpt. 2=3628
 Pu²³⁹, spins of neutron reson. 2=7992
 Pu²³⁹ in the trichloride, e.s.r. 2=4267
 Pu²³⁹⁻⁴¹ as fuels in thermal reactor 3=22459
 Pu^{239,241}, nuclear magnetic moment 3=2363
 Pu²⁴⁰ isotope mass 1=19611
 Pu²⁴⁰ in Pu-Al rods, resonance integral 4=3740
 Pu²⁴¹, magnetic moment, spectroscopic detm. 4=1214

Plutonium compounds

- absorption spectra 0=20656
 nitrides and sulphides, review of phys. chem. props. 3=16473
 perovskite-type, structure 1=15097
 Pt(IV) and Th(IV) acetylacetonates, probable isomerism 0=8239
 δ - and ϵ -Pu alloys, lattice parameters 4=29129
 Pu alloys, unusual resistance behaviour 4=17542
 Pu carbides, props. (nuclear engng. data sheet) 1=4168
 Pu hexafluoride, vapour press. anomalies 2=8077
 Pu(IV) hexahalide solns., spectra, electron transfer and 5f \rightarrow 6f transitions 4=5186
 Pu oxalates, decomp. by own α -particles 0=4735
 Pu-Al alloys, mechanical props. 4=13440
 Pu-Al, δ -phase, elec. behaviour 2=21094
 Pu-Al(5%) crystal lattice dilation at 100°K not in 8% Al 4=26668
 Pu-Al, self-irradiation and annealing 4=1537
 Pu-Be neutron source, spectrum 2=5645
 PuC, heat capacity, enthalpy and entropy, from 400°-1300°K 4=22495
 Pu-C, < 50 at % C, phase diagram, 500-1500°K 4=7508
 PuC, 42-60 at % C, prepn., props. 3=10431
 PuC, resistivity and thermoelectric power 4=4175
 Pu₂C₃, radiation self-damage 2=23172
 Pu-Ce alloys, mechanical props. 4=13440
 Pu-Ce, δ -phase, elec. behaviour 2=21094
 Pu-Ce, phase diagram 4=29802
 Pu₃Co, crystal structure 4=4620
 PuD₃₋₇₄, ferro or ferrimag. props. 3=15783
 Pu-Eu mixed oxide system, crystal structure, atomic, and phase transformations 4=7605
 PuF₃, free energy of formation 0=12101
 Pu-Fe alloy, electron beam microanalysis 2=4516
 Pu-Ga system, phase equilibrium diagram 4=29015
 PuGe₂, ferromagnetic props. 0=11834
 PuH₂, identification, rel. to H in Pu substruct. 4=29165
 PuH₂₋₇₄, ferro or ferrimag. props. 3=15783
 PuNi, crystal structure 0=3222
 PuNi, crystal structure, rel. to similar types 3=18338
 Pu-O system, phase diagram, crystallographic, thermodynamic and physical props. 4=29016
 PuO_{1.7-2.0}, semiconducting props., thermoelectricity, activation energy 4=12908
 PuO₂, characteristic temp., from X-ray diffraction spectra 0=17898
 PuO₂, neutron sources from Be reduction 0=7379
 PuO₂, radiation self-damage 2=23172
 PuO₂ specific heat, low temps. 4=6747
 PuO₂, X-ray M absorpt. spectrum, and Pu 4=7146
 Pu₃Ru, crystal structure 4=10504
 Pu₃Ru₃, crystal structure 4=10504
 Pu₃Si₃, crystal structure 4=26669
 Pu-Ti alloys, $\beta \rightarrow \alpha$ transformation kinetics 4=29017
 Pu-U System 0=8276
 Pu-Zn, δ -phase, elec. behaviour 2=21094
 Pu-Zn system, phase diagram 4=29018

Polarimeters

- Arago compensator, comprising compensating glass plates 1=18620
 astronomical, instrumental effects 3=7019
 astronomical, sensitivity improvement 2=17272
 automatic, using an ADP polarization modulator 4=24397
 circular dichroism measurement in visible and u.v. 1=2894
 double-beam, photoelectric, 0.2-1.2 μ m 3=9625
 ellipsometry, for optical props. of films and surfaces 3=24062
 for γ -rays, high energy 3=14937
 highly-scatt. solutions, meas. methods 3=16807
 i.r. polariscope 0=180
 i.r., review 0=6952
 interference polarizers, multilayer, for u.v. region 3=19027
 light source for polariscope, large-field diffused dual source 4=18397
 liquids, dipolar, electro-optical effect meas. 2=17656
 magneto-optical effects meas., Kerr and Faraday coeffs. ferromagnetic metals 3=14376
 microwave, for solar emission 0=16524
 modulator of polarized light 3=14378

Polarimeters—contd

- multichannel, automatic, for extended source 4=331
- phase difference meas., use of phase plates 3=14380
- photoelec. analyser 2=15749
- photoelec., high sensitive, using new type of modulator 1=18623
- photoelectric, using ADP modulator 4=17552
- photoelectric, using ADP polarization modulator 1=10605-6
- photoelec., using ADP polarization modulator 2=2899, 2900
- photoelectric, with birefringence compensator 4=14402
- photoelectric, for Faraday effect 0=1047
- photoelectric meas. of optical rotation 0=19457
- photoelectric, with rotating phase plate 1=2893
- photoelectric, simple, compensating 0=5184
- photoelectric, for skylight, 3000-6500 Å 3=19028
- polariscope, imperfect circular, theory 3=1836
- polarizer for far i.r. 0=6953
- quarter-wave plate, composite, theory 3=9627
- quarter wave plate interference errors 4=16255
- quartz, circular, for i.r. work, design calcs. 2=17654
- retardation meter, with ADP polarization modulator, for automatic polarimetry 4=14400
- rotation measurement, photo-electric 3=5534
- scattered light photoelastic polariscope, rel. to stress analysis 4=24398
- Senarmont, analysis of optical-maser light 3=21570
- sheet polarizers, for u.v. 3=5532
- single cavity, for 3 cm band 1=3061
- solar radio, operating at 74 Mc/s 4=15952
- solar, spectral, 2-4 Gec/s 3=11491
- solar spectrum, photoelec. method 4=4907
- solutions at high press., rotation meas. 4=29631
- spectro. automatic recording 4=14399
- spectro-, use of Glan prisms 4=18391
- spectro, also for monochromatic meas. 4=24395
- spectrofluorimeter, automatic recording 4=14401
- spectropolarimeter, for Faraday effect meas. 3=19026
- spectropolarimeter, photoelec. 2=2902
- spectropolarimeter, 220-600 m μ 1=1834
- spectropolarimetry, instrument problems 3=16806
- stellar polarigraph, Öhman 0=6548
- 2-channel photoelec., for astrophysical and atmospheric optics 0=18590
- u.v. use of synthetic quartz crystals. 2=7411
- for visible, u.v., design, construction, performance 3=3894

Polarized light

- See also Double refraction; Optical rotation; Photoelasticity; Polarimeters.
- absorption, anisotropy, calc., aggregate of dipoles 4=322
- absorption, in ferromagnetics 0=6171-3
- analysis, photoelec. device 2=15749
- analysis, plane and elliptical, 0.2-1.2 μ m 3=9625
- anisotropic light scattering of streaming suspensions and solutions 0=939
- anthracene, luminescence, under 313 m μ light and β -radiation 1=20025
- Arend-Roland comet, head and tail polarization 2=9066
- atmospheric polarization, data 0=12202
- due to atmospheric scattering, wavelength dependence 4=15872
- in atomic system, rot. of plane of polarization with parity nonconservation 2=512, 22892
- auroral oxygen emission line, polarization 1=6638
- azobenzene crystals, polarization of spectra 2=18816
- Babinet compensator, phase difference meas. with increased accuracy 0=14854
- biaxial crystals, plane-wave polarization and optic axes 0=179
- birefringent crystal section, retardation determ. method 4=28665
- at boundary of two media 2=5476
- Brewster's angle, apparatus for determination 3=11942
- circular, action of alternating mag. field 2=5191
- circular dichroism measurement in visible and u.v. 1=2894
- coherence props. 0=146
- collimated beam through retardation plates, matrix calculus 2=7410
- comets, polarization measurements 0=18728
- conical analyser, props. and uses 0=5185
- corner, reflectors and cavities, polarization props. 2=5190

Polarized light—contd

- correlation between photons in partially polarized beams, meas. method 1=4482
- crystal plate transmission 2=15750
- crystal plates, uniaxial optically active, passage of light 2=19731
- crystalline plates, parallel or convergent light 0=2243
- in crystals, magnetic, e.m. plane wave 0=3651-2
- in crystals, molecular theory 2=6542
- crystals, second harmonic generation of light 3=1839
- cuprous oxide, complex refr. 2=6545, 8482
- day sky, elliptical polarization 2=876
- definition as anisotropy, appl. to luminescence and dichroism 3=18017
- depolarization, fluorescent organic solns., by Brownian motion and molec. vibr. 1=2760
- depolarization of light dispersed by macromolec. solns., theory 0=940
- depolarization in medium with Rayleigh scattering 0=8809
- detectors, square-law, correl. of outputs 2=1242
- dichroic film for visible and u.v. 2=1282
- dielectric, nonlinear polarization, perturb. calc. 4=17548
- in diffracted light from gratings 2=22056
- diffraction by grating, spectral distribution 1=13000
- and diffraction gratings 4=27334
- diffraction at slit, approximation method calc. 1=18614
- distance meas. (50m) with modulated ray 2=1101
- durene crystal green emission 3=23114
- dust nebulae scattered 4=29406
- edge emission of SiC 0=8012-13
- effect on dyes in films, dichroisimprod. 4=17586
- effect of transit through several polarizing media 2=1281
- effects on anomalous photocurrents and photovoltages in ZnS 0=2907
- effects on photo-emission from compound photo-cathodes 0=19722
- elastic medium, direction azimuths 4=27340
- from electron excited He atoms 0=4173
- ellipsometry, fundamental eqn. for surface and film 4=18435
- elliptical, analysis in quarter wave plates, interference errors 4=16255
- elliptical, use for metal surfaces study 3=14357
- elliptical polarization, transform. into linear 2=22064
- elliptically, analysis 0=14855
- ellipticity correl. with rotation in e.s.r. 4=20096
- Faraday rotation in atomic spin system, theory 3=22489
- Faraday rotation, general expression 4=7102
- filament connecting 2 galaxies, polarization 3=7039
- films, rel. to complex refr. index and thickness 4=24379
- fog formation from haze, optical effects 4=7838
- Fraunhofer lines, photoelec. meas. 3=270
- by gases, effect of elec. and mag. fields 1=15957
- gases, Rayleigh scatt., meas. 4=242
- glass surfaces, frosted, polarizing properties rel. to reflection 4=20458
- grating, echelette, refl. power 2=22058
- gravitational-field rotation of polarization plane 0=10568
- half and quarter-wave plate testing, using iceland spar rhomb 4=330
- i.r. from clear sky 1=9184
- i.r., use in experiments requiring strict plane polarization 1=18621
- i.r., use in magneto-optical semiconductor effects 3=14377
- i.r. polarizer using germanium 0=1045
- i.r., prod. 3=18990
- i.r., prod. by double reflection on Ge 4=5400
- i.r., prod. by reflection from Ge 4=5401
- i.r., Se mirror polarizer 3=24060
- image positron meas. by polarimetry 3=21572
- instrumental effects, theory and practice 4=8459
- intensity fluctuations in partly polarized light 3=23994
- intensity det. by photoelec. method 0=177
- interference, for contrast transmission function meas. 3=21522
- interference, Norrenberg colour sequences computer calc. 4=24391
- interference phenomena, absorbing biaxial crystals 0=2244
- interference in thin films, rel. to cryst. defects 2=10580
- interplanetary matter, rel. to models 2=11105
- interstellar, relation behaviour extinction and polarization 0=19458

Polarized light—contd

Krishnan effect 2=9409
 laser, He-Ne, in mag. fld. 4=14937
 lattices, polarization ratio at 90° 4=4716
 light propagation in absorbing crystals 0=1046
 light scattered outwards from earth and overlying aerosol 4=17893
 light scattered by soot particles on prism 0=14856
 luminescence polarization, rel. to decay 1=16123
 luminescence from stilbene and tolane 0=656
 luminescence of system with three energy levels 0=16075
 from lunar surface 1=18028
 Lyot filter, review 2=22047
 magnetic rotation, obs. by optically-dense dispersive media 3=10911
 matrix formulation of theory of partial polarization 0=12675
 matrix representation 2=15751
 metal surfaces, incandescent, emission theory 1=18622
 mica, optical angle meas. 1=10584
 microscopy, review 4=2823
 modulation and demodulation, in optical communication system 4=11368
 modulation of light for visual signal generator 1=4451
 modulation by rotating inclined isotropic film 4=8458
 monochromators used in polarimetry 0=16901
 naphthalenes, D-substituted, Rashba effect 4=1714
 night-sky spectrum, emission lines 2=911
 from noctilucent clouds 0=6484, 14290
 from oil film on metal, for thickness meas. 4=16087
 optical activity and intermolecular interactions in liquids and solutions 0=3542
 optical const. meas. of films on glass 2=15736
 optical films, extreme value method for const. 4=24378
 optical vibrations in diatomic polar crystals 0=7989
 organic molecules, limiting polarization symmetry rel. to electronic transitions 3=2635
 partial polarization, polychromatic light 3=21573-4
 partially coherent quasi-monochromatic, interference 3=11931
 perylene, luminescence, dispersed in n-heptane, electric field effects, 77°K 3=18043
 phase difference meas., use of phase plates 3=14380
 in photoelasticity, equations using cycle ellipses 4=14406
 photoelec. det. of extinction directions 0=5186
 photoelec. meas. by ADP modulator, servo-system 2=17651
 photoelec., study with electron image converter 2=7647
 photoelectric analysis 4=5402
 photoelectric meas. by ADP modulator 3=16808
 photoelectric meas. by ADP modulator 4=17552
 photoelectron emission, effects on 1=18921
 photographic demonstration, book 3=257
 in photon correlation 0=10745
 pile-of-plates polarizer, transmitted component 4=29774
 from plane wave composition 3=1838
 plasma, magneto-optical effect 2=1450
 polarimeter, Waterman's precision 3=1837
 polarimetric method for optical const. of metals 3=11943
 polarization function for air scattering volume 4=15871
 polarization and intensity rel. to properties of medium at large depths 4=11367
 polarization, macroscopic, nonlinear in Maxwell's eqns. in dielec. 2=19665
 polarization of scattered light, study by spherical harmonics 1=16117
 polarized components in ordinary light, meas. 1=18619
 polarized for i.r., reflection type 1=4481
 polarizers and retardation plates 1=11846
 polarizers of visible light, performance limits 2=13463
 polyethylene, scattering under dynamic conditions 3=10914
 polymer films, optical retardation, continuous change meas. 1=19962
 polymer solns., emission anisotropy (polarization degree) rel. to viscosity 4=27178
 polystyrene solns., scatt., and anisotropy 4=8173
 prisms, polarizing, theory 4=14405
 privileged wave, from elec. induction and transverse field 4=16254
 prod. i.r., reflection from PbS layers, on glass prism 3=16810

Polarized light—contd

production, dichroic sheets, advances 2=9410
 production by echelette grating, $1-600\ \mu$ 0=8810
 production by echelette gratings in far i.r. 4=14403
 production, i.r. prod. of Se polarizers 2=17653
 production, i.r., with pyrolytic graphite foil 2=13462
 production, nonlinear dielec. mechanism 2=14650
 production by protons entering metal surfaces 0=20099
 production by synthetic single cryst. 2=16799
 production, u.v. to i.r., double prism 4=24396
 production, use of films in polarizing systems 1=1823
 $\lambda/4$ wave compensator, calibration 0=14855
 quarter-wave stacks, degree of polarization 2=121
 radiation from He due to electron impact 3=4719
 Rayleigh scatt. from thin layer, effect on 3=1835
 in reflection from crystals, orthogonal polarization directions 0=12497
 reflection from multilayers, ellipsometry theory 2=17652
 reflection prod., 900-1200 Å 4=14404
 reflection and refraction in optically-active media 1=13002
 refraction and reflection teaching expts. 3=19029
 retardation plate 3=14379
 retardation plate, variable, for visible and u.v. 3=21571
 retardation plates, exact theory 4=27341
 ruby laser beam 4=11369
 ruby laser emission, photographed exit face 2=4125
 from ruby laser faces 3=14336
 scattered by gases, depolarization, from laser 4=21186
 in scattered visible and i.r. radiation from clouds and hazes 4=13793
 scattering by colloidal spheres 0=2255
 from scattering by colloidal spheres 4=14398
 sea, spatial distrib. of polariz. 3=16200
 second harmonic generation, in II piezoelectric crystals, by laser beams 4=28666
 self-excitation of metal coated, plane-parallel crystalline layer 3=23031
 Senarmont compensator, $\lambda/4$ plate error and polychromatism 4=16257
 Senarmont compensators, inexact, use 3=16809
 sheet polarizers, for u.v. 3=5532
 sky light, percentage and direction 3=1447
 sky light, polarization by aerosols 1=20839
 sky radiation, influence of multiple scatt 2=878
 skylight polarization meas. 0=6483
 skylight during twilight 0=4804
 use for small rotation measurement 1=6818
 solar corona emission lines 1=18088
 solar coronal streamers 2=969
 spectra recording, accessory for Beckman DK spectro-photometer 4=14370
 in spectrophotometer, prism-grating, transmittance 4=16233
 starlight, by helical magnetic field 1=15507
 starlight in interstellar medium 4=26924
 starlight from near stars 0=6611
 starlight, origin of polarization 1=15506
 starlight, polarization by oriented nonspherical particles 4=15915
 from stars 4=2386
 from stars, measurement, instrument polarization effects 0=1
 stellar atmospheric spectra 2=2545
 stilbene, luminescence, under $313\ \text{m}\mu$ light and β -radiation 1=20025
 Stokes parameters, deduction of optical constants of reflector 1=13001
 stress analysis, elliptical 3=23813
 sunlight, reflected from sea surface 3=9626
 sunlight, from sunspot vicinity, tests for polarization 1=1639
 from sunspots 0=4893
 from sunspots 1=2615
 superposed crystal plates between crossed polars, special case, and applications 0=3653
 technique for revealing surface orientations of suitably etched crystals 1=1364
 for temperature meas. 4=18462
 thermal emission from W 2=122
 by thin magnetized films 1=1230
 transmission through pair of birefr. plates 4=24399
 uniaxial optically active crystals 2=22066

Polarized light—contd

- Vavilov—Cherenkov radn. in biaxial crystals 3=3895
 by water droplets, microscopic obs. 0=19453
 wavelength dependence and ratio to absorption 3=24061
 wire grid as near i.r. polarizer 0=14852
 Wollaston prism, as beam splitter, for shearing interferometer 1=2880
 to 1900 Å by calcite 4=8457
 Al grating, uncoated, extreme u.v. refl. 3=14375
 Al mirrors 0=178
 As₂Se₃, polarization in films 2=18692
 Ba layers on W, effect on photoelectric emission 4=8810
 CdS, absorpt. edge, high-press. shift, investigation 2=2225
 CdS absorpt. spectrum, i.r., effects 2=8533
 in CdS, reflection and emission 1=10090
 Cs₂O and Cs₃Sb cathodes, effects on photo-emission 1=18912
 GaAs laser diode, var. regions, var. thresholds 4=24916
 H₂O, emissivity, i. r., calc. 4=24217
 He atoms, electron-induced radiation 4=25484
 He atoms excited by electrons, meas. 3=8209
 He, electron-impact induced 4=25531
 He, excited by electrons 2=20742
 He—Ne laser in weak long. mag. field 4=21678
 NaNO₂:Ti, polarization of low temp. luminesc. 2=715
 from Re films, on Si, thermal emission 3=17980
 Se foil polarizer, interference effect 0=10787
 Se polarizers for near i.r. region 0=14853
 Se, thin films, study 0=20970
 ZnS monocrystals, polarization of luminescence 0=16093
 in ZnS, reflection and emission 1=10090

Polarography

See Chemical analysis, electrochemical.

Polishing

See Surface texture.

Polonium

- atomic g_f factor, atomic-beam meas. 2=347
 h.f.s. of atomic ground state, atomic-beam meas. 2=523
 vapour pressure at room temp. 1=1850
 Po²¹⁰, α -particle energy 2=22808
 Po—Be neutron source intensity rel. to γ -ray dose 2=22539
 Po²¹⁰(ThA) ion mobility in air, Zeleny's method, two groups 4=5561

Polonium compounds

(Heading introduced in 1962)

- Po chloride, aq., α -emission, surface effects 2=17453
 Po—Be neutron spectrum, scintillation spectrometers 4=27864
 Po—Li neutron source, n- γ coincidences 3=590

Polymerization

- acetylene and benzene in gas phase, radiation-induced 0=6418
 acetylene, catalysis by ion exchange resins 4=7759
 acetylene, Cl induced, initial stages 2=8910
 acetylene, in shock waves 1=11618
 acrylamide, radiation-induced in solid 0=14135
 acrylonitrile and vinyl acetate, effect of ionising radiations 3=6925
 alkali chlorides, heats of dimerization 1=2356
 aromatic hydrocarbons, in soln., excimer fluoresc. 2=11376
 average degree, for random scission processes 3=10560
 biological macromols. on templates, kinetics 3=25995
 butadiene, with Li, Na, K, in solns., spectra 4=25796
 1,3 butadiene, photopolymerization during photolysis 4=17868
 copolymer, sequence, study by light scattering 3=18443
 copolymerization mathematics 2=2449
 copolymerization statistics, matrix formulation 2=14343
 copolymers, multicomponent, composition distrib. 3=8956
 cyanogen, transient species in radiolytic polymerization 0=21291
 depolymerization, organic cpds., various solvents. n.m.r. study 2=1168
 ethyl acrylate, γ -ray induced, n.m.r. study 0=1516
 free radicals, redox, e.s.r. detection 4=22437
 graft radiation-induced polymerization 3=8959
 homogeneous ionic, mechanism, diastereosequence distrib. 3=11343
 isoprene, with Li, Na, K, in solns., spectra 4=25796

Polymerization—contd

- kinetics, mol. wt. distrib. and reaction sequence 1=20734
 Markov chains, anal. of copolymerization 4=3947
 in molecular beams, mass spectrometer obs., van de Waals force mechanism 4=6666
 nonstationary, molecular mass distribution 4=28294
 n-di- and N-phenylmethacrylamide, electron microscope obs., crystal shapes 4=15842
 photopolymer film, visible latent image prodn. 3=5538
 polycondensation, non-random, statistics of substitution effect 4=17863
 polyvinyl sulphate alkali halides, rel. to sedimentation and viscosity 2=11367
 in radiation chemistry, review 2=4554
 radiation-induced, chemical kinetics 1=20767
 radiation-induced, in solid state, literature survey 2=23970
 redox, free radical e.s.r. study 4=9786
 redox, 17 transient radicals, e. s. r. meas. and steric structure 4=28275
 saturated hydrocarbons, props. of positive ions 1=20766
 sodium acrylate, electron microscope obs., crystal shapes 4=15842
 statistics of irreversible termination 4=7751
 styrene, with Li, Na, K, in solns., spectra 4=25796
 styrene, photo-sensitized by anthracene 0=8316-17
 rel. to theory of numbers 1=15164
 trioxane, growth, BF₃ catalyst 4=23659
 vinyl, proton mag. relax. study of process 2=23960
 vinyl cpds, correl. frequencies and activation energies of molec. motion 3=23545
 water—gelatine[silica gel], rel. to long and short n. m. relax. time 4=28263
 zodiacal light 1=2609
 BeCl₂, in conc. aq. soln., Raman data 3=9463
 BeF₂, in conc. aq. soln., Raman data 3=9463
 CO₂, polymeric ions (CO₂)_n⁺, (n ≤ 23) 1=9960
 Mn(OH)₂, and γ dioxide formation 4=26657
 S, equilibrium, effect of pressure 4=2152
 Se liq., effect of press. (up to 4 kbar) from viscosity meas. 4=25793
 TiCl₄ vapour, monomer to dimer 4=24448
 ZnBr₂, dimerization of vapour 4=11413
 ZnCl₄, dimerization of vapour 4=11413

Polymers

See also Plastics.

- absorption, acoustic waves, u. s., in solution, general mechanism confirmation 4=8204
 acetylene polymers, semicond. props. 2=23371
 acrylic esters, dielec. props., effect of adsorbed water 2=16767
 acrylic and methacrylic ester with styrene copolymers, C = O stretching vibr. 4=12550
 acrylic and methylacrylic esters, carbonyl group i.r. absorption band 4=20142
 acrylonitrile, knitted, triboelectric properties 1=17859
 adhesion to high-molecular substrates 4=7401
 adhesion, investigation diffusion processes 0=3162
 adhesion, luminescence diffusion study 4=4455
 adhesion to other polymers and to glass 2=10775
 adsorption—flocculation reaction with colloid 3=6891
 alkathene 7, electric strength, var. with thickness 3=13125
 amorphous, molecular weight detm. 3=20039
 amorphous, 6 specimens, creep, at high stress 0=16217
 in amorphous substance, dielectric polarization, theory 3=17928
 anionic, continuum distrib. model 4=3946
 arylene-alkyl, electronic—vibrational spectra 4=3886
 axially oriented, i.r. dichroism 0=6166
 bicoloids, order-disorder transitions 4=15851
 block copolymers, stress/strain relations 4=13395
 bond alternation and electron fixation 0=20699
 bonds, C—C, rupture energy differences, explanations 3=20038
 boundary friction and adsorption 2=21455
 branched, dimensions of chains with small excluded volume 4=17328
 breaking strength, temp.—time depend. 3=20732
 2n-butylbenzimidazole and benzotriazole in soln., association 2=19555
 n-butyl methacrylate, viscoelastic behaviour, rel. to glass polishing 4=10393

Polymers—contd

- butyl polymethylmethacrylates, diffusion, translation sedimentation, in solvents, meas. 3=9454
 $(-\text{CR}_2^{(n)}-\text{CR}_2^{(n)})$ type, Kerr constant 3=5437
 Capron fibres, tensile strength, rel. to double refraction 3=23045
 capron, tensile strength of fibres rel. to molec. wt. 3=16003
 carbon disulphide in crystals, Raman spectra meas. 4=30691
 cavitation, u.s. degradation of solns. 2=19558
 cellulose acetate in acetone, u.s. velo. 3=14161
 cellulose acetate, alkali-chloride doped, glass transition and ionic cond. 4=7735
 cellulose acetate, flow and deformation strain 1=20345
 cellulose (dry), elec. cond., temp. depend. 1=17632
 cellulose, illuminated, spectral and chemical changes 2=6891
 cellulose, water sorption and dielec. dispersion 2=6514
 chain configurations in solns., concentration dependence 1=6856
 chain dimensions, with interactions in adjacent monomers 0=9832
 chain folding in crystalline high polymers 0=520
 chain folding and free-energy density 0=18293
 chain fracture, rel. to intermolecular interaction 4=10397
 chain mols. in soln., temp. depend. of excluded volume 4=8175
 chain, unperturbed chain dimensions 0=5999
 chains, restricted, on diamond lattice 4=20143
 charged particle track visualization 4=3260
 chlorobutyl, internal energy losses, acoustic, var. cross-link density 4=13396
 chloropolvinyl, absorpt. current expression 2=10552
 p-chlorostyrene-styrene, dipole moments 0=9833
 coiling-type, models, Monte Carlo generation of nonintersection chains 2=23021
 compressibility, data for 42 high polymers, dynamic meas. 1=1295
 conc. solutions, entanglement effects from viscosity meas. 3=18809
 conc. solutions, interpretation of viscosity data 1=4334
 conductivity, elec., induced by γ -rays and neutrons, time var. 4=20402
 configuration and free energy of molecule with solvent interaction 1=7504
 configurational props. of random-flight chains in soln. and at interface 3=15404
 conformations of molecules in crystalline state 2=6816
 with conjugated bonds, 23 polymers, elec. cond., temp. depend. 1=3728
 construction, review 2=16574
 copolymer soln., light scattering 0=14851
 copolymers, dipole moment 0=9833
 cotton cellulose, crystallinity, X-ray determination 0=1918
 cross-linked, infinite network formation, statistical mechanics 3=25159
 cross linked temporarily, viscoelasticity theory 3=11309
 crosslinked, viscoelasticity theory 3=16125
 cross-linking 1=20766
 crosslinking, effective, of filled, rel. to swelling in solution 1=18400
 cross-linking by radiation, monomer effects 3=22618
 crystal formation, with folded chains, in dilute solns. 0=8160-1
 crystal formation, platelets, of const. thickness 0=8159
 crystal orientation correl., random-walk theory 4=7682
 crystal structure by detachment replication technique 3=20967
 crystal symmetry 1=14137
 crystalline, disorder due to mol. rotation 4=1331
 crystalline, first-order transition temp. 3=23495
 crystalline, Markoff chain model for mols. 2=12358
 crystalline, mol. chain dimensions 2=10929
 crystalline, molecular dimensions calc. 2=12357
 crystalline, optical and mech. anisotropy 3=917
 crystalline and paracrystalline order 3=11275
 crystalline ring structure, light scattering obs. 0=14053
 crystalline state morphology 2=23860
 crystalline synthetic high polymers with sterically regular structure 0=4668-77
 crystalline, thermodynamic stability, torsional vibrs. of chain molecules 2=23801

Polymers — contd

- crystallinity degree, X-ray determ. by absolute and relative methods 4=7681
 crystallite orientation, X-ray diffraction method 4=2012
 crystallization, crystallite models, equilibrium degrees 1=20406
 crystallization kinetics, effect of monocrystallizable components 2=6771
 crystallization kinetics obs., thermostat for polarizing microscope 4=21345
 crystallization, kinetics, study techniques 3=11234
 crystallization, non-classical spherulite theory 2=2361
 crystallization, sequence selection 3=11233
 crystallization, theory 1=20425
 cubic lattice model chain 2=2035
 deformation, heating and melting in high-speed friction 1=14897
 deformed network, orientation distrib. funcn. of statistical segments 4=23616
 deformed, submicroscopic porosity, exper. study 0=12065
 degradation by flash illumination 0=1962
 degradation, non-random, linear chain mols. 2=20896
 density-gradient centrifugation, mol. wt. and density distrib. 3=8323
 density meas., powders, errors in gradient column method 4=8011
 diallyl phthalate, rheological behaviour rel. to temp. 1=20346
 diastereosequence distrib. 3=11343
 dielec. loss data, d.c. meas. 2=16769
 dielec. loss in nonpolar polymers, theory 2=18763
 dielectric const. meas., complex, 1-100 c/s, bridge 3=19130
 dielectric constant, complex, meas. apparatus 3=3991
 dielectric losses, pressure and temp. dependence 0=2927
 dielectric meas., complex const., 1-100 c/s 4=419
 dielectric and mech. props. > 300°C 4=20410
 dielectric props., review 1=7681
 dielectric relax. meas., 10^{-2} c/s-300 Mc/s 4=18630
 dielectric relaxation at low temp. 1=7684
 dielectrics, conductivity, rel. to irradiation 3=20378
 diffusion of H, D, T, He 4=6877
 diffusion of impurities 0=3264
 diffusion and sedimentation theory, for 1, 2 and 3 branch points and rings 0=8657
 2,5-dihydroxy-p-benzoquinonato-Cu(II), electrical conductivity 1=8928
 1,6-dihydroxyphenazinato-Cu(II), electrical conductivity 1=8928
 dilute solutions, thermal diffusion, kinetic theory 0=19102
 dimensions in finite-conc. soln. 2=6242
 dimethyl-diphenyl siloxane, radiation effects. 1=11138
 dimethyl siloxane polymers, n.m.r. 0=10252
 diphenyl polymers, Raman spectra 4=6637
 dipole moments of polar polymers, rel. to configuration 1=3580
 dissociation, linear chain, influence of electronic coupling, erratum 3=8305
 double refraction, solns. flowing in a.c. + d.c. fields 4=18199
 dynamic mech. props. meas. in mid-audio range, 4°-300°K 3=3211
 e.m. wave propagation in two-component anisotropic systems, theory 2=4116
 effect of degree of polymerization of carrier on luminescence of scintillation 1=14649
 ebulliometry, design problems 0=6995
 elastic deformation, mechanism 1=20342
 elastic deformation, mechanism 2=8720
 elastic modulus meas., resonant flexure method 4=20678
 elasticity of networks cross-linked in states of strain 1=14867
 elec. conductivity, temp. dependence 0=563
 electric moments of linear polymers, deduction of molec. structure 1=8867
 electrical charges, appearance during deformation 3=20388
 electrical resist., rel. to sorbed water 2=6429
 electrolytes, acoustic propagation, u.s. 4=16108
 for electrolytic conc. cells, as semi-permeable membrane 4=26755
 electron emission, on tearing from base 3=24330

Polymers—contd

- electronic configuration, irreducible representations of spin double line groups 3=2683
 electro-optical effects, calc., rotational parameters, diagonalization 4=1332
 emission anisotropy (polarization degree) rel. to viscosity of soln. 4=27178
 equation of state for linear monolayers 3=11310
 equation of state, simple derivation 4=6682
 equations of state of liquids 4=11186
 ethyl cellulose in methyl alcohol, u.s. vels. 3=14161
 ethylene-o-phthalate, adsorption on glass powder, Al_2O_3 , var. with mol. rot. 4=10622
 excluded volume effect in polymer chains 3=12887
 exo-electron emission on plastic deformation 1=12590
 extrusion flow curves, thermorheological simplicity 1=14884
 ferromagnetism and antiferromagnetism, theory 2=732
 ferromagnetic properties, rel. to ferromag. impurities 3=20566
 fibres skin layers, microscopy, interference 4=13700
 fibrous struct. 2=4481
 fibrous structure 1=20654
 filaments, static electrification, dia. depend. 1=4549
 films, fine structure, electron microscope study 0=21220
 films, gas diffusion, linear free-energy relationship 3=2821
 films, growth on metal substrates, by electron bombardment 3=18266
 films, of mixed horizontally and vertically oriented cpds. 2=2424
 films, oriented, light scatt. 4=22836
 films, softening temp., thermomechanical curves 0=8261
 films under strain, light scattering by inhomogeneities 1=14624
 flat layers in contact with ice, sliding expts. 1=14932
 flexible linear molecules, adsorption theory 3=15405
 fluorescence, common features 2=12632
 flow, non-Newtonian, extension of Eyring-Ree theory 1=18367
 fluorescence, energy transfer study 1=6864
 fracture cracks, development, features 1=11519
 fracture cracks, development, features 1=12605
 fracture, film colour phenomena 4=10398
 fracture, mass-spectrometric obs. 3=18211
 free radicals, interaction with silica gel surface, e.s.r. study 4=1321
 friction and deformation of surface 1=20344
 friction, up to few 100 cm/sec, -60 to +300°C 3=16012
 friction of rubber-like polymers at low temp. 4=7398
 friction with steel, measurement 1=11525
 friction, two-term law, on steel 3=13387
 frictional coeff. of molecules in soln. 4=27157
 gas-crystalline state 0=1916
 gel cellophane, elec. resist., rel. to sorbed water 2=6429
 gel formation resulting from cross-linking and scission 3=17625
 gelation, theory 1=10426
 glass temp. and coeffs. of expansion 2=21557
 glycol-water mixture, surface tension 2=2691
 grafted copolymers, heterogeneity by light scatt. 2=12937
 helical, absorption and rotation of light 3=10916
 helical molecules, normal vibrations 1=17380
 helical, normal molecular vibrations 3=10557
 helical, normal vibrations 0=20698
 helical, symmetry, electronic states of double-stranded polynucleotides 3=2682
 helix-random-coil transition, theory 2=16576
 heteropolyacids, dextro-optically active crystal growth 2=8782
 high, dielectric β -relaxations 1=12345
 high, in dilute solutions, thermal diffusion 0=19103
 high, dynamic mechanical properties 0=18250
 high, mechanical testing 1=14882
 high polymer molecules, effect of solvent on extension 1=8865
 high polymer solids, rheological behaviour rel. to temp. 1=20346
 high polymer solutions, ultrasonic spectroscopy 1=10512
 high polymers, relaxation phenomena and second-order transitions 1=15165-7
 high polymetric materials, bibliography 3=13102

Polymers—contd

- high, solns., u.s. degradation and cavitation 4=21104
 and hydrated monomers, molec. interaction, rel. to i.r. spectra 4=20142
 hydrocarbon, film production in discharge 1=20664
 hydrophilic, direct radiation grafting 1=15205
 hypochromism, Bolton-Weiss theory, extension 4=9795
 inorganic [AB], bond, alternation calc. 4=9801
 interdependence of physical properties 1=1445
 internal rotation, extension, internal and intermolec. interactions 0=17857
 internal vibr. coords. 2=1982
 intrinsic viscosity, measurement, velocity gradient effects 0=8599
 irradiated, intrinsic viscosity 0=20701
 irradiated, mol. wt. distrib. 3=8325
 irradiated, molecular linking 0=21293
 irradiated, solubility behaviour analysis 0=7820
 irradiation effects, review 1=7603
 isomerism, stereo, and transitions 3=20037
 isotactic polypropylene in α -chloronaphthalene, virial coeff., second 4=24181
 isotactic polypropylene in tetralin, virial coeff., second 4=24181
 isotactic vinyl, dipole moment and length 1=14120
 isotactic vinyl polymers, dipole moments and dimensions 0=9834
 isotactic vinylic hydrocarbon-type chains, mean square length 1=7507
 light scattering by dilute solns. 4=14143
 light scattering by films under strain 0=6374
 light scattering, intramolecular 1=8120
 linear atactic, unperturbed dimensions 2=8139
 linear chain mols., non-random degradation 3=8324
 linear, excluded volume effect, calc. 0=15791
 linear, heat capacity at low temps. 0=18384
 linear molecular chain containing impurity, excited states, erratum 4=15393
 linear molecules in soln., partition functions 4=21103
 linear molecules in solution, extension determination by light scattering 1=17382
 linear polyamides, dielectric props. 0=4246
 linear, solid-state, conformational analysis 3=3351
 liquid, elasticity, shear strength and viscous flow 3=21351
 liquid macromolecules, anisotropy by light scatt. 2=6239
 liquid, rate and press. effects 2=13340
 liquids, structure and intermolecular forces, dielec. aspects 4=14139
 local steric hindrances and conformations of linear mols. in solu. 2=20894
 long chain polyenes, LCAO-MO calcs. 2=3768
 long-range forces between molecules 1=14132
 lubrication 1=12610
 macromolecular chains, diffusion, translation, sedimentation, in solvents, meas. 3=9454
 macromolecular solutions, hydrodynamics 0=12405
 macroradicals, mechanical destruction 4=2138
 mag. props., anomalies, and electron spin resonance 0=20703
 magnetic properties, rel. to theory of Heisenberg ferromagnet 4=13132
 mechanical behaviour rel. to structure 4=13693
 mechanical props. dynamic, meas. 2=4300
 melt fracture, Hooke's law 0=13903
 melt viscosity and critical chain length 4=25799
 melts, flow and fracture at high shear rates 4=28974
 melts, rheological meas. 4=14112
 membranes, transport props. 1=15848
 methacrylic acid adsorption on glass, i. r. spectrum obs. 4=7728
 methacrylic esters, homologous, in soln., molec. interactions, effective dipole moment 0=7821
 methylmethacrylate-methylmethacrylate, optical activity 0=8258
 methylmethacrylate and styrene, statistical, block and graft co-polymers, structure 3=11701
 methyl methacrylate copolymer, service life and failure under tensile load 0=16234
 methylmethacrylate-Ge interface, surface conductivity 3=20300
 methyl methacrylate, viscoelastic behaviour, rel. to glass polishing 4=10393
 mol. wt. det. from viscoelasticity theory 1=14133

Polymers—contd

- mol. wt. distrib., from stress relaxation in metals 4=7738
 molec. dimensions in finite-conc. solutions 2=6242
 molec. size distrib. function, rel. to irradiation 4=25795
 molec. wt. distrib. from meas. in soln. 2=2036
 molecular π electron states, calc., analogue 4=9757
 molecular relaxation 50-100 deg. above vitrification point 4=1333
 molecular size distrib., and gelation of irradiated copolymers 1=2357
 molecular weight determination 0=1058
 molecular weight distribution, influence on properties 1=10508
 molecular wt. det. from sedimentation 0=14141
 multicomponent copolymers, composition distrib. 1=12339
 molecular wt. distrib., det. by fractionation, theory 0=20702
 molecule, lattice model, statistical thermodynamics 4=12549
 molecules, form. by condensation in expanding gas beams 4=25794
 molten, cooling of spinning thread line 0=6987
 multicomponent copolymers, composition distrib. 3=20040
 mylar, dielectric loss, l.f., liquid He temps. 4=20411
 neighbour interactions and internal rotations, solvent effect 0=15790
 nitrocellulose in acetone, virial coeff., second 4=24181
 nitrocellulose, surface charge on separation from steel, meas. 4=7695
 non-Gaussian character of real polymer chains 3=10558
 nuclear mag. resonance, effect of correlation time distrib. on T_1 and T_2 1=7806
 nuclear magnetic relaxation, meas. with spin echo spectrometer 4=23064
 nuclear relaxation times 3=22592
 nylon, filament, dielectric constant meas. 1=16232
 nylon, pressure-induced transitions, optical study 3=23494
 nylon, proton mag. resonance 1=20265
 nylon, viscoelasticity 1=7811
 Nylon-4, internal friction, 100°-300°K 4=1959
 nylon 6-6, i.r. spectrum, effect of pressure 4=22908
 nylons 6-6 and 6-10, dielectric loss at low temps. 1=17822
 Nylon 66, optical retardation by films, continuous change meas. 1=19962
 Nylon 66 unoriented filaments, extension 4=4653
 optical activity, theory 1=9487
 optical and electronic properties, theory 0=20704
 optical and electrical props., solns. flowing in a.c. + d.c. fields 4=18199
 optical props., classical model 4=26165
 optical retardation by films, continuous change, meas. 1=19962
 optical rotation, exciton contribution 4=9800
 organic glasses, deformed, submicroscopic cracks 0=6318
 orientation meas. X-ray diffraction methods 4=10629
 oriented, structure, X-ray diff. 3=13438
 oxidation, i.r. spectroscopic study. 4=4697
 PMMA films, "silver" cracks 2=6847, 8878
 p.t.f.e., dielectric loss increase by X-rays 4=20412
 PTFE, irradiated, nuclear dynamic polarization of F^{19} 1=12571
 p.t.f.e., wear on glass 4=23199
 p.v.c., relaxation, similarity of acoustic and dielectric 4=15419
 p.v.c., stress-strain relations, high sine deformation 4=17741
 pair potentials in nonpolar media 3=12880
 paraffin, bulk modulus by "suspension method" 1=12578
 paraffin crystals, α -dispersion 3=6781
 n-paraffins, cryst., phase transitions 3=16020
 partially crystalline, dynamic degree of crystallinity 3=11308
 partition function 2=12356
 permeation through polymer film, anomalous 3=1679
 phase separation in conc. solns. in H_2O 4=24179
 phenol resin, dynamic mechanical props. at ultrasonic frequencies 1=2502
 physics of conference report 1=11587
 π -electron excitation, by 20 keV electrons 3=22617
 piezoelectric, 20 natural and synthetic 3=20392
 pipe flow of polymeric solns., Reynolds no. 4=135
 plastic flow, meas. difficulties 4=7381
 plastic insulators, positron annihilation 1=19918

Polymers—contd

- plasticity of macromolecules, temp. peaks, crystallization 4=17742
 pleochroism, helical, unusual circular dichroism curve 4=17327
 Plexiglas, electrical effects of electron bombardment 1=3809
 Plexiglas, radiation protection props. 2=20357
 Plexiglas, refractive index meas. 1=16065
 plexiglas, refractive index meas. 1=18577
 Plexiglas, pre-breakdown behaviour 1=17849
 Plexiglas, u.s. excited, light diffraction 1=8237
 Plexiglass, fracture, a typical cleavage surface colours 4=26525
 polar and non-polar, dipole relaxation, review 4=26108
 polar solns., thermodynamic props. 3=11790
 polar solutions, thermodynamic props. 3=14158
 pole figures, preparation by computer technique 4=10628
 polyacene, triplet-singlet transitions, polarization 2=20857
 polyacenes, triplet-triplet absorption spectrum, polarization 3=23082
 polyacenes, vitreous solid solutions, luminescence, delayed, 77°K 3=20535
 polyacrylamide, γ -dosimeter 1=8406
 polyacrylic acid solution, sedimentation of microscopic spheres 0=76
 polyacrylonitrile, semiconducting mechanism 3=20341
 polyacrylonitrile, crystal structure 3=11276
 polyacrylonitrile, elec. cond., Hall effect, thermoelec. power 4=22733
 polyacrylonitrile, elec. cond. and thermoelec. power 1=7656
 polyacrylonitrile, pyrolyzed, current noise 2=2169
 polyacrylonitrile, pyrolyzed, current noise 4=22734
 polyacrylonitrile, tensile strength 2=19007
 polyacrylonitriles, normal vibrations 4=28292
 polyacrylonitril, fibres, mech. props., temp. depend. 3=23358
 polyalcohols, permittivity and viscosity, H-bond mechanism 1=15896
 polyamide, transition phenomena, mechanical dispersions 1=14851
 polyamides, d.c. cond. rel. to temp., H_2O content and voltage 4=7038
 polyamides, dielec. relaxation, 50 c/s-10 Mc/s, -100° to +175°C 1=12305
 polyamides, n.m.r. of water content 3=6768
 polyamides, transition studies 0=6375
 polyatomic molecules, vibr. rotn. energy 1=17304
 polybenzylglutamate, soln., strain birefringence 3=5441
 poly(bisphenol-A carbonate), viscoelastic behaviour 4=4687
 polybutadiene, viscous behaviour 4=23196
 poly(butene-1), transition studies 0=6375
 polybutyl methacrylate-isopropanol, critical opalescence 3=21353
 polybutylacrylate, internal motions 1=14159
 polybutylmethacrylate, diffusion in chloroform and isopropanol 0=14636
 polybutylmethacrylate, diffusion and sedimentation in isopropyl alcohol 0=12111
 polybutylmethacrylate, internal motions 1=14159
 polybutylmethacrylate, photoelastic effect 0=5187
 polycaprolactam fibre films, stress effects on long range order 4=23618
 polycaprolactam, stress effects on mol. mobility, n.m.r. obs. 4=23617
 polycaprolactame, fibres, mech. props., temp. depend. 3=23358
 polycarboxylic acid, hydration-dehydration 1=15865
 polychloroprene latex globules, size det. 0=19446
 polychloroprene, refr. index rel. to crystallinity 2=6544
 polychloroprene, in various solvents, optical anisotropy 4=25788
 polychloropropylene, mol. optical anisotropy 4=22444
 polychlorotrifluoroethylene crystal growth, oriented on KCl crystal 3=18265
 polychlorotrifluoroethylene, spherulitic cryst., with chain folds 3=3272
 poly copper phthalocyanine, semiconducting props. 0=4358

Polymers—contd

- polydeuteroethylene, vibrational spectrum 3=10556
 polydimethyl-diphenyl and polydimethyl siloxanes, cross-linking 3=10563
 polydimethylsiloxane, internal mol. rot. 2=14249
 polydimethylsiloxane, radiothermoluminescence 0=21018
 polydimethylsiloxane soln., second virial coeff. 2=19556
 polydimethylsiloxane, viscoelastic consts. 4=24189
 polydisperse system, random degradation 2=23961
 poly DL phenylalanine, length distribution of macromolecules 1=11766
 polyelectrolyte multicomponent solns., light scatt. and sedimentation 2=11366
 polyelectrolyte soln., self-diffusion of ions 2=13331
 polyelectrolyte solns., interaction of neighbouring charged groups, effect on props. 3=21345
 polyelectrolyte solns., volume effect theory 3=21346
 polyelectrolytes, aggregation in soln. 2=7049
 polyelectrolytes, chain model, potentiometric titration 2=7206
 polyelectrolytes, rod-like, interactions 1=8114
 polyelectrolytes, 2nd virial coeff. 2=17456
 polyelectrolytes, 2nd virial coeff. 4=161
 polyelectrolytes, second virial coeff. 3=21347
 polyene chains, electronic 0=9831
 polyene, cyclic, $C_{2n}H_{2n}$, bond length alternation, theory 0=9835
 polyene spectra, exciton and electron delocalization 2=22994
 polyenes with alternating bond lengths, electronic states 2=14344
 polyenes, bond alternation defects 2=6241
 polyenes, LCAO-MO ω -technique calc. 2=16499
 polyenes, linear, electron mobility and elec. cond. 3=4926
 polyenes, substituted, solns., fluorescence 3=23891
 polyester fibreglass, delayed fracture, mechanism 4=1942
 polyethylacrylate, dielec. props., effect of adsorbed water 2=16767
 polyethylacrylate, internal motions 1=14159
 polyethylene, adsorption of hydrogen 1=9163
 polyethylene, absorption spectra, rel. to electron irradi. 4=1416
 polyethylene, alkyl-type-alkyl-type radicals, photochem. change 4=4712
 polyethylene, α -dispersion and mol. motion 3=6781
 polyethylene, α -irrad., crosslinking and chain scission 2=4478
 polyethylene, amorphous, cross-linked, photoelastic prop. 4=20680
 polyethylene, amorphous state 3=3350
 polyethylene, annealing after drawing, light scatt. study 1=20641
 polyethylene anti-reflection optical film 0=5155
 polyethylene, b_{1u} methylene wagging and twisting 0=15792
 polyethylene, bulk-cryst., internal morphology 3=23368
 polyethylene, bulk modulus by "suspension method" 1=12578
 polyethylene, with C-black, transmittance, 17-55 μ 0=6167
 polyethylene, cleavage surface, crystallite lamellae 3=13547
 polyethylene, cohesion, autogenous, under high press. 4=26526
 polyethylene, contact charging due to irradiation 0=10860
 polyethylene containers, liquid scintillation counting 3=14824
 polyethylene, crosslinked, crystal growth rel. to orientation 1=20426
 polyethylene, crosslinked, strained, crystallite orientation 4=29031
 polyethylene, cryst. habits and growth 2=23811
 polyethylene, crystalline, heat capacity 1.8°-5.3°K 2=14380
 polyethylene, crystalline, low-frequency motions, study by neutron scattering 4=12551
 polyethylene, crystalline vacancies and subst. sites 2=14430
 polyethylene, crystalline vibr. spectrum 2=23905
 polyethylene, crystallization kinetics, influence of prep. 1=20423
 polyethylene crystals, defects 0=17923
 polyethylene crystals, deformation rel. to twinning and phase transition 4=20679
 polyethylene crystals, folding of moles. 3=11274

Polymers—contd

- polyethylene, crystals, i.r. spectra 3=23083
 polyethylene crystals, monolayer, fold surface geom. 4=4518
 polyethylene crystals, monolayer, habit features 4=4517
 polyethylene, decay of alkyl radicals, by e.s.r. 4=28276
 polyethylene, density, single crystals, by pycnometer 3=20766
 polyethylene, detachment replica 1=20407
 polyethylene, dielec. permittivity and loss 2=11599
 polyethylene, dielectric loss, γ irradi., large change mechanism 4=7039
 polyethylene, diffusion of ethane 4=28481
 polyethylene, diffusion recombination 3=20379
 polyethylene, drawn, anisotropy of shear moduli 2=14870
 polyethylene, drawn, anisotropy of Young's modulus 1=10275
 polyethylene, dynamic birefringence 3=10915
 polyethylene, dynamic mechanical properties 0=8110
 polyethylene, effect of irradi. on internal motion 3=13546
 polyethylene, effect of irradiation on elec. cond. 3=10886
 polyethylene, elastic relaxation 4=7375
 polyethylene, elec. strength at low temp. 2=4101
 polyethylene, electrical conductivity, rel. to electron irradiation 4=1657
 polyethylene, electrical and paramagnetic props., relation between 4=22952
 polyethylene, electron corona bombard. 2=12982
 polyethylene, electron-irradiated, thermostimulated e.m.f. 1=17642
 polyethylene, electron microscope observation 1=10285
 polyethylene, electron microscopy, crystallinity effects 0=16340
 polyethylene, ethylene copolymers, flow meas. difficulties 4=7381
 polyethylene, extension of Eyring-Ree theory of flow 1=18367
 polyethylene, fibres, ion bombardment etching 3=23497
 polyethylene, fibrous, low angle X-ray diffraction 0=8251
 polyethylene filaments, X-ray line broadening 1=20697
 polyethylene, flow in capillary 0=8605
 polyethylene, free radicals prod. by γ -irradiation 1=14344
 polyethylene, γ -ray induced elec. conductivity 3=10874
 polyethylene, γ -transition, e.s.r. study 2=14833
 polyethylene glycol, molecular vibrations and structure 3=6444
 polyethylene glycols, and in benzene, dielec. props. 0=14656
 polyethylene, grafting of styrolene after low temp. irradiation 1=20765
 polyethylene, high-density, crystal structure 2=21527
 polyethylene, high density, dielec. loss, α -process 0=7985
 polyethylene, high-density, far i. r. absorption, spectra 4=10207
 polyethylene, infrared-active interchain vibration 4=26228
 polyethylene, γ -irrad. proton n.m.r. 2=12837
 polyethylene, γ -irrad., thermoluminescence, effect of O_2 3=4995
 polyethylene, γ -irradiated, induced conductivity in co-ax. cable 0=9949
 polyethylene, γ and n-irrad., energy deposition rate 0=20531
 polyethylene, irradi., e.s.r. 4=1334
 polyethylene, irradi. e.s.r. and mol. orientation 2=4264
 polyethylene, irradi., e.s.r. study 2=3779
 polyethylene, irradi., electron-spin density 4=3949
 polyethylene, irradi. oriented, temp. depend. of e.s.r. 2=23022
 polyethylene, irradi., trapped radical disappearance, kinetics 2=16564
 polyethylene, irradiated, free radical decay 3=2671
 polyethylene, isothermally bulk-cryst., lamellar structure 4=7684
 polyethylene, kinetics of cryst. nucleation 2=23823
 polyethylene, lamellar thickness, melting pt, density, effect of crystallization 4=15809
 polyethylene, light scatt. patterns, interpretation 2=2222
 polyethylene, light scattering under dynamic conditions 3=10914
 polyethylene, linear, molecular structure in crystal aggregates 1=3579
 polyethylene, linear, orientation determ. 3=11307
 polyethylene, linear, spin-lattice relaxation time and line-shape 4=4430

Polymers—contd

- polyethylene, linear, X-ray diffr. 2=4504
 polyethylene, low-frequency molecular motions 4=3952
 polyethylene, mechanical loss 0=1846
 polyethylene, melting and molten, ultrasonic propag. consts. 4=27175
 polyethylene, micro-crystals, I-V characteristics 3=8558
 polyethylene and mixtures with polybutadiene, energy transfer during γ -irrad. 1=7920
 polyethylene, mol. optical anisotropy 4=22444
 polyethylene, neutron inelastic scattering investigation, 20°C 4=5153
 polyethylene, neutron moderation 3=19648
 polyethylene, neutron scatt. detector 2=3359
 polyethylene, neutron spectra 2=5648
 polyethylene, nonoriented, crystalline, low-angle X-ray diffraction 1=11605
 polyethylene, 0.5-14 MeV, var. thicknesses, calc. 4=6070
 polyethylene, oriented crystalline, i.r. absorption, dichroism 1=14608
 polyethylene, orthorhombic, melting props. 2=14391
 polyethylene oxide copolymers, cryst. and melting meas. 4=7562
 polyethylene oxide, melting 2=15821
 polyethylene, oxidized, high-pressure, dielectric behaviour 3=22989
 polyethylene, p.m.r., and crystal struct. 4=17700
 polyethylene, permeability changes, due to irradiation 0=12064
 polyethylene, permittivity effect of high press. 2=23494
 polyethylene, positron lifetime in 2=6306
 polyethylene, pressure-induced transitions, optical study 3=23494
 polyethylene, proton mag. relaxation 4=23064
 polyethylene, radiation protection props. 2=20357
 polyethylene, radiothermoluminescence 0=21018
 polyethylene, recrystallization 3=11232
 polyethylene, second crystallite modification 0=18371
 polyethylene, second order transition phenomena 1=9155
 polyethylene, secondary electron emission due to γ -irrad. 1=13120
 polyethylene, secondary recryst. and annealing 4=7561
 polyethylene semiconductor, rectifying effect 4=10073
 polyethylene, sheets, polarizer for far i.r. 0=6953
 polyethylene single crystals, dislocation arrays 4=17434
 polyethylene, single crystals, morphology 0=18292
 polyethylene single crystals, recryst. rate in hot liqs. 1=20424
 polyethylene single crystals, structurally distinct sectors 0=4667
 polyethylene, small-angle X-ray diffr. 3=5153
 polyethylene, solid, molecular motion in disordered regions 1=20640
 polyethylene, solid, nuclear signal shape 4=4431
 polyethylene in soln., local steric hindrances and conformations 2=20895
 polyethylene, solid, molecular motion in disordered regions 1=20640
 polyethylene, solubility and diffusivity of N 0=12066
 polyethylene, sp. ht. crystallinity depend. 2=23904
 polyethylene, specific heat, low-temp., from force consts. 3=8366
 polyethylene spherulites, radial growth and extinction bands 4=7683
 polyethylene spherulites, structure studies, light scatt. method 0=21221
 polyethylene, spherulitic crystallization 1=14972
 polyethylene, strength, rel. to strain and γ -irrad. 2=21438
 polyethylene, stress relax., rel. to strain rate and temp. 4=20681
 polyethylene, stretched, ESR spectrum 1=20227
 polyethylene, stretching, electron microscope study, low-angle scatt. 4=23410
 polyethylene, structure at low temps. 0=18337
 polyethylene terephthalate, biaxially orientated, effect of temp. and reactor irradiation 0=18274
 polyethylene terephthalate, crystallization, liquid induced 2=23822
 polyethylene terephthalate, diffusion of gases 3=11306
 polyethylene terephthalate, dynamic elastic moduli 3=8754
 polyethylene terephthalate fibres, crystallinity meas. 0=14052
 polyethyleneterephthalate, fibres, mech. props., temp. depend. 3=23358

Polymers—contd

- polyethylene terephthalate, films, n.m.r. 3=11124
 polyethylene terephthalate, molec. structure and strength of fibres 1=14136
 polyethylene terephthalate (nylon) elec. strength at low temp. 2=4101
 polyethylene terephthalate, PET, crystallinity meas. by X-ray and n.m.r. 1=1444
 polyethyleneterephthalate, rotational isomerism 4=6671
 polyethylene terephthalate, solution of gases 3=11305
 polyethylene terephthalate, stress effects on mol. mobility, n.m.r. obs. 4=23617
 polyethylene terephthalate, structure 3=18372
 polyethylene terephthalate, tensile strength, effect of reactor irradiation 0=18273
 polyethylene terephthalate, transversely isotropic elastic consts. 4=1960
 polyethylene, thermoluminescence after γ -irrad. 3=4994
 polyethylene, transition phenomena, mechanical dispersions 1=14851
 polyethylene, transmission in far i.r. 2=5023
 polyethylene, ultrasonic purification 1=20638
 polyethylene, ultrasonic purification 2=6814
 polyethylene, unperturbed mean-square end-to-end distance 1=17379
 polyethylene, vibrational spectrum 3=10556
 polyethylenes, density, shear, crystallinity, temp. depend. 3=13326
 polyethylenes, electron-irradiated, dynamic mech. props. 1=9080
 polyethylenes, γ -irrad. effect on crystallite size distrib. 4=13699
 polyethylenes, n. irrad., protons polariz. 3=20064
 polyethylenes, irradiated, proton spin diffusion and relaxation 4=10349
 polyethylenes, neutron irrad., dynamic proton polarization 4=1899
 polyethylenes, Raman spectra 3=8321
 polyethylenes, soln.-grown, mechanical dispersions 3=1400
 polyethylenes, transition studies 0=6375
 polyethylmethacrylate, dielec. props., effect of adsorbed water 2=16767
 polyethyl methacrylate, dynamic bulk and shear viscosity 1=20343
 polyethylmethacrylate, internal motions 1=14159
 polyethylsiloxanes, mech. props. and mol. structure 1=20642
 polyformaldehyde, γ -irrad., free radicals, e.s.r. 3=12858
 poly-4,4'-dioxydiphenyl-2,2-propan carbonate, n.m.r. absorpt. 4=23075
 poly-4-methyl-pentene-1, morphology and chain packing 0=16333
 poly- γ -benzyl-L-glutamate, dielec. dispersion and struct. 4=26109
 poly- γ -benzyl-L-glutamate in m-cresol, viscosity 3=135
 poly- γ -methyl-L-glutamate, Pauling-Corey α -helix detrm. 3=6838
 poly-i-butyl methacrylate, dynamic bulk and shear viscosity 1=20343
 poly-i-butylene-benze, solns., optical props., near critical mixing temp. 3=21352
 polyisobutene in cetane, rheology, vortices in cone-plate viscometer 4=21079
 polyisobutylene, anisotropy by scatt. of light 2=6239
 polyisobutylene, dynamic shear behaviour, effect of pressure 0=18249
 polyisobutylene, elastic deformation 1=14871
 polyisobutylene, elastic deformation 1=20322
 polyisobutylene, internal mol. rot. 2=14249
 polyisobutylene, melt viscosity, press. and temp. depend. 0=3492
 polyisobutylene, n.m.r. 0=7810
 polyisobutylene, radiothermoluminescence 0=21018
 polyisobutylene in soln., sonic degradation 4=7773
 polyisobutylene, thixotropy 4=23197
 polyisobutylene, transition studies 0=6375
 polyisobutylene, viscoelastic behaviour 3=11167
 polyisobutylene, viscosity 1=2729
 polyisobutylene, viscosity 3=7203
 polyisobutylene, viscous flow 0=10266-9

Polymers—contd

- poly-L-proline II and poly-L-hydroxyproline A, structure 0=4664-5
- polymer plastic resistance to erosion by cavitation 1=20394
- polymer-solvent systems, sedimentation coeff. rel. to conc. 4=13747
- polymeric materials, rolling friction 1=11526
- polymerizing systems, multiple equilibria 4=20138
- polymethacrylate, dielec. loss rel. to struct. 2=14600
- polymethacrylate, effect of molec. wt. on luminescence 0=20995
- polymethacrylic acid, γ -irradiated, e.p.r. spectrum 0=501
- polymethine chains, electronic structure rel. to chain length and isomerization 4=6636
- polymethylacrylate, internal motions 1=14159
- polymethyl acrylate monolayers, viscoelasticity 3=16126
- polymethyl acrylate, n.m.r., T₁ temp. dependence 1=14830
- polymethyl methacrylate, birefringence rel. to stretching 3=17982
- polymethyl methacrylate-butyl chloride, critical opalescence 3=21353
- polymethylmethacrylate, cold-drawing deformation mechanism 0=8117
- polymethylmethacrylate and copolymer solns., viscosity 2=13341
- polymethylmethacrylate, crack growth, kinetics 1=12607
- polymethylmethacrylate, crack growth and structure 0=6315
- polymethylmethacrylate, crosslinking and chain scission 2=4478
- polymethylmethacrylate, dielec. props., effect of adsorbed water 2=16767
- polymethylmethacrylate dielec. props. rel. to stretching 2=8461
- polymethylmethacrylate, dilute soln. props. 3=134
- polymethylmethacrylate in diphenyl solution, shear viscosity rel. to shear stress 3=16619
- polymethyl methacrylate, dynamic behaviour, 60-300°K 1=14850
- polymethyl methacrylate, dynamic bulk viscosity 1=10477
- polymethyl methacrylate, dynamic mechanical props. at ultrasonic frequencies 1=2502
- polymethylmethacrylate, e.s.r. spectra rel. to γ -irrad. 2=8123
- polymethylmethacrylate, elec. resis., rel. to sorbed water 2=6429
- polymethylmethacrylate, elastic constants, 50-1000c/s -80 - + 100°C 3=6776
- polymethylmethacrylate, "electretized", elec. and opt. props. 0=1705
- polymethyl methacrylate films, deformation and tensile strength, rel. to drawing and temp. 4=7734
- polymethyl-methacrylate, fracture energy variation with temperature 1=9096
- polymethyl methacrylate, fracture surface energy 3=11179
- polymethylmethacrylate, fracture surfaces study 2=12866
- polymethylmethacrylate, free radicals formed on mech. destruction 2=2031, 8129
- polymethylmethacrylate, γ -irradiated, dielectric properties 0=6803
- polymethylmethacrylate, γ -irradiated, e.p.r. spectrum 0=501
- polymethylmethacrylate, γ -irradiated, e.s.r. 0=18221
- polymethylmethacrylate, internal gas bubble formation by heat 0=8259
- polymethylmethacrylate, internal motions 1=14159
- polymethylmethacrylate, light scatt. by soln. 2=5017
- polymethylmethacrylate, luminescence during reactor irradiation 0=1759
- polymethylmethacrylate, mech. props., 1.6-4.2°K 0=18241
- polymethyl methacrylate monolayers, visco-elasticity 3=16126
- polymethyl methacrylate, n.m.r., T₁ temp. dependence 1=14830
- polymethylmethacrylate, optical activity 0=8258
- polymethylmethacrylate, photoelastic effect 0=5187
- polymethylmethacrylate, with phthalimide, fluorescence max. polarization 0=8018
- polymethylmethacrylate, protection against radiation damage 1=8920
- polymethylmethacrylate, rupture factor 3=3235

Polymers—contd

- polymethylmethacrylate, service life and failure under tensile load 0=16234
- polymethylmethacrylate, shear, Young's and bulk moduli, Poisson's ratio 4=7445
- polymethylmethacrylate, with Sn, Mössbauer effect 2=10930
- polymethylmethacrylate, with Sn, Mössbauer effect 3=6877
- polymethyl methacrylate, stress strain velo., cracks, theory 4=13439
- polymethylmethacrylate, stretching rel. to dielec. props. 2=8461
- polymethylmethacrylate, surface cracks, thermal healing 4=7446
- polymethylmethacrylate, surface degradation 0=3309
- polymethylmethacrylate, suspensions, spheres, macroscopic, dilute, viscosity, non-Newtonian 3=18788
- polymethylmethacrylate with Tb³⁺ chelate, stimulated emission 4=9001
- polymethylmethacrylate, tensile strength 2=19007
- polymethyl methacrylate, tensile strength and birefringence 3=18207
- polymethylmethacrylate, transition studies 0=6375
- polymethylmethacrylate, u.s. enhanced absorption 1=15874
- polymethylmethacrylate, u.v., γ -ray effects 2=18503
- polymethylmethacrylate, vitrification under high press. and temp. 0=12060-1
- polymethylsiloxanes, mech. props. and mol. structure 1=20642
- polymonochlorotrifluoroethylene, dipole moment rel. to configuration 1=3580
- poly-n-butyl methacrylate, dynamic bulk and shear viscosity 1=20343
- poly (normal α -olefins), spin-lattice n.m.r. relax. 4=6672
- polynucleotide, helical, double-stranded, spectra, exciton bands 4=9799
- polyolefins, deformation, crystal reorient. processes 4=7448
- polyoxyethylene glycol, anisotropy by light scatt. 2=6239
- polyoxyethylene, normal vibrations and Raman spectrum 1=12279
- polyoxyethylenglycol, molec. structure from electric moment 1=8867
- polyoxymethylene, irrad., e.s.r. 2=21371
- polyoxymethylene, normal molecular vibrations 3=10557
- polyoxymethylene, proton mag. relax. 4=23064
- polyoxymethylene, screw dislocations 0=18292
- polyoxymethylene single crystals, electron microscopy 3=11334
- polyoxymethylene, spherulitic crystn. rate 4=23620
- polypeptide chains, perturbation calc. of characteristic vibrations 0=15789
- polypeptides, dimensional change in helix-coil transition region 1=6062-3
- polypeptides, helical, Cotton effect, origin 3=2681
- polypeptides, helix-coil equilibrium 3=10559
- polypeptides, helix-random-coil transition 2=16576
- polypeptides, model for helix-random coil transition 3=8322
- polyphenylene, resistivity 3=4936
- polyphenyls with anthracene impurities, luminesc. and absorpt. 2=6567
- polyphenyls, linear, compressibility 3=15985
- polyphosphonitrilic chloride, optical anal. of fibre diagram 4=3945
- polypropionate, in various solvents, optical anisotropy 4=25788
- polypropylene, atactic and isotactic, thermodyn. props. rel. to structure 3=10597
- polypropylene, birefringence, principle bond polarizabilities 0=20971
- polypropylene, bulk modulus by "suspension method" 1=12578
- polypropylene, crystallinity 2=10949
- polypropylene, diffusion and sorption of gases, rel. to crystallinity 1=19800
- polypropylene, far i. r. absorption, spectra 4=10207
- polypropylene, fibres, mech. props., temp. depend. 3=23358
- polypropylene fibres, tensile strength, rel. to double refraction 3=23045
- polypropylene films, microstructure rel. to mech. props. 4=7447
- polypropylene films, orientation meas. 0=18410
- polypropylene, folded mols. in single-cryst. lamellas 2=8835

Polymers—contd

- polypropylene, irradi., trapped radical disappearance, kinetics 2=16564
 polypropylene, irradiation changes in structure 0=10359
 polypropylene, isotactic and atactic, low-frequency motions, study by neutron scattering 4=12552
 polypropylene, isotactic, i.r. spectrum and vibrations 3=17624
 polypropylene, isotactic, optical retardation by films 1=19962
 polypropylene, n.m.r. second moments 3=3200
 polypropylene, proton mag. resonance and x-ray diffraction study 1=9154
 polypropylene, shape double-refraction 4=20474
 polypropylene, spin-lattice relax time 2=11814
 polypropylene, tensile strength, time dependent 1=6469
 polypropylene, thermal props. rel. to γ -irrad. 3=2728
 polypropylene, transition phenomena, mechanical dispersions 1=14851
 polypropylenes, transition studies 0=6375
 polysiloxanes, linear, u.s. relaxation study at 30-270 Mc/s 3=11793
 polystyrene, absorption spectra 50-2500 μ 0=10035
 polystyrene, adsorption and desorption rates on chrome, 10^{-1} to 10^{-4} mg/nl conc. range 4=30888
 polystyrene, with Al powder, dielectric anisotropy 1=14544
 polystyrene, in benzene, light scattering indicatrix 0=12495
 polystyrene, birefringence under const. tension 1=14575
 polystyrene, brittleness, high press. var. 4=23198
 polystyrene and copolymer solns., viscosity 2=13341
 polystyrene, crack growth and structure 0=6315
 polystyrene in cyclohexane, crit. opalescence rel. to mol. force range and radius of gyration 2=5016, 11373
 polystyrene in cyclohexane, critical opalescence 1=1743
 polystyrene-cyclohexane, solns., critical opalescence 3=21353
 polystyrene-cyclohexane, solns., optical props., near critical mixing temp. 3=21352
 polystyrene, dielectric current oscs., high voltage 4=28621
 polystyrene, dielec. props. 2=12556
 polystyrene, dilute soln. props. in θ -solvents 3=16616
 polystyrene, dilute solns. in toluene, viscoelastic props. 4=24190
 polystyrene, dynamic bulk viscosity 1=10477
 polystyrene, dynamic mechanical props. at ultrasonic frequencies 1=2502
 polystyrene, e.s.r. studies of γ -irradiation effects 0=6420
 polystyrene, effect of molec. wt. on luminescence 0=20995
 polystyrene film, 1 μ thick, formed in glow, dielectric props. 4=4207
 polystyrene films, electron energy loss rel. to momentum 4=20261
 polystyrene, fluoresc. rel. to styrene monomer. 2=12633
 polystyrene foams, mechanical-acoustical behaviour 2=17523
 polystyrene, fractions in soln., diffusion coeff. 0=16054
 polystyrene, fracture energy variation with temperature 1=9096
 polystyrene, fracture surface energy 3=11179
 polystyrene, free radicals formed on mech. destruction 2=2031, 8129
 polystyrene, γ -irradiated, unpaired electron spin density distrib. in macroradical 4=30492
 polystyrene, heat capacity in glass-transform. interval 4=7736
 polystyrene, H_2SO_4 treated, cation-exchange foils for α -sources 2=19148
 polystyrene, hypochromism, solvent effects 4=3948
 polystyrene, isotactic, characteristic bands in i.r. spectrum 1=17902
 polystyrene, large-vol. scintillators, prep. and props. 2=2259
 polystyrene latexes, light scattering 0=10784
 polystyrene latexes, mag. susceptibility 1=3034
 polystyrene, luminescence during reactor irradiation 0=1759
 polystyrene-metal mixtures, dielec. props., microwave region 3=22986
 polystyrene, in mixed solvents, adsorption 2=13330
 polystyrene, mol. network and orientational processes 4=25797

Polymers—contd

- polystyrene, optical props., γ ray effects 4=8405
 polystyrene-PMMA grafted copolymer study 2=12937
 polystyrene, permittivity, effect of high press. 2=23494
 polystyrene radicals e.s.r. spectrum 2=18494
 polystyrene, radioluminesc. rel. to mol. wt. 3=23117
 polystyrene, range of 0.2-2.7 MeV tritons 3=10180
 polystyrene, refl. coeff. rel. to refr. index and absorpt. coeff., 23.6-113 Å 4=22846
 polystyrene, relaxation enthalpy and cooperative phenomena, in vitrification zone 4=2139
 polystyrene, scatt. of elastic waves, nonlinear theory 3=7269
 polystyrene scintillator, decay time 2=21278
 polystyrene, solid solns., luminescence-solute conc. relation 0=6806
 polystyrene, soln. in cyclohexane, scatt. light, temp. var. 3=9459
 polystyrene soln., light scatt. 3=5530
 polystyrene, in soln., proton mag. reson. 3=11812
 polystyrene soln., refractive index, temp. increment 0=14658
 polystyrene solns., critical opalescence 0=6805
 polystyrene solns., dynamic mechanical props. 4=27158
 polystyrene solns., optical anisotropy, scatt. polarized light study 4=8173
 polystyrene solns., Rayleigh optical scatt., diffusion broadening 4=14142
 polystyrene solns., second virial coeff. calc. 3=16615
 polystyrene, sol. birefringence induced by acoustic waves 2=13339
 polystyrene, solutions in dioxane and butanone, flow birefringence 0=12498-500
 polystyrene solutions, viscosity 1=2729
 polystyrene suspensions, extinction of light 4=5397
 polystyrene, thermal cond. liq. N to room temp. 0=5204
 polystyrene, thermal diffusion in toluene 1=15854
 polystyrene thin films, optical props. in far u.v. 4=22821
 polystyrene, toluene solns., viscoelasticity 2=15583
 polystyrene in toluene, virial coeff., second 4=24181
 polystyrene, "transition" at 50°C, DTA study 4=7737
 polystyrene, transition studies 0=6375
 polystyrene, viscosity rel. to branching prod. by high-energy irradi. 4=16095
 polystyrene, vitrification under high press. and temp. 0=12060-1
 polystyrenes, anisotropy by scatt. of light 2=6239
 polystyrenes, deuterated, reaction with H and D atoms 4=29219
 polystyrenes, diffusion, translation, sedimentation, in solvents, meas. 3=9454
 polystyrenes, short chain, viscosity-mol. wt. dependence 4=25798
 polystyrol, crack growth, kinetics 1=12607
 polystyrol, elec. resist., γ -ray effects 2=15873
 polysulphur nitride, electronic props. 2=14509
 polytetrafluoroethylene, e.s.r. 2=4265
 polytetrafluoroethylene, electron-nucleon double resonance 1=14814
 polytetrafluoroethylene, proton mag. relax. 4=23064
 polytetrafluoroethylene crystal growth, oriented on KCl crystal 3=18265
 polytetrafluoroethylene, elec. cond., anomalous and steady state 4=10103
 polytetrafluoroethylene, electronic energy gap, wavefunctions and energy eigenvalues 0=20700
 polytetrafluoroethylene, F^{19} n.m.r. 0=4529
 polytetrafluoroethylene, γ -irrad., e.s.r. complex spectrum 1=12562
 polytetrafluoroethylene, γ -irradiated, e.s.r. 0=18221
 polytetrafluoroethylene, irradi., e.s.r. 2=20893
 polytetrafluoroethylene, irradiated oriented, e.p.r. 3=17608
 polytetrafluoroethylene, irradiation effect 0=8320
 polytetrafluoroethylene, microstructure rel. to mech. props. 3=25800
 polytetrafluoroethylene, permeability changes, due to irradiation 0=12064
 polytetrafluoroethylene, pressure-induced transitions, optical study 3=23494
 polytetrafluoroethylene, radicals formed on irradiation, e.s.r. spectrum 1=19673
 polytetrafluoroethylene, specific heat, low temp., from force consts. 3=8366

Polymers—contd

- polytetrafluoroethylene, spectra, infrared transmittance and emittance 1=8999
- polytetrafluoroethylene, struct. changes on deform 2=12938
- polytetrafluoroethylene (Teflon) elec. strength at low temp. 2=4101
- polytetrafluoroethylene, thermal expansion 0=6376
- polytetrafluoroethylene, thermal expansion, creep, u.s. props. and phase transitions 4=28975
- polytetrafluoro-ethylene, thermal props var. 4=30533
- polytetrafluoroethylene, transition phenomena, mechanical dispersions 1=14851
- polytetrafluoroethylene, transitions and relaxations 1=12563
- polytetrafluoroethylene, vibrational spectra rel. to temp. and press. 4=20144
- polytetrafluoroethylenes, transition studies 0=6375
- poly-tetra-tertiary butylphenylmethacrylate solutions, flow birefringence and viscosity 0=12501
- polythene, cells for i.r. spectroscopy 2=15731
- polythene, effect of γ -irrad. on elec. cond. 2=3996
- polythene, electric strength, var. with thickness 3=13125
- polythene, electrical conductivity under γ -irradiation 1=17636
- polythene, heat of combustion 1=6986
- polythene, HOH n.m.r. second moment, exptl. verification of calc. 3=10538
- polytrifluorochloroethylene, i.r. properties 0=12473-4
- polytrifluoromonochloroethylene, bulk modulus by "suspension method" 1=12578
- polytrifluoromonochloroethylene, dynamic bulk and shear viscosity 1=20343
- polytrifluoromonochloroethylene, transition phenomena, mechanical dispersions 1=14851
- polyurethane, transition phenomena, mechanical dispersions 1=14851
- polyvinyl acetate in benzene and chloroform solns. and solid, i.r. absorption band 4=20142
- polyvinyl acetate in benzene, u.s. velo. 3=14161
- polyvinyl acetate, cold drawing deformation mechanism 0=8117
- polyvinyl acetate, colloids, effect of shear 2=8938
- polyvinyl acetate, dynamic mechanical props. at ultrasonic frequencies 1=2502
- polyvinyl acetate films, deformation and tensile strength, rel. to drawing and temp. 4=7734
- polyvinyl acetate, free radicals formed on mech. destruction 2=2031, 8129
- polyvinyl acetate, mixed films behaviour 2=2424
- polyvinyl acetate, molten, dielec. props. 2=17476
- polyvinyl acetate monolayers, viscoelasticity 3=16126
- polyvinyl acetate, n.m.r., T_1 temp. dependence 1=14830
- polyvinyl acetate, photoelastic effect 0=5187
- polyvinyl acetate, relax. investigation 2=8141
- polyvinyl acetate solns., dielec. props. 0=6801
- polyvinyl acetate suspension, light scatt. 3=11941
- polyvinyl alcohol aqueous soln. effect of γ -rays 0=21292
- polyvinyl alcohol, elec. resist. rel. to sorbed water 2=6429
- polyvinyl alcohol film, rel. to gel formation 4=10664
- poly-vinyl alcohol, i.r. spectrum, effect of pressure 4=22908
- polyvinylalcohol, irradiated, paramagnetic resonance spectra 1=20226
- polyvinyl alcohol, optical retardation plates 1=11846
- polyvinyl alcohol, use as base of nuclear track emulsions 0=3899
- polyvinyl alcohol, use in photog. emulsions 0=12739
- polyvinylamine hydrochloride soln., dielec. props. 3=16635
- polyvinyl butyral in butyl or ethyl alcohol, etchant 2=6334
- polyvinyl butyral, dielec. loss, α - and β -dispersions 1=19921
- polyvinylbutyral, in various solvents, optical anisotropy 4=25788
- polyvinyl-butylate, -propionate, -acetate, mol. optical anisotropy 4=22444
- polyvinylbutyrate, in various solvents, optical anisotropy 4=25788
- polyvinylcarbazol in benzol, glass transition and v.p. curve 3=8920
- polyvinylcarbazole, in benzene, vapour press., conc. and temp. depend. 4=29806

Polymers—contd

- polyvinyl chloride, change of props. by ionizing radiation 0=4310
- polyvinyl chloride, crystallization, effect of ultrasonics 2=833
- polyvinyl chloride "cokes", paramag. resonance 0=10213
- polyvinyl chloride, colour change on electron bombardment 1=10103
- polyvinyl chloride, complex shear modulus, freq. and temp. depend. 4=15714
- polyvinyl chloride, dichroism of 603 cm^{-1} band 1=7712
- polyvinylchloride, dynamic bulk and shear viscosity 1=20343
- polyvinyl chloride, dynamic mechanical props. during gelation 1=18349
- polyvinylchloride, dynamic and shear viscosities 1=18351
- polyvinylchloride, elastic constants, 50-1000c/s -80- + 100°C 3=6776
- polyvinyl chloride, electrification, after heat treatment 0=16008
- polyvinyl chloride, frictional props. 3=11192
- polyvinyl chloride, γ -irradiated, e.s.r. 0=18221
- polyvinyl chloride, γ -irradiated, effect of gases 0=4732
- polyvinyl chloride, under tension, appearance of cracks 0=10273
- polyvinyl chloride gels, viscoelastic props. 2=23979
- polyvinylchloride, knitted, triboelectric properties 1=17859
- polyvinyl chloride, relax. investigation 2=8141
- polyvinyl chloride, rheological behaviour rel. to temp. 1=20346
- polyvinyl chloride, transition studies 0=6375
- polyvinyl chloride, X-irrad., e.s.r. anomalous results 2=775
- polyvinylidene chloride electroluminescence 4=22938
- polyvinylene, absorption bands and formation rate 4=3951
- polyvinylene foil, photoelectricity, cond., optical props. 4=12995
- polyvinylene, resistivity 3=4936
- polyvinylidene fluoride, dielectric props., 50 c/s to 8800 Mc/s 1=11333
- polyvinyl-iso-butyl ether, relax. investigation 2=8141
- polyvinylmethyl ether, relax. investigation 2=8141
- polyvinyl-n-butyl ether, relax. investigation 2=8141
- polyvinylpyrrolidon, refractive index of dilute aqueous solutions 1=18410
- polyvinyl pyrrolidone soln., dielec. props. 3=16635
- polyvinyl stearate, dielectric props., side-chain crystallinity 1=11334
- polyvinyl sulphonate alkali halides, excluded vol. study 2=11367
- polyvinyl tertiary butyl ether, relax. investigation 2=8141
- polyvinyl toluene, decay time 2=21278
- polyvinyltoluene soln., light scatt. 3=5530
- positronium formation in, effect of static elec. field 1=8901
- preferential adsorption in mixed solvents 2=13330
- proton mag. relax. effect of tacticity 2=4290
- proton polarization, meas. by neutron irrad. 3=10114
- proton spin decoupling in n.m.r. structure studies 3=25158
- p.v.c., crystallite growth, increase by 1 Mc/s u.s. irradiation 3=13419
- radii of gyration for random flight chains 3=15403
- radiochemical grafting after irradiation at low temp. 1=20765
- radius of gyration of chains segment density and excluded vol. effects 2=16575
- radius of gyration of polymer chains 2=3803
- random flight chains, q-dimensional excluded volume 1=12337
- random scission, average degree of polymerization 3=10560
- reaction kinetics, effects of neighbouring groups 3=8949-51
- reaction kinetics of long chain molecules 3=5157
- real chain, principal polarizabilities, difference 4=20680
- recent investigations, review 1=4074
- relaxation investigations, review 2=8141
- relaxation phenomena (conference, Japan) 1=6449
- relaxation phenomena, molecular theory 1=7505
- relaxation properties, linear dipole chain model 3=21387
- relaxation, thermodynamic consts. and activation parameters 3=6780
- relaxation time spectra of crystalline polymers, appl. of viscoelastic superposition principle 1=7820

Polymers—contd

- solutions, effect of non-solvents on glassing temp. and breaking stress 4=20827
 solutions of flexible chain molecules, compression 1=2753
 solution, flow birefringence 1=15878
 solutions, H bonding 2=19555
 solutions, hydrodynamics 2=11330
 solutions, idealized relaxation spectrum 1=15884
 solutions, lattice model theory 2=17457
 solutions, long- and short-range interactions, review 1=3578
 solutions, Monte Carlo calc. of dynamics 2=1144
 solutions, Newtonian flow deviation, check 2=9273
 solutions, normal stresses, in steady flow 0=3497
 solutions in poor solvents, intrinsic viscosities 3=21350
 solutions, scatt. of light, apparatus 2=7407
 solutions, second osmotic virial coeffs. rel. to mol. weight 3=3802
 solutions, second virial coeff., effect of heterogeneity 4=27159
 solutions, sedimentation of microscopic spheres 0=76
 solutions, shear degradation 0=3522
 solutions, specific vol., apparent 3=14154
 solutions, streaming birefringence, anisotropy 3=16618
 solutions, stress analysis, rheogoniometer 4=114
 solutions, structure, light scatt., in elec. field 4=24180
 solutions, theory 0=14629
 solutions, theory 1=12875
 solutions, thermodynamic props., osmosis, light scatt. meas. 4=2669
 solutions, thermodynamics of aggregation 1=9388
 solutions, thermodynamics, calc. 4=14138
 solutions, u. s. absorpt. spectra, configuration jumping effect 4=2671
 solutions, u. s. absorption rel. to frequency 4=5172
 solutions, u. s. absorption, network diffusion model 4=11196
 solutions, u. s. cavitation, degradation 3=23878
 solutions, u. s. velo. 3=14161
 solutions, viscoelasticity 4=8174
 solutions, viscosities and heats of activation 2=21890
 solutions, viscosities near crit. temp. 3=21349
 solutions, viscosity, Huggins const. calc. 4=2661
 solutions, viscosity, statistical mech. theory 2=11368
 solutions, viscosity rel. to temperature 3=18811
 sorption in polymer-vapour systems 1=15168
 spherulites, lamella twist 4=26581
 spherulitic crystallization, fractionation and impurity segregation, kinetic and morphological effects 4=15753-4
 statistics of configuration and free volume of molecule with solvent interaction 3=10562
 statistics of isotactic deformable chains 0=20697
 statistics of orientation effects 1=12341
 statistics of random placement on linear lattice 3=9357
 stereoregular, characterization 2=2449
 stereospecific, and Markoff chains 1=9156
 stochastic processes 3=8320
 stress analysis conference, Keele, Staffs. April (1960) 1=2500
 stress analysis, dynamic problems, conference 3=13342
 stress and strain birefringence meas. 1=7703
 stretched chain configuration, hindering pot. 2=6240
 stretched, longit. wave propag. 0=18251
 structural transforms, accel. by periodically acting forces during crystallization 2=23802
 structure, by light scattering 3=16127
 styrene-butadiene, bulk modulus by "suspension method" 1=12578
 styrene-butadiene rubber, deformations 2=6732
 styrene derivatives and copolymers, photoelastic properties 0=8257
 styrene, polymerization 9=8316-17
 styrene, polymerization, n. m. r. investigation 2=4544
 styrolene, grafting on to polyethylene after low temp. irradiation 1=20765
 superconductivity, possible, BCS theory 4=18541
 super-molecular structures, control by crystallization embryo introduction 4=29152
 surface charge on separation from metal, meas. 4=7695
 suspensions, in liquid dielectrics, nonuniform elec. field effects 0=10665
 suspensions, multiple light scattering 1=244
 syndiotactic vinyl, dipole moment, end-to-end distance, calc. 4=30491
 synthetic, solutions, effect of ionizing radiations 0=21294

Polymers—contd

- relaxation time spectrum, heuristic deriv. 3=4794
 relaxations of the chain, Fokker-Planck eqn. 1=7506
 resistivity, effect of drying techniques 3=4936
 rhodamine B, phosphoresc. rel. to vitrification 2=15079
 rhoduline orange, phosphoresc. rel. to vitrification 2=15079
 rigid, rodlike, in soln., viscosity 3=135
 rubber elasticity, liquid-like theory 2=8140
 rubber-like, viscoelastic behaviour 3=11167
 rubber, tearing, molecular mechanism 3=5074
 rubbery, mechanical and dielectric losses, -180° to 25°C 4=15713
 rubeanato-Cu(II), electrical conductivity 1=8928
 scattering of light by inhomogeneous films 2=14658
 scattering of light, theory 3=9623
 scintillators, pulse-shape discrimination 1=3078
 scintillators, review 1=2462
 second-order transition, analysis and effect on mechanical props. 1=7879
 secondary electron emission 0=17032
 sedimentation const. of broken chains and wormlike coils, calc. 2=23973
 sedimentation of mixture, rel. to mol. wt. distrib. 3=23554
 segmental motion, rel. to hindered rotation 4=6673
 semiconducting 4=22732
 semiconducting coordination, Cu derivative 3=22950
 semiconducting, derived from nitriles, thermoelectric power, thermal cond., and elec. resistivity 4=20228
 semiconducting, elec. props. 4=30631
 semiconducting, highly conjugated, synthesis and props. 3=10837
 semiconducting, organic, piezoresistance 3=852
 semiconducting polymers derived from nitriles, thermoelectric power, thermal cond. and elec. resistivity 4=20228
 semiconduction, review 4=26068
 semiconductors, inorganic, Fermi states, calc. 3=20918
 semicrystalline, mol. struct. and dimensions 2=20892
 semicrystalline, orientation correlation function 4=26701
 semicrystalline, presence of voids in structure 1=20639
 shock loaded, molecular relaxation behaviour 1=1296
 silicone, fracture under shear 4=27151
 silicone liquids, viscoelasticity under cyclic shearing stress 0=8597
 silicone rubber, specific ht., thermal cond. 0=2276
 silicone thin films, 50-150 Å, elec. props., 77°-300° K 4=22769
 silicone thin films, 500-2500 Å, elec. props., 4°-300° K 4=22768
 silicones, phys. and elec. props. in thermal-vacuum environments 4=20414
 single crystal growth, Markoff chain model 1=20422
 single crystals, dissolution, morphology changes 4=7525
 sintering, rel. to plastic deformation 4=7380
 size and shape det. of flexible linear macromolecules 0=7823
 solid, dynamic mech. props. meas. 2=18980
 solid, dynamic modulus and loss factor, continuous determination 1=20283
 solid, fracture products, free-radical e.s.r. 4=1885
 solid, mechanical and thermal properties 0=14049-51
 solid model, mechanical breakdown 1=14909
 solid, rheology, math. theory 3=18366
 solid struct., laser scatt. exam. of changes 4=20772
 in soln., inhomogeneous field study 0=3520
 in solution, light scattering, theory 4=14141
 solutions of addition copolymers, electric birefringence, meas. 4=5179
 solutions, birefringence and viscosity, viscometer for simultaneous meas. 4=11157
 solutions of chain-polymers, radial distrib. function and osmotic press. calc. 0=14641
 solutions, conc. depend. of frictional coeff. 2=13332
 solutions, conc., structural changes rel. to ultrasonic absorpt. coeff. 4=160
 solutions, degradation by u. s. cavitation mech. 2=9278
 solutions, dilute, hydrodynamic interaction, effect on viscoelasticity 3=18810
 solutions, dilute, light scatt. photometer 4=27283
 solutions, dilute, theory, second virial coeff. calc. 0=16694
 solutions, Doppler shifts in light scattering 4=16111
 solutions, dynamic props. rel. to velocity field type 4=6670
 solutions, dynamic viscoelastic behaviour 2=15583

Polymers — contd

- teflon, adsorption of hydrogen 1=9163
 Teflon, γ -ray induced elec. conductivity 3=10874
 teflon, nuclear magnetic resonance, deuteron irradiation effects 1=9072
 tensile strength, theory 2=16964, 19063
 terephthalate, transition phenomena, mechanical dispersions 1=14851
 terylene, adsorption and diffusion of gases 2=23923
 terylene, diffusion and sorption of gases, rel. to crystallinity 1=19800
 tetrafluoroethylene-hexafluoropropylene copolymers, relaxs. 2=23903
 tetrafluoroethylene-hexafluoropropylene copolymers wetting by var. liquids 2=1127
 theory, review 1=3577
 thermal expansion, linear coeff., 76-300°K 4=12653
 thermoluminescence glow peaks after γ -irrad. 3=4994
 thermo-osmosis of gases through polymers, press. difference approach to steady state 4=29172
 thermophysical charact., simultaneous determ. rel. to temp., press. and external medium 2=17676
 thin film formation by electron bombardment 0=16360
 thixotropy, reversible transformations, theory 4=30754
 transitions by n.m.r. and dynamic mechanical methods 0=6375
 triboelectricity 3=6623
 u.s. attenuation, longitudinal waves, 250-1000 kc/s 1=2822
 uptake of Sr 4=2154
 use in fixing of electron and ion-optical images 4=4644
 variation with γ -dose of e.s.r. spectra of free radicals 3=25563
 vibrational effects in molecular exciton motion 3=10561
 vibrational spectra of disordered chains 1=12825
 vibrational spectra, theory 1=2318-19
 vinyl, irradiated, mol. wt. changes and gel data 3=17626
 vinyl, isotactic, dipole moment and end-to-end-length 1=12343-4
 vinyl, isotactic polymer, molec. length and dipole moment 1=17381
 vinyl, molecular statistics 1=4956
 vinyl, syndiotactic and isotactic, substituent dipole interactions 4=3950
 vinylic high polymers, dielectric relaxation 1=8970
 vinylidene and vinyl chlorides, copolymer, X-irradiated, e.s.r. 0=18221
 viscoelastic behaviour, review 1=15783
 viscoelastic props., dynamic, meas. apparatus 2=23729
 viscoelastic props., mol. weight effects 3=23339
 viscoelasticity of amorphous polymers, network structure model 1=7823
 viscoelasticity, mol. wt. dependence 1=14134
 viscoelasticity, molecular theory 4=28293
 viscoelasticity, relax. spectra semicrystalline 3=15978
 viscoelasticity of solutions at high press., u.s. meas. 3=14156
 viscoelasticity in temporarily crosslinked polymers, theory 4=13437
 viscosity rel. to branching prod. by high-energy irradi. 4=16095
 viscosity and glass-transition of polymer-diluent system 4=27161
 viscosity, high polymers 3=7203
 viscosity, when irradiated, branching effect 1=14135
 viscosity meas., liquid, low shear 4=5135
 viscosity rel. to molecular wt. in bulk polymers, theory 4=11187
 viscosity of molten specimens and conc. solns. 4=8179
 viscosity, non-Newtonian, rel. to molecular weight 1=18350
 viscosity of polyelectrolyte dilute solutions 1=108
 viscosity, rodlike mols., Kirkwood calc. approxs. 4=21109
 viscosity temp. invariant characteristic 4=15695
 vitreous, crazes, refractive index meas. 3=8579
 vitreous, double refraction, sign change on deformation 4=7164
 vitreous, fracture, kinetics under external load, calc. 3=20731
 vitrification 2=15079
 vulcanized rubber, dynamic bulk and shear viscosity 1=20343
 wear 1=4002

Polymers—contd

- wear 1=10223
 X-ray diffraction patterns 0=16298
 X-ray scatt. exam., colloid, fibre swelling 4=17746
 X-ray scatt. by oriented polymers 3=16088
 X-ray scatt., small-angle, evaluation 4=7660
 yeast cell, bulk modulus by "suspension method" 1=12578
 Ar. CO₂, form. by condensation in expanding gas mixtures 4=25794
 Bi, in Bi perchlorate aq. soln. 0=4247
 CMC-Na in water, γ -irradiation effect 0=2170
 H-bonded, as cause of water spectra ~ 8000 cm⁻¹ 4=21140
 (H₂O)₂ and (H₂O)₄, formation in condensing steam 4=25794
 Na-DNA, highly polymerized, elec. cond. 4=12840
 Sn, liquid, length, by e.s.r. and mag. suscept. 3=14155
 Sn-organic cpds., Mössbauer effect rel. to γ -irrad. 3=17633
 Sn organic cpds. with divalent Sn, Mössbauer obs. 4=25717
 [SN]₂, semiconductivity and spectra 4=15545
- Polymorphism**
 See also Crystal structure.
 alkali halides, Born model, necessity for separate repulsive parameters 4=4519
 alkali metals, condensed films 0=21252
 cetyl alcohol, solid, rel. to orientation in d.c. field 2=14644
 cronstedtite 3=8854
 diamond structures, at high pressures 4=5448
 f.c.c. \rightleftharpoons h.c.p. transformations, rel. to cold working 3=3256
 graphite, hexagonal and rhombohedral, enthalpy difference 4=30534
 in growth, and lattice vibr., thermal 4=7544
 interferometer, electron, meas. 4=2007
 ionic crystals, close packing, lattice geom. and chemical composition 0=16305
 iron, cast, simulation by NH₄Cl on adding NiCl₂ 4=23273
 kaolinite-type, double-layer numerals 3=13447
 lattice coherence rearrangement shape and dimensions 4=26542
 at low temperatures, conference, Sverdlovsk (1959) 1=2916
 methyl ammonium alum, dimorphism 3=1342
 monochloroacetic acid crystals, 3 phases, Cl n. q. r. 4=13353
 phase transformations, high press., a.f. and r.f. obs. 4=20695
 polychloroprene 2=6544
 pressure induced, close-packed to nonclose-packed structures 4=15728
 solids, dimorphism, by X-ray analysis 3=11207
 Zernike, modified, applied to Fresnel region fields 3=5528
 zincblende structures, at high pressures 4=5448
 As, study using As₂O₃ 0=2815
 Ba, electronic transition, 5d, 6s levels, high pressure, calc. 3=23372
 Ba, high pressures 3=16834
 Be films, supercond. 0=10846
 Be, 1254°C 3=3297
 Bi, I-II and II-III transitions, press-induced, structural and transform. characts. study 4=30795
 Bi₂O₃, oxide addition effect 4=23253
 Bi₂O₃, pure stability relations 4=23252
 CdI₂, polytype 28Hc, atomic structure, growth and screw dislocation theory 4=13584
 CdI₂, and crystal growth conditions 4=26593
 CdI₂ crystals, rel. to cryst. growth 2=10869
 CdS 3=18233
 CdSe 3=18233
 CdTe 1=4006
 Cr, search in Cr-Ni, Cr-Fe at high temps., X-ray diffr. obs. 4=7479
 Cs halides 1=6516
 Fe, α (b. c. c.) to ϵ (h. c. p.) transform, at 130 kbar room temp. 4=30802
 Fe-Ni alloy, austenite-martensite orientation relation 2=10781
 Ga, at atmospheric pressure 3=8836
 InSb, high pressures 1=18678
 In₂Te₃ 1=4065
 K₂SO₄, anhydrous, expt. data 4=4520
 LiH, < 6 k bar? 3=8794
 NH₄ salts, low temperature transitions 4=13477
 NH₄Cl on adding NiCl₂ simulation of cast iron 4=23273

Polymorphism—contd

- Na, low-temp. transform., mech. props. 3=3224
 Na₂SO₄ anhydrous, expt. data 4=4520
 Pb, at high pressure 3=8883
 Rb halides 1=6516
 SbBr₃ 3=23371
 SbCl₃ 3=23371
 SiC 4=4521
 SiC, and crystal growth 4=10477
 SiO₂.3CaO 3=3301
 Sn, effect of impurities on polymorphous transformations 4=7515
 Ta₂D 2=4421
 Tl halides 1=6516
 Tl halides, thin layers 1=1355
 XeF₄, monoclinic phase 3=23452
 ZnSe 1=4006
 ZnTe 1=4006
 ZrO₂, polymorphic transform. under cooling, kinetics 4=29023

Polynomials

- See Algebra; Functions.
 (Heading abolished in 1964)
 Chebyshev, expansion of $\sin \theta$, in pendulum theory 0=56
 Chebyshev, in optical multilayer films calc. 0=6940
 Gegenbauer, sum formula 3=1576
 Hermite and Laguerre, application of asymptotically solved differential eqns. 0=4838
 polynomial representation of experimental data 1=5294
 root calculation by ratio of polynomials 1=7967

Porosity

- (Heading abolished in 1963)
 For later entries see Porous Materials
 acoustic wave propag., generalized theory 2=21971
 beryllia 2=4480
 α -brass, due to Zn evaporation 1=15170
 clay, radioactive isotopes method 2=15081
 coal compacts, strength-porosity relationship 0=4568
 determination by photographic photometry 1=12660
 diffusion in porous media 1=20649
 diffusion from porous medium, time lag 2=21055
 dispersion of fluid in porous media, theory 2=13318
 effect on acoustic materials 0=14725
 elastic solid, saturated, elastic waves 2=21966
 ferromagnetic porous materials, permeability 1=14724
 fission gas swelling of porous materials 2=21086
 fissured rocks, flow of omogeneous liquids 0=12407
 fluid flow through porous media 1=131
 fluid mixing in porous media 1=18354
 fluid flow through porous media 2=9241
 fluid in porous medium, stability 1=18346
 gas diffusion in porous media 0=101, 14692-3
 gas flow in region between molecular and viscous condition 1=10530
 gaseous diffusion in porous media at uniform press. 2=1193
 granular bed, air flow measurements 1=6558
 grease spots, Christiansen effect in near i.r. 2=14646
 heat transfer mechanism in porous material 2=12939
 inhomogeneous media 0=14541
 instabilities on displacement fronts in porous media 0=3495
 manganese magnesium ferrite, and permeability, relaxation with inner demagnetizing factor 1=17975
 marine sediments 0=8739
 metal single crystals, plastically deformed 1=20386
 mild steel cylinders, H₂ evolution at 65°C 1=990
 moisture in porous body, heat of evaporation 2=9454
 molecular flow along pore walls 2=7238
 peat, radioactive isotopes method 2=15081
 plasters, set sulphate, skeleton strength 0=13916
 polymers, deformed, cloudiness, exper. study 0=12065
 porous media, deform. and acoustic propag. 2=10748
 porous media, flow through, eqns. 0=4739
 porous media, gaseous diffusion 2=11409
 porous media, pressure transfer and non-stationary gas flow 0=10686
 porous media, statistical geometry 2=2419
 porous medium, conductive liquid saturation 0=21279
 porous metals, dynamic compression 2=14876
 porous solid, permeability 2=6843
 porous solids, liquid penetration, theory and exper. 0=8336-7

Porosity—contd

- Pyrex disks, flow of air, H₂ and CO₂ at few mm Hg 1=10530
 quartz sand, rel. to thermal coeffs. 2=10328
 resins, ion-exchange, pore size 2=8873
 sand, radioactive isotopes method 2=15081
 sound propag. in rigid-skeleton materials 1=16023
 thermal cond. of porous materials 2=7435
 thermal cond., of solid-fluid materials 2=23906
 tortuosity, mech. permeability and electrical meas. 1=7882
 unconsolidated aggregates 2=17062
 viscous flow through porous media 2=1111
 wet granular material, gaseous diffusion 1=11588
 X-ray small-angle scatt. meas. method 1=2550
 zeolite minerals, use as molecular sieves 0=14059
 Ag membranes, use for isotope separation 0=18385
 Ag, single crystals, plastically deformed 1=20386
 Al, cast, water vapour flow through 1=18442
 Al, cast, water vapour flow through 1=18443
 Al, rel. to thermal fatigue 2=10772
 Al₂O₃ films on Al 2=4493
 Au-Pt alloy, rel. to condensation of vacancies 2=23184
 BeO, X-ray small-angle scatt. meas. 1=2550
 Cu, coalescence of pores 1=4075
 Cu, coalescence of pores 1=10276
 Cu films, effects of heating and load 1=20670
 Cu, prod. by cyclic heat treatment 1=14911
 Cu, in temp. gradient, thermal diffusion effect 2=7444
 Cu and Cu-Al, single crystals, plastically deformed 1=20386
 Fe films, electrodeposited 2=19108, 23916
 Hg, measurement corrections 0=6377
 NaCl, coalescence of pores 1=4075
 NaCl, coalescence of pores 1=10276
 Ni films, effects of heating and load 1=20670
 SiO₂ films 2=10943
 Y garnet, effect on ferromagnetic resonance 0=8076
 Zn films, 0.003-0.01 in. thick, porosity and pore-size 2=2427
- Porous materials**
 See also Permeability, mechanical; Surface measurement. (Heading introduced in 1963; for previous entries see Porosity)
 acoustic wave transmission, rel. to flow resistance 4=2785
 adsorbed gases, transport, in Knudsen range 3=3370
 adsorption study using sorption balance and extensometer 4=10617
 anisotropic, fluid permeability 3=7193
 approach kinetics of neighbouring pores 3=25767
 capillary condensation in wedge-shaped pores 4=27386
 carbons, high temp. polymer types, pore structure and surface area 4=23543
 chemical extraction, by diffusion, from capillary channels 3=6906
 coal, pore structure of briquettes, rel. to compacting pressure 3=13550
 crystals, healing of isolated pore under hydrostatic pressure 4=1970
 diffusion coeff., upper bounds 3=23496
 diffusion of gases, graphite 4=233
 diffusion of gases, thermal slip flow, separation of two gases 3=9491
 dilatometer for meas. at varying temp. and humidity 4=17833
 drying, heat and mass transfer 3=1866
 elastic waves in heterogeneous bodies 4=14243
 elastic waves in porous media 4=8307
 elastic waves, secondary, on reflection at fluid-porous medium boundary 4=11282
 elastic Youngs modulus, var. with porosity, polycrystals 4=17708
 electrodes, polarization theory 4=29226
 electrokinetic phenomena due to flow of water 3=16596
 evaporation, moisture, from capillaries, specific heat, thermodynamic calc. 4=11414
 ferrites, crystallite dias., var. due to locking of boundaries by pores 3=11242
 fibres, internal volume 3=13551
 flow, air, rarified, from free mol. to viscous flow 3=9483
 flow, Davey's law, correct form 3=14127-8
 flow, fluids, transformation for free-surface flow 4=8143
 flow, gases, mol. to viscous transition 4=5218
 flow through, models and scaling laws 4=18155

Porous materials—contd

- flow through, vel. of fluid mass imbedded in another fluid 4=125
- gaseous diffusion in porous media 3=14200
- graphite, thermal expansion accommodation 3=8371
- groundwater flow with free surface, models 3=7189
- ice spheres, "spongy", in atmosphere, radar meas. 3=9041
- infiltration by liquid metals and alloys 4=8144
- kaolinite hydrous micro-quartz clay, moisture expn., surface area 3=6878
- liquid flow, non-Darcy 3=7192
- meas., open pore distrib., by flow of gas with variable partial pressure 4=7686
- media impregnated with conducting liquid, elec. conductivity 3=20374
- molecule—wall collisions at low press. 4=29662
- paper, surface compression 4=10591
- percolation problems in lattices, Monte Carlo method 3=13997
- polycrystal, surface intergrain grooves 3=10683
- porcelain, fired and sintered, pore characteristics 4=26699
- pore coalescence, in presence of vol. vacancy sources 4=30873
- pore size distrib. and permeabilities 3=18369
- porosity, contact cross-section and Young's modulus reln. 4=23542
- porosity meas., by air displacement 3=13548
- powder packs, specific surface and porosity, for "pore radii" definition 4=7685
- shock-wave propagation 3=11856
- shock wave velo. formula 4=21222
- soil, flow of water, Darcy's law teaching apparatus 4=24002
- solution in porous medium, diffusion 4=5166
- surface meas., specific, by mol. gas flow 4=7696
- tubes, fluid entry, laminar problem 4=5131
- u. s. propagation, effect of moisture 4=5312
- vapour pressure and moisture transfer determ., apparatus 4=5228
- vapour pressure, relative humidity, moisture content, temp., correlations 4=10592
- vertical column, fluid unsteady drainage 3=7191
- Vycor glass, strength and length changes on water vapour adsorption 4=23544
- water movement, isothermal vapour transfer 3=11819
- water movement, vapour and liquid 3=20922
- wire meshes, gas flow, resistance, calc. 3=7225
- BeO, sintered, rel. to reflection coeffs. 4=28671
- Cu rods, brass-cored, diffusion-induced porosity, effect of press. 4=15486
- Cu—Ni films, effect of annealing and loading 3=23510
- KBr sandwiches with KCl filling, porosity growth in KBr rel. to elec. field 4=29171
- NaCl, approach kinetics of neighbouring pores 3=25767
- Ni—Zn ferrites, elec. cond. rel. to porosity 3=4939
- Pt—Al₂O₃ catalyst, 300° to 1300°C 3=18367
- Th₂O, elastic const., temp. depend. 3=23283
- ThO₂ polycrystals, elastic constants 3=13331
- TiC, infiltration by liquid Cu—Ni alloys 4=8145
- UO₂, sintered in H, pore distrib. 3=11311

Positive rays

See Chemical analysis, by mass spectrometry; ion beams,

Positive ray sources

See Ion sources.

Positronium

- annihilation in solid dielectrics, effect of elec. field 1=19754
- annihilation, 3-photon, in P-state 0=11152
- annihilation, two-photon polarization, demonstration of qu. mechanics in the large 1=3232
- Bethe—Salpeter eqn., ang. variable separation 4=11901
- in cholesteryl acetate, decay times, temp. depend. 4=2652
- decay in ice—water system 4=3393
- decay in molecular substances 0=20115
- decay of ¹S state, 3γ, rel. to charge conjug. invariance 4=889
- decay in Teflon 3=4380
- decay in Teflon, effect of lattice transitions 3=10636
- decay in water, mag. quenching meas. 4=21844
- energy levels, Coulombic corrections 1=16764
- energy levels, by Regge poles and perturbation theory 3=17202

Positronium—contd

- energy spectrum, calc. using Regge trajectories 4=6031
- energy spectrum, influence of weak mag. field 4=25072
- formation in damped anthracene 2=9827
- formation in an electron gas, unlikelihood 0=2533
- formation by fast positrons in H atoms, calc. 4=9184
- formation in gases in strong elec. fields 2=3325
- formation in halogen derivatives of benzene 2=3324
- formation in He, calc. 1=8448
- formation in In, water and aq. solns. 0=9343
- formation in mag. field meas. of positron polarization 4=6027
- formation in polymers, effect of static elec. field 1=8901
- formation in positron scattering 0=5550
- formation and quenching in Ar and N₂ 4=6028
- formation and quenching in Ar, N₂ and O₂, by positron lifetime method 4=19496
- formation and quenching in Ar, N₂ and O₂, by three-photon coinc. method 4=19495
- fundamental const. α, rel. to atomic collisions 4=25129
- ground state, approx. soln. of Bethe—Salpeter eqn. 1=12050
- lifetime in plastic insulators 1=19918
- Lyman α spectral line, det. attempt 3=7839
- magnetic moment 0=17317
- magnetic quenching in solids, e⁺ helicity 3=5992
- in metals, props. 0=13520
- ortho, pick-off quenching in He 3=2252
- orthopositronium lifetime in condensed H 2=22494
- orthopositronium, lifetime in liquid He 0=1274
- orthopositronium, reaction with oxygen 0=2392
- oxidation in chloride solns. 1=18436
- oxidation rates in aqueous solns. 3=8955
- para and ortho ground states, effects of pseudoscalar zero-mass meson 4=24989
- photon model, in extreme relativistic limit 2=3297
- in plasma, H, formation, ionization, excitation 4=18921
- plasma, Maxwellian solns. 2=15910
- positron—H scatt., effect 2=3319
- quenching of ortho-positronium in gases 2=277
- reactions in aqueous solutions, 3γ e⁺ annihilation speed 1=462
- scatt. by H atoms, of low-energy ortho-positronium calc. 1=13403
- scattering, ortho-positronium on He atoms 2=9829
- self-consistent field theory appl. 2=5564
- singlet and triplet state populations 2=22490
- in solids, lifetime, long tail anomaly 4=6030
- spectrum, and i. r. divergence 3=10102
- spectrum, i. r. singularities 3=22114
- Al₂O₃, formation and dynamics 3=25264
- e⁺e⁺, simple analytic approx. 3=10484
- in LiH, energetic likelihood in crystal potential 4=20260

Positrons

- See also Electron pairs; and Electrons, which includes both negative and positive electrons when the differences between them are of no special significance.
- acceleration in microtron 4=21606
- angular distrib. asymmetry in π—μ—e decay 0=15378
- annihilation in alkali halides, γ-ray ang. correl. 1=954
- annihilation in alkali metal hydrides 4=28436
- annihilation in anthracene, disorder effects 1=17524
- annihilation distrib., inhomog. distrib. of positron emitter 3=21198
- annihilation, 800 MeV, and quantum electrodynamics test 4=27832
- annihilation at 15 MeV, photon line width 2=9828
- annihilation in flight, 2-10 GeV 2=22491
- annihilation in flight at 8.5 MeV, diff. cross-section at 0° 1=2043
- annihilation in flight of 800 MeV positrons 4=3391
- annihilation in flight, meas. and theory 1=16762
- annihilation-in flight, polarization 0=17311
- annihilation in flight to produce monochromatic photons 1=13372
- annihilation in flight at relativistic energy, photon yield and energy spread 1=2044
- annihilation, influence of Z, energy of nucleus 2=20601
- annihilation in In, water and eq. solns., ang. correl. of 2-quantum emission 0=9343

Positrons—contd

annihilation in ionized gas 3=2249
 annihilation by K-shell electrons, single quantum, calc. 4=28154
 annihilation in LiH and NaH, two-photon ang. correl. 1=7569
 annihilation in liquid He and gaseous He at low temp. 0=1274
 annihilation in magnetized iron, polarized positrons 1=19753
 annihilation in metals, theory 0=3960
 annihilation in Na, γ -ray ang. correl., Fermi surface anisotropy 1=12367
 annihilation in neutron-damaged anthracene 2=9827
 annihilation, one-photon, theory 0=5892
 annihilation in organic cpds. 2=15158
 annihilation in organic liquids 0=3959
 annihilation in organic liquids 1=4363
 annihilation, use in photon source 0=7320
 annihilation in polyatomic gases, meas. 4=11259
 annihilation radiation, ang. distrib. 3=7835
 annihilation radiation, linear polarization meas. 0=17312
 annihilation radiation from metals, ang. correl. 3=25263
 annihilation radiation in plastic insulators 1=19918
 annihilation in S and S cpds., γ -ray ang. correl. similarity of S^{2-} and Cl^- ions 0=15336
 annihilation in silica and aq. solns., γ -ray ang. correl. 1=5715
 annihilation, single-quantum, cross-section 2=1679
 annihilation, single-quantum, Z-depend. 3=22111
 annihilation in solid and liq. Hg 3=12954
 annihilation, time distrib., water and organic solutions 3=24707
 annihilation, in water and ice, in external mag. field 2=13776
 beams, collision with electron beams, μ pair production, QED validity 0=17372
 beams, collision with electron beams, radiative corrections calc. 0=17304
 bound state with H atom discounted 1=4263
 bremsstrahlung spectrum, h.f. region calc. 4=11965
 collisions with electrons, π^0 prod., proposed lifetime meas. 0=17375
 containment in a mirror machine 0=19654
 depolarization by bremsstrahlung 4=19492
 depolarization in matter 4=25069
 depolarization in Möller and Bhabha scatt. 3=14960
 depolarization on slowing down in matter, calc. 4=25917
 detection in β -ray spectrometer 3=19617
 detection, simultaneous, of 20 e^+ -emitting sources 3=12610
 diffusion in solids, lifetime, long tail anomaly 4=6030
 $e^+ + e^- \rightarrow \pi^+ + \pi^0 + \pi^-$, cross section 2=5628
 $e^+ - p$, $e^- - p$ scatt. ratio, meas. as one 4=16879
 early work 2=276
 $p - e^- - e^+$ system, binding energy 0=9727
 electron-positron collisions, pion prod. 1=10905
 electron-positron scattering, non-local effects 0=2527
 emitted from negative β -emitters 0=17529
 emitter activation cross-section, absolute determ., from (n, 2n) and $Ni^{58}(n, p)Co^{58}$ reactions 4=1086
 Feynman diagrams, majorization 1=3124
 Feynman diagrams, majorization 1=9727
 helicity, by Bhabha scattering 1=7229
 helicity, from positronium mag. quenching in solids 3=5992
 high-energy beam collision with electrons, possible expts., theory 1=12077
 high-energy $e^+ - e^-$ beam collisions, possible expts. 2=275
 improved detection by image intensifier 1=13213
 lifetime in anthracene near melting pt. 0=5549
 lifetime curves in Ar, fine structure 4=15047
 lifetime in 18 metals, comparison with theory 0=17980
 lifetime meas. 3=19149
 lifetime in metals 1=489
 lifetime in oxidizing (chloride) solns. 1=18436
 lifetime, in solids and liquids, var. with pressure 3=10099
 lifetime in solids, theory and expt. 2=6306
 lifetimes in aqueous solutions 3=8955
 lifetimes in metals 2=593
 lifetimes in metals, rel. to electron density distrib. 2=12405
 mean lines in Al and alkali metals 0=9342
 mean lives in metals, meas. apparatus 2=9500

Positrons—contd

from meteorites, γ - γ coincidences 2=4751
 monochromator, orange-sector 2=3320
 monoenergetic, from Eu^{152} decay 1=19401
 monoenergetic, formation coeff. in E1 transitions 2=10051
 monoenergetic prod. following electron-capture decay of Bi^{208} 1=9832
 in μ decay, polarization meas. 4=16923
 in μ^+ -meson decay 0=5578
 from μ^+ -meson decay, energy spectrum, Michel parameter 0=9391
 from muon decay, asymmetry in weak mag. fields 2=1700
 pair prod. by polarized protons 2=13777
 photons from beams in GeV range 2=3321
 from π^+ -decay, spatial asymmetry, energy spectrum 1=16839
 from $\pi^+ \rightarrow \mu^+ \rightarrow e^+$, ang. distrib. asymmetry in 140 000 gauss field 4=30246
 $\pi^+ \rightarrow \mu^+ \rightarrow e^+$, positrons ang. distrib. 3=2290
 polarization, determ. from positronium polarization states 2=22490
 polarization, efficient measuring method 3=10100
 polarization elec.-positron pair correl. 2=13778
 polarization meas. by positronium formation, Na^{22} , B^8 and μ^+ disintegrations 4=6027
 polarization in μ^+ decay 4=9232
 polarization in μ^+ decay, calc. 0=11190
 polarized transversely, asymmetry in pair annihilation 2=3323
 polarized, two-quantum annihilation 1=13402
 positron cow 1=13401
 positron-electron pairs, quantum electrodynamics 1=16652
 positronium formation in H atoms at 10-500 eV 4=9184
 prod. electrons bombarding thick target 2=5625
 prodn. methods for polarized particles 2=5641
 prodn. with Stanford electron linac. 2=16187
 prodn. Ta target, 10 MeV electrons 2=9828
 in propane, 650 MeV, annihilation in flight and bremsstrahlung 2=5626
 range, in Ar and N_2 , meas. rel. to positronium 4=6028
 scattering by Co and Bi at 300 MeV 4=1067
 scattering cross-section for nucleus, rel. to electrons 2=20601
 scattering, elastic, on H and He atoms 2=1966
 scattering, elastic, on H and He atoms, calc. 0=9752
 scattering, elastic, on H at <10 eV, calc. 1=11080
 scattering, by electrons, asymptotic radial depend., and positronium spectrum 3=10102
 scattering on electrons, at 80-200 MeV 0=3958
 scattering on electrons, form factors 3=2250
 scattering on electrons, spin-momentum correlations, calc. 1=2042
 scattering, by H 3=17542
 scattering on H atoms 1=17283
 scattering, on H atoms, effect of polarization 0=5550
 scattering by H atoms, elastic, differential cross-section 1=9917
 scattering by H atoms at low energy, calc. 0=4167
 scattering by H atoms, s and p-wave, theory 3=2579
 scattering, inelastic, polarized positrons on atoms 0=9751
 scattering, low energy, by atoms 1=17282
 scattering, multiple, difference from e^- , calc. 1=5714
 scattering, multiple, rel. to electrons 3=17248
 scattering on nuclei, rel. to e^- , det. of nucl. charge distrib. 1=8702
 scattering by nuclei, effect of nuclear size 2=22800
 scattering by nuclei, elastic, relativistic high-energy approx. 4=15022
 scattering by nuclei, inelastic, Born approx. theory 2=5895
 scattering, 1 MeV, by Xe and Hg 0=9652
 scattering and positronium formation on impact with He atom 1=8448
 scattering, 10 MeV, nuclear emulsion check of Moliere's theory 0=7337
 at 7-17 MeV, scattering on Xe 0=5764
 single-quantum annihilation 3=12445
 space asymmetry in $\pi^+ - \mu^+ - e^+$ decay 0=15388
 spatial asymmetry in $\pi^+ - \mu^+ - e^+$ decay 0=13016

Positrons—contd

spectra weak, mag. spectrometer 2=20318
 spectrometer, scintillation, 4 π 3=7838
 spectrometer, for space detection 2=18105
 storage rings, design 3=12267
 structure, layered, core radius and spin 4=884
 theory, electron mass with additional degree of freedom 4=11979
 thermalization, in Ar 3=24706
 work function, temp. var. 2=22242
 Bi²⁰⁸, E1 transition, mono-energetic positrons 2=10052
 Br⁷⁸ decay 4=9447
 in CCl₂F₂, collision complex formation 4=6029
 C1³³ decay 4=9447
 Co⁵⁸ decay, K-capture 2=7948
 Cu, spectral distrib. of flux from Cu⁶⁴ 4=28435
 Dy¹⁵⁶ decay 3=19823
 Eu¹⁴⁷ decay to Sm¹⁴⁷ 4=27997
 Eu¹⁵⁰ decay 3=19822
 Eu¹⁵² decay, monoenergetic 4=22077
 Eu¹⁵² decay, positron spectra 2=10053
 F¹⁷ decay 4=9447
 F¹⁷, Na²¹, Al^{25,26} branching ratio calc. 4=6273
 Ga, liquid, near m.p., structure, by annihilation 3=21306
 H-atom elastic scatt., Sturmiann functions 2=20267
 H atom scatt., at low energy 2=3319
 H-e⁺ ground state, binding and annihilation 2=10227
 in He, liquid, annihilation, lifetime meas. and calc. 4=27833
 In¹⁰⁷, positron emission 3=19819
 In^{110m} decay to In¹¹⁰, positron spectrum 4=3571
 Nd¹⁴¹ decay 3=17441
 Ni, plastically deformed and annealed, annihilation 4=28434
 Ni-Fe alloys, plastically deformed and annealed, annihilation 4=28434
 P³⁰ decay 4=9447
 Sb¹¹³ decay, positron spectrum 2=16358
 in Tb isotope decay, spectra 1=17031
 Tm¹⁶⁸ 1=13720
 from Tm¹⁶⁸ \rightarrow Er¹⁶⁸ 3=8049
 Y⁸⁵ decay 2=20554

Potassium

absorption peak, new collective electron state and coherent pairing of the second kind explanations 4=26210-11
 ad- and de-sorption on Pt, activation energy 1=20689
 age of "carbo" meteorite from spallation-produced K 0=3413
 age of Ramsdorf meteorites from K/A content 0=4885
 artificial electron cloud formation in ionosphere by release of atomic potassium 1=6610
 atmosphere, upper, use in electron cloud generation 2=4688
 atom diffusion on crystal surface 3=25291
 atom, elec. charge, upper limit 3=10091
 atom, ionization, on incandescent W and Pt surfaces 4=2947
 atom, oscillator strengths calc. 4=22307
 atom, scatt. by various atoms and mols. 3=4788
 atom, slow elastic electron scatt. calc. rel. to polarization potential 4=25573
 atomic beam, crossed with HBr molecular beam, reactive scattering 1=6064
 atomic beam scattering on Hg crossed beam 3=2586
 atomic beam, scattering on N₂ 0=11499
 atomic beam, scattering by Ne, Ar, Xe at different temperatures 4=25597
 atomic beam, total collision cross-section with 77 molecules 0=4162
 atoms in A, m.f.p. det., teaching apparatus 3=6367
 atoms, collision cross-section with Cl₂ 0=5995
 atoms, electron scatt., 1-10 eV, total cross-section 3=2582
 atoms, exchange polarization effects in h.f.s. 1=12238
 atoms, h.f.s., of K^{39,41}, pressure shifts 0=17712
 atoms, ionization in adsorbed state 1=3019
 atoms, ionization on collision with H₂, D₂, N₂ and O₂ 0=19611
 atoms, K⁴², h.f.s. separation of ²S_{1/2} state 4=15134
 atoms, oscillator strengths KI(4²S_{1/2}-4²P_{1/2,3/2}) doublet 3=17532
 atoms, resonance fluorescence 1=4908

Potassium—contd

atoms, scatt. by Xe, velocity depend. of cross-section 3=711
 atoms, single scattering by Hg atoms 0=5866
 atoms, surface ionization on W 3=9733
 Auger yield in X-ray photoeffect 3=14633
 beams, adsorption on surfaces 2=21570
 charge exchange, resonance, between K ions and atoms 1=13070
 colloids in KN₃, e.s.r. 4=26422
 Compton incoherent scatt. function for K⁺ 0=8196
 condensation coefficient calc. 4=21359
 condensed films, polymorphism 0=21252
 conductivity, press. effect 4=20332
 corresponding states behaviour 4=24460
 coupling parameter, semi-empirical determ. 4=1380
 crystal growth by condensation on Ag wire, in super-saturated vapour 0=18309
 crystal growth from vapour, meas. 3=3271
 crystals, growth and evaporation 0=13961
 cyclotron resonance, Azbel'-Kaner meas. 4=6816
 de Haas-van Alphen effect 1=12515
 de Haas-van Alphen effect, in steady mag. fields 4=26263
 deformation, elec. cond., 4.2-195°K 0=1850
 deformation at low temps., tensile and resistivity expts. 0=16215
 density of solutions in ammonia 1=4332
 desorption from W, in elec. fld, 77° to 1050°K 4=4675
 desorption kinetics of ions from Re 4=2129
 diffusion and desorption in Pt, thermionic emission study 0=6061
 elastic consts., central force contrib. 2=4310
 elec. cond. 0=15826
 elec. discharge, r.f., in const. mag. field 2=164
 elec. resist., effect of pressure at low temps. 3=828
 elec. resistance, pressure depend. over 500 kbar 4=1559
 electrical resistance changes at He temp. in pulsed mag. fields 4=4121
 electrokinetic effects in liquid metal, calc. 0=5268
 electrolytic cell, conc., with Na 4=26756
 electrolytic cell, NaCl-KCl with collodion or paraffin membranes 4=26757
 electron beam loss spectrum, plasma osc. peaks 4=28514
 electron beam, 2.8 MeV, energy loss, theory and expt. 1=18935
 electron emission, secondary 2=17877
 electron energy loss spectra 2=3888
 electron gas modified calc. 1=14232
 electron scatt. at low energy by atomic beam 0=4166
 electrons, optical effective mass 4=12666
 excitation and ionization in solar flares and prominences 2=15355
 excited bound states, eigenvalues 0=2725
 films, elec. resist. rel. to thickness non-uniformity 2=12491
 films, elec. resistance, thermoelec. power 2=6405
 films, elec. resistance, thickness depend. 0=1615
 films, on KCl, elec. cond., annealing effect 4=4122
 films, optical consts, 20° to 60°C 3=25437
 in flame gases, at high concn., elec. cond. 1=8167
 flame resonance lines, optical cross-sections 1=8815
 fusion curves, to 5kb 2=17688
 Hall effect, high-field, at 4.2°K 3=840
 heat of fusion using Calvet microcalorimeter 4=14434
 helicon wave-sound wave interaction 4=22549
 hyperfine and Zeeman resonances 0=17694
 ion and electron emission, on Pt wire, abrupt changes 4=11689
 ion emission, thermal, isotope effects 4=24749
 ion, mobility N and Ne 0=1103
 ion, positive, resonance charge multiplication, by atom bombard. 0=8988
 ionization, Auger effect 3=12069
 ionization, single and double, electron impact 2=1392
 ionization, surface by diffusion through a Globar 4=16546
 ions, bombard. metals, secondary electron emission 4=8822
 ions, K⁺, resonance charge exchange, 900-2400 eV 4=18692
 ions, K⁺, double charge exchange in gases 1=18780
 ions, K⁺ in Hg gas, kinetics 0=3742
 ions K⁺, in N₂ gas, mobility meas. by "time of flight" apparatus 3=7437

Potassium—contd

ions, K⁺ photoemission from layer adsorbed on Pt 2=22272
 ions, K⁴², range in Al 3=12608
 ions, range in gases and solids 2=7674
 ions, reflection and electron ejection from Mo, comparison with inert gas ions and atoms 4=5719
 isotope separation for K amalgam—aq. KOH 1=10291
 isotope separation by KCl evaporation 2=6114
 isotope separation in liq. by elec. current 2=10229
 isotope separation, by vacuum evap. of molten K 0=7709
 isotopic composition 0=13395
 Knight shift 1=2498
 lattice vibr., rel. to Toya's electron—phonon interact. 4=20196
 liquid, critical consts., calc. from quasi-f.c.c. lattice model with vacancies 1=1739
 liquid, magnetically induced sound absorption 4=14283
 liquid, viscosity meas. 2=7182
 liquid, X-ray structure investigation 0=16692
 luminescence, gaseous, quenching, with N₂, CO₂, var. with relative vel. of collision partners 4=3807
 melting point, at 0-30 000 kg/cm² 0=15808
 metal, electron wave-functions 0=13517
 in meteorites age determination 0=7,4882
 meteorites, iron, isotope abundance rel. to radiation age 2=2532
 molecular beams, reaction with HBr 3=6914
 molecular beams, wide-angle scattering 3=6439
 molecule, K₂, potential energies and dissociation 4=15384
 molten, self-diffusion 3=16610-11
 molten, thermal props. 2=17445
 moving edge dislocations 3=10654
 n.m.r., Knight shift rel. to KCl 1=20264
 needle-shaped crystal growth 4=26606
 nuclear reactor working fluid, boiling, for light space systems 4=12322
 opt. constants, direction meas. in u.v. 0=16034
 optical constants, Drude theory analysis 3=17975
 optical constants of solid and liq., meas. 3=17974
 optical props. in far u.v. 0=18117
 orthogonalized plane wave form factors 3=25229
 photoelectric effect, internal, rel. to frequ. 3=17976
 photoelectricity, inner, var. with wavelength 3=22897
 photoelectron emission, from films, depth depend. 2=1482
 photoelectron vol. emission, energy distrib. calc. 2=3075
 plasma, ion waves, l.f. 3=16964
 plasma instability in mag. field for any density 4=19044
 plasma, ion acoustic waves, Landau damping meas. 4=8752
 plasma production by seeding (CN)₂-O₂ flame 2=3036
 plasma seeded with K, elec. conductivity calc. 1=16309
 plasma, thermal, l.f. oscillations 3=9820
 positive ions, 5-25 keV, sputtering of Cu 1=8363
 positron mean life 0=9342
 potassium fluorosilicate in solution in KBr equilibrium reactions 1=20722
 residual resistivity 0=20870
 resistivity, elec., effect of capillary constraints 3=7410
 resonance fluorescence of vapour 1=4469
 resonance spectrum, effect of A at press. up to 1500 atm 0=5882
 solid, lattice vibr. spectrum and specific heat 1=17400
 solution in liq. NH₃, decomp. 2=10971
 specific heat calc., Toya's method 3=10599
 specific heat, 0.15-1°K 0=9858
 specific heat, 0.2°-4.2°K, analysis 4=12643
 specific heat calc. from elastic consts. 2=8166
 spectral lines, electron beam excitation 0=1478
 sputtering by noble-gas ions 1=11986
 sputtering by rare gas ions 2=3093
 sputtering of W, var. ion energy, temp. 4=19127
 surface adsorption, desorption, ionization and diffusion on W, var. temp., K flux 4=23610
 surface ionization 2=1100°-1200°K 2=13546
 surface ionization on W 0=10873
 thermoelectric power of boundary atoms 3=17968
 thermoelectric power at low temp., expt. and theory 1=17814
 thin films, structure, elec. and optical props. 3=18385-89
 thin films, structure, elec. and optical props. 3=18391-2
 third virial coeff. and vapour pressure 4=230

Potassium—contd

ultrasonic attenuation in liquid K 4=2676
 upper atmospheric rel. abundance 2=24028
 u.s. velocity Rao's consts. 2=15589
 vacuum deposition 3=11844
 vapour atmosphere, effect on pyrometric meas. 4=5429
 vapour, energy transfer in collisions 4=15289
 vapour, ionization, absolute cross-section 4=14573
 vapour, multiple, by Auger effect, meas. 4=11520
 vapour plasma, fully ionized, transport props. meas. 4=11587
 vapour pressure, correlation, 3=14423
 vapour press. eqn. dissociation energy 2=1312
 whisker growth from vapour by field emission 3=3276
 whiskers, growth 1=20445-6
 whiskers; growth, evaporation kinetics and surf. diffusion 4=4559
 work function, temp. depend. meas. 2=1476
 K, cosmogenic, in meteorites 1=18060
 K, ion analysis following Ar⁴¹ β⁻ decay 3=19954
 K⁺, backscattering from W, Ta, Mo, Ti and Ni targets rel. to temp. 4=8854
 K⁺, hydration energy 1=15196
 K⁺ ions, resonance charge transfer, cross-section meas., with K beam 1=278
 K⁺, resonance charge transfer, in K beam 1=4566
 K II Stark broadening in fully ionized plasma 4=18853
 K³⁹, 5²P_{1/2} level h.f.s. 1=11064
 K³⁹ mag.^{1/2} dipole transitions, g_J factors from e.s.r. 1=9914
 K + CH₃I, reactive collisions in molecular beams 4=28290
 K-Cl₂ and K-HI collision processes in beams 2=532
 K-He gas mixture, propag. of ultrasonics 0=14721
 K-Hg system, intermolecular pot. well. 2=18497
 K-Na, liquid eutectic, electrokinetic effects, structural viscosity 4=24230
 NH₃ soln., e.s.r., effect of adding KI 3=11811
 Xe-K mixture, viscosity and thermal cond. 1=159

Potassium compounds
 alloys, superconductivity 3=16873
 amagone, colour, cause 2=12612
 azide, cryst., i.r. spectrum 3=18004
 azide, spectra, colour centre formation 0=8008
 Br, V₄-centre, bleaching and symm. props. 2=18621
 crystalline, organic, Raman spectra compared with solutions 3=6650
 cyanides of Fe, Mn and Ni, photoconductivity and Hall effect 0=4372
 dihydrogen arsenate and phosphate, u.v. transission 0=13686
 halide monocrystals, i.r. absorption, effect of anionic impurities, temp. depend. 0=6177
 halides, crystal growth, by floating zones 3=6825
 halides, crystals, with O complexes, absorption spectrum, photochem. 0=8009
 halides, dielect. strength, -130 to 150°C 0=1708
 halides, diffusion of Ar, prod. by n irradi. 3=15508
 halides, effect of Tl doping on colour-centre props. 0=16065
 halides, F-centres, short-wave absorption, higher excited states 0=17956
 halides, lattice vibrations and specific heats, calc. 0=13480
 halides, polymorphic transition 0=16037
 halides, recombination luminescence, mechanism, with Ga, Ge, In, Sn, Tl, Pb activators 0=20996
 halides, temp. dependence of elec. strength 0=7987
 halides, X-ray absorption spectra 2=3889
 halides, zone refined, ionic conductivity 0=7916
 iodide—tri-iodide solion electrochemical diode 3=16887
 muscovite, outgassing props. 2=21960
 nitrate melts, crystal structure 1=16175
 orthovanadate, e.s.r. of (MnO₄)³⁻ in 0=20169-70
 pentaborate, crystal structure 0=4644
 pentaborate, vitreous α-phase, density, unit cell and i.r. absorption 0=6360
 porcelain, microstructure 4=26699
 potash alum, etch pits rel. to defects 3=23386
 potassium dihydrogen phosphate, i.r. band spectra 1=11377
 tartrate, elastic moduli, u.s. pulse meas. 0=13896
 thiocyanate complexes, vibn. spectrum, structure 3=3012
 Tutton salts, K Zn(SO₄)₂·6H₂O and K₂Mg(SO₄)₂·6H₂O, proton mag.² resonance 3=8740

Potassium compounds—contd

- Tutton's salts, water of cryst., proton-proton vector orientations 4=10450
 K acetate, proton magnetic resonance, rel. to temp. 1=20275
 K acetate u.s. vel. 2=15589
 K acid phthalate, cleavage plane grating spacing 4=4583
 K alum, diamond-like etch figures 1=14957
 K alum, Raman spectrum, polarization 2=6586
 K-alkylated amines, e.s.r. absorpt. spectra 4=18216
 K chrome alum, paramag. resonance, elec. field effects, 4-300°K 1=5071
 K chromicyanide, paramag. relax. at low temp. 2=4271
 K dihydrogen phosphate, continuous-wave optical harmonics 4=8366
 K dihydrogen phosphate, ordinary and extraordinary refractive indices 4=10184
 K dihydrogen phosphate, relaxation in extreme i.r. 3=17942
 K ethylamine solns., e.s.r. and absorpt. spectrum decay and mols. present 4=21156
 K ferricyanide, elec. cond. and photocond. 2=3999
 K ferricyanide, mag. d-wave functions 2=18509
 K ferricyanide, paramag. relax. at low temp. 2=4271
 K ferrocyanide, Fe⁵⁷ nuclear resonance scattering, diffraction 4=22464
 K ferrocyanide, spectrum in far i.r. 1=14598
 K ferrocyanides, with D₂O of crystallization, ferroelec. props. 1=17838
 K fluorenone, e.s.r., dimers 2=23012
 K formate, acetate and propionate, u.s. props. 3=14162
 K halide crystals, interaction of slow electrons 1=7573
 K halide crystals, u.v.-irradiated, delayed electron emission 1=10069
 K halides, coloured, pulse and steady photocond. 2=8424
 K halides, doped with O, S, Se, Te, optical props. 3=2999
 K halides, doped, X-ray irradi., trapped paramag. N oxides, e.s.r. 1=14350
 K halides, F-centre absorpt. and emission, temp. depend. 4=25970
 K halides, F-centre effects on elec. conductivity 4=20314
 K halides, F- and M-centre processes, photo-chemical 4=10003
 K halides, intrinsic optical props. 3=25433
 K halides, ion and electron emission, on Pt wire, abrupt changes 4=11689
 K halides, molten, solubility of rare gases 1=4335
 K halides, nitrogen centres, e.s.r. meas. 4=26416
 K halides, recombination luminescence 3=3034
 K halides, sp. ht. rel. to spectroscopic behaviour 3=765
 K halides, X-ray K-absorpt of K 3=6662
 K hyaluronate, electromech. effect during flow in solns. 2=858
 K manganicyanide, polarized i.r. absorption spectrum 1=3846
 K nitrosodisulphanate aqueous solution, O₂ electron spin relaxation 4=2711
 K perchlorate in KNO₃, heats of soln. and dil., interaction parameters of liq.-liq. mixtures 4=10631
 K perrhenate in KNO₃, heats of soln. and dil., interaction parameters of liq.-liq. mixtures 4=10631
 K uranyl sulphate, fluorescence spectra 1=14638
 K waterglass binder films on fluorescent screens 2=6616
 KAl alum, surface properties 0=9838
 KAlO₂, i.r. absorption spectrum 2=2239
 KAl(SO₄)₂.12H₂O, rel. to movement and faceting 3=16034
 KAuC₄, Cl³⁵ n.q.r., +18° to -196°C 4=12520
 KAuC₄, in HCl, u.v. spectrum 1=12885
 KB₂O₃.4H₂O 3=13477
 KB₂O₃.4H₂O, heat capacity meas. from 15° to 370°K, thermodynamic functions calc. 4=30517
 K-Ba, Sr or Pb Fe garnet, magnetic exchange anisotropy 4=13230
 β-K₃Bi crystal structure 3=20841
 (K_{0.5}Bi_{0.5})TiO₃, lattice parameters 3=20851
 (K_{0.5}Bi_{0.5})TiO₃, phase transformations, 270° and 410° C 3=20851
 KBr, activated, luminesc. mechanism 2=6594
 KBr, additively coloured, photocapacitance effects 2=23468
 KBr, additively coloured, pulse photoconductivity 1=11232
 KBr, α and β absorpt. bands in vacuum u.v. 3=8580

Potassium compounds—contd

- KBr, α-centres, fluorescence 3=17796
 KBr, α-irradiated, thermoluminescent kinetics 4=13084
 KBr, anion vacancy formation, effect of impurity ions 2=2077
 KBr, anisotropy of elec. strength 2=6528
 KBr, with Br⁻ ions, hole photocond. 2=8425
 KBr, breakdown discharge form. 2=21222
 KBr; breakdown energy 0=16026
 KBr, coloration near fundamental edge 3=15517
 KBr, colour centres due to electron pulses 3=8460
 KBr, colour centres, H, V and F, low-temp props. 0=9910
 KBr, colour centres, photochemically produced 1=7601
 KBr, crystals, growth and darkenability 1=14980
 KBr crystals, Raman spectrum 4=22883
 KBr, dendritic growth, rel. to conc. distrib. in soln. 2=23818
 KBr, diel. relax. in coloured crysts. 2=23491
 KBr, dielec. strength, temp. depend. 0=1707
 KBr, diel. relaxation in coloured crystals 3=6613
 KBr, dielectric const., 8 mm, by shorted-line wave-guide 3=22973
 KBr, dielectric properties and optical absorption, rel. to fast electron irradi. 4=1651
 KBr, diffusion of Tl⁺ ions meas. 3=6536
 KBr, diffusion of Tl⁺, rel. to absorpt. band 2=3946
 KBr, dispersion, 0.3-3.0 mm wavelength 0=628
 KBr, doped with NO₂, paramag. reson. 2=4248
 KBr, doped, thermal cond., use of Debye model 4=6760
 KBr, effect on latent image in Ilford C2 emulsion 0=15213
 KBr, effect of neutron irradi. on dielectric and optical props. 1=12468
 KBr, elastic consts., by diffuse X-ray reflection 4=1963
 KBr, elec. cond. of single crystals, temp. and voltage depend. 1=14392
 KBr, electrical conductivity, rel. to anion impurities 3=17944
 KBr, electrolytic coloration 0=6054
 KBr, electron and photon absorption compared in additively coloured crystals 1=11189
 KBr, electron energy loss spectra 2=3889
 KBr, equation of state, Grüneisen approx., temp. var., calc. 3=20115
 KBr, F-centre, electron-nuclear double spin reson. 2=6388
 KBr, F-centre ground-state, calc. 1=14335
 KBr, F-centre growth, exciton-induced 1=17576
 KBr, F-centre lifetime 2=6387
 KBr, F-centre prod. efficiencies at liq. He temp. 4=12810
 KBr, F-centres, electron-nuclear double reson. 2=12471
 KBr, F-centres, excited states 3=20244
 KBr, F-centres, optical pumping 4=10000
 KBr, F₂⁺-centres 3=20240
 KBr, F¹-type absorption bands 3=22840
 K Br, F¹-type absorption bands rel. to complex colour centres 3=815
 KBr films, secondary electron emission 4=8820
 KBr, 5 elastic wave surface, 1.7 Mc/s 0=17877
 KBr, formation by crossed HBr molecular beam and K atomic beam 1=6064
 KBr, fused, refractive index rel. to temperature 3=11796
 KBr, hydroxyl and U-centres, additively coloured 3=13013
 KBr, imperfection equilibria 2=23146
 KBr, interstitial ions and thermal cond. 2=21088
 KBr, ion activated luminescence centres 0=16104
 KBr, ion mobility along [100] and [111], computer calc. 4=17438
 KBr, as i.r. cell for benzosulphochlorides 2=22987
 KBr, lattice dynamics, dispersion curves 3=20074
 KBr, lattice dynamics, Green's function calc. 4=9824
 KBr, lattice freq. and amp., heat capacity 1=12353
 KBr, lattice vibration spectrum 1=14161
 KBr, Li A-centres, ENDOR study 3=25299
 KBr, luminesc. due to X-rays with elec. field 2=8575
 KBr, luminescence 1=17909
 KBr, luminescence and colour centres 2=711
 KBr, M-band, temporary bleaching 4=20317
 KBr, mobility of Br vacancies in single crysts. 2=14432
 KBr, molten, adiabatic compressibility 2=13333
 KBr, nuclear resonance absorption of ultrasound, theory and expt. compare^d 1=3597

Potassium compounds—contd

- KBr, nuclear spin-lattice relaxation time 1=3942
 KBr, optical absorption and fluorescence of O_2^- impurities 1=11363
 KBr, phase transform. rel. to press. 2=23803
 KBr, phase transformations, high-press., from compressibility, shock 3=18179
 KBr phosphors with activators, recombination luminescence spectra 4=15615
 KBr, photocond. in fundamental absorpt. range 2=8427
 KBr, photoconductive Hall effect 1=14385
 KBr, photocurrent due to strong elec. field 1=19897
 KBr, photocurrent due to strong elec. field 2=8433
 KBr, polaron energy spectrum 0=15836
 KBr, polaron mobility, temp. depend. 1=950
 KBr, prebreakdown currents 0=20962
 KBr, r.f. dielec. dispersion at high temps. 4=26106
 KBr, Raman spectra, theory 4=26169
 KBr, reflectivity, restrahlen bands 2=2218
 KBr, re-orientation rel. to abrasion 2=19033
 KBr sandwiches with KCl filling, defect hole distrib. in KBr rel. to elec. field 4=29171
 KBr, secondary electron emission 012628
 KBr, secondary electron emission region, thickness and efficiency 3=19323
 KBr, secondary emission, by K ions 3=16978
 KBr, soln. in liq. K, elec. cond. rel. to conc. 2=21921
 KBr, solns., observation of crystal nucleation 0=10279
 KBr, solubility in NH_3 2=15576
 KBr, sp. ht. spectroscopic meas. 3=12926
 KBr, spectrum, OH⁻ ion impurity u.v. bands 4=4266
 KBr, spin-lattice relax., temp. depend. 3=11118
 KBr, surface tension of solns., meas. 0=2160
 KBr, surfaces of melt grown ingots 3=23502
 KBr, thermal expansion 0=15815
 KBr, thermal expansion, by X-ray diffr. 1=14185
 KBr, thermal expt. 4=17374
 KBr, thermal resistance, rise nr. Debye temp. 3=17670
 KBr, thermoelasticity rel. to polycryst. state 2=12841
 KBr, thermoluminesc. after plastic deform. 3=23130
 KBr, thermoluminescence, effect of illumination 4=7176
 KBr, thermoluminescence, and plastic deformation 4=17588
 KBr: Tl, colour centre diffusion in K vapour 2=3956
 KBr: Tl, colour centres, X-ray induced, at low temp. 0=1596
 KBr: Tl, emission spectrum 3=4984
 KBr: Tl, luminescence spectrum 1=17911
 KBr: Tl phosphors, absorpt. spectra 2=2233
 KBr, U-centres, exciton induced photoconductivity 1=14340
 KBr, U-centres, i.r. absorption meas. 4=1531
 KBr, U \rightarrow F conversion, quantum yield 1=8917
 KBr, U_2 -centre, e.s.r. and photochem. 3=10696
 KBr, u.s. velocity and absorption, rel. to dislocations 1=901
 KBr, uncoloured "Schubweg" determ. 2=12395
 KBr, V-centres in crystals containing Ca, Sr, Ba ions, e.s.r. and optical absorption 0=6051
 KBr, V_1 centres, photochemistry 1=7602
 KBr, X-ray line broadening, and strain 3=8934
 KBr, X-ray luminescence 1=20012
 KBr, X-ray luminescence at low temps. 4=28733
 KBr, Z_2 centres, absorption peaks rel. to Ca, Sr, Ba doping 4=28501
 KBr, zone refining 0=8167
 KBr: Ag phosphors, atomic centres 2=14728
 KBr [Cl], excited F_A colour centres, lifetime 4=25974
 KBr: In, luminesc. and electron emission 2=4167
 KBr: In, photoelectron emission and luminescence 4=1786
 KBr and KBr: Ca, M and R colour centres 1=14341
 KBr-KCl solid solns. formed by powder compression, kinetics 2=23799
 KBr-KCl solid solutions, thermal expansion 0=15815
 KBr: KH, U_2 -centres, absorption, effect of interstitials 4=7149
 KBr/KI single crystals, luminescence 1=7721
 KBr-KI mixed crystals, F-bands 3=4889
 KBr: Na, A-centres, bleaching and dichroic props. of A_1 and A_2 bands 4=6884
 KBrO₃, diamagnetic susceptibility, rel. to temp. 1=14676
 KBrO₃, impurity shift of pure quadrupole resonance 1=6438

Potassium compounds—contd

- KBrO₃, nuclear quadrupole resonance of Br^{III} 1=12576
 KBr: Pb, absorption, emission, and excitation spectra 1=17890
 KBr: Sn, luminescence at grain boundaries 1=9008
 KC(CN)₂, atomic crystal structure from X-ray investigation 4=20761
 KCN, cryst. struct. 2=10891
 KCN, interdomain symmetry in reversible transformations 1=7834
 KCN, low-temp. cryst. structure 2=15004-5
 KCN, rate of hydrolysis, ultrasonic meas. 3=8952
 KCN, single crystal growth, and purification 4=26608
 KCN, temp. cycling at thermal transformation, $\sim 110^\circ C$ domain co-existence 0=21196
 KCN, zone refining 4=8490
 KCNS, melting, effect on u.v. absorption 0=10038
 K₂CO₃, molten, struct., by X-ray diffr. 2=15565
 K₂CO₃, soln. in water, thermodynamic props. 4=21126
 K₂CO₃, thermodyn. props. at high temps. 3=22663
 K₃CO(CN)₆, Fe³⁺ e.s.r. 4=20594
 K₂C₂O₄·H₂O 3=8728
 KCaF₃, paramagnetic resonance 1=11480
 KClF₃, paramagnetic resonance 1=11480
 KCl, A-centres 1=14339
 KCl, A-centres 2=10418
 KCl, A-centres due to substitutional Na ions 1=17573
 KCl, A-centres, structure and props. 1=19810
 KCl, A- and B-centres, reversible optical conversion 1=17572
 KCl, activated, luminesc. mechanism 2=6594
 KCl, activated, thermoluminescence, relaxation 1=11408
 KCl, additively coloured, diffusion and reaction of H₂O 4=17445
 KCl, additively coloured, internal friction 3=23291
 KCl, additively coloured, M-centre formation 3=4892
 KCl, additively coloured, photoemission of electrons 3=24336
 KCl, additively coloured, thermal bleaching 2=19171
 KCl, additively coloured, transient photocond. 4=7074
 KCl, aggregation of divalent cations 2=18577
 KCl, α and β absorpt. bands in vacuum u.v. 3=8590
 KCl, α and β bands 1=993
 KCl, α -centres, fluorescence 3=17796
 KCl, α -irradiated, thermoluminescent kinetics 4=13084
 KCl, anisotropy of elec. strength 2=6528
 KCl, aq. soln., elec. cond. rel. to pressure 4=2706
 KCl, aq. soln., freezing 3=3927
 KCl, with Ba chloride, defects and precipitation of Ba 0=11627
 KCl, β -irrad., elec. charge of dust from 3=902
 KCl, birefringence induced by light in coloured crystals 4=1741
 KCl, bleaching at 77°K by F-band irrad. 3=6543
 KCl, Bordoni peaks 3=23294
 KCl, Born repulsive energy 3=2690
 KCl, breakdown discharge form. 2=21222
 KCl, breakdown energy 0=16026
 KCl, Ca-doped, dipole aggregation process 4=1652
 KCl, Ca-doped, F-centre form. 2=16670
 KCl, calc. inverse matrix of lattice eqns. 0=715
 KCl, cation and anion migration barriers 0=4306
 KCl, charge separation due to disloc. motion 4=9960
 KCl, Co⁵⁷ impurity Mössbauer expts. investigation 2=23167
 KCl, colloid centres, props. 0=11634
 KCl, coloration near fundamental edge 3=15517
 KCl colour centre absorptions, new 4=25973
 KCl, colour centre, F, struct. magneto, optical study at 1.86°K 4=17449
 KCl, colour centre prodn., rel. to γ -irrad 3=22842
 KCl, colour centres due to electron pulses 3=8460
 KCl, colour centres, e.s.r. 3=23234
 KCl, colour centres, F \rightarrow F' conversion 1=11236
 KCl, colour centres, F \rightarrow M-centre conversion 0=20833
 KCl, colour centres, F, Z_2 3=23235
 KCl, colour centres, H, V and F, low-temp. props. 0=9910
 KCl, colour centres, M, N and R₂, pressure effects to $\sim 10^4$ atm 0=13556
 KCl, colour centres, optical bleaching near 0°C temp. depend. 0=11633

Potassium compounds—contd

- KCl, colour centres, photochemically produced 1=7601
 KCl, colour centres, spin-lattice relax. 1=20245
 KCl, colour centres, spin-lattice relax. 2=14471
 KCl, colour centres, temporary optical bleaching 1=17574
 KCl, colour centres, thermal bleaching 0=11635
 KCl, colour centres, thermal equilibrium between F- and M-centres 0=7893
 KCl, colour centres, X-ray prod. 3=25297
 KCl, cond., elec., Sr doped, temp. var., and association 4=20407
 KCl containing Ca^{2+} and Sr^{2+} , Z-centre energy levels 4=28500
 KCl containing impurities, defect microscopic investigation by evaporation method 4=28451
 KCl, containing sulphate ions, ionic cond. 2=8297
 KCl, containing U centres, thermal bleaching 1=11242
 KCl, creep near m.p. under small loads 4=1961
 KCl, cross-slip on bending 2=14894
 KCl, crystal etching and polishing 3=18242
 KCl, crystal with K colloid particles 0=8296
 KCl, crystal lattice vibr. calc. 4=28361
 KCl, crystallization, initial, theory 4=26607
 KCl, crystals, cavity formation on dislocations 0=11622
 KCl crystals with colloidal K, electron microscope study 1=2555
 KCl crystals, coloured, A-centres 1=11233
 KCl crystals, effect of γ -irrad. on density 4=10015
 KCl crystals, elec. cond. rel. to plastic deformation 1=19763
 KCl crystals, electrification, effect of β -irradiation 0=10859
 KCl crystals, F-centre to M-centre photochemical conversion kinetics 4=25972
 KCl crystals, F' centres luminescence in i.r. 4=22921
 KCl crystals, γ -irrad., colour centres, thermal bleaching, influence of plastic deformation 4=30584
 KCl crystals, γ -irrad., rel. between colour centres and dislocations 4=10005
 KCl crystals, growth and darkenability 1=14980
 KCl crystals, internal friction at low temp. 0=21098
 KCl crystals with interstitial Co^{2+} , optical absorpt. spectrum of Co^{2+} , theory 4=7128
 KCl crystals, ionic cond., a.c. polarization 2=2112
 KCl crystals, M centre thermal reorientation 0=17964
 KCl crystals, M centres 1=8916
 KCl crystals with OH^- and SO_4^{2-} ions, new absorpt. bands on irradiation 2=19161
 KCl crystals, photochem. reactions 4=26760
 KCl crystals, quenching effect 0=20835
 KCl, cyclotron resonance, rel. to mag. fld 3=20149
 KCl crystals, screened Coulomb potential 4=15556
 KCl crystals, U-centre photoconductivity 1=10019
 KCl crystals, X-ray absorption peaks rel. to plasma oscillations 1=8997
 KCl cubic crystals, small, surface energy, calc. 4=7703
 KCl, Cu-doped, colour centres 1=14336
 KCl, decomposition by electron irradiation 3=17809
 KCl defect properties rel. to electrical breakdown 1=11215
 KCl defect properties rel. to electrical breakdown 1=12391
 KCl, dichroism of N, band 2=18620
 KCl, dielec. const. at high temps. 4=7033
 KCl, dielec. loss, effect of Sr content, meas. 4=28619
 KCl, dielec. strength, temp. depend. 0=1707
 KCl, dielectric const., 8 mm, by shorted-line waveguide 3=22973
 KCl, diffraction of 8-45 Mc/s ultrasound 3=12918
 KCl, diffusion of Pb ions in crystal 3=15510
 KCl, diffusion of I^- 1=7594-5
 KCl, diffusion of Tl^+ , Pb^{2+} 1=19806
 KCl, discharge path in crystal 0=19632
 KCl, dislocation etching solution 1=19792
 KCl, dislocation loops, rel. to electron bombardment 3=17808
 KCl, dislocation observation by electron microscope and electron diffraction 3=802
 KCl, dispersion, 0.3-3.0 mm wavelength 0=628
 KCl, divalent-doped, Z₁ centres, growth and bleaching 3=22846
 KCl doped crystals, anion diffusion 0=1604
 KCl, doped with KNO_3 , X-irrad., e.s.r. 3=25573
 KCl doped with NO_2 , paramag. reson. 2=4248

Potassium compounds—contd

- KCl dust, electrification by β -irrad., effect of F-centre conc. 2=8255
 KCl, e.p.r., Sr, F centres 3=23235
 KCl, e.s.r. of A-centres 2=21365
 KCl, e.s.r. of F-centres 1=20222
 KCl, edge dislocations, excitation energy, lattice positions 1=3671
 KCl, effect of imperfections on Cl ion diffusion 1=14323
 KCl, effect of pressure on elec. and mech. props. 1=11271
 KCl, elastic constants, rel. to temperature 3=18163
 KCl, elastic constants, temp. dependence 0=11968
 KCl, elastic consts., by diffuse X-ray reflection 4=1963
 KCl, elastic consts. and spec. heat at const. volume, 300°K to melting pt. 0=16207
 KCl, elec. breakdown, at super-voltages, directional effects 1=3810
 KCl, elec. cond. and colour centres 0=15880
 KCl, elec. cond. rel. to defect props. 2=8300
 KCl, elec. cond. rel. to F-centres and temp. 2=12500
 KCl, elec. cond., thermal dissociation of F-centres 1=994
 KCl, electrical conductivity, rel. to anion impurities 3=17944
 KCl, electron conduction and breakdown, rel. to γ -irradiation 3=23020
 KCl, electron density distrib. in crystals 1=15072
 KCl, electron-energy loss spectra 2=2889
 KCl, electron excess centres, e.s.r. and optical absorption 1=14330
 KCl, electron and γ -irrad., hardening and F-band coloration 3=23359
 KCl, electron Hall mobility down to 4°K 2=23472
 KCl, electron-irrad., point defects, electron microscope study 2=23222
 KCl, electron paramag. reson. props. of pure and bleached F-centres 2=6286
 KCl, electron and photon absorption compared in pure and additively coloured crystals 1=11189
 KCl, elec. strength, effect of ionic conduction 1=2435
 KCl, eqn. of state 0=2779
 KCl, equation of state, Grüneisen approx., temp. var., calc. 3=20115
 KCl, etch pits, dislocations 2=6334
 KCl, evaporation, complex-ion formation, ion-molecule reactions 0=10876
 KCl, excitons, lowest bands, calc. 1=946
 KCl, excitons, lowest state, calc. 1=944
 KCl, exo-electron emission 1=16357
 KCl, exoelectron emission spectrum 3=14618
 KCl exo-electron and photoemission 1=18920
 KCl, F-aggregate centres, thermal prod. 3=4891
 KCl, F-aggregates, equil. with F-centres 4=22631
 KCl, F-band bleaching, photoconductive sensitivity 4=20431
 KCl, F-band Faraday rotation 4=13052
 KCl, F-band growth in deformed and heat-treated crystals, due to X-ray irradiation 1=996
 KCl, F-centre association with Na^+ or Li^+ , kinetics 4=10004
 KCl, F-centre, complex nature 1=17575
 KCl, F-centre diffusion into crystals during additive colouring 0=20838
 KCl, F-centre diffusion rate, effect of deformation 1=8919
 KCl, F-centre diffusion, effect of dislocations 2=3964
 KCl, F-centre e.s.r. line contours 4=10330
 KCl, F-centre, electron-nuclear double spin reson. 2=6388
 KCl, F-centre formation by heating in K vapour, mechanism 1=11240
 KCl, F-centre formation by X-rays 1=8923
 KCl, F-centre growth kinetics 0=4301
 KCl, F-centre lifetime 2=6387
 KCl, F-centre photoconductivity, decrease on bleaching 0=13553
 KCl, F-centre prod. efficiencies at liq. He temp. 4=12810
 KCl, F-centre spin-lattice relax. 4=26421
 KCl, F-centre spin-lattice relax. times 1=20242
 KCl, F-centre and Tl^+ , absorption band shape 4=12809
 KCl, F-centres, aggregation, e.s.r. meas. 3=25302
 KCl, F-centres, assoc. absorbt. band 2=12600
 KCl, F-centres, bleaching and recovery by X-ray irradiation 1=3693

Potassium compounds—contd

- KCl, F-centres, configuration coord. model 2=23219
 KCl, F-centres, e.s.r. double-reson. meas. 4=22632
 KCl, F-centres, e.s.r. with h.f. modulation 3=15932
 KCl, F-centres, e.s.r. line width, temp. depend. 4=1527
 KCl, F-centres, e.s.r., saturation and partial recovery at 4°K 0=10236
 KCl, F-centres, electron-nucleus double resonances 0=6273
 KCl, F-centres, excited states 3=20244
 KCl, F-centres, formation, and optical bleaching, rel. to impurity effects 3=22841
 KCl, F-centres, by γ -ray irradi., lifetime 4=17450
 KCl, with F-centres, light exposure, electron microscope exam. 0=743
 KCl, F-centres, low temp. optical bleaching 1=8915
 KCl, F-centres, optical absorpt. and e.s.r. after bleaching 2=3963
 KCl, F'-centres, radiative tunnelling rel. to thermolum. 2=4194
 KCl, F' centres, radiative tunnelling rel. to thermoluminescence 1=20034
 KCl, F-centres, spin-lattice relaxation, calc. 1=20244
 KCl, F-centres, spin-lattice relaxation times, temp. dependence 4=4405
 KCl, F-centres, spin resonance, optical saturation at 2.1°K 1=14333
 KCl, F-centres and strain due to X-rays 3=6545
 KCl, F-centres, X-ray coloration and optical bleaching light intensity depend. 0=15861-2
 KCl, F colour-centres, thermoluminescence, bleaching, effect of impurities 3=20246
 KCl, F and F' centres, electronic-vibrational state interaction 3=22839
 KCl, F- and F' -centres rel. to photocond. 2=10535
 KCl, F and F' centre fluorescence concentration dependence 4=4303
 KCl, F-F' centres photoequilibrium, kinetic model 2=12470
 KCl, $F \rightleftharpoons F'$ reaction and F' lifetime 3=2840
 KCl, F- and K-colour centres, Na impurity, effect 4=30585
 KCl, F and M-centre equilibrium 3=8461
 KCl, F and M centres, photoconductivity and luminescence 0=20937
 KCl, F and M centres, radiation equilibrium model 4=17451
 KCl, F- and M-centres, X-ray coloured crysts. 2=21082
 KCl, F and M colour centres 4=1526
 KCl, F and M colour centres 1=19815
 KCl, F, M- and V-centres prod., plastic deform. effect 4=10002
 KCl, F, R and M-centres, prep., props., and models 3=2836
 KCl, F¹-type absorption bands 3=22840
 KCl, F'-type absorption bands rel. to complex colour centres 3=815
 KCl films, electron microscopy 4=2113
 KCl films, field-enhanced secondary electron emission 4=11702
 KCl films, secondary emission 0=3794
 KCl films, single-crystal, electron diffr. streak patterns 2=23939
 KCl films, transmission secondary electron emission, time dispersion, upper limit 4=14755
 KCl, flexural vibrs. of plates 2=13394
 KCl, foam layer in water, dark layer 2=17432
 KCl foil, secondary electron emission, energy distrib. 0=5342
 KCl, Fourier coeffs. and potentials, calc. 2=4417
 KCl, fundamental absorpt. tail rel. to temp. and Br content 2=8517
 KCl fundamental and Br²-induced absorption tail rel. to temp. 1=14582
 KCl, fused, refractive index rel. to temperature 3=11796
 KCl, fused, thermoelectric power 3=9477
 KCl, γ -irrad., colour centre formation, bleaching 2=10420
 KCl, γ -irrad., elec. cond. and breakdown 2=12572
 KCl, γ -irrad., thermolum. 2=12638
 KCl, growth rate and nucleation from soln. 3=5084
 KCl, Grüneisen const., Born's theory 3=25203
 KCl, Grüneisen γ , temp. depend. calc. 3=10607
 KCl, hard and neutron irradi., resistance to deformation and destruction 4=10352

Potassium compounds—contd

- KCl, hardening, by colour centres 3=22833
 KCl, hardening by quenching and irradi. of single crystals 3=16008
 KCl hardening, shear stress, F-centre depend. 0=3156
 KCl, Harshaw, gamma ray effects on optical props., var. in different samples 4=1525
 KCl, heat of soln. meas. 1=16165
 KCl, heavily γ -irrad., F- and M- band absorption 3=816
 KCl, high-press. X-ray diffr. study 2=8811
 KCl, hole F-centres, energy and χ -function 1=14334
 KCl, imperfections, direct obs. with electron micr. 3=2782
 KCl, imperfections, electron microscope obs. 3=17711
 KCl, imperfections, rel. to electron and X-irrad. 3=22708
 KCl with impurity valence changes, e.s.r. 3=1180
 KCl, In, Ga or Tl doped, thermoluminescence and exo-electron emission 4=13081
 KCl, interstitial ions and thermal cond. 2=21088
 KCl, interstitials, prod. by X-rays at low temp., mechanism 1=8922
 KCl, ion activated luminescence centres 0=16104
 KCl, ion mobility along [100] and [111], computer calc. 4=17438
 KCl, ionic cond. and dislocation density 2=3981
 KCl, ionic conductivity, 25-250°C, effect of plastic deformation 1=8929
 KCl, ionic melt, kinetic props., rel. to liq. A 2=15570
 KCl, isoelectronic alkali halides, u.v. reson. frequencies 2=8521
 KCl, K-absorpt. spectrum of Cl 3=6660
 KCl, K-centres, prod. and dichroism 2=18618
 KCl, kinetics of adsorbed layers on W 3=11323
 KCl, with KNO₃, cond., thermal, temp. var., phonon-defect reson. interaction 4=17382
 KCl, KNO₃ doped, thermal cond. and phonon reson. scatt. 2=20946
 KCl, lattice dispersion freq., from i.r. absorption at 82°K 0=13665
 KCl, lattice dynamics and sp. ht. 2=6250
 KCl, lattice thermal conductivity at low temps. 2=10341
 KCl, lattice vibration spectrum 1=14161
 KCl, lattice vibrations and specific heat, at low temp. 0=4261
 KCl, Li doped, A centres electron paramag. reson. 2=14470
 KCl, light scatt. by dislocation networks 0=11618
 KCl, light scatt., dislocation structure of centres 4=7150
 KCl, linear thermal expansion at low temps. 2=6285
 KCl, liquids state structure 0=19114
 KCl, luminescence 1=17909
 KCl, luminescence and colour centres 2=711
 KCl, luminescence excitation spectra 4=1786
 KCl, M-band oscillator strength, thermal stability of R, N and M-centres 1=999-1000
 KCl, M-band, temporary bleaching 4=20317
 KCl, M-centre diamagnetism, no e.s.r. 2=3966
 KCl, M-centre preferential bleaching with polarized light 0=20834
 KCl, M-centres, electron spin resonance 1=11241
 KCl, M-centres, electron trapping to give M' 2=18619
 KCl, M-centres, metastable triplet state e.s.r. 4=4408
 KCl, M-centres, optical absorption 1=17581
 KCl, M-centres, temporary bleaching effect 4=1530
 KCl; M, R, N, temporary bleaching 3=818
 KCl, magnetism of imperfection centres 2=6652
 KCl, microhardness, indentation and scratch, surface soln. depend. 1=4001
 KCl, molten, Na²² diffusion, rel. to temp. 4=8193
 KCl, motion of F-centres 3=6544
 KCl, N- centres 3=820
 KCl, Na²² and Na²⁴ diffusions 2=14468
 KCl, NaCl-doped, absorption band due to colloidal K-Na alloy 1=17585
 KCl, NaCl mix-crystals, F-bands 2=3965
 KCl, nuclear quadrupole relaxation 0=3142
 KCl, with O-containing additions, e.s.r. 2=21373
 KCl, "OH" absorpt. rel. to O₂ and water vapour 2=18834
 KCl, optical absorption and fluorescence of O₂-impurities 1=11363
 KCl, optical absorption and localized excitons 4=7097
 KCl, optical bleaching of γ -irradiated KCl 1=14338

Potassium compounds—contd

- KCl, optical excitation of I atoms, luminesc. 3=15709
 KCl, oxidation states of P^{32} after Cl^{35} (n, α) P^{32} 4=7777
 KCl, p-irrad., P^{32} diffusion and electrolytic migration 1=14314
 KCl, Pb impurity entry during growth, rel. to vibration 4=30821
 KCl, phase transformations, high-press., from compressibility, shock 3=18179
 KCl, phase transformations rel. to press 2=23803
 KCl, phosphorescence, green, symmetry, of heat pre-treated coloured crystals 0=13720
 KCl, photo creation and destruction of F centres 0=15859
 KCl, photocond. in fundamental absorpt. range 2=8427
 KCl, photocond. of γ -irrad. monocrystals 2=4066
 KCl, photoconductivity of additively coloured crystals at $> 10^\circ K$ 1=5027
 KCl, photocurrent due to strong elec. field 1=19897
 KCl, photocurrent due to strong elec. field 2=8433
 KCl, photoelec. emission in extreme u.v. 4=3032
 KCl, photoelec. Hall effect in additively coloured crystals, 4-114°K 1=5028
 KCl, photoelectric emission, by X-rays, 0.28-9 keV, on films, effective depth 3=21864
 KCl, plastically deformed, thermal glow luminescence 3=565
 KCl, point defect aggregation 3=22731
 KCl, point defects from electron irrad. 3=12967
 KCl, polaron energy spectru. 0=15836
 KCl, polyactivated, luminesc. 2=23601
 KCl, polymorphic transition press. calc. 2=14922
 KCl, preferential orientation on prod. from K_2PtCl_6 and K_2PtCl_4 0=11992
 KCl, pure crystals, preparation 1=12622
 KCl, purification by zone refining method 1=15001
 KCl, quench-hardening 3=11172
 KCl, R centre, by X-irrad., e.s.r. 4=17452
 KCl, radiation-induced precipitation sites 0=17978
 KCl, refl. coeff. rel. to refr. index and absorpt. coeff., 23.6-113 Å 4=22846
 KCl, reflectance curve 0=14821
 KCl, reflectivity, restrahlen bands 2=2218
 KCl, repulsive energy, calc. 2=2039
 KCl, reversible plastic-flow stress changes on illumination 4=13392
 KCl, scattering of light, rel. to defects in single crystals 3=920
 KCl, screw-dislocations, etch pits obs. 2=2084
 KCl, secondary electron emission 2=7652
 KCl, secondary electron emission 0=12628
 KCl, secondary electron emission, film thickness depend. 1=13123
 KCl, secondary electron emission region, thickness and efficiency 3=19323
 KCl, secondary electron energy spectrum fine structure 0=10941
 KCl, shape of F-band absorption 0=6180
 KCl, single cryst. laminae, growth and struct. 2=10795
 KCl single cryst. thin layers, elec. cond. 2=6428, 8304
 KCl, single crystal filament and point production 0=18315
 KCl, single crystal, propagation of discharge 1=5427
 KCl, single crystals elec. cond. 4=30603
 KCl, single crystals, u.v.-irradiated, electron microscope study 0=18424
 KCl soln., electrolysis, induced e.m.f. 0=12107
 KCl, soln. in $HCN-H_2O$, cond. 2=19553
 KCl, soln. in water, thermodynamic props. 4=21126
 KCl solution, Co hydrogen over-potential 4=29228
 KCl, spectrum and ionic cond., OH^- effects 3=18005
 KCl, sputtering, low-energy, K atom ang. distrib. 3=4215
 KCl, with Sr impurity, dielectric losses 1=1128
 KCl, use as standard for thermal cond. meas. 2=22077
 KCl, use as standard for thermal cond. meas. 3=5548
 KCl, strain-hardening, slip effect 4=23105
 KCl, surface defects, high temp. processes 3=20214
 KCl, surface diffusion of K and Cl 1=17562
 KCl, surface energy of {100} planes 3=25178
 KCl, surface features, Czochralski growth method 3=11218
 KCl, surface ioniz. on W and Ta 3=5632
 KCl, thermal bleaching of F-centres 1=14337
 KCl, thermal cond. and acoustic relax. 2=2059
 KCl, thermal exp. 4=17374

Potassium compounds—contd

- KCl, thermal expansion 0=15815
 KCl, thermal expansion (26-77°C) 2=14387
 KCl, thermal expansion 2=16610
 KCl, thermal expansion, low temp., X-ray method 4=28378
 KCl, thermal expansion meas., analysis 4=20222
 KCl, thermal expansion rel. to proton-irrad. 4=6752
 KCl, thermal glow luminescence, rel. to plastic deformation 3=23104
 KCl, thermal resistance, fall nr. Debye temp. 3=17670
 KCl, thermoelasticity rel. to polycryst. state 2=12841
 KCl, thermoelec. power 2=8455
 KCl, thermoluminescence 1=14663
 KCl, thermoluminescence, activation energy 0=4466
 KCl, thermoluminescence, effect of illumination 4=7176
 KCl thermoluminescence, rel. to surf. area and gas press. 3=18052
 KCl, thermoluminescence, vacancy pairs process 4=17606
 KCl, transient luminescence from plastic deform. 3=4983
 KCl tubular whiskers, plastic deformation, fracture stress rel. to defects 4=28976
 KCl, 250-350°C, prebreakdown phenomena 1=19933
 KCl, 250-350°C, prebreakdown phenomena 2=8470
 KCl, u.s. attenuation 0=2206
 KCl, u.s. velocity and absorption, rel. to dislocations 1=901
 KCl, U-centres, i.r. absorption meas. 4=1531
 KCl, U-centres, exciton induced photoconductivity 1=14340
 KCl, U \rightarrow F conversion, quantum yield 1=8917
 KCl, U_2 -centre, e.s.r. and photochem. 3=10696
 KCl, U_2 -centres, electronic structure, point-ion-lattice model 0=20832
 KCl, u.v. and X-irrad., thermolums. 2=12639
 KCl, V-centre formation by X-rays 2=16671
 KCl, V-centres in crystals containing Ca, Sr, Ba ions, e.s.r. and optical absorption 0=6051
 KCl, V and F-centres, thermal bleaching 2=12472
 KCl, V_1 centres, photochemistry 1=7602
 KCl, V_2 -band, effects of plastic and elastic deform. 4=20318
 KCl, V_3 -centres, prod. by X-ray irrad. 1=17583
 KCl, V_3 centres, u.v. light bleaching meas. 4=22636
 KCl, vacancy-pair motion 1=19765
 KCl, valence-band hole interaction with a polarizable crystal 1=3634
 KCl, vibration of SO_4^{2-} impurity 1=12497
 KCl, whisker dust, electrification 2=14645
 KCl whisker growth 2=4394
 KCl, whisker growth from aq. soln. 2=4395
 KCl, whisker growth on moistened cryst. 2=4396
 KCl, whiskers, mechanical strength 1=20371
 KCl whiskers, X-ray study 2=10805
 KCl, X-irradiated, 420 m μ absorption 0=558
 KCl, x-irradiated, photocurrent carriers, mobility 1=1108
 KCl, X-ray colour centre prod. at 5 and 78°K, effect of plastic deformation 0=6050
 KCl, X-ray colouration after prior ionizing radiation 2=6385
 KCl, X-ray emission spectrum, $K\beta$, of K and Cl 4=7147-8
 KCl, X-ray induced conversion in absorption bands 1=17580
 KCl, X-ray irrad., α and β absorption bands 0=16064
 KCl, X-ray irrad., elec. conductivity 0=11658
 KCl, X-ray irrad., stimulated luminescence, M-centre mechanism 1=14633
 KCl, X-ray K-absorpt. spectra of K and Cl 3=20497
 KCl, X-ray luminescence 1=20012
 KCl, X-ray luminescence at low temps. 4=28733
 KCl, X-ray photoeffect, Auger fields for Cl and K 3=14633
 KCl, X-ray spectra, K-absorpt. for K and Cl. 2=10610
 KCl, X-ray spectrum, absorpt., K 4=1753
 KCl, X-rayed, u.v. absorption spectrum 3=3013
 KCl, Z-centre formation 1=17584
 KCl, Z centres 4=15503
 KCl, Z_2 centres, absorption peaks rel. to Ca, Sr, Ba doping 4=28501
 KCl, Z, and F bands, dichroism 1=11243
 KCl, zone-refined, photocond. 2=8423
 KCl, zone refining 0=8167
 KCl:Ag, Pb, fluorescence decay curves 3=23103

Potassium compounds—contd

- KCl, Ag, e.s.r. spectrum of Ag, calc. for double and zero field reson. 0=18219
 KCl:Ag, structural defects as electron traps 2=10384
 KCl: Ag, X-irrad., trapped holes and electrons 3=5044
 KCl: Ba, dielec. losses, -55 to + 60°C, 300-1500 c/s 1=2430
 KCl:Ba, thermoluminescence 0=8016
 KCl: Br crystals, absorption band 1=10105
 K(Cl, Br), dispersion coeff. 2=17052
 KCl:Ca, X- and γ -irrad., absorption spectrum 0=2938
 KCl:Ca, X-ray irrad., defect interactions 1=997
 KCl:CaCl₂, dielec. losses, effect of ht. treatment and plastic deform. 4=26103
 KCl-CdCl₂ melts, (CdCl₂)₂⁺ ion formation 2=21891
 KCl:Co, spectrum, and Co coord. 4=26186
 KCl:Co²⁺ and Ni²⁺, optical behaviour 3=10923
 KCl: H, F-centres, excited states 3=20244
 KCl:I, oscillator strength of Γ absorption band 1=19981
 KCl:I single crystals, u.v. absorption bands 1=10104
 KCl: In, (:Sn), absorption spectra, temp. var, In⁺ conc., dipole strength effect, meas. 4=28698
 KCl-KBr annealed crystals, pore formation 1=12374
 KCl, KBr, compression textures at 75 tons/in² 1=20700
 KCl and KBr, i. r. absorption line intensity rel. to impurity vibrations 90° to 300°K 4=10183
 KCl-KBr mixed crystals, defects 2=3912
 KCl-KBr, mixed crystals, diffusion formation 3=13004
 KCl-KBr mixed crystals, effect of annealing on props. 0=12075
 KCl-KBr mixed system, u.v. absorption 1=8989
 KCl-KBr mixtures, colour centres 3=10693
 KCl-KBr solid solution, diffuse X-ray scattering 0=16323
 KCl-KBr solid solutions, phonon scatt. by point defects at liquid He temp., from thermal cond. 0=13506
 KCl-KBr system, domains of separation 2=12897
 KCl, KBr, U-centres, i. r. absorpt. 3=13014
 KCl and KCl: Sr, M and R colour centres 1=14341
 KCl:KBr(Tl), luminesc., isostructure effects 2=14722
 KCl and KCl:Tl, X-irrad., glow peak, quenched-in cation-anion vacancy pairs explanation 4=25986
 KCl-KF mixed crystal, FCl⁻ hole centre meas. 4=6887
 KCl-KI crystals, fund. absorpt. edge 2=2230
 KCl: Li⁺, lattice local vibrations, by Raman scattering 4=6713
 KCl:LiCl, A-centre, dichroism meas. 3=17794
 KCl:LiCl, absorption spectrum 2=10602
 KCl:Li, Na, colour centre, F₂, radiative lifetime, temp. var. 4=12811
 KCl-LiCl fused salt mixtures, conductivity d.c. meas. 4=24232
 KCl-MnCl₂, e.s.r. rel. to substruct. 2=10401
 KCl-NaCl colloids, optical absorption 3=930
 KCl-NaCl, exciton absorption rel. to composition 4=4267
 KCl-NaCl melts, i-E oscillograms 3=16173
 KCl-NaCl mix crystals, dislocations, on decomposition, obs. by etching 3=12985
 KCl-NaCl, mixed crystals, 420 μ absorption 0=558
 KCl-NaCl, mixed crystals, X-irradiated, F-band position 0=557
 KCl-NaCl system, solid solubility, from Debye-Scherrer photograms 4=28996
 KCl-NaCl-H₂O u.s. vel. and adiabatic compressibility 2=17459
 KClO₃, Cl³⁵ quadrupole reson., 15-77°K, thermometer applic. 0=18232
 KClO₃, Cl³⁵ quadrupole resonance, linear effect of applied elec. field 1=14837
 KClO₃, Cl³⁵ quadrupole resonance, selective spin excitation and relaxation 0=18233
 KClO₃ crystals, i. r. reflectivity and use as filters 1=11352
 KClO₃, effect of γ -irradiation on nuclear quadrupole resonances 0=8694
 KClO₃, impurity shift of pure quadrupole resonance 1=6438
 KClO₃, K nuclear quadrupole coupling interactions 0=9226
 KClO₃, liq., i. r. refl. spectrum 2=14275
 KClO₃, nuclear quadrupole spin-lattice relaxation 2=788
 KClO₃, paramagnetic susceptibility, rel. to temp. 1=14676
 KClO₃, simple cryst. laminae, growth and struct. 2=10795

Potassium compounds—contd

- KClO₃, Cl³⁵ and K³⁹ or ⁴¹, double resonance 3=23265
 KClO₃, KClO₄, Cl X-ray spectrum, absorpt., X-ray effects 4=13029
 KClO₃, X-ray irrad., V-centre structure 0=2825
 KClO₃, X-ray K-absorpt. spectra of Cl 3=23090
 KClO₄, X-ray K-absorpt. spectra of Cl 3=20498
 KClO₃, X-ray K-absorpt. spectra of K and Cl 3=20497
 KClO₄, X-ray K-absorpt. spectra of K and Cl 3=20497
 KCl:OH, additively coloured, dichroism 2=10419
 KCl: Pb, absorption, emission, and excitation spectra 1=17890
 KCl:Pb, absorption spectra and elec. cond., effect of 600°C annealing 0=20990
 KCl-Pb, Cl₂⁻ colour centres, thermal bleaching 2=14476
 KCl: Pb, intracentre luminescence kinetics 4=28734
 KCl-Pb-Mn phosphor, sensitized 2=23597
 KCl-RbCl, exciton absorption rel. to composition 4=4267
 KCl-RbCl mixed crystals, F-centres, e.p.r. 4=20315
 KCl-RbCl mixed crystals, Rb ion diffusion 0=6063
 KCl-RbCl mixtures, colour centres 3=10693
 KCl: Sm³⁺, luminescence, orange-red region 4=28736
 KCl:Sr, colour centres, F and Z₂, thermal equilibrium 0=9912
 KCl, Sr-doped and X-irradiated, elec. cond. 4=25991
 KCl:Sr, thermoluminescence 0=8016
 KCl: Sr, Z₂-centres absorption, e.s.r. 3=25304
 KCl:Tl, Condon approx. to centre of luminescence 3=3044
 KCl:Tl, configuration coordinate model 0=6033
 KCl:Tl, emission band complex nature, absorption splitting, perturbation theory 2=14724
 KCl: Tl, emission spectrum 3=4984
 KCl:Tl, F-centre, mechanism of formation 2=16848
 KCl:Tl and KCl:Ag, luminescence rel. to impurities 3=18022
 KCl:Tl, luminescence 0=8016
 KCl:Tl, luminescence, absorption and reflectivity in far u.v. 1=1181
 KCl:Tl, luminescence, activator interactions 1=14627
 KCl:Tl, luminescence excitation and high-temp. absorption 0=13709
 KCl:Tl, luminescence excitation spectra 4=7186
 KCl:Tl, luminescence, pressure effects, rel. to configuration coordinate model 0=657
 KCl: Tl luminescence, spectral bands, vibr. calc. 4=13065
 KCl:Tl, N and O colour centres 0=15860
 KCl:Tl, optical properties 1=12494
 KCl:Tl, phosphor, long period afterglow 0=21021
 KCl:Tl phosphor, luminescence processes 0=21005
 KCl:Tl, press. shift of 3050Å emission band 2=21267
 KCl:Tl, pressure-effect model for luminescent centre 3=10992
 KCl:Tl, quantum-mech. calc. of a luminescent centre 0=4448
 KCl: Tl, Sr, F-centres thermal stability 3=4890
 KCl:Tl, scintillation phenomena 0=18147
 KCl:Tl, temp. dependence of luminescence 1=20007
 KCl:Tl, theory of luminescence 0=16086
 KCl:Tl u.s. and visible thermolum. 2=8595
 KCl: Tl, X-irrad., phosphoresc. decay 4=13082
 KCl: Tl and KCl: Pb phosphors, emission and absorpt. spectra, rel. to press. 4=28699
 KCl:Ti-TiCl:K mixed phosphors, spectra rel. to comp. 2=6612
 K₃Co(CN)₆, aq. soln., K³⁹ Knight shift 1=2498
 K₃[Co(CN)₆], Co⁵⁹ n.m.r., quadrupole effect 1=1287
 K₃Co(CN)₆, Cr-doped, growth and maser use 0=4520
 K₃Co(CN)₆, Cr-doped, mag. energy level determ. 0=4518-19
 K₃Co(CN)₆, Cr³⁺ doped, e.s.r. 2=766
 K₃Co(CN)₆, Cr³⁺ electron spin-lattice relaxation at liquid He temp. 0=13878
 K₃Co(CN)₆, Cr³⁺ spin-lattice effects 0=6256
 K₃Co(CN)₆, crystal growth, impurity effects 0=6325
 K₃Co(CN)₆, e. s. r. line broadening of Cr³⁺ due to dipolar interaction 4=15670
 K₃Co(CN)₆, Fe³⁺ paramagnetic relaxation from 0.1° to 4.2°K 4=26407
 K₃Co(CN)₆, (100) plane etching patterns 1=14960
 K₃Co(CN)₆, paramag. relax. of Fe, freqn. depend. 3=25572
 K₃Co(CN)₆, vib. spectrum and struct. of single crystals 2=8530
 K₃Co(CN)₆, vibrational spectrum and structure 4=25842
 K₃Co(CN)₆ study in K₃Cr(CN)₆ 0=681

Potassium compounds—contd

- $K_3Co(CN)_6 \cdot Cr$, e.s.r. and maser measurements 0=11934
 $K_3Co(CN)_6 \cdot Cr$, polytypism, Cr^{3+} e.s.r. data 0=13877
 $K_3Co(CN)_6 \cdot Cr^{3+}$, for 1420 Mc/s maser 0=17095
 $K_3(CoCr)(CN)_6$, maser action, relaxation effects 0=3134
 $K_3(Co, Cr, Fe)(CN)_6$, cross-relaxation of Cr and Fe at 4.2°K 0=16165
 $KCoF_3$, antiferromag. props. 0=3104
 $KCoF_3$, antiferromagnetic properties 1=12548
 $KCoF_3$, crystal-field spectra of d^3 , d^4 ions 3=25453
 $KCoF_3$, crystal struct. 3=1332
 $KCoF_3$, electron distribution 1=20559
 $KCoF_3$, magnetic anisotropy 78°–300°K 1=20164
 $KCoF_3$, n.m.r. of F^{19} , rel. to mol. field approx. 4=13343
 $KCoF_3$ 1=15095
 $K_3[Co, Fe](CN)_6$, Fe^{3+} paramag. relax. 2=18953
 $K_3(Co, Fe)(CN)_6$, Fe^{3+} spin-lattice relaxation 4=10323
 $K_3(Co, Fe)(CN)_6$, spin-lattice relaxation 3=18140
 $K_2Co(SO_4)_2 \cdot 6H_2O$, crystal struct., atomic 4=23435
 $K[Cr, Al]$ alums, optical study 1=7710
 $K_3[Cr(C^{13}N)_6NO]$ e.s.r., and $[Cr(C^{13}N)_6NO]^{3-}$, two h.f. splitting consts. 4=12512
 $K_3(Cr-Fe-Co)(CN)_6$, reson. lines, spin-lattice relax. 2=6698
 $KCrO_4$ solution, magnetic susceptibility 3=146
 K_3CrO_8 , Cr e.s.r. and optical spectra 3=3166
 K_3CrO_4 , e.s.r. of $(FeO_4)^{2-}$ and $(MnO_4)^{2-}$ in 0=21069-70
 K_2CrO_4 , $K_2Cr_2O_7$, paramagnetism, weak, temp.-independent 2=6655
 K_2CrO_4 , neutron irradiation annealing 3=22871
 K_2CrO_4 , phase transformations, up to 100 kb 3=25655
 K_2CrO_4 , soln. extinction coeff. 2=11374
 K_2CrO_4 , soln. in water, thermodynamic props. 4=21126
 K_2CrO_4 , thermal neutron capture, compression annealing 3=25311
 $K_2Cr_2O_7$, crystal structure, electron diffraction study 4=30853
 $K_2Cr_2O_7$, elec. cond., solid and molten, and viscosity, melting study 0=13466
 $K_2Cr_2O_7$, electronic absorpt. spectrum 3=15671
 $K_2Cr_2O_7$, neutron irradiation, chemical effects 2=21592
 $K_2Cr_2O_7$, phase transformations, up to 100 kb 3=25655
 $K_2Cr_2O_7$, photoactivation—photoelectret state rel. 4=30665
 $K_2Cr_2O_7$, photoconductivity and photoelectric states, study 4=30666
 $K_2Cr_2O_7$, space group symmetry 0=722
 K_3CrO_8 , bonding in $(CrO_8)^{3-}$ ion 2=16528
 K_3CrO_8 , crystal field splitting from diffuse reflectance spectrum 4=12566
 K_3CrO_8 , mag. parameters, derivation 2=21359
 $KCr(SO_4)_2 \cdot 12H_2O$, Faraday effect rel. to e.s.r. 4=4268
 $KCr(SO_4)_2 \cdot 12H_2O$, mag. temperatures between 1 and 24°K 0=10103
 $KCr(SO_4)_2 \cdot 12H_2O$, zero-field spin absorption 4=10242
 $KCuCl_3$, crystal structure 3=18314
 $K_2CuCl_4 \cdot 2H_2O$, e.s.r., amalgamation 3=20640
 $K_2CuCl_4 \cdot 2H_2O$, e.s.r. line-width 1=20225
 $K_2CuCl_4 \cdot 2H_2O$, low temp. e.s.r. line structures 4=26390
 $K_2CuCl_4 \cdot 2H_2O$, proton mag. res. rel. to electron distrib. 3=1208
 $K[Cu(CN)_2]$, i.r. absorpt. spectrum 4=26212
 $K_2Cu(SO_4)_2$, e.s.r. of Cu^{2+} , temp. depend. 4=13328
 $KCuF_3$ 1=15095
 $KCuF_3$, antiferromagnetic properties 1=12548
 $KCuF_3$, crystal structure 1=12642
KDP, high speed shutter using electro-optical effect 2=22007
KDP light mixer 4=21266
KDP, light modulators, electro-optical, for TV transmission 4=18370
KDP, refractive index, 2000Å to 1.5μ, meas. 4=30676
 KD_2PO_4 , dielec. props. rel. to temp. 2=16780
 KD_2PO_4 , dielectric and optical props. 3=17943
 KD_2PO_4 , effects of H-bond jumping of deuterons 2=12365
 KD_2PO_4 , ferroelec., D intrabond motion theory 4=10112
 KD_2PO_4 , h.f. ferroelec. props and transition 4=4218
 KD_2PO_4 , optical second harmonic generation, by laser beams 4=28666
 KD_2PO_4 , paraelec. response meas. 3=10871
 KD_2PO_4 , proton and hydrogen bonding 1=5037
KF crystals, n.m.r. of K^{39} spin 0=4528
KF, electron energy loss spectra 2=3889

Potassium compounds—contd

- KF, F centres electron-nuclear double spin reson. 2=6388
KF, fused, refractive index rel. to temperature 3=11796
KF, i.r. lattice refl. spectrum analysis 4=1737
KF, Mn^{2+} paramagnetic resonance 4=23049
KF, molten, adiabatic compressibility 2=13333
KF, molten, structure, high temp. X-ray diffraction 0=6778
KF soln. in liq. K, elec. cond. rel. to 2=21921
 $K^{39}F^{19}$, h.f.s., Zeeman and Stark splittings 4=3867
 $KF \cdot 2Al(C_2H_5)_3$, crystal structure 3=11272
 $KF \cdot 4H_2O$, crystal structure 4=29130
 $KF:U$, luminescence, line spectrum, 77°K 1=2455
 $K_3Fe(CN)_6$, crystal, absorption spectra, 20–28 kK, rel. to temp. 3=3011
 $K_3Fe(CN)_6$, ferric ion exchange interaction 3=1054
 $KFeF_3$ 1=15095
 $KFeF_3$, antiferromag. props. 0=3104
 $KFeF_3$, antiferromagnetic properties 1=12548
 $KFeF_3$, crystal struct. 3=1332
 KH_2F_3 , crystal structure and geometry of $H_2F_3^+$ ions 3=8847
 $KFeS_2$, Curie point meas. 3=12894
 $KFeF_3$, electron distribution 1=20559
 K_2FeO_4 , Mössbauer spectrum meas. 2=14355
 $K_3Fe(CN)_6$, e.s.r., Fe^{3+} interaction effects 1=12559
 $K_3Fe(CN)_6$, ferric ion exchange interaction effects 1=20224
 $K_3Fe(CN)_6$, mag. susceptibility 2=4200, 20089
 $K_3Fe(CN)_6$ spectrum, visible charge transfer band nature 4=9745
 $K_3Fe(CN)_6$, spin-lattice relax. 2=23067
 $K_3Fe(CN)_6$, spin-lattice relaxation time 1=14811
 $K_3(Fe, Cr)(CN)_6$, spin-lattice relax. time of Fe^{3+} and Cr^{3+} 1=14810
 $K_4Fe(CN)_6 \cdot 3H_2O$, elec. discharging—charging, recurrent, transients 4=22776
 $K_4Fe(CN)_6 \cdot 3H_2O$ ferroelectric, n.m.r. study 1=20274
 $K_4Fe(CN)_6 \cdot 3H_2O$ ferroelectric properties 1=14558
 $K_4[Fe(CN)_6] \cdot 3H_2O$, ferroelectric props. and structure 1=1136
 $K_4[Fe(CN)_6] \cdot 3H_2O$ and isomorphous substances, ferroelectricity 1=11336
 $K_4Fe(CN)_6 \cdot 3H_2O$, n.m.r. and X-ray study 4=20622
 $K_4Fe(CN)_6 \cdot 3H_2O$ optical and structural anomalies 1=11351
 $K_4Fe(CN)_6 \cdot 3H_2O$, specific heat, anomalous, and ferroelectric transform. 4=1399
KGe, crystal structure 0=8212
 KH_2AsO_4 , optical second harmonic generation, by laser beams 4=28666
 $KHCO_3$ crystals, H-bonds rel. to proton positions 1=9074
 $KHCO_3$, neutron diffn. study of H_2 -atom posn. 4=29132
 KHF_2 , crystal structure, FHF geometry 4=10545
 KHF_2 , electrolysis with C electrodes 2=8920
 KHF_2-H_2O , F^{19} , n.m.r. chemical shift 1=6874
 KHF_2-H_2O , F^{19} , n.m.r. chemical shift 1=10523
 KHF_2 and KDF_2 , potential function for stretching region 4=22468
 KHF_2-KF-H_2O , F^{19} , n.m.r. chemical shift 1=6874
 KHF_2 , low-frequency molecular motions, rel. to molec. structure 4=6568
 KH_2F_3 , low-frequency molecular motions, rel. to molec. structure 4=6568
K—Hg, phase diag. contrib. 2=21549
 KH_2PO_4 crystals, absence of proton linewidth transition 2=18971
 KH_2PO_4 , dielec. const. at 9.2 Gc/s 3=8553
 KH_2PO_4 , domain pattern, optical behaviour 4=28700
 KH_2PO_4 , elec. discharging—charging, recurrent, transients 4=22776
 KH_2PO_4 , electro-optic effect, microwave modulation 1=12484
 KH_2PO_4 , electron diffraction examination 0=18337
 KH_2PO_4 , far i.r. dielec. props. 3=15687
 KH_2PO_4 , ferroelec. Curie point, rel. to struct. 2=8462
 KH_2PO_4 , ferroelectric props., theory, comparison with isomorphs 0=7981
 KH_2PO_4 , ferroelectricity, order—disorder model 1=5039
 KH_2PO_4 , KD_2PO_4 , X-irrad., e.s.r. 4=4414

Potassium compounds—contd

- KH₂PO₄, light harmonic generation, by laser, mode effects 3=23995
 KH₂PO₄, light modulation at microwave freqn. 3=5535
 KH₂PO₄, low freq. H vibs. 3=20384
 KH₂PO₄, nonlinear optical phenomena meas. 4=10185
 KH₂PO₄, optical harmonic generation 3=20453
 KH₂PO₄, optical harmonic generation, continuous, using gas laser 3=21507
 KH₂PO₄, optical harmonics, freq. ratio meas. 2=17605
 KH₂PO₄, optical second harmonic generation, by laser beams 4=28666
 KH₂PO₄, optical harmonic generation, by laser, from second order polarization tensor 4=2809
 KH₂PO₄, optical harmonic generation, temp. depend. 4=28701
 KH₂PO₄, optical harmonic prod., anomaly near transition temp. 4=4269
 KH₂PO₄, proton and hydrogen bonding 1=5037
 KH₂PO₄, second harmonic generation of light 3=1839
 KH₂PO₄, second harmonic prod. in maser radiation 2=9389
 KH₂PO₄, short-range interionic forces 2=12363
 KHSO₄, crystal structure 4=23464
 KHSO₄, Raman spectra of molten state 2=19562
 KHSeO₄, crystal structure 1=9141
 (KHSiO₃)₂, crystal structure 4=7637
 K₄(HSiO₃)₄, crystal structure 4=26670
 KHgBr₃, crystal structure 3=18315
 K₂HgI₄, K₄HgI₄·H₂O structure, from powder, spectra, diffuse reflectance, u.v. 3=23557
 KI, activated, luminesc. mechanism 2=6594
 KI, additively coloured, photocapacitance effects 2=23468
 KI, α -centres, fluorescence 3=17796
 KI, anisotropy of elastic constants, 20-550°C 0=16205
 KI, anomal. thermal expansion at low temp. 2=10337
 KI, aq. solns., flash photolysis, absorption spectrum of dihalide ion 0=10357
 KI coloured with I₂, ionic conductivity 4=28618
 KI crystal growth 3=20795
 KI crystals, growth, TI halide activator distribution determination 0=13939
 KI, dark current rel. to plastic deform. 2=4067
 KI, decomposition by u.s. waves 3=16162
 KI, diffusion Cl⁻ 1=7594-5
 KI, diluted in KCl, u.v. absorpt. 2=8524
 KI, dislocation loops, rel. to electron bombardment 3=17808
 KI-dodecylpyridinium iodide solution, scattering of light 1=4477
 KI doped with paramag. Cu, spin lattice relax. time of I nuclei 0=10243
 KI, effect of colour centres on elec. cond. 1=14389
 KI, effect of plastic deformation on elec. cond. (Gyulai-Hartly effect) 1=14390
 KI, elastic constants, temp. depend. 2=8701, 10732
 KI, elastic properties, -183° to 300°C 4=7450
 KI, electron energy loss spectra 2=3889
 KI (100), evaporation rel. to vapour press. 2=7477
 KI, exciton band, long wave, temp. depend. 0=2811
 KI, F-centre, electron-nuclear double spin reson. 2=6388
 KI, F-centre growth, exciton-induced 1=17576
 KI, F-centre lifetime 2=6387
 KI, F-centres, e.s.r., 4-293°K, compared to other K halides 0=1826
 KI, F-centres, optical aggregation 0=1597
 KI, flexural vibs. of plates 2=13394
 KI, formed by K beam in CH₃I and C₂H₅I 1=12336
 KI, in glycol, glycerine and ethanol. u.s. vel. and compressibility 1=11759
 KI, high press. X-ray crystallography 2=23834
 KI, I₂ centre, e.s.r. 2=21083
 KI, I¹²⁷ quadrupolar spin-lattice relaxation time 3=18156
 KI, impurity-substituted, [100] field gradients, n.m.r. meas. 3=18152
 KI, ion activated luminescence centres 0=16104
 KI, irradiated, luminescence in fluorescent liqs. 1=18415
 KI, lattice vibration spectrum 1=14161
 KI, lattice vibs. 2=3828
 KI, luminesc., gamma and photo-excited 2=23589
 KI, luminesc., low activator concs. 2=14723

Potassium compounds—contd

- KI, luminesc. of powders in elec. fields 2=14737
 KI, luminescence 1=17909
 KI, luminescence and colour centres 2=711
 KI, luminescence, γ -irradiated, decay constants 1=10116
 KI, luminescence, low temp., trapped charge 0=2957
 KI, in mixed crystals, with KBr and TlI, luminescence, exciton mechanism 1=1175
 KI, molten, adiabatic compressibility 2=13333
 KI, motion of F-centres 3=6544
 KI, nuclear multi-relax. at low mag. fields 2=18966
 KI, nuclear reson., u.s. excitation 2=14853
 KI, nuclear resonance absorption of ultrasound, theory and expt. compared 1=3597
 KI, photocond. 2=8426
 KI, photocond. in fundamental absorpt. range 2=8427
 KI, plastic deform., n.m.r. study of recovery 2=21427
 KI, Raman effect at low temp. 1=17903
 KI, reflectivity, reststrahlen bands 2=2218
 KI, single crystals, elastic wave propagation 0=6855
 KI soln. in liquid K, elec. cond. decrease 1=9406
 KI, solns., relax. due to u.s., effects 2=11370
 KI solutions, luminescence, ultrasonic effects, and cavitation 4=14117
 KI, solutions, nucleon quadrupole relax. of I¹²⁷ 0=12427
 KI, spectrum in PbS region 2=1991
 KI, spectrum, u.v., two-quantum absorpt. 4=7151
 KI, spin-lattice relax., temp. depend. 3=11118
 KI, thermal expansion, by X-ray diffr. 1=14185
 KI, thermoluminescence, effect of illumination 4=7176
 KI, vacancy prod. by X-rays, temp. depend. 4=17423
 KI, X-ray luminescence 1=20012
 KI, X-rays, "white" Cu, effects, loops and screws 3=13024
 KI⁺ ions, 5-25 keV, sputtering of Cu 1=8363
 KCl·H₂O, refinement of crystal structure 3=13476
 KI·Hg(CN)₂, crystal structure 3=8855
 KI·Hg(CN)₂, lattice structure, erratum 4=7636
 KI:In, intracentre luminescence 3=945
 KIO₃, crystallization, in presence of 10-14% HIO₃ 3=23405
 KIO₃, diamagnetic susceptibility, rel. to temp. 1=14676
 KIO₃, ferroelectricity 1=14833
 KIO₃, spectrochemical analysis, powder, by spectrum, diffuse reflectance, u.v. 3=23557
 KI:Sn⁺⁺ and Pb⁺⁺, luminesc. and excitons 2=14710
 KI:Tl, colour centres, X-ray induced, at low temp. 0=1596
 KI:Tl, emission and absorption spectra 0=20997
 KI:Tl, emission spectrum 3=4984
 KI:Tl, exciton induced, luminescence 1=11404
 KI:Tl, i.r. absorption, γ -irrad. effects 3=25449
 KI:Tl, luminesc. spectra 2=4171
 KI:Tl, luminescence, decay time meas. 3=10005
 KI:Tl, luminescence due to X-rays 3=4982
 KI:Tl, luminescence under far-u.v. excitation 0=21004
 KI:Tl, luminescence induced by excitons 1=10120
 KI:Tl, luminescence rel. to TI content and irradiation temp. 1=20006
 KI-TlI, growth temp. gradient, effect on TI distrib. 1=20421
 K₂IrCl₆, antiferromagnetism 4=26403
 K₂IrCl₆, crystalline, Szilard-Chalmers reaction, Ir¹⁹² recoil species 0=12109
 K₂IrCl₆, exchange interactions 0=13876
 K₂IrCl₆, optical spectrum 3=4973
 K₂Ir(CN)₆, vibrational spectrum and structure 4=25842
 (K_{0.8}La_{0.2}Bi_{0.4})Nb₂O₈, crystal structure 4=10549
 KLaW₂O₈, Tb³⁺ impurity fluoresc. 2=23602
 K-Li-NO₃ melts, Cd-chlorocomplex formation 4=2143
 KLiSO₄, dielec. props. near transition point 2=16770
 KLiSO₄, thermal expansion, X-ray measurements 0=18361
 KMg₃, (M = Cu²⁺, Ni²⁺, Co²⁺, Fe²⁺ and Mn²⁺), n.m.r., temp., mag. props., F¹⁹ shift dependence meas. 4=28896
 K₂M(SO₄)₂·6H₂O, M = Mg, Zn, Ni, Co, Raman spectra 1=12499
 KMgF₃, far i.r. refl. and transmittance 4=17579
 KMgF₃:Mn, cathodoluminescence 2=8587
 KMgF₃:Mn, e.s.r. 1=1262
 KMgF₃, paramagnetic resonance 1=1148J
 K₂MgF₄, paramagnetic resonance 1=1148U
 KMgF₃:Ni²⁺, optical spectra 3=12892
 KMg(Ni)F₃, mag. dipole transitions 3=19993
 K₂Mg(SO₄)₂·4H₂O (leonite), structure 0=18363

Potassium compounds—contd

- KMnCl₃, e.p.r. Mn⁺⁺, temp. var., and antiferromagnetism 4=1881
 K₂MnCl₆, mol. electronic struct., ligand field theory 4=22412
 K₄Mn(CN)₆·3H₂O, mag. susceptibility 2=4200
 K (Mn, Co, Ni) F₃, superexchange interaction 3=25553
 KMnF₃, antiferromag., n.m.r. of Mn⁵⁵ 4=13345
 KMnF₃, antiferromag. rel. to nuclear mag. reson. 2=2305
 KMnF₃, antiferromag. props. and lattice parameters, variation with sample preparation 1=1247
 KMnF₃, antiferromag. resonance 3=1198
 KMnF₃, antiferromag. resonance and Mn⁵⁵ n.m.r. 3=15966
 KMnF₃, antiferromagnetic properties 1=12548
 KMnF₃, crystal growth, Czochralski method 1=14990
 KMnF₃, crystal struct. 3=1332
 KMnF₃, crystal structure 1=15085
 KMnF₃, electron distribution 1=20559
 KMnF₃, F¹⁹ n.m.r., antiferromag. transition at 88.5°K 0=11955
 KMnF₃, F¹⁹ n.m.r., contrib. of unpairing of 1s electrons to h.f.s. 1=8071
 KMnF₃, hyperfine field and ground-state spin alignment 2=23689
 KMnF₃, luminescence, temp. var. large 3=23102
 KMnF₃, Mn⁵⁵ antiferromag. —nuclear double resonance 3=25582
 KMnF₃, mag. anisotropy, theory 1=2465
 KMnF₃, mag. transitions, crystallographic study 1=2464
 KMnF₃, n.m.r. of F¹⁹, u.s. modulation 4=20614
 KMnF₃, specific heat, 78–300°K, and antiferromagnetic and crystal structure transitions 3=8365
 KMnF₃, spin-wave instability 3=20637
 KMnF₃, weak ferromagnetism below 81.5°K 1=12525
 KMnO₄, directed crystallization, rel. to ultrasonics 3=16044
 KMnO₄, mag. props. 2=6656
 KMnO₄, phase transformations, up to 100 kb 3=25655
 KMnO₄ solution, magnetic susceptibility 3=146
 K₂MnO₄, crystal structure 0=8220
 K₃MoCl₆, energy levels 2=3814
 K₂MoO₄·F₄·H₂O, crystal structure, atomic 4=7635
 KN₃ crystals, irradi. produced NO and NO₂ 2=21089
 KN₃, γ-irrad., e.s.r. of trapped radicals 2=4266
 KN₃, irradiated, e.s.r. 0=17919
 KN₃, u.v. irrad., 77°K, paramag. centres 2=16931
 KN₃-X-irradiated crystal, paramag. N oxides produced 4=26413
 K–NH₃ soln., decomposition, e.p.r. study 3=3381
 K–NH₃ solutions, paramag. relax. times 4=8222
 KNO₂, elec. cond., solid and molten, and viscosity, melting study 0=13466
 KNO₃, fused, transport numbers 3=16172
 KNO₃, fused, transport numbers 3=16172
 KNO₂ solid at 40°C, thermal transformation showing hysteresis 4=7510
 KNO₃, absorpt. bands due to irrad. 2=18832
 KNO₃, aq. soln., K³⁹ Knight shift 1=2498
 KNO₃, aqueous soln., compressibility 0=14640
 KNO₃, cryst. and molten, u.v. absorpt. change 2=16822
 KNO₃, crystallized from supersaturated soln., critical dimensions 2=21488
 KNO₃, disordered struct. above ferroelec. Curie point 2=17022
 KNO₃, effect of press. on radiolysis 2=21090
 KNO₃, elec. resist. 2=12498
 KNO₃, ferroelec. phase III, ferroelec. props 2=4092
 KNO₃, ferroelec. props. at room temp. 3=2958
 KNO₃, ferroelec. switching, applied field and temp. depend. 4=26124
 KNO₃, fused, refractive index rel. to temperature 3=11796
 KNO₃, fused, splitting of Raman frequencies 3=4761
 KNO₃, fused, thermal diffusion meas. 4=183
 KNO₃, γ-irradiated, paramagnetic species 4=26423
 KNO₃, heat of fusion, entropy 3=21617
 KNO₃, irrad., decomposition, heat of solution 1=15202
 KNO₃, liquid i.r. reflection spectrum 2=7214
 KNO₃, luminescence, rel. to γ-irradiation 4=10217
 KNO₃, melting, effect on u.v. absorption 0=10038
 KNO₃, molten, heat of solution of AgCl 3=14153
 KNO₃, molten, with ionic admixture, Raman spectra 4=16115
 KNO₃, parent cryst. critical dimension 2=4373

Potassium compounds—contd

- KNO₃, phase III, ferroelectricity 0=639
 KNO₃, polymorphic transforms 2=14920
 KNO₃, polymorph transition rates 3=20772
 KNO₃, soln. in water, thermodynamic props. 4=21126
 KNO₃, specific heat, meas. and result 0=2275
 KNO₃, surface tension and density 0=2161
 KNO₃, thermal cond. decrease at 130°C due to phase transition 1=9991
 KNO₃, transition I → II, energy meas. 2=12878
 KNO₃–AgNO₃ fused solution, electrical conductivity and cryometry 1=15899
 KNO₃–AgNO₃ fused system, complex ions 4=183
 KNO₃–Ba(NO₃)₂ melt, u.v. absorpt. spectra 2=16822
 KNO₃–Cd(NO₃)₂, thermal diffusivity 0=19469
 KNO₃ and KNO₃–NaNO₃, molten, u.s. absorption and vel. 0=16696
 KNO₃–LiNO₃ fused solution, electrical conductivity and cryometry 1=15899
 KNO₃–LiNO₃ liquid, diffusion of Li⁶, Na²², K⁴² ratios 4=16103
 KNO₃–NaNO₃ fused salts, volume change on mixing 1=15860
 KNO₃–NaNO₃ fused solution, electrical conductivity and cryometry 1=15899
 KNO₃–NaNO₃, thermal diffusivity 0=19469
 KNO₃, NO₂ and NO₂[–] e.s.r. 3=11116
 KNO₃–Pb(NO₃)₂–H₂O u.s. vel. and adiabatic compression 2=17459
 KNO₃–Sr(NO₃)₂–H₂O, u.s. vel. and adiabatic compression 2=17459
 K–Na, colloidal, in KCl–NaCl crystals, absorption band 1=17585
 K–Na liq. alloys, compressibility 2=17446
 KNaC₂H₃O₆·4H₂O, dislocations and fine lines 1=12393
 (K, Na)Cl solid solns., X-ray scattering during decomposition 4=20784
 (K, Na)Cl solid solutions, formation and liquidation of heterogeneous regions 1=1357
 K₂NaCrF₆, n.m.r., interaction of P_σ and P_π orbitals 0=18227
 K₃Na(SO₄)₂, thermal expansion, X-ray measurements 0=18361
 K₂NbF₇, neutron diff. crystal structure meas. 4=29147
 KNbO₃, dielectric and piezoelectric properties 3=16033
 KNbO₃, ferroelectric, nuclear quadrupole spectrum of Nb⁹³, temp. depend. 1=1288
 K₂NbO₃F, structure and thermal props. 3=3306
 K₂NbO₃ with small amount of K₂CrO₈, Cr e.s.r. and optical spectra 3=3166
 KNi cyanide, struct. of K-absorpt. edge 2=18851
 KNiF₃, 1=15095
 KNiF₃, antiferromagnetic properties 1=12548
 KNiF₃, antiferromagnetic resonance in far i.r. 3=15930
 KNiF₃, covalency, LCAO–MO model 3=12893
 KNiF₃, covalency theory of Ni–F_σ complex 4=20151
 KNiF₃, covalent orbitals, n.m.r. study 3=12891
 KNiF₃, crystal struct. 3=1332
 KNiF₃, electron distribution 1=20559
 KNiF₃, magnetic anisotropy 78°–300°K 1=20164
 KNiF₃, n.m.r., interaction of P_σ and P_π orbitals 0=18227
 KNiF₃, optical and mag. props, molec. orbital analysis 3=333
 KNiF₃, optical spectra, covalency effects 3=12892
 KNiF₃, π-bonding origin 2=20835
 K₂NiF₄, antiferromag. struct. study 2=12799
 K₂NiF₄, antiferromagnetic stacking faults 4=13275
 K₂NiF₄, mag. structure meas. 3=3138
 K₂NiF₄, mag. structure, order study 4=28858
 K₂NiF₄, pile-up antiferromagnetic disorder, neutron diffraction study 4=10301
 K₂NiF₄, type, mag. props. 3=11024
 KO₂ structure 2=15027
 KO₃, crystal structure, atomic, by X-ray powder diff. 3=16071
 KO₃, paramag. reson., temp. and freq. depend., decomposition 0=21077
 KO₃, resonance absorption, exchange effects 0=4522
 KOH, acoustic velocity, u.s. 0=5012
 KOH, aq. soln., elec. cond. rel. to pressure 4=2706
 KOH, crystal structure 0=21201
 KOH, KOD, near i.r. absorption spectra 0=1736
 KOH, molten, i.r. refl. spectrum 2=1150
 KOH, Raman and i.r. spectra 1=1171

Potassium compounds—contd

- KOH, reaction with Al, Zn, Sn or Pb, electron emission 1=16376
 $K_2O \cdot MgO \cdot 3SiO_2$; $K_2O \cdot CuO \cdot 3SiO_2$ and $K_2O \cdot PbO \cdot 3SiO_2$ fibres, structure 0=6372
 $K_2O-Nb_2O_5$, growth peculiarities 3=16033
 KOs_3N , Os charge and band determ. by L_{III} absorption spectrum 2=14693
 $K_2O \cdot 2Ta_2O_5$, crystal structure and dielec. props. 4=23465
 $K_2O-Ta_2O_5$, growth peculiarities 3=16033
KPF₆, specific heat and phase transitions 3=12927
 $(KPO_3)_n$, crystal structure 2=17023
 $K_2Pd[PtCl_4]$, diamagnetic anisotropy 4=26265
 K_2PtCl_6 , lattice spacing by electron micr. 4=15784
 K_2ReBr_6 , mag. susceptibility 2=2272
 K_2ReCl_6 , mag. susceptibility 2=2272
 K_2ReCl_6 , magnetic props. and optical absorption 1=8988
 K_2ReH_9 , H-atom arrangement in ReH_9^{2-} ion neutron-X-ray diffn. comp. 4=29133
 $KReO_4$ crystals, i. r. and Raman spectra 4=26213
 $K_3Rh(CN)_6$, vibrational spectrum and structure 4=25842
 $K_3Rh(C_2O_4)_4 \cdot \frac{1}{2}H_2O$, proton magnetic resonance 1=3952
KSCN, elec. conductivity of solid 3=22983
KSCN, fused, refractive index rel. to temperature 3=11796
KSCN, spectrum, 250, 400°C 4=8209
 $K_2(SO_4)_2$, aq. soln., electron spin exchange 3=16639
 K_2SO_4 , cleavage planes rel. to growth faces 2=21469
 K_2SO_4 , crystal struct. 20° to 600°C by diffractometer 2=10892
 K_2SO_4 , fused, refractive index rel. to temperature 3=11796
 K_2SO_4 , impurity distrib. during crystallization 4=29062
 K_2SO_4 , Madelung constant 0=13475
 K_2SO_4 , molten, structure by X-ray diffr. 2=15565
 K_2SO_4 , n irradi., u.s. effects 4=4089
 K_2SO_4 , neutron-irrad., thermal recovery 2=23225
 K_2SO_4 , polymorphism 4=4520
 K_2SO_4 , surface structure, effect of S^{35} radioactivity 1=20656
 $K_2S_2O_5$, i.r. absorption and Raman spectra study 0=11526
 $K_2S_2O_8$, i.r. absorpt. spectrum 2=6579
 $3K_2S_2O_8 \cdot 5H_2O$, e.s.r. γ irradi., liquid N_2 temp. 4=1887
 $K_2S_2O_8 \cdot \frac{1}{3}H_2O$, unit cell and space group 0=16331
 $K_2(SO_4)_2NO$, h.f.s. and coupling consts., from e.s.r. 3=14183
 $K_2SO_4-SO_2$, isotopic exchange 0=14112
 $K_2SO_4-SO_3$, isotopic exchange 0=14112
 K_3Sb , crystal structure and electrical props. 1=15081
 K_3Sb , energy distrib. of photoelectrons 0=1544
 K_3Sb , film, photoelectric emission, effect of n irradiation 3=14632
K-Sb films, elec. cond. and photoemission 3=8495
 K_3Sb , pair-prodn. by low energy electrons 2=8359
 K_3Sb , photoemission and related props. 1=1907
 $K_3SbO_3-NaNbO_3$, dielectric props and lattice parameters 4=7035
 K_2SnBr_6 , cubic phase crystal structure and thermal expansion 4=23463
 $KTa_xNb_{1-x}O_3$, electro-optic props. in para-electric phase 4=20464
 $KTaO_3$, dielectric props. near Curie point 3=17936
 $KTaO_3$, far i.r. dielectric dispersion 3=4947
 $KTaO_3$, i.r. active modes of vibr. 4=30513
 $KTaO_3$, i. r. dispersion, coupled optical-phonon mode model 4=28670
 $KTaO_3$, n.m.r., nucl. mag. moment of Ta¹⁸¹ 1=597
 $KTaO_3$, paraelectric, microwave dielec. const. 4=26121
 $KTcO_4$ crystals, i. r. and Raman spectra 4=26213
 K_2TiCl_6 , crystal structure 1=10263
 K_2TiO_3 , Ti X-ray spectra, emission, bond type and $K\beta_1$ line changes 3=23092
 $KTiNbO_6$, crystal structure and chemistry 4=23466
 KTi_2NbO_9 , crystal structure and chemistry 4=23466
 $K_3UO_7F_6$, spectrum, i.r., and U-O bond force const. 3=22575
 K_3VS_4 , crystal structure 4=20762
 K_2WO_4 , liquid, compressibility, 950-1350°K 4=14145
 $K_2W_2O_{11} \cdot 4H_2O$, crystal struct., atomic 4=29134
KXF₃, X = Mn, Fe, Co, Ni or Cu, crystal structure 1=2556
 $KZnCl_3$, crystal structure, atomic 4=2087
 K_2ZnO_2 , crystal struct., atomic 4=17818
 $K_2Zn(SO_4)_2 \cdot 6H_2O$, Cr³⁺ e.s.r. 3=18130
Na-K-Cl-Br ternary system, phase diagram 1=20614

Powders

- See also Granular structure; Particle size; Sintering; Surface measurement.
alkaline earth oxides, sintered powders, thermal cond. 3=25209
antiferromagnetic resonance 3=23217
Armco Fe, mosaic block size from X-ray diffraction line width 4=4648
beryllides, "pest" degradation 4=29169
binary mixtures, uniform soln. range, interdiffusion, conc. distrib. 2=23894
chromia-alumina, reflection spectra 4=7124
coal, paramag. reson. rel. to oxygen temp. effect 2=4255
compacts, shrinkage meas. rel. to sintering kinetics 4=13662
compressibility, liquid filled, longitudinal 3=11737
conducting, in a dielectric medium, dielec. props. 0=3722
crystalline crushed, coarse specimens, texture 4=10573
density meas., gradient column method, errors for polymers 4=8011
diamond, particle size analysis, comparison of methods 3=23825
dielec. props. embedded in homog. medium 0=3723
dielectric, mixed and unmixed, permittivity in 10 000 Mc/s band 4=26093
dried skim-milk particles, surface structure 4=2117
dust-covered surface, jet impingement 4=18124
e.s.r., line-shape, calc. 2=764
e.s.r., meas., drawbacks as opposed to crystals 1=20208
electroluminescence decay, in liquid dielectric, electrode motion 4=13067
electroluminescence, of single particles, brightness distrib. 0=2966
electroluminescent, role of exhaustion barriers 0=8026
for electron microscope grain shape study 4=20779
electron microscopic study 3=20961
ferrite, magnetic properties 0=3087
ferrite, replica prep. for electron microscopy 2=6867
ferromagnetic, anisotropy distrib. expt. determ. 2=2276
ferromagnetic mixtures, permeability 1=14724
ferromagnetic, multidomain, props. 0=3047
ferromagnetic-non-ferromagnetic mixtures, mag. anisotropy 1=6277
ferromagnetic, relaxation behaviour 0=3045
ferromagnetic, in rotating mag. field 0=18193
ferromagnetic, saturation of specimens, investigation 4=7250
ferromagnetic in wave guides, high temp. investigation 0=10156
flow 4=20786
flow and intrinsic geometrical props. of powder packs 4=7685
flow props., viscometer invest. 4=5134
fluid flow through powder beds 1=131
fluidization of particles packed in layer condition 3=100
glass dust, effect of γ -rays on elec. props. 4=22764
graphite, amorphous state 4=10624
graphite, diamagnetism rel. to type of grinding 2=12755
graphite, particle size rel. to diamag. props. 3=1120
Hall effect meas. 0=9946
heat transfer, in outgassed samples 3=3907
ignition of sandust on hot surfaces 2=4539
inequigranular, fractional coverage of plane 0=10325
inorganic, luminesc. in elec. fields 2=14737
insulators, made of pressed powders, thermal cond. 3=25217
magnetic, perm. magnet use, stability 0=3038
magnetic, in plastic as perm. magnets 0=3037
magnetic, shap distribution 0=3048
magnetic susceptibility meas. apparatus, balance and crvostat 4=21612
on magnetic tapes, interaction, in ambient fields 0=1792
magnetism, measurement by electron beam deflection 1=10755
magnetization processes in ferromag. powders 1=6311
magnetized, electron beam diffraction 0=10968
mechanics of loose media, soln. of eqn. 2=15445
metal, artificial dielects., microwave props. 2=6513
metal, filing machine 4=23539
metal, production by spark erosion in liq. Ar 4=30999
metal, X-ray line broadening 1=7889
microcrystalline, photoconductivity mechanism 1=3784

Powders—contd

milk, electrification, charge amount rel. to conc. in flow and flow vel. 4=8599
 mineral particles, friction 0=8135
 n.m.r., line broadening by field inhomogeneities 3=5048
 nuclear emulsion powder grain interactions
 non-visibility theory 1=16636
 optical absorption and diffuse reflectance 4=13005
 optical absorption meas. on crystal powders 1=4452
 optical constants, theory 3=10901
 optical reflection, comparison of theories 4=21277
 optical reflection, diffuse, Mg oxides and ultra-marine 0=12469
 optical transmission, effect of adsorbed water, theory 0=3650
 organic, mixed with naphthalene, Raman spectra 4=26170
 organic, photo- and radioluminescence, duration 3=15716
 organic semicond., elec. cond. cell for cond.: temp. meas. 4=28577
 pulverized materials, elasticity, anisotropy 2=12840
 paramagnetic, analysis by mag. separator 3=9903
 paramagnetic resonance line shapes 0=21219
 particle size analysis 4=20786
 particle-size classifier, diameters < 50 μ 4=4999
 particle size distrib. 4=23537
 particle size, distrib. 1-40 μ , using photosedimentograph 3=16570
 phosphors, quantum efficiency, wavelength depend. 0=2954
 phthalic acid, reflection spectra, rel. to absorbed layer 3=23062
 pigments, mixture data 0=14857
 plasticity, theory 1=3977
 polymers, bulk modulus by "suspension method" 1=12578
 porosity, contact cross-section and Young's modulus reln. 4=23542
 powdered substrates, surface area of preadsorbed water 4=23548
 quartz, colour centres, e. s. r. meas. 4=6883
 quartz, existence of "flow layer" on particles 1=6557
 quartz, ground respirable size, distributed layer 3=16128
 quartz, ground and shattered, X-ray diffrn. 3=3352
 quartz, ground, 3 μ dia., disturbed layer thickness 4=13660
 quartz sand, flow-stick transition 4=23538
 radioactive, measurement of speed of pneumatic transport 0=19041
 radioactive, surface area meas. 1=20645
 Raman intensities, absorption effects 0=13687
 refractory compounds, emissivities 0=16919
 ruby, electrolum. mechanism 2=4191
 rutile, adsorption rel. to surface polarity 2=2433
 rutile, electrification 0=13643
 semiconductors, powdered, photoconductivity using photodielectric effect 0=20924
 separation by micro-dispenser 1=21164
 shock excitation, thermal, spectroscopy 3=24018
 size-number distribution, size parameter calc. method from microscopic obs. 4=26703
 subsidence trough, random walk model 4=16068
 surface area meas., automatic, using Ar adsorption 4=7697
 surface meas., specific, by mol. gas flow 4=7696
 thermal cond. meas. appar. at high temps. 3=21584
 thermal cond. meas. in vacuum, appar. 4=2865
 volume and grain boundary diffusion 1=7588
 X-ray absorption, meas. appar. 3=12281
 X-ray crystallography, camera, Debye-Scherrer 3=6943
 X-ray diffracted intensity, effects of granularity 4=23385
 X-ray meas. of grain size 1=2551
 X-ray quantitative diffractometric analysis 4=29080
 X-ray scatt., diffuse, meas. 3=11251
 Ag selenide, thermoelectric figure of merit 4=7088
 Al, ground, recryst., X-ray meas. 4=10575
 Al, heat of wetting, by hydrocarbons, in solution 3=16131
 Bi¹⁰, n-irradiation, sintering 1=14351
 B-Ti dispersions, metallurgical characteristics 0=14057
 Ba ferrite powders, effect of particle size on coercive force 3=15879
 Ba ferrite sat. magnetization rel. to grinding and annealing 4=26334
 Ba ferrite, single-domain magnetic props. 3=15880
 BaCl₂, dielectric const., density var., 9200 Mc/s 4=22758
 C, Hall effect measurement 0=17990
 Ca halophosphate phosphors, optical props. 1=6200

Powders—contd

Co, deformed, elastic anisotropy and lattice strain 3=1231
 Co, n.m.r. of nuclei in Bloch walls 3=3193
 Co, n.m.r. for various phases 1=6434
 Co, Co⁵⁹ n.m.r., additional lines 1=1280
 Cr₂O₃, antiferromagnetic properties 3=8697
 Cu, C-reduced, density, flow rate 3=13552
 Cu, cold pressing rel. to sintering and recrystn. 2=6785
 Cu, ground, recryst., X-ray meas. 4=10575
 Cu, sintering, thermodynamics and mechanism 2=23898
 Cu-Ni compacts, X-ray diffraction study of interdiffusion 1=11225
 Cu-Ni, interdiffusion, X-ray diffr. study 3=2823
 Cu-Ni, powder to alloy homogenization X-ray diffrn. obs. 4=26550
 Fe, carbonyl, mag. permeab., hysteresis loss factors 3=11089
 Fe, Fe⁵⁷ n.m.r. rel. to internal strain 2=2307
 Fe, n.m.r., effect of external mag. field 3=1203
 Fe, Ni, Al, adsorption isotherms of H⁺ and OH⁻ aqueous ions 4=4674
 Fe, sintering rel. to grain boundary sliding 3=11293
 α -Fe₂O₃, antiferromagnetic properties 3=8697
 γ -Fe₂O₃, micropowders, ferrimag. resonance 3=1175
 Ge films, elec. cond., sign 1=14452
 Ge, n-type, adsorption of water 3=6890
 Ge, O₂ chemisorption 0=10368
 HgO, pressed, dielec. permittivity and loss 2=4086
 KCl, elec. charge, from β -irrad. crystals 3=902
 KCl, electrification by β -irrad., effect of F-centre conc. 2=8255
 KIO₃, spectrochemical analysis, by spectrum, diffuse reflectance, u.v. 3=23557
 KCl-KBr crystallites, compressed to 3 ton cm⁻² 2=12897
 K₂HgI₄, K₂HgI₆.H₂O, spectra, diffuse reflectance, u.v. and mol. configuration 3=23557
 MgO, reflective power rel. to temp. 2=6540
 MgO, specific heat rel. to particle size, theory 2=15080
 MnBi alloy, residual mag. induction, temp, instability 4=7266
 Mn-Bi alloys, ferromag. props., temp. depend. 1=3903
 Mn-Bi, magnetic properties 1=7750
 MnZn ferrite, parameters rel. to grain growth 4=20782
 MoSi₂, "pest" degradation 4=29169
 NaCl, specific heat rel. to particle size, theory 2=15080
 Nd-Mg double nitrate, reflection spectrum 3=23063
 Ni, ground, recryst., X-ray meas. 4=10575
 NiAl, "pest" degradation 4=29169
 NiO, antiferromagnetic properties 3=8697
 NiO, pure and Cr³⁺ doped, freq. depend. of elec. cond. 4=30625
 S, dielectric const., density var., 9200 Mc/s 4=22758
 Sn, compacted, density rel. to pressure 3=6875
 Sr ferrite, single-domain magnetic props. 3=15880
 TiB₂, "pest" degradation 4=29169
 UC, Xe diffusion 3=2834
 ZnFe₂O₄, sintering 2=4479
 ZnO, adsorption process, effect of γ -rays 2=12949
 ZnO, effect of adsorbed CO₂ on i.r. spectrum 2=6582
 ZnO, pure and doped, X-irradiated, electron emission 0=2375
 ZnS, effect of cryst. size on luminesc. 2=718
 ZnS, electroluminescence, microscopic exam. 3=11012
 ZnS phosphors, particle growth 1=1380
 ZnS phosphors, pulverization, effect on opt. and elec. props. 0=10084
 ZnS, structure, effect of ball milling 4=26253
 ZnS-CuCo, electret effects 2=6530, 8472
 ZnS:Cu:Mn, electroluminescence and electrical conductivity 1=10123

Praseodymium
 allotropy at high press. 4=26560
 antiferromagnetism 4=26354
 antiferromagnetism by s-f-exchange model 2=4214
 atom, third spectrum, energy level analysis 3=15291
 atoms, Pr III, 4f³ and 4f²5d configurations 4=17250
 compression behaviour 4=17767
 elec. cond., 1.3-300°K 1=5003
 elec. conductivity, effect of very high press. 2=619
 electronic transitions in CdF₂ 0=13698
 ion, time-resolved spectra, meas. in spark 2=14204
 ionization potential 0=14965

Praseodymium—contd

- ions, Pr^{3+} in crystals, mag. and spectrosc. investig. 2=21295
 ions, Pr^{3+} in LaBr_3 , absorpt. and fluoresc. spectra 2=10595
 ions, Pr^{3+} , quadrupole antishielding factor calc. 4=3791
 ions, in solids, h.f.s. 1=19979
 luminescence in thoria 2=14733
 mag. props. 2=8606
 magnetic props., calc. 0=11807
 magnetic props., simple model 4=7222
 paramagnetic susceptibility 1=10129
 resistance, elec., 4-lead meas. system 4=30612
 specific heat, at 0.5-4°K 2=2051
 specific heat, 0.4-4°K, nuc. and mag. analysis 4=9853
 spectra of Pr^{3+} , calc. 0=5886
 spectrum, visible, rel. to 4f shell transitions 3=13182
 spectrum and Zeeman effect, in ethylsulphate:Ce 1=1164
 trivalent, laser action in CaWO_4 2=18815
 $\text{Pr IV} 4f^2$ ions, orbit-orbit interactions 4=15262
 Pr in molten Pr tribromide, elec. conductivity 4=8220
 Pr I and Pr II, hyperfine structure 1=12253
 Pr oxides, structure, related props. 2=4418
 Pr(III) aqua ions absorption bands, with sulphate ligands 4=2685
 Pr^{3+} , absorption and fluorescence spectra in LaBr_3 3=3014
 Pr^{3+} , approx. excited eigenfunctions 3=2572
 Pr^{3+} , i.r. absorption spectra in soln. 3=9462
 Pr^{3+} ion, configuration interaction 3=10960
 Pr^{3+} , self-consistent fields, without exchange 0=5848
 Pr^{3+} , spectra in ethylsulphate crystals 3=10959
 Pr_2C_3 , structure 2=4420
 PrCl_3 , low temp. luminesc., ion-pair reson. theory 2=6603
 PrCo_5 , ferromag. coupling and thermomagnetic props. 2=10640
 Pr^{3+} in LaCl_3 , vibronic selection rules at special points of Brillouin zone 4=12615
 $\text{Pr}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O}$, absorption line shift with film thickness 0=2942

Praseodymium compounds

- ferrite, ortho, effect of substituting Al^{3+} for Fe^{3+} , from mag. meas. 3=8683
 oxides, dipole relaxation, rel. to crystal structure 3=8552
 Pr chloride, electron transitions in far i.r. 4=1419
 Pr ethyl sulphate, magnetic props. and crystal field 4=13120
 Pr ethylsulphate, specific heat, rel. to spin-lattice coupling 4=6739
 Pr ethylsulphate, vibr. energy levels and spec. heat 4=1364
 Pr nitrite, bridge structure between Pr and NO_2 groups, from i.r. spectra 1=1163
 Pr orthoferrites, effect of Al substitution on mag. props. 1=1235
 Pr-substituted YFe garnet, Curie temp. 1=14749
 PrAl_2 , mag. moment and Curie pt. 3=991
 PrAl_2 , n.m.r. of Al^{27} , mag. shift parameters meas. 4=7339
 PrBr_3 , crystal elec. field, effects on Pr^{3+} 3=10569
 PrB_6 , formation, structure 0=14020
 Pr_2C_3 , neutron diffract. and paramag. scatt. analyses 3=1328
 PrCl_3 , anhydrous, mag. suscept. meas. 4=7217
 PrCl_3 , crystal elec. field, effects on Pr^{3+} 3=10569
 PrCl_3 , crystal-field shielding 3=17629
 PrCl_3 , electronic Raman effect 3=15694
 PrCl_3 , electronic and vibrational Raman spectra 4=9746
 PrCl_3 , electron states, comparison with NdCl_3 0=8015
 PrCl_3 i.r. quantum counter 1=6978
 PrCl_3 , 100 and 325 μ absorption bands 4=26214
 PrCl_3 , spectra of Pr^{3+} , crystalline field interaction 1=19973
 PrCl_3 , spectrum below 25 000 cm^{-1} , analysis rel. to crystal field theory 4=25809
 PrCl_3 , spectrum, ion-pair absorption lines, 22220-28100 cm^{-1} 3=23075
 PrCl_3 (Nd^{3+}), unusual i.r. fluorescence 4=4304
 PrF_3 , growth of highly-perfect single crystals for masers 3=23397
 Pr-Gd, specific heat, 1.3° to 4°K 4=6748
 PrH_x ($x = 2.02-2.71$), mag. props., variation with temp 3=15744
 PrI_3 , molten, elec. cond. of Pr 3=21404
 $\text{Pr}(\text{NO}_3)_3 \cdot 5\text{H}_2\text{O}$, crystal structure, atomic 3=18326

Praseodymium compounds—contd

- PrO_2 , mag. suscept. rel. to crystal fields 4=13121
 PrO_x , sorption of O, irregular press. var. 4=23601
 Pr_2O_3 , mag. suscept. rel. to crystal fields 4=13121
 Pr_2O_3 , vaporization 1=8263
 $\text{Pr}_2\text{O}_3 \cdot \text{Fe}_2\text{O}_3$, mag. hysteresis, effect of temp. 0=13834
 $\text{PrO}_{1.72}$ and $\text{PrO}_{1.33}$, mag. suscept. rel. to crystal fields 4=13121
 PrS , 800°-1500° C meas. 4=14744
 PrS , thermal expansion, X-ray determ. 4=30523
 PrS , Pr_2S_3 , thermal exp., 20-1020° C, Debye temp. 4=22508
 Pr_2S_3 , 800°-1500° C meas. 4=14744

Precipitation

- See also Atmosphere, precipitation.
 aerosol in electric field 0=10361
 aerosols, charged particles, e.s. process 0=14976
 age-hardenable alloys, effects of cold working 1=1430
 alloy EI-437A, anodic dissociation 3=8913
 in alloys 1=12649
 in alloys, effect of plastic deform. 2=830
 alloys, effect of solute precipitation on resistivity 0=17984
 alloys, hardening, effect of u.s. waves 3=16109
 alloys, heat treated in mag. field, particle growth shape 2=12934
 alloys, rel. to heavy-ion bombard. 2=21547
 alloys, rel. to intergranular segregation 4=4636
 alloys, second phase plates growth at grain boundaries rel. to migration 3=13534-5
 Alnico-type alloy, β -phase precipitation, GP zones 4=13490
 brass, α/β , at grain boundaries 2=23886
 β -brass, meta-stable, fatigue-induced 3=1359
 ϵ -carbide from martensite, formulae 4=10412
 carbide precipitation in Fe-Ni-C martensite 4=15738
 carbides, from solid solution in α -iron 0=16325
 cellular, theory 4=10415
 colloidal metal during chemical and photochemical reactions in alkali and Ag halides crystals 1=2556
 coprecipitation in mixed crystal formation 3=1275
 crystal nuclei in small drops 3=5081-2
 crystal vacancies, rel. to dislocation origin 3=22743
 Cunico I, cold-rolled and heat-treated, micro-structure 3=20895
 Cunife I, cold-rolled and heat-treated, micro-structure 3=20895
 diffusion-controlled particle growth, surface-energy effect 1=11582
 discontinuous and continuous 4=20701
 at edge dislocations, impurity flow 0=7896
 Elinvar-type alloy, hardening, props. 0=3012
 ferrite, in Fe-C-Mn austenites, reaction kinetics 4=30801
 hail, radar reflectivity rel. to props. 2=2479
 ice, C particle nucleation activity 4=27374
 impurities, at cryst. dislocations 2=6339-40
 impurities in fluids, electric cleaning 3=4027
 interaction of precipitates and dislocations 0=17936
 isotropic solids, coherent nucleation and fluctuations 3=1251
 kinetics study using dilatometer 3=21277
 low carbon steels, contribution to strain ageing 1=3988
 metals and alloys, vacancies, rel. to annealing, irrad., quenching, review 4=12733
 precipitates growth, dislocation formation 0=20825
 quantitative forecasting, quasigeostrophic model 4=23728
 quasi-periodic, in interdiffusion of 2 subs. 3=8957
 quasiperiodic, in interdiffusion of 2 substs. 2=15123
 review 3=20893
 semiconductors, review 4=28297
 solid solution, defect clusters, rel. to elastic interaction 3=22697
 solid solns., effect of quenching defects 3=8909
 solid solns., supersat., ideal pre-pptn. 3=8910
 solid solutions, growth of precipitates 0=21230
 solid solutions, by nucleation and diffusion-controlled growth 2=6782
 in solid solutions, supersaturated, X-ray obs. 4=10567
 in solids, diffusion-controlled, in presence of sources and sinks, theory 1=20599
 spherical particle growing by diffusion or heat flow 3=11297

Precipitation—contd

spherical precipitates, bounds on nonlinear diffusion controlled growth rate 0=15871
 spinodal decomposition and hardening 4=7395
 in stacking faults 2=10403
 steel 18 Cr/12 Ni/1 Nb austenitic Ni and Cr precip. 3=18258
 steels, austenitic, NbC precip., rel. to heat treatment 3=18359
 steels, austenitic, NbC precip. on stacking faults 3=18357
 superconductors, type II, and mag. hysteresis 4=18583
 surface-active additions on metal crystal lattice defects 0=8269
 titanium carbide, 'Mondrian' precipitation patterns 1=7842
 Vicalloy, cold-rolled and heat-treated, microstructure 3=20895
 water vapour, form. of droplets or ice crystals 2=1313
 wüstite, Fe-saturated, pptn. of metastable phase 4=2078
 in Zircaloy 2 during hot working 2=4460
 Ag, impurity from Ge, kinetics 2=19099
 AgBr, ageing by precip., theory 2=8934
 AgCl in NaNO_3 - KNO_3 eutectic mixture, heat of precipitation at 320°C 4=16282
 Ag-Zn solid solution, vacancy precipitation kinetics 0=18387
 Al alloys, dispersion, effect of fatigue deformation 1=15150
 Al alloys, quenched, ageing 2=10915
 Al, hardening, effect on supercond. 2=2956
 Al-Ag alloys, nucleation sites 1=12650
 Al-Ag alloys, quenched from 550°C and aged 3=25803
 in Al-Ag(25%), electron microscope study 3=16110
 Al-20% Ag, heterogeneous 3=18356
 Al-20% Ag with or without trace elements, effect of plastic deformation, and aging characteristics 4=23250
 Al_2Cu , from 4% Al-Cu alloy, X-ray primary extinction study 1=15147
 Al-Cu alloy, clustering, deform. effect 3=18182
 Al+1.7% Cu alloy, precipitate hardening 1=20602
 Al-Cu alloy, θ' , interact. with dislocations 3=12977
 Al-Cu alloys, clustering kinetics 2=15065
 Al-Cu alloys, effects of quenching 0=21239
 Al-Cu alloys, recrystallization, effect of dispersed second phase 3=25757
 Al+4% Cu foils 1=20601
 Al-(1.6 wt.%)Cu interaction with dislocations 3=20894
 Al-Cu, pre-pptn. phenomena 3=8876
 Al-4% Cu with or without trace elements, effect of plastic deformation, and aging characteristics 4=23250
 Al-Li alloys during creep, strain-induced 2=4469
 Al-Mg alloys, effect of vacancies 4=15729
 Al-Mg alloys, quench-aged 4=17750
 Al-1.2% Mn alloy 4=7473
 Al-Si alloy, effect on mech. props. 3=13538
 Al-Si alloys containing Mg 3=18355
 Al-Zn alloy, ageing, natural, effect of a third component 4=17752
 Al-10% Zn alloy pre-precipitation, resistometric study 1=1426
 Al-Zn alloy, precipitation, effect of Mg 3=20167
 Al-Zn alloys, ageing, n.m.r. study 3=11295
 Al-Zn alloys, rel. to dislocation loops, cold working effects 4=13473
 Al-Zn alloys, G.P. zone formation, elec. resist. and X-ray study 1=20600
 Al-10%Zn, pre-pptn. rate, plastic deform. effect 3=20896
 Al-30% Zn, spherical pre-pptn. zones 3=8911
 Al-Zn (10 wt. %), clustering, little effect of Cu, Ag 4=17753
 Al-Zn-Mn alloy, ageing sequence, 100°C 3=13542
 Al-Zn-Mg alloy, sub-microscopic 2=12933
 Al-Zn-Mg, clustering, effect of Mg 4=17754
 Al-Zn-Mg, stress-corrosion life 2=16968
 Au-Co alloys, decoration of dislocations 1=12384
 Au-Co alloy, rel. to mag. props. 0=21242
 in Au-Ni alloy crystals 1=6542
 Au-Ni alloy, ferromag. precipitate obs. 3=5138
 Au-Pt alloys 1=1428-9
 B, at Si-SiO₂ interface, coefficient, two-boundary solutions 4=30578
 Ba, in KCl/Ba chloride crystals 0=11627
 Ba chromate, by chemical exchange, crystal habit variations 1=14978
 C in α -iron 0=18405

Precipitation—contd

C in α -Fe, rel. to kinetics in alloys 4=23246
 C, out of extra-soft steels 3=16111
 C in irradiated Fe 2=15070
 C in Fe-C alloys, kinetics study 3=6867
 C in Fe-C, rel. to radiation-produced defects 3=22866
 Ca, coprecipitation with U and Th oxalates 3=1275
 in CdS single crystals, impurities 4=13479
 CdS from solns. structure variations 0=8207
 CdSe, of Cu, Ag, Au, Ni impurities 4=29004
 Co, in Cu-Co alloys, particle size, rel. to magnetization 0=3016
 Co impurity from Ge, kinetics 2=19099
 Co-Au alloy 1=20603
 CoCl_2 in NaCl, Mössbauer effect study 3=22630
 Co-Ni-Nb alloys, discontinuous 3=20724
 Cr-N alloys, dilute 3=6865
 Cr spinelides, Cr_2O_3 precip. rel. to calcination 3=16081
 Cr-Ni alloys, impurity carbide precip. 2=15069
 Cr-Ni system, equil. diagram 3=11289
 Cu alloys, discontinuous and continuous 4=20701
 Cu, stress prod. from cell interface migration 4=26549
 Cu-4% Ag alloy, Hg-embrittled, effect on fracture path 4=30774
 Cu-Al alloys, segregation of Al 1=20598
 Cu-3.1 wt% Co alloy, age hardening sequence, electron microscope study 4=30776
 Cu-Co alloy, coherency strains around precipitates 3=1222
 Cu-3%Co alloy, hardening 3=20898
 Cu-(2 wt.%)Co interaction with dislocations 3=20894
 Cu-Co, particle dissolution by neutrons 2=16647
 Cu-Fe rel. to Mössbauer effect 3=22698
 Cu from Ge, super-saturated soln., along As-grown dislocn., meas. 4=29007
 Cu in Ge, var. crystal dislocation density, 450-570°C 4=13480
 Cu-In, during age hardening 4=4461
 Cu_2MnAl - Cu_3Al Hensler alloys, and superparamag. 4=20541
 Cu, in Si 1=4987
 Cu in Si 1=10274
 Cu_3Ti in Cu-Ti alloys 0=21228
 Fe, in β -brass-iron 0=2993
 Fe, rel. to creep, 550°-700°C 3=18189
 α -Fe, effect of irradiation 1=12652
 Fe, in grain boundaries, impurity separation 0=17970
 Fe impurity from Ge, kinetics 2=19099
 α -Fe, precip. of Cu and Au 2=15063
 Fe-Al crystals, rel. to coercivity, remanence 2=14770
 Fe-C alloys, α -tempered, carbide pptn. 3=13539
 Fe-C alloys, quench-aged, structure 3=20903
 Fe-C, irradi., C precipitation, kinetics 4=15735-6
 Fe-C-Mo alloy, carbide precipitation during tempering 4=17761
 Fe-C-N, aged 4=1503
 Fe-0.03%C, rel. to Nb addition 3=20899
 Fe-Cu-Ni alloys, effect on mag. props. 1=6338
 Fe-Cu solid solns., kinetics studied 4=22988
 Fe, in Ge, segregation coeff. 1=11583
 $(\text{Fe}, \text{Mn})_3\text{C}$, (cementite), precipitation from austenite 4=15734
 Fe-Mo alloy, discontinuous, two types 4=13492
 Fe-4%Mo-0.2%C, Mo_2C precip. on dislocations on tempering at 500-700°C 4=17762
 Fe-N alloys, quench-aged, structure 3=20903
 Fe-Ni-C martensite, carbide precipitation on tempering 4=15738
 Fe_3N and Fe_4N , precipitation from ferrite 4=15734
 FeO, pre, electron mic. obs. 4=26558
 FeO, pre, X-ray obs. 4=26557
 Fe-3% Si, grain growth obs. 3=18360
 Fe-Zn alloy, discontinuous, two types 4=13492
 Ga, at Si-SiO₂ interface, coefficient, two-boundary solutions 4=30578
 GaAs, at crystal dislocations, of Li 4=22587
 GaAs, effects of Cu precipitation 0=18039
 GaCl_3 impurity in CdS 4=15473
 Ge, rel. to defect study 3=22703
 Ge, rel. to Hall effect carrier concentration discrepancy 3=17861
 Ge, kinetics 4=12738
 Ge-Cu solid solution, rel. to distortions 4=2084
 Ge-Ni solid solution, rel. to distortions 4=2084

Precipitation—contd

- He atoms in copper, effect of neutron irradiat. 1=6544
 In_2Te_3 , microscopic and sub-microscopic, obs. 2=10917
 KCl, excess K, mechanism 2=19171
 KCl radiation-induced precipitation sites 0=17978
 Li, in Ge 0=12078
 Li in irradiated in LiH 2=21000
 Li in Ge, electric-field-enhanced 4=10425
 Li in LiF by neutron irradiation 1=19820
 in Mg oxide, impurity ppts. 3=20169
 Mg_2Si in Al—(7%)Mg—(0.015%)Si 3=10666
 Mg—Zn alloys, ageing characts. 2=21554
 Mg—Zn(6%), X-ray exam. 4=17765
 MnCl_2 , in NaCl, effect on thermal cond. 1=14190
 Mo_2C in Cr—Mo steel 0=18389
 Mo—Re alloys, δ -phase 4=29013
 from NaCl— CaCl_2 solid soln. 3=20840
 Ni, impurity from Ge, kinetics 2=19099
 Ni from supersat. soln. in Si 4=4173
 Ni—Al alloys, rel. to dislocation pairs 4=12765
 Ni—Al bronze, β — α reaction, non-equil. segregation 3=18352
 Ni—Cr alloys, Cr carbide precipitates on dislocations 1=15146
 Ni—Cr alloys, on dislocations 1=20606
 Ni—Cr base alloys at grain boundaries 4=2111
 Ni—Cr—Ti alloy 4=7504
 Ni in Si 3=6537
 Ni from Si, heat treatment effect, meas. 4=28453
 Ni—10.1 at. % Ti, rel. to ferromagnetic Curie temp. 3=25755
 O, in Si, effect on plastic deform. 2=16956
 Pb alloys, ageing mechanism 1=15151
 Pb, in PbI_2 decomposed by electron bomb. 1=17589
 PbS films with platelet precipitates on surface, effect on film structure 4=7624
 Pb—Sn and Pb—Cd, effects on superconductivity 3=24145
 Sb in Si 3=18361
 Si from Al 0=16350
 Si crystals containing Al 0=20826
 Si iron, plastic microstrain 2=6724
 Si, Al-doped, rel. to internal friction 1=1303-4
 Si, Cu precip. at surface dislocations 4=7705
 Si, kinetics 4=12738
 Si single crystals, identification of precipitate particles by reflection electron diffraction 1=4087
 Si single crystals, O-doped, X-ray study 4=23287
 Sn, in Ge, segregation coeff. 1=11583
 Ti—Al—Co alloys, effects on mech. props. 3=18204
 γ -U base solid solns., decomp. 2=21555
 U—Mo alloy, γ -quenched, annealing 3=5135
 U—Mo, finely dispersed phases 2=4443
 UO_2 , over-sintered, grain-boundary precipitates in 4=7680
 U_4O_9 in UO_2 , habit planes 0=8150
 U from UO_2 crystals 3=13591
 W—Re alloy, σ -phase particle obs. 3=18340
 ZnO, aerosols, by l.f. spiral acoustic field 3=18462
 ZnTe, Te pptn. 3=16049
 Zr oxide on thin Zr films 4=4696
 Zr—H system 3=20905
 ZrH_2 in Mg—1/2 wt. % Zr alloy, rel. to corrosion attack and creep 3=16116
 ZrH_4 in Zr, electron micr. study 3=11294
 ZrO_2 , on grown-in dislocations in MgO 3=10673
 Zr as Zr hydride in Mg—Zr alloy, rel. to creep strength 4=28965

Pressure

- See also Atmospheric pressure and density; High-pressure phenomena and effects; Radiation pressure; Vapour pressure.
 on aerofoil, distribution at transonic speeds, theory 1=12910
 automatic recording film balance system 0=2162
 capillary, in porous media 1=15823
 disturbances, transmission in long small-bore tubing 2=17492
 dynamic, meas. with resist. transducer to 300 kbar 4=21225
 effect on crystal structure and phase transitions, apparatus for X-ray diffraction obs. 4=10519
 effect on parameters of a.c. discharges 4=8634
 gas film, "wedge pressure" 3=1723
 gas target, meas. and regulation 4=14192
 gases, regulator 4=16132

Pressure—contd

- gauge with 0.1 μsec rise time for shock reflection obs. 4=16006
 high pressure thermodynamic scale 0=16930
 hydrostatic, rel. to Si elastic moduli, 25.0° and -195.8°C 4=23202
 internal, as basis of solutions theory 1=15861
 internal, in solids, at 0°K, quantum-mech. calc. 0=11551
 lightning stroke near peak temp. 4=23765
 liquids, internal, rel. to u.s. velocity 3=21358
 low temp. regulator, diaphragm 4=18505
 measurement, with capacitor microphone, at low pressures 1=12949-50
 moving fluid, deviation from hydrostatic value 2=4987
 planetary nebulae, gas and radiation pressure 0=10518
 pressure—entropy diagram, complement to Mollier diagram 4=8532
 pure liqs., internal press. var. 2=4981
 shells, instability, local, bulging 3=5394
 sinusoidal, generator 0=3586
 in TNT explosion products 0=14728
 transfer through porous medium, distribution equations 0=10686
 transient, on elastic half-space boundary, disturbance 2=15681
 transonic pressure fluctuations 3=23923
 pulse propag. in liquid column 4=21078
 stabilizer for region of 1 torr 4=4995
 units, in vacuum physics 1=5298
 unit in vacuum physics ("vac"), criticism and defence 1=8425
 vars., reson., and 10-25kV X-rays, pot. prod. on Ar 3=7449
 on vibrating piston, in infinite baffle 4=29686
 on water, effect on structure and sound velocity 0=10657
 water, forced circulation, press. drop prediction 4=24449
 H pressure regulator 4=14232
 He⁴, liquid, near λ point, ($\partial p/\partial T$) 3=12018
- Pressure measurement**
 See also Manometers; Vacuum gauges; Vapour pressure measurement.
 air, at various temps., with radiosonde 4=7832
 alkali metals, molten, two-bellows gauge 4=8147
 atmosphere, by ionization gauge 4=30927
 bakeable gauge, absolute, mm Hg range 2=7170
 blast pressure gauges with ferroelectric ceramic elements 4=21009
 calibrator, hand-held, for measuring systems 0=8757
 convection manometer 0.5 to 1000 mm Hg 0=3549
 diaphragm displacement, strain gauge obs. 4=29508
 diaphragm-type transducer for gases, use as controller 1=4300
 differential pres. gauge, high sensitivity 2=19503
 differential press. gauge, simple and sensitive 4=2514
 dynamic blast, by Pitot static gauge 4=2517
 dynamic pressure differential of 0.1 μHg , gauge 3=1736
 in elec. discharges, 300 - 500 kA, with piezoelec. gauge 1=7043
 from elec. resistance values, conversion scales 3=23830
 electroluminescent gauge, 0-800 mm Hg 2=19507
 by electrolyte conductance, 1000-3000 atm. 2=19500
 errors in vicinity of gas discharge 3=12092
 fluctuations meas., probe—microphone system 3=1782
 gauge, dead-weight type, with air loading device for var. pressures 4=24008
 in glass systems, boro-silicate, by strain gauge, external, 0-2 atm. 3=21290
 greaseless Hg cutoff for differential pressure operation 0=3551
 high pr. by Pt—Bi thermocouple 1=18753
 high press. studies above 50 000 kg/cm², use of reference points in press. scale 4=8015
 high pressure vessel, to 1000 atm., incorporating Teflon gasket 1=18344
 high, by use of volume discontinuities, corrections 3=9404
 high, by wire transducer 4=18022
 hydrophone calibration in vibrating liq. 2=17575
 hydrostatic press. transducer, tunnel diode 2=6484
 intracardiac catheter tip piezoresistive pressure gauge 0=16501
 intracardiac transducers 1=9210
 ionization gauge use for 10⁻³ - 1 torr 2=17520

Pressure measurement—contd

- light-pressure tube 1=12959
 low, bibliography 2=2791
 low-pressure indicator, effect of connecting passage 3=16571
 low temps. 4=11435
 low transient press., by surface tension gauges 3=7169
 McLeod gauge, 10^{-2} -1250 torr 3=18775
 manganin h.p. gauge with multiple integral calibrants 4=24009
 manometer, high press. long distance indication 2=2673
 membrane type zero instrument, high press. and temp. 2=19499
 Mercury reservoir for barometer demonstration. 3=151
 molten alkali metals, pressure gauge 4=8892
 null-balance sensitive pressure transducer 4=2516
 oceanographic, dielectric 4=13775
 oxygen partial pressure, 1 to 10^{-6} atm. 1=9361
 pickup for recording explosive disturbances, resiliently isolated 1=12841
 piezo-cell press. pulse transducer 2=19502
 piezoelectric gauges for rapidly varying press. up to 7 kbar 4=8014
 piezoelectric probe for plasma press. transients 1=4615
 piezoelectric transducer, for rapid variations 2=2672
 piezoresistive effect in resin-bonded C, use of 3=21288
 piston gauge, corrections, temp., press., gravity 3=21289
 piston gauge, to 3000 atm 3=1652
 piston gauge, to 25 ton/cm² 2=19505
 piston manometer for 20 000 atm 0=3548
 in presence of condensable vapours, use of "air-bleed" with vacuum gauge 1=5308
 pressure balance detector, diaphragm-type 2=19501
 pressure recording systems, hydraulic oscillator calibration 0=3587
 recording Bourdon gauge manometer 2=4975
 semiconductors, review 4=12895
 in shock tubes, piezoelec. bar gauge 4=29703
 shock-waves, BaTiO₃ gauges, design and characteristics 0=16665
 shock-wave meas., BaTiO₃ spherical shell transducer 0=130
 soil-pressure cell 0=8590
 solid-solid transitions, by piston gauge 2=10778
 sound, photographic method 0=16793
 spoon gauge, optical servo control 1=8091
 spoon gauge, sensitive 0=16664
 spoon gauges, coupled 0=3550
 $<10^{-10}$ torr, by Bayard-Alpert and magnetron gauges 3=23951
 in tetrahedral anvil device, pres. distrib., hysteresis meas. 3=7168
 thermistor hypsometer with high accuracy 0=914
 thermistor pressure gauge design 1=10471
 total and static, props. of cylindrical probes 4=5133
 transducer for high-pressure pulses, of sulphur 4=2515
 transducer, 10^{-6} -200 mm Hg range 2=19506
 u.s., by light diffraction 0=10782
 ultra-high vacuum, rel. to outgassing and directional pressure 2=9324
 use of variable retardation plate 3=21571
 vibrating-wire cells, for earth pressure meas. 0=12399
 viscous liquids, low-compliance diaphragm-capacitance gauge 0=19042
 100 kbar region, using refract. index of glass 1=12658
 Hg column with $\pm 10^{-8}$ accuracy 2=11319
 Si transistors 4=12946

Prisms, optical

- for deflection of light, invariance conditions 4=16204
 dispersion and dispersive power, effect of prism angle 1=5342
 dispersion through prisms and prism combinations 3=242
 double, small angled, min. deviation 2=5151
 Foster-Seeley, for doubled intensity, in modulation or demodulation 4=5372
 Glan polarizing 4=18391
 image rotation by oblique reflection 4=308
 for laser resonator, right angle 4=19267
 for laser tuning, single Brewster prism with dielectric coating 4=16690

Prisms, optical—contd

- Littrow, reducing astigmatism, by deformation 1=4461
 mirror-prism optical elements, wide angle scanning 0=8781
 in monochromators, possible substitution by diffraction gratings 4=8430
 optical-mechanical scanning techniques 0=14811
 polarizer, u.v. to i.r., double prism 4=24396
 polarizing, field of view of systems, theory 4=14405
 reflecting, for optical bench screen 3=243
 reflection, total, for autocollimation alignment 3=21527
 resolving power, for unequal intensity lines 0=12490
 roof, without ray pencil splitting 3=21526
 rotating, use in "moviolas" 0=166
 scanner for use with i.r. detector 0=8780
 silica, fused, inhomogeneity compensation 3=21528
 thin prisms, testing of deflection 3=235
 vacuum prism for refr. compensation in astrometry 2=926
 V values for prism materials, modified expression for calc. 4=28661
 Wollaston, as beam splitter, for shearing interferometer 1=2880

Probability

- See also Errors; Random processes; Statistical analysis.
 characteristic function rel. to Fokker-Planck methods 3=16491
 chem. reaction probabilities calc. 1=20725
 coincidence detection, optimum threshold 2=11247
 decision theory, for defining optical resolving power 3=16208
 dimer problem, covering of plane square lattice 2=35
 distribution of m objects in n boxes, problem 2=11246
 exchange reaction, quantum-mechanical calc. 0=3303
 extrapolation, reliability, over long periods 3=5327
 extreme probability paper, plotting rule 3=11673
 fragmentation of glass plates 0=2070
 generalized cumulant expansion method 2=19375
 information model in "taxonomic game" theory terms 4=21019
 least-squares plane through a set of points 2=6803
 likelihood detection of signal obscured by Markovian noise 4=27077
 linear stochastic operators 3=14037
 Markov processes and the H-theorem 3=11709
 master equation, power series expansion 1=7969
 Maxwell velo. distrib., derivation 3=16540
 measurement in qu. mechanics, probability amplitude rel. to prob. function 1=2698
 meteorological extremes, applic. of envelopes for ordered observations 3=13657
 Monte Carlo method, in quantum statistical mech. 2=21843
 PAPA, pattern recognition 2=2588-91
 performance prediction, range finder systems 3=18773
 probability density meas., with cathode-ray tube 0=2386
 probability distribts. asymmetry under time reversal 2=9144
 random variables, products, distrib. 2=21794
 Rayleigh distrib., generalized, moments 1=17986
 self-avoiding walks, limiting props., rel. to Ising model of ferromagnetism 0=10468
 sequential filling of line by intervals placed at random 2=19374
 stochastic model, destiny of individuals in multiplying medium 2=3655
 stochastic processes, first-order 0=3401
 theory, geometrical approach 1=10366
 time interval distribution, discrete binomial 3=1579
 wave-form product distribts., mean and variance 3=16

Projectiles

See Ballistics.

Projectors, optical

- cine projection objectives for wide-screen techniques 1=8247
 film, light transmission calculation 1=8218
 using heat absorbing filters, light transmission and temp. relationship 1=8217
 use of heat filters and cold mirrors 1=8216
 use of heat insulating filters and cooled mirrors 0=5151
 illumination system, design 0=3603
 scanning and measuring, for bubble chamber photos 4=27302

Projectors optical—contd

- system correcting spherical, reducing coma aberrations 0=3607
- with variable contrast 2=9382
- Pm³⁺, electronic levels 2=8060
- Pm¹⁴⁷ fission product ions, diffusion in UO₂ 2=6377

Promethium

- atom, binding energies of K and L levels 4=12368
- atomic beam mag. resonance 1=9900
- atomic h.f.s. in Pm¹⁴⁷, ¹⁵¹, nuclear moments eval. 4=989
- diffusion, anomalous, in Ag and Pb 3=13005
- ions, (Pm¹⁴⁷)³⁺, e.s.r. in La ethyl sulphate 1=20223
- spectra analysis, energy levels 1=17891
- spectrum, Pm¹⁵¹ in molten LiNO₃-KNO₃, dilute DCI 4=30381

Promethium compounds

- Pm sesquioxide, crystal structure, atomic, from X-ray powder reflections 3=18311
- Pm¹⁴⁷Cl₃ in LaCl₃ crystals, luminescence spectrum 0=11787
- Pm₂O₃, magnetic susceptibility, 25°C 4=1805

Prominences, solar

- (Heading abolished in 1963; for later entries see Sun, prominences)
- active and quiescent, comparison 0=12281
- active solar regions, 1952-53 rel. to geomagnetic storms 1=21102
- areas rel. to filament areas. 2=4790
- association with radio bursts 0=12255
- brightness, comparison with solar surface 2=4787
- chemical element occurrence 1=15411
- chromosphere, Ca II K line excitation 2=977
- chromosphere-corona transition layer rel. to u.v. radiation 2=978
- chromosphere, energy balance 2=979
- chromosphere, rel. to interplanetary debris 2=6979
- chromospheric line profiles 2=980
- chromospheric spicules and flare-surges, form. 2=2537
- classification of 254 prominences 1=15480
- condensation, from corona, in strong mag. field 0=6593
- coronal emission in vicinity 1=7993
- corpuscular emission, Arend-Roland tail, acceleration field 0=18730
- cycles of activity, long, and autocorrelation method 1=18100
- cycles 17, 18, 19, observations at Arcetri 1=18097
- east-west asymmetry, survey from 1933-60 2=13130
- eclipse observations (Oct. 1959) 1=5151
- erupting, 11 Apr. 1959, trajectories, vel. and accel. 1=9275-6
- erupting, 13 Jul. 1950, knot motion, vel. and accel. 1=9274
- erupting, 18 Jul. 1956, knot motion, vel. and accel. 1=9273
- eruptive 0=4901
- filaments, contrast variation with limb distance 1=15475
- formation, and coronal condensations, mag. field 0=6592
- granule contrast, centre-limb variation 1=15469
- heat conduction, and fire structure 1=11680
- heating, e.m. mechanism, mag. field strength, prominence lifetime 0=18758
- height distribution 1=7992
- limb intensity profile 1=15474
- loop 2=11132
- loop event, spectra, interpretation 1=7991
- rel. to magnetic disturbances, at Kakioko, 1924-58 1=21103
- magnetic field, polar zones 0=6601
- magnetic fields in, active and quiescent conditions 2=24117
- monochromatic line profiles during eclipse (Oct. 1959) 1=2618
- movements, analysis by meas. trajectory and velocity 2=2538
- noise storm at 201 Mc/s obs. 2=11158
- nonuniform physical props. along line of sight 2=972
- observations at Arcetri (1959) 1=18096
- photospheric faculae on solar limb 1=15477
- protuberance, quiescent, spectrum during eclipse of 15 Feb. 1961 1=15481
- quiescent, hydromagnetic model 1=25
- quiescent, temperature and turbulence from line-widths 0=6597
- and recurrent geomag. storms, correl. 0=12282
- rotational velocity, 45-80° solar latitude 1=2623
- sightline velocity distrib., temporal variation for active prominences 0=8502
- and solar cycle 1=15464

Prominences, solar—contd

- solar physics review 0=14407
- solar wind, terrestrial accretion 1=20806
- spectra, interpretation 1=7990
- spectroscopy and H α photography 0=18768-9
- spicules, chromospheric, brightness 2=15354
- spurious, caused by jet planes 0=18757
- telescope for correlation with sunspots 1=9277
- temperature conditions, spectral data 1=15482
- 20-21 Sept. 1955, photograms in H α light 0=6598
- white-light flare as bright loop prominence 2=974
- 1958, observations at Arcetri observatory 0=18756
- H β , Zeeman splitting 2=24117

Propagation

- See Acoustic wave propagation; Electromagnetic wave propagation.

Proportional counters

- See Counters, proportional.

Prospecting

- See Geophysical prospecting.

Protactinium

- crystal structure, X-ray study 0=1876-7
- ions, Pa²³¹, tetravalent, in Cs₂ZrCl₆, paramagnetic resonance h.f.s. 1=6420
- Pa²³³ holdup in Th fueled reactor 2=6063

Protactinium compounds

- absorption spectra 0=20656

Proteins

- action, in muscle, phys. chemistry 2=7049
- albumin dry films, semiconduction 4=22731
- bovine haemoglobin, semiconducting props. 2=6473
- collagen, n.m.r. study of hydration 2=16573
- collagen, piezoelectric effects, erratum 4=28635
- collagen, X-ray low-angle diffraction patterns 0=14038
- complexes of paramagnetic ions, proton relaxation 0=5970
- contractile, role in cation active transport in erythrocyte membranes 4=13981
- crystallography, Fourier functions 3=20811
- DNA bases, free-radical yield, rel. to γ -irrad. 3=22606
- DNA, elec. conductivity, theoretical estimate 4=28520
- DNA, H bond p tunneling after replication, and mutations 4=12547
- D.N.A., nucleotide "code" sequence for species specificity, review 3=18669
- DNA, RNA and purine and pyrimidine bases, semiconductivity 4=12922
- DNA, transition temp. rel. to base composn. 3=22616
- ear, tectorial and basilar membranes 3=3661
- effect on scintillation yield of some organic solutions 1=1746
- egg albumen solution, dielectric dispersion, u.h.f. 3=14177
- elec. cond., powdered bovine haemoglobin 2=8301
- energy band structure, LCAO MO theory 3=12886
- exciton spreading velocity along peptide groups 4=3941
- ferrihaemoglobin hydroxides, correl. of mag. and spectrosc. props. 4=20145
- gelatin, dyed, photoconductivity 3=20413
- haemoglobin and amino acids, semiconductivity 1=7654
- haemoglobin, cryst. struct. 2=10849
- haemoglobin, horse, cryst. struct. 2=10851
- haemoglobin of horse, structure analysis 0=8249
- haemoglobin, Müssbauer effect 4=6669
- haemoglobin, photoconductivity 3=20413
- haemoglobin, solution in aq. NaCl, X-ray small-angle scatter 0=19115
- haemoglobins, electronic structure, Fe state 4=12546
- hemoproteins, mag. moments, theory 2=7049
- hydrophobic bonding 2=17443-4
- irradiated, e.s.r. study of free radicals 0=20706
- irradiated, structure and orientation of free radicals formed 0=20705
- light and X-ray scatt., biological applications 4=15391
- luminescence, effect of molecular weight 0=20995
- monolayers, viscosity studies 1=15782
- myoglobin, cryst. struct. 2=10849
- plasma proteins, interaction with polymers 2=7049
- polynucleotides, hypochromism calcs. 4=12548
- position and shape of heavy-atom replacement groups, accurate X-ray det. 0=8249
- proton range, 2-75keV 3=14984
- reactions with molecules 3=3383
- relation with semicond. 2=6430
- riboflavin and flavoproteins, e.s.r. 1=9211

Proteins—contd

rotational diffusion constant 0=14583-4
 serum albumin, isomerization in acidic media 0=21275
 synthesis, DNA determ. coding problem 2=10292
 thermal and elec. props. 1=6129
 thermal spikes, inactivation 2=18575
 X-ray crystallography, review 3=23438
 C^{14} -labelled, radioactivity meas. by scintillation counting 1=17004
 HgI⁻ configuration, rel. to structure detm. 3=16087
 Na³-DNA, elec. cond. 4=12840

Proton spectra

(α ,p) reactions in 8 nuclei 1=11035
 charge distrib., reconciliation of expt. and meson theory 1=3179
 charge distrib., theory 1=3177
 d(n,p) 2n, high energy limit, and n-n scatt. 4=25105
 d(n,p)2n, rel. to n-n scatt. 4=12609
 (d,p) reactions in deformed heavy nuclei 1=8770
 (d,p) reactions at 14.8 MeV on Li to Au, low-energy continuum 1=3456
 (d,p)- reactions, on heavy nuclei < 12 MeV 2=10135
 d(p, 2p)n, 50 MeV 4=21957
 (d,p) reactions on heavy nuclei 4=3689
 (d,p) reactions on nuclei of Z > 30 0=9635
 (d,p) stripping, "gross structure" 2=16431
 (d,p) stripping, "gross structure" 3=6293
 d + p \rightarrow p + p + n, 24.35 MeV 3=24806
 p + D \rightarrow 2p + n, 5-10 MeV, meas. 3=19711
 from deuteron diffraction scattering 1=13836
 deuteron photodisintegration at 500-900 MeV 1=2102
 e/m, student determination, omegatron apparatus 1=3187
 electric dipole moment, assumed, effect on H atom h.f.s. 1=3180
 (γ ,p) reactions in Nb, In, Ta and Au 0=11432
 inner van Allen belt 1=15335
 knock-on, from π^- -emulsion interacts. 3=17312
 Λ_{03} decay 3=7930
 $\Lambda^- \rightarrow p + e^- + \nu^-$, decay 4=3487
 light nuclei, delayed protons, obs. possibility 4=3629
 μ^- absorption in emulsion, calc. 0=17367
 $\mu + p \rightarrow p + \pi^- + \pi^+$, by Drell mechanism 2=13795
 (n,p), 14 MeV, with CsI crystal 1=13821
 (n,p) reaction, 4-16 MeV, statistical model 2=5875
 (n,p) reactions at 14 MeV in 3rd and 4th shell nuclei 2=3598
 (n,p) reactions on medium nuclei, evap. mechanism and direct effect 1=19493
 (n,p) reactions near Z = 50, at 14 MeV 1=12209
 (n,p) reactions on 9 nuclei (A = 27-64) 0=11446
 (n,p) reactions, structures 0=1439
 (n,p) reactions in 10 nuclides (F¹⁰ to Zn⁶⁴) 0=15600
 from neutron-deficient isotopes 1=2180
 from (p,d) breakup reaction, 10-14 MeV 1=8516
 π^- -p collisions, 6 GeV/c, momentum distrib. 3=15010
 π^- hydrogen-like reactions, 6 and 18 GeV/c 2=22573
 π^- -p, 7 GeV, recoil 4=21900
 photoprotons from Al²⁷, yield rel. to photo-deuterons 2=421, 22795
 photoprotons, comp. with photoneutron spectra 0=7598
 polarizabilities, from γ -p scatt. and meson theory 4=6034
 (p,p'), (d,p) on 15 rare earth nuclides at 12 MeV 3=22285
 from proton induced nuclear reactions 3=8100
 (p,p') scatt. on nuclei, at high energies, giant dipole resonance, analysis 0=20449
 p-p scatt. at 1-2 GeV 0=15350
 (p,2p) reactions on light nuclei, 155 MeV 2=20625
 recoil, counter-geometry effects 3=19631
 recoil protons in $\pi^- + p \rightarrow p + \pi^- + \pi^0$ at 1 GeV 0=17382
 in scattering on Mg, 7.3-15.9 MeV 1=17095
 Sceptre III deuterium discharge, proton energies 1=9619
 six-metre synchrocyclotron proton spectra 1=9660
 12 nuclei, inelastic scatt., 40 MeV meas. 4=25384
 X(a,p)Y, competition between p and γ emission 4=3626
 A(γ ,p) 0=1431
 A(γ ,p) at 36 MeV 2=20592
 Ag(n, α p) 0=13248
 Ag(N¹⁴), emission 1=8786
 Ag[Br]-Ne²⁰ reaction, 200 MeV 4=22232

Proton spectra—contd

Al(γ , p) 3=4614
 Al(γ , p) at 36 MeV 2=20592
 Al-p and Be-p reactions at 10-30 BeV 2=20627
 Al(p,p'), 4.9 and 5.3 MeV 4=9491
 Al²⁷, 155 MeV inelastic scattering 4=15203
 Al²⁷(d,p)Al²⁸, 1.4 to 2.3 MeV, meas. vs. calc. 4=28059
 Al²⁷(γ ,p) 0=9657
 Al²⁷(γ ,p), 440 keV, theory and expt. 2=5887
 Al²⁷(γ ,p)Mg²⁶, rel. to energy distrib. fine struct. 4=25375
 Al²⁷(γ ,p), rel. to statistical theory 2=12181
 Al²⁷(n,np), 14.8 MeV, by cpd. nucleus theory 3=17481
 from Al²⁷(n,p)Mg²⁷ 1=13813
 Al²⁷(n,p)Mg²⁷, 14.8 MeV 3=19861
 Al²⁷(n,p), test of statistical theory 1=13812
 Al²⁷(n,p)Mg²⁷, 14 MeV, ang. distrib. 4=3673
 Ar³⁶(n,p)Cl³⁶, 1.2 to 9 MeV 4=28046
 Ar⁴⁰(α ,xp γ) 4=28064
 Au-p reaction at 154 MeV 2=1892
 Au¹⁹⁷ proton bombarded 2=453
 Au¹⁹⁷(γ ,p) 0=5768
 Au¹⁹⁷(n,p), 14.8 MeV 4=1095
 B(α , p), possible reaction in impure α -sources 1=7338
 B(γ ,p) at 36 MeV 2=20592
 B¹⁰ inelastic scattering, 11-12 MeV 4=17022
 B¹⁰(d,p)B¹¹ 2=1915
 B¹⁰(d,p γ)B¹¹, coincident with γ -rays 1=19519
 B¹⁰(He³,p)C¹²; p, γ , γ , triple coincidences 1=19363
 B¹⁰(He³,p γ)C¹² 2=1928
 B¹⁰(He³,p)C¹², at 3.74 MeV 2=3617
 B¹⁰(Li⁶,p)N¹⁵, 3.5 to 4.5 MeV 4=22220
 B^{10,11}, 155 MeV scattering 4=15202
 B^{10,11}(p,2p), 155 MeV 3=6232
 B¹¹(α ,p γ)C¹⁴, 2.5 to 5.0 MeV 3=19770
 B¹¹(d,p)B¹² 3=4664
 Ba¹³⁸(d,p)Ba¹³⁹ 3=2360
 Be⁷(d,p)Be⁸ 0=5750
 Be⁷(d,p)Be⁸, rel. to Be⁸ excitations 0=20456
 Be^{8*} 3=10250
 Be⁹, 155 MeV scattering 4=15202
 Be⁹(d,p γ)Be¹⁰, 13.6 MeV 4=9553
 Be⁹(p,2p), 155 MeV 3=6232
 Bi(d,p), rel. to nuclear structure 1=3398
 Bi²⁰⁹ bombard. by C¹² and O¹⁶ 2=499
 Bi²⁰⁹(d,p), levels in Bi²¹⁰ 0=11323
 C, photoprotons 3=2434
 C(γ ,p), up to 170 MeV 4=22113
 C(γ ,p) at 36 MeV 2=20592
 C-p reaction at 154 MeV 2=1892
 C¹², 155 MeV scattering 4=15202
 C¹², inelastic scatt., high-energy 2=1872
 C¹², photoprotons 4=6322
 from C¹²(d,p)C¹³ 2=485, 22849
 C¹²(d,p)C¹³ 3=8128
 C¹²(d,p)C¹³ 3 to 15 MeV 1=17144
 C¹²(d,p,n)C¹², 4-5 MeV, proton groups 4=3692
 C¹²(γ ,p) 0=9657
 from C¹²(ν ,p) and C¹²(e,e'p) 1=13770
 C¹²(γ ,p), at 31 MeV photons 3=663
 C¹²(He³,p)N^{14*} 1=645
 C¹²(p,p' γ), 147 MeV, ang. correl. 4=22124
 C¹²(p',p' α), 15-29 MeV 3=2458
 C¹²(p,2p)B¹¹ 0=17584-5
 C¹²(p,2p), 155 MeV 3=6232
 C¹²(t,p)C¹⁴, 0.32 to 1.18 MeV 3=15327
 C(C¹²), at 9-29 MeV 0=13251
 C¹³(t,p)C¹⁵, at 6 MeV 1=7343
 Ca, photoprotons 2=18315
 Ca(γ ,p), 22 MeV 4=22117
 Ca⁴⁰, 155 MeV scattering 4=15202
 Ca⁴⁰(α ,p)Sc⁴³, α -rays up to 20 MeV 3=12700
 Ca⁴⁰(α ,p)Sc⁴³, at 21.9 MeV 1=2240
 Ca⁴⁰(γ ,p)K³⁹, up to 22 MeV 3=6226
 Ca⁴⁰(γ ,p), rel. to statistical model 2=12180
 Ca⁴⁰(γ ,p + γ ,pn), 27 MeV, yield curve 4=22116
 Ca⁴⁰(p,p'), 55 MeV 4=25305
 Cd(γ ,p) 0=13256
 Ce¹⁴⁰(d,p)Ce¹⁴¹ 1=8769
 Co⁵⁹, 155 MeV inelastic scattering 4=15203
 Co⁵⁹(d,p)Co⁶⁰, at 6 MeV, stripping analysis 0=13238
 Co⁵⁹(n,p) 14.8 MeV 3=19861

Proton spectra—contd

Cr (α , p) reactions, 28 MeV 2=498
 Cr⁵², 155 MeV inelastic scattering 4=15203
 Cs(γ , p) in CsI:Tl crystal 1=2204
 Cs¹³³(n, p), 12-22 MeV 4=3244
 CsI (n, p) reactions, 12.1 to 21.5 MeV 1=19490
 CsI:Tl (n, p), 14 MeV 3=12689
 Cu (α , p) reactions, 28 MeV 2=498
 Cu⁶³(p, p'), 11 MeV 3=10338
 Cu⁶³(p, p'), 5-11 MeV 4=9498
 Cu⁶⁵(γ , p) 0=13263
 D plasma in Scylla 0=13387
 D (n, p)2n, at 14.4 MeV 1=7290
 D(n,p)2n, 14.4 MeV 3=17350
 D (n, p)2n at 14.4 MeV 2=1728-9
 D(d, p)H³ fusion, rel. to deuteron velocities 0=11476
 Dy¹⁶³(d, p)Dy¹⁶⁴ 3=22285
 F (γ , p) at 36 MeV 2=20592
 F¹⁹, deuteron induced spectra 2=20665
 F¹⁹(α , p)Ne²², at 21.9 MeV 1=2240
 F¹⁹(d, p)F²⁰, 0.8-2.5 MeV 4=28057
 F¹⁹(γ , p), 440 keV, theory and expt. 2=5887
 from F¹⁹(N¹⁴, p)P³² 1=11041
 Fe(α , p) reactions, 28 MeV 2=498
 Fe⁵⁶, 155 MeV inelastic scattering 4=15203
 p-He³ elastic scatt., 4.5 to 11.5 MeV 4=12004
 He³-t reactions at 1.9 MeV 3=7939
 from He³ + d(6-10 MeV), and He⁴ excited state 4=15112
 He³(d, p)He⁴, 23.2 to 27.0 MeV 4=12078
 He³(ν , p)D, 35 MeV 4=6147
 p-Fe⁴, elastic scatt., 2-11 MeV 4=12001
 He⁴(γ , np)D³ 3=6093
 He⁴(γ , p), at 31 and 32 MeV, fine structure 0=20249
 He⁴(d, np)He⁴ 4=21959
 He⁴(d, p)He⁵ stripping, 24.3 and 27.3 MeV 4=9310
 He⁴(d, p)He⁵, 20 MeV deuterons 1=16913
 He⁴(d, pn)He⁴, 20 MeV deuterons 1=16913
 He⁵ → He⁴ + p + π^- 2=16304
 Λ He⁵ → He⁴ + p + π^- 3=6148
 I(γ , p) in CsI:Tl crystal 1=2204
 I¹²⁷(n, p), 12-22 MeV 4=3244
 In¹¹⁵(n, p), 14.8 MeV 4=1095
 In¹¹⁵(n, p), at 14 MeV 1=12209
 In¹¹⁵(n, p), single-particle effects 1=8742
 K (α , p), possible reaction in impure α -sources 1=7338
 K³⁹, photoprotons 2=20591
 K³⁹(n, p), 12-22 MeV 4=3244
 K³⁹, 155 MeV inelastic scattering 4=15203
 La¹³⁸(d, p)La¹⁴⁰ 3=2360
 Li⁶, photodisintegration at 17.3 MeV 0=9659
 Li⁶(p, pd), 155 MeV, calc. 3=22386
 Li^{6,7}(p, 2p), 155 MeV 3=6232
 Li^{6,7}, 155 MeV scattering 4=15202
 Li⁶(γ , p), fine structure 1=5893
 Li⁶(γ , p)He⁵, Li⁶(γ , n)Li⁶(p)He⁴, levels in Li⁶ 1=8584
 Li⁶(p, 2p)He⁵, at 155 MeV incident-energy 2=1895
 Li⁷ photodisintegration 3=24921
 Li⁷(p, 2p)He⁵, at 155 MeV incident-energy 2=1895
 Mg, photoprotons 3=10325
 Mg^{24,26}(d, p)Mg^{25,27} ang. var., 1.2-2.5 MeV d's 4=28058
 Mg²⁴(p, p' γ)Mg²⁴ 2=1876
 Mn⁵⁵(d, p) Mn⁵⁶, at 8.9 MeV 1=17145
 Mo⁹²(α , p), 20 MeV 4=22190
 N¹⁴-F²⁰ reaction at 27.4 MeV 1=19535
 N¹⁴(γ , p)C¹³, p spectrum 4=19750
 N¹⁴(d, p)N¹⁵, rel. to N¹⁵ levels 0=20349
 N¹⁴(t, p)N¹⁵, rel. to N¹⁵ levels 1=12154
 Na (α , p), possible reaction in impure α -sources 1=7338
 Na²³(d, p)Na²⁴, levels in Na²⁴ 1=8572
 Na²³, 155 MeV inelastic scattering 4=15203
 Nb⁹³(γ , p), 19.5-27.5 MeV, rel. to statist. theory 3=24922
 Ne(γ , p) at 36 MeV 2=20592
 Ne²⁰(γ , p), 23.5 MeV 3=10327
 Ne^{20,22}(α , p)Ne^{21,23}, 4.75-7.5 MeV 0=20351
 Ni, inelastic scatt. at 7.8-11.4 MeV 1=2214
 Ni + O¹⁶, at 160 MeV, compound nucleus evaporation 1=734
 Ni(α , p), at 9.65-12.8 MeV, evidence for compound nucleus formation 1=2214
 Ni(α , p) reactions, 28 MeV 2=498
 Ni(n, p)Co, 15 MeV 4=1094

Proton spectra—contd

Ni⁵⁸(α , 2p), at 32 MeV, proton evaporation from rapidly rotating nucleus 1=8773
 Ni⁵⁸(d, p)Ni⁵⁹ (8.9 MeV) 1=9878
 Ni⁵⁸(d, p), 27.5 MeV 4=12258
 Ni⁵⁸ (n, p) and (n, np), 14 MeV 2=593
 Ni⁵⁸(n, p) and Ni⁵⁸(n, np) 0=9682
 Ni⁶⁰(d, p)Ni⁶¹ (8.6 MeV) 1=9878
 Ni⁶²(p, p'), 11 MeV 3=10338
 O(γ , p) at 36 MeV 2=20592
 O¹⁶-Al[Ni, Ag, Au] reaction, 167 MeV 4=22229
 O¹⁶(d, p), 27.5 MeV 4=12258
 O¹⁶(d, p)O¹⁷ 3 to 15 MeV 1=17144
 O¹⁶(γ , p), giant res. up to 170 MeV 2=20593
 O¹⁶(γ , p), giant res. up to 170 MeV 3=8076
 O¹⁶(γ , p)N¹⁵, 6-22 MeV 1=7369
 O¹⁶(γ , n)N¹⁵, 31 MeV 4=9478
 O¹⁶(γ , p)N¹⁵, 20.5 MeV polarized bremsstrahlung 2=425
 O¹⁶(d, p)O¹⁷ 2=5803
 O¹⁶(p, p' α), 15-29 MeV 3=2458
 O¹⁶(t, p)O¹⁸ 0=20350
 O¹⁸(d, p)O¹⁹ 2=3487
 O¹⁸(t, p)O²⁰ 0=20350
 P photoprotons rel. to theory 2=426
 P³¹, 155 MeV inelastic scattering 4=15203
 P³¹(γ , p) rel. to statistical model 2=12180
 P³¹(d, p)P³², at 6 MeV, excited states in P³² 0=13147
 P³¹(α , p)S³⁴, for E $_{\alpha}$ = 1.7-3.3 MeV, 14 resonances 4=17195
 Pb(d, p), rel. to nuclear structure 1=3398
 Pb(γ , p) at 22.5 and 33.5 MeV 2=14079
 Pb(γ , p) at 22.5 and 33.5 MeV 3=6219
 Pb²⁰⁸(d, p) stripping, 8.3 to 15 MeV, with Coulomb distortion 1=19505
 Pb^{207,208}(d, p), 27.5 MeV 4=12258
 Pr¹⁴¹(d, p)Pr¹⁴² 3=2360
 Pr¹⁴¹(γ , p) at 22.5 and 33.5 MeV 3=2432
 Pr¹⁴¹(γ , p) at 22.5 and 33.5 MeV 2=3552
 Pt(γ , p) at 22.5 and 33.5 MeV 2=14079
 Pt(γ , p) at 22.5 and 33.5 MeV 3=6219
 Pt(γ , p), 22.5 and 33.5 MeV 3=2433
 Pu²³⁹(d, p), at 11 MeV 1=8770
 Rh(γ , p) at 22.5 and 33.5 MeV 2=14079
 Rh(γ , p) at 22.5 and 33.5 MeV 3=6219
 Rh¹⁰³(α , p), 20 MeV 4=22190
 Rh¹⁰³(n, p), at 14 MeV 1=12209
 Rh¹⁰³(n, p), single-particle effects 1=8742
 S³², elastic and inelastic scatt. 2=5903
 S³², photoprotons 3=15172
 S³², photoprotons 3=19832
 S³²(n, p) at 14.4 MeV 2=3600
 S³²(n, p)P³² 3=19862
 Sb(n, p), at 14 MeV 1=12209
 Sb(n, p)Sn 0=1443
 Sb^{121,123}(n, p), single-particle effects 1=8742
 Se⁷⁶(d, p)Se⁷⁷, 7.8 MeV 3=17495
 Si photoprotons rel. to theory 2=426
 Si(n, p)Al, 6-9 MeV n's 3=19867
 Si (n, p) reactions, in semicond. detector 2=1806
 Si²⁸, photoprotons, fine structure anomaly 1=17082
 from Si²⁸(d, p)Si²⁹ 1=4875
 Si²⁸(d, p)Si²⁹, at 6-11 MeV, interference effects in proton diff. excitation curves 1=8759
 Si²⁸(d, p)Si²⁹ 3 to 15 MeV 1=17144
 Si²⁸(γ , p)Al²⁷ peaks up to 21.2 MeV 4=28020
 Si²⁸(n, p)Al²⁸, 14.1 MeV 4=9534
 Si²⁸(n, p), up to 5.5 MeV 3=10359
 Si²⁹(d, p)Si³⁰ 2=5962
 Si²⁹(d, p)Si³⁰ 3=4667
 Sm¹⁴⁹(d, p)Sm¹⁵⁰ 3=22285
 Sn(γ , p) 0=13256
 Sn^{116,120}(n, p), at 14 MeV 1=12209
 Sn^{116,120}(n, p), single-particle effects 1=8742
 T(He³, n)He⁵ 1=19293
 Te¹²²(n, p) Sb¹²², at 14.1 MeV 2=18337
 Th²³²(d, p), at 11 MeV 1=8770
 Ti(α , p) reactions, 28 MeV 2=498
 Ti⁴⁶, 155 MeV inelastic scattering 4=15203
 Ti^{46,48}(d, p)Ti^{47,49} 0=17605
 U^{233,235,238}(d, p), at 11 MeV 1=8770
 V⁵¹(d, p)V⁵² 0=7577
 from V⁵¹(d, p)V⁵² 1=13851

Proton spectra—contd

- W(γ ,p), 22.5 and 33.5 MeV 3=2433
 Y⁹⁰(d,p)Y⁹⁰, 12 MeV 4=22178
 Zn, (α ,p) reactions, 28 MeV 2=498
 Zn⁶⁴(n,p)Cu⁶⁴, at 8 and 14 MeV 0=20500
 Zr⁹⁰(d,p)Zr⁹¹, at 10.85 MeV, levels in Zr⁹¹ 1=4877
 Zr⁹⁰(γ ,p), 22, 34 MeV, disagreement with shell model calc. 4=25376
 Zr(n,p), Zr(n,np), at 14 MeV 0=15603

Protons and antiprotons

- See also Cosmic rays, protons; Nuclear reactions, protons; Nucleons and antinucleons.
 accel. to 450 MeV in sector-focused cyclotron 3=5777
 acceleration to 75 MeV in ORIC 3=5734
 acceleration to 2-12 MeV variable energy cyclotron 2=3114
 in accelerator, linear, energy spectrum 4=14779
 and α -particle tracks, discrimination 0=202
 in aq. soln., elec. cond., energy of activation 1=15901
 in atmosphere, upper from solar flare radiation, dosage 4=26813
 beam calibration from knock-on electrons prod. in emulsion 3=4387
 beam, energy dispersion, charge-transfer 3=21896
 beam plotting using photoelectrets 3=15622
 beams, 40-150 MeV, intensity meas. 2=18112
 beams, location with ionization chamber 2=20184
 beams, phase-space occupation 4=29560
 beams, polarized, prodn. 2=22521
 beams, study in CERN accelerator, using emulsions 4=27593
 capture resonances (300-900 keV) in Cl isotopes 1=7375
 charge, comparison with electron and neutron 0=5521-2, 9310
 charge distrib., expression, rel. to scatt. 2=1683
 charge distrib., finite spread, example of nonlocal interaction 1=10840
 charge, e-p diff., meas. attempts, cosmology and particle theory 4=15905
 charge exchange of 4 MeV beam in nitrogen 2=7567
 charge transfer, resonant, with H(1s), calc. 1=19607-8
 collision with H atom, charge transfer reson. 2=16492
 Colorado cyclotron, extraction of proton beam 3=5736
 Coulomb self-energy, discussion 0=1359
 cyclotron, for 50 MeV protons, 70 in. 3=5746
 in DCX-1 device, trapping, from Lorentz dissociation of H₂⁺ 4=5687
 diffusion, in H at high temps. 2=2770
 Dirac and Pauli form factors, radius, by electron scatt. 2=20600
 e.m. form factors, energy depend. 3=17277
 e.m. form factors, extrapolation 4=21847
 electric dipole moment, upper limit 0=15345
 electric and mag. form factors meas. 3=12455
 electric and magnetic structure 1=7234
 electromagnetic form factors, from e-p scatt. 2=282
 electromagnetic form factor in time-like region 2=13793
 electromagnetic props., charge-core model, appl. to e-p scatt. 1=7232
 electron capture in H₂ distorted wave method 0=5869
 electron capture in H₂, molecular effects 0=5996
 electron capture from O and N atoms 3=13303
 proton-electron mass ratio 2=17
 electron scatt., Rosenbluth formula, validity 2=16185
 p-e⁻-e⁺ system, binding energy 0=9727
 energy calibration points below 3 MeV 4=19515
 energy distrib. when bombard. target in synchrocyclotron 4=8878
 excitation functions in Be⁹(He³,p)B¹¹ reaction 0=11423
 excitation functions in C¹²(He³,p) reaction 0=11424
 extraction from Birmingham synchrotron 1=1945
 extraction from proton synchrotron 2=1539
 flux during aurora (Sept. 1959) 0=4816
 focusing, using ferromag. blocks as quadrupole lenses 0=1166
 form factor asymptotic behaviour, Sachs sum rule and resonance 4=16886
 form factor, energy shift in h.f.s. of atomic H 0=466
 form factor, phenomenological theory, electron bremsstrahlung 1=10871
 form factor, from scatt., e-d, e-p 3=14971
 form factors from e-p scatt. analysis 3=14957

Protons and antiprotons—contd

- form factors, from electron scatt. at 100-250 MeV 3=2243
 form factors in free and bound states, similarity 2=18102
 form factors, from inelastic e-d scatt. data 4=19487
 form factors meas. 3=14980
 geomag. trapped, asymmetry effects at high energy 3=16292
 geomagnetic trapped in radiation belt 2=17202
 grain densities of tracks in emulsion 0=196
 gyromagnetic ratio 0=20130
 gyromagnetic ratio 2=22502
 gyromagnetic ratio, det. 1=19191
 gyromagnetic ratio, general article 2=18109
 gyromagnetic ratio, recommended value 1=2051
 helicity, from Λ decay 0=17330
 helicity, from Λ^0 hyperon decay 1=16901
 identification, with computer 0=12802
 injection method for tandem accelerator 2=17907
 ionization-momentum relation, in relativistic region 4=864
 ionosphere, charge exchange source 3=16242
 K⁻-p, production of strangeness -3 baryon, theory 4=9286
 magnetic deflector, "floating-wire" study 2=1518
 in magnetosphere, origin and energy 4=29319
 mass determination, in multiplate cloud chambers, from scatt. and residual range data 0=9309
 mass difference, n-p 3=6009
 mass, rel. to electron mass 0=5553
 mass difference, n-p, from T(d,n)He³ threshold 4=19610
 mass difference with neutrons, rel. to electron scatt. expts. 4=9187
 mass, theoretical connection with other atomic consts. 4=11009
 μ -meson capture, structure 0=356
 meson-theoretical struct. 2=20600
 n-p mass diff., S-matrix calc. 4=27839
 p-n mass difference 3=7840
 p-n pairs, γ -ray absorpt. 3=15052
 proton-neutron mass difference 2=13794
 proton-neutron mass difference, meson theory 0=1275
 neutron-proton mass difference 1=16767
 in non-spherical nuclei, distribution 1=10853
 nuclear emulsion tracks, radius meas. 2=1642
 nuclear p-n separation energies, tables 1=16964
 optical model operator 0=7447
 orbital calcs. for Iowa State University cyclotron 2=11742
 pairing correl. in nuclei 3=12542
 pairing energy in nucleus 3=10199
 photon scattering, dispersion relations 0=11130
 $\pi^- + p \rightarrow \pi^- + \pi^+ + n$ 1=10905
 polarizabilities, elec. and mag., higher-order terms 3=571
 polarization meas. from $p\bar{p} \rightarrow Y\bar{Y}$ ang. correl. 4=25101
 polarized beam, precession of proton spins 3=12456
 in proposed dimensional expression of mass 1=18239
 proton-antiproton annihilation into electrons, μ -mesons and vector bosons 2=9849
 protonosphere, distribution 1=20986
 p-p collisions, particle production, statistical model 0=12935
 \bar{p} -p interaction, $\Xi^- + \Xi^+$ pair prod. 2=12013
 $\bar{p} + p \rightarrow K_S^0 + K_S^0$, rel. to Sakata model 2=13797
 p-p- μ systems, appl. of Pluvineau method 0=2707
 p-p system, space and charge parities, annihilation 2=22501
 p- \bar{p} system, space and charge parities, π annihilation 1=19190
 p- \bar{p} system, space and charge parity, 2-meson annihilation 1=496
 \bar{p} -p, 20 and 120 MeV 4=9188
 $\bar{p} + p \rightarrow 2\pi^+ + 2\pi^- + n\pi^0$, π - π interaction 2=13802
 protons, 143 MeV, neutrons emitted at 0° 2=7987
 in quantum field theory, basic ideas 2=22378
 n-quantum transitions between spin-Zeeman levels 3=14034
 n-quantum transitions between spin-Zeeman levels 3=14035
 in radiation belt (Aug.-Sept. 1959) 2=6958
 in radiation belt, 1 keV to 1 MeV lifetime 2=4684
 radiation belt trapped, low energy anomalous component 2=19253
 role in nuclear physics, review 1=7237
 in scattering on Mg, 7.3-15.9 MeV 1=17095
 scattering at 128 and 162 MeV 2=22519

Protons and antiprotons—contd

- solar, ion prodn. in earth's atmosphere 2=19241
 solar, magnetic bays and aurora 1=1559
 solar, 1961 data 4=26937
 solvation mechanism, quantum mech. calc. 1=18397
 spin and charge states, generalized field theory 3=24603
 stability 1=5721
 stopping power of H_2 for, charge-exchange processes 2=18428
 structure, core and meson-cloud model 2=1680
 structure and form-factor 1=16837
 structure study, by meson photoprod. and Compton effect 1=13409
 synchrotron, 300-1000 GeV, experimental techniques 3=17004
 3π resonance, $T = 0$, from $\bar{p} + p$ interaction 2=1705
 total cross-sections for 765 MeV 1=683
 transfer, in collisions between nuclei 3=6296
 $B^{10}(He^3, p)C^{12}$, at 2.2 MeV, $p-\gamma-\gamma$ coincidences 1=17058
 C^{12} nucleus p^- and s^- , momentum distrib. 2=1893
 $Fe-p$, 82 and 105 MeV, tritium prodn. 2=12191
 H^4 state with $T = 2$, no evidence from $\gamma + He^4 \rightarrow \pi^+ + T + n$ 4=12079
 Po, long-range proton emission 1=7361

absorption

- air, stopping cross-section 40-250 keV 3=22133
 capture in Be 7 , at 0.8 and 1.4 MeV 0=7550
 elements, various, at 24.2 GeV/c 1=3185
 energy loss in rare-earth oxides 1=13790
 energy loss and straggling in range 1.5 to 4.5 MeV 2=3336
 explosives, range-energy relationships 3=17279
 graphite and diamond, at 1.1 MeV, ratio of atomic stopping power 1=12349
 hydrocarbon gases, stopping cross-section 40-250 keV 3=22133
 metals, eleven, stopping power for 28.7 MeV 4=902
 in metals, at ~ 1 MeV, optical transition radiation 0=20099
 in moderators and absorbers, free model 3=22460
 by nuclei, 25 BeV/c, nuclear radius 3=12649
 range, energy losses in liquid propane 1=19201
 range-energy meas. in Al, Cu, Pb, U, and emulsion 1=13421
 range-energy relation in Agfa K2 emulsion 0=5460
 range-energy relation, in various substances up to 100 MeV 0=5557
 range-energy relations, rel. to mean excitation potential 0=9360
 range-energy relations in nuclear emulsion 0=195
 range, multiple scatt. corrections 0=15354
 relative ionization near end of proton range, effect of multiple scatt. 0=20141
 in thin absorbers, 5 MeV, binding effect corrections to energy loss 0=1261
 VVNS films, energy loss at 4-30 keV 3=4394
 in Al foils, range of 14.7 MeV protons 2=3337
 Al, range, at 1-20 MeV, L-shell correction and I value 0=15354
 in Al, Be, C, Cu, Pb and air, range straggling, calc. 0=5560
 Al $_2$ O $_3$ films, energy loss at 4-30 keV 3=4394
 Au, range, straggling correction 0=15354
 C film energy loss distrib., 992 keV 4=27856
 C films, energy loss at 4-30 keV 3=4394
 He, stopping cross-section 40-250 keV 3=22133
 in Si, range-energy relationship 3=17113

angular distribution

- (α, p), p -shell nuclei, backward peaking 4=22131
 from (α, p) reactions on light and medium-wt. nuclei 3=19883
 complex nuclei, polarization 1=12191
 from deuteron diffraction scattering 1=13836
 $d(\gamma, p)n$, anomalous energy dependence 0=454
 (d, p) nuclear reactions 3=24965
 deuteron photodisintegration at 500-900 MeV 1=2102
 $d-p$, production of strangeness -3 baryon, theory 4=9286
 (d, p) reactions, distorted-wave Born approx. 1=19522
 (d, p) reactions, distorted-wave calc. 3=2487
 (d, p) reactions, $p-\gamma$ ang. correl., calc. using distorted-wave Born approx. 0=11416
 (d, p) reactions with d energies below Coulomb barrier 0=1416
 (d, p) reactions at 14.8 MeV on Li to Au, low-energy continuum 1=3456

Protons and antiprotons—contd**angular distribution—contd**

- (d, p) reactions on heavy nuclei 4=3689
 (d, p) reactions on heavy nuclei, calc. 2=3608
 deuteron stripping in Coulomb field 3=6287
 (d, p) stripping, rel. to "gross structure" spectra 3=6293
 (d, p) stripping reactions in C^{13} and O^{18} 1=11032
 deuteron stripping reactions, rel. to spin-orbit distortion 1=19514
 (d, p) stripping, rel. to "gross structure" spectra 2=16431
 d stripping, 23 isotopes of 11 elements 4=3648
 $d(d, p)$, 120-200 keV 3=22218
 elastic scatt. for 15 nuclei at 57 MeV, meas. 2=16399
 elastic scatt. on Ni^{64} and $Zr^{90-92,96}$ 2=443, 22805
 from elastic scatt., on photographic emulsion nuclei 1=19451
 from elastic scatt., on photographic emulsion nuclei 3=4633
 elastic scatt. at 22.2 MeV on 20 single isotopes 2=3561
 elastic scatt. on Zr^{90-91} , at 5.45 MeV 2=444, 22804
 elastically scattered on Li, Al, In and Au, at 160 MeV 1=3444
 fast protons, prod. by 75-350 MeV protons 4=3655
 focusing, 12 MeV, by mag. particle spectrometer 2=3342
 from $\gamma + d$ 3=4424
 by γ , 22 MeV bremsstrahlung, on $13 \leq Z \leq 50$, $p > 8$ MeV 3=19830
 inelastic scatt., high-energy, from mag. dipole levels, calc. 1=4864
 inelastic scatt. from nuclei, parity change det. 1=5904
 in interaction with emulsion nuclei at 9 BeV 0=9619
 neutron decay in polarized beam 1=500
 peaks near 180° , due to compound nuclear levels 3=17459
 proton-nucleon collisions, at CERN-PS energies 1=16778
 $n + p \rightarrow p + p + \pi^-$, KE distrib., meas. versus calc. 4=30227
 (n, p) reactions, DWBA calcs. 4=6350
 (n, p) reactions at 14 MeV in 3rd and 4th shell nuclei 2=3598
 $p-n$ scatt., 200 MeV 3=7866
 $p-\gamma$ ang. correl. symmetries in inelastic scatt. on nuclei, theory 2=22803
 ($p, 2p$) ang. correl. in DWBA 3=19841
 $p-p$ collisions, at 9 BeV 1=19196
 $p-p$ collisions, at 9 BeV 2=22510
 p -isotope ($A = 52$ to 65) scatt., 5.45 to 6.8 MeV 2=16396
 $p + n \rightarrow p + p + \pi^-$ + neutral particles at 9 BeV 2=288, 22511
 $p-p$ quasi-free non-coplanar scatt. 4=3650
 (γ, p) reactions on Li^6 to Au 0=13264
 (γ, p) reactions in Nb, In, Ta and Au 0=11432
 $p-S^{32}$ elast. scatt. 3=6240
 $p-n$ scatt., 200 MeV 2=23120
 $p-\pi^+$ scatt. in Saclay bubble chamber 2=2251
 photonuclear reactions, rel. to surface nuclear shape and optical anisotropy 3=15087
 photoprotons from deformed nuclei, theory 2=3551
 photoprotons, forward shift of maximum 0=9654
 $\pi^+ + d \rightarrow p + p$, differential cross-section, meas., 4=30258
 in $a^- - p$ scattering 1=12105
 recoils, double-grid ionization chamber 2=5507
 scatt., 6.8 MeV, 23 isotopes of 8 elements 4=3648
 in scattering on Be 9 , elastic, at 6.8 MeV 1=4866
 in scattering on emulsion nuclei at 8.7 BeV 0=7546
 in scattering, inelastic, on light nuclei at high energy, calc. 0=4089
 scattering, inelastic, on nuclei near giant dipole resonance, theory 1=11005
 scattering by Li^6 p -proton, ang. correl. 2=22801
 in scattering on Ni, Cu, Co at 5.45 MeV 0=7563
 7 nuclei, inelastic scatt., 40 MeV meas. 4=25384
 in stars, in emulsion stack, shower study 0=9470
 A^{36} , elastic scatt. at 1.494 MeV 2=3563
 $A^{36}(d, p)A^{37}$ 0=11421
 A^{40} , elastic and inelastic, 7.6-14.2 MeV 1=8724
 Ag , elastic scatt. at 6.8 MeV 1=8707
 from Ag scatterer, 6.8 MeV 1=13782
 $Ag[Br]-Ne^{20}$ reaction, 200 MeV 4=22232
 $Ag(\alpha, p)$ 3=4669
 $Ag(N, \alpha p)$ reaction 0=13248
 $Ag(N^{14})$, emission 1=8786
 Al, elastic scatt. at 6.8 MeV 1=8707
 Al, photoprotons 3=10326
 Al photoprotons, rel. to theory 2=424

Protons and antiprotons—contd

angular distribution—contd

from Al scatterer, 6.8 MeV 1=13782
 Al(α , p) 3=4669
 Al(γ , p) 3=4614
 Al(p, p), 4.9 and 5.3 MeV 4=9491
 Al²⁷, elastic and inelastic scatt. 2=437
 Al²⁷, 155 MeV inelastic scattering 4=15203
 Al²⁷(α , p)Si³⁰ 2=497, 12224, 16437
 Al²⁷(α , p)Si³⁰ at 22.5 MeV 1=13855
 Al²⁷(γ , p)Mg²⁶, rel. to energy distrib. fine struct. 4=25375
 from Al²⁷(n, p)Mg²⁷ 1=13813
 Al²⁷(n, p γ)Mg²⁷, Al²⁷(n, np)Mg²⁶, at 14.8 MeV 1=9868
 Al²⁷(n, p)Mg²⁷, 14.8 MeV 3=19861
 Al²⁷(n, p)Mg²⁷, 14 MeV spectra 4=3673
 Al²⁷(p, p')Al²⁷, peaks, 6.5 MeV p 3=22375
 An, from (α , p) reactions at 28 MeV 2)498
 Au(α , p) 3=4669
 Au¹⁹⁷(γ , p) 0=5768
 Au¹⁹⁷(n, p), 14.8 MeV 4=1095
 B¹⁰, 17 MeV scatt. 2=20609
 B¹⁰(α , p)C¹³, diffraction patterns 1=13854
 B¹⁰(d, p)B¹¹, rel. to ang. momentum mechanism 2=5959
 B¹⁰(d, p)B¹¹, rel. to B¹¹ levels, and d-p- γ correl. 0=11321-2
 B¹⁰(d, p)B¹¹, excited states of B¹¹, p- γ ang. correl. 0=17597
 B¹⁰(d, p)B¹¹, at 1.2 MeV, and p- γ correlations 1=2232
 B¹⁰(d, p)B¹¹ at 10.1 MeV 1=19509
 B¹⁰(d, p)B¹¹, at 12.5, 15.5, 18.5, 21.5 MeV 2=1915
 B¹⁰(d, p)B¹¹, l -values 3=680
 B¹⁰(He³, p γ)C¹², correl. with protons 2=1928
 B¹⁰(Li⁶, p)N¹³, 3.5 to 4.5 MeV 4=22220
 B¹⁰,¹¹, 155 MeV scattering 4=15202
 B¹⁰,¹¹(p, 2p), 155 MeV 3=6232
 B¹¹(α , p γ)C¹⁴, 2.5 to 5.0 MeV 3=19770
 B¹¹(d, p γ)B¹⁰, exchange term effect 4=19816
 B¹¹(d, p)B¹² 3=4664
 B¹¹(d, p)B¹², low energy, simple stripping theory 4=3691
 from B¹¹(d, p)B¹², p ang. correl. 2=484
 B¹¹(t, p γ)B¹³ 0=20462
 Be⁷(d, p)Be⁸ 0=5750
 Be⁹, in energy range 6.1-7.3 MeV 2=5899
 Be⁹, 17 MeV scatt. 2=20609
 Be⁹, 155 MeV scattering 4=15202
 from Be⁹(d, p)Be¹⁰ reaction 4=19815
 Be⁹(d, p γ)Be¹⁰, p- γ correlation 1=5934
 Be⁹(d, p γ)Be¹⁰, 13.6 MeV, p- γ correl. 4=9553
 Be⁹(He³, p)B¹¹ 0=5755, 11423
 Be⁹(He³, p)B¹¹, 2.0 MeV 3=22269
 Be⁹(p, p'), 5-15 MeV 4=25386
 Be⁹(p, 2p), 155 MeV 3=6232
 Be⁹(t, p)Be¹¹, and Be¹¹ 319 keV level parity 4=19822
 Be⁹(t, p)Be¹¹ rel. to double stripping theory 2=18232
 Bi(d, p), rel. to nuclear structure 1=3398
 Bi, elastic scatt. at 6.8 MeV 1=8707
 from Bi scatterer, 6.8 MeV 1=13782
 Bi²⁰⁹ bombard. by C¹² and O¹⁶ 2=499
 Bi²⁰⁹(d, p)Bi²¹⁰ 3=681
 Bi²⁰⁹(d, p)Bi²¹⁰, at 7.4-9.1 MeV 1=2234
 Bi²⁰⁹(d, p)Bi²¹⁰, at < 10 MeV, calc. 2=3608
 C, elastic and inelastic scatt. at 6.5 - 16 MeV 1=8713
 C (polyesterene), scatt., at 100-200 keV 2=14086
 C (polystyrene), scatt., at 100-200 keV 3=6238
 C scatt., 5.2-6.6 MeV 3=22292
 C scatt. polarization, 6-6.8 MeV 4=22125
 C(γ , p) at 36 MeV 2=20592
 C¹², inelastic scatt. from 15.11 MeV level, calc. 1=4864
 C¹², inelastic scatt. at 185 MeV 0=11409
 C¹², inelastic scatt. at 150 MeV 2=3566
 C¹², inelastic scattering 0=9353
 C¹², inelastic scattering 1=19453
 C¹², 155 MeV scattering 4=15202
 C¹², photoprotons 4=6322
 C¹², quasi-free scatt. at 185 and 440 MeV 1=8717
 C¹²(α , p)N¹⁵ 2=12224
 C¹²(α , p)N¹⁵, E $_{\alpha}$ < 35 MeV, peaks near 180° 3=17459
 C¹²(α , p)N¹⁵, energy dependence 2=489
 C¹²(α , p)N¹⁵, at 16.1-19 MeV 0=15582
 C¹³(α , p)N¹⁶ at 22.5 MeV 1=13855
 C¹²(α , p)N¹⁵, at 25-39 MeV 0=20466
 C¹²(d, p)C¹³ 0=17602, 20458

Protons and antiprotons—contd

angular distribution—contd

C¹²(d, p)C¹³ 1=17144
 C¹²(d, p)C¹³* 1=19513
 C¹²(d, p)C¹³ 2=22849
 C¹²(d, p)C¹³ 3=8128
 C¹²(d, p)C¹³ (15-20 MeV) differential cross-section 1=8766
 in C¹²(d, p)C¹³ reaction 1=5935
 from C¹²(d, p)C¹³ reaction 4=19815
 C¹²(d, p)C¹³, 26 MeV, rel. to Butler-Born model 4=3693
 C¹²(d, p γ), p- γ ang. correls. 3=679
 C¹²(He³, p)N¹⁴, at 13.9 MeV 0=15579
 from C¹²(γ , p) and C¹²(e, e'p) 1=13770
 C¹²(He³, p) reaction 0=11424
 C¹²(p, p)C¹² 1=12192
 C¹²(p, p')C¹²* 1=12192
 C¹²(p, p')C¹² p'- γ ang. correl. rel. to spin flip effect 4=17124
 C¹²(p, p')C¹², p-p' correlation 1=5906
 C¹²(p, p') 4.4 MeV, p- γ ang. correl. 0=11410
 C¹²(p, 2p), 155 MeV 3=6232
 C¹²(p, 2p)B¹¹ reaction 0=17584-5
 C¹²(p, 2p)B¹¹, spectra interpreted 2=455
 C¹²(t, p)C¹⁴, at 0.8-2 MeV 2=3631
 C¹²(t, p)C¹⁴, 0.32 to 1.18 MeV 3=15237
 C¹² + C¹², 123 MeV 3=17500
 C¹² + Li⁶ → O¹⁷ + p 3=8136
 C¹³(d, p)C¹⁴, 3.2-4.1 MeV 3=24970
 C¹³(d, p)C¹⁴, 4.6-6.0 MeV, p- γ ang. correl. 3=24969
 C¹³, inelastic scatt. at 5.5 MeV, levels in N¹⁴ 1=7325
 Ca(γ , p), 22 MeV 4=22117
 Ca⁴⁰, 155 MeV scattering 4=15202
 Ca⁴⁰, scatt., 180 MeV 2=22802
 Ca⁴⁰(α , p)Sc⁴³, α -rays up to 20 MeV 3=12700
 Ca⁴⁰(d, p)Ca⁴¹ 0=7573
 Ca⁴⁰(d, p)Ca⁴¹, rel. to Ca⁴¹, spin 2=16297
 from Ca⁴⁰(d, p)Ca⁴¹ reaction 4=19815
 Ca⁴⁰(γ , p)K³⁹, up to 22 MeV 3=6226
 Ca⁴⁰(p, p'), 55 MeV 4=25305
 Cd, elastic scatt. at 6.8 MeV 1=8707
 Cd scatt. at 19.6 MeV 2=16396
 from Cd scatterer, 6.8 MeV 1=13782
 Cd(γ , p) 0=13256
 Cd¹¹¹(d, p)Cd¹¹², 13.6 MeV, and Cd¹¹² levels, spin and parity 3=12592
 and Cd¹¹⁴ spin and parity, from d, p stripping 3=17405
 Ce¹⁴⁰(d, p)Ce¹⁴¹ 1=8769
 Cl³⁵(d, p)Cl³⁶, in=1 group analysis 1=19510
 Cl³⁵,³⁷(d, p)Cl³⁶,³⁸, stripping analysis 2=22841
 Co, elastic scatt. at 6.8 MeV 1=8707
 from Co scatterer, 6.8 MeV 1=13786
 from Co scatterer, 6.8 MeV 1=13782
 Co⁵⁹ elastic scattering, 9.4 MeV 4=9495
 Co⁵⁹, 155 MeV inelastic scattering 4=15203
 Co⁵⁹(d, p)Co⁶⁰, at 6 MeV, stripping analysis 0=13238
 Co⁵⁹(n, p) 14.8 MeV 3=19861
 Cr⁵⁰,⁵²,⁵⁴, inelastic scatt. at 6.9 MeV 3=22373
 Cr⁵²⁻³, elastic scatt. at 6.8 MeV 1=8706
 Cr⁵², 155 MeV inelastic scattering 4=15203
 Cr⁵², scatt. by first excited states 2=16394
 Cr⁵²(d, p)Cr⁵³, 6.5-8 MeV 4=30353
 Cr⁵²(p, p') γ , 5.8 MeV, p'- γ angular correlation 4=9492
 Cu, elastic scatt. at 6.8 MeV 1=8707
 Cu, photoprotons 3=10326
 Cu photoprotons, rel. to theory 2=424
 from Cu scatterer, 6.8 MeV 1=13786
 Cu(α , p) 3=4669
 Cu(n, p), test of statistical theory 1=13812
 Cu⁶³,⁶⁵, elastic scatt. at 6.8 MeV 1=8706
 Cu⁶³(p, p'), 11 MeV 3=10338
 Cu⁶⁵, elastic scatt. at 7.5 MeV 1=11013
 Cu⁶⁵(γ , p) reaction 0=13263
 D, photodisintegration 0=5625
 D(d, p)T, at 0.5-0.9 MeV 1=8518
 D(p, p)pn, energy spectra 2=3417
 F(γ , p) at 36 MeV 2=20592
 F¹⁹, inelastic scatt. at 6.6 MeV 2=441, 22807
 F¹⁹(α , p)Ne²², at 18.9 MeV 0=15582
 F¹⁹(α , p)Ne²², 14.7 MeV 3=2500
 F¹⁹(α , p)Ne²² at 22.5 MeV 1=13855
 F¹⁹(d, p)F²⁰, 0.8-2.5 MeV, meas., Butler theory calc. 4=28057

Protons and antiprotons—contd
angular distribution—contd

$F^{19}(d,p)F^{20}$, 2 MeV 3=22419
 $F^{19}(He^4, p\gamma)Ne^{22}$, $p-\gamma$ correl., rel. to Ne^{22} levels 4=15150
 Fe , elastic scatt. at 6.8 MeV 1=8707
 from Fe scatterer, 6.8 MeV 1=13782
 from Fe scatterer, 6.8 MeV 1=13786
 $Fe(n,p)$, test of statistical theory 1=13812
 Fe^{56} , 155 MeV inelastic scattering 4=15203
 $Fe^{56}(p, p'\gamma)$, 5.8 MeV, $p'-\gamma$ angular correlation 4=9492
 $H(d, p)pn$, energy spectra 2=3417
 ΔH^3 decay 0=20361
 $p-Fe^3$ elastic scatt., 4.5 to 11.5 MeV 4=12004
 He^3 , elastic scattering on, 5-10 MeV 0=9359
 He^3 , by polarized 10 MeV protons, and asymmetry 1=16920
 He^3 , scatt., elastic 3=6005
 $He^3(d,p)He^4$, 23.2 to 27.0 MeV 4=12078
 $He^3(d,p)He^4$, 27 MeV 3=15224
 (He^3, p) reactions, calc. 1=9881
 $He^3 + T$, 460-1087 keV 4=6148
 ΔHe^4 decay 0=20361
 $p-He^4$, elastic scatt., 2-11 MeV 4=12001
 He^4 , scattering 0=12933
 $He^4(d,p)He^5$ stripping, 24.3 and 27.3 MeV 4=9310
 $He^4(d,p)He^5$, 20 MeV deuterons 1=16913
 $He^4(\gamma, p)H^3$ 1=16918
 $He^4(\gamma, p)H^3$ for 23-32 MeV γ 3=6092
 $He^5 \rightarrow He^4 + p + \pi^-$ 2=16304
 $He^5 \rightarrow He^4 + p + \pi^-$ 3=6148
 $In^{115}(n, p)$, 14.8 MeV 4=1095
 K^{39} , 155 MeV inelastic scattering 4=15203
 Li photoprotons, rel. to theory 2=424
 $Li(\alpha, p)$ Be heavy-particle-stripping anal. 2=16435
 $Li(d, p)Li^{7*}$ 0=7575
 $Li^6(\gamma, p)$, 20 MeV Brem. 4=19748
 $Li^6(n, p)$, calc., with $n-p$ correl. in nucleus 0=20492
 $Li^6(p, pd)$, 155 MeV, calc. 3=22386
 $Li^6(p, 2p)He^5$, at 155 MeV incident energy 2=1895
 $Li^{6,7}$, 155 MeV scattering 4=15202
 $Li^{6,7}(\alpha, p)Be^{9,10}$, 13.6 and 14.7 MeV 3=2500
 Li^6 and $Li^7(p, 2p)$, ang. correl. distrib. 3=15190
 $Li^{6,7}(p, 2p)$, 155 MeV 3=6232
 Li^7 photodisintegration 3=24921
 Li^7 , quasi-free scatt. at 185 and 440 MeV 1=8717
 Li^7 , scattering at 180 MeV 0=17587
 $Li^{7(d,n)}Be^8$, recoil protons scattered by neutrons 1=16796
 $Li^7(d, p)Li^8$, at < 2.5 MeV 0=13237
 $Li^7(\gamma, p)$ 2=7967
 $Li^7(p, 2p)He^6$, at 155 MeV incident energy 2=1895
 Mg , photoprotons 3=10325
 Mg^{24} , elastic and inelastic, 7.6-14.2 MeV 1=8724
 Mg^{24} , inelastic scatt. at 16.6 MeV, $p'-\gamma$ ang. correl. 0=5745
 $Mg^{24}(d, p\gamma)Mg^{25}$, $p-\gamma$ ang. correl. 0=17604
 $Mg^{24}(d, p)Mg^{25}$ 0=9637
 $Mg^{24}(d, p)Mg^{25}$ 2=14131
 $Mg^{24}(d, p)Mg^{25}$ at 10 MeV; 5° to 175° 1=19508
 $Mg^{24}(\gamma, p)$, calc. 2=3551
 $Mg^{24}(n, p)$ 0=20494
 $Mg^{24}(p, p'\gamma)Mg^{24}$ 2=1876
 $Mg^{24,26}(d, p)Mg^{25,27}$ spectra, 1.2-2.5 MeV d's 4=28058
 $Mg^{25}(d, p)Mg^{26}$ 1=13848
 $Mg^{25,26}$, 17 MeV scatt. 2=20609
 $Mn^{55}(d, p)Mn^{56}$, at 8.9 MeV 1=17145
 $Mo^{97}(d, p)$, 13.6 MeV 3=24973
 N^{14} , elastic and inelastic, 7.6-14.2 MeV 1=8724
 $N^{14}(\alpha, p)O^{17}$, diffraction patterns 1=13854
 from $N^{14}(d, p)N^{15}$ 1=13849
 $N^{14}(d, p)N^{15}$, for deuterons 0.75-1.10 MeV 2=22839
 $N^{14}(d, p)N^{15}$, energy depend. 2=489
 $N^{14}(d, p)N^{15}$, 1.5-3.2 MeV 1=12215
 $N^{14}(d, p)N^{15}$, reson. obs. 2=490
 $N^{14}(d, p)N^{15}$, at 16.2 and 16.7 MeV 1=12213
 $N^{14}(d, p)N^{15}$, stripping charact. 2=16427
 $N^{14}(d, p)N^{15}$ stripping process 2=16423
 $N^{14}-F^{19}$ reaction at 27.4 MeV 1=19535
 $N^{14}(He^3, p)O^{16}$, 2.5-5.5 MeV 3=15231
 $N^{14}(d, p)N^{15}$, at 0.5-5.5 MeV 2=22840
 Na^{23} , 155 MeV inelastic scattering 4=15203
 $Na^{23}(\alpha, p)$ at 19 MeV 2=497
 $Na^{23}(d, p)$, distorted-wave Born approx. 1=19522
 $Nb(\gamma, p)$ 1=13771
 Ne , elastic and inelastic scatt. at 6.9 - 15.6 MeV 1=8709

Protons and antiprotons—contd
angular distribution—contd

$Ne(d, p)$, 2.4 MeV 4=1107
 $Ne(\gamma, p)$ at 36 MeV 2=20592
 Ne^{20} , elast. and inelast. scatt., 3.35 and 5.15 MeV 4=9489
 Ne^{20} , elastic and inelastic, 7.6-14.2 MeV 1=8724
 Ne^{20} , scatt., 5.20-6.23 MeV 3=6233
 Ne^{20} , 17 MeV scatt. 2=20609
 $Ne^{20}(\alpha, p)Na^{23}$, diffraction patterns 1=15854
 $Ne^{20}(p, p'\gamma)$, ang. correl. at 1.63 MeV 4=1076
 $Ne^{20}(p, p'\gamma)$ 1.63 MeV, $p-\gamma$ ang. correl. 0=11410
 $Ne^{22}(d, p)Ne^{23}$ 0=11421
 $Ne^{22}(p, p\gamma)$ 3=2449
 Ni , elastic scatt. at 6.8 MeV 1=8707
 $Ni + O^{16}$, at 160 MeV, compound nucleus evaporation 1=734
 Ni , photoprotons, rel. to theory 2=424
 from Ni scatterer, 6.8 MeV 1=13782
 from Ni scatterer, 6.8 MeV 1=13786
 Ni , from (α, p) reactions at 28 MeV 2=498
 Ni^{58} , inelastic scattering, at 39.7 MeV 1=19370
 Ni^{58} , scatt. by first excited states 2=16394
 Ni^{58} , scattering 0=5746
 Ni^{58} (7.0-15.3 MeV) elastic and inelastic 1=9852
 $Ni^{58,60}$ elastic scattering, 9.4 MeV 4=9495
 $Ni^{58}(\alpha, 2p)$, at 32 MeV, proton evaporation from rapidly rotating nucleus 1=8773
 $Ni^{50}(d, p)$, distorted-wave Born approx. 1=19522
 $Ni^{58}(d, p)Ni^{59}$ (8.9 MeV) 1=9878
 $Ni^{58}(d, p)$, 27.5 MeV 4=12258
 $Ni^{58}(n, p)$ and $Ni^{58}(n, np)$ reactions 0=9682
 $Ni^{58,60,62,64}(d, p)Ni^{59,61,63,65}$ 2=10138
 $Ni^{58,60,62,64}(d, p)$, at 13.6 MeV 3=2489
 $Ni^{58,60,62,64}(p, p')$, 4.2 MeV 3=24930
 Ni^{60} , inelastic scattering at 31 MeV 1=19458
 Ni^{60} , inelastic scattering, at 39.7 MeV 1=19370
 Ni^{60} , scatt. by, 30.8 MeV 2=16404
 Ni^{60} (7.0-15.3 MeV) elastic and inelastic 1=9852
 $Ni^{60}(d, p)$, distorted-wave Born approx. 1=19522
 $Ni^{60}(d, p)Ni^{61}$ (8.6 MeV) 1=9878
 $Ni^{62}(p, p')$, 11 MeV 3=10338
 Ni^{64} , elastic scatt. at 5.4 MeV 1=8705
 $Np^{234}(\gamma, p)$, calc. 2=3551
 O , elastic and inelastic scatt. at 6.9 - 15.6 MeV 1=8709
 $O(\gamma, p)$ at 36 MeV 2=20592
 O^{16} , (6.9-15.6 MeV) elastic and inelastic 1=9853
 $O^{16}(\alpha, p)F^{19}$, diffraction patterns 1=13854
 $O^{16}(d, p)O^{17*}$ 0=17603
 $O^{16}(d, p)O^{17}$ 1=17144
 $O^{16}(d, p)O^{17}$ 2=5803
 from $O^{16}(d, p)O^{17}$ reaction 4=19815
 $O^{16}(\gamma, p)$, giant res. up to 170 MeV 3=8076
 $O^{16}(\gamma, p)$, giant reson. up to 170 MeV 2=20593
 $O^{16}(\gamma, p)N^{15}$, 17.3 MeV reson. rel. to O^{16} level 2=425
 $O^{16}(He^3, p)F^{18}$ 0=5757
 $O^{16}(t, p\gamma)O^{18}$, $p-\gamma$ ang. correl. 3=10392
 $O^{16}(t, p)O^{18}$ 0=17495
 $O^{16}(t, p)O^{18}$, double stripping theory 2=18232
 $O^{16}(t, p)O^{18}$, t of 660-1400 keV 3=19887
 $O^{16-18}(d, p)$, 15 MeV 3=12583
 $O^{17}(d, p)O^{18}$ 3=22420
 $O^{17}(d, p)O^{18}$, exchange term effect 4=19816
 $O^{18}(d, p)O^{19}$, 7.0 MeV 4=6373
 P , photoprotons rel. to theory 2=426
 P^{31} , 155 MeV inelastic scattering 4=15203
 $P^{31}(\alpha, p)Si^{34}$ 2=12224
 $P^{31}(d, p)P^{32}$, level study of P^{32} 2=22739
 Pb , elastic scatt. at 6.8 MeV 1=8707
 Pb , low-energy, from proton bomb. at 160 MeV 2=5905
 from Pb scatterer, 6.8 MeV 1=13782
 $Pb(d, p)$, rel. to nuclear structure 1=3398
 $Pb(\gamma, p)$ at 22.5 and 33.5 MeV 2=14079
 $Pb(\gamma, p)$, 22.5 and 33.5 MeV 3=2433
 $Pb(\gamma, p)$ at 22.5 and 33.5 MeV 3=6219
 $Pb^{208}(d, p)Pb^{207}$, at 7.4-9.1 MeV 1=2234
 $Pb^{208}(d, p)Pb^{207}$, at < 10 MeV, calc. 2=3608
 $Pb^{208}(d, p)$ stripping, 8.3 to 15 MeV, with Coulomb distortion 1=19505
 $Pb^{207,208}(d, p)$, 27.5 MeV 4=12258
 Pb^{208} , scatt. by, 30.8 MeV 2=16404
 $Pr^{141}(\gamma, p)$ photoprotons at 22.5 and 33.5 MeV 3=2432
 $Pr^{141}(\gamma, p)$ at 22.5 and 33.5 MeV 2=3552
 $Pt(\gamma, p)$ at 22.5 and 33.5 MeV 2=14079

Protons and antiprotons—contd**angular distribution—contd**

- Pt(γ , p) at 22.5 and 33.5 MeV 3=6219
 Pt(γ , p), 22.5 and 33.5 MeV 3=2433
 Rh(γ , p) at 22.5 and 33.5 MeV 2=14079
 Rh(γ , p) at 22.5 and 33.5 MeV 3=6219
 S photoprotons, rel. to theory 2=424
 S³², elastic and inelastic scatt. 2=5903, 16403
 S³², elastic and inelastic scatt. at 4.95-5.45 MeV 0=20452
 S³², elastic and inelastic, 7.6-14.2 MeV 1=8724
 S³²(n, p) 0=20494
 S³²(p, p' γ), ang. correls. 2=14092
 S³²(p, p' γ) 2.25 MeV, p- γ ang. correl. 0=11410
 S³²(n, p)P³² 3=19862
 Sb(n, p)Sn 0=1443
 Se⁷⁶(d, p)Se⁷⁷, 7.8 MeV 3=17495
 Si photoprotons rel. to theory 2=426
 Si²⁸, elastic and inelastic scatt. at 4.95-5.45 MeV 0=20452
 Si²⁸, elastic and inelastic scatt., 10-12.3 MeV 1=9854
 Si²⁸, elastic and inelastic, 7.6-14.2, MeV 1=8724
 Si²⁸, scattering at 1.4-3.8 MeV 0=4032
 Si²⁸(α , p) at 19 MeV 2=497
 Si²⁸(α , p)P³¹ at 22.5 MeV 1=13855
 Si²⁸(d, p γ)Si²⁹, at 6-9 MeV, p- γ ang. correl., distorted-wave analysis 1=8755
 Si²⁸(d, p)Si²⁹ 1=17144
 Si²⁸(d, p)Si²⁹, at 15 MeV 1=7400
 Si²⁸(n, p)Al²⁸ 1=13826
 Si²⁸(n, p)Al²⁸ 2=20656
 Si²⁸(n, p)Al²⁸, 14 MeV 4=9523
 Si²⁸(n, p)Al²⁸, 14.1 MeV 4=9534
 Si²⁸(n, p)Al²⁸, 14 MeV, calc., correction 3=17482
 Si²⁸(p, p' γ), at 5.8-7.0 MeV, p- γ ang. correl. 1=4868
 Si²⁸(p, p' γ) 1.78 MeV, p- γ ang. correl. 0=11410
 Si²⁸(d, p)Si³⁰ 3=4667
 Si²⁹(d, p)Si³⁰ 2=5962
 Si²⁹(d, p)Si³⁰ 3=22420
 Si²⁸(d, p)Si³⁰, 4.3 MeV, calc. 3=6286
 and Si³⁰ spin and parity, from d, p stripping 3=17405
 Sn, elastic scatt. at 6.8 MeV 1=8707
 Sn, low-energy, from proton bomb. at 160 MeV 2=5905
 Sn scatt. at 19.6 MeV 2=16396
 from Sn scatterer, 6.8 MeV 1=13782
 Sn(γ , p) 0=13256
 Sn¹¹⁷(d, p)Sn¹¹⁸, 13.6 MeV, and Sn¹¹⁸ levels, spin and parity 3=12592
 Sn¹¹⁸(d, p)Sn¹²⁰, 13.6 MeV, and Sn¹²⁰ levels, spin and parity 3=12592
 T(He³, p)He⁵ 1=19293
 Ta, low-energy, from proton bomb, at 160 MeV 2=5905
 Te¹²²(n, p)Sb¹²², at 14.1 MeV 2=18337
 Te¹²⁵(d, p), 13.6 MeV 3=24973
 Ti⁴⁷⁻⁵⁰(d, p) 2=16333
 Ti⁴⁸, 155 MeV inelastic scattering 4=15203
 V⁵¹, elastic scatt. at 7.5 MeV 1=11013
 V⁵¹(d, p)V⁵² 0=7577
 W(γ , p), 22.5 and 33.5 MeV 3=2433
 Y⁸⁹(d, p)Y⁹⁰, 15 MeV, and Y⁹⁰ energy splitting 3=15109
 Y⁸⁹(d, p)Y⁹⁰, 12 MeV 4=22178
 Zn, elastic scatt. at 6.8 MeV 1=8707
 Zn, low-energy, from proton bomb. at 160 MeV 2=5905
 from Zn scatterer, 6.8 MeV 1=13782
 from Zn scatterer, 6.8 MeV 1=13786
 Zn^{64,66,68}(p, p' γ), 5.8 MeV, p- γ ang. correl. 4=17125
 Zn^{64,66}, elastic scatt. at 5.4 MeV 1=8705
 Zr(n, p), Zr(n, np), at 14 MeV 0=15603
 Zr⁹⁰(d, p)Zr⁹¹, at 10.85 MeV, levels in Zr⁹¹ 1=4877
 Zr⁹⁰(γ , p), 22, 34 MeV, disagreement with shell model calc. 4=25376
 Zr^{90,91}(d, p)Zr^{91,92} 1=17148
 Zr⁹¹(d, p)Zr⁹², at 10.85 MeV, levels in Zr⁹² 2=3492
 and Zr^{91,92} spin and parity, from d, p stripping 3=17405

detection, measurement

- antiproton tracks, in nuc. emulsions, multiple scatt. in small cells 4=27858
 antiprotons, selective detection, using Cherenkov radiation 3=10080
 beam analysis from electrostatic accelerator 1=18953
 beam current meas., by integrator, digital 3=19138
 beam, 150 MeV, multicellular ionization chamber 2=5413
 beams, 40-150 MeV, using nuclear reactions 2=18112

Protons and antiprotons—contd**detection, measurement—contd**

- in bubble chambers, distinction from pions by bubble counting 1=406
 Cherenkov counter design, up to 5 GeV/c 3=4297
 Cherenkov counter, internally reflecting, for high energy protons 0=17337
 Cherenkov counters 0=15194
 Cherenkov detector for proton synchrotron measurements 0=17155
 cloud chamber track ionization meas. 4=14986
 comparison of CsI: Tl, Se and CdS detectors 1=19063
 counter, scintillation, CsI:Te, resolution for 12.5-100 keV p's 4=6053
 discrimination in CsI scintillations in presence of γ -rays 1=7168
 p-e differentiator, using space scintillator 1=3080
 in emulsion, ionization meas., with calibrating tracks 1=4751
 emulsions, discrim. from deuterons 3=4304
 emulsions, in pulsed mag. field, error meas. 4=21853
 emulsions, range var. with water content, 6.4 MeV 4=9199
 energies from D toroidal discharge, nuclear plate cameras 0=20143
 energy, absolute determ. by 180°-deflection magnet 2=9749
 energy det., at 6.3 BeV, by multiple meson prod. in emulsion, methods compared 0=1283
 Faraday cup, 30 cm, calibration 4=25100
 film cathode, for several hundred eV 4=903
 G5 emulsion, latent image formation 2=3339
 high energy beams, operation of H bubble chambers 0=9243
 ionization chamber, nonsaturating, 3 GeV 4=9200
 mag. spectrometer for 1 MeV protons 0=15221
 mass discrimination: protons, deuterons, tritons 2=20189
 mass, momentum det. in propane bubble chamber 0=3942
 meas. of polarization, two devices 1=13420
 p-n junction diodes, response 2=3341
 by nuclear emulsion, Ilford KO, α -discrimination 4=16778
 photo-proton spectrometer 1=8459
 photosensitive devices response to proton currents $\sim 10^{-8}$ A 0=20142
 Pilot-B plastic scintillator, γ -ray background effects 1=8619
 polarimeter for 1-2 MeV, parameters 3=24733
 polarization-analyser, 15-30 MeV protons 4=25099
 propane-filled 4=19339
 proportional counter as spectrometer 0=19965
 pulse discrim. circuits for high γ -background 3=16892
 range in emulsion Agfa K2 4=789
 range-energy relation in NiKFi-Ya2 emulsion 2=20340
 range in Ilford K-1 emulsion, meas. 4=16899
 recoil spectrometer, with two crystal scintillators 2=7794
 response of plastic scintillators 0=6204
 sagitta meas. in G5, K5 and L4 emulsions 0=12776
 scintillation, Ar, liquid, 10-50 MeV 3=19635
 scintillation counter telescope, photo-protons 3=24734
 scintillation counters, pulse shape discrimination 2=5516
 by scintillation counters, when strong γ -background 4=3244
 scintillation counters for 10-50 MeV 3=22035
 scintillation spectrometer, triple coincidence 2=13800
 scintillator-junction-diode combination 4=9010
 scintillator, liquid, NE 213, light output meas. 3=2266
 semiconductor detector using p-type Si, 10-30 MeV 3=5903
 semiconductor determ. for space spectrometry 2=18198
 semiconductor and gas-ion-chamber 2=9746
 spectrometer, double focusing, magnetic, below 6 MeV 4=21703
 spectrometer, high-energy magnetic, Uppsala 0=11075
 by spectrometer, multi-gap, broad-range, gas target 2=9752
 spectrometer, Siegbahn-Svartholm type 0=15221
 stilbene crystals, space charge discrimination with α -particles present 4=9323
 tracks - D1 and K0 emulsions, discrim. from α -particles 0=12770
 tracks in Ilford emulsions 1=16634-5
 tracks in nuclear emulsions 0=12777
 tracks in nuclear emulsions, discrim. from other particles 0=12766

Protons and antiprotons—contd
detection, measurement—contd

tracks in nuclear emulsions, discrim. from deuterons 0=12767
 tracks in nuclear emulsions, sagitta-method meas. 0=15204
 Van Allen belt, by satellite scintillation counter, above 2 MeV 1=21070
 velocity distribution after hydrogen photoionization 1=11907
 Au-Ge junctions 0=1234
 in H bubble chamber, velocity depend. of bubble density 0=12728

effects

acetylene, ionization, 2.25 MeV 3=20024
 air, discrete energy losses of fast beam 4=11517
 anthracene, luminescence excitation 3=11005
 atom ionization, classical treatment 2=10224
 aurora, excitation of high-altitude red arc 2=9016
 auroral spectra, excitation 2=2513
 beam heating in gas targets 2=3338
 beams in exosphere, rel. to v.l.f. amplification 2=13008
 bremsstrahlung and pair creation, effect of form factor and meson "jacket" 0=2538
 calcite, Cherenkov radiation, 663 MeV 4=16866
 capture of μ -mesons 0=2564
 charge exchange in gases giving H-atoms in 2S state 4=11528
 Coulomb excit. of Sm^{152} 0=11415
 dissociation of deuterons 1=5791
 exchange, rel. to nuclear magnetic resonance 1=8144
 excitation of H atoms (1s-2s) 0=20560
 excitation of H and He ions 2=10215
 excitation of N and N_2 spectra 1=13944
 excitation of N_2 , O_2 and O spectra, by 0.5-1 MeV protons 0=5942
 fission of U, Bi, Au, 156 MeV 4=17213
 free radicals, on bombardment, in H_2 , D_2 , solid, films, e.p.r., 100-1000 V 3=10550
 gases, ionization, Born approx. comparison 2=9529
 inert gases, discrete energy losses of fast beam 4=11517
 inert gases 100-450 keV 4=16426-7
 infrared detectors, PbS, by 12 MeV protons 2=9448
 ionization, energy per ion 3=14522
 ionization of gases, 100-450 keV protons 3=21698
 ionization of N_2 gas 2=5304
 neutron production in hydrogenous moderator 4=15061
 nuclear emulsions, at 2-9 GeV, nuclear disintegr. 4=9502
 organic scintillator light pulses 4=1119
 Permalloy, effect of 10^{16} - 10^{17} p/cm² on mag. props. 3=15863
 Permalloy, 5-79 Mo, magnetic props., recovery 4=17643
 π -meson prod. on emulsion nuclei at 9 GeV 3=596
 plasma wave excitement 4=19012
 quartz, stress relaxation 4=15507
 semiconductors, correl. with neutron damage 3=25308
 semiconductors, correl. with neutron damage 4=4090
 solar protons, as cause of geomagnetic variations 0=1989
 solar, relation between aurorae and magnetic bays 0=8403
 solids, cavity induction and exfoliation 4=10008
 solids, irradiation 0=6064
 steel, rel. to diffusion constant of H 2=21069
 sun, corona spectrum excitation, Fe^{+13} , $3p^{1/2} \rightarrow 3p^{3/2}$, calc. 4=15944
 20 and 35 MeV beams, luminescent effects in Plexiglas Cherenkov detectors 0=2462
 Van Allen radiation, hydromagnetic wave effect 1=21069
 visible and u.v. emission of proton-bomb. metals 1=18951
 vitreous silica, stress relaxation 4=15507
 X-ray production in M shell of Nd, Sm, Gd, Tb, Dy, Ho by 25-100 keV protons 4=25505
 Ag, bombardment, atomic collision sequences 1=14157
 Ag, 10 MeV, stage III annealing recovery 4=10011
 Al, electron emission at 1 MeV 2=1495
 Al, 1.5 MeV, K X-ray yields at 1.5-44A 4=17593
 Al, 60-500 keV, K-shell X-ray production 4=13046
 Al thick targets, 1 MeV protons, secondary emission 3=24344
 Au atom emission from crystals 1=1006
 Au, bombardment, atomic collision sequences 1=14157
 Au, electron emission at 1 MeV 2=1495
 Au, preferential atom ejection at 300 keV in (110) directions 0=13564
 Au, 75 keV, open channels penetration 4=4086

Protons and antiprotons—contd
effects—contd

Au thick targets, 1 MeV protons, secondary emission 3=24344
 Be, electron emission at 1 MeV 2=1495
 Be foil monitor, for Cosmotron proton beam 2=15973
 Be thick targets, 1 MeV protons, secondary emission 3=24344
 C, 1.5 MeV, K X-ray yields at 1.5-44 A 4=17593
 CaF_2 , electrostatic charge, meas. 2=15967
 Cu, bombardment, atomic collision sequences 1=14157
 Cu, charact. X-ray prod. in L_{III} shell 4=15586
 Cu, electron emission at 1 MeV 2=1495
 Cu, 1.5 MeV, L X-ray yields at 1.5-44A 4=17593
 Cu, pulverization by 10-30 keV protons 2=2109
 Cu, 60-500 keV, K-shell X-ray production 4=13046
 Cu, 10 MeV, stage III annealing recovery 4=10011
 Cu thick targets, 1 MeV protons, secondary emission 3=24344
 Cu-Be, secondary electron yield for 2-55 keV 4=8828
 Fe, effect of 10^{16} - 10^{17} p/cm² on mag. props. 3=15863
 Fe, magnetic props., recovery 4=17643
 GaAs solar cells, 100 keV and 17.6 MeV 4=17538
 GaAs solar cells, photoresponse 4=7067
 Ge, elec. props., neutron damage equivalence 4=17494
 Ge p-n junc., diffusion length meas. 1=3778
 H atom beam prod. on passing through gas 3=2584
 H atom, metastable state, excitation 3=4716
 H, atomic excitation 1=3516
 He atoms, excitation, cross-sections, calc. 2=527
 H ion production, in H_2 , He, Ne, A, CO_2 , C_2H_6 2=1386
 H ionization, 60-400 keV, crossed beam meas. 4=5558
 H and H_2 excitation 0=11501
 H_2 , excitation, Balmer emission meas. 3=15278
 H_2 , discrete energy losses of fast beam 4=11517
 H_2 , electron capture, calc. 3=16908
 H_2 , 50-100 keV, electron production 3=14641
 H_2 , ionization at 0.15-1.10 MeV, cross-sections 1=4555
 He atom, excitation spectra meas. 4=25485
 He atom excitation, transitions meas. 3=2560
 He discharge chamber 2=3340
 He excitation, resulting radiation polarization 4=22316
 He, at 200 keV, visible spectra 1=7435
 He-Ne, excitation of H atom Balmer lines 4=9656
 KCl, thermal expansion 4=6752
 Li atoms, ionization at <1 MeV, cross-section, calc. 1=4556
 Li-drifted detector 2=3215
 Li films, on Ta, Pt and C 2=17068
 LiF, coloration, rel. to growth method 3=25298
 $\text{Li}^{6,7}$, production in target 4=17130
 Mg, 60-500 keV, K-shell X-ray production 4=13046
 N_2 , discrete energy losses of fast beam 4=11517
 N_2 , energy loss per ion pair 3=12081
 N_2 , 5-130 keV, spectral lines meas. 4=9716
 NH_3 , irradi., rel. to conc. and decomp. 4=15848
 Ni, X-ray K-absorption edge 2=14698
 Ni^{58} , radiative capture and spins of Cu^{59} excited levels 0=4031
 Ni-Fe alloy, X-ray K-absorpt. edge 2=14698
 O_2 , discrete energy losses of fast beam 4=11517
 O_2^+ negative system excitation by proton beam in air 1=9927
 PbS i.r. detectors, lifetime 2=9447
 Si, crystal faults, at 750 keV and 850°-900°C 2=23147
 Si, damage rel. to energy, 1.35 to 130 MeV 4=28447
 Si, defect density rel. to energy, calc. 3=8474
 Si, defects, diffusion enhancement 4=1544
 Si, diffusion 3=22825
 Si, elec. props., neutron damage equivalence 4=17494
 Si, energy levels of defects in n and p-type 4=15458
 Si, impurity diffusion, accel., after 300-1000 keV proton irradi. 4=9995
 Si, lattice displacements 3=13023
 Si p-n photocell, 650 MeV, performance effect 4=28648
 Si, solar cells, 100, 500 keV 3=14508
 Si solar cells, photoresponse 4=7067
 Si solar cells, at 4.6-4.8 MeV 4=17535
 Si solar cells, 100 keV and 17.6 MeV 4=17538
 Si, vacancy prod., rel. to diffusion enhancement 2=12458

Protons and antiprotons—contd
effects—contd

- Ta thick targets, 1 MeV protons, secondary emission 3=24344
 α -U, irradiation rel. to point defects 2=6398
 Yb, X-ray prod. in M_{α} shell at 30-100 keV 4=30385
 BeV accelerator instrumentation 2=7682
- interactions
- See also Nuclear reactions, protons.
 α prod., at 9 GeV, in emulsion 3=19623
 p - α , in C^{12} nucleus 3=12551
 p - α , diff. elastic scatt. cross-sections at 20.1 MeV 0=2541
 angular correl., pair, secondaries, 9 GeV 3=19622
 annihilation, pion prod. and resonances 2=5746
 antiproton annihilation, with meson prod. 1=5728
 antiprotons, in emulsion, 3 GeV/c, m.f.p. 4=12216
 antiprotons, study by double scatt. 2=18114
 beams colliding, technique 2=5592
 boson prod. by neutrinos in proton Coulomb field 2=3312
 bound, with π -meson, forbidden collisions, calc. 2=5715
 with bound protons in C, at 930 MeV 0=7443
 $p + C^{12} \rightarrow d + C^{11}$, scatt. approx. for long range forces 3=2222
 capture by B^{11} , giant resonance region 3=15192
 capture of neutrino, with parity non-conservation 0=1269
 cascades, in emulsion, 9 GeV, calc. 4=898
 CERN protons with photographic emulsion nuclei, around 15 GeV/c 1=17101
 charge exchange, two-electron, in H_2 , Ar, Kr 4=464
 collision in liquid H_2 with (K^+, p) atom 0=470
 Compton effect, expt. and calc. 2=1671
 Compton scatt., π^0 decay as intermediate state in 0=5582
 deuteron disintegration, resultant neutron spectra 0=20244
 d prod. at 30 GeV, from n - p pairing, calc. 4=25202
 $p + d$ collisions, double meson production 1=16847
 $p + d$ collisions at high energy, π - π P-wave scatt. length 1=16857
 $p + d$ collisions at high energy, π - π S-wave interaction, existence of ω^0 refuted 1=8489
 with deuterons, deuterium bubble chamber obs. 2=5541
 $p + d \rightarrow H^3 + \pi^+$, $\rightarrow He^3 + \pi^0$, at 591 MeV, diff. cross-section ratio, rel. to charge independence 0=15419
 $p + d \rightarrow H^3 + \pi^+ + \pi^0$, H^3 momentum spectrum 2=287, 7889
 $p + d \rightarrow H^3 + \pi^+ + \pi^0$, H^3 spectrum 3=4390
 $p + d \rightarrow He^3 + \gamma$, catalysis by muons, γ -rays study 4=6675
 $d + p \rightarrow He^3 + \pi^0$ and $\rightarrow H^3 + \pi^+$, meas. and anal. 4=6098
 $p + d \rightarrow He^3 + \pi + \pi$ 3=17318
 $p + d \rightarrow He^3 + \pi^0$ at 600 MeV 1=5722
 $p + d \rightarrow He^3 + \pi^+ + \pi^-$, enhancement factor due to π - π interaction 1=10914
 $p + d \rightarrow (He^3 + \pi + \pi)$ at 700 MeV, final state enhancement factors 2=11940
 $p + d \rightarrow He^3$, spectrum anomaly, π - π scatt. theory 2=3393
 $p + d \rightarrow He^3 + 2\pi$, logarithmic singularities 4=21898
 $d + p \rightarrow He^3 + 2\pi$, rel. to strong π - π interaction 4=6100
 $p + d \rightarrow He^3 + 2\pi$, $\pi\pi$ interaction 2=9896
 $p + d \rightarrow He^3 + X$, rel. to π - π , $I = 0$, resonance 3=4430
 p - d , high-energy, meson production anomaly 1=497
 $\bar{p} + d \rightarrow \Lambda + \Sigma^- + \bar{\Xi}^+$ meas. 4=21854
 p - d , rel. to μ -mesic molecules 0=13459-60
 $p + d \rightarrow n + p + p$, neutron spectra for proton energy 6-13.5 MeV 0=1276
 $d + p$, neutron spectra 1=4798
 $p + d \rightarrow p + p + n$, energy spectra calc. 2=18309
 p - d , at 970 MeV, cross-sections 0=9356
 p - d at 135 MeV 1=19192
 p - d , π prod. anomaly, S-wave π - π interaction 1=16846
 $p + d \rightarrow \pi^0 + He^3$, $p + d \rightarrow \pi^+ + H^3$, branching ratio and cross-sections at 450 MeV 0=9355
 $p + d \rightarrow \pi^0 + He^3$, $p + d \rightarrow \pi^+ + H^3$, branching ratio at 450 MeV, charge independence study 0=1277
 $p + d \rightarrow p + p' + n$, neutron spectra, 0-180°, 4 MeV 0=17332
 $p + d \rightarrow p + p + n$, 77 MeV, cross-sections 3=22129
 d - p , 745 MeV, He^3 and H^3 production with pions 4=6097
 d - p , at 77 MeV, cross-sections, total and elastic 3=12516
 p - d , at 600 MeV, ($H^3 + \pi^0$) and ($He^3 + \pi^0$) production, cross-section ratio, e.m. corrections 0=11170
 $p + d$, at 625-723 MeV, possible anomaly in meson prod. 0=20213
 $p + d \rightarrow t + \pi^+$, at 670 MeV proton energy 1=13410

Protons and antiprotons—contd
interactions—contd

- $p + D \rightarrow 2p + n$, 5-10 MeV, proton spectra 3=19711
 $d(p, 2p)n$, 50 MeV 4=21957
 deuterons, photodisintegration, calc., 50-120 MeV 3=12515
 dissociation by nuclear Coulomb field and diffraction scatt. at high energy 1=469-70
 electron capture in atomic H 1=17284
 electron capture from H gas atoms 0=7078
 e pair prod., on p, high energies, calc. 3=17256
 p -e, pair prod. as small-distance quantum electro-dynamics test 2=20321
 proton-electron, bremsstrahlung 0=15326
 electron-proton bremsstrahlung 1=13385
 electron-proton collisions, bremsstrahlung production 0=15326
 p -e $^+$, K^+ -meson prod. 0=15440
 p -e lowest order potential, effect on H atom energy levels 1=4899
 $p + e \rightarrow n + \gamma$ cross-section 0=11143
 electron scatt., elastic, at 100-250 MeV, cross-section 3=2243
 electron scatt., elastic, 200-1000 MeV, e.m. form factor 2=282
 with electrons, in earth's radiation belt 2=9029
 in emulsions, GeV protons 1=17104
 with emulsion nuclei, at 9 BeV, strange particle and meson prod. 0=13068
 with emulsion nuclei at 9 GeV, intranuclear cascades, calc. 1=9849
 with emulsion nuclei, at 9 BeV, π - and K-meson prod. 0=9619
 in emulsion, at 950 MeV, similarity to 900 MeV neutron effects 0=20484
 in emulsion, at 5.7 BeV, π multiplicity, free nucleon interaction 0=17331
 6.2 GeV in emulsions 0=15346
 at 9 GeV, in emulsion 0=3966
 9 GeV, in emulsion, ang. correl. of secondaries 0=1401
 in emulsion at 9 GeV, K^+ prod. and energy loss 2=1869
 in emulsion, at 9 and 23.5 GeV, inelasticity and anisotropy 1=12087
 in emulsion, at 13 GeV 4=3400
 in emulsion, 25 GeV, hypernuclei, prod. decaying non-mesonically 4=12120
 in emulsion, at 27 GeV, azimuthal symmetry of jets 1=12088
 in emulsion, at 28 GeV/c, shower analysis 2=283
 in emulsion, at 250 BeV, mean free path 1=7240
 in emulsion, at TeV energies, shower particle ang. distrib. 1=7238-9
 in fixed force fields, μ and π prod. cross-sections at high energy 1=4806
 4.5 and 6 GeV in emulsion, ang. distrib. of secondary π -mesons 0=15390
 fragment emission, unstable, 25 GeV/c in nuclear emulsion 3=17270
 γ -emission in solar flares 1=18090
 $\gamma + N \rightarrow N + \pi$ near threshold, theory 2=7888
 γ - π - p coupling from $\gamma + n \rightarrow \pi^- + p$ to $\gamma + p \rightarrow \pi^+ + n$ ratio 4=6005
 $\gamma + p \rightarrow \eta + p$, 978 MeV, $\eta \rightarrow 2\gamma$ branching ratio 3=22187
 $p + \gamma \rightarrow \eta + p$, rel. to nucleon second-resonant state 4=899
 $\gamma + p \rightarrow \eta + p$, rel. to nucleon second-resonant state 4=899
 $p + \gamma \rightarrow \eta^0 + \pi^+$, 2-3 BeV and η^0 lifetime meas. 4=25164
 $\gamma + p$, high energy, μ , e prod. and comparison 3=22157
 $\gamma + p \rightarrow K^+ + \Lambda$, K^+ exchange contrib. isolation 4=21931
 $\gamma + p \rightarrow K^+ + \Sigma^0$ or Λ^0 , low-energy calc. 4=15101
 $\gamma + p \rightarrow K^+ + \Sigma^0$, low-energy 3=17334
 $\gamma + p \rightarrow K^+ + \Lambda$, $E_{\gamma} = 1054$ MeV, in nuclei 4=12198
 $\gamma + p \rightarrow K^+ + \Lambda^0$, 950-1050 MeV, Λ^0 polarization 4=19595
 $p + \gamma \rightarrow \Lambda^0 + K^+$, K^+ "particle" exchange approx. 3=15041
 $\gamma + p \rightarrow N + \pi + \pi$, anal. for π - π scatt. amplitudes 0=11211
 $p + \gamma \rightarrow \pi^+ + n$, π^+ ang. distrib. rel. to CGLN theory 2=7882
 $p + \gamma$, at 1.1 BeV, multiple meson prod. 0=13039
 $\gamma + p \rightarrow p + \pi^0$, at high energies 2=13848
 $p + \gamma \rightarrow \pi^0 + p$, 600-800 MeV 2=22557
 p - γ , π production 3=4430
 $p + \gamma \rightarrow \pi^0 + p$, cross-section 0=373
 $p + \gamma \rightarrow \pi^0 + p$, up to 800 MeV 1=16779

Protons and antiprotons—contd
interactions—contd

- $p + \gamma \rightarrow \pi^0 + p$, 550 to 1050 MeV 4=6095
 $\gamma + p \rightarrow \pi^+ + n$, at const. momentum transfer 4=21892
 $\gamma + p \rightarrow \pi^+ + n$ to $\gamma + n \rightarrow \pi^- + p$ ratio and $\gamma - \pi - p$ coupling 4=6005
 $p + \gamma \rightarrow \pi^+ + n$ at 160-200 MeV 3=4423
 $p + \gamma \rightarrow \pi^+ + n$, 600-800 MeV 1=18779
 $\gamma + p \rightarrow \pi^+ + n$, 200-260 MeV, fixed momentum transfer 3=22166
 $p + \gamma \rightarrow p + \text{low-mass anomaly}$ 3=10151
 $\gamma + p = p + \pi^0$ 3=15003
 $\gamma + p \rightarrow p + \pi^0$, at high energies 3=6037
 $p + \gamma \rightarrow \pi^0 + p$, at 910 MeV 2=22520
 $\gamma + p \rightarrow p + \pi^0$, recoil p polarization meas. 2=11976, 13799
 $\gamma + p \rightarrow p + \pi^0$, at 740-1140 MeV 2=20389
 $\gamma + p \rightarrow p + \text{meson}$, rel. to Lee and Yang theory 1=16823
 $\gamma + p \rightarrow p + \pi^- + \pi^+$, 300-800 MeV, rel. to interaction current 3=6035
 $\gamma + p \rightarrow \pi^+ + n$, 200-450 MeV 3=22164-5
 $\gamma + p \rightarrow p + \pi^+ + \pi^-$ at 1.2 BeV 1=13471
 $\gamma + p \rightarrow p + \pi^0$ or $n + \pi^+$, ≤ 4 BeV, reson. effects 4=25161
 $\gamma + p \rightarrow p + \pi^+ + \pi^-$, 2-body mass spectra 4=25088
 $\gamma + p \rightarrow \Sigma^+ + K^0$ 4=27904
 $\gamma + p \rightarrow W^+ + W^- + p$ cross-section and W mag. moment 4=9088
 gyromagnetic ratio 2=22502
 $p + H$, charge transfer, relativistic conn. 4=27486
 $p-H$, at 24 GeV/c, rel. to π production 2=22508
 heavy nuclei in emulsion, 24 GeV, 180 kG field 4=27843
 high-energy, boson prod. in peripheral collisions 4=21848
 high-energy interactions with O and C, expt. and Monte Carlo calc. 0=11171
 high-energy jet in emulsion 0=5598
 high-energy nuclear collisions, elasticity 2=5771
 hypernuclei prod., angular distrib. anisotropy at 9 BeV 4=21948
 K^0 in liq. H, anomalous regeneration of K_L^0 4=6131
 $K^\pm - p$ total cross-sections, 3-19 BeV/c 3=10169
 $p-K^-$, const. scattering-length analysis 3=4462
 K^- mesons, K prod. rel. to spin 2=9917
 with K^- mesons, 1.15 BeV/c, resonance in $d_{3/2}$ state 2=1723
 K^- mesons, s-wave, effective range analysis 2=11893
 K^- mesons, threshold, transition matrix 2=7899
 K^-p , cascade particle prod., rel. to pole contrib. of Λ and Σ 4=6130
 $K^- - p$, at 400 MeV/c 2=3402
 $K^- - p$ interactions 2=321
 K^- , at 1.15 BeV/c, systematic study 3=2321
 $K^- - p$, analysis of Y_0^* (1520) 3=24793
 $K^- - p$, isobaric model at 1150 MeV/c 3=7023
 $K^- + p \rightarrow \bar{K}^0 + n + p$, 1-1.7 BeV/c analysis 4=25179
 $K^- + p \rightarrow \bar{K}^0 + 2n + n$, 1.2-1.7 BeV/c meas. 4=25180
 $K^- + p \rightarrow \Lambda + \bar{K} + K$ and $\bar{K}K$ reson., spin and parity 3=17336
 $K^- + p \rightarrow \Lambda + \omega$, phenomenological analysis 4=25182
 $K^- + p$, rel. to pion-baryon interactions 1=10909
 $K^- - p$ reaction, rel. to $\Lambda - \pi$ system 1=13516
 $K^- - p$, 700-1400 MeV/c, spark chamber array for 3=24790
 $K^+ + p \rightarrow K^+ + N_{33}^*$, 1.96 BeV/c meas. 3=4457
 $K^+ + p \rightarrow K^0 + \pi^+ + p$ at 1.14 GeV/c 4=12060
 $K^+ + p \rightarrow K^0 + \pi^+ + p$ at 1.14 GeV/c, meas. 4=9276
 $p-K^+$, at 140-642 MeV/c 2=22635
 $K^+ - p$, at 455 MeV 1=16896
 $K^+ - p$, at 0.77-2.83 BeV/c 1=16895
 $\bar{\Lambda} - p$ annihilation, statistical model 3=2324
 $\bar{\Lambda}^0 - p$ interactions 2=3411
 $\Lambda + p \rightarrow \Sigma^- + p + \pi^+$ 4=9295
 mean free path at 3 TeV 3=7849
 meson showers at 9 GeV, azimuthal effect 1=19194
 mesons \rightarrow baryon resonance + scalar or vector meson, SU_3 symm. scheme 4=15052
 $\mu - p$ capture, induced pseudoscalar coupling 4=12084
 $\mu + p \rightarrow p + \pi + \pi$, Drell mechanism 2=13795
 μ^- capture by liq. H, $\rightarrow n + \nu$, obs. 2=7877
 $\mu^- + p \rightarrow \gamma + \nu + n$, rel. to states of $[p\mu]$ atoms 4=16925
 $\mu^- + p \rightarrow n + \nu$, coupling consts., from nuclear capture rates 4=17177
 $p + \mu^- \rightarrow n + \nu$, invest. using μ capture by nuclei 2=10129

Protons and antiprotons—contd
interactions—contd

- $\mu^- + p \rightarrow n + \nu$, spin depend. 2=22548
 $\mu^- + p \rightarrow n + \nu$, theory with six nucleon form factors 2=11971
 $\mu^- + p \rightarrow n + \nu$, weak interaction, spin dependence 1=19226
 multiple meson prod. at 6.3 BeV in emulsion, energy det., methods compared 0=1283
 9 GeV, multiple meson production in emulsion 0=2558
 neutron capture at 14.4 MeV, cross-section 2=1693
 $n - p$ capture, interaction effect 0=7377
 $n - p$ capture, radiative, effect of parity nonconservation 4=16976
 $n - p$ capture theory below pion prod. threshold 4=16975
 $n - p$ charge exchange, 25 GeV meas. 4=21849
 $n - p$, cross-section meas. at 5.5 BeV 4=9206-7
 $p + n \rightarrow d + \gamma$, at 50 MeV, cross-section 2=284
 $p + n \rightarrow d + 2\pi$, d momentum spectrum, anomaly 4=16933
 $p - n$, d production, calc., modification of Fermi's statistical theory 0=20042
 $p - n$ at 8.3 BeV, cross-sections 2=9841
 $p - n$ at 8.3 BeV, cross-sections 3=6004
 $p - n$, form factors for axial vector current 3=7862
 $p - n$, inelastic, at 9 BeV 1=2052
 $p - n$, inelastic, 9 BeV 3=5997
 $\bar{p} + n \rightarrow K^- + K^0$, $K^- - K^0$ relative parity determ. 0=5603
 neutron, mag. dipole interact. in deuteron 3=4398
 $p - n$, meson charge asymmetry 4=27841
 $n - p$, nucleon current operators, nuclear interact. effect 4=27908
 $p - n$ in pair correl. model 2=9846
 $p - n$, in pair correl. model 3=6003
 $p + n \rightarrow p + p + \pi^- + \text{neutral particles}$, at 9 BeV 2=288, 22511
 $p - n$ potl., scatt. phase shifts 3=7793
 $p - n$, pseudoscalar parameter introduction 4=30223
 neutron radiative capture, effects of parity nonconservation 1=19288
 $n - p$, with ~ 600 MeV neutrons, π^+ production 4=9208
 $p - n$, 290 to 970 MeV, ratio of possible reactions cross-sections 4=30227
 neutrons, tensor forces, distorted-wave approx. 2=5636
 (pn) collective state, rel. to (p, n) reaction resonance peaks 2=20619
 $p + \bar{n} \rightarrow \pi^- + \pi^- + \pi^+$, test proposed for $\pi - \pi$ resonance 1=5762
 $p(\bar{\nu}, \beta^+)n$, detection of the free antineutrino 0=3955
 $\bar{\nu} + p \rightarrow n + e^+$, calc. 1=3162
 $\nu + p \rightarrow \nu + \mu + e + p$, theory 4=9106
 $\nu + p \rightarrow p + e$ rel. to inner structure of the nucleon 1=16768
 in nuclear emulsion, knock-on electrons by 26 GeV protons 3=4387
 in nuclear emulsion, 6 BeV 2=16192
 nuclear emulsions, 6.3 GeV and 28 GeV/c, secondary particles, transverse momentum 4=19550
 nuclear emulsions, at 25 GeV, meas. 3=7847
 with nuclei, Al and Pt, at 25 BeV, mass analysis of secondary particles, high deuteron production 0=17582
 on nuclei, C, Fe, Pb, at 2.8 BeV, strange particle production 0=17427
 nucleon-antinucleon prod., dispersion relns. 2=16180
 $p - N$ collisions, 9 GeV azimuthal effects 2=281
 proton-nucleon collisions, multipole production and excitation 1=16778
 proton-nucleon collisions, 6.2 GeV in emulsion 0=12923
 $p - N$, inelastic, at 9 BeV 2=1684, 22512
 $p - N$ at 9 BeV, in nuclear emulsions, rel. to multiplicity 2=7856
 $p - N$, at 9 BeV in nuclear emulsion, rel. to multiplicity 3=6002
 $p - N$, 9 GeV, four momentum transfer and isobar mass 4=25090
 $p - N + \pi$, coupling consts., direct meas. 3=24594
 $p - N$ and $p - \pi$, strong, energy losses 3=17274
 $p - N$, secondary particle prod., angular distrib. 4=25089
 $p - \text{nucleon}$, up to 10 BeV, review 3=22120
 $p - N$, 26.7 GeV/c, effective target mass 3=19627
 with nucleons, in emulsions, π^\pm production 3=6001
 nucleons, free and quasifree, 14 GeV, in emulsions 4=19506

Protons and antiprotons—contd
interactions—contd

with nucleons, at 9 BeV, inelastic, ang. and momentum distrib. 1=19182
with nucleons, strange particle prod. calc. 3=7927
with nucleons, at 25 GeV, in emulsion 3=7848
peripheral analysis of double-pion prod. 4=3404
photon bombardment, pair production cross-sections 2=20288
photons, Compton scatt., dispersion theory 2=22472
photon elastic scatt., expt. and calc. 2=1671
with photons, $\gamma + p \rightarrow \pi^0 + p$, at 900-1200 MeV, cross-sections 0=15415
photon scatt., 50-300 MeV, model 2=7855
photons, Σ^0 prod., rel. to Σ^0 lifetime meas. 2=9928
photoprod. of π^0 -mesons on protons at 245 MeV 0=13045
photoproduction of π^\pm -mesons on H and D 0=13046
photoprotons on C at 245 MeV, quasi-deuteron analysis 1=8700
photoreactions, effects of γ - 3π interaction 1=9759
proton-photon elastic scattering above 300 MeV, analysis 1=16730
 π mesons, Λ^0 and K^0 associated prod. 2=13854
 π -meson photoprod. on protons, $(\gamma, 3\pi)$ effect 3=2296
 π -meson photoprod. amplitude, Regge poles 4=6104
 π photoproduction at high energies, connection with scattering 0=17396
 π^- production ground 3=4424
 π^- production, on p, 1-meson contrib. 1=19234
 π^- production, on p, 1-meson contrib. 2=22564
 π^+ mesons, 10-20 GeV/c total cross-section 2=13853
 π^- mesons, 1.3 BeV, 6 results, meas. and theory 2=9899
 π^- mesons, 5 GeV, multiple particle prod. calc. 2=9894
 π^- mesons, internal electron pair prod., obs. 2=5716
 π^- mesons, Y_1^* and K^* production 2=11982
 π -N higher reson. prod., character determ. using polarized γ 4=19572
 $p-\pi^\pm$, multiperipheral model 2=22599
 $p-\pi$ collisions, K^+-K^- production ratio 0=13059
 π , in $p + d$ collisions, anomaly, S-wave $\pi-\pi$ interaction 1=16846
 $\pi + p \rightarrow K^0 + \Lambda$, associated prod. and resonant states 2=9900
 $\pi + p \rightarrow K + \Sigma$ 2=306
 $\pi + p \rightarrow \Lambda + \pi + K$, resonance rel. to near threshold effects 4=9240
 $\pi-p$, near 1 BeV, π prod., momentum distrib. calc. 4=21890
 $\pi-p$, 9 GeV, forward photon prod. 4=16939
 $\pi-p$ pairs from $p-p$ collisions at 3.5 GeV, Q values 3=19624
 $\pi-p$, Panovsky ratio, by $\gamma-\gamma$ coinc. meas. 3=24769
 $\pi-p$, and $\pi-N$ 1.4 GeV reson., from cross-section and products 4=15096
 $p-\pi$, π production 3=4430
 $\pi-p$, $\pi^+\pi^-$ production, f^0 resonance obs. 3=22168
 $\pi-p$, 7 GeV two prong interaction, observation 4=27880
 $p-\pi^+$, at 308 MeV 2=22559
 $\pi-p$, at 600 MeV, in liquid H bubble chamber 3=7904
 $p-\pi$, 6.1-18.1 GeV/c, charge exchange cross-sections 3=15011
 $\pi-p$, 2 BeV, multiple pion production 4=15088
 $\pi + p \rightarrow Y + K$ and $Y + p \rightarrow Y + \pi$, rel. to Y-particle polarization 0=2596
 $p + \pi^- \rightarrow \pi^- + \pi^0 + \nu$ 2=16221
 $p + \pi^+ \rightarrow \pi^+ + \pi^0 + p$ at 820-900 MeV 2=22560
 $p + \pi^+ \rightarrow \pi^+ + \pi^0 + p$, resonance at 575 MeV 2=5711
 $\pi^\pm + p \rightarrow N + 2\pi$, isotopic spin indep. 3=7808
 $\pi^\pm + p \rightarrow \pi^\pm + \pi^+ + n$, at 1.75 BeV/c 2=20393
 $\pi^\pm + p \rightarrow 2\pi + N$ reactions and f_0 (1250 MeV) isospin 4=945
 π^- capture, high-orbital S-state 0=9417
 (π^-, p) , (π^+, p) cross-sections, 8.20 BeV/c 2=1713
 $\pi-p$, Fermi statistical theory, applic. to exper. data 0=9403
 π^-p inelastic interactions 4=25139
 π^-p ; K^0 , $K\bar{K}$, ΛK prod. at 7 BeV, ang. and momentum distrib. 4=27898
 $\pi^- + p \rightarrow K + \bar{K} + N$, from $K\bar{K}$ reson. width 3=17337
 $\pi^- + p$, $K^0\bar{K}^0$ prod. at 10 GeV/c 4=30254
 $\pi^- + p$ and $K\pi$ reson. at 726 MeV 3=19698
 $\pi^- + p \rightarrow K^0 + \Lambda^0$, partial-wave analysis 4=9242

Protons and antiprotons—contd
interactions—contd

$\pi^- + p \rightarrow K + Y + \pi$, final state interact. 2=13878
 $\pi^- + p \rightarrow K + Y + n\bar{n}$ or $\bar{\Sigma}^- + 2K + n\bar{n}$, by 10 GeV/c anisotropies 4=30255
 $p \rightarrow \pi^- \Lambda K^0$ at 829 MeV, reson. 4=25193
 $p + \pi^- \rightarrow \Lambda + K^0$, rel. to $\Lambda\Sigma$ parity 3=4462
 $\pi^- + p \rightarrow \Lambda + K$, at ΣK threshold, meas. 4=9291
 $p + \pi^- \rightarrow \Lambda + K^0$ 1=10924
 $\pi^- + p \rightarrow \Lambda^0 + K^0$ 2=13856, 22628
 $p + \pi^- \rightarrow \Lambda^0 + K^0$ 3=6043
 $\pi^- + p \rightarrow \Lambda^0 + K^0$, phase amplitude 1=5769
 $p + \pi^- \rightarrow n + \eta$ ($\eta \rightarrow 2\gamma$), charge exchange, 1.55 to 4.5 BeV/c 4=12039
 $p + \pi^- \rightarrow n + \pi^0$, charge exchange, 1.55 to 4.5 BeV/c 4=12039
 $\pi^- + p \rightarrow n + \pi^- + \pi^+$, 1.7 BeV/c, and ω decay, 2 π mode 2=19692
 $\pi^- + p \rightarrow n + \pi^+ + \pi^-$, f^0 resonance (1250 MeV) spin 4=944
 $\pi^- + p \rightarrow n + \omega$, $\omega \rightarrow \pi^+ + \pi^-$, from three e pairs 4=3471
 π^-p , one-pion exchange model and $\pi-\pi$ resonance 1=19255
 π^-p , Panofsky ratio from pair prod. data 4=11980
 p (24 GeV)- π^- (16 GeV/c) peripheral ("quasi-elastic") 2=22507
 $\pi^- + p \rightarrow \pi + \pi + N$, 3 BeV/c, and $\pi-\pi$ scatt. 3=19686
 $p + \pi^- \rightarrow \pi^- + n + \pi^- + \pi^+ + \pi^+$, 4 GeV/c 3=4434
 $\pi^- + p \rightarrow \pi^- + \pi^0 + p$, two dipion reson. 2=11977
 $\pi^- + p \rightarrow 2\pi^- + \pi^+ + p$ at 4.7 GeV/c 2=20392
 $\pi^- + p \rightarrow \pi^- + \pi^+ + n$, high momentum transfer, Regge-pole π behaviour 3=22173
 $\pi^- + p \rightarrow \pi^- + \pi^+ + n$, one-pion-exchange model 3=7893
 $\pi^- + p \rightarrow \pi^- + \pi^+ + n$ or $\pi^- + \pi^0 + p$, OPE model 4=16935
 $p + \pi^- \rightarrow \pi^- + \pi^+ + n$, rel. to $\pi-\pi$ interaction cross-sections 4=6109
 $\pi^- + p \rightarrow \pi^- + \pi^+ + n$, spark chambers, low track material, 3=24563
 $\pi^- + p \rightarrow \pi^- + \pi^+ + n$, 360-800 MeV meas. 3=17316
 $\pi^-p \rightarrow \pi^-p\omega^0$, and $\pi^-p\pi^0 \rightarrow \pi^-\omega^0$ 3=19678
 $\pi^- + p \rightarrow \pi^- + p + \pi^- + \pi^+$, 900 MeV, meas. 3=10149
 $p + \pi^- \rightarrow \pi^- + p + \pi^- + \pi^+ + \pi^0$, 4 GeV/c 3=4434
 $p + \pi^- \rightarrow \pi^- + p + \pi^0$, at ~ 1 GeV, effect of $\pi-\pi$ resonances 0=13021
 $\pi^- + p \rightarrow \pi^0 +$ charged particle, cross sections 4=12048
 $p + \pi^- \rightarrow \pi^0 + n$, charge transfer 3=7884
 $\pi^- + p \rightarrow \pi^0 + n$, meas. at 20.7 and 31.0 MeV 2=13851
 $\pi^- + p \rightarrow \pi^0 + n$, 6-16 GeV meas. 4=21849
 $\pi^- + p \rightarrow \pi^+ + \pi^- + n$, deviation from one-pion exchange 3=19675
 $\pi^- + p \rightarrow \pi^+ + \pi^- + n$ and $f^0 \rightarrow \pi^+ + \pi^-$ 1260 MeV reson. 3=17313
 $p + \pi^- \rightarrow \pi^+ + \pi^- + n$, 240 MeV 3=17318
 $\pi^- + p \rightarrow \pi^+ + \pi^- + n$, 210-230 MeV, analysis 4=6111
 $\pi^- + p \rightarrow \pi^+ + \pi^- + n$, $\pi^+-\pi^-$ reson. search, 280-350 MeV, 4=30265
 $p^+ \rightarrow \pi^+ + \pi^+ + n$, 200-700 MeV, strip approx. inapplicability 3=2295
 $\pi^- + p \rightarrow \bar{p} + d$, meas. and virtual nucleon exchange interpret. 4=3448
 $\pi^- + p \rightarrow p + \pi^- + m\pi^0$, 2.8 GeV/c, 1 GeV $\pi^-\pi^0\pi^0$ reson. 4=935
 $p + \pi^- \rightarrow \pi^- + n\pi^0$, average number of pions, calc., 4=30257
 $p - \pi^- \rightarrow p + \pi^- + m\pi^0$, 2.6 BeV/c 4=12038
 π^- at rest + $p \rightarrow \pi^0 + n$ to stopped π , ratio, in LiH, CH and CH_4 3=19677
 $\pi^- + p \rightarrow \Sigma^0 + K^0$, pseudoscalar and vector exchanges analysis 4=12053
 π^-p , single-pion prod. at 905-1100 MeV 4=3452
 π^-p , two-prong, quasielastic nature at 7 and 16 GeV/c 4=25141
 $\pi^- + p \rightarrow Y_2^* + K$, Y_2^* search 3=17349
 π^-p , 276 MeV, total cross-sections 3=22177
 π^-p , 310-454 MeV, π^+, π^0 , and n production 4=25138
 π^-p , 340 MeV, pion prod. meas. 3=22176
 π^-p , 604 MeV, π production mechanism 4=21899
 π^-p , 871 MeV, double pion prod. meas. 4=16938
proton- π^- -meson, at 1 BeV, Fermi's statistical theory 0=13070
 π^-p , 1.5 BeV/c, prod. of ΛK^0 and $\Sigma^0 K^0$ 4=3451
 π^-p , 1.5 BeV/c, prod. of $(Y_1^+)^0$ 4=3450
 π^-p , 1.59 GeV/c, bubble chamber study 4=12033
 $p-\pi^-$ at 1.6 GeV/c rel. to strange particle prod. 2=22646

Protons and antiprotons—contd
interactions—contd

- $p-\pi^-$, at 3.4-9.2 BeV/c 2=13855
 $p-\pi^-$, at 3.4 - 9.2 BeV/c 3=6042
 π^-p for 3.5 BeV/c π^0 's, $\pi\pi$ (ρ, f^0) reson. study 4=6126
 π^-p , at 4 GeV/c, two-prong events meas. 4=12035
 π^-p , at 4.5 GeV, meas. and peripheral collisions model 4=9242
 $\pi^- + p$, 6.8 BeV/c, Λ, K^0 prod. 3=22208
 $p-\pi^-$, 7 GeV, recoil p spectrum 4=21900
 π^-p , 7 GeV, two non-neutral secondaries 3=17311
 π^-p , 7.2 BeV, multiple pion prod. 3=24767
 π^-p , 7.8 GeV, Λ and K^0 production 3=24798
 $\pi^- + p$, 7-8 GeV, 2π reson., new peak at 920 MeV 4=942
 π^-p , 10 GeV/c, with 4 charged secondaries 4=19557
 $p-\pi^-$, 16 GeV/c, strange particle prodn. 3=15012
 π^0 -meson, photoprod. and Compton effect, rel. to proton structure 1=13409
 π^0 -mesons production, on protons, comparison with dispersion theory 0=9424
 π^0 -photoproduction on protons, experimental set-up 1=7264
 $\pi^0 + p \rightarrow \pi^+ + \pi^- + p$, theory 2=9889
with π^+ -mesons, 820-1050 MeV, single π prod. 3=7888
 π^+ meson photoproduction on H near threshold 0=15414
 π^+ photo-production near threshold 2=3378
 $\pi^+ + p \rightarrow K^+ \Sigma^+$, cross-section near threshold 3=14928
 $\pi^+ + p \rightarrow \pi^+ + \pi^+ + n$, rel. to $\pi-\pi$ scatt. 2=9902
 $\pi^+ + p \rightarrow 2\pi + N$, isobar model analysis 4=19499
 $\pi^+ p \rightarrow \pi^+ \pi^+ \pi^- \pi^0$, isoscalar $\rho\pi$ resonance, evidence for. 4=30264
 $\pi^+ + p \rightarrow \pi^+ + \pi^+ + \pi^- + \pi^0 + p$, near 1 BeV, mechanism 4=19548
 $\pi^+ + p \rightarrow \pi^+ + \pi^+ + \pi^- + p$, near 1 BeV, mechanism 4=19548
 $\pi^+ + p \rightarrow \pi^+ + p + \pi^0$ meas., 0.5-1.5 GeV/c 4=15089
 $\pi^+ + p \rightarrow \pi^+ + p + \omega$, 3.5 BeV/c 4=6107
 $\pi^+ + p \rightarrow \pi^+ + p + X$, multi and $\pi\omega$ reson. prod. 4=6128
 $\pi^+ + p \rightarrow \rho^0 + \pi^+ + p$ at 3.65 BeV/c, $\pi-p$ interaction 4=19555
 $\pi^+ + p \rightarrow \omega N_{3/2}^*$, ρ exchange inadequate 4=19558
 $\pi^+ + p \rightarrow \Sigma^+ + K^+$, theoretical analysis 2=5586
pions, $\pi^+ + p \rightarrow \Sigma^+ + K^+$, invest. 1=19281
 π^+p interaction at 78 MeV 2=5721
 π^+p , 600 MeV, meas. of $T = \frac{1}{2}$ phase shifts 4=3449
 π^+p , 2.77 BeV/c, strange particle prod. 4=16971
polarized, hyperon prod., spin and parity 4=21942
polarized $p-e$ collisions, high energy 3=12435
proton-antiproton annihilation 2=11942
proton-antiproton, range 2=16160
 $p + p$, α meson prod., via $\pi-\alpha-p$ interaction 4=943
 $p-p$, annihilation into electrons and muons 3=14985
 $p-p$, antideuteron, light nuclei, hyperfragment prod. 2=20334
 $p-p$, associated production, two models 0=20131
 $p-p$, branching ratio rel. to Γ vector meson 2=9784
 $p-p$ collisions, high-energy, deuteron prod., calc. 0=20245
 $p-p$ collisions, one-pion exchange 2=22505
 $p-p$ collisions, pion production 2=301
 $p-p$ collisions, π -meson production cross-section 0=2587
 $p-p$ collisions, single pion production, theory 2=301
 $p-p$ collisions at 3.5 GeV, $\pi-p$ pair Q^2 's 3=19624
 $p + p \rightarrow d + \pi^+$, amplitudes near threshold, calc. 0=5597
 $p + p \rightarrow d + \pi^+$, BeV region, OPE model 4=16887
 $p + p \rightarrow d + \pi^+$, cross-section anomalies at 574-648 MeV 3=4389
 $p + p \rightarrow d + \pi^+$, cross-section anomalies at 574-648 MeV 2=286
 $p + p \rightarrow d + \pi^+ + \pi^0$, pion resonances 2=13796
 $p + p \rightarrow d + \pi^+$, d-polarization 0=9357
 $p + p \rightarrow d + \pi^+$, deuteron polarization 0=11169
 $p + p \rightarrow d + \pi^+$, rel. to energies 4=9305
 $p + p \rightarrow d + \pi^+$, 1.5 to 2.5 BeV 4=9191
 $p + p \rightarrow d + W$, cross-section calc. 4=6040
 $p+p \rightarrow d+\pi^++\pi^-$, pion resonances 2=13796
 $p-p$, d production, calc., modification of Fermi's statistical theory 0=20042
 $p-p$, final-state interact., 560 MeV 3=5998
 $p-p$, in giant stars 0=10528
 $p-p$, inelastic, 27 GeV, in emulsions, white stars 3=14978
 $p + p \rightarrow K^+ + K^-$ or $\Lambda + \pi$, meson-baryon exchange competition 3=22135
 $p-p$ and $n-n$ final state interactions, comparison 4=19508

Protons and antiprotons—contd
interactions—contd

- $p + p \rightarrow n + p + \pi^+$ at 970 MeV, peripheral collisions 2=285
 $p + p \rightarrow p + n + \pi^+$, Treiman-Young criteria 2=22509
 $p + p \rightarrow p + p + \pi^0$, Treiman-Young criteria 2=22509
 $p + p \rightarrow \pi^+ + p + n$, at 405 MeV 2=16190
proton-proton, pion production 1=19195
proton-proton, pion production 3=4388
 $p-p$, π production 3=4430
 $p-p$, π production, branching ratio 0=17403
 $p + p \rightarrow \pi^+ + p + n$, one-boson-exchange model 3=19673
 $p-p$, π^0 -meson production, ang. distrib. 0=11163
 $p + p \rightarrow \pi^+ + d$, at 420 MeV with polarized protons, π^+ asymmetry 1=529
 $p + p \rightarrow \pi^+ + d$, at 2.1 and 8.9 GeV/c, diff. cross-sections 4=6041
 $p-p$ and $p-n$ collisions, π^+ and π^- spectra 1=16855
 $p-p$ and $p-n$ in 9 GeV scattering on emulsion nuclei 1=3441
 $p + p \rightarrow p + n + \pi$, cross-section, calc., role of peripheral interaction 1=5723
 $p + p \rightarrow p + n + \pi^+$, π^+-p scatt. cross-section by Chew-Low extrapolation 1=3222
 $p + p \rightarrow p + n + \pi^+$ at 2 BeV 1=19193
 $p + p \rightarrow p + n + \pi^+$, 2.85 GeV, peripheral calc., and $F^{1/2}$ isobar prod. 4=19507
 $p-p$ and $p-\bar{p}$, pionic interaction operator 4=27785
 $p-p$, phenomenological analysis at 657 MeV 4=6042
 $p-p$, potential, semiphenomenological, for data up to 310 MeV 1=12084
 $p-p$, prod. of d, π^{\pm}, K^{\pm} and p^{\pm} , at 19 and 24 GeV/c 4=11989
 $p-p$ scattering at 310 MeV, spin-orbit forces 1=16795
 $p-p$, in solar model energy production 2=956
 $p-p$, spatially extended particle theory 3=7767
 $p-p$ spin-orbit interaction 2=11941
 $p-p$, strange particle prod., theory 2=3414
 $p-p$, time-reversal invariance confirmed 0=12926
 $p-p$, <350 MeV, precision fit to data 1=12086
 $p-p$, 650 MeV, π production, ang. and energy distrib. 4=19551
 $p-p$, at 1.4-4 BeV/c, total cross-sections 2=3387
 $p-p$, at 1 BeV, cross-sections, prod. of π^0 and π^+ 0=1279-80
 $p-p$, 2 BeV, pion production rel. to pion exchange 2=9838-9
 $p-p$, at 2.1 and 2.9 BeV rel. to π prod. 2=22561
 $p-p$, 3-10 GeV/c, total cross-sections 1=2053
 $p-p$ at 4.15 BeV, cross-sections 2=5637
 $p-p$, 6 GeV, multiple meson production 2=5698
 $p-p$, at 9 BeV 2=22510
 $p-p$, at 9 BeV 1=19196
 $p-p$ at 12.8 GeV, nuclear emulsion obs. 3=24716
 $p-p$ at 23.1 GeV 2=9840
 $p-p$ at 23.1 GeV, rel. to photon prod. 2=22506
 $p-p$ at 24 GeV/c, and $p-\pi$ at 16 GeV/c 2=22644
 $p-p$, 24.5 GeV/c, strange-particle prod. 3=22206
 $p-p$, 25 GeV, in nuclear emulsion 3=19628
proton-proton, at > 1000 BeV, data on cosmic-ray jet 0=1342
 $p-p$, 26.6 GeV/c, deuteron and α -particle prod. 3=24717
 $p-p$, ~250 GeV, multiperipheral model inaccuracy 4=27844
 $p-p$ annihilation, information theory 4=3312
 $p-\bar{p}$ annihilation and isobaric states 2=5642
 $p-\bar{p}$ annihilation, multiple meson prodn. 3=7873
 $p-p$, appl. of unitary symm. theory 4=6052
 $p-\bar{p}$, baryon pair prod. inconsistent with octet unitary symmetry model 4=19516
 $p\bar{p}$ collisions in flight, one-particle exchange 3=7859
 $p-\bar{p}$ collisions, prod. of $Y\bar{Y}$ pairs 4=3482
 $p + \bar{p}$ collision and $Y_1^* + \bar{Y}_1^*$ or $\Sigma + \bar{\Sigma}$ prod., calc. 4=9287
 $p + \bar{p} \rightarrow e^+ + \bar{e}$, rel. to e.m. form factors 2=13793
 $p + \bar{p} \rightarrow e^- + e^+$ search and time-like p structure 3=19629
 $\bar{p} + p \rightarrow K + \bar{K} + X_0$ 2=16191
 $\bar{p} + p \rightarrow K_1^0 + K_2^0 + \pi^+ + \pi^-$, reson. search, only $K_1^0 \pi^+ \pi^-$ at 1.230 GeV/c² 4=19575
 $p + \bar{p} \rightarrow K_1^0 + K_2^0$, rel. to Sakata model 2=13797
 $p + \bar{p} \rightarrow K + \bar{\mu} + \pi + \pi$, isobaric K^* state 1=16892
 $\bar{p} + p \rightarrow \Lambda^0 + \bar{\Lambda}^0 + \pi^+ + \pi^-$, 3.25, 3.69 BeV/c, Y_1^*, \bar{Y}_1^* , $Y_1^{*-} + Y_1^{*+}$ pair, prod. 3=22209
 $\bar{p} + p \rightarrow \bar{\Lambda} + \Lambda$ or $\bar{N}^* + N^*$, absorptive effects in one-particle exchange 4=19517
 $p + \bar{p} \rightarrow \Omega + \bar{\Omega}$ 0=9442

Protons and antiprotons—contd

interactions—contd

- $\bar{p} + p$, and one pion exchange model, (3 reactions) 4=19518
 $p + \bar{p} \rightarrow \pi^- + \pi^+$, π annihilation 1=19203
 $p + \bar{p} \rightarrow \pi^- + \pi^+$, π annihilation 3=4391
 $\bar{p} + p \rightarrow \pi^+ + \pi^- + \pi^0$ 3=10117
 $\bar{p} + p \rightarrow \pi^+ + \pi^+ + \pi^- + \pi^+ + \pi^0$ 1=16840
 $p + \bar{p} \rightarrow 2\pi^+ + 2\pi^- + \pi^0$, asymmetry energy dependence 3=17272
 $\bar{p} + p \rightarrow 2\pi^+ + 2\pi^- + n\pi^0$, π - π interaction 2=13802
 $\bar{p} + p \rightarrow 3\pi^+ + 3\pi^- + n\pi^0$, multipion reson. 3=2258
 \bar{p} - p and p - \bar{p} , at 4-20 BeV/c 1=16789
 $\bar{p} + p$, production of anti-isobar, isobar pairs 3=4395
 $\bar{p} + p \rightarrow 2\rho^0 \rightarrow 2\pi^+ + 2\pi^-$, two-particle effective mass. distribs. 4=12006
 $\bar{p} + p \rightarrow \bar{Y} + Y$, ang. correl., p polarization meas. 4=25101
 $\bar{p} + p \rightarrow Y + \bar{Y} + \pi$ 4=3484
 $\bar{p}p \rightarrow \bar{Y}Y$ polarization relations 2=18185
 p - \bar{p} , 15-80 MeV, charge exchange and annihilation cross-sections 3=10110
 p - \bar{p} , 3.0 GeV/c, Ξ^- production 2=12014
 p - \bar{p} , 3.3 BeV/c Ξ^- pair prod. 2=12013
 p - t interactions, with central forces 1=3171
recoil, in π^- - p , polarization 0=11210
recoil, in π^+ - p scatt., polarization 0=9411
 $\rho - \mu^-$, radiative capture 3=14996
scatt. of electrons at 900 MeV and 135° 0=17305
selection of events by neutral carried away mass 4=27842
 $\Sigma^- + p \rightarrow \Lambda^0 + n$, in Σ^- nucleus capture 2=18346
 $\Sigma^- + p \rightarrow n + \Sigma^0$ or Λ , low-energy calc. 3=10176
 Σ^0 hypernucleus, decay probabilities 4=9299
 Σ^+ prod., in emulsion, 9GeV, transverse momentum 4=958
with solar flare plasma, cosmic rays, and electron density 3=11546
with spin-zero particles, strangeness-carrying trajectories 4=3314
3-28 GeV 3=10071
24 GeV/c, in Cu, Cd, Pb, total inelastic cross-sections 2=8002
25 GeV/c, pulsed mag. study of surviving baryons 3=19626
26 GeV jets, azimuthal symmetry in shower particles 3=4483
22 GeV, with emulsion nuclei, fast doubly charged fragments 4=6146
 Ξ^- - p , capture by H, at rest, theory 4=9301
 $\Xi^- + p \rightarrow \Lambda + \Lambda$, rate calc. rel. to coupling const. combinations 4=19598
 $\Xi^- + p \rightarrow \Xi^0 + n$, rate calc. rel. to coupling const. combinations 4=19598
on C^{12} , at 24 GeV, π^0 prod., energy versus edge 2=303
D, continuous neutron spectra meas. 3=6290
D, mass-3 nuclei prod., high energy, at ~28GeV, momentum spectra, theory 3=15198
D(p, γ)He³, below 50 keV 3=15045
D(p, γ)He³, 275 keV to 1.75 MeV 2=9848
D(p, n), 143 MeV, neutron polariz. 3=10349
H atoms, electron capture 3=12781
with H atoms, stability 0=20544
on H, high energy total cross-section 0=3984
with He, and 970 MeV, rel. to α -particle props. 0=20139
with He⁴, at 630 MeV 0=12933
He⁴(p, d)He³, 55 MeV, d ang. distrib. 4=16894
He⁴, 31 MeV, scattering and d-pickup 4=19514
with N, in emulsion, 9 BeV 3=17271
Ne^{21,22}, resonance energies for capture, 600-1400 keV 3=4634
in Pb and Al, from cosmic-ray showers 0=5640
T(p, n)He³, n polarization 4=3414
T(p, n)He³, neutron polarization 4=15063
Ta irradiation at 660 MeV 1=10875

magnetic moment

- anomalous, calc. using classical model 0=5555
in Bohr magnetons, meas. method 3=7846
calculated and experimental values 1=5721
contribution to mag. susceptibility of water 3=23907
det. in units of the nuclear magneton 1=10886
geomagnetically trapped, nonconservation, first-order effect 4=2253
gyromagnetic ratio, meas., appl. to current, electrical, unit 3=21189
gyromagnetic ratio, in water 4=3399

Protons and antiprotons—contd

magnetic moment—contd

- distribution, rel. to neutron 2=20600
n.m.r. determination 1=10794
in nuclear magnetons, meas. method 3=7845
precise measurement 0=20129
precise value, rel. to Bohr magneton 0=2537
reconciliation of expt. and meson theory 1=3179
- polarization**
acceleration by strong-focusing linear accelerator 0=9363
acceleration in zero gradient synchrotron 2=7691
 p - α elastic scatt., ang. variation 4=19513
 α - p scatt., 4.7-11.9 MeV 3=24728
analysis in deuteron photodisintegration, by nuclear emulsion 1=13419
antiprotons, study by double scatt. 2=18114
beam depolarization in synchrocyclotron 2=9847
beam, polarized, prod. method 2=22521
beam, 612 MeV, from synchrocyclotron 4=3411
cross-sections for reactions with polarized beams and targets 4=3362
cyclotron acceleration of polarized protons 1=9655
cyclotron depolarization of polarized proton beam 1=1946
 p - d elastic scatt. at 3.4 and 3.74 MeV 0=9361
(d, p) excited-state reactions 2=488
(d, p) reactions, effects of spin-orbit forces 1=2229
(d, p) reactions with $l=0, 1$ orbital ang. momentum transfer 3=682/3
(d, p) reactions with polarized, d , spin-orbit effects 1=2230
in (d, p) stripping reactions 1=9873
in (d, p) stripping reactions 2=1917
(d, p) stripping reactions at 15 MeV ang. dep. 1=19512
 d scatt., ang. var., 40 MeV 4=25097
depolarization in p - p scatt. at 143 MeV 1=19198
in deuteron diffraction splitting 2=5635
deuteron photodisintegration, 294 MeV 3=22217
deuteron stripping reactions, rel. to spin-orbit distortion 1=19514
direct nuclear reactions; correl. of incoming and outgoing polarization 1=19431
by "effect solide" method 1=20247
elastic scatt. at 8 MeV on 23 complex nuclei 1=17092
elastic scatt. on nuclei, effect of potential well parameters 1=686
elastic scatt. for nuclei at 57 MeV, meas. 2=16399
elastic scattering from deuterons 4=16897
in elastic scattering and stripping reactions 3=19880
elastically scattered from Ni^{58,60,62,64}, 6.9 MeV 4=25390
elec. and mag. polarizabilities, from γ - p elastic scatt. 0=20137
electric and mag. polarizabilities, estim. 3=24674
electric and magnetic polarizabilities from (γ, p) scattering 1=4786
 e - p scattering, 950 MeV, recoil 4=9171
from $\gamma + n \rightarrow p + \pi^-$ in deuterium, near 715 MeV 3=10115
 $\gamma + p \rightarrow \pi^0 + p$, at high energy 0=17397
 $\gamma + p \rightarrow \pi^0 + p$, at 910 MeV 2=22520
 $\gamma + p \rightarrow \pi^0 + p$, recoil proton meas. 2=11976, 13799
from hyperon Σ^+ , Λ^0 decays 1=19277
inelastic scatt., high-energy, from mag. dipole levels, calc. 1=4864
by interaction with H atoms 1=15970
K⁺- p elastic scatt., 910 MeV/c meas. 4=21937
 Λ decay, rel. to p helicity 0=17330
magnetic polarizability, rel. to γ -ray scattering 3=15170
meas. by spark chamber, 60 \times 80 \times 60 cm³ 4=9031
meas., statistical errors 1=472-3
meas., two polarimeters 1=13420
measurement, He gas polarimeter 2=488
in $n + d$, at 90 MeV, calc. 0=17340
in neutron irradi. polymers 3=25580
 p - n and p - p scatt. at 217 MeV 2=289
 n - p scatt., 126 MeV, 33°-82° c.m. meas. 4=16900
 n - p scatt. at 16 and 24 MeV 2=18120-1
in neutron-proton scattering at 140 MeV 2=5655
by nuclei, high-energy 0=1400
 π -meson photoprod. on protons, ($\gamma, 3\pi$) effect 3=2296
in p - π scattering 2=7890
in p - π scattering 3=6054
 π mesons scatt., 500-900 MeV, recoil meas. 2=11992
 π^- - p scatt., energy depend. and absorption effects 2=1716

Protons and antiprotons—contd

polarization—contd

π^- -p scatt. at 225 MeV, recoil proton polarization 0=5589
 in π^- -p scattering at 600 MeV 1=9763
 $\pi^+ + p \rightarrow \pi^+ + p$, meas. by spark chamber 4=9031
 in π^0 photoproduction in H 1=8483
 $\pi^+ - p$ collisions at 265 MeV, recoil protons 3=24730
 in $\pi^+ - p$ scatt. at 310 MeV 1=7279-80
 $\pi^+ - p$, 310 MeV 1=16876
 in p-Be and p-p scattering at 1.7 GeV 1=13418
 in p-C scatt., 28 MeV 3=8085
 p-He⁴ scatt., 22-48 MeV 3=22131
 p-He⁴ scatt., 38.4 MeV, phase-shift analysis 3=22132
 p-A, rel. to Λ decay S waves 3=4460
 in p-p elastic scatt., 970 MeV 2=9844
 p,p γ reactions, correl. with photons direction 3=15191
 in p-p scatt. at 8.5 GeV 4=6047
 p-p scatt., elastic, at 1 BeV 0=1279-80
 p-p scatt. at 52 MeV, phase shift analysis 4=3405
 p-p scatt., high energies 3=14979
 in p-p scatt. at 98 and 142 MeV 0=11164
 p-p scatt. at 98 and 142 MeV, depolarization 0=12926-7
 p-p scatt. at 140 MeV, rotation parameter (R) 1=498
 p-p scatt. at 142 MeV, Wolfenstein R parameter 0=11166
 p-p scatt. of 660 MeV beam, depolarization 0=20205
 p-p scatt., 30 and 50 MeV 3=22123
 p-p scatt., 27-100 MeV 3=10111
 p-p scattering, 8.5 BeV 4=9195
 p-p scattering, 50 MeV, 45° (c.m.) 2=22517
 p-p scattering with polarized beam and target, 10-40 MeV, calc. 2=3334
 p-p scattering, 30 to 100 MeV 2=1686
 p-p scattering at 3.3 MeV 0=7346
 p-p, at 16.2 MeV 0=2545
 \bar{p} scattering, elastic, 3, 3.6 GeV/c 3=19630
 polarimeter for 1-2 MeV, parameters 3=24733
 polarization-analyser, 15-30 MeV protons 4=25099
 polarization parameter meas. by π^- -p scattering 4=9253
 polarized beams, prod. and nuclear reactions 2=12179
 polarized H, D and T targets, metallic foil solutions 1=671
 in polyethylenes, n irradi., and relax., 1.6, 4.2, 77°K 3=20064
 in polyethylenes, neutron irradi., dynamic polarization, n.m.r. study 4=1899
 polymers, meas. by neutron irradi. 3=10114
 prod., possible, by nuclear spin cooling by paramag. electron spins in lattice 3=19077
 recoil proton from $\gamma + p \rightarrow \pi^0 + p$, at 260-400 MeV, calc. 1=3207
 recoil proton from pion photoproduction 1=5726
 recoil protons, in μ^- -p scatt. 1=13465
 recoil protons, in 310 MeV elastic π^- -p scatt. 3=10158-9
 recoils from electron scatt. 1=19120
 in scatt. by C and Cu, rel. to optical mode 0=11401
 scattered by complex nuclei, 40 MeV meas. 3=24731
 scattered by D², T³, He³, 2.7 to 4 MeV, meas. 4=12005
 scattering from C¹² 2=440
 in scattering on C¹² at 2.3-4.3 MeV 0=7554
 scattering, elastic, on complex nuclei at 10 MeV, ang. depend. 1=3440
 in scattering, elastic, on deuterons at 146 MeV 1=3183
 scattering, elastic and inelastic, from C 2=7978
 in scattering, elastic, on O, at 8.7 MeV 0=5743
 scattering on He³, calc. rel. to scatt. on T 1=3184
 in scattering on He⁴ and C¹² at 2-6 MeV, elastic 0=1408
 in scattering, inelastic, distorted wave theory 0=17574
 in scattering on Li⁶, Be⁹, and B¹¹, calc. 1=3443
 in scattering by Li⁷ near 441 keV 1=19456
 in scattering from light nuclei 1=9850
 scattering with neutrons at 23.1 MeV 3=10121
 in scattering of 90-140 MeV protons from emulsion material 1=687
 in scattering on neutrons at 143 MeV in liquid D₂ 1=3182
 scattering on nuclei at 6-12 MeV 1=8703
 by scattering, review 1=3175
 scattering on T, calc. rel. to scatt. on He³ 1=3184
 by scattering at 10 MeV by A and Cu 0=7549
 source of polarized protons 1=16786
 source for polarized protons 2=13801
 source of polarized protons for linear accelerator 3=24732

Protons and antiprotons—contd

polarization—contd

transfer matrix method for beam transport calc., extension 1=2026
 Al, elastically scattered, 9 MeV 1=9851
 Al²⁷(d,p)Al²⁸, at 15 MeV 3=682
 B(γ , p) 3=4624
 B¹⁰(d,p) stripping reaction 2=20672
 B¹⁰(d,p)B¹¹, E_d = 10 MeV, ang. depend. 4=9557
 B¹⁰(d,p)B¹¹, at 11.4 MeV 1=8761
 B¹⁰(d,p)B¹¹, prediction on CFDWI model 2=16426
 B¹⁰(d,p)B¹¹, 13.8 MeV 3=15222
 Be, C, Al, Fe, Ta scatt., 143 MeV, small angle 4=28023
 Be(γ , p) 3=4624
 Be⁹(d,p)Be¹⁰ 2=18353
 Be⁹(d,p)Be¹⁰, angular dependence 2=18350
 Be⁹(d,p)Be¹⁰, on direct reaction theory 2=5960
 Be⁹(d,p)Be¹⁰, E_d = 15 MeV 4=12265
 Be⁹(d,p)Be¹⁰, at 10 MeV 2=18352
 Be⁹(d,p)Be¹⁰, 13.8 MeV 3=15222
 C, double scatt. at 6.8 MeV 1=19454
 C, elastic scatt. at 6.5 MeV, meas. 3=2444
 C elastic scatt., 660 MeV 3=15189
 C, elastically scattered, 9 MeV 1=9851
 on C at 424 MeV 2=16393
 C scatt., ang. distrib., 6-6.8 MeV 4=22125
 C-scattered, 6.7 MeV, ang. distrib. and energy depend. 4=25098
 in \bar{p} C scattering 1=9754
 C(γ , p) 3=4624
 C¹²(d,p)C¹³ 2=488
 C¹²(d,p)C¹³, ground-state reaction 2=3607
 C¹², elastic scatt. at 4.65-5 MeV 0=13228
 C¹² elastic scatt. at 7-20 MeV, optical-model analysis 2=3564
 C¹², elastic scatt., 3 MeV 3=2443
 C¹², elastic scatt., 3.76-4.65 MeV 3=2445
 C¹², inelastic scatt. from 15.11 MeV level, calc. 1=4864
 C¹², inelastic scatt. at 185 MeV 0=11409
 by C¹³ inelastic scattering 4=19669
 C¹², inelastic, high-energy 2=1872
 in C¹²(p,p) 5-10.5 MeV scattering 2=5900
 C¹² scatt., ang. var. 4=19766
 C¹², scatt. at 1.5-5.5 MeV, phase-shift analysis 0=13232
 by C¹² scattering, elastic, 6.3 MeV 3=22371
 C¹² scattering, 2⁺ level effects, calc. 4=17131
 C¹²(d,p), ang. var. 4=22174
 C¹²(p,p), 4.5 MeV 4=25387
 C¹²(n,p)B¹², calc. 1=12131
 C¹²(d,p)C¹³, E_d = 0.8-1.2 MeV 3=2490
 C¹²(d,p)C¹³, at 8.9 MeV, calc. 1=2229
 C¹²(d,p)C¹³, at 15 MeV 3=683
 C¹²(d,p)C¹³, 5.5-12 MeV, meas. 3=22422
 C¹²(d,p)C¹³, at 10 MeV 0=2665
 in C¹⁴(d,p)C¹³ reaction 1=5935
 C¹²(d,p)C¹³ reaction, proton polarization 0=20459
 C¹²(d,p)C¹³*, E_d = 15 MeV 4=12265
 C¹²(d,p)C¹³*, p spin-orbit distortion effect 1=19513
 Ca⁴⁰(d,p)Ca⁴¹ 2=488
 Ca⁴⁰(d,p)Ca⁴¹, E_d = 10 MeV, ang. depend. 4=9557
 Ca⁴⁰(d,p)Ca⁴¹, at 11.4 MeV 1=8761
 Ca⁴⁰(d,p)Ca⁴¹, at 15 MeV 3=683
 Ca⁴⁰(d,p)Ca⁴¹, 13.8 MeV 3=15222
 (Ce, La)₂Mg₃(NO₃)₁₂·24H₂O, 170 times increase 3700 Oe at 1.6°K 3=20065
 Co⁵⁹ elastic scattering, 9.4 MeV 4=9495
 Cu, 9.4 MeV elastic scatt. 3=12661
 Cu, 9.4 MeV, elastic scattering 2=1875
 D interactions, above 1 BeV/c, n as "spectator" 3=17269
 D(d,p)H³, 0.72-1.48 MeV deuterons 2=20438
 He gas polarimeter 2=488
 P-He, elastic scattering 1=8457
 He³, elastic scatt., 4-13 MeV meas. 4=12003
 He³, scatt. and spin-spin correl. 1=16920
 He³(d,p)He⁴, 3-12 MeV 3=15049
 He³(d,p)He⁴, ~2 MeV deuterons 3=22220
 in He³(n,p)T reaction 0=9362
 p-He⁴ scattering at 38 BeV 2=20337
 Li(γ , p) 3=4624
 Li^{6,7} scatt., at 155 MeV, var. momentum transfer 4=19764
 Li^{6,7} scatt., 155 MeV, Li⁷ $\frac{1}{2}^-$ level 4=12212
 in Li⁷(p, α)He⁴, 0.5-2 MeV, reaction sensitivity 4=17128

Protons and antiprotons—contd

polarization—contd

- Li⁷(p, α)He⁴ reaction in polarimeter 2=18321
 Li⁷(p, α)He⁴ reaction study 3=2459
 Li⁷(p, p') at 150 MeV 2=3568
 Mg, elastic scatt. at 9.1 MeV 0=11411
 Mg²⁴(d, p) Mg²⁵ 2=488
 Mg²⁴(d, p) Mg²⁵, E_d = 15 MeV 4=12265
 Mg²⁴(d, p) Mg²⁵, at 15 MeV 3=683
 Ni^{58, 60} elastic scattering, 9.4 MeV 4=9495
 Ni^{58, 60}(d, p) Ni^{59, 61} 13.8 MeV 3=15222
 O¹⁶, ang. distrib., and F¹⁷ levels 4=19767
 O¹⁶, elastic scatt., 3.76-4.65 MeV 3=2445
 O¹⁶, scattering, calc., choice of F¹⁷ level parameters 0=20451
 O¹⁶, scattering at 180 MeV 0=7564
 O¹⁶(d, p) O^{17*} (0.87 MeV) 3=22421
 O¹⁷(d, p) O¹⁸ 3=22420
 Si²⁸(d, p) Si²⁹, E_d = 10 MeV, ang. depend. 4=9557
 Si²⁸(d, p) Si^{28*}, E_d = 15 MeV 4=12265
 Si²⁸(d, p) Si²⁹, at 15 MeV 3=682
 Si²⁸(d, p) Si²⁹, 13.8 MeV 3=15222
 Si²⁹(d, p) Si³⁰ 3=22420
 in Si²⁹(d, p) Si³⁰ stripping reaction 4=16896
 V⁵¹(d, p) V⁵², at 15 MeV 3=683

production

- by antineutron annihilation in emulsion 0=17362
 antiprotons, in π^- -N, propane bubble chamber study 0=15358
 antiprotons of 2.8 BeV/c momentum, in proton
 synchrotron 0=9364
 beam prod. in synchrocyclotron 1=16464
 beam, 612 MeV, longitudinal polarized, from 6m
 synchrocyclotron 4=3411
 colliding beam experiments, high proton current
 production 1=9648
 deuteron disintegration, 26 MeV, by field of Au
 nuclei 4=6375
 p + d \rightarrow p + p + n, differential cross-section 2=3417
 duoplasmatron, focused beam study 2=20047
 in e-d scatt., inelastic, at 500 MeV, e-p
 coincidences 2=18102
 by electrons, 1-4 BeV, on Li⁶, C, Al and Cu 4=27840
 fine time-structure of beams from synchrotron 0=19844
 in (γ , p) reactions on Li⁶ to Au 0=13264
 by γ , 22 MeV bremsstrahlung, on 13 \leq Z \leq 50, p > 8 MeV,
 ang. distrib. 3=19830
 high-frequency source, critical geometry 1=13130
 h.f. source, high current, plasma theory 2=11943
 ion source, h.f., energy spectrum 4=11721
 ion source, h.f., extraction canal shape 4=11722
 monoenergetic, by Van de Graaff accelerator 0=1175
 n + d, at 90 MeV, polarization, calc. 0=17340
 photoproduction from polarized deuterons 2=1730
 photoprotons on C at 245 MeV, quasi-deuteron
 analysis 1=8700
 photoprotons from F¹⁹ 1=7368
 π^- absorpt. in nuclei 3=10372
 π^- -emulsion stars, mass, energy meas. 2=22579
 π^- + N, 6.8 BeV, inelastic, in emulsion, ang. and
 momentum distrib. 4=934
 π^+ + d \rightarrow p + p, pionic s and p wave contrib. 2=11979
 polarized beams 2=12179
 polarized protons source 2=13801
 by proton beam, 30 GeV, on Al, Be, Fe 3=6090
 in p-p collisions at 4.2 GeV, transverse
 momentum 1=8456
 proton-proton collisions, 19.8 GeV/c 3=2259
 proton-proton collisions at 3.5 GeV 3=2260
 proton synchrotron, 7 GeV, in USSR, development 2=20081
 protons, free, by H₂⁺ ion impact on metal targets 4=28270
 pulsed beam prod. by phase focusing 2=15969
 pulsed beam, for Van de Graaff accel. 2=5395
 pulsed source, using high-current arc 1=11979
 radio frequency source 2=222
 radioactive decay, after β^+ decay in interactions due to nuclei
 Z > 2 4=28066
 retarded, in positron decay, in light nuclei with
 neutron shortage 3=6197
 short pulses, by repeated phase focussing 4=9201
 source with multiple beams 1=3021
 source, 100 mA, and lens system for bevatron 2=1533
 source of polarized protons 4=11988
 source of polarized protons for linear
 accelerator 3=24732

Protons and antiprotons—contd

production—contd

- synchrophastron, beam characteristics 2=20082
 widths in (p, γ) reactions, 22 < A < 35 4=19773
 Au¹⁹⁷ proton bombarded, energy spectra 2=453
 in Λ B¹¹ non-mesonic decay 0=20359
 C¹²(d, p) C¹³, analysis of proton intensity 2=485
 C¹²(γ , n), yield curves 0=11434
 N¹⁵, by photons, 24.5, 31 MeV 3=17452
 Nb(γ , p) photoproton props. 1=13771
 Ni + Ne²⁰, 130 MeV, delayed 4=28067
 Pr¹⁴¹(γ , p) at 22.5 and 33.5 MeV 2=3552
 Pr¹⁴¹(γ , p) at 22.5 and 33.5 MeV 3=2432
 S³², photoprotons 3=15172
 Ta¹⁸¹(γ , p) Hf¹⁸⁰ 1=677
- scattering**
 p- α , at 40 to 95 MeV 0=20138
 α -p, 4.7-11.9 MeV, proton polarization 3=24728
 p- α , by He discharge chamber 2=3340
 α , 39.8 MeV, polarization, phase-shift analysis 3=24729
 ang. distrib., 6.8 MeV, 23 isotopes of 8 elements 4=3648
 antiprotons, elastic, rel. to TCP theorem 3=2264
 atom, single orbital electron rel. to ionization 2=10224
 backward peak, narrow, 2-3 GeV, explanation 3=12464
 beam, instability in plasma, Hartree-Appleton
 approx. 4=8784
 bremsstrahlung from bombardment of nuclei 3=14947
 at collimator slit, calc. 3=5719
 collisions, low energy with H atoms, charge
 transfer 4=15303
 collisions with μ -mesic H atoms 0=11492
 by complex nuclei, distorted wave effects 2=20606
 complex nuclei, elastic 1=12191
 complex nuclei, 40 MeV, polarization meas. 3=24731
 by complex nuclei, 27 GeV, inelastic 3=15187
 compound nucleus, direct interaction processes,
 polarization 2=18320
 Compton, discrepancy removal by inclusion of
 η and 2π exchanges 4=6002
 Compton effect, dipole "phase shift" approx. 2=13757
 Compton effect, dipole "phase shift" approx. 3=5975
 Compton effect, use of dispersion relns. 3=24674
 Compton effect, two-pion exchange contrib. 2=1673
 Compton scatt., rel. to elec. and mag.
 polarizability 4=11958
 cyclotron, Argonne 60 in. scatt. chamber 2=20074
 DWBA and strong coupling calc., comparison 4=19769
 DWBA validity range 3=19829
 decay proton in Λ^0 decay 1=8508
 by deformed nucleus, elastic 3=2441
 p-d collisions, π^- -meson prod. 0=9425
 d-p and d-n, doublet and quartet scattering lengths,
 low-energy 4=9197
 d-p, 18.2 MeV, breakup cross-section meas. 4=6051
 on deuterons elastic, at 419 MeV, asymmetry using
 polarized protons 0=20136
 p-d, elastic, at 13.93 MeV 1=7241
 p-d, p-t, p-He^{3, 4}, 5-14 MeV, elastic, diff. cross-
 sections 0=7423
 p-d, π^+ - meson production 1=7269
 on deuterons, pion production 1=5755
 p-d, 22 MeV, tensor polarization parameters 4=3495
 p-d, 24.35 MeV, d disintegration 3=24806
 d-p, of 24.4 MeV deuterons 1=3246
 d-p, 77 MeV, cross-sections 3=22129
 p-d, 77 MeV, cross-sections, total and elastic 3=12516
 diffraction scattering on complex nuclei, proton and anti-
 proton 0=12924
 diffraction scattering, in nuclear field, brems-
 strahlung 0=20132
 diffraction scattering, in (p, p) reactions 1=3439
 elastic, from Li, Al, In and Au, at 160 MeV 1=3444
 elastic and inelastic, in cyclotron of Ukrainian Acad. of
 Sciences 3=19880
 elastic, on isotope or isobar pairs 2=14085
 elastic, on nuclei, polarization, effects of potential well
 parameters 1=686
 elastic, on photographic emulsion nuclei 1=19451
 elastic, on photographic emulsion nuclei 3=4633
 elastic and polarization of 300 MeV protons 0=15347
 elastic, on separated isotopes of various elements 1=3445
 elastic, at 6.8 MeV, on Cr, Ni and Cu nuclides 0=20450

Protons and antiprotons—contd
scattering—contd

elastic, 8 MeV polarized protons, on 23 complex nuclei, ang. depend. of polarization 1=17092
 elastic, 9 to 22 MeV, optical model analysis 3=19839
 elastic, at 22.2 MeV, on 20 single isotopes 2=3561
 e, further correction, mesonic contribution to two-photon exchange 4=886
 electron pickup on collisions with atoms 3=10476
 of γ -rays, Compton scatt., π^0 decay as intermediate state in 0=5582
 of γ -rays, dispersion relations 0=11130
 of γ -rays, up to $E_\gamma = 220$ MeV 0=5533
 of γ -rays, 1-meson pole diagram 2=271, 22468
 of γ -rays, scatt. amplitude, calc. of π^0 lifetime 0=20182
 of γ -rays, up to 300 MeV 3=2240
 of γ -rays, up to 300 MeV 2=3300
 e-p, bremsstrahlung effects calc. 4=25062
 p-e, CH_2 target system 4=9179
 p-e, rel. to dipole moments 3=14956
 e-p, elastic, polarization effects, isobaric model 4=19509
 electron-proton, with electric dipole moment 0=15345
 e + p \rightarrow e + π + N, near first π N reson., calc. 4=896
 p-e, energy depend. of form factors 3=17277
 p-e, enhancement, rel. to Regge trajectories 3=2207
 e-p, at high momentum transfer 3=14958
 p-e at high momentum transfers 4=9172
 p-e, i.r. singularities 3=5988
 e-p, inelastic, 3/2 reson. in isobaric model 3=19611
 p-e, at low transfer momentum 2=22486
 e-p, momentum transfer $q^2 \leq 2$ fermi⁻² 3=14980
 p-e, 950 MeV, rel. to many-photon exchange 4=9171
 p-e, 1 and 4 BeV, Rosenbluth formula deviation search 3=19613
 e-p, 150-850 MeV, search for intermediate boson 4=11976
 electron-proton, proton form factor splitting 1=3178
 p-e, quantum electrodynamics 3=17165
 e-p, statistical analysis 3=14957
 p-e, threshold behaviour, close-coupling effects 3=22502
 e-p, two-photon exchange contribution, calc. 3=17247
 p-e, 2γ exchange, theory 4=3387
 e⁺-p, e⁻-p ratio, meas. as one 4=16879
 on electrons, rel. to charge distribution 2=1683
 electrons, dispersion theory analysis 3=2244
 by electrons, form-factor 1=16837
 electrons, low momentum transfers, form factors meas. 2=11933
 electrons, radiative corrections up to 5 BeV, calc. 2=9823
 of electrons, second Born approx. 0=15331
 of electrons, at 600-900 MeV 1=2039
 in emulsion, multiple scatt. at 27 GeV, centre of gravity method 2=3333
 on emulsion nuclei, at 8.7 BeV, elastic 0=7546
 even-even nuclei, inelastic, at 6.5 MeV, p- γ ang. correl. 0=11410
 even-even nuclei of 1d-2s shell, inelastic, study of low levels 1=8578
 form factor, time like, from $\bar{p} + p \rightarrow e^- + e^+$ search 3=19629
 on free and quasi-free nucleons in emulsions 0=9354
 of γ , 500-850 MeV, 90°, and (1, 3) isobar 3=19601
 p- γ , elastic, η -meson and scalar boson contrib. 3=17233
 γ -p elastic, at 40-70 MeV 0=20137
 γ -p, elastic, at 40-70 MeV, rel. to proton polarizability 1=4786
 p- γ , rel. to f_0 meson resonance 4=15060
 $\gamma + p \rightarrow p + \pi^+ + \pi^-$ 1=7224
 γ -p, for polarized protons and photons, phenomenological analysis 4=11960
 of γ -rays, up to $E_\gamma = 220$ MeV 0=5533
 p-H atom, rearrangement collisions 3=4722
 p-He⁴, and potential, 40 MeV 3=22256
 p-He⁴, 38.4 MeV, p polarization, phase-shift analysis 3=22132
 p-He⁴, 22-48 MeV, p polarization 3=22131
 heavy nuclei, elastic, 55 MeV 4=25385
 high energy peak 4=27808
 high-energy quanta, on photon beams, laser-produced 4=9154
 high energy synchrotron research, Joint Institute of Nuclear Studies, U.S.S.R. 0=15305

Protons and antiprotons—contd
scattering—contd

in Ilford G5 emulsion 2=445
 inelastic, direct interaction theory 0=11443
 inelastic, direct reaction model 2=12184
 inelastic, at 8.9 MeV, on Mg 1=19452
 inelastic, from mag. dipole levels, at high energy, calc. 1=4864
 inelastic, from nuclei, parity change det. from ang. distrib. 1=5904
 inelastic, optical model treatment 0=11288
 inelastic, possible wave function change with radius 4=6210
 inelastic, similarity to (d, d') and differences from (p, n), rel. to Blair model 0=1396
 inelastic, 10 MeV, various elements 3=10340
 intermetallic diffusion study 0=1605
 on isotopes (A = 52 to 65) at 5.45 and 6.8 MeV 2=16396
 by K mesons, up to 800 MeV/c, ρ and ω reson. exchange contrib. 3=15034
 K⁻ mesons, 1815 MeV, as \bar{K}^*N bound state 2=9921
 K⁻ mesons, resolution of Dalitz's (a \pm) solns. 2=13880
 K⁻-p, charge exchange, 1.80 GeV/c meas. 4=21938
 K⁻-p, elastic, in 1 BeV/c range meas. 4=9280
 K⁻-p, energy depend. s-wave, rel. to 1405 MeV Y_0^* 4=12061
 K⁻-p, low energy, rel. to KN bound states 2=5739
 K⁻-p, 700-1400 MeV/c, spark chamber array for 3=24790
 K⁻-p, study using nuclear emulsions, review 4=19343
 K⁻-p, 2.7-5.2 BeV/c, total cross-section 4=6133
 K₂⁰-p, energy depend. s-wave, rel. to 1405 MeV Y_0^* 4=12061
 K⁺-mesons, elastic, at 970, 1170, 1970 MeV/c 3=10171
 p-K⁺, by dispersion relation appl. 2=12001
 K⁺-p, elastic, 910 MeV/c, proton polariz. 4=21937
 K⁺ + p \rightarrow K⁰ + π^+ + p, near K^{*} reson., calc. 4=895
 K⁺ + p \rightarrow K⁰ + π^+ + p, near first π^+ p reson., calc. 4=897
 p-K⁺, low-energy, I = 1 state, Born term domination 4=21936
 K⁺-p, low-energy, repulsion effects 3=17338
 K⁺-p, peripheral model, vector meson and isobar production 4=25120
 Λ -hyperons, elastic, meas. 3=7931
 Λ and K⁰ particles, elastic, meas. 2=13888
 Λ and K₁⁰ particles, elastic, meas. 3=6086
 Λ -p, 150-400 MeV/c 4=25197
 on light nuclei, inelastic, rel. to anisotropic distrib. in nucleus 2=14087
 on light nuclei, inelastic, rel. to anisotropic distrib. in nucleus 3=6239
 by light nuclei, inelastic, at high energy, ang. distrib., calc. 0=4089
 on light nuclei, inelastic, at 150 MeV, high-energy γ -rays from giant resonance region 1=8723
 light nuclei, inelastic scatt. of 340 MeV protons, energy spectra 0=15503
 metals, eleven, stopping power for 28.7 MeV 4=902
 metals, slowing-down by elastic collisions, theory 3=22691
 μ -meson and electron, scatt. 3=17301
 μ -p, elastic, polarization effects, isobaric model 4=19509
 μ -p, inelastic, 3/2 reson. in isobaric model 3=19611
 μ -p, 1.2 BeV/c, elastic, meas. 3=24757
 μ -p, radiative corrections and π prod. 4=21889
 by μ , 260 MeV/c 4=20001
 multiple, high momentum, in nuclear emulsions 1=19450
 multiple scattering, microphotometric investigation 3=24718
 multiple, at 27 GeV, in emulsions, lateral distrib. meas. 4=11999
 by muons, bremsstrahlung contribution 1=16835
 p-n and d form factor 3=19712
 neutron, total cross-section at 0.4926 and 3.205 MeV 3=4399
 neutrons, amplitude meas. by mirror refl. 2=9853
 neutrons, 2p-2n, rel. to deuteron-deuteron capture 2=9931
 19 nuclei, inelastic, 40 MeV meas. 4=25384
 by non-spherical nuclei 0=7545
 nuclear emulsion, spurious scatt. 20-24 GeV/c meas. 4=9035

Protons and antiprotons—contd

scattering—contd

in nuclear emulsions, Coulomb and nuclear scattering 0=20429
 nuclear excitation, direct reactions, effect of nuclear correl. 4=30332
 nuclear excitation, 3^- octupoles 3=19764
 nuclear track emulsions, particle charge sign determination 1=10820
 on nuclei, complex, elastic scatt. of polarized p at 10 MeV, polarization, ang. depend. 1=3440
 on nuclei (complex), elastic, at 95 MeV, test of model 1=9848
 nuclei, compound-elastic, calc. 4=9497
 nuclei, elastic, for 15 elements at 57 MeV 2=16399
 nuclei, elastic, 20° - 160° , 5.4 and 6.8 MeV, isotope effect 4=3649
 on nuclei in emulsions, at 9 GeV 1=3441
 on nuclei, even—even, of light and light-medium weight 1=8710-11
 by nuclei, at high energies, giant dipole resonance, analysis 0=20449
 by nuclei, high-energy, elastic 0=1400
 on nuclei, inelastic, rel. to evaporation model 2=1889
 on nuclei, inelastic, near giant dipole resonance, theory 1=11005
 on nuclei, inelastic, inapplicability of Austern—Butler—McManus theory 1=13788
 on nuclei, inelastic, p - γ ang. correl. symmetries, theory 2=22803
 on nuclei, inelastic, $\sigma(p, p')/\sigma(p, n)$, direct-interaction model 1=8716
 on nuclei, inelastic, single-particle versus collective excitations 1=19465
 nuclei, inelastic, theory rel. to expt. with C^{12} 2=439
 nuclei of masses 50-70, polarized p's, 14 MeV, large angle isotopic, isotonic and shell closure effects 3=15186
 on nuclei of medium weight, elastic 1=8705
 on nuclei, 9-25 GeV, quasi-elastic peak, one-pion exchange model 1=16774
 on nuclei, at 96 MeV, calc. 0=15568
 on nuclei, at 160 MeV, radii of optical model potentials, calc. 1=8726
 nuclei, quasi-elastic, distortion effects 3=8064
 on nuclei, review 1=8668
 on nuclei, 6-12 MeV, polarization 1=8703
 on nuclei, statistical theory, compared with expt. 2=22813
 on nuclei, at 3 BeV/c, cross-sections 2=3387
 by nuclei, triple scattering and depolarization parameters 0=20448
 p-N, inelastic, 27 GeV, emulsion technique 2=13798
 on nucleons in emulsion, at 9 BeV 0=13233
 nucleons, primary energy determination, 27 GeV 3=17262
 on nucleons, 6.2 GeV in emulsion 0=12923
 nucleus, coulomb field, inelastic 3=8068
 nucleus, elastic and inelastic, optical model 3=12662
 nucleus, inelastic, rel. to energy levels of stable isotopes, Sc^{45} to Ni^{58} , from various reactions 4=15155
 nucleus optical potential isospin meas., with n scatt. 4=976
 by odd nuclei, B^{11} , Al, P, Co, Cu, 6-7.4 MeV 2=5898
 optical type model for GeV range 2=16392
 photon-proton, elastic, above 300 MeV 2=13756
 π mesons, high-energy, bremsstrahlung calc. 2=9818
 π -p, in C, quasi-elastic, and p momentum distrib. in C 4=25153
 π -p, Chew—Low theory, role of CDD poles 3=19680
 π -p collisions, high-energy, with low momentum transfer 4=6114
 π -p, diffraction peak, non-shrinking, dispersion theories 3=17321
 π -p, diffraction peak small shrinkage shows that π is elementary 4=9139
 π -p, elastic, 500-1000 MeV meas. 4=19567
 π -p, elastic, 4 GeV/c meas. 4=21907
 π -p, elastic high-energy, role of multimeson interact., Regge theory 4=6050
 pion-proton, elastic and inelastic, at high energies 2=18111
 π -p, elastic, 300-1300 MeV, expt. analysis 4=25149
 π -p, elastic, at 310 MeV, proton polarization 3=10158-9
 $\pi^+ + p$, elastic, 1.6 GeV/c, forward diffr. peak, 4=30260

Protons and antiprotons—contd

scattering—contd

π -p, elastic, 3-5 GeV/c meas. 4=3463
 p - π , elastic, rel. to vector particle pole diagram 3=15023
 π -p, forward peak shrinkage, eight, Regge pole fit 4=9252
 $\pi^+ + p$, 4 GeV 4=25151
 π -p, 4.13 BeV/c, backward peak analysis 4=12047
 π -p, fundamental length at very high energies 4=19433
 π -p, at high energies, Serber's model, use of sum of 2 Yukawa potentials 4=6048
 π -p, high energy expts. 4=21848
 π -p, non-shrinkage 3=14916
 p - π at 1.6 GeV/c, rel. to π - π interactions 2=22570
 π -p, at resonance ($3/2, 3/2$), test of two isobaric models 4=15090
 π -p resonances, as quantum relativistic rotator 4=24071
 π -p, at very small momentum transfers, model 4=3462
 π -p scattering at high energies 1=16871
 p - π scattering polarization and charge exchange 2=7890
 p - π scattering, polarization and charge exchange 3=6054
 π -p, at 7 BeV, multiple pion prod. 3=15018
 π -p, 7 GeV/c, elastic 4=25152
 π -p, 7-20 BeV/c 4=9194
 π -p, at 600 MeV, in liquid H bubble chamber 3=7804
 π -p, study using thin-plate spark chambers 3=24565
 p - π total cross-section, 2 to 3 BeV 3=22183
 p - π^\pm , cross-sections, at 4.5, 5.75, 7.0, and 10.0 GeV/c 2=22592
 π^\pm and K- interactions, 20 BeV cross-sections 2=13745
 π^\pm -p, elastic, rel. to T-matrix elements 4=16947
 p - π^\pm , elastic, 8.5, 12.4, 18.4 GeV/c 4=15091
 π^\pm -p, elastic, 31.4 MeV, phase shifts 3=22178
 p - π^\pm , 500-1600 MeV 3=10161
 π^\pm -p, high energy, forward, real part, and π -N dispersion 3=22186
 π^\pm -p, with K-meson prod. 0=4001
 π^\pm -p, singularities in ang. momentum plane 4=842
 of π^- , elastic cross-sections 3-5 GeV/c, and Regge pole hypothesis 3=6050
 π^- -meson-proton, with 128 and 162 MeV mesons 0=13018
 π^- mesons, 500-900 MeV, polarization meas. 2=11992
 π^- mesons, 1.3 BeV, meas. and theory 2=9899
 π^- -mesons, 152 and 226 MeV, elastic 3=4441
 π^- mesons, at 7.2 BeV, π - π interaction 2=18167
 π^- -mesons, at 7.2 BeV, π - π interaction 3=6053
 of π^- -mesons, with 6.8 BeV/c momentum 0=9415
 π -p, ang. distrib. cross-sections, 516-1085 MeV 2=1715
 π -p, angular distribution 1=12105
 π -p, charge exchange, forward, 0.8-1.9 GeV p's 4=21905
 π -p collisions, charge-exchange, π^0 prodn. cross-sections 1=16865
 π -p, effect of bound states of π -mesonic atom 0=2583
 π^- -p, elastic, impact parameter represent. analysis 4=3402
 p - π , elastic, 7.2 BeV, 4° - 28.3° ang. range 2=16234
 p - π , elastic, 7.2 BeV, 4° - 28.3° ang. range 3=6058
 π -p, elastic, 10 GeV/c 3=17324
 p - π^- , elastic, 2 GeV/c 4=3460
 π -p, elastic, at 240-330 MeV 0=13033
 π -p, 500-1500 MeV, survey and analysis 1=16877
 π -p, at 5 GeV, resonance interaction 0=11212
 π -p, 4 GeV/c, elastic 4=27686
 π -p, 4 GeV/c, four-prong events, rel. to models 4=12034
 $\pi^+ + p$ at 915 MeV 0=15402
 $\pi^+ + p$ at 1 GeV, phenomenological potential 0=15403
 p - π^- , at 1.89 GeV/c rel. to π - π cross-section 2=22569
 π -p, at 128 and 162 MeV 1=5766
 p - π^- in Saclay bubble chamber 2=22513
 π -p, at 7 BeV, theoretical interpret. 0=13032
 p - π^- , 7 to 20 BeV/c, elastic 3=17323
 π -p, 3.5 GeV/c 4=6115
 π -p, $3/2$ resonance in isobaric model 4=9243
 π -p, at 4.5 GeV, meas. and peripheral collisions model 4=9242
 π^- scattering at 128 and 162 MeV 1=16780
 of π^- , total cross-sections, 2-5 BeV/C 3=6049
 of π^+ , elastic, cross-sections, 3 GeV/c, and Regge pole hypothesis 3=6050
 p - π^+ , elastic, at 820, 900, 1050 MeV 2=16231
 π^+ mesons, elastic, at 1.0 GeV, meas. 2=11988
 of π^+ -mesons with 390 MeV energy 0=7409
 p - π^+ , elastic, below 300 MeV, phenomenological model 4=21906

Protons and antiprotons—contd
scattering—contd

π^+ -p, elastic, 500-1600 MeV meas. 4=19566
 π^+ -p, 1.5, 2.0 and 2.5 BeV/c, elastic meas. 3=12490
 π^+ -p, 7-17 BeV/c, and Regge pole theory 3=19688
 π^+ -p, 310 MeV phase shift analysis 1=16876
 π^+ -p, 310 MeV, phase shift analysis, modified 3=24779
 π^+ -p, 265 MeV, elastic, polarization of recoil protons 3=24730
 $\pi^+ + p \rightarrow 2\pi^+ + p$, pion momenta 0=13034
 polarization of 90-140 MeV protons scattered by emulsions 1=687
 from polarized nuclei, Mn⁵⁵ and Ho¹⁶⁵ 4=19763
 positrons, rel. to two-photon exchange 3=2248
 p-Mg, elastic, 5.45 MeV 3=2450
 p- μ , 12 GeV/c 3=10140
 proton-nucleon collisions, at CERN-PS energies 1=16778
 p-N, Dirac monopoles prodn. cross-section 3=14861
 p-p, polarization meas., 50 MeV, 45° (c.m.) 2=22517
 p-p- μ -mesic atom 2=10231
 (p, 2p) ang. correl. in DWBA 3=19841
 of protons at 90 MeV, charge exchange 0=3967
 "quasi-elastic diffraction" at high energy 1=13413
 quasi-elastic, on nuclei 0=4085
 quasi-free, on heavy nuclei, information on target structure 1=8718
 quasi-free, on nuclei 1=8717
 in radiation belts by small mag. irregularities 2=15269
 rare-earth isotopes, inelastic, rel. to rotational levels 3=17458
 on rare-earth isotopes, inelastic scattering 1=689
 on rare-earth nuclei, rel. to level props. 0=7559
 resonance scattering integral 0=9358
 resonant, by Woods-Saxon nuc. potl. 3=22281
 scattering chamber using junction counters 3=17095
 search for Dirac magnetic monopole 3=10069
 slit scattering, theoretical investigation 2=1685
 small-angle, high-energy 1=13417
 small-angle, 24 BeV scattering 2=5904
 by spherical nuclear potential with diffuse boundary 3=12660
 study of nuclear levels by high-energy scattering 1=13639
 surface analysis by charged particle spectroscopy 0=18457
 t-p, elastic, phase shift analysis and 0⁺ resonance 4=9317
 tritons, elastic, below 1 MeV 3=15047
 Wolfenstein parameter R, meas. for 142 MeV incidence 1=13412
 6.6 MeV from F¹⁹ and Al²⁷ low lying levels 4=12137
 68.3 MeV, diff. cross-sections 5-50° 0=12925
 98 and 142 MeV, depolarization, time-reversal invariance confirmed 0=12926-7
 210 MeV, phase-shift analysis 0=12931
 10 BeV, multiple scatt. meas. in emulsions 4=16698
 25 GeV, pion production 0=13036
 A, 10 MeV 0=7549
 A³⁶, elastic, 1.0-1.8 MeV, absolute differential cross-sections 2=3563
 A⁴⁰, elastic and inelastic, at 0.8-3.5 MeV 2=3562
 A⁴⁰, elastic and inelastic, 7.6-14.2 MeV 1=8724
 by A⁴⁰, elastic, 1-1.95 keV 3=7991
 A⁴⁰, elastic, 1-2 MeV 2=442
 on A⁴⁰, 7-9 MeV excitation of energy levels 1=19361
 A⁴⁰(p, p') ang. distrib., reaction mechanism 2=14084
 Ag, elastic, at 6.8 MeV, ang. distrib. 1=8707
 on Ag, elastic, 6.8 MeV, ang. distrib. 1=13782
 Ag, inelastic, model 0=11406
 Ag¹⁰⁹, 82, 110 and 156 MeV protons, Monte Carlo calc. of cascades 4=17136
 Al, differential cross-section and polarization 0=15569
 Al, elastic, at 6.8 MeV, ang. distrib. 1=8707
 on Al, elastic, 6.8 MeV, ang. distrib. 1=13782
 Al, elastic, 9 MeV, polarization 1=9851
 Al, elast. scatt. at 180 MeV 1=19475
 Al, 4.9 and 5.3 MeV 4=9491
 on Al, 142 MeV, elastic and total cross-sections 1=13781
 Al, multiple, 75-200 keV 4=21852
 Al²⁷, ang. distrib. meas. with magnetic analyzer 2=437
 Al²⁷, inelastic, 6.0-7.5 MeV 2=1877
 Al²⁷, 155 MeV, inelastic 4=15203
 Al²⁷, (p, p' γ) 0=20347
 Al²⁷(p, p' γ), rel. to A²⁷ low-lying levels 4=17043
 Ar, elastic, at 9.8 MeV 4=30396

1934a

Protons and antiprotons—contd
scattering—contd

Au, elastic. scatt. at 180 MeV 1=19475
 on Au¹⁹⁷, 6.7-12.6 MeV 1=5905
 Au¹⁹⁷, 82, 110 and 156 MeV protons, Monte Carlo calc. of cascades 4=17136
 B, inelastic 1=19473
 B¹⁰, elastic, at 0.15-3 MeV, highly excited states in C¹¹ 2=22729
 B¹⁰, inelastic, 11-12 MeV 4=17022
 B¹⁰, inelastic, 17 MeV 2=20609
 B¹⁰, 1-3.5 MeV, broad reson. 4=6329
 B^{10,11}, 155 MeV, inelastic 4=15202
 B^{10,11}(p, 2p), quasi-free, 155 MeV 3=6232
 B¹¹, inelastic, 6.0-7.5 MeV 2=1877
 B¹¹, polarization, calc. 1=3443
 B¹¹(p, p'), 150 MeV, unified model verification 4=19765
 on Be, Al, Ni, Cu, Ag, Au, 1.5 to 4.5 MeV 2=3336
 Be, C, Al, Fe, Ta, 143 MeV, small angle, polarization 4=28023
 Be, elast. scatt. at 180 MeV 1=19475
 Be, inelastic 1=19473
 on Be, 142 MeV, elastic and total cross-sections 1=13781
 in p-Be at 1.7 GeV polarization 1=13418
 on Be⁹, elastic, at 6.8 MeV 1=4866
 Be⁹, 5-15 MeV, elastic and inelastic, cross-sections and ang. distrib. 4=25386
 Be⁹, inelastic, 17 MeV 2=20609
 Be⁹, inelastic, at 6.8 MeV 2=16311
 Be⁹, 155 MeV, inelastic 4=15202
 Be⁹, polarization, calc. 1=3443
 Be⁹, in range 6.1-7.3 MeV 2=5899
 Be⁹(p, 2p), quasi-free, 155 MeV 3=6232
 Be⁹(p, p)Be⁹(j) 1=3446
 Be⁹(p, p')Be⁹, rel. to Be⁹ levels 1=3396
 Be⁹(p, p')Be⁹*, 2.43 MeV 4=9504
 Bi, elastic, at 6.8 MeV, ang. distrib. 1=8707
 on Bi, elastic, 6.8 MeV, ang. distrib. 1=13782
 Bi²⁰⁹, elastic, 17 MeV, differential cross-section 4=6333
 Bi²⁰⁹, 82, 110 and 156 MeV protons, Monte Carlo calc. of cascades 4=17136
 C and Al, neutral meson prod. at 930 MeV 0=5575
 C, coupling scheme dep. on nuclear radius 4=6210
 C and Cu, polarization, rel. to optical model 0=11401
 C, elast. scatt. at 180 MeV 1=19475
 C, elastic 1=14191
 C, elastic and inelastic, 6.5 - 16 MeV, ang. distrib. 1=8713
 C, elastic, 9 MeV, polarization 1=9851
 C, elastic, 660 MeV, at small angles 3=22374
 C, elastic, 220 MeV 0=5738
 C, elastically, polarization meas. 3=2444
 C, 5.2-6.6 MeV, excitation functions 3=22292
 p-C at 424 MeV rel. to polarization 2=16393
 C, high energy, rel. to proton-nucleon scatt. model 2=10095
 C, inelastic 1=19473
 C, multiple, 75-200 keV 4=21852
 by C, rel. to N¹³ levels 1=10970
 C, at 970 MeV, optical-model analysis 0=4094
 on C, 95-970 MeV 1=5902
 on C, 142 MeV, elastic and total cross-sections 1=13781
 by C, polarization, 17-19 MeV 2=7978
 C, polarization ang. distrib., 6-6.8 MeV 4=22125
 C, polarization, 6.7 MeV, ang. distrib. and energy depend. 4=25098
 on C (polystyrene), multiple 2=14086
 C (polystyrene), multiple 3=6238
 p-C, and p-Cu, rel. to optical model potential, imaginary part 1=19448
 \bar{p} C, \bar{p} polarization 1=9754
 C, quasi-elastic, at 930 MeV 0=7443
 C, at 6.8 MeV, double scatt., polarization 1=19454
 C, 660 MeV, rel. to generalized diff. model 4=1061
 by C, 660 MeV, small-angle, elastic 3=15189
 C, at 10-68 MeV, total cross-section 0=4093
 C, at 3 BeV, small-angle elastic scatt. 0=9628
 C, triple-scatt. parameter A, 139 MeV meas. 4=900
 C, 28 MeV, polarization 3=8085
 C¹², angle distrib. 4=28011
 C¹², angular distrib., 5-60 MeV, relativistic calc. 4=28011
 from C¹², degree of polarization 2=440
 C¹², 18-30 MeV, elastic and inelastic 4=6330

1934b

Protons and antiprotons—contd
scattering—contd

- by C^{12} , elastic, 5-11.5 MeV 3=635
 C^{12} , elastic, at 4.65-5 MeV, polarization 0=13228
 C^{12} , elastic and inelastic, rel. to excited energy levels 1=13783
 C^{12} , elastic and inelastic, 14-19 MeV 4=12213
 C^{12} , elastic, optical model plus resonance analysis 4=12214
by C^{12} , elastic, polarization meas. 3=2445
 C^{12} , elastic, at 7-20 MeV, optical-model analysis 2=3564
 C^{12} , elastic, at 10-11.5 MeV, overlapping resonances analysis 3=24928
 C^{12} , elastic, 3 MeV 3=2443
 C^{12} , elastic, at 2-6 MeV, phase-shift analysis, spin polarization calc. 0=1408
 C^{12} , elastic, at 2.3-4.3 MeV, polarization 0=7554
 C^{12} , 5-6 MeV, elastic and inelastic 4=6331
 C^{12} , giant dipole resonance 1=13785
 C^{12} , inelastic 1=19453
 C^{12} , inelastic, at 18.9 MeV, 3^- assignment for 9.6 MeV state 1=11004
 C^{12} , inelastic, from 15.11 MeV level, polarization and ang. distrib. calc. 1=4864
 C^{12} , inelastic, at 5-12 MeV, ang. distrib. of 4.43 MeV γ -ray 2=1878
 C^{12} , inelastic, 14-20 MeV, with or without γ -emission 3=2447
 C^{12} , inelastic, high-energy, diff. cross-section, calc. 1=3442
 C^{12} , inelastic, at 9.63 MeV 2=5901
 C^{12} , inelastic, at 180 MeV, calc. 2=16402
 C^{12} , inelastic, at 185 MeV, 4.4 MeV level as collective state 0=11409
 C^{12} , inelastic, at 150 MeV, excitation of 15.1 MeV level 2=3566
 C^{12} , inelastic, at 150 MeV, high-energy γ -rays from giant resonance 1=8723
 C^{12} , inelastic, at 156 MeV, dipole excitation, impulse approx. 1=8721
 C^{12} , inelastic, 3.8-4.5 MeV, γ -ray ang. distrib. 0=17499
by C^{12} , momentum distrib. protons in nucleus 2=16401
by C^{12} nuclei, 660 MeV 3=4630
 C^{12} , 1.5-5.5 MeV, polarization, phase-shift analysis 0=13232
 C^{12} , 155 MeV, inelastic 4=15202
 C^{12} , 155 MeV, inelastic, calc., from energy levels 3=19768
 C^{12} at 185 and 440 MeV, quasi-free scatt. 1=8717
 C^{12} , polarization, 2^+ level effects, calc. 4=17131
 C^{12} , polariz., ang. var. 4=19766
 $C^{12}(p,p)C^{12}$ 1=12192
 $C^{12}(p,p)$, 4.5 MeV, polarization 4=25387
 $C^{12}(p,p)$, 5-10.5 MeV, proton polarization 2=5900
 $C^{12}(p,p\alpha)Be^8$, 85 MeV, quasi-elastic 4=15208
 $C^{12}(p,p')C^{12*}$ 1=12192
 $C^{12}(p,p')C^{12*}$, threshold to 50 MeV 3=19838
 $C^{12}(p,p'\gamma)$, ang. distrib., cross-sections 2=438
 $C^{12}(p,p'\gamma)$, 147 MeV, distorted wave effects and impulse approx. 4=22124
 $C^{12}(p,p'\gamma)$, $p'\gamma$ ang. correl. rel. to spin flip 4=17123
 $C^{12}(p,p'\gamma)C^{12}$ 1=5906
 $C^{12}(p,p'\gamma)C^{12}$, inelastic, rel. to spin flip effect 4=17124
 $C^{12}(p,p'\gamma)C^{12}$, $p'\gamma$ ang. correlation at resonance 1=2210
 $C^{12}(p,p'\gamma)C^{12}$ 4.43 MeV C^{12} 2=20608
 C^{12} , 7.66 MeV level, small angles, anomaly 4=19671
by C^{12} , 182 MeV, impulse approx. 3=15184
by C^{12} , polarized protons, elastic, 5.4-19.7 MeV 2=16400
 C^{12} -p, inelastic at 150 MeV 2=3565
 C^{12} -p, spin-flip, inelastic, 15.1 MeV 2=12185
 $C^{12}(p,2p)$, quasi-free, 155 MeV 3=6232
on C^{12} , quasi-elastic, at 185 MeV 3=10336
 C^{12} , 6.3 MeV, elastic, polarization 3=22371
 C^{12} 31.1 MeV, elastic and inelastic 3=6236
 C^{12} , elastic, at 2.74-4.14 MeV, diff. cross-sections, states in N^{14} 1=7324
 C^{12} , elastic, 140-750 keV 1=4865
 C^{12} , inelastic, at 5.5 MeV, levels in N^{14} 1=7325
Ca, elast. scatt. at 180 MeV 1=19475
Ca, elastic, 220 MeV 0=5738
 Ca^{40} , elastic and inelastic, rel. to Sc^{41} nuclear band structure 0=1365
 Ca^{40} , inelast. at 6.6 MeV 3=6237
 Ca^{40} , inelastic, at 150 MeV 2=1873

Protons and antiprotons—contd
scattering—contd

- Ca^{40} , inelastic, at 6.6 MeV 2=10096
 Ca^{40} low-lying levels 4=19770
 Ca^{40} , 155 MeV, inelastic 4=15202
 $Ca^{40}(p,p')$, 55 MeV 4=25305
 $Ca^{40}(p,p'\gamma)$, at 150 MeV 3=10342
on Ca^{40} , quasi-elastic, at 185 MeV 3=10336
by Ca^{40} , quasi-free, 180 MeV 2=22802
Cd, elastic, at 6.8 MeV, ang. distrib. 1=8707
on Cd, elastic, 6.8 MeV, ang. distrib. 1=13782
Cd, at 19.6 MeV 2=16396
 $Cd^{111,116}$, by optical model 2=20610
 Cd^{111} , 6-10 MeV, excitation functions 1=688
 Cd^{114} excitation, coupled channel analysis 4=22126
 Ce^{140} , 82, 110 and 156 MeV protons, Monte Carlo calc. of cascades 4=17136
CIF mol. crystal thin film, and F^{19} 2nd. excited state elec. moment meas. 4=25297
Co, elastic, at 6.8 MeV, ang. distrib. 1=8707
on Co, elastic, 6.8 MeV, ang. distrib. 1=13782
on Co, elastic, 6.8 MeV, ang. distrib. 1=13786
Co, at 5.45 MeV, elastic 0=7563
by Co, 6.8 MeV 2=10097
 Co^{59} , elastic, 9.4 MeV 4=9495
 Co^{59} , inelastic, at 5-11 MeV, statistical theory 2=22813
 Co^{59} , 155 MeV, inelastic 4=15203
 Co^{59} , by optical model 2=20610
 Co^{59} , optical model calc. 1=17093
on Cr, Ni and Cu nuclei, at 6.8 MeV 1=19455
Cr, optical model analysis 3=12662
by Cr, 6.8 MeV 2=10097
 Cr^{50} levels from inelastic scattering 4=19687
 $Cr^{50,52}$, 2 to 5 MeV, elastic, resonances rel. to cluster model 1=19427
 $Cr^{50,52,53,54}$ 10-11 MeV, elastic 4=30336
 $Cr^{50,52,54}$, inelastic, 6.9 MeV meas. 3=22373
 Cr^{58} 3=4665
by Cr^{52} first excited states 2=16394
 Cr^{52} , inelastic, 14.65 MeV 2=18319
 Cr^{52} , inelastic, 17.45 MeV meas. 4=15204
 Cr^{52} , 155 MeV, inelastic 4=15203
 $Cr^{52}(p,p')$, 5.8 MeV, $p'\gamma$ angular correlation 4=9492
 $Cr^{52}(p,p'\gamma)$ triple ang. correl. surfaces 2=20607
 $Cr^{52,53}$ 0=7556
 $Cr^{52,53}$ optical model calc. 1=17093
 $Cr^{52,53,54}$, elastic, 6.9 MeV, ang. distrib. 3=17457
Cu, rel. to absorbing part of optical potential 2=22701
Cu, 8-14 MeV 0=20453
Cu, elastic, at 6.8 MeV, ang. distrib. 1=8707
on Cu, elastic, 6.8 MeV, ang. distrib. 1=13782
on Cu, elastic, 6.8 MeV, ang. distrib. 1=13786
on Cu, at 5.45 MeV, elastic 0=7563
Cu, multiple, 75-200 keV 4=21852
Cu, at 9.4 MeV, elastic 2=1875
Cu, 9.4 MeV, elastic, polarization 3=12661
on Cu, 17 MeV protons, rel. to optical model 3=12663
by Cu, at 6.8 MeV 2=10097
Cu, 10 MeV 0=7549
by Cu, at 10 MeV 2=5908
Cu, at 3 BeV, small-angle elastic scatt. 0=9628
 $Cu^{63}(p,p')$, 11 MeV 3=10338
 $Cu^{63}(p,p')$, 5-11 MeV 4=9498
 $Cu^{63,65}$, elastic, at 6.8 MeV, ang. distrib. 1=8706
 $Cu^{63,65}$, elastic, 7-12 MeV ang. distrib. 4=19772
 $Cu^{63,65}$, elastic, 12.29 MeV, optical model analysis 4=15205
 $Cu^{63,65}$, inelastic, at 5-11 MeV, statistical theory 2=22813
 $Cu^{63,65}$ levels, inelastic, 6.6 MeV 4=3651
 $Cu^{63,65}$, at 7-12 MeV, failure of $A^{1/3}$ nuclear radius law 1=12196
 Cu^{65} , elastic, at 7.5 MeV, ang. distrib. 1=11013
 Cu^{65} , by optical model 2=20610
 Cu^{65} , optical model calc. 1=17093
 $Cu^{65}(p,p')$ ang. distrib., reaction mechanism 2=14084
 D^2 , T^3 , He^3 , 2.7 to 4 MeV, rel. to polarization 4=12005
 F^{19} excitation 4=12138
 F^{19} , inelastic, 6.0-7.5 MeV 2=1877
 F^{19} resonance, Coulomb excitation 3=12572
 $F^{19}(p,p')$, 140 MeV, rel. to excitation mechanisms 4=25388

Protons and antiprotons—contd
scattering—contd

- Fe, elastic, at 6.8 MeV, ang. distrib. 1=8707
 on Fe, elastic, 6.8 MeV, ang. distrib. 1=13782
 on Fe, elastic, 6.8 MeV, ang. distrib. 1=13786
 Fe, elast. scatt. at 180 MeV 1=19475
 Fe, optical model analysis 3=12662
 Fe⁵⁴, elastic, 12 MeV ang. distrib. 4=19772
 Fe⁵⁴, inelastic, 17.45 MeV meas. 4=15204
 Fe⁵⁴, 2 to 5 MeV, elastic, resonances, rel. to cluster model 1=19427
 Fe⁵⁶, elastic, 10.9 and 11.7 MeV meas. 4=9493
 Fe⁵⁶, inelastic, 14.65 MeV 2=18319
 Fe⁵⁶, 19.2 MeV, optical potential, imaginary, shape 4=9351
 Fe⁵⁶, 155 MeV, inelastic 4=15203
 Fe⁵⁶(p, p'γ), 5.8 MeV, p'γ angular correlation 4=9492
 Fe⁵⁶(p, p'γ), p'γ angular correl. 2=5902
 Fe⁵⁶(p, p'γ) triple ang. correl. surfaces 2=20607
 Fe⁵⁶, ⁵⁸, first excited state, near 10 MeV 4=9494
 Fe⁵⁸, elastic, 10.9 and 11.7 MeV meas. 4=9493
 Gd¹⁵⁶, coupled channel analysis 4=22128
 Gd¹⁵⁶, inelastic, 17.5 MeV 4=6332
 Ge⁷², inelastic, γ-spectra 1=19459
 Ge⁷², inelastic, at 2.3-6.2 MeV 2=3529
 on Ge⁷⁴, Coulomb excitation 1=4874
 on Ge⁷⁶, Coulomb excitation 1=4874
 H, atomic, stopping power at low energies 0=9755
 H atoms, inelastic, degeneracy effects 3=4721
 on H atoms, low-energy, impact parameter treatment 1=7446
 H atoms, resonant electron capture 2=3715
 H excited atoms, Born collision cross-sections 4=3814
 H μ-mesic atom 3=6371
 He, ang. distrib., 55 MeV 4=16894
 He atom excitation, 40-200 keV 2=526
 p-He differential cross-section, normalization, meas. at Harvard 4=3410
 He, 9.2 and 14.5 MeV 0=20140
 He³, elastic, at 5-10 MeV, ang. distrib. 0=9359
 p-Fe³, elastic, 4.5 to 11.5 MeV 4=12004
 He³, elastic, 4-13 MeV, polarization meas. 4=12003
 He³, elastic, 3.72-10.72 MeV, diff. cross-sections, calc. 1=556
 by He³, elastic, 2.0-4.8 MeV, phase shifts 3=6005
 He³, 5-20 MeV, elastic scatt. calc. 0=9352
 He³ nuclei at 29 MeV, elastic 3=7860
 by He³, 1-14 MeV 4=16895
 He³, polarization, calc., rel. to scatt. on T 1=3184
 He³, polarization rel. to asymmetry and spin-spin correl. 1=16920
 He³, at 29 MeV 0=20250
 He⁴, elastic, at 20.1 MeV, diff. cross-section 0=2541
 p-He⁴, elastic, 2-11 MeV 4=12001
 He⁴, elastic, at 2-6 MeV, phase-shift analysis, spin polarization calc. 0=1408
 He⁴, at 55 MeV, and He⁴ excitation 4=16981
 He⁴, inelastic, ang. and momentum distrib. of residual nuclei 1=19296
 He⁴, inelastic 180 MeV 2=18110
 He⁴, at 185 and 440 MeV, quasi-free scatt. 1=8717
 p-He⁴, polarization at 38 MeV 2=20337
 He⁴, at 630 MeV 0=12933
 on He⁴ at 660 MeV, by nuclear recoil technique 2=247, 22376
 He⁴, 31 MeV, optical model analysis 4=19514
 on Hf, Coulomb excitation 1=13787
 Ho¹⁶⁵, coupled channel analysis 4=22128
 Ho¹⁶⁵, inelastic, 17.5 MeV 4=6332
 In, elast. scatt. at 180 MeV 1=19475
 In, inelastic, 30 and 2.9 GeV meas. 3=2460
 In¹¹⁵, inelastic, at 5-10 MeV, recoil ranges 2=22811
 In¹¹⁵, 6-10 MeV, excitation functions 1=688
 K³⁹, 155 MeV, inelastic 4=15203
 K⁴¹, inelastic, excitation function 2=450
 Li, elast. scatt. at 180 MeV 1=19475
 Li, inelastic 1=19473
 Li(p, p') at 150 MeV 2=3568
 Li⁶, elastic, phase shift analysis 3=15188
 Li⁶, elastic, 2.4-12 MeV 4=6328
 Li⁶, polarization, calc. 1=3443
 Li⁶, by p-proton, quasi-elastic calc. 3=2442
 by Li⁶, p-proton, quasi-free scatt. 2=22801
 Li⁶, quasi-elastic, cluster model 2=7920

Protons and antiprotons—contd
scattering—contd

- Li⁶(α, α')Li^{6*}, 2.18 MeV 4=9504
 Li^{6,7} cross. and polarizations, at 155 MeV, var. momentum transfer 4=19764
 Li^{6,7}, 155 MeV, inelastic 4=15202
 Li^{6,7}, 155 MeV, polarization, Li⁷ $\frac{1}{2}^-$ level 4=12212
 Li^{6,7}(p, 2p), quasi-free, 155 MeV 3=6232
 by Li⁷, momentum distrib. protons in nucleus 2=16401
 by Li⁷, near 441 keV, polarization 1=19456
 Li⁷, at 180 MeV, ang. distrib. 0=17587
 Li⁷, at 185 and 440 MeV, quasi-free scatt. 1=8717
 Li⁷(d, n)Be⁸, recoil protons scattered by neutrons 1=16796
 Mg, differential cross-section and polarization 0=15569
 Mg, elastic, at 9.1 MeV, polarization 0=11411
 on Mg, 7.3-15.9 MeV 1=17095
 Mg²⁴, elastic and inelastic, 7.6-14.2 MeV 1=8724
 Mg²⁴, elastic, 9.5-22.2 MeV 2=3561
 Mg²⁴, elastic, 1450-4200 keV 3=22372
 Mg²⁴, rel. to γ-decay investigation 2=5870
 Mg²⁴, inelastic, with Coulomb interaction 0=9629
 Mg²⁴, inelastic, rel. to 1.38 MeV level spin 2=16296
 Mg²⁴, inelastic, at 6.8 MeV 0=13235
 Mg²⁴, inelastic, at 16.6 MeV, p'-γ ang. correl. 0=5745
 Mg²⁴, 6.9 MeV 3=19840
 Mg^{24,26}, inelastic, study of low levels 1=8578
 Mg²⁴(p, p'γ)Mg²⁴ 0=11383
 Mg²⁴(p, p'γ)Mg²⁴, inelastic, at 10.7 MeV 2=1876
 Mg²⁴(p, p'γ), p'-γ ang. correl. rel. to spin flip 4=17123
 Mg²⁴(p, p'γ) triple ang. correl. surfaces 2=20607
 Mg²⁴(p, p'γ), 2.7-4.2 MeV 3=6234
 Mg²⁶, and Al²⁸ levels, 7.8-9.8 MeV 4=1069
 Mg^{25,26}, inelastic, 17 MeV 2=20609
 Mg²⁶, and Al²⁷ levels, 9.7-11.9 MeV 4=1069
 Mn⁵⁵, inelast. at 66 MeV 2=10096
 Mn⁵⁵, inelast., at 6.6 MeV 3=6237
 Mn⁵⁵ and Ho¹⁶⁵, 5, 14 MeV, elastic 3=19828
 N, elastic, 1-3 MeV, resonances and phase shift analysis 0=1411
 N, inelastic 1=19473
 on N, 142 MeV, elastic and total cross-sections 1=13781
 N¹⁴, elastic and inelastic, 7.6-14.2 MeV 1=8724
 N¹⁴, elastic, 1-2 MeV 2=442
 N¹⁴, inelastic, 10.2 MeV, energy levels 4=9488
 N¹⁴, 1-2 MeV, elastic, diff. cross-sections 3=12582
 N¹⁴-p, spin-flip, inelastic, 9.2 MeV 2=12185
 by N¹⁴, spin dependence, compar. with C¹² 1=4863
 N¹⁴(p, 2p) quasi-elastic, and hole-excitation spectrum 3=8086
 N¹⁵, rel. to O¹⁶ excited states 2=18265
 Na²³, 850-910 keV, reson. inelastic, γ yield, lack of asymmetry 3=24929
 Na²³, inelastic, 873 keV, interference with Coulomb excitation 4=25389
 Na²³, at 185 and 440 MeV, quasi-free scatt. 1=8717
 Na²³, 155 MeV, inelastic 4=15203
 Na²³(p, p'γ), nuclear resonance effects 2=12130
 Ne, elastic and inelastic, at 6.9-15.6 MeV, ang. distrib. 1=8709
 Ne²⁰, ang. distrib., cross-sections, 5.20-6.23 MeV 3=6233
 Ne²⁰, elastic and inelast., 3.35 and 5.15 MeV 4=9489
 Ne²⁰, elastic and inelastic, 7.6-14.2 MeV 1=8724
 Ne²⁰, inelastic, 17 MeV 2=20609
 Ne²⁰, inelastic, study of low levels 1=8578
 Ne²⁰(p, p'γ), ang. correls. at 1.63 MeV 4=1076
 Ne²⁰(p, p'γ), inelastic, at 2-3 MeV 1=19457
 Ne²⁰(p, p'γ), inelastic, at 2-3 MeV 3=4632
 by Ne²¹, resonances in Na²² 4=19768
 by Ne²², elastic and inelastic, compound Na²³ nucleus energy levels 4=9490
 Ne²²(p, p'γ) 3=2449
 Ni, 8-14 MeV 0=20453
 Ni, elastic, at 6.8 MeV, ang. distrib. 1=8707
 on Ni, elastic, 6.8 MeV, ang. distrib. 1=13782
 on Ni, elastic, 6.8 MeV, ang. distrib. 1=13786
 Ni, at 5.45 MeV, elastic 0=7563
 Ni, inelastic, at 7.8-11.4 MeV, evidence for compound nucleus formation 1=2214
 Ni, optical model analysis 3=12662
 Ni, and optical model calc. 1=13759
 by Ni, 6.8 MeV 2=10097
 Ni⁵⁸, elastic and inelastic 0=5746

Protons and antiprotons—contd
scattering—contd

Ni⁵⁸, elastic, 10.9 and 11.7 MeV meas. 4=9493
by Ni⁵⁸ first excited states 2=16394
Ni⁵⁸, polarization of 7-8 MeV protons 2=18320
Ni⁵⁸, at 39.7 MeV, inelastic 1=19370
Ni⁵⁸ (7.0–15.3 MeV) elastic and inelastic 1=9852
Ni⁵⁸, 2 to 5 MeV, elastic, resonances, rel. to cluster model 1=19427
Ni⁵⁸ (p, p'γ), p'γ ang. correl. rel. to spin flip 4=17123
Ni⁵⁸ (p, p'γ) triple ang. correl. surfaces 2=20607
Ni^{58,60}, elastic, excitation function, 7-12 MeV 3=22370
Ni^{58,60}, elastic, 9.4 MeV 4=9495
Ni^{58,60}, elastic, 7-12 MeV ang. distrib. 4=19772
Ni^{58,60}, inelastic, 14.65 MeV 2=18319
Ni^{58,60} levels, inelastic, 6.6 MeV 4=3651
Ni^{58,60}, compound-elastic, 5.45 MeV calc. 4=9497
Ni^{58,60} (p, p') ang. distrib., reaction mechanism 2=14084
Ni^{58,60} (p, p'γ) ang. correl., reaction mechanism 2=14084
Ni^{58,60,62}, elastic, at 6.8 MeV, ang. distrib. 1=8706
on Ni^{58,60,62,64}, elastic scatt., 4.2 MeV 3=24930
Ni^{58,60,62,64}, elastic scatt., 6.9 MeV 4=25390
Ni^{58,60,62,64}, optical model calc. 1=17093
Ni^{58,64}, first excited state, near 10 MeV 4=9494
Ni⁶⁰, elastic, inelastic, 30.8 MeV 2=16404
Ni⁶⁰ (7.0–15.3 MeV) elastic and inelastic 1=9852
Ni⁶⁰, at 39.7 MeV, inelastic 1=19370
Ni⁶⁰, at 31 MeV, inelastic 1=19458
Ni⁶⁰ (p, p'γ), 4.4 to 5.0 MeV 3=10343
Ni⁶² (p, p'), 11 MeV 3=10338
Ni^{62,64}, elastic, 3.4–4.2 MeV meas. 4=9496
Ni^{62,64}, elastic, 12 MeV ang. distrib. 4=19772
Ni^{62,64}, 11 MeV, and energy levels, low lying, vibr. 4=1001
Ni⁶⁴, elastic, 6.8 MeV, ang. distrib. 2=443, 22805
Ni⁶⁴, 11 MeV inelastic, excit. energies 4=3567
Ni⁶⁴, inelastic, 9.6–11.7 MeV 3=10259
Ni⁶⁴, 9.6 and 11.7 MeV, elastic 3=10339
Ni–Zn, even–even, and energy levels, low lying, vibr. 4=1001
O, 8–14 MeV 0=20453
O, at 8.7 MeV, effect on polarization 0=5743
O, elastic, 8.66–19.2 MeV, optical model analysis 3=6235
O, elastic and inelastic, at 6.9–15.6 MeV, ang. distrib. 1=8709
on O, 142 MeV, elastic and total cross-sections 1=13781
O ions in protonosphere 1=20986
O¹⁶, analysis, rel. to F¹⁷ level parameters 2=13991
on O¹⁶, elastic 1=17100
O¹⁶, elastic, 4.25–8.6 MeV meas. 2=16405
O¹⁶, elastic and inelastic, differential cross-sections 3=4631
O¹⁶, elastic and inelastic, 13–19 MeV 4=28024
by O¹⁶, elastic, phase shift analysis 3=2446
by O¹⁶, elastic, polarization meas. 3=2445
O¹⁶, inelastic, excitation of 2' and O' levels 4=25294
O¹⁶, inelastic, high-energy, diff. cross-section, calc. 1=3442
O¹⁶, inelastic, at 180 MeV 0=7564
O¹⁶, inelastic, at 150 MeV, high-energy γ-rays from giant resonance 1=8723
O¹⁶, inelastic, at 150 MeV, meas. 3=2451
O¹⁶, inelastic, 7.18–12.90 MeV, meas. 4=9508
O¹⁶, polarization ang. distrib., and F¹⁷ levels 4=19767
O¹⁶, polarization, calc., choice of F¹⁷ level parameters 0=20451
on O¹⁶, quasi-elastic, at 185 MeV 3=10336
O¹⁶, (6.9–15.6 MeV) elastic and inelastic 1=9853
O¹⁶, elastic and inelastic, 0.79–3.55 MeV, abs. diff. cross-sections, levels in F¹⁹ 1=7370
O¹⁶, elastic, 600 to 1450 keV 2=16397-8
O¹⁶, and F¹⁹ energy levels, spin and parity, 9.6–11.2 MeV 4=1070
O₂, two-state and multistate excitation 3=25104
Os, at 4–5 MeV, Coulomb excitation of second 2⁺ state 1=8725
P³¹, elastic, 1–2 MeV 2=442
P³¹, elastic, study of S³³ energy levels 3=7988
P³¹, inelastic, gamma-ray emission 2=3567
P³¹, inelastic 6.0–7.5 MeV 2=1877
P³¹, 155 MeV, inelastic 4=15203
P–He, elastic, polarization measurements 1=8457
on Pb 2=12186

Protons and antiprotons—contd
scattering—contd

Pb, elastic, 19.2 GeV/c meas. 4=9499
Pb, elastic, at 6.8 MeV, ang. distrib. 1=8707
on Pb, elastic, 6.8 MeV, ang. distrib. 1=13782
Pb, at 3 BeV, small-angle elastic scatt. 0=9628
Pb²⁰⁸⁻⁸, inelastic, rel. to config. mixing 3=8020
Pb²⁰⁸, elastic, inelastic, 30.8 MeV 2=16404
Pb²⁰⁸, elastic, 17 MeV, differential cross-section 4=6333
Pt, at 4–5 MeV, Coulomb excitation of second 2⁺ state 1=8725
Rh¹⁰³, inelastic, at 5–11 MeV, statistical theory 2=22813
S³², elastic and inelastic, ang. distrib. 2=5903
S³², elastic and inelastic, at 4.95–5.45 MeV, ang. distrib. and total cross-sections 0=20452
S³², elastic and inelastic, 7.6–14.2 MeV 1=8724
S³², 5.7–6.34 MeV 2=16403
S³², 5.7–6.34 MeV 3=6240
S³², inelastic, spin of second excited state 1=8591
S³², inelastic, study of low levels 1=8578
S³² low-lying levels 4=19770
S³² (p, p'γ) ang. correl., reaction mechanism 2=14084
S³³, resonances and S³³ levels 4=19771
p–Se⁷⁶, elastic, rel. to optical model for d-stripping 2=16430
Se⁷⁶, inelastic, γ-spectra 1=19459
Se⁷⁷ excitation 1=5907
Se⁷⁸, inelastic, 11 MeV 2=1874
Se⁷⁸, inelastic, γ-spectra 1=19459
Si, inelastic, at 7.5–8.5 MeV, energy levels of Si²⁸⁻³⁰ 0=13141
Si²⁸, elastic and inelastic, diff. cross-sections at 1.4–3.8 MeV 0=4032
Si²⁸, elastic and inelastic, at 4.95–5.45 MeV, ang. distrib. and total cross-sections 0=20452
Si²⁸, elastic and inelastic, levels in P²⁹ 2=18270
Si²⁸, elastic and inelastic, 7.6–14.2 MeV 1=8724
Si²⁸, elastic and inelastic, 10–12.3 MeV, ang. distrib. 1=9854
Si²⁸, elastic and inelastic, at 2–5 MeV, levels in P²⁹ 1=7327
Si²⁸, rel. to γ-decay investigation 2=5870
Si²⁸, inelastic, with Coulomb interaction 0=9629
Si²⁸, inelastic, at 5.8–7.0 MeV, p–γ ang. correl. 1=4868
Si²⁸ low-lying levels 4=19770
Si²⁸ (p, p'γ) ang. correl., reaction mechanism 2=14084
Si²⁸ (p, p'γ) Si²⁸ 1=5914
Si^{28,30}, inelastic, study of low levels 1=8578
Si³⁰, elastic, 1–3.65 MeV 3=17456
Si³⁰ (p, p'γ) Si³⁰ 1=5914
Sm^{148,150}, inelastic, 12 MeV 4=9412
Sm¹⁵², inelastic, at ~4 MeV, comp. with Coulomb excitation theory 1=2208
Sm^{152,154}, low-lying collective states excit. 4=27976
Sm¹⁵⁴, inelastic, 11 MeV 2=1874
Sn, elastic, at 6.8 MeV, ang. distrib. 1=8707
on Sn, elastic, 6.8 MeV, ang. distrib. 1=13782
Sn, at 19.6 MeV 2=16396
Sn^{122,124}, inelastic, 11–12 MeV 4=25314
Sn¹²⁴, by optical model 2=20610
Sr⁸⁸, elastic, 4–5.5 MeV, excit. functions 4=17057
T, ang. var., and He⁴ excitation 4=25211
T, elastic, at 50–200 keV, phase-shift analysis 0=13073
T, elastic, 990 keV, phase shift analysis 3=22130
T, 5–20 MeV, elastic scatt. calc. 0=9352
T, polarization, calc., rel. to scatt. on He³ 1=3184
by Ta, elastic, theory and expt. 3=2441
Ta¹⁸¹, elastic, 17 MeV, differential cross-section 4=6333
on Th²³², excitation of first excited state 1=5908
Ti, 8–14 MeV 0=20453
Ti isotopes, rel. to V nuclear levels 1=5844
Ti, optical model analysis 3=12662
Ti⁴⁸, inelastic, 14.65 MeV 2=18319
Ti⁵⁰, 155 MeV, inelastic 4=15203
Ti⁴⁸, polarization of 7–8 MeV protons 2=18320
Ti⁵⁰, inelastic, 17.45 MeV meas. 4=15204
U^{235,238}, elastic, at 22.8 MeV, cross-sections 0=1412
U²³⁸, 82, 110 and 156 MeV protons, Monte Carlo calc. of cascades 4=17136
on U²³⁸, excitation of first excited state 1=5808
V⁵¹, elastic, at 7.5 MeV, ang. distrib. 1=11013
V⁵¹, inelastic, at 5–11 MeV, statistical theory 2=22813

Protons and antiprotons—contd
scattering—contd

- V^{51} , inelastic, 17.45 MeV meas. 4=15204
 on W, Coulomb excitation 1=13787
 W, elastic, 17 MeV, differential cross-section 4=6333
 W, at 4-5 MeV, Coulomb excitation of second
 2⁺ state 1=8725
 on W^{186} , 6.7-12.6 MeV 1=5905
 Y^{89} , elastic, 4-5.5 MeV, excit. functions 4=17057
 Zn, 8-14 MeV 0=20453
 Zn, elastic, at 6.8 MeV, ang. distrib. 1=8707
 on Zn, elastic, 6.8 MeV, ang. distrib. 1=13782
 on Zn, elastic, 6.8 MeV, ang. distrib. 1=13786
 Zn, optical model analysis 3=12662
 Zn, and optical model calc. 1=13759
 by Zn, 6.8 MeV 2=10097
 Zn^{64} , elastic, 9.5-22.2 MeV 2=3561
 Zn^{64} , first excited state, near 10 MeV 4=9494
 Zn^{64} , inelastic, 14.65 MeV 2=18319
 Zn^{64} , inelastic, γ -spectra 1=19459
 Zn^{64} , inelastic, 9.6-11.7 MeV 3=10259
 Zn^{64} , 9.6 and 11.7 MeV, elastic 3=10339
 $Zn^{64,66}(p, p'\gamma)$, 4.4 to 5.0 MeV 3=10343
 $Zn^{64,66,68}$, elastic, at 20.35 MeV, absolute diff. cross-
 section 0=1409-10
 $Zn^{64,66,68}$, at 11 MeV 0=4092
 $Zn^{64,66,68}$, 5.8 MeV, inelastic p- γ ang. correl. 4=17125
 $Zn^{64,68}$, optical model calc. 1=17093
 $Zn^{64,68}$, elastic, at 5.4 MeV, ang. distrib. 1=8705
 $Zn^{64,68,70}$, elastic, 6.9 MeV, ang. distrib. 3=17457
 Zn^{68} , inelastic, γ -spectra 1=19459
 Zn^{68} , inelastic, γ -spectra 1=19459
 Zr^{90} , inelastic, at 3.35-6.5 MeV 2=3529
 $Zr^{90,91}$, elastic, at 5.45 MeV, ang. distrib. 2=444, 22804
 $Zr^{90,91,92,94,96}$, elastic, 22.5 MeV meas. 4=25391
 $Zr^{90,92,96}$, elastic, 6.8 MeV, ang. distrib. 2=443, 22805
- scattering, proton-deuteron**
 differential cross-section, normalization, meas. at
 Harvard 4=3410
 differential cross-sections at 600 MeV 0=368
 diffraction scatt., high-energy, double scatt. correc-
 tions 4=25207
 doublet and quartet scattering lengths, low-energy 4=9197
 effect of n-p mass difference 4=12007
 elastic, proton polarization 4=16897
 elastic scattering 4=27854
 elastic, at 3.4 and 3.74 MeV, proton polarization 0=9361
 elastic, 675 MeV protons 0=1320
 elastic, 6.2 GeV, emulsion study 4=11997
 elastic triple scatt., 140 MeV, R and A parameters 3=22127
 forward neutron prod. cross-section 2=7987
 high energy, rel. to proton-nucleon scatt.
 model 2=10095
 inelastic, impulse approx. calc. 3=7851
 inelastic, slightly, meas. at 158 MeV 3=7850
 meson production, Crowe anomaly 2=297
 π -meson prod. 0=9425
 polarization ang. var., 40 MeV 4=25097
 quasi-elast., impulse approx. calc. 2=12016
 quasifree, corrections near 210 MeV, by impulse
 approx. method 4=19512
 quasifree, impulse approx. interpret. 3=22128
 small angles, 6.2 GeV 4=27855
 d-p, 24.35 MeV, d disintegration 3=24806
 d-p, of 24.4 MeV deuterons 1=3246
 77 MeV, cross-sections 3=22129
 77 MeV, cross-sections, total and elastic 3=12516
 22 MeV, tensor polarization parameters of
 deuterons 4=3495
 90 MeV, charge exchange in 19 atm deuterium 0=3967
 146 MeV, elastic, polarization and diff.
 cross-section 1=13183
 212 MeV, quasi-elastic p-n scatt. 2=3335
 of protons, 625 MeV, rel. to deuteron wave-function 0=1320
 970 MeV 0=9356
- scattering, proton-neutron**
 See Neutrons and antineutrons, scattering,
 proton-neutron.
- scattering, proton-proton**
 analytic amplitude for determ. of nucleon-meson coupling
 const. 3=19625
 ang. dependence of polarization at 970 MeV 0=17334

Protons and antiprotons—contd
scattering, proton-proton—contd

- associated meson production 0=15454
 boson exchange model 3=7853
 boundary condition model 0=20133
 bremsstrahlung and off-energy-shell behaviour 4=6043
 comparison with π -p scatt., using only three
 Regge poles 3=14983
 Coulomb, generalized Born approximation 0=15279
 Coulomb and nuclear scatt. combined, phase-shift
 anal. 0=17333
 Coulomb phase shifts 4=3406
 cross-sections, Chew-Low extrapolation method 3=22129
 cross-section meas. at 90° (c.m.), 20-50 MeV 4=11990
 cross-section and polarization, at 98 and 142 MeV 0=11164
 cross-section, "total," 70-153 MeV 4=25096
 cross-sections, 600-1000 MeV, rel. to isotopic
 spin 1=16770
 in 1D_2 state, at 616 MeV 0=2544
 use of "damping" functions 0=9319
 depolarization, 50 MeV 3=17275
 depolarization at 143 MeV 1=19198
 depolarization parameter, 213 MeV 2=20338
 difference from p-n cross-section, rel. to p-n charge
 exchange 4=16821
 differential cross-section at 1 GeV 1=5724
 differential cross-section, meas. at 155 MeV, by
 three methods 1=16782
 differential cross-section, normalization, meas. at
 Harvard 4=3410
 diffraction peak shrinkage with increasing energy and
 amplitude or spin dependence 4=9194
 diffraction peaks, shrinkage 3=22121
 diffraction scatt., high-energy, and new Regge
 trajectories 4=9144
 Dirac monopoles prodn. cross-section 3=14861
 dispersion relations, two-pion contrib. at 10 MeV 2=16194
 dispersion reln. study at 10 MeV 3=10116
 dynamical effects of molecular electrons 3=1618
 effective radius theory, detm. by Mandelstam dispersion
 relations 3=2265
 effective-range, theory with vacuum polarization 0=17335
 elastic cross-section at high momentum transfers 3=7854
 elastic cross-section, rel. to T-matrix element 4=16947
 elastic diffraction, 3-28 GeV 3=10071
 elastic energy var. as Cerulus-Martin lower
 bound 4=27850
 elastic, high-energy, diffraction peak shrinkage 4=27851
 elastic, high-energy, role of multimeson interact.,
 Regge theory 4=6050
 elastic, at high energies, rel. to energy and
 angle 4=25092
 elastic, impact parameter represent. analysis 4=3402
 elastic and inelastic, at high energies 2=18111
 elastic and inelastic, 19.8 GeV/c, meas. 3=2259
 elastic and inelastic, 3.5 GeV meas. 3=2260
 elastic, large angle, statistical interpretation 4=15053
 elastic, obs. poss. of n-p charge exchange peak 4=25080
 elastic and one-pion-exchange, at 970 MeV, meas. and
 theory 4=15055
 elastic, phase-shift analysis near 140 MeV 4=25079
 elastic scatt. at 2 BeV, meas. 2=9838
 elastic scattering 4=27854
 elastic and single-pion prod. events at 2.85 BeV 1=13415
 elastic, small-angle, at 6-10 GeV 4=12000
 elastic, rel. to vector particle pole diagram 3=15023
 elastic, at 14.16 MeV 1=7241
 elastic, \sim GeV, hard core disappearance
 explanation 3=24725
 elastic, 1-9 GeV, differential cross-sections 2=16195
 elastic, 1.35-2.9 BeV, meas. and theory 3=2262
 elastic, 5.2 BeV, photographic emulsions 2=16197
 elastic, 5.2 BeV, in photog. emulsions 3=6000
 elastic, 8.35 BeV, differential cross-sections 3=24727
 elastic, at 8.5 BeV 0=20134
 elastic, 8.5 BeV 2=5640
 elastic, 8.5 GeV, interpretation of results 2=9843
 elastic, 14 GeV, in nuclear emulsions 4=18506
 elastic, 19.2 GeV/c, on free protons 3=12458
 elastic, 6.2 GeV, emulsion study 4=11998
 elastic, 6.2 BeV, at small angles 2=9842
 elastic, 6.2 BeV, 325 cases 3=24726

Protons and antiprotons—contd**scattering, proton-proton—contd**

elastic, above 10 GeV, rel. to ang. distrib.
shrinking 3=4360
elastic, 12-27 GeV 2=22503
elastic, 24 GeV, bubble chamber and emulsion data 2=5638
elastic, at 24 GeV/c 2=22514
elastic, 24 GeV/c, cross-sections 3=7856
elastic, 24.5 GeV/c 2=22515
electron excitation effects, compensations 0=1278
energy-momentum transfers, high energy collisions 4=9125
fixed angle dispersion relations 0=2539-40
forward scatt. amplitude, real part, 3-15 GeV/c, rel. to
p-p scatt. 4=15059
fundamental length at very high energies 4=19433
high energies, phenomenological potential 0=5558
high-energy, Coulomb interference 3=5999
high-energy diffr. expts. 4=21848
high-energy, elastic and shrinking diffr. width? 3=14917
high-energy, exam. Cornell-Brookhaven meas. 4=30224
high-energy model, p-p p-p 4=15058
high energy, pp, pp, Regge pole model and negative
residues 4=16892
high-energy, Serber's model, use of sum of 2 Yukawa
potentials 4=6048
high-energy small-angle 1=16784
high-energy, Yukawa potential with Gaussian tail 4=21851
inelastic bump at high energies, final-state
interaction 3=24719
inelastic and elastic, at 12-27 GeV/c 2=5639
inelastic, at 9 BeV, interpretation 0=11168
inelastic, 1.35-2.9 BeV, rel. to one-pion-
exchange 3=2261
interference min., and shape parameter 4=27845
large angle, 30 BeV 4=25093
in light nuclei, (p,p) reactions 4=12215
low-energy, and 1S_0 shape parameter 4=16891
low-energy, double Yukawa potential descriptn. 4=11991
low-energy, phase shifts and dispersion relations 1=4795
low-energy (< 5J MeV), phase shift analysis 1=13416
matrix coeffs., information from Coulomb
interference 1=9753
meson prod. at 660 MeV, contrib. of 3P and 3F
waves 4=6049
and mesons, vector, exchange, 170 MeV 3=17264
models comparison at 10-320 MeV 4=15054
models, six, comparison with 10-320 MeV data 4=3403
multipion-exchange, Amati-Leader-Vitale theory rel. to
expt. 4=11994
rel. to $n + p \rightarrow n + p + \bar{n} + \pi^-$ 4=30227
normal polarization components, correlation at
650 MeV 1=19200
normal polarization components, correlation at
650 MeV 2=22518
normal spin-correl. coeff., (3,3) resonance and energy
dependence 4=11992
OBEC nuclear force model, below 300 MeV 4=25094
 ω -meson production at 2.85 BeV 2=22607
one-pion exchange 2=16193
one-pion exchange effects, quantitative evidence 1=2056
optical model, high momentum transfer, simple power
law 3=17278
partial waves, higher, and 3-meson model 3=14981
phase-shift analysis, evidence for two-pion
exchange interaction 1=4807
phase shift analysis of 52 MeV data 4=3405
phase-shift analysis including absorpt. effects 3=10113
phase-shift analysis, at 95 MeV, "ravine" method 1=16785
phase shift analysis at 970 MeV 4=27849
phase shift analysis of 142 MeV data 4=16888
phase-shift analysis, 68-142 MeV 2=7857
phase-shift analysis, 660 MeV 3=24722
phase shift analysis at 660 MeV 4=27848
phase shift analysis, test of charge independence 0=11157
phase shift analysis, 213 MeV 4=27847
phase-shift analysis, 660 MeV, spin flip correction 4=3409
phase-shift analysis 210 MeV 3=2257
phase-shift analysis, using Wolfenstein parameter
meas. 1=13412
phase-shift calc. 0=17251
phase shift, 660 MeV 3=24723
phase-shifts, complex, from pion prod. data 0=3968

Protons and antiprotons—contd**scattering, proton-proton—contd**

phase shifts, depolarization scattering parameter,
210 MeV 0=17336
phase shifts at 50 MeV 4=27846
phase shifts, rel. to n-p polarization 1=4793
phase shifts at 150 MeV 0=15351
phase shifts set for 435 MeV 4=9196
phase shifts, 657 MeV, with triple scatt. para-
meter 4=16889
phenomenological analysis at 657 MeV 4=6042
 π meson multiple prod. at 2.85 BeV 2=9889
 π -meson prod., charged, at 1 GeV, models 3=2297
 π meson prod. at 2.9 BeV 2=5710
 π -meson prod., 2.9 BeV, meas. rel. to theory 3=6034
in πN coupling const. calc. 1=19248
in π -N coupling const. calc. 2=22582
 π production, vector meson exchange poss. 4=12030
 π^\pm -meson prod., emulsion study 0=13047
 π^- -meson production 1=7269
 π^0 meson prod. at 383 MeV 2=1708
 π^0 -meson prod. at 735 MeV meas. 3=24724
 π^+ meson prod. at 405 MeV 2=16190
pion production 1=5755
pion production in BeV-range collisions 1=10906
polarization, ang. depend. at 970 MeV 2=9844
polarization effects at high energies 3=14979
polarization at 1.7 GeV 1=13418
polarization in scattering near 3.3 MeV 0=7346
polarization, at 16.2 MeV 0=2545
polarization, 27-100 MeV 3=10111
polarization, 30 to 100 MeV 2=1686
polarized beam by polarized target, 10-40 MeV,
calc. 2=3334
polarized beam, target, phase-shift deter. 2=290
polarized protons, at 20 MeV 3=2263
pole and continuum contribs., ALV scheme 4=27853
potential, semiphenomenological, for data up to
310 MeV 1=12084
potential at 310 MeV 1=16783
production of strange particles at 2.85 BeV 1=12127
"P" and "D" parameters, 138 MeV, meas. 4=19511
p-p, anti-shrinkage 4=21850
p-p difference, one-pion-exchange contrib. 3=4396
p-p diffraction peaks, shrinkage 3=22121
p-p, elastic, 8.5, 12.4, 18.4 GeV/c 4=15091
 $\bar{p} + p \rightarrow e^- + e^+$ search and time-like p structure 3=19629
p-p, inelastic, diffraction patterns model 4=15057
p-p, 0.58-5.3 GeV/c, total cross-sections 2=22516
p-p, rel. to spin-orbit interaction 1=16707
p-p, 7.2-12.0 BeV/c and Regge pole shrinkage 4=9202
 $p + p \rightarrow \pi^+ + d$, at 2.1 and 8.9 GeV/c, diff. cross-
sections 4=6041
 $\bar{p} + p \rightarrow \pi^+ + \pi^+ + \pi^- + \pi^0$ 1=16840
 $p + p \rightarrow p + n + \pi$, cross-section, calc., role of
peripheral interaction 1=5723
 $p + p \rightarrow p + n + \pi^+$ at 2 BeV 1=19193
 $\bar{p}p$, 3, 3.6 GeV/c, elastic, polarization, differences from
pp 3=19630
 $\bar{p}p$, 20 BeV, cross-sections 2=13745
 $p + p \rightarrow W + d$, theory 3=10112
quantum potential approach 1=13360
quasi-elastic, $C^{12}(p,p)B^{11}$, leaving B^{11} at low
excitation 1=13411
quasielastic, in deuteron, at 145 MeV 1=13525
quasi-elastic, at 158 MeV 0=20135
quasifree, impulse approx. interpret. 3=22128
quasi-free in $Li^{6,7}$, 185 MeV 2=20629
quasi-free, in medium and heavy nuclei 0=20447
quasifree, 140 MeV, R and A parameters 3=22126
quasi-free in ip-shell nuclei 4=1078
quasi-free non-coplanar scatt. 4=3650
R' parameter determ., 140 MeV 4=19510
reduction to "necessary expt." in matrix meas. 3=22125
Regge pole model for high-energy pp and $\bar{p}p$
scatt. 2=20339
Regge pole model, and πp scatt. 4=3461
Regge poles and polarization at high energies 2=22496
relations between experimental quantities and coeffs. of
Wolfenstein's matrix 1=2054
at relativistic energies, elastic, hard-sphere
model 1=19197
scatt. parameters, phase-shift depend. 1=3181

Protons and antiprotons—contd

scattering, proton-proton—contd

- scattering amplitude, exact form 4=3331
- scattering amplitude, real part, mag. and sign 0=20429
- scattering matrix at 90° and 140-635 MeV 0=15353
- semiphenomenological potential 0=15348
- separable potential description up to 100 MeV 1=13414
- shrinking, strong, due to interference with lower vacuum trajectories 3=19582
- singlet state, convergent set of integral equations 1=8458
- singularities in ang. momentum plane 3=10054
- singularities in ang. momentum plane, pole-cut model 4=842
- spin correl. C_{nn} and amplitude moduli at 640 MeV 3=22124
- spin correl. coeffs. meas., 52 MeV 4=15056
- spin correl. meas. at 400 and 450 MeV 3=7852
- spin correlation coeff. C_{nn} , meas. at 320 MeV 0=7347
- spin correlation coeff. at 382 MeV 0=5559
- spin correlation coeff. in 310 MeV scattering 1=2057
- spin correlation coefficient, 315 MeV 4=3407
- spin correlation at 382 and 320 MeV 1=5725
- spin-orbit potential, effect on relativistic scattering 1=2055
- spin-orbit quadratic force 4=25095
- spinless amplitude, real part, 150-660 MeV 4=3408
- and strong interaction, >10 GeV 4=6045
- study of α -particle props. 0=20139
- study using nuclear emulsions, review 4=19343
- 3-meson model for 0-320 MeV range 3=22122
- three-meson model, Regge poles 4=901
- total cross-sections, 3.3-7.8 GeV 2=20331
- transverse momentum distrib. formula, 10-30 BeV 4=25091
- triple-scattering parameter A, meas. at 139 MeV 4=900
- triple scatt. parameter meas. at 137.5 MeV 4=6044
- triple scattering, 660 MeV, angular dep. of parameter A 4=11996
- triple, of 660 MeV beam, depolarization 0=20205
- triple, 660 MeV, parameter R angular dependence 3=14982
- velocity-dependent singlet potentials 1=8539
- Wolfenstein parameter R, meas. for 142 MeV incidence 1=13412
- Yamaguchi nonlocal potential theory, appl. 4=3401
- $Li^6, ^7$, quasi-free, distorted-wave analysis 3=2448
- on Li^6 and Li^7 , quasi-free 3=15190
- 1S_0 effective range expansion, approximations 4=9192
- 9.7-345 MeV, phase-parameter representation 3=584
- 9.7-345 MeV, phase-parameter representation, gradient searches 1=499
- 9.68-98 MeV, analysis, one-pion exchange contrib. 1=16771
- 10 MeV, diff. cross-sections, phase-shift det. 0=2542
- 10 MeV, rel. to π - π resonances, calc. 4=19504
- 10-310 MeV, phase shifts, fits with shape-independent formula 1=16772
- <20 MeV, triplet P-wave phase-shifts, repulsive central tail of OPEP 1=12067
- 25 MeV, diff. cross-sections 0=11165
- 28-68 MeV 0=1282
- 30 and 50 MeV, polarizations, phase-shifts 3=22123
- 50 MeV data, OPE and ALV analyses 4=12002
- 52 MeV, 6 parameter phase shift 3=24721
- 52 MeV, spin correl. coeff. C_{nn} meas 3=24720
- 90 MeV, analysis, rel. to π -meson field theory 0=12929
- 95 MeV, nine-parameter phase-shift analysis, with varying g^2 and mass 1=2056
- <100 MeV, analysis using a static potential with one-pion-exchange tail 1=3172
- 100-300 MeV, evaluated for charge-independent interaction 2=13789
- 140 MeV, polarization rotation parameter (R) 1=498
- 140 MeV, Wolfenstein R' parameter meas. 4=11993
- 141 MeV, Wolfenstein A-parameter meas. 3=12457
- 141 MeV, Wolfenstein R-parameter meas. 3=12456
- 142 MeV, phase shifts analysis 3=12454
- 142 MeV, Wolfenstein R parameter 0=11166
- 150 MeV, Bremsstrahlung 1=7242
- at 150 MeV, phase analysis 1=19199
- at 150 MeV, phase analysis 3=4392
- <150 MeV, single and double, two-nucleon potential with one-pion exchange tail 0=20072
- 155 MeV, cross-section, liquid H target 2=291

Protons and antiprotons—contd

scattering, proton-proton—contd

- 158 MeV, quasi-elastic 0=20135
 - 180 MeV, quasi-free on Li^7 , ang. distrib. 0=17587
 - 213 MeV, triple scatt. parameters R and A 1=16781
 - 217 MeV, polarization 2=289
 - 310 MeV, nine-parameter phase-shift analysis 1=2056
 - 310 MeV, phase-shift analysis 0=2543
 - 310 MeV, π - π interaction effects, calc. 2=20273
 - 310 MeV, scatt. amplitude accounted for by neutral vector meson theory 0=15275
 - <350 MeV, precision fit to data 1=12086
 - 380 MeV, spin correlation experiments 3=7855
 - 435 MeV, small-angle, cross-sections 0=12928
 - 582 MeV, elastic, total cross-section 0=2580
 - at 660 MeV 4=11995
 - 660 MeV, phase shift analysis 3=7857
 - 660 MeV, spin correl. coeff. meas. 2=16196
 - 660 MeV, spin correl. coeff. meas. 3=6006
 - 930 MeV interactions 0=1281
 - 970 MeV, partial cross-section, from p-d interaction 0=9356
 - GeV region, Bubelev's model 0=15352
 - 0-30 GeV, large-angle, "compound-elastic" theory 3=7909
 - 0.97 GeV, elastic, obs. differential cross-section 3=17276
 - 1 BeV, elastic, ang. distrib. 0=1279-80
 - 1.3, 2.0, 2.8 GeV, small angles 2=22504
 - 1.7 to 23 GeV, rel. to Pomeranchuk trajectory slope 2=20266
 - 1-2 GeV, momentum spectra, nucleon isobar prod. 0=15350
 - 2-27 GeV, single Regge pole 2=20335
 - 2.7 BeV, anelasticity, π -meson multiplicities 0=15349
 - 2.8 BeV, elastic 2=9845
 - 2.8 BeV, elastic 3=6007
 - 2-20 BeV, and π on n 3=7911
 - 3 BeV, small-angle elastic scatt., r.m.s. radius 0=9628
 - 3.6-11.8 GeV/c, fixed lab. angle of 60 m rad, isobar prod. 4=15095
 - 4.15 BeV, total elastic and inelastic cross-sections 2=5637
 - 4.2 GeV collisions, transverse momentum of particles emitted 1=8456
 - 5 GeV, unexpected experimental result, in terms of Regge poles 4=833
 - 7 to 20 BeV/c, elastic 3=17323
 - 8.5 BeV, elastic 0=11167
 - 8.5 BeV, elastic 3=4393
 - 8.5 BeV, rel. to polarization 4=9195
 - 8.5 GeV, polarization 4=6047
 - 9-25 GeV/c, elastic and quasi-elastic, using Be target 1=7243
 - 10 GeV, 200 random stars 0=12932
 - 10-28 GeV/c, total cross-sections 1=3185
 - 10-30 BeV, elastic, large angles 4=9193
 - 16.7 BeV/c, model fit 4=16890
 - 24 GeV/c, cross-section, forward amplitude 4=27852
 - 24.5 GeV/c, small-angle elast. scatt., cross-sections and ang. distrib. 4=6046
 - 25 GeV, rel. to statistical theory 0=12861
 - 27 GeV, elastic, emulsion technique 2=13798
- antiprotons**
- absorption by nuclei, effect of Coulomb forces 0=20430
 - annihilation, ang. distrib. rel. to K^0 -meson spin 2=3401
 - annihilation, appl. of two-parameter statistical model 2=18069
 - annihilation, charge asymmetries of mesons produced 1=13472
 - annihilation in complex nuclei 0=4090
 - annihilation, covariant statistical treatment 3=19632
 - annihilation, cross-section, rel. to π -nucleon interaction 0=11202
 - annihilation, in deuterons 0=12936
 - annihilation into e^-e^+ pair, 2-photon exchange 3=12442
 - annihilation in emulsion, π and K-meson production 0=7348
 - annihilation, energy depend. of pion asymmetry 2=13804
 - annihilation, rel. to existence and decay of ρ^0 -mesons 1=3227
 - annihilation in H, two-meson, at 1.61 BeV/c 3=19634
 - annihilation, influence of Bose-Einstein statistics 0=17339
 - annihilation $\rightarrow K + \bar{K} + \pi$, transition rates rel. to isospin 1=2048
 - annihilation, K-meson prod., isobar model 1=4796

Protons and antiprotons—contd antiprotons—contd

annihilation, with kaon prod. 1=13422
annihilation, $\rightarrow \Lambda + \bar{\Lambda}$, assuming K^+ exchange 4=9198
annihilation, with meson prod., Fermi's statistical theory 0=13070
annihilation, multiparticle, suitable ang. correls. for study 4=904
annihilation, multiple meson production 2=5698
annihilation, multiple meson production, theo. 0=11162
annihilation, in nuclei, at 1.3 GeV 2=9850
annihilation, 1.61 GeV/c, search for four-pi resonances 2=20410
annihilation, π -meson prod. 0=11199
annihilation, rel. to π multiplicity, theory 1=19202
annihilation, pion multiplicity, calc., rel. to nucleon structure 1=3188
annihilation in propane at 1 BeV/c, K-meson prod. and π multiplicity, \bar{p} -H and \bar{p} -C cross-sections 1=4797
annihilation, $p + \bar{p} \rightarrow e^+ + e^-$, two-photon exchange contribution, calc. 3=17247
annihilation, \bar{p} -p, \bar{p} -n, "true" π multiplicity 1=19189
annihilation producing two mesons, octet model 3=583
annihilation in protonium, capture rates for various eigenstates, π -meson multiplicity 0=15355-6
annihilation, on protons, final-state interaction 2=11942
annihilation on protons or neutrons, with meson prod. 1=5728
annihilation range, p - \bar{p} , near 1 BeV, calc., energy independence 1=7244
annihilation region, range 1=3186
annihilation at rest, π - π interactions, theory 1=13423
annihilation, ρ^0 - ω^0 ratio, rel. to Γ vector meson 2=9784
annihilation, statistical theory 0=2572
annihilation, strange particle and isobar prod. 3=7858
annihilation, three models compared 0=17327
annihilation to $2\pi^+ + 2\pi^- + \pi^0$, model 2=13731
antineutron prod. by charge exchange, cross-sections 2=18142
antiprotonium, level shifts, for 1-meson interaction 1=16787
antiproton-proton, final states of system 1=16790
antiprotons annihilation and ω^0 decay, neutral modes proportion 3=17328
antiprotons, properties, review 1=16726
beam, production and separation up to 4 GeV/c 4=6054
collisions with p, production of anti-isobar, isobar pairs 3=4395
deceleration and capture in matter 2=13803
deceleration and capture in matter 3=6008
deuteron total and inelastic cross-sections, 0.5-1 BeV 3=586
diffraction scattering on complex nuclei 0=12924
events in emulsion, analysis 0=5561
generation of 2.8 BeV/c antiprotons in proton synchrotron 0=9364
inelastic interactions, \bar{p} -p, at 1.61 BeV/c, test of charge-conjugation invariance 1=16788
inelastic scattering, 30-250 MeV 0=15357
interaction cross-sections with protons at 1, 1.25 and 2 BeV 0=17338
interaction, in emulsion, 3 GeV/c, m.f.p. 4=12216
interaction at 440 MeV on C and Pb, antineutron prod. 0=15343
interactions in H, 1.61 BeV/c, yielding 2 charged particles 3=19633
interactions in nuclear emulsion 0=362
interactions, in nuclear emulsions, meson production 0=5562
interactions, $p + \bar{p} \rightarrow K^0 + K^0$, proposed spin det. of K^0 1=10923
interactions with protons, model 0=11156
isotopic spin 0=7312
nuclear emulsions, mean free path meas. 4=15207
nucleon-interaction cross-sections, 0.5-1 BeV 3=586
1.61 GeV/c, reaction $\bar{p} + p \rightarrow 3\pi^+ + 3\pi^- + \pi^0$ 2=1705
polarization and mag. moment, by double scatt. 2=18114
prod. by 6 GeV protons on C, absorption effects 0=15343
prod., from synchrotron, alternating gradient proton separator 3=16999
production cross-sections, 0.5-1 BeV 3=586
production by protons at 25 BeV on Al and Pt 0=17582
production by 30 GeV protons on Al, Be, Fe 3=6090

Protons and antiprotons—contd antiprotons—contd

$\bar{p} + d \rightarrow \Lambda + \Sigma^- + \Xi^0$ meas. 4=21854
 $p + n \rightarrow K^+ + K^0$, relative $K^+ - K^0$ parity determ. 0=5603
 \bar{p} -p annihilation, multiple meson prodn. 3=7873
 \bar{p} -p annihilation, π - π correlations 1=16791
p-p annihilation, rel. to Regge trajectories 3=22134
 $\bar{p} + p$ annihilation, rel. to 3π , I = 0 resonance 3=4430
 $\bar{p}p \rightarrow \bar{B}B$ (Bisa baryon), 3 GeV/c 3=17280
 $\bar{p}p$ collisions in flight, one-particle exchange 3=7859
 \bar{p} -p cross-sections, 534-1068 MeV 0=361
 $\bar{p} + p \rightarrow e^- + e^+$ search and time-like p structure 3=19629
 \bar{p} -p, 15-80 MeV, charge exchange and annihilation cross-sections 3=10110
 \bar{p} -p interaction at 3.0 GeV/c, Ξ^+ production 2=12014
 \bar{p} -p interactions at 4-20 BeV/c 1=16789
 $\bar{p}p$ interactions at 45-235 MeV, cross-sections 2=18113
p-p interactions, up to 10 BeV, review 3=22120
p-p interactions, appl. of unitary symm. theory 4=6052
p-p interactions, 3-10 GeV/c, total cross-sections 1=2053
 $p + p \rightarrow \bar{e} + e$, rel. to e.m. form factors 2=13793
 $\bar{p} + p \rightarrow K_1^0 + K_1^0 + \pi^+ + \pi^-$, reson. search, only $K_1^0 \pi^+ \pi^-$ at 1.230 GeV/ \sqrt{s} 4=19575
 $p + \bar{p} \rightarrow K_1^0 + K_2^0$ in Schwinger's $U_3 \otimes U_3$ symmetry 4=30225
 $\bar{p} + p \rightarrow \bar{\Lambda} + \Lambda$ or $\bar{N}^* + N^*$, absorptive effects in one-particle exchange 4=19517
 $\bar{p} + p \rightarrow \bar{\Lambda} + \Lambda$, at 1.61 and 1.99 BeV/c 1=5727
 $\bar{p} + p \rightarrow \Lambda^0 + \bar{\Lambda}^0 + \pi^+ + \pi^-$, 3.25, 3.69 BeV/c, Y_1^* , Y_1^* , $Y_1^{*-} + Y_1^{*+}$ pair, prod. 3=22209
 $\bar{p} + p \rightarrow \bar{N}^* + N^*$, single- π , - ρ exchange contribs., error 4=27857
 $\bar{p} + p$, and one pion exchange model, (3 reactions) 4=19518
 $\bar{p} + p \rightarrow \pi^+ + \pi^- + \pi^0$ 3=10117
 $\bar{p} + p \rightarrow \bar{n} + n$, $-\bar{n} + n + \pi^0$, $-\bar{n} + p + \pi^-$, cross-sections 2=18142
 \bar{p} -p and \bar{p} -C interactions, 75-200 MeV 0=11172
 \bar{p} -p, \bar{p} -d and \bar{p} -n annihilation, π -meson prod. 0=11199
 $\bar{p} + p \rightarrow \bar{p} + p + \pi^0$, $\bar{p} + n + \pi^+$, $p + \bar{n} + \pi^-$, cross-sections 1=16788
p-p scatt., baryon pair prod. inconsistent with octet unitary symmetry model 4=19518
 $\bar{p}p$ scatt., high-energy, Regge pole model 2=20339
p-p scatt., inelastic, diff. patterns model 4=15057
 \bar{p} -p scatt., Regge poles and polarization 2=22496
p-p scattering, absorptive, rel. to p-p scatt. 4=15059
p-p scattering, diffraction peaks, shrinkage 3=22121
 $\bar{p} + p \rightarrow \bar{\Sigma}^0 + \Lambda$ or $\Sigma^0 + \bar{\Lambda}$, at 1.99 BeV/c 1=5727
 $\bar{p} + p \rightarrow \Sigma^0 + \Lambda$, at 2 GeV/c, possible evidence 0=13067
 $\bar{p} + p \rightarrow 3\pi^+ + 3\pi^- + \pi^0$, multipion reson. 3=2258
 \bar{p} -p total cross-sects, above 10 GeV 3=4260
p-p, total cross-sections, 0.58-5.3 GeV/c 2=22516
 $\bar{p} \rightarrow \pi^+ + \pi^-$ at rest 2=22522
 $p + \bar{p} \rightarrow 2\pi^+ + 2\pi^- + \pi^0$, asymmetry energy dependence 3=17272
 $\bar{p} + p \rightarrow 2\rho^0 \rightarrow 2\pi^+ + 2\pi^-$, two-particle effective mass distrib. 4=12006
 $\bar{p} + p \rightarrow \bar{Y} + Y$, schemes for polarization meas. 4=6138
 $\bar{p}p$ state as π^0 1=13308
polarization in $\bar{p}C$ scattering 1=9754
scattering, elastic, with protons, rel. to TCP theorem 3=2264
scattering, in nuclear matter 0=5748
scattering by nucleons, calc. assuming charge independence 0=11203
scattering, \bar{p} -p, 7, 2-12.0 BeV/c, and Regge pole shrinkage 4=9202
tracks in nuc. emulsions, multiple scatt. in small cells 4=27858
Al-p, and Be-p reactions at 10-30 BeV 2=20627
in H, stopped, recent bubble chamber experiments at C.E.R.N. 4=16841

Pumps

See also Vacuum pumps.
air-pump, centripetal, operated electromagnetically 0=8686
circulating, for reaction kinetics obs. 4=23636
e.m., thermal processes 0=10792
electromagnetic, d.c., theory 0=9149
fast twin pump for two liquids at variable volume ratios 1=9376
gas circulation, all-glass 2=17497
gas circulation, 14 l hr $^{-1}$ for 4 cc displacement 4=21164

Pumps—contd

- gas, electromagnetic for 1000 atm pressure and -196°C 4=8234
- ion drag, using razor-edge emission 2=2785
- liquid osc., approx. calc. 4=18165
- mixed flow, cavitation in impellers 4=21081
- for shaped flow of ultraclean solutions 1=12859
- Toepler, with built-in gas quantity meter 4=21165

Pyroelectricity

- colemanite 2=12564
- in cubic ZnS structure 0=13663
- devices, ferroelec. thermal receiver, sensitivity 2=2929
- electric domain walls movement study 4=7041
- ionic crystals, theory 2=23497
- pyroelectric thermal detector 2=19766
- thiourea 0=2921
- tourmaline, electron diffr. exam. 4=22461
- tourmaline, on electron irradi., electron diffr. exam. 4=12976
- transducer for thermal power measurement 1=8256
- triglycine sulphate 0=1703
- triglycine sulphate, light detector 2=18768
- triglycine sulphate, microwave-induced response 3=25414
- triglycine sulphate, spontaneous polarization det. 0=6160
- BaTiO₃, effect of heating 3=12929
- BaTiO₃, use in radiation detector 2=13482
- BeO, correl. to internal crystal structure 4=10525
- BeO crystals, polar character 3=10884
- CdS 3=8556
- CdSe 3=8556
- KLiSO₄, current, near transition point 2=16770
- KNO₃, ferroelec. phase III 2=4092
- LiH₂(SeO₄)₂, pyroelectric constants 3=10881
- NaNO₂, rel. to spontaneous ferroelec. polarization 2=4091
- NaNO₂, spontaneous polarization 2=2207
- Pb(Ti,Zr)O₃, effect of heating 3=12929
- Pb(Zr_{0.95}Ti_{0.05})O₃ ceramic, primary effect 4=22785
- UO₂(NO₃)₂, hexahydrate and - deuterate 0=18138

Pyrometers

- absorbing filters 0=10812
- automatic emissivity-compensated 3=7383
- colour 4=18462
- design, for surface and inside temp. of glass 0=6988
- disappearing filament, OMP-019, contrast device for reading error reduction 4=24416
- effect of Cs and K vapour atmospheres on pyrometric meas. 4=5429

Pyrometers—contd

- for flames, two frequency 3=9644
- gas temp. meas., 1000°-5000° C 4=11395
- high relative reproducibility, sensitivity 2=7445
- i.r., for sewing needle temp., during operation 3=14403
- infrared, for 500-800°K, errors 1=16152
- light sources, secondary, tungsten strip lamp suitability 3=9643
- modified, for temp. meas. 4=27361
- multicolour, for temps. below 1500° C, review 4=16276
- optical, corrected readings, table 1=8257
- optical, equipped with polarizer, for temp. of glowing metals 1=18667
- optical, meas. of brightness temp. of shielded surface 2=7442
- optical, numerical eval. of temp. 3=3914
- optical, using polarized light 0=12537
- optical pyrometry of flames, review 2=19750
- optical, review 2=15791
- optical, for temp. meas. under adverse conditions 4=11393
- optical, temp. scale realization 2=19751
- optical, review 4=2871
- PbS photoconductive cell as balance detector for relatively low temps. 4=5431
- photoelec., detection limits 3=1859
- photoelectric optical pyrometer 1=6980
- pyroelectric thermal receiver, ferroelec., sensitivity 2=2929
- pyrometry of metals in near i.r. 0=8855
- radiation and optical, photoelec., det. limits 3=1859
- radiation pyrometry, possibilities in blue-violet and u.v. regions 2=126, 9439
- radiation, for rapidly changing temps. 2=9436
- radiation, recording, using thermistors 3=11408
- for slightly heated objects, theory 4=11394
- spectropyrometer, 400°-1000° C, using i.r. monochromator 4=16277
- standard, high intensity, pulsed Xe source 3=24000
- temp. depend. luminescence of Zn-Cd sulphide 0=1062
- in temp. measurement of unenclosed bodies 0=2273
- using total radiation fluxes received by two systems 2=11523, 13478
- tungsten ribbon lamp, brightness variations 4=11324
- tungsten vacuum-lamp, filament temp. distribution 1=8233
- use of pyroelectric detector for sub-mm wavelength 4=16287
- using ferroelectric bolometer, for astronomical applications 4=27369

Quantum chemistry

(Heading introduced in 1961)

- adiabatic and isolated susceptibilities, theory 1=12813
- atomic wave-functions, accuracy 2=6083
- atoms, molecules and their interactions, semi and non-empirical theories 3=12745
- biosynthesis 2=7049
- crystal surfaces 2=3870
- fluorescein, spectra, by LCAO MO method 3=2647
- hydrides, ordering of bond strengths 4=3845
- hydrocarbons, alternant, different orbitals for different spins 4=15319
- macromolecules synthesis and structure 3=20035
- many-electron theory at atoms and molecules 2=6076
- many-particle problems, Gauss integral transform method 1=17250
- molecular adiabatic energy surfaces using "atomic associations" method 4=15320
- pair correlation atom. and ion energies, separation and addition 4=15832
- present-day state, review 1=858
- quasi-chem. equilib. theory, many-body Hamiltonian 2=11298
- quasiequilibrium reaction rate consts. 4=62
- reactions, quantum theory 4=4688
- reactivity, resonance theory, correlation with LCAO-MO method 2=6198
- and solid state physics, conference 2=4520
- tunnelling corrections for unsymm. Eckart potential 2=10964
- Uppsala course (1960) 1=5959
- valence-bond structures and matrix elements for any multiplicity 3=6382
- virial theorem application 1=2312
- H bimolecular exchange reaction 2=8905
- H bond, double potential well 2=6212

Quantum electrodynamics

See also Electrodynamics; Electromagnetism.

- adiabatic invariant, variation, in axially symmetric inhomog. mag. field 1=2013
- Aharonov-Bohm effect, survey 3=24582
- Aharonov-Bohm effect, symmetry theory 2=1068
- Aharonov-Bohm paradox in classical limit 4=19163
- analogue of Ward's identity 1=13284
- appl. of techniques to theory of superconductivity 0=5234
- applicability at small distances, dispersion relations test 0=12818
- arbitrary-spin motion in mag. field, Schrödinger eqn. soln. 2=5567
- asymptotic condition reduction formulae 1=4761
- asymptotic conditions and perturbation theory 0=15300
- baryon theory, relative parities 2=5589
- Bethe-Heitler formula, generalized 1=3114
- Bopp-Podolsky field, electron scattering 0=12817
- boson doublet equation 1=19105
- bound state with props. of neutral vector particle 3=10020
- bound states 0=7275, 20030
- charged mesons, spin-1, with arb. anomalous mag. moment, covariant theory 4=25006
- charged particle in e.m. field, adiabatic invariance 2=19368
- charged particle in uniform mag. field, by Feynman histories summation 4=8066
- charged spin $\frac{3}{2}$ particles, local field theory inconsistency 1=7189
- Cherenkov radiation of charge in plasma 3=12436
- Cherenkov radiation in ferromag. dielectric media 0=12903
- classical equations, regularization 3=17166
- coherence, rel. to optical semiclassical theory 4=21262
- collision processes at very high energy, low-energy radiation 2=20229
- Compton scattering, radiative corrections 0=7317
- consequences of essential singularity 0=2486
- convergent model, self-energy of electron and photon in lowest order 3=24586
- convergent model, 3rd order vertex diagram, renormalizability 4=16793
- convergent non-local theory 0=15234
- convergent perturbation expansion, in first-quantized theory 2=16119
- correspondence principle in simplified theory 0=5472

Quantum electrodynamics—contd

- Coulomb gauge, non-relativistic propag. function, spectral line shapes 0=20025
- Coulomb interaction form 3=5918
- Coulomb law, for small distances, radiative corrections 0=11078
- covariant, formulation 0=14516
- covariant quantization with photon rest mass 3=536
- crystal lattice electron theory 1=14195
- crystals, one-dimensional model electron energy-spectrum 1=7555
- current-charge density commutator 1=12041
- deduction from Heisenberg mechanics 4=27055
- Delbrück scatt., small-angle, low-energy theory 4=11884
- derivative coupling, source and photon field 0=1241
- deviations for hard μ -e collisions 1=5743
- differential field eqns. replacement by difference eqns. 4=16794
- dilatationally invariant, eqn. for lepton propagator 4=5923
- Dirac eqn., generalization to γ s form, selection rules for interaction types 1=3129
- Dirac eqn., massless, invariance under transformations 1=13314-15
- Dirac eqn., semiclassical limits 2=20239
- Dirac eqn., transformation props. 0=20047
- Dirac equation and boson fields 3=5930
- Dirac many electron eqn. in Schrödinger-Pauli form 3=1632
- Dirac many-electron systems, virial theorem 1=19103
- Dirac monopole, cosmic-ray prod., upper limit 4=9150
- Dirac particle, motion of polarization in e.m. field 2=5571
- Dirac particle, 3-dim. W K B approximation 4=30151
- Dirac particles, observables 2=3251
- Dirac potential scatt., Mandelstam representation 1=19139
- Dirac's eqn., covariant derivatives of pseudospinors 1=18266
- dispersion relations 0=9257
- dispersion relations 3=22051
- double bremsstrahlung for almost collinear momenta 4=19479
- double logarithmic approx. in perturb. theory 4=9056
- e^+e^- annihilation in flight, lowest order calc. 3=7834
- e-e scatt., considering hard-photon radiation 3=24694
- e-e scatt., weak interaction parity effects 4=5957
- e.m. field quantization 3=7765
- e.m. fields, quantum-mechanical correl. theory 3=9654
- e.m. form factors rel. to strong interaction symmetries 2=11857
- e.m. potential elimination 2=7807
- e.m. potentials in quantum mechanics 2=1063
- e.m. potentials in quantum theory 1=12042
- e.m. potentials in quantum theory 3=14854
- e.m. radiation, in plasma wave field 4=18862
- e.m. wave propag. in ferromagnetics, spin system excitation 0=21034
- e, μ , prop. similarities 3=17297
- in e-p scatt., new approach 3=17165
- electric and mag. susceptibilities, spatial dispersion 0=9150
- electromagnetic field, dynamical origin 4=5921
- electromagnetic fields, forces, interactions 2=19425
- electromagnetic fields, Yang and Mills, interaction 2=5572
- electromagnetic interactions of massless particles 3=551
- electromagnetic interactions, time-ordered Green's functions 1=7202
- electromagnetic interactions, weak-interaction contrib. 1=19120
- electromagnetic mixing of particle pairs 2=22409
- electromagnetic potential, arbitrary gauge, in dispersion method 1=16653
- electromagnetic processes, $n \rightarrow n$ interaction in 1=522
- electromagnetic scattering of two fermions, fourth-order matrix element 1=486
- electromagnetic transitions between μ and e , forbiddenness, "Muonic number" 0=17364
- electron-electron interaction, in adiabatic approx., effective Hamiltonian 1=13326
- electron-electron scattering, radiative corrections 0=15330

Quantum electrodynamics—contd

- electron—electron scattering, radiative corrections 1=16757-8
- electron eqn. of motion, rel. to muon theory 4=19539
- electron, formulation without using e.m. potentials 2=9765
- electron Green's function, branching 1=19096
- electron Green's function, branching 3=4320
- electron interaction with e.m. field, Foldy—Wouthuysen transformation 1=13283
- electron interactions, in coherent fields, expectation value, mean square velocity deviation 0=5544
- electron in mag. field, vertical oscillations, effect of quantum fluctuation 2=3135
- electron, magnetic moment 1=13392
- electron-neutron scatt., polarization effects data 2=5563
- and electron pairs annihilation, 800 MeV 4=27832
- electron-phonon-electron interaction, quantum-classical correspondence 1=17409
- electron-photon interaction in terms of equation coupling 1=7194
- electron polarization during motion in mag. field 0=12909
- electron-positron interactions, small distance check 3=24692
- electron propagator, 4th order spectral functions 2=18059
- electron scatt. by mag. field in impenetrable torus 3=19422
- electron scatt. by nuclei, test expts. 4=22120
- electron scattering on static potential 1=12044
- electron, synchrotron radiation, relativistic 2=3151
- eliminating variation of mass with velocity 0=15265
- equations of motion of classical charges 1=7185
- equivalence to a 4-fermion interact. theory 4=3268
- Euclidean gauge transformation 0=6683
- in expanding universe 0=18954
- expanding universe, general relativity 3=21085
- external sources, prescribed, for gauge fields 4=5014
- fermion, extreme relativistic in circular accelerator, effect of vert. dimensions 4=16581
- fermion-fermion interaction, limiting process 2=3244
- fermion mass, zero, bare, in perturb. theory 4=16795
- fermion pair production, cross-section near threshold 1=19094
- ferromag. dielectric in alternating mag. field, non-resonance absorption, theory 0=21032
- Feynman amplitudes, graph theory and parametric representations 2=22408
- Feynman amplitudes, mass singularities 2=20227
- Feynman amplitudes, singularities and discontinuities 0=17216
- Feynman propagator, decomposition into two parts 1=16651
- field formalism without introducing potentials 2=19432
- field operators, asymptotic conditions 0=17221
- finite formulation, fundamental integral eqn. 4=791
- form factor effects on $e^+ + e^-$ reaction cross-sections 3=2250
- form factors, gauge invariance 2=9763
- formulation without using indefinite metric 4=19368
- free e.m. field, gauge transformation and quantization 1=16647
- gauge conditions 2=16120
- gauge covariant formulation 3=5915
- gauge dependence of wave-function renormalization constant 0=1242
- gauge-independent theory, Green's function 4=5920
- gauge invariance, enlarged curvature tensor 3=2185
- gauge invariance and inertial effect of photon spin 3=19599
- gauge invariance and mass in 2-dimensional model 3=24584
- gauge invariance, meaning 2=7811
- gauge invariance rel. to neutral vector meson 2=13728
- gauge invariance, rel. to scatt. integration rules 3=24585
- gauge invariance and renormalization constants 1=12043
- gauge invariance, vertex function and magnitude of renormalization consts. 4=3278
- gauge invariances 1=8412
- gauge-invariant, massive and massless photons 1=21734
- gauge invariant, non-local form 4=27746
- gauge properties of Green's functions 0=15240, 20017
- gauge properties of Green's functions 1=7187
- gauge properties of propagators 0=5474
- gauge transformations 0=7274
- gauge transformations 1=64
- general vector field interaction 0=15244

Quantum electrodynamics—contd

- generalized, for invariance under proper Lorentz transformations 1=424
- geometrized class of Yang—Mills fields, and e.m. vector potential 3=17187
- "ghost poles" in propagators, elimination 4=798
- ghost-poles, removal, rel. to unitarity of S-matrix 1=3115
- gravitational field effects 2=22392
- Green function for Dirac eqn. 4=24971
- Green function, Mandelstam, derivation from covariant 4=3281
- Green's function, 2-electron, renormalization 0=20018
- Green's functions, use of dispersion relations 1=4762
- Green's functions, many-particle, gauge transformations 1=19155
- Green's and vertex functions, asymptotic representation 3=14857
- Hamiltonian formalisms, inequivalent 3=14853
- heavy photon, (Γ^0), possible existence 4=5922
- Heitler—Arnous theory, rest energy, rest mass 2=16118
- high-energy behaviour of cross-sections 1=422
- high-energy cross-sections, soft-photon contrib. 3=24583
- hyperon decay, weak e.m., theory 2=18183
- with indefinite metric, Lorentz covariance 0=17220
- indefinite metric, non-Lorentz invariance of Gupta formalism 0=12821
- indefinite metric not used and no subsidiary condition on state vectors 2=20228
- induced radiation, coherence 4=11885
- in infinite energy limit, 1-particle Green's function, spectral form 0=17215
- infrared divergence 2=5566
- infrared divergence and high-energy processes 1=12044
- infrared divergence, semiclassical theory 4=27744
- infrared divergences 0=11089, 18953, 20022
- infrared phenomena 1=5636
- infrared phenomena 1=5637
- integration of matrix element in perturbation method 0=15239
- intensity depend. for Feynman diagrams 4=21736
- interacting fermions, collective oscillations 1=9630
- interacting fields without Hamiltonians, asymptotic theory 1=3112
- interactions, in Heisenberg theory 0=9260
- interactions, parity, rel. to Dirac monopole 3=22054
- interactions, Sakurai gauge invariant theory, extension 1=19112
- interactions, soft π emission 3=595
- interactions, between spin- $\frac{1}{2}$ particles with structure 3=7875
- interactions, unitary symmetry 4=5962
- intermediate bosons, pair prodn. cross-sections by photons 4=5958
- intermediate systems 0=20019
- internal degrees of freedom 0=15304
- intrinsic particle field, effect of multiple scatt., emission on passing through 2 media 0=20093
- isotopic gauge invariance, vector field of zero proper mass 2=13720
- Klein—Gordon difference eqn., covariant 3=12392
- Klein—Gordon operator, multi-mass. Green's distrib. and Cauchy problem 3=5916
- Lagrangians, non-local, rel. to causality 1=13280
- Lagrangians, non-local, rel. to causality 1=16648
- Landau gauge generalization 4=30146
- laser beam, very intense, interact. with atomic systems 4=22315
- laws, check from cascade shower results 1=13551
- Lee model, ghost state elimination 3=2194
- light deflection by massive bodies, rel. to grav. waves 2=15465
- light propagation in homog. magnetic field 4=30150
- light velocity in finite degree of freedom theory 4=14999
- limiting distance, from μ mag. moment 1=5742
- limits of validity, pair production 0=2485
- Lippmann—Schwinger eqns., generalized for theories with multipole ghosts 4=19373
- Lorentz gauge, asymptotic condition 1=19093
- Lorentz gauge formulation for non-Abelian fields 3=10019
- Lorentz invariant formulation, using e.m. field intensities 3=14856
- Lorentz non-invariance with interaction present 0=18955
- magnetic monopoles, twin fields reformulation 2=16121

Quantum electrodynamics—contd

- masers, three-level action in a gas, multiple transition 1=19019
 mass renormalization conditions 3=14849
 mass renormalization and dilatation invariance 4=3383
 mass singularities and i.r. divergences, theorem 4=11067
 massive transverse photons 3=14855
 massless bosons in Johnson et al. formulation 4=19370
 massless spinor 1=19106
 mathematical problems, conference 0=7267
 matrix elements of connected diagrams 0=15242
 Maxwell eqns., spinor form 4=11898
 Maxwell's eqns. and matrix elements 1=2011
 media with negative absorption, r. d. iation reaction 3=14033
 mesic atoms, Auger effect, theory 0=11489
 mesoelectrodynamics, geometrization 0=15231
 meson propagator, calc. 1=3115
 mesons, "gauge" soln. 4=27749
 mesons, vector, renormalizable 3=12391
 minimal e.m. coupling concept 3=4362
 molecular system, two-level, stimulated emission of radiation 4=12417
 μ , e, prop. similarities 3=17297
 μ mass prediction confirmed 1=517
 μ -meson mag. moment, calc. 0=15382
 μ -meson prod. from electron collisions 3=592
 μ - μ pair prod. by high energy electron, theory 2=9882
 μ pair-production, by electron and positron colliding beams, QED validity 0=17372
 muon mag. moment theory, constant g 2=3368
 multipole singularities of classical vector and pseudovector fields 0=1243
 Muraskin-Nishijima relations, new derivation 2=5565
 neutrinos, e.m. interact., in interact. with nuclei 3=10085
 non-linear electromagnetism, functional theory of particles 0=3914
 nonlocal, Coulomb interaction and Lorentz condition 2=9762
 non-local electrodynamics, Coulomb corrections 1=16649
 non-local form 4=5924
 non-perturbation theory results on renormalization constants 0=7264
 non-stationary 1-dimensional Schrödinger eqn. 2=7809
 non-vanishing photon mass, interaction represent. 3=7766
 nucleon e.m. form factors, rel. to π - π interactions 2=18060
 nucleon interactions, at large distances, Heisenberg theory 0=9260
 one-body propagator 0=20028
 operator gauge transformations, formulation 1=2010
 oscillations, radial, in mag. field, radiative atten. 4=6021
 pair annihilation cross-sections, radiative corrections 2=22393
 particle in Coulomb field, Schrödinger eqn. 3=1576
 periodic electromagnetic and quantum systems 1=8371
 perturbation expansion, partial summation 3=7764
 perturbation theory, finite 1=9718
 perturbation theory, new approach 1=5635
 perturbation theory, properties of single loop diagrams 0=20080
 phase detector, ideal, quantum state 4=21043-4
 phase operators in radiation theory 1=18554
 photon as combination of 2 neutrinos, Weyl's eqns. 4=11971
 photon density oscillation in a resonance medium 4=11840
 photon and electron, elementarity tests 4=27823
 photon Green's function, branching 1=19096
 photon Green's function, branching 3=4320
 photon interaction with homogeneous magnetic field 1=9719
 photon-photon scatt., by double dispersion relns. 4=19372
 photon-photon scattering, neutral pion contribution 1=13374
 photon production, multiple, new formalism 2=9811
 photon propagator, asymptotic behaviour 0=3915
 photon propagator, canonical, asymptotic form 2=18057
 photon propagator, effect of charged vector bosons 4=21732

Quantum electrodynamics—contd

- photon propagator, gauge invariance, photon bare-mass incompatibility 1=2012
 photon propagator, general props. 0=12822
 photon propagator, independence of physical charge in high-energy limit 0=20027
 photon propagator, perturb. expansion, renormalization group 4=21733
 photon propagator, structure theorem 0=323
 photon scattering, in homog. mag. field 0=322
 photon self-energy, Meissner effect analogy 4=866
 photon self-mass, formal paradox 0=12820
 photon statistics of radiation field 3=23992
 photons, displacement operators rel. to integrals of motion 2=13724
 photons in electromagnetic fields 4=21817
 photons, multiple interactions with electrons, atoms 2=9767
 π^0 interaction in e.m. processes 2=5629
 plasma, radiation scatt., incoherent 4=11631
 polarized electrons, in mag. field, depolarization due to radiation 0=353
 postulate of complete commuting set of observables 3=4318
 potential effects, "non local", in zero field 4=11882
 processes in plane e.m. wave field, $\pi \rightarrow \mu + \nu$ decay theory 4=19369
 propagator generating function, properties 1=9717
 propagators, dispersion relations and perturbation theory 0=9258
 propagators in the gauge-covariant formulation 4=3230
 propagators, generating functional 1=13362
 propagators, Schwinger equations 3=17162
 quantization, consistency 0=7272
 quantization method 2=9764
 quantization process 1=8413
 quantum field theory 4=9050
 quantum generators, theory 3=14796
 quantum processes in plane e.m. wave field, and in constant e.m. field 4=16796
 quasi-boson approx. 4=21731
 quasi-real processes 0=1240
 quasi-real processes, generalized Williams-Weizsäcker method 0=12816
 quasi-real processes in high energy physics 2=18055
 radiation from fast electrons with oriented spins in mag. field 4=11967
 radiation field of slowly moving particle system, work done against field 0=5530
 radiation-gauge, asymptotic condition 3=17164
 radiation gauge, two-point function 3=12389
 radiation reaction on orbit in mag. field 2=13659
 radiation from relativistic particles in heterogeneous medium 1=8414
 radiation solutions for the Coulomb field 1=16650
 radiative corrections of higher order for non-Abelian gauge fields 4=24970
 radiative corrections, mag. moments of μ and e 1=19224
 radiative corrections to μ -e scattering 1=7256
 radiative corrections due to soft photons 1=7188
 real massless scalar wave eqn. of second order, transformations 1=13313
 Regge pole behaviour 3=22050
 Reggized photon theory 3=19574
 regularized models 3=4317
 rel. to Regge poles 3=17202
 relation to classical wave functions $\propto \exp(iS/\hbar)$ 4=5061
 relativistic eqn. of motion of spin 3=5914
 relativistic eqn. of motion, translational 3=5913
 relativistic processes, simplified calculation 0=20021
 renormalizability, analyticity, and regularity at zero charge, inconsistencies 0=20027
 renormalization in classical gravitational field 2=7139
 renormalization constants 0=17219
 renormalization constns., from dispersion relations 1=421
 renormalization, Dirac-Maxwell eqns. 0=324
 renormalization group method 4=3279
 renormalization, rel. to renormalization group 4=9054
 resonance induced scatt. and radiation 4=11959
 resonance radiation from vapours 2=15655
 review 4=11881

Quantum electrodynamics—contd

- S-matrix, closed normal form with external e.m. field 4=21799
 S-matrix, soft photon contribution 1=10830
 S-matrix theory deriv. for charge conserv. 4=27747
 scalar, matrix elements, i. r. singularities 4=5925
 scalar, 2-charge renormalization group 0=7273
 scattering amplitudes, high energy 3=12390
 scattering matrix coeff. functions, local regulation 2=16117, 20226
 scattering matrix, with Pauli interaction correction 0=20074
 scattering, Möller and Bhaba high energy, non-local effects 4=19374
 scattering processes, radiative corrections 3=12423
 Schwinger-Dyson eqn., unrenormalized, for Green's function 4=9055
 Schwinger's model covariance difficulty 4=21735
 self-consistent field theory 2=5564
 self-consistent field theory, deriv. of Pauli exclusion principle 3=10018
 self-energy differential equation 4=21730
 several interacting fields, S-matrix elements 0=15241
 at small distances, dispersion relations, test 0=12819
 at small distances, feasible tests 0=11077
 at small distances, $K^0 \rightarrow \mu^+ \mu^-$ radiative decay study 0=15422
 at small distances, rel. to e^+e^- scatt. 0=9337, 17304
 small distances, rel. to electron-positron pair prod. 2=20321
 at small distances, feasible tests 0=11077
 at small distances, test, photoelectric effect and pair annihilation 1=11078
 small Pauli term, possible existence 0=20029
 spin-zero particles, 4-vertex function, i. r. catastrophe 0=20023
 spinning particle precession, tensorial eqn. 4=8065
 spinor, modified perturbation method 4=27750
 stable sister particle with nonzero mass no. 4=19349
 statistical, gauge invariance relations 0=5473
 statistical light beams, semiclassical and quantum mechanical equivalence 3=16528
 and statistics, classical oscillators, radiation field 4=5092
 structure-independent, in elec.-dipole approx. 2=13722
 supersymmetries and essential observables 2=2627
 supplementary condition 1=13281
 test in electron scatt. on α -particles 0=3916
 Tomonaga's method, applications 1=9629
 transition phenomena, Cherenkov radiation and electron-positron pair conversion 1=16652
 two-body problem, electromag., relativistic calc. 3=23769
 two-complex formulation, electron propagator 4=27745
 two-compound, renormalization 2=1650, 20225
 twofold vacuum expectation value, uniqueness property 1=2009
 unstable particles, e.m. props. 2=11856
 vacuum 2=20024
 vacuum double refraction, and electron pair prod. 4=27748
 vacuum expectation value of three-point function 3=7778
 vacuum polarization, absence, rel. to convergence 2=3260
 vacuum polarization, due to charged bosons 0=7271
 vacuum polarization, effects on energy levels of μ -mesic atoms 0=17672
 vacuum polarization, effects on p-p scatt. 0=17335
 vacuum trajectory 4=19371
 validity limit, review 3=4358
 validity, short range from $e^+ + e^-$ to 2γ or 2μ 4=25071
 Van der Waals forces, general theory, application 1=15706
 Vavilov-Cherenkov radiation investigation 1=19170
 vector current conservation, e.m. violation 4=15013
 vector field propagators, choice 4=27743
 vector gauge field rel. to nonzero mass 3=5919
 vector meson, charged, interacting with e.m. field, theory 3=552
 vector particle mass in gauge invariant field 4=24969
 velocity of light in mag. field, quantum effects, possible exptal. det. 1=9465
 verification for short distances, Compton scattering and pair annihilation tests 1=423
 vertex function, high-energy theorem 0=17218
 vertex function, single log. approx., asymptotic value 3=24587
 vertex part, asymptotic form 1=19095
 vertex part, asymptotic form 3=4319

Quantum electrodynamics—contd

- wave-function renormalization constant, finite value 0=17217
 wave propagation, in Lorentz systems 0=12465
 weakly perturbed system, light absorption and emission 1=13913
 Weizsäcker-Williams relation for matrix elements 2=4937
 Yang-Mills field, scattering of quanta 4=11878
 H atom, metastable 2s state, quenching by laser beam 4=9655
 H atom, two-photon ionization 4=22318

Quantum statistics

See statistical mechanics.

Quantum theory

- See also Electron theory; Field theory, quantum; Elementary particles
 accidental degeneracy 0=43
 action principle for higher order Lagrangians with indefinite metric 3=3752
 adiabatic approx., for degeneracy or near-degeneracy 4=5063
 adiabatic invariance, extended 4=27064
 adiabatic invariant 1=9341
 adiabatic invariants 1=6795
 adiabatic invariants for any order and general Hamilt. 4=11065
 adiabatic theorem, approx. validity 3=14024
 angular momentum operators, eigenvectors 4=56
 angular momentum, proper variables 2=1067
 angular operators, applic. to s-matrix 0=883
 anharmonicity in vibrational state sums 4=24069
 annihilation operators in periodic functions space 3=14858
 antiunitary operators, normal form 0=16608
 arbitrary unbounded operator, matrix elements, upper and lower bounds 4=27022
 axiom, asymptotic condition, and Wightman formulation 2=251
 Birkhoff's and Chako's approaches, connection 4=24057
 Bohr orbital conditions rel. to Planck osc. levels 4=27056
 Bopp's formulation and Einstein-Podolsky-Rosen paradox 4=49
 Born approx., mathematical equivalence, and impact parameter method 1=18282
 Born series for Green function, improvement at low energies 4=2556
 bosons, asymptotic props. of field 1=4760
 bound states embedded in continuum, matrix element 4=11064
 Brownian motion 0=8565
 Brownian motion of harmonic oscillator 1=70
 causal interpretation 0=17212
 causal interpretation, systems of particles 1=1699
 causality 3=5330
 classical interpretation of qu. mechanics 1=9324
 classical and quantum mechanical hyper-virial theorems 0=18974
 Clebsch-Gordan coeffs. calc. 4=21039
 Clebsch-Gordan coeffs. of compact group, orthogonality 4=19426
 Clebsch-Gordan coeffs. of group D_4 4=21040
 Clebsch-Gordan expansion of Lorentz group 0=2479
 coherent field radiation 1=4291
 commutation relation, generalized 3=11693
 commutation relation, representation 2=2626
 commutativity, local, lemmas 3=16521
 completeness, double solution tests, from meas. theory 4=50
 completeness of qu. mechanics, paradox of Einstein, Podolsky and Rosen 1=9322
 complex ang. momentum theory, analyticity test 4=21810
 complex orbital momenta 0=4944
 concept of physical quantities 0=18941
 configurations in quantum mechanics, use of line geometry 0=18952
 conserved operator eigen-states, projection technique 3=3748
 continuous represent. theory of class of function spaces 4=24065
 continuous represent. theory, rel. to classical dynamics 3=21231
 continuous representation theory, postulates 3=21230
 co-ordinate rotations, real representations 0=16610
 coupled oscillators, irreversible behaviour 2=4942
 covariant formulation 1=15668

Quantum theory—contd

cross-section ratio, $(e, N)/(\gamma, N)$, Coulomb correction 2=9785
 crystal lattice electron theory 1=14195
 crystals, scheme of energy levels 0=2117
 de Broglie's matter waves concept, re-edition 4=11060
 Debye—Hückel potential, energy levels 3=3746
 degenerate systems, singularities in power series expansions 4=11067
 demonstration of qu. mechanics in the large 1=3232
 density operators, time-depend. dynamical mappings 2=21816
 Dirac eqn., relativistic, appl. to gravitational field 1=9307
 Dirac eqn., representations 1=5640
 Dirac monopoles, twin fields reformulation 2=16121
 Dirac operator, spectral props. 3=21237
 derivation from Nernst's theorem 3=47
 double commutators, integral represent. 3=16535
 dynamical equations and angular momentum 3=5365
 dynamical mappings of density operators 2=30
 dynamics, classical and quantum, unified variational formulation 3=7112
 dynamics, Feynman functional integrals, approx. eval. 4=57
 dynamics, unified variational form, with class. 3=14027
 Dyson perturb. expansion for Møller wave operators, rigorous establishment 4=18065
 eigenvalue problems, asymptotic soln. 0=3455
 eigenvalue problems in matrix mechanics 1=15675
 eigenvalue problems, new solns. 3=18731
 eigenvalues and eigenvectors, continued fraction calc. 1=15676
 eigenvalues, estimating, theorem 0=2066
 eigenvalues of random matrices, semicircle approx. 4=11079
 eigenvalues of tridiagonal Hermitian matrix 1=15677
 electromagnetic potentials, significance 2=1063
 elementary interactions in spaces with torsion 1=15701
 elementary particles, spatially extended 3=21232
 energy shifts by potential in large box 3=16533
 epistemological analysis, Bohr's and Einstein's 3=1608
 equivalence and antiequiv. of operator sets 3=11697
 ergodic theorem 0=16598
 ergodicity conditions 0=12373
 exact integral relationship in qu. mechanics, appl. to variational method 3=1616
 Fermi oscillator, classical analogue 0=8569
 Fermi system, Feynman principle 0=8570
 Feynman integrals, summation procedure 3=7088
 Feynman's variational method, modifications 1=438
 field theory, change of variables 1=13351
 field theory and quantum mechanics, comparison 1=18257
 field theory as synthesis of classical and quantum mech. 4=11872
 fine structure constant, non-dimensional nature 3=16486
 forced two-level oscillator, density-matrix formalism 4=27067
 foundations 1=10418
 Fourier transform. and space inversion, classical mech. analogy 3=3741
 functional theory of corpuscles 3=17175
 fundamental tenets, examination by information theory 0=18961
 Galilei group and its representations 3=16523
 generalization of quantum mechanics 0=12366
 generalized oscillator operators, irreducible represent. 3=21253
 generally covariant theories, local conservation laws 0=8556
 geometry of points with both coords. and momenta 2=19420
 Green's functions and single-particle excitation 2=7827
 Green's functions, time-ordered, renormalization 1=16690
 group represent. reductions using Schur's lemma 4=16036
 group-theoretical foundations 0=18942-3
 Hamiltonian of averaged motion 1=18991
 Hamiltonian of averaged motion 2=3136
 Hamiltonian matrix elements and invariance hypothesis 4=5053

Quantum theory—contd

harmonic lattice under forced vibration 2=19422
 harmonic oscillator, adiabatic invariance 2=19368
 harmonic oscillator, approx. linear depend., scaling and operator convergence 4=14050
 harmonic oscillator commutation relations, "ambiguity" 4=2563
 harmonic oscillator with friction, light-wave interaction 1=13910
 harmonic oscillator and H atom, bounded, energy levels 1=18278
 harmonic oscillator, Jost functions 4=2562
 harmonic oscillator states, transformation brackets 1=16949
 harmonic oscillators, smooth curve approx. to energy-level distrib. 4=5066
 Heisenberg uncertainty principle, criticism 1=8052
 hidden variables, restudy of von Neumann proof 4=8061
 high-energy behaviour in perturbation theory 4=3358
 Hilbert space, connection with deterministic parameter space 0=18960
 Hilbert space, Lorentz non-invariance with interaction present 0=18955
 Hilbert space, new definition, renormalization 3=21233
 Hilbert space, treatment with indefinite metric operator 0=14516
 historical review 3=3740
 hypervirial theorem, approx. wavefunctions 4=29552
 hypervirial theorem, off-diagonal, appl. 4=11076
 hypervirial theorems for variation functions 3=7126
 implications of classically radiationless motions 4=21630
 "integral-over-all-paths", in diffusion-type eqns. 0=14368
 interference effect in light mixing 1=10598
 interference effects in transitions, review 4=24073
 interpretation, mathematical formalism 1=15670
 interpretation, observation and reality 1=15671
 inversion of eigenvalue problems, Hylleraas approach 4=8072
 irreversible processes 0=16650
 isolated particle, thermodynamics, new way of presentation 3=9354-5
 Jost functions, new defin. and generalizations 4=18077
 Lagrangian formalism in relativistic dynamics 1=10424
 lattice structure of some quantum variables 2=15483
 laws, rel. to locality of quantum electrodynamics 2=9767
 length standard 0=862
 level spacings for random matrix 1=12802
 light, resource letter for teaching 3=11877
 linear operators, parameter differentiation 3=16522
 Lippman—Schwinger eqn., Fredholm alternative for potentials with finite first moment 4=27070
 localizability of quantum mechanical systems 3=7114
 logic and formalism 4=2547
 Lorentz group, connected inhomogeneous, central extensions, 4=29527
 Lorentz group homogeneous, explicit representations class 4=29512
 Lorentz group, homogeneous infinitesimal operators, method 3=13
 macroscopic, real 4=5051
 magnetic fields in quantum theory 1=8373
 many-quantum processes in two-state system 3=14034
 masers, three-level action in a gas, multiple transition 1=19019
 mathematical foundations, lecture note volume 4=16042
 mathematical framework, extension 1=15669
 matrix mechanics, mathematical identity 2=1062
 matter waves, radiation forces and wave momentum 4=8025
 matter with super light velocity 1=10828
 measurability of quantum mechanical quantities, theory 4=11061
 measurement algebra, from N-dimens. geometry of states 0=3449, 8554, 14511
 measurement, difficulties and wider defin. 4=52
 measurement and ergodicity conditions 2=17357
 measurement, generalized entropy function 2=7143
 measurement, macroscopic, rel. to statistics 2=15487
 measurement operator, unitary 3=5355
 measurement process, erratum 4=8058
 measurement in qu. mechanics, probability amplitude rel. to prob. function 1=2698
 measurement of quantum mechanical operations, limitations due to conservation law 0=18951

Quantum theory—contd

measurement theory 2=9195
 measurement theory 3=2
 measurement theory, reduction of a wave packet 2=9190
 measurement theory, review 3=3742
 measurement, time symmetry 4=21035
 mechanics, rel. to classical mechanics 4=27058
 microcovariance and microcausality 4=8057
 modified classical interpretation, and particle models 0=3939
 momentum eigenfunctions, orthogonality, 3=11696
 momentum operators, generalized Hermitian 3=11695
 Mössbauer effect 2=2042
 motion, identity with classical mechanics 4=18061
 multiple expansion, e.m. field—charged particle interact. 3=7110
 in multiply connected region 2=1068
 N-dimensional total orbital ang. momentum operator 3=18692
 non-commuting factors in Hamiltonian, zero-point energy, and arrangement 1=5197
 nonconstancy of the adiabatic invariants 1=6794
 non-Euclidean space—time, convariance classification 2=9148
 nonisolated systems, time-depend. description 4=24070
 non-linear theory of waves 0=10595
 nonlocal solvable interactions, relative Schröd. eqn. 4=18063
 nonrelativistic Coulomb Green's functions, represent. 4=16013
 non-relativistic, in-out formalism, with 2-body interactions 0=3452
 nonrelativistic, Regge poles 4=8076
 non-stationary problems, variational principles and perturbation theory 1=4778
 observables, self-adjoint linear operators, algebras 1=5194
 operators, correl. with coupled mode amplitudes 2=17337
 optical theorem of scattering with incoherent mixtures of pure states 0=20078
 orbital ang. momentum, eigenvalues 3=45
 orbital ang. momentum operators 3=11689
 orbital angular momentum vectors, uniqueness 1=15693-4
 oscillator strengths of intercombination transitions, calc. 2=20735
 oscillator strengths for K and Na atoms 4=22307
 oscillator, two-dimensional, and ang. momentum, three-dimensional 4=61
 paradox of Einstein, Podolsky and Rosen 0=44, 14517, 18950
 partial wave amplitudes 2=257
 particle in continuous medium, damping behaviour 4=1376
 particle interaction with environment, interpretation 3=3743
 particle scatt. at aperture, for const. momentum 3=17
 particle \rightarrow wave approach transition, demonstration 4=27006
 Peierl's variational theorem 4=5091
 periodic potential with defect, one-dim. 3=21238
 periodic square-well potential with defect 3=18727
 permutability relations in several dimensions 2=19423
 perturbation expansion, spectral moments calc. 3=22683
 perturbation, in operator form 4=11077
 perturbation theory, use of asymptotic wave rector 3=23764
 perturbation theory, momentum space integration 2=21823
 perturbation theory using reduced set of states 3=5360
 perturbation theory, stationary state, resolvent operator formulation 4=16035
 perturbation theory, time-depend., by gauge transform. 4=18066
 perturbation-variation method, time-depend. 4=11078
 perturbation-variation method, time-depend., and Dirac expansion 4=2554
 phase detector, ideal, quantum state 4=21043-4
 phase shift for large λ , asymptotic behaviour 4=55
 phase-space formulation of canonical variable dynamics 4=18068
 phase-space occupation of electron, proton, and photon beams 4=29560
 philosophical implications 2=7109
 photon packets 0=14780
 photon statistics of radiation field 3=23992
 Planck's constant in gravitational field 2=17341

Quantum theory—contd

Planck's law, generalization, effects of a quantum of length 1=10419
 plasmas, relaxations, unified theory, quantum mechanical calc. 4=11579
 positive-energy bound states, non-existence 0=10599
 potential barrier penetration, generalized approx. 4=11063
 principle of action at short range in quantum physics 4=794
 principle of equivalence, gedanken expt. 4=29553
 probabilities, interference law 1=18276
 probability, Feynman's position critique 4=8059
 probability interference, general law, non-quantum derivation 1=8051
 probability interpretation 0=18957-9
 propagator for particle in one-dim. square-well potential 3=18729
 quadratic response functions in dielects. 3=15606
 quantum kinematics and geometry 0=18940
 quantum mechanical action variations, rel. to classical dynamics 3=1615
 quantum-mechanical transform. function of 1-dim. motion, inverse cube repulsive force 3=3745
 quantum-mechanically possible physical states 0=8552
 quantum mechanics, analytic props. of scatt. amplitude 3=24631
 quantum mechanics, book 1=6779
 quantum mechanics in curved space-time 1=2697
 quantum mechanics, gauge transformations 1=64
 quantum mechanics, non-relativistic particle with spin, new interpretation 2=9186
 quantum mechanics, Q-T-P-H space constraints 4=11081
 quantum mechanics, relativistic, representation of a group 3=7113
 quantum particle, hypothetical non-classical trajectory 4=11062
 quantum partition function, Peierls' theorem extension 1=2711
 quantum phenomena in r.f. range 0=293
 quantum physics interpretation 2=15478
 quantum transitions to continuous spectrum induced by adiabatic perturbation 4=27066
 quantum variables and action principle 2=15479
 quantum virial expansion, rel. to lifetime matrix 3=23766
 quasi-classical approach, nonspinning and spinning electron 2=2600-2
 quaternion qu. mechanics, enlargement from complex mechanics 1=2004
 quaternion quantum mechanics 2=9192
 quaternionic represent. and special relativity 4=5059
 quaternionic represent. and special relativity 4=5060
 quaternionic representation of compact groups 3=7089
 quaternions, general Q covariance princ. 3=16524
 Racah algebra for evaluating commutators 0=2069
 radiation diffusion, integral eqn. soln. 0=4963
 random matrix, isolated eigenvalue 4=27065
 in real Hilbert space 1=5195
 real Hilbert space, addenda 2=2628
 real Hilbert space, linear field operators 2=2629
 reciprocity of Green's function and reaction matrix 4=16033
 relation to classical wave functions $\sim p \exp(iS/\hbar)$ 4=5061
 relationship with classical statistical mechanics 1=1705
 relationship with classical statistical mechanics 1=4271
 relativistic, eigenfunction formulae 1=15689
 relativistic, general account 2=11277
 relativistic, general, Q-number coord. transforms 4=24035
 relativistic, as a group problem 2=4931
 relativistic, Lorentz-group zero-mass representations 2=11257
 relativistic, microvariance and microcausality 3=21234
 relativistic and nonrelativistic, position and polarization operators 4=8062
 relativistic partial wave analysis 2=13733
 relativistic, of particles with variable mass, mathematics 4=21037
 relativistic rotator, Hamiltonian formalism 0=6684
 relativistic, space-time translation group 1=11704
 relativistic theory of motion, internal degrees of freedom 3=21204

Quantum theory—contd

relativistic velocity of spinless particle 0=7268
 and relativity 0=14492
 relaxation processes 4=29566
 rigid body rotation, Bohr-Sommerfeld conditions 4=8064
 role of the observer in 3=23761
 S-matrix, spatial separation of events 3=23767
 scattering, hard core due to orthogonality 3=5364
 scattering, inverse problem 3=7123
 scattering lengths and quantum defects 3=4720
 Schwinger's action principle, commutation relations 0=8555
 search for further generalizations of class. physics 3=1609
 semiclassical treatment 3=1618
 sequences, distrib. and spaces 3=10016
 short-lived particles, ang. momentum definition 2=22400
 small quantized system, in weakly dissipative medium 0=3459
 solid spherical harmonic-type operators, irreducible tensor expansion 4=11080
 in solid-state physics, particle concepts, review 1=887
 space-time variables, removal proposal 4=16018
 special canonical group 1=4257
 spin, gravitational effect 0=12351
 spin $\frac{1}{2}$ particles, matrix elements deriv. 1=19156
 spin and harmonic oscill. systems, relax. 3=7137
 spin, inertial effect, representation in Dirac theory 0=11091
 spin matrix determination 4=5052
 spin matrix exponentials and transmission matrices 2=1065
 spin operators, multiplicity states, Löwdin and Pratt comparison 1=791
 spin wave stationary state rel. to ferromagnetic resonance 1=20175
 spinning-particle dynamics, rel. to classical theory 3=23762
 spinning particles, Lorentz-covariant position operators 4=2555
 spinor connections rel. to Euclidean 4-space, theory 2=2603
 spinors, use of Clifford algebra 0=18946
 stochastic Hamiltonian, for dissipative systems 1=8074
 stochastic systems, correlation operators 2=13268
 superselection principle and its use 2=11294
 superselection rules, and probab.-conserving transformations 4=5057
 supersymmetries and essential observables 2=2627,15482
 symmetries, spontaneous breakdown, foundation 4=5934
 symmetry definition as automorphism of τ 3=9344
 symmetry groups and ensembles, algebraic structure 3=5359
 symmetry operation, Wigner's theorem, proof 4=24066
 symmetry in quantum mechanics, consequences of irreducibility 1=2361
 symmetry, rel. to Wigner's represent. theorem, 3=11687
 symmetry transforms. in quantum mechanics 3=7130
 textbook, intermediate 4=16031
 thermodynamics of isolated particle 1=18283
 three-body mechanics 0=2114
 3-j symbols, symmetry relations 3=7798
 three-particle states and Regge cuts in nonrelativistic model 3=23770
 time correlations meas. in quantum systems 4=18069
 time-energy indeterminacy reln. 4=21034
 time measurement and "minimal time" 3=21242
 time operators satisfying $[H, T] = -i\hbar$ 3=42
 time reversal and superselection 2=9787
 time, uncertainty relation for time and energy 1=8052
 total reflection of matter waves, associated transverse shift 1=6924
 transfer processes in electron gas in mag. field 4=8115
 transitions in adiabatic approximation 0=8557
 transport coefficients, quantum corrections 0=18969
 transport equation 1=12827
 tunnel effect for system of identical barriers 2=17356, 21821
 two-level system coupled to loss mechanism 3=23768
 two-level system coupled to radiation field 3=3744
 two-level system, dissipation 4=16039
 uncertainty, fundamental laws and theorems 4=8026

Quantum theory—contd

uncertainty for long and certainty for short times 2=11289
 uncertainty principle 0=16599
 uncertainty principle, definition of commutators 2=19434
 uncertainty principle, entropy expression 3=14036
 uncertainty principle, new derivation 3=21229
 uncertainty principle, proposed test 0=46
 uncertainty principle, and relativity 2=10555
 uncertainty relation, time-energy 2=15480
 uncertainty relations 1=1701
 uncertainty reln. for angular variables, alternative 4=8063
 uncertainty reln., time-energy 3=5356
 uniqueness of orbital angular momentum operators 0=14518
 unitary and antiunitary symmetry operators 0=16609
 unitary group, irreducible represent., bases 3=23731
 unitary interpretation 1=10416
 unitary operator bases 0=14512
 unstable particle scatt., theory 4=24077
 unstable systems, exponential decay law 1=16611
 von Neumann's hidden-parameter proof 1=10425
 variation calcs., degenerate eigenvalues, separation theorem 0=16603
 variational problems solns 3=18698
 vertex function, high energy limit 1=13274
 vertex function, reduction formula, extension to n-point (n odd) 3=18724
 von Neumann theorem of indeterminism 0=14510
 WKB method for obtaining energy eigenvalues 4=11075
 WKB method in presence of turning points, asymptotic solutions of a class of Hill eqns. 1=2
 wave function assignment to probab. densities 4=5020
 wave mechanics, derivation from classical mechanics 1=1700
 wave packet tunnelling through barrier, time 3=1611
 wave-particle duality, energy momentum interchanges 3=16520
 waves faster than phase vel., amplification 4=8071
 Weyl correspondence for ang. momentum 4=16037
 Wigner-Eckart theorem, extensions 4=8055-6
 application methods
 action principle and exterior algebra 2=19419
 action principle technique, in Brownian motion of quantum oscillator 1=6787
 Aharonov-Bohm effect, symmetry theory 2=1068
 alkali halides, i.r. absorption at low temps. 2=18812
 amplifier noise minimum, rel. to uncertainty principle 3=5842
 amplifiers, linear, quantum noise 3=5837
 angular momentum, exact eigenfunctions by rotational projection 2=21828
 angular momentum projections, conservation, formal sum rules 4=11087
 antiferromag. linear chain, two soluble models 2=2290
 antisymmetrized product of N/22-electron orbitals, density matrices, electron energy 0=20536
 atomic (n+1) electron level filling, justification rule 1=17251
 atomic (n+1) electron level filling, justification rule 2=22891
 atoms, (n+1)-groups in Thomas-Fermi model 2=22885
 atomic Gaussian orbitals, integrals 2=12278
 atomic sum rules 4=12348
 atomic systems, rotation of plane of light polarization, with parity nonconservation 2=512, 22892
 atoms, eigenfunctions, by spin operators 3=17525
 atoms, reson. freq. shift due to radiation field, theory 4=9623
 atoms, statistical model, correlation correction 3=8172
 atoms, statistical theory, electron groups in periodic system 0=7679
 atoms, two-electron, 1925-1930, review 4=12336
 atoms, variational solns., correlated wavefunctions 4=1177
 BWK approximation, many-dimensional 1=9326
 backscatter from inhomogeneous media 3=11676
 bispinor theory rel. to spinor theory in Riemann space 3=4328
 Bloch's transport eqn., generalization 3=9366
 Boltzmann eqn., Lorentz gas perturbation theory approx. soln. 3=3772
 Born expansion, optimization 3=11699
 Born series convergence and bound states existence 4=21046
 boson vector field, generalized Ward identities 2=11899

Quantum theory—contd

application methods—contd

- bound states of a given spherically-symmetric potential 1=5201
- bound states calc., by perturbation theory from free states 4=21045
- boundary perturbation theory, compressed H molecular ion 4=9707
- Brillouin zone energies, repulsive potential method 0=2777
- cell model of liquids 0=3506
- central-force problem, limits to soln. 2=10594
- chain, "almost one-dimensional," correction to classical statistics 3=23773
- charged particle in e.m. field, using field strengths only 2=9765
- charged particle in uniform mag. field, by Feynman histories summation 4=8066
- class of solvable Schrödinger potentials 4=18062
- Clebsch—Gordan coeffs., formulae deriv. 4=66
- Clebsch—Gordan coeffs. of SU_2 group 4=67
- Clebsch—Gordan coeffs., sums of products 4=65
- Clebsch—Gordan coeffs., sums of products, diagram operations 4=64
- Clebsch—Gordan coeffs., sums of products, graphs 4=63
- collective oscillations and giant density fluctuations 0=18956
- collisions, many-body, lifetimes 3=9351
- collisions, three body, by Prigogine diagram technique 1=9344
- communication, quantum theory, need 3=5839
- commutation relations, nonrelativistic quantum mechanics 0=14513
- condensation coefficient calc. 4=21359
- conductivity elec. due to crystal imperfect free electron scatt. 4=25988
- conference on atomic and molec. quantum mechanics, Sanibel Island (1963) 4=6449
- configuration-interaction wave-functions for 2-electron ions 0=11481-2
- constant and minimum energy orthogonalization 4=30366
- correlation hole, analogy to exchange hole 1=1702
- coupled oscillators, irreversible behaviour 1=12814
- coupling of spin system to cavity mode 0=1181
- creation and destruction operators, representation 3=21241
- cross-relaxation theory, quantum statistical 2=13267
- cross-relaxation theory, in spin systems quantum statistical 3=5372
- crystal, exciton triplet gas, linear, free 3=25252
- crystal excitons, Agranovich's second quantization theory 4=9921
- crystal, model based on periodic structure 2=12360
- crystals, ionic, box model 3=4796
- crystals, self-consistent field eqn. from Hamiltonian 1=19682
- cumulant expansion method 2=19375
- DWBA and (p, 2p) ang. correl. 3=19841
- delta-function potential in box, particle 3=7117
- density matrix method, theory and applications, review 1=15716
- diffusion, steady soln. of Liouville's eqn. 0=14542
- Dirac—Coulomb Hamiltonian with two-vector invariants 4=12331
- dissipation in quantum mechanics, harmonic oscillator 1=18277
- dissipative systems, harmonic oscillator 0=14519
- e.m. potentials, role 3=14854
- eigenvalue problems, unitary operator formalism 4=5067
- eigenvalues, group-theory calc. 1=2361
- of electrical conductivity 1=8298
- electromag. mm waves, multiple effects 4=19252
- electromagnetic field of moving charge 4=29533
- electron gas correlation energies and pair functions, calc. 1=7567
- electron gas in mag. field, transport of charge 0=4284
- electron interferometer fringes, interpretation, significance of e.m. potentials 0=10953
- electron levels in one-dimensional random lattice 0=20773
- electron in mag. field, vertical oscillations, effect of quantum fluctuation 2=3135
- electron in one-dim. "liquid" chain, weak-binding approx. 3=9325
- electron scattering from mols. in gas phase, theory 4=1234
- electrons, conduction, quantization in semimetal magnetothermal effects 1=10032
- elementary scatt. theory, new approach 3=7124

Quantum theory—contd

application methods—contd

- energy eigen values, lower bound procedure 4=29530
- energy levels of particle in screened Debye field 3=18732
- energy levels, Yamasaki variational method 2=11282
- ergodicity condition, averaging procedure 2=13269
- exchange reaction, probability 0=3303
- excitation of matter by monochrom. radiation 3=25085
- Faraday effect in molecules 1=12297
- Fermi systems, anisotropic, superfluidity 2=13499
- ferromagnetic films, Néel wall thickness 3=5015
- ferromagnetism, historical review 4=22954
- ferromagnetism, spin wave theory, review 3=15766
- Feynman path integral and classical Lagrangian dynamics 4=27122
- field singular potentials and peratization 4=21725
- fluctuations from driven state 3=9360
- Foldy—Wouthuysen transformation, generalized 1=13289
- forced two-level oscillator, density-matrix formalism 4=27067
- fractional parentage coeffs., in photoelectric cross-section calc. 0=7687
- frequency transformation with discrete energy levels 4=5068
- fundamental particles, model with "supercond." soln. 2=16124
- γ invariance 3=19546
- gases, thermodynamic props. by eigenstate law correl. 2=5057
- general potentials, Schrödinger eqn., iteration soln. 1=2704
- general system interacting with linear dissipative system 4=5055
- gravitational field, quantized invariant commutators 0=10566
- gravitational field, quantum limitations on meas. 0=8539
- Green functions in theory of isotropic ferromagnetics 1=1205
- Green's function method for energy bands in periodic lattices 2=2060
- Green's function method in quantum statistics 1=68
- "grilles" of a symmetric determinant 0=10465
- gyromagnetic effects and mag. polarization 2=23629
- hard-core integrals for central potentials, table 0=325
- harmonic oscill. system, number of quantum states 4=62
- harmonic oscillator, bounded linear, energy levels 1=65
- harmonic oscillator with dissipation 1=18277
- harmonic oscillator, excited, radiant energy emission 0=6680
- harmonic oscillator transition probabilities in one-dimensional collision 1=3496
- harmonic oscillator, transition probabilities for 3-dimensional collisions 2=16461
- Hartree—Fock approx., perturb. method 3=3754
- Hartree—Fock energy expansion coeffs., for helium-like ion 0=9739
- Hartree—Fock eqns., Coulomb correl. 2=6077
- Hartree—Fock Hamiltonians and separable nonlocal potentials 4=29531
- Hartree—Fock theory, stability conditions 1=3379
- Hartree—Fock wavefunctions, time-dependent perturbation theory 4=28099
- He-like atoms, potential function by Hartree—Ingman wave-function 1=17258
- Heisenberg non-linear 5-D space theory 2=7805
- Hellmann—Feynman theorem for approx. change densities 2=16463
- Hellmann—Feynman theorem and correl. energy constancy in isoelectronic series 4=2565
- Hellmann—Feynman theorem and correlation energies 2=6078
- Hellman—Feynman theorem, and perturbation theory 3=25033
- Hellmann—Feynman theorem in variational method, isoelectronic series 4=2654
- heterodynamic structures, heat capacity, rel. to glass 0=10322
- hydrogen atom, Rayleigh—Schrödinger perturbation theory appl. 2=12282
- hydrogen atom, Stark effect 2=16470
- hypervirial theorems, to free systems 3=7127
- indefinite metric, interpretability 2=17363
- integration in functional spaces 0=4939
- inter- and intra-atomic correlation energies and core-polarization 0=20539

Quantum theory—contd**application methods—contd**

- internal rotation problem, Van Vleck transformation, denominator correction 4=30410
- isoelectronic series and Hellmann-Feynman theorem 4=2564
- isoelectronic series and Hellmann-Feynman theorem 4=2565
- isotope shift and Fermi-Segré formula 0=20339
- kinematics, inhomog. Lorentz group, represent. 4=2552
- Klein paradox 3=2191
- Lamb shift, of tightly bound electron 0=9730-1
- lasers, Raman, Stokes and anti-Stokes line stim. 4=24882
- lattice, periodic, Schrödinger eqn. soln. 2=10345
- light atoms and molecules, variation method 0=5870
- light interference from 2 lasers 4=24389
- Liouville eqn. for system in contact with a reservoir 3=69
- liquids, electron motion, with slight local order violation 3=10747
- Lobachevskii's kinematics and geometry, use 4=18
- long-range forces, between atoms 0=9754
- magnetism theory, use of Dyson method 4=21611
- majorization technique for perturbation theory 4=2566
- maser action at optical freq., n.m.r. methods 2=17604
- masers, optical, phonons, quantum electronics 3=9966
- master eqn., general validity conditions 4=24102
- matrices anticommuting with Hamiltonian 2=12274
- measurement theory 2=9195
- measurement theory, interference destruction 4=2568
- measurement, undisturbed measured object 0=8535
- measurement, von Neumann's theorem 3=16534
- measurements, correlation 2=2633
- meson prod., multiple, new quantum mechanism 3=10133
- metallurgy, quantum mechanics use 4=23244
- metals, thermal transport phenomena 0=1537
- methods not accounting for conservation laws, accuracy estim. 4=6197
- Minkowski isospace, neutral coord, system for $\frac{1}{2}$ -spin particle 2=11869
- molecular beam differential elastic scattering, phase shift analysis 0=17869
- molecular magneto-optical-effects 4=6515
- molecular solids cohesive energy, electronic correl. dispersion contrib. 4=28300
- molecular spectra, pressure broadening 2=12305
- molecular rotary power 4=6514
- molecules, diamagnetic, Faraday effect, theory 3=6383
- molecules, g-tensor, gauge invar. theory 3=6384
- molecules, perturbation calc. 0=4178
- molecules, spin coupling, Heitler-London method 3=6385
- molecules, zero-point energies calc. 3=12795
- moment of momentum with negative values 4=14051
- moving charge radiation, Weizsäcker-Williams rel. 2=4937
- multicentre problems, Slater's mean exchange potential 0=8558
- multipole radiation in a dielectric 1=15692
- neutron transport theory, perturbation formulae 2=41
- non-relativistic rotator 2=11872
- normalization under inversion operations 1=19101
- nuclear magnetic resonance complex spectra, direct analysis 2=3781
- nuclear reactor perturbations, appl. of Schrodinger's eqn. 2=6003
- one-centre integrals of extraordinary functions 3=6339
- one-dimensional auxiliary problems and domain partitioning 4=24072
- 1-dimensional Schrödinger eqn. with periodic potl. eigenvalues 1=15674
- one-dimensional square well, limit 1=1698
- optical coherence 3=16725
- optical rotation 4=12328
- organic molecules with 50 to 100 atoms 4=12436
- orthogonal 2-electron orbitals, derivation 1=4261
- Pais method for phase shift calc. 0=12852
- parametric processes, fluctuations and noise 2=1046
- particle interactions, spinless, Lorentz-invariant, model 4=8077
- particles with spin, nonlinear theory, generalized potential 1=15691

Quantum theory—contd**application methods—contd**

- particles with variable mass, relativ. theory 3=4327
- partition functions, constant press. 4=2579
- perturbation calc. of diamag. susceptibility and shielding in atoms and molecules 1=5957
- perturbation energies of any order 1=15673
- perturbation-iteration, analogy with higher-order analytical method 4=14052
- perturbation theory, analytic properties 0=12878-9
- perturbation theory for arbitrary times 3=14035
- perturbation theory in atomic and molecular problems 4=15261
- perturbation theory calcs. 2=3680-1
- perturbation theory, Nakanishi parametric representation, derivation 3=16532
- perturbation theory, ordinary and anomalous thresholds 1=3143
- perturbation theory, properties of single-loop diagrams 2=20080
- perturbation theory, relation to variation method 1=6782
- perturbation theory when several eigenstates of approx. Hamiltonian used 3=1614
- perturbation theory, in simple operator evaluation 1=5198
- perturbation theory, summation method 0=18944
- perturbation wave equation, gauge transformation solution 4=5056
- perturbed multiple correlations 1=582
- phase mechanics, velo. potential 4=12357
- phonons, optical, qu. electronics 4=6718
- plane rotator in Stark field 0=3450
- plasma, application of modified Debye-Hückel theory 1=9543
- plasma, e. m. wave absorpt. 4=16482
- plasmas, electric microfields description 3=394
- potential barrier penetration in variable external fld 3=83
- potential barrier transparency, general approx. 4=8069
- potential, $1/r^2$, Feynman integrals interpret. 4=11070
- potential scatt. in momentum space, spectral represent. 4=14054
- potential scattering, approximation methods 0=15283
- potentials, significance, rel. to interference expts. 0=10600
- pseudopotential calc. for colour centres 2=3955
- quartic oscillator, energy levels and matrix elements 3=14030
- quasi-chemical equilib. theory, many-body Hamiltonian, expectation value 2=11298
- quantal systems, approach to equilibrium, theory 0=12378
- radial wave-functions calc. for He continuum 1=9898
- radiation damping of free oscillations 4=2560
- radiation field of cavity 0=14519
- radiation-matter interaction, variation-perturbation approach 3=7129
- random lattice, one-dimensional, number of levels 2=23099
- random processes, Schrodinger equation transformation 4=16046
- rearrangement collisions, divergence of Green's function series 1=427
- rearrangement collisions, formal theory 1=9327
- reflection symmetry 4=27069
- relativistic Maxwellian velocity distrib., derivation 4=24082
- relativistic particle dynamics 1=5200
- relativistic rotator with unequal masses 4=24071
- relaxation 4=8091
- relaxation processes 2=13270
- relaxation processes 3=5373
- renormalization constants in perturbation theory 0=20079
- repulsive potential, theory criticism 1=17386
- rotating and deforming particles 2=11288, 13262
- S-matrix, divergence iterative expansion 0=20066
- S-matrix, nonrelativistic, rotational invariance 3=10056
- scattered distorted waves, one-centre expansion 3=3758
- scattering ampl., S-wave, asymptotic behaviour 4=2570
- scattering, asympt. expansion in inverse powers of wave number 4=8073
- scattering, elastic, using statist. boundary conditions 4=2571
- scattering, "invariant imbedding" techniques 3=11700
- scattering, for large ang. momentum, using Langer's theory 4=2569
- scattering, multiple, in finite body 4=5070

Quantum theory—contd**application methods—contd**

- scattering of one-dimensional wave, phase-shift method 1=2707
- scattering phase shifts, approximation method 4=8074
- scattering phase-shifts, distorted wave approximation 0=20061
- scattering solns. to Schrödinger eqn., existence 4=27070
- scattering, variational method, integral form 3=7122
- Schrödinger eqn. for central force, radial kinetic energy term 4=27068
- Schrödinger eqn. with periodic potential, appl. to molecules 1=15685
- Schrödinger eqn., radial, for Coulomb field 3=9346
- Schrödinger equation, differentiated 3=11698
- second order perturbation energy of 2-electron atom 0=17650
- second-order perturbation energy, upper and lower bounds for ground state 4=6452
- self-consistent field eqns. with correlations 1=1702
- self-consistent molecular orbitals, determination 0=9824
- semiconductors, degenerate, ionized impurity scatt. 2=12507
- semiconductors, hot electrons, density matrix approach 2=16689
- simple groups and strong interaction symmetries 2=11876
- Slater wave-functions, graphical polygon method 0=10597
- solids, book 4=9802
- solids, dielectric constant 2=10549
- solids, transport processes 3=12938
- spectrum, transitions to continuous, by adiabatic perturb. 4=5069
- spin- $\frac{1}{2}$ particles, covariant density matrix 1=13294
- spin-Hamiltonian eigenvalues in strong magnetic fields, angular variations, tables 1=18281
- spin Hamiltonian for N-electron system 2=22877
- spin Hamiltonian, open-shell ions 0=20684
- spin, motion of charged point-particle in e.m. field 1=4262
- spin-orbit matrix elements for configuration fn, selection rules 1=3497
- spin and relativity, general treatment 2=16126
- spin relaxation, Fokker-Planck eqn. 3=1623
- spin systems, interacting, irreversibility 0=16639
- spinning particle precession, tensorial eqn. 4=8065
- spontaneous magnetization theory, for arbitrary spin 0=3100
- steady-state processes, irreversible thermodynamics 3=64
- Stern-Gerlach expt. "g-2" perturbation calc. 2=22923
- strong interactions, symmetry properties 1=19127
- strong interactions, symmetry properties 2=22416
- superconductivity in antiferromagnets 1=9512
- superconductivity, attracting fermions 4=24484
- superconductivity, strong coupling limit 0=14925
- superlattices, quantum-mechanical representation 0=1536
- surface states of diamond and graphite, MO-LCAO treatment 0=20719
- symmetry projections in group theory 4=2567
- system of two oppositely charged particles in Coulomb field, ground state 1=4263
- thermodynamics 3=18739
- Thomas-Fermi positive ions, interpolation formulae, graphical 3=7429
- three-body eigenvalue, upper and lower bound 4=18071
- three-body problem with attractive forces 1=5202
- three-body problem, quantum mechanics 0=886
- three-body problems, two-body methods 3=21240
- three-body systems, relativistic, ang. momenta 2=13742
- three identical particles, orthogonal sets of eigenfunctions with definite symmetry 1=6785
- three-level system, heterodyne props. 2=11781
- three-particle scatt., planar, formal theory 3=13999
- three-particle system, resolvent of Schrödinger operator 3=21244
- 3 to 10 electron systems, energy values, perturbation analysis 2=22886
- thresholds, ordinary and anomalous, in perturbation theory 0=17266
- time meas., Hermitian operator 4=18070
- transition-complex theory of rearrangement collisions 2=19141

Quantum theory—contd**application methods—contd**

- transition probabilities, recurrence formulae 2=6193
 - transport of particles in scattering medium, incoherent processes 0=9298
 - transport phenomena, average energy gain method, quantum theory 4=11121
 - transport processes 0=16635
 - tunnelling, from many-particle viewpoint 3=18733
 - two-electron orbital wave functions, configuration interaction 1=18297
 - two-electron orbitals, density matrices for wave functions 0=9823
 - two-spin system, analysis 1=9322
 - two-spin system, relaxation 3=1624
 - unitarity conditions in terms of propagation kernels 1=12808
 - variational method, exact integral relationship 3=1616
 - variational principle for calc. of elec. cond. of solids 1=7019
 - variational principles, geometrical interpretation 0=18945
 - wave-functions for anharmonic oscillators by perturbation methods 2=21822
 - wave packet reduction, theory rel. to indeterminacy 2=9196
 - WKB approximation appl. to radial problems 3=18725
 - WKB-like approx., density calc. of many-particle system 4=16041
 - WKB method, phase shift formula 1=4264
 - WKB, to molecules diatomic, vibration bands 3=15324
 - WKB-like wave-function approx. 4=8070
 - Wannier functions, generalized, orbital theory 3=6452
 - Wigner-Racah ang. momentum calculus, generalization 3=7121
 - d³ configuration, spin-orbit matrices 3=2545
 - H atom, ionization, by slow electrons 0=1101
- many-particle systems**
- See also Helium, liquid; Statistical mechanics; Superconductivity; Superfluidity.
 - adiabatic invariants, asymptotic behaviour 2=11300
 - analogy with classical system 4=16051
 - analytical invariants 0=16612
 - angular momentum transport eqns. 3=7139
 - antiferromagnetics, statist. mech. 3=8693
 - antiferromagnetism, Green function method 4=17664
 - antiferromagnetic spin system, perturbation theory 1=6377
 - approach to equilibrium in quantum systems 1=1709
 - approach to equilibrium, van Hove rel. to Prigogine-Résibois master eqns. 4=14073
 - arbitrary central forces, generalized Bohm-Pines model 0=5513
 - assembly types, review 4=14074
 - asymptotic behaviour of perturb. expansions 3=7141
 - asymptotic value of time integral of operators diagonal at initial time 4=6914
 - atoms, many-electron, plasma theory 2=3683
 - atoms, many-electron, relativistic theory 2=8056
 - atoms and molecules, many electron theory 1=18301
 - atoms, statistical theory, phase shift, determ. 3=8170
 - average values calc., hypervirial theorems appl. 2=9201
 - barycentric wave, eqns. 1=7221
 - Bethe-Goldstone approximation in superconductivity 0=14924
 - binding energy derivation 0=2115
 - Bogolyubov method, Tomonaga-Schwinger equation 3=1636
 - Boltzmann eqn., generalized, for quantum gas 4=2604
 - book, many-boson systems, application of field-theoretical methods 4=8107
 - Bose-Einstein condensation of correlated pairs 1=4278
 - Bose-Einstein fluid, ground-state, variational study 2=11297
 - Bose-Einstein gas with repulsive interaction, ground-state energy 0=3460
 - Bose-Einstein gas, rotating, transition temp. 3=14067
 - Bose-Einstein, Green's function modified diagrams 4=14080
 - Bose-Einstein non-ideal system, asymptotic weak-coupling expansion near crit. temp. 4=2588
 - Bose-Einstein non-ideal system, thermodynamic perturbation theory 1=5226-8
 - Bose-Einstein non-ideal system, thermodynamic perturbation theory 1=10437-9

Quantum theory—contd

many-particle systems—contd

- Bose—Einstein system with attractive interactions, eqn. of state, comparison with He^4 0=14531
 Bose—Einstein system, non-ideal, modified formulation 4=11111
 Bose—Fermi hard sphere gas mixture and $\text{He}^3\text{—He}^4$ superfluidity 4=14502
 Bose fluid, ground-state calc. 0=18985
 Bose gas, charged ground state 2=19470
 Bose gas, charged, ground state energy and sp. heat 4=18095
 Bose gas, free, nonrelativ., canonical commut. relns. 3=14056
 Bose gas, ground state energy, simple calc. 3=16552
 Bose gas with hard sphere interaction, low-temp. 1=15737
 Bose gas, ideal, persistent ring currents 2=2951
 Bose gas, interacting, exact analysis 3=14064
 Bose gas, interacting, excitation spectrum 3=14065
 Bose gas, nonideal, equilib. and quasi-equilib. props. 0=18984
 Bose gas, nonideal, at nonzero temp. 3=76
 Bose gas, relativistic distrib. function 1=8077
 Bose gas with weak attraction at large distances, energy spectrum 4=27104
 Bose gas, with weak repulsion, vortex lines 1=18696
 Bose gases, dilute binary mixtures, low-temp., theory 4=5098
 Bose, ground state in pair approx., variational calc. 3=21260
 Bose hard-sphere gas, exact momentum-space formulation 0=16629
 Bose hard-sphere gas, low-lying excitations 0=10609
 Bose hard-sphere gas, low-momentum excitations, temp. depend. 0=18987
 Bose hard sphere system excitation spectrum and He II 4=27403
 Bose hard-sphere system at very low temps. 1=5223
 Bose liquid at 0°K , perturbation theory study 4=5095
 Bose, superfluidity 3=14059
 Bose system, cluster expansion of ground state 0=14529
 Bose system, ground-state energy, correction for triple collisions 0=14528
 Bose system, imperfect, ground-state energy, low-density and close-packing limits 1=5224
 Bose system, interacting, ground state, excitation spectrum at zero momentum 1=5221
 Bose system with Lennard-Jones potential, ground-state energy 0=14532
 Bose system with long-range attractive forces 1=5225
 Bose system, N-body, with finite states number 3=11724
 Bose system with repulsive interactions, ground state, equivalence of cluster integral method and pair approx. 0=14530
 Bose systems, dilute 0=3461
 Bose systems, phonon-phonon interactions 2=19467
 boson fluid, transport props., phonon concept 0=12379
 boson gas, Bose—Einstein condens. order 3=18751
 boson gas, charged, high-density, ground-state energy 1=18309
 boson gas, ground-state energy 0=21104
 boson gas, hard-sphere, quantum statistics 0=8566
 boson gas, nonideal, pair Hamiltonian model 3=78
 boson gas, phase transformation 0=3462
 boson superfluid, impurity particle motion 1=4281
 boson system, interacting, ground-state energy and excitation spectrum 0=2132
 boson system, method of auxiliary variables, ground-state energy calc. 0=14534
 boson system in 2-dimens. well, nuclear collective motion example 0=17471
 boson system, density field description 1=5217
 boson system, excitation spectrum, dispersion eqn. 4=2592
 boson system, interacting, ground-state energy, criticism of Hugenholtz—Pines theory 1=10444
 boson system, low state perturbation method 1=15736
 boson system, use of many-time Green's functions 4=14079
 boson system, reaction matrix 1=18312
 boson systems, cluster expansions incl. higher-order diagrams 4=2598
 boson systems, excitation spectrum 1=10447
 boson systems, integrable wave-functions 1=5688
 boson systems, interaction of foreign particle 2=19463

Quantum theory—contd

many-particle systems—contd

- bosons + fermions, interacting system, energy spectra 3=14060
 bosons and fermions, one-dimensional system 1=5222
 bosons, hard-sphere, variational method, extension in ground-state energy expansion 1=2717
 bosons, interacting, application of Bohm—Pines eqn. 4=2589
 bosons, interacting, elementary excitations 4=24474
 bosons, interacting, gauge invariant method 4=24099
 bosons, interacting, Green functions and self-energy parts 3=11725
 bosons, interacting system, low-lying states 3=79
 bosons, internal energy and partition function 2=21846
 bosons, Meissner effect model 2=17721
 bosons, point-particle, one-dim gas 3=14057
 bosons, quantum cell model 3=5388
 bosons, rel. to ferromag. spin waves 3=13234
 bosons, Wigner distrib. function 0=14533
 with bound particle pairs, in Fermi surface, ang. momentum $\neq 0$ 1=2022
 bound-state system, scattering of identical particle 2=15491
 broken symmetries and massless particles 3=23787
 Brueckner theory, inclusion of hole motions 1=3144
 charged or gravitating particles, collisions and microfield 1=11936
 charged-particle gas in mag. field, cluster expansion 2=2649
 cluster development of density matrices, for Jastrow wave-functions 0=7308
 cluster development method, saturation of nuclear forces 0=12884
 cluster expansion of operator averages 3=23790
 collective behaviour and other formal problems 1=15732
 collective motion, coupled systems 1=8080
 collective motion of particles 2=13260
 collective representation of system with arbitrary two-body interaction 1=11714
 collective rotation theory 1=12824
 collective states of finite system, generalized Hartree—Fock approx. 4=2583
 collective treatment, trial wave-function 3=14066
 collision integral, correlative distrib. function 1=19157
 collision integral, correlative distrib. function 3=4354
 collisions, many-body, generalized angular momentum 0=20067
 compensation principle, self-consistent field method, gauge invariance 1=2714
 composite-particles system, second quantization represent. 3=21257
 condensed systems, functional method 3=14054
 conference, Cargèse lectures (1962) 4=5001
 congress, Utrecht (June 1960) 1=1707
 conservation laws and correlation functions 1=15744
 continuous media dynamics, perturbation methods 4=27130
 continuous-represent. theory, functional quantization 4=11085
 cooperative phenomena, equivalence of Bethe and Kramers—Wannier approach 4=11104
 correlation, onset in initially uncorrelated system 1=885
 coupling, weak, between two systems 1=18319
 creation and annihil. operators, invariant functions 3=9363
 cubic boson-boson interactions, inconsistency 0=5482
 density calc. by WKB-like approx. 4=16041
 density matrix, generalized master eqns. 4=8093
 density matrix in many-electron quantum mechanics 0=9728
 density matrix, mono-electronic, exclusion principle appl. 3=23794
 density matrix representations 3=3762
 density matrix of semiclassical ensemble, quantum corrections 1=4276
 density of states, calc. 2=13736
 diamagnetism of interacting-particle system 1=18300
 dielectric formulation for general interact. 3=14051
 dielectric formulation for interacting particles 0=18988
 dilute Fermi gas at zero temp., sound propagation 2=4961
 Dirac and canonical density matrices, interrelation, appl. to imperfections in metals 0=18996

Quantum theory—contd**many-particle systems—contd**

- distribution function, asymptotic form, Liouville eqn., Green's function 1=4274
- distributions of maximum randomness 1=5213
- double-time Green functions in statistical physics 1=5212
- dynamics of quantum statistical condensate 4=29567
- e^+e^- , simple analytic approx. 3=10484
- electron Fermi liquid in metals, correlation function 1=19752
- electron gas, collision integral, in terms of elec. polarizability 3=5381
- electron gas, dielectric behaviour, correlation effects 3=73
- electron gas, interacting, in strong mag. field 1=12370
- electron gas, mag. susceptibility, calc. 2=2649
- electron gas, plasma oscillations, theory 1=6093
- electron-phonon system, interacting, thermodynamic potential 4=22524
- electron plasma, dielectric permeability tensor 2=187
- electron plasma, dielectric permeability tensor 3=402
- electron radial density, integro-differential equations 1=18307
- electron scatt., elastic, by randomly distrib. centres 3=5380
- electron system, gauge invariance and the Meissner effect 0=14926
- electron systems, Dirac, virial theorem 1=19103
- electron systems, Heitler-London approach, cluster expansion 4=17629
- electron tunnelling theory 3=18733
- electrons, in crystalline field, Kramer's theory, group theory 0=17872
- elementary particles, internal degrees of freedom 1=13310
- enclosed, volume-energy dependence, sum rule 3=3764
- energy level spacing distrib. 3=9362
- energy levels, review 4=17007
- energy losses in many-body system 1=11712
- energy matrix for identical particles in given spin state 4=2558
- energy and momentum distrib. 3=9323
- entropy, H theorem validity 1=5216
- eqn. of state at ultra-high densities; relativistic limitations 3=3528
- equation of state of ultra-high densities; relativistic limitations 2=4721
- equations, Thomas-Fermi, ion, negative, existence and solution uniqueness conditions 3=23783
- equilibrium approach, temp. and mag. reson. 3=11718
- equilibrium, dynamical derivation, diagrammatic technique 1=5205
- excitation energies, from poles of Green's functions 2=15497
- excitations, and response to external longitudinal probe 4=11106
- Fermi-Bose liq. mixture, collective oscill. 4=5096
- Fermi, degenerate, acoustic excitations 0=1071
- Fermi-Dirac distrib. with Coulomb potential, quantum corrections to density matrix 1=4276
- Fermi-Dirac function tables 4=2597
- Fermi-Dirac gas, equation of state approx. 4=21057
- Fermi-Dirac gas, equation of state approx. 4=27112
- Fermi-Dirac, shock waves 0=8693
- Fermi-Dirac system, non-ideal, perturbation theory, divergent levels 2=2652
- Fermi-Dirac system, non-ideal, perturbation theory, mass diagram branch-points 2=4967, 11303
- Fermi-Dirac system, two-particle bound states 2=19452
- Fermi-Dirac system, two-particle bound states 3=1629
- Fermi-Dirac systems, non-ideal, field equations 3=5377
- Fermi fluid, bound pair states, hard-core effect 0=222
- Fermi fluid, ferromagnetic, total spin 4=18101
- Fermi fluid, microscopic theory excitation energies 0=20085
- Fermi fluid, superconducting 3=23795
- Fermi fluid of 2 types of particles 3=15080
- Fermi fluids, Landau theory 2=13274
- Fermi fluids, Landau theory, quasi-particle assembly 3=23798
- Fermi fluids, "zero sound" reflection from rigid wall 4=27110

Quantum theory—contd**many-particle systems—contd**

- Fermi gas, attractive, energy and scatt. length 3=23800
- Fermi gas, collective excitations, sound propagation 1=5232
- Fermi gas, compressed and imperfect, energy 0=11122
- Fermi gas, dilute, energy gap, negative 2-body scatt. length 0=17269
- Fermi gas, dilute, ground state, negative 2-body scatt. length 0=15301
- Fermi gas, with hard-core interactions 2=4964
- Fermi gas, dilute, momentum distribution 1=18305
- Fermi gas, forward scattering amplitude 1=5231
- Fermi gas, ground-state energy and excitation energy spectrum, by method of auxiliary variables 1=2716
- Fermi gas, ideal, energy spectrum 0=11564
- Fermi gas, imperfect, compound pair states 1=5691
- Fermi gas, imperfect, Gibbs potential, perturbation expansions 1=5230
- Fermi gas, momentum distrib. function 1=18306
- Fermi gas, momentum distrib. function 3=3766
- Fermi gas, momentum distrib. at zero temp. 1=4780
- Fermi gas, nonideal, at low temp., mag. moment oscillations 1=18314
- Fermi gas, periodicity of self-consistent field, rel. to nuclear matter structure 0=11125
- Fermi gas, plasma oscillations, temp. effects 1=2715
- Fermi gas, rarefied, with attraction 3=1637
- Fermi gas, sharp Fermi surface impossible 1=5233
- Fermi gas, at very low temp., momentum distrib. 1=8076
- Fermi gas, weakly interacting, hydrodynamics 4=2596
- Fermi hard-sphere system near absolute zero 2=19466
- Fermi liquid, slow neutron scatt. 3=7863
- fermion liquid, theory 3=77
- Fermi liquids, Landau theory derivation 2=19457-8
- Fermi liquids, Landau theory 4=11113
- Fermi liquids, Landau theory, derivation 1=4284
- Fermi liquids, "normal", equil. and transport props. 4=14072
- Fermi liquids, sum rules 2=17377
- Fermi particle degenerate system, kinetic eqn. 2=39
- Fermi particle degenerate system kinetic eqn. 3=80
- Fermi particles, thermodynamic potential 1=15729
- Fermi superfluid, elementary excitations, spectrum 1=12823
- Fermi system, anomalous state, wave-function 2=19803
- Fermi system, collective excitation with non-zero ang. momentum pairing 2=15498
- Fermi system, collective excitation with non-zero ang. mom. pairing 3=5383
- Fermi system, ground-state energy, and other props. 3=23796
- Fermi system, ground state, localized perturbations 1=18304
- Fermi system of hard spheres, ground state energy contributions 3=11721
- Fermi system, infinite, nonsingular formulation of Brueckner approx. 2=19469
- Fermi system, non-zero ang. momentum pair interaction, props. 3=23797
- Fermi system, sing-part. Green's funct. with attractive and repulsive interaction 3=7147
- Fermi system, single-particle Green's function with attractive and repulsive interaction 2=21853
- Fermi system, superconductive, collective excitations, temp. branch of acoustic type 2=19802
- Fermi system, superfluidity 1=18697
- Fermi system, thermal conductivity rel. to degeneracy 2=15494
- Fermi system, viscosity rel. to degeneracy 2=4962
- Fermi systems with equally spaced energy levels, props. 4=5099
- Fermi systems with pairing, field-theory diagram technique 1=5234
- Fermi systems, superfluid, 2-particle excitation 0=12887
- fermion and boson systems, collective behaviour 0=8890
- fermion density formula, one-dimensional 3=14055
- fermion density matrix, second order, approx. 4=8108
- fermion ensembles of maximum entropy 2=7146
- fermion field, 2nd-order wave-equations 0=20056

Quantum theory—contd

many-particle systems—contd

- fermion gas, degenerate, giant fluctuations 0=16636
- fermion gas, interacting, density-modulated ground states 2=1080
- fermion gas, particle-hole inversion, collective excitations 2=3872
- fermion gas, statistical model, 1 and 3-dimensional cases 0=11120-1
- fermion hard-sphere gas with spin $\frac{1}{2}$, ferro-magnetism 0=14537
- fermion infinite medium, perturbation theory 1=4283-4
- fermion interactions, two-body correlation 0=16637
- fermion pairs, Bose-Einstein condensation 2=15500
- fermion pairs, boson-like behaviour 3=14061-2
- fermion reduced density matrices 4=11116-17
- fermion superfluid systems, moment of inertia 1=5692
- fermion system, analytic props. of Feynman amplitudes 1=18310
- fermion system, appl. to impurity resistance in metals 1=17599
- fermion system, attractive interactions 2=13277
- fermion system with attractive interaction, superconductivity 1=18699
- fermion system with attractive interact., two-particle approx. 3=7148
- fermion system, with B.C.S. interaction, modified Bethe-Goldstone eqn. 0=17271
- fermion system, bound states 3=19562
- fermion system, collective motion and particle excitation 0=15303
- fermion system, condensed, lifetime effects (erratum) 2=5225
- fermion system with correlated parallel-spin pairs 1=12816-17
- fermion system, excitation spectrum 2=13278
- fermion system, generalized Hartree-Fock method 1=8070
- fermion system, ground-state energy 0=10607
- fermion system, ground-state energy, critique of Brueckner-Goldstone perturbation series 0=8568
- fermion system, ground-state, Goldstone expansion, corrections 3=14063
- fermion system interacting with bosons, thermodynamic equilibrium, Green's function method 4=86
- fermion system, interacting, Fermi surface and low-temp. props. 0=14538
- fermion system, interacting, Green functions 4=24081
- fermion system, interacting, temp. excitation energy, pairing effects 2=1081
- fermion system, large, approach to equilibrium 1=7222
- fermion system, low-density, with attractive interactions 1=12826
- fermion system, moment of inertia at finite temp. 2=2646
- fermion system, momentum-space distrib., renormalization 2=4966
- fermion system, nonperturbative approach 3=73
- fermion system, normal, spin susceptibility 2=7147
- fermion system, normal, static responses, Sampson-Seitz procedures 3=5387
- fermion system, normal, theory, review 4=8106
- fermion system, one-dimensional, self-consistent Mathieu problem 4=11114
- fermion system, pairing correl. theory 3=11727
- fermion system with repulsive interactions, moment of inertia 1=76
- fermion system, self-bound, density propagator 3=9369
- fermion system, superfluid, moment of inertia at finite temp. 2=2647
- fermion system, in terms of one and two-particle functions 4=92
- fermion systems, analytic props. of single-particle propagators 1=4282
- fermion systems, approx. methods using single-particle orbitals 1=9349
- fermion systems, Brueckner t-matrix theory and hole-hole scatt. 0=5504
- fermion systems, cluster expansion technique 1=10443
- fermion systems, effect of interactions on moment of inertia 0=2131
- fermion systems, interacting, rigidity of inertial moment in perturbation theory 1=15738

Quantum theory—contd

many-particle systems—contd

- fermion systems, interacting, t-matrix singularity 3=75
- fermion systems, low-density, strong attractions 1=15733
- fermion systems, moment of inertia 0=335
- fermion systems, moment of inertia, effects of particle-particle interaction 0=2131
- fermion systems, pairing-force interaction 0=5492
- fermion systems, pairing forces, perturbative treatment 1=8348
- fermion systems, particle-hole bound states 1=18313
- fermion systems, with separable potential interactions 0=7306
- fermion systems, strongly coupled, convergence of linked-cluster expansions 1=8083
- fermion systems, superfluid, moment of inertia 0=12375
- fermions, with arbitrary interaction, 1-particle excitations, superfluidity 1=16724
- fermions, attracting, supercond. appl. 4=24464
- fermions, Bogolyubov eqn. 3=21263
- fermions, correl. effects, many-particle excit. expansion 4=5100
- fermions, degeneracy of superconductive state 1=16192
- fermions, eqn. including hole-hole interactions 2=13279
- fermions, Green's functions for systems with pairing correlations 3=3767
- fermions, infinite system, energy gap, reaction matrix singularities 0=17270
- fermions, interacting, de Haas-van Alphen effect, theory 1=6256
- fermions, interacting, thermodynamic variables in terms of quasi-particle distrib. functions 1=5229
- fermions, interacting, wave-functions 2=1669
- fermions, linear response function treatment 2=4960
- fermions, normal state vector, perturbation theory 4=14082
- fermions, quantum vortices 3=16556
- fermions, quasi-particle approx. 3=1638
- fermions, response functions, superconductivity and ferromagnetism 4=27105
- fermions, self-consistent pair interaction 1=11711
- fermions, strongly-interacting, superfluid state, appl. to liquid He³, nuclear matter 4=8109
- fermions, vibrational states 1=5693
- fermions, Wigner distrib. function 0=14533
- fermions, Yang's conjecture, proof. 3=16555
- fermions at zero temp., Landau interaction formalism 4=16055
- ferromagnetic spin waves, random phase approx. 1=6265
- Feynman sum for fermion fields 1=2007
- fluids, homogeneous, evolution eqn. 3=23792
- four-electron, generalized product functions 3=10449
- 4-particle wave-function in SU₄ 4=25254
- four pions, wave-functions 2=16177
- free fermions and bosons, linear response function 3=1628
- functional theory, boundary property of the mean wave 1=8078
- functional theory, mean waves and sum wave 0=17267
- Γ^2 representation structure 4=2580
- gases, new eqn. of state and anomalous specific heat 4=24089
- Gell-Mann, Brueckner and Sawada theory, corrections 1=5218
- generalized master eqn., deriv. 3=71
- generalized master eqns., equivalence 2=11296
- generalized perturbation theory 1=15702
- generalized susceptibility, time-dependent Hartree-Fock approx. 4=27092
- generalized theory, from Green's function 0=10606
- Gibbsian ensembles, quantum-mechanical, approach to equilibrium 2=19456
- grand partition function for identical particles 1=1706
- Green functions, analytical props. 3=3765
- Green's functions approx. soln., difficulties 2=17376
- Green functions, regularized, eqns. 4=24968
- Green's function approach to many-body problem, new identity 4=21055
- Green's function method for electron gas 1=3645-7
- Green's functions, formal theory 1=15734
- Green's functions, gauge transformations 1=19155
- Green's functions, many-particle structure 0=16607

Quantum theory—contd

many-particle systems—contd

- ground-state energy of N interacting particles 2=9204
 ground state for the reduced Hamiltonian, asymptotically exact 1=6997
 ground states, with periodic Hartree-Fock wave-functions 0=12885
 group theory and problems with finite no. of states 4=2585
 Hamiltonian, for eqns. of motion with linear constraint 2=21848
 Hamiltonian matrix elements, calc. 1=5218
 Hamiltonian and other systems, asymptotic theory with nearly periodic solutions 3=11669
 Hamiltonian, pairing-force, exact eigenstates 4=15130
 Hamiltonian, thermodynamically equivalent 1=75
 hard sphere Bose and Fermi gas at $T = 0$, supermobility 2=2650
 hard-sphere interaction, surface charge pseudo-potential 0=12381
 hard-sphere system, many-body pseudopotential 0=12380-2, 14528
 hard spheres, cell model thermodynamic props. 4=18088
 hard spheres, tunnel model at absolute zero 4=18088
 harmonic oscillator, linear, quantum corrections to density matrix 1=4276
 Hartree-Fock approx., perturb. method 3=3754
 Hartree-Fock approx., thermal, stability 3=7144
 Hartree-Fock method, generalized, for fermion system 1=8070
 Hartree-Fock soln., stability condition 1=15731
 Hartree-Fock solutions and collective motion, stability 3=18746
 higher random phase approx. for fermion system 2=4966
 hole-hole interactions in systems of fermions 0=18981
 ideal Fermi and Bose gases, thermodyn. theory 0=12369
 identical particle systems, perturbation calc. with modified Schrödinger eqn. 4=25471
 identical particles, space-time correl. function 3=5382
 imperfect gas, pressure, Mayer density series 0=16623
 independent-particle model, self-consistent field theory 3=6340
 inequality representation, role in many-body problem 4=8097
 insulating state, electron localization 4=9897
 insulators, one-electron problem, many-particle approach 0=1546
 integrals of motion for quadrupole-quadrupole interaction 1=5695
 interacting fermions, with spin $\frac{1}{2}$, Green's temp. function 2=1079
 interacting-particle systems, grand partition function, logarithm 0=10605
 interacting particles, in external field, excitation spectrum 1=18303
 interacting particles, thermodynamic quantities and pair distribution function 0=8566
 interaction energy, one- and two-centre symmetric expansion 2=147
 interference term and approach to equilib., master eqn. 2=7144
 intermolecular forces, fluctuating reaction field model 4=11107
 invariant quantities in semi-simple groups 4=3289
 irreversible processes, general theories, review 3=21251
 Ising spins system, weakly coupling 2=19454
 Λ - N systems, saturation and stability 0=15526
 large dissipative systems, ergodicity 3=11716
 large quantized systems, perturbation theory, review 3=21256
 large system, dynamical decomposition 4=11101
 lattice gas, 1-parameter theory 0=6009
 lattice gas, spherical 2=19460
 Lee-Yang collision method for interacting particles 2=15495
 Lee and Yang qu. statistics, linked-pair expansions 1=8075
 lifetime of quasi-particle in Fermi systems rel. to energy 4=24100
 linked cluster expansion for ground-state energy of infinite fermion medium 1=4283-4
 liquids and dense gases, polarizability change by many-body interact. 3=1705

Quantum theory—contd

many-particle systems—contd

- long-range interacts., partition functions calc. 4=5085
 low temperatures, review 3=2
 many-body problem, degenerate phase in Bose-Einstein condensation 0=4948
 many-body problem, field quantization methods 2=22113
 many-body problem, formulation in terms of av. occupation no. in momentum space 0=3458
 many-body problem, method of approach 1=72
 many-body problem, statistical approx. 0=7305
 many-body problem, with strong two-particle interaction 0=12883
 many-body problem, use of thermodynamic Green's functions 1=4779
 many-body problem, validity of two-particle approximation 1=460
 many-body problem, virial expansion for hard-sphere gas 0=897
 many-body problem, zero-temp. limit for dilute hard spheres 0=3457
 many-body systems, ergodic behaviour 0=7309
 many-boson, many-fermion systems, density matrices 3=18690
 many-boson system, weak-coupling expansion for ground-state energy 0=900
 many-boson systems, perturbation theory 3=3768
 many-boson systems, simple and gen. condensation 3=1635
 many-electron Hamiltonians, electron-electron pole removal 4=5088
 many-electron quantum mechanics, density matrix 1=13911
 many-fermion system, comparison of two models 1=18298
 many-fermion system, exactly soluble model 3=23799
 many-fermion system, summation of generalized ladders 1=1708
 many-fermion systems, degenerate problems, perturb. theory 3=9364
 many-fermion systems, Green's functions 0=6697
 many-fermion systems, nonuniform, one-particle Green's function 3=5385
 masers, radiation field, statistics 3=12356
 master eqn., with special transition probab. 3=11717
 maximum linearization of problem 4=27094
 mechanics, form. in terms of phase space functions 4=24059
 π mesons, angular momentum wave-function 4=8099
 metals, functional variational principles 3=752
 metals, impurity resistance, many-body technique 0=17985
 method of auxiliary variables, appl. to Fermi gas 1=2716
 method of soln of many-body problem 4=29555
 moment of inertia 0=334
 moment of inertia of large systems at finite temp. 2=2646
 moment of inertia of superfluid fermion systems at finite temp. 2=2647
 motion in translationally invariant oscillator potential 1=6783
 multicomponent system, binary collision method 3=5379
 multiple particle production, hydrodynamical model 0=9290
 n -body forces in the static pair-coupling theory 1=12065
 N -body problem, cluster development for Jastrow wavefunction 4=8092
 N -electron system, energy, Bopp's approx. 4=22288
 N -electron systems, localized group model 2=19461
 N -electron systems, spin Hamiltonian 2=22877
 N -fermion density matrix, 2-body wave-functions 0=9304
 n -fermion problem, 1- and 2-particle functions 3=16551
 n -particle config., interaction energy, recursion formula 4=24085
 N -particle kernel, irreducible, Weinberg's conjecture 4=27073
 N -particle wavefunctions, direct-product represent. 3=1610
 n -pion wave function, symm. props. 4=15085
 neutrino gas, density and pressure, var. temp., chemical pot. 4=4854
 neutron Fermi gas, star model 0=10526
 neutron gas, energy per particle 1=19204

Quantum theory—contd**many-particle systems—contd**

- neutron gas at zero temp., energy and press. 4=29557
- nonequilibrium processes, stochastic eqns. 0=18982
- non-interacting particles, theorem on density 0=2497
- non-relativistic functional theory 0=20081
- nonrelativistic, many-time causal Green's function 2=21845
- norm of wave functions, logarithm, linked graph expansion 3=18747
- nuclear collective excitations, spurious states 2=20507
- nuclear field with rigid charge distribution 0=17466
- nuclear many-body problem 4=9343
- nuclear many-body problem, using boundary condition model 4=9341
- nuclear many-body problem, effective interaction 1=12070
- nuclear many-body problem, general theory 0=397
- nuclear many-body problem, translational and rotational states 3=627
- nuclear many-body problems, appl. of perturbation theory 0=12886
- nuclear matter, collective excitation 1=9802
- nuclear matter, effect of velocity depend. forces 3=6132
- nuclear matter, energy gap, magnitude 0=13101
- nuclear matter formalism appl. 1=16961
- nuclear matter, ground state 1=16962
- nuclear matter, ground state 0=20084
- nuclear matter, low-density, with attractive and singular interactions 1=19340
- nuclear matter, non-static forces, effect 4=12100
- nuclear, with nonuniform density 3=6131
- nuclear matter, nucleon-nucleon scatt. amplitude 1=12143
- nuclear matter, single-particle energies and level structure 0=11123-4
- nuclear matter, superfluid state 1=13611
- nuclear matter, superfluidity 0=1348
- nuclear matter, 2-nucleon interaction, separation 0=20083
- nuclear physics, low-energy, Green functions 4=25250
- nuclear reactions theory 2=5877
- nuclear reactions theory 4=9487
- nuclear systems, particle-hole pair interactions 1=13363
- nuclei, heavy, central three-body forces 0=17457
- nuclei, many-body and single-particle aspects, relation 1=4830
- nucleon gas, potential in 1=10866
- nucleon-nucleon correlations, effect on scattering by heavy nuclei 1=5901
- O atom, electronic structure 0=7699
- occupation number rel. to localized one particle functions 4=11103
- one-dimensional, exactly soluble, with δ -function interactions 4=18086
- one-dimensional lattice with isotopic impurity, dynamical behaviour 2=12369
- one-dimensional system, exact solution, suggested nuclear model 1=8540
- one-electron density matrix, kinetic eqn., graphical calc. 0=20086
- one-particle motions, appl. to optical model of nuclear reactions 1=3430
- operators, mass and polarization, spectral representation, any temp. 3=23784
- pair-correlation method, fermion systems 0=5492
- pair distribution function, geometrical study 1=15730
- paired fermion system, perturbation 1=15727
- paired particles, second random-phase approx. 3=12024
- pairing energy effect in interacting fermion system 2=1081
- parafermi rings, representation theory 3=23788
- partial self-energy parts, Kadanoff-Baym eqns. 4=16052
- particle correlation functions, exact integral eqns. 0=12372
- particles which cannot exchange places 3=3763
- partition functions as averages of functionals of random functions 1=5204
- Pauli exclusion principle, derivation from quantum electrodynamics 3=10018
- Pauli exclusion principle, for nucleon-antinucleon system 2=22495
- Pauli matter, assembly of small rotating bodies 0=9303
- periodic adiabatic variations 1=11713

Quantum theory—contd**many-particle systems—contd**

- perturbation in large Fermi system and superfluidity 1=12822
- perturbation theory applied to nuclear matter 4=3526
- perturbation theory calc. of partition function 3=1627
- perturbation theory for double-time Green functions 3=7142
- perturbation theory, many-body, analytic structure 2=4965
- perturbation theory, "non-physical" steps 0=15278
- perturbation theory, reduction of many-electron problems 2=6079
- perturbation theory, rel. to Mayer cluster expansion 1=5206
- perturbation theory, simplified Van Hove-Hu,enholtz expansion 1=459
- perturbed system, eigen-functions from Maxwell-Boltzmann density operator 3=7133
- petit canonical ensemble, linked cluster expansion for free energy 1=77
- π -meson normalized wave-function as auxiliary variable 0=13024
- π -mesons, four, wave-functions 3=14999
- π -mesons, three, effective ang. momentum 3=4444
- plasma, e.m. props. 2=9581
- plasma, e.m. wave dispersion, quantum effects 2=9569
- plasma, irreversible processes, equilibrium 1=2961
- plasma kinetic equations 4=2587
- plasma, kinetic theory 2=19459
- point transformations, extended, use 4=5094
- potential in large box, energy shifts 3=18533
- proper self-energy function, asympt. form 3=14049
- pure states of n -identical particles, rel. to superselection principle 2=11294
- quantization of currents in superconductors 2=2954
- quantized vortex in boson systems 1=12821
- quantum chemistry, Gauss integral transform method 1=17250
- quantum fluids, formal sum of pairing diagrams 3=11726
- quantum gas, evolution eqn. soln. 3=9365
- quantum gas, irreversible phenomena 4=29556
- quantum gas, macroscopic description 4=29565
- quantum liquids, collective oscill. amplification 4=5097
- quantum plasma, Boltzmann-Vlasov eqn. 0=15006
- quantum statistics, formulation in terms of distribution functions 1=78
- quasi-particle approx., effect of no. of particles 3=23789
- quasi-particles in nuclear matter, energy gap in spectrum 1=5689
- random-phase approx., extension 1=6801
- Rayleigh-Schrödinger perturb. theory, Huby's rules 3=74
- reduced density matrix method 0=9302
- redundant coords. for Hamiltonian transformation 2=17375
- with regular but vel. depend. interactions, perturbation theory 3=7967
- relativistic, complete orthonormal set of eigenstates 3=18748
- relativistic many-body problems, angular momenta 3=72
- relativistic partial wave expansions 3=14896
- relativistic quantum mechanics, introd. of particle posns. 3=7797
- relaxation, master eqn. deriv. 3=21255
- relaxation of model spin system, oscillo. and correls. 4=30740
- renormalization techniques and stationary entropy principle 4=8100-1
- review 0=48
- S-matrix connected graph representation 4=25040
- scattering of energy-time wave packet 4=18072
- scattering, inverse problem 1=10849
- scattering, soluble models, complex ang. mom. 3=7125
- scattering system in Janch's sense 1=16691
- Schrödinger eqn., approx. solns. review 4=5058
- Schrödinger eqn., rotational degrees of freedom, separation 4=21042
- self-consistent approximations 2=19455
- self-consistent field and dielec. formulations 3=14050
- self-consistent field theory, review of recent developments 4=11110
- semiconductors, one-electron problem, many-particle approach 0=1546

Quantum theory—contd

many-particle systems—contd

- several-nucleon system, symmetric group theory 4=12105
- several-particle functions 0=20087
- single-determinant wavefunctions, spin-component analysis 3=23785
- single-fermion Green's function, analytical props. 2=4963
- single-fermion Green's function, analytical props. 3=1633
- single particle energies in Green's function formalism 3=14053
- Slater determinants, for many-fermion system 2=13237
- sound propagator, Green's function technique 1=15743
- space-time correl. functions, Bogoliubov canonical transformation appl. 2=15496
- spectral representations of mass and polarization operators 2=21849
- spin functions, construction, generalized character operators 0=15302
- spin $\frac{1}{2}$, exact eigenfunctions 4=24088
- spin $\frac{1}{2}$ particles, exchange potential, semi-classical analogue 0=5490
- spin $\frac{1}{2}$ particles, Fermi zero-point kinetic energy 0=5489
- spin interactions, use of linked cluster expansions 3=6698
- spinor field, self-coupled, many body propagators 2=3247
- square-well interaction, statistical mechanics 2=11299
- statistical mechanics for two-body interactions 4=5082
- statistical model, energy expressions, applic. to Bloch energy eqn. 0=11118
- statistical weight, for arbitrary spin 0=2137
- statistical weights, in spin or isospin space 0=9305
- statistics of interacting particles 0=7303
- stochastic models 2=13272
- stochastic nonlinear approach 1=4267
- strongly interacting particles, perturbation theory, appl. to Lennard-Jones potential 0=12382
- superconductivity Hamiltonian, new Tamm-Dancoff approx. 1=5694
- superconductivity, many-fermion theory 1=11874
- "superconductor" solutions 1=5690
- superconductors, weak e.m. field response 2=2953
- superdense degenerate masses, equilib. configuration 2=24141
- superfluid Fermi system, with isotopic spin 1=10436
- superfluidity 1=13610
- superfluidity, density operator separation by Bose amplitude effect 4=14503
- symmetry-adapted functions, construction 1=15703
- symmetry characteristics theory 3=12409
- symmetry prop. of relative coords. 3=12422
- system on contact with a reservoir, qu. mech. Liouville eqn. 3=69
- system of harmonic oscillators, resonant oscillatory relaxation 3=18744
- system of weakly-interacting particles, impulse excitation 2=15499
- system of weakly-interacting particles, impulse excitation 3=5384
- systems of particles with hard cores, inequalities 4=29559
- systems with singular interaction, ground-state energy and excited states 0=16624
- temperature Green's functions 0=18947-9
- tensor interaction, nuclear matter 1=13612
- thermodynamic multi-phase systems 1=15748
- thermodynamic variables in terms of quasi-particle distrib. functions 1=5229
- thermodynamics, gas second virial coeff. corr. calc. from Wigner distrib. function 4=14069
- third virial coeff. 0=903
- three-body, asymptotic props. of wave function 2=21824
- three-body eigenvalue, upper and lower bound 4=18071
- three-body ground-state problem, exact soln. 2=7832
- three-body problem with attractive forces 1=5202
- three-body problem, Hamiltonian, wave-eqn. soln. 1=4922
- three-body problem, quantum mechanics 0=886
- three-body problem, soln. for rigid bodies 3=1617
- three-body problem, translationally invariant, adapted coordinates 0=17268
- three-body problems, two-body methods 3=21240
- three-body systems, relativistic, ang. momenta 2=13742
- three-nucleon systems, vector harmonics 4=25084
- three particle states, discrete quantum numbers 4=8068

Quantum theory—contd

many-particle systems—contd

- three-particle unitarity condition, diagrams 2=7833
- three-particle unitarity condition, diagrams 3=5970
- Tonk's gas, generalized, partition function 3=16550
- translationally invariant problems, many-particle variables 0=11119
- translationally invariant systems, modes of motion 2=1084
- transport coeffs. formalism 4=2605
- transport coeffs., thermal Green's functions 3=23804
- tunnelling between conductors, many-particle viewpoint 1=5395
- two-body interactions and Nilsson potential 3=23793
- two-body problem, electromag., relativistic calc. 3=23769
- two-electron orbital wave functions, configuration interaction 1=18297
- two-particle Green's functions, solutions 1=5231
- two-particle motion, in meson field, relativistic eqn. of motion 0=5508
- two-particle system, relativistic 3=11674
- unified nonperturbative theory 0=896
- unitary ensemble, statistical fluctuation of energy levels 4=5084
- Ursell-Mayer cluster expansion treatment 0=3938
- vacuum nucleons, collective correlation 1=10920
- variational solution 1=789
- wave-functions, admissibility conditions 2=9806
- He³, liq., condensation by bound pairs 2=15831
- He⁴, T = 0 state, four- and one-body models 4=9318
- quantization**
 - See also Field theory, quantum, quantization.
 - anharmonic oscillator, isotropic three-dimensional mechanics 4=24067
 - Bohr-Sommerfeld quantum integral, derivation from Weyl theory of gauge invariance 0=14508
 - canonical transformations 3=21239
 - composite-particles system, second quantization represent. 3=21257
 - continuous-represent. theory, functional quantization 4=11085
 - cybernetic applications 0=10598
 - Dirac eqn., new quantization 3=16530
 - dynamical systems, degenerate, generalized canonical formalism 4=85
 - electrodynamic quantization process 1=8413
 - electron-electron interaction via phonons, classical deriv. 1=17409
 - fermions, general operator, second quantiz. 3=9372
 - Feynman formulation 2=21820
 - Feynman histories, summation, Hamiltonian approach 3=3747
 - Feynman quantization of spinor fields in terms of c-numbers, action option 1=2007
 - free e.m. field 1=16647
 - free e.m. field in special relativity 0=18920
 - gravitational field 3=3719
 - gravitational field, super-energy 1=15641
 - Hamilton-Jacobi eqn., rel. quantization principles 2=9194
 - harmonic oscillators, $h\nu$ for sp. ht. at low temp. 1=7510
 - harmonic oscillator, linear, damped 3=5363
 - indefinite metric in Lee model 0=17256
 - infinite-dim. invariance groups, generalized Schwinger-Feynman 3=5357
 - interaction of quantized and unquantized systems, no dynamical inconsistencies 4=5065
 - interaction and radiation effects, distinguishing by perturbation theory 4=5064
 - internal motions of relativistic fluid mass models of elementary particles 0=17238
 - Lagrangian and Hamiltonian formalisms with supplementary conditions 4=24113
 - length, quantum of, rel. to Planck's law 1=10419
 - linear and non-linear theories 1=5214-15
 - method of approx. 2nd quantization, Green's function derivation 4=5077
 - non-linear transition theory 3=16531
 - particle, spin ≤ 2 , wave equation soln. 3=10023
 - potential determination from energy levels 2=2632
 - quantum transitions to continuous spectrum induced by adiabatic perturbation 4=27066
 - quasiclassical, in neighbourhood of singular classical trajectories 1=18280
 - radiating electron, Schrödinger eqn. 1=11707

Quantum theory—contd

quantization—contd

- relativistic one-particle theory, "position" operator
det. 1=18261
- relativistic qu. kinematics, elementary review 1=9325
- relativistic rotators, hyperspherical (Nakano), internal
states 1=10423
- relativity 4=24039
- relativity, general 4=11058
- and relativity general, validity of covariance 3=14007
- second quantization and Lorentz invariance 2=15488
- second quantization in superconductivity, approx.
method 1=4532
- space-time operators 1=18279
- space-time, parametrization 3=7119
- spinor eqn., non-linear quantization 1=18267
- spinor eqn., non-linear quantization 3=3749
- spinor eqns., two-component higher order 3=4322
- stationarity and nonlinearity rel. to quantization 1=15690
- stationary system, freq. spectrum, rel. to stationarity
and nonlinearity 1=2705
- stochastic dynamics of quantum-mechanical
systems 1=2699
- superconducting cylinder, mag. flux 2=9477
- superconducting cylinder, mag. flux 4=5512
- superconducting films, transitions, fluxoid
quantiz. 3=9675
- superconductors, magnetic flux, Gorkov model 3=1896
- superconductors, thin-walled, fluxoid quantiz. 4=8556
- top, non-relativistic, quaternion
formulation 1=9725
- transformation theory and functional differentiation 0=45
- Weyl correspondence for ang. momentum 4=16037

wave equations

- α -particle, classification of wave functions 1=557
- accidental degeneracies, theory 3=7116
- adiabatic invariance in quantum mechanics 2=15484
- adiabatic perturbation of discrete spectrum
states 2=29
- adiabatic perturbation of discrete spectrum
states 3=43
- alkali halides, electron wave-functions in, rel. to
positron annihilation 1=954
- amorphous substance, electron energy-spectrum
one-dimensional model 1=9153
- analytic wave-functions, inclusion of correlation 3=6345
- angular momentum matrices, traces of products 2=19367
- anharmonic oscillator, Schrödinger's eqn.,
eigenvalues 1=15686
- approx. wave-functions with discontinuities in first
derivatives 1=8054
- approximate wave-functions, statistical theory of
error 3=9348
- asymptotic conditions and perturbation theory 0=15300
- atomic orbitals, Slater's approximation, interpreta-
tion 0=17791
- atomic systems, perturbation theory 0=9729
- atomic wave-functions containing interelectron coordinates,
appl. to energy level calc. 0=15645
- atomic wave-functions containing interelectron coords.,
appl. to Li ground-state 0=1468
- atomic wave-functions, limiting behaviour for
large Z 0=9732
- atoms, charge densities 4=3766
- atoms Li to Ne, wave-functions 2=8059
- atoms, two-electron, wave-functions involving
 r_{12} 1=13924
- barycentric wave for n-particle system 1=7221
- basic equations, generalized time-dependent eqn.
5-dimens. space 0=16600
- Be, atomic wave-functions, approx. 0=13392
- Bethe—Salpeter amplitude, analyticity props. 1=13352
- Bethe—Salpeter eqn., approximate
solutions 1=4770
- Bethe—Salpeter eqn., in nonrelativistic quantum
mech. 3=41
- Bethe—Salpeter wave function, normalization 3=7813
- Bhabha's eqn., non-relativistic approx. 0=3936
- Biedenharn symmetric Dirac—Coulomb Hamiltonian
scatt. solns. 4=27072
- binary solid solns., random clusters, propag.
phenomena 0=3268

Quantum theory—contd

wave equations—contd

- Bloch electrons in elec. field, wave-functions and
effective Hamiltonian 0=4273
- Bloch functions, dispersion relations 0=17871
- Brillouin—Wigner formalism, Schrödinger eqn., var. of
parameter soln. 4=27061
- canonical transformations in quantum mechanics 2=11278
- charged particle in uniform mag. field, by Feynman
histories summation 4=8066
- charged particles, asymptotic expansions 1=3116
- charged particles, in e.m. field 0=5471
- Cini—Touschek transformations 1=15682
- class of potentials allowing solution of Schrödinger's
equation by iteration 1=2703
- class of solvable Schrödinger potentials 4=18062
- cluster and shell-model wave-functions for nuclei 0=4012
- conference, molecular quantum mechanics 0=13426
- configuration interaction wave-functions, 3-electron atomic
system 0=15643
- convection with classical mechanics 3=14026
- correspondence principle and functional integration
method 4=27062-3
- Coulomb functions, basic theory, summary 1=18272
- Coulomb Green's function, in closed form 3=18730
- Coulomb Green's function, nonrelativistic 3=11701
- Coulomb Green's functions, using Furry approx. 4=18067
- Coulomb potential, Dirac and Schröd., anomalous
solns. 3=16525
- Coulomb wave-function, continuum-state,
relativistic 2=9193
- Coulomb wave-functions, irregular 0=6685
- Coulomb wave functions at low energies 4=25470
- Coulomb wave-functions, numerical tables 3=14924
- Coulomb wave functions in terms of Bessel
functions 2=19430
- covariant free-particle eqns., canonical form 4=809
- crystals, and molecules 0=1538
- crystals, tight-binding approx., determinant factoriza-
tion 0=17873
- "cut" restricting Fourier transform of soln. near
origin 4=11074
- d, analytic wave function 4=19599
- damping problem, exact soln. 1=15683
- de Broglie theory, relativistic notation 3=16527
- Dirac, asymptotic soln. by WKB method 3=23765
- Dirac continuum radial functions, for electrons in
Coulomb field 0=5542
- Dirac density matrix, approximations 4=12347
- Dirac difference eqn., covariant 3=12392
- Dirac electron, Huygens' principle 0=9268
- Dirac electron, source density and Huygens'
principle 0=1248
- Dirac eqn., for e.m. potentials, soln. 0=20046
- Dirac eqn., general relativity form 2=3249
- Dirac eqn. in gravitational field of point
charge 4=18058
- Dirac eqn., initial value problem 3=16529
- Dirac many electron eqn. in Schrödinger—Pauli
form 3=1632
- Dirac eqn., non-relativistic approx., Foldy—Mouthuysen
transformation 4=54
- Dirac eqn., relativistic Coulomb wave-functions 0=5515
- Dirac, representations in general relativity 2=13261
- Dirac eqn. with Yukawa potl., extra solns. 3=7768
- Dirac equation, general Lorentz transformations,
 Λ matrix 1=10421
- Dirac equations, solutions 0=20048
- Dirac-like wave eqns. for nonzero rest-mass particles,
quantization 0=9270
- Dirac particle, hypothetical velocity meas. 0=11096
- Dirac particles, position operators, 0 or $\hbar/2$ spin, in mag.
field 4=14046
- Dirac particles, spin behaviour in collision
processes 1=16658
- Dirac radial eqns., quasi-classical solutions 0=7683
- Dirac radial relativistic eqn. for particle in central
field 3=21237
- Dirac "scalar" equation 1=16673
- Dirac "scalar" equation 2=22397
- Dirac, spin, gravitational effect 3=16499
- Dirac, translational inertial spin effect with moving
particles 4=16870

Quantum theory--contd

wave equations--contd

- Dirac type, interactionless, conformal invariance 2=1652
- Dirac wave function, linear and antilinear transformations 4=14047
- Dirac wave-functions, phase shifts, normalizations calc. 2=20236
- Dirac's eqn., canonical transformation to even forms 1=16660
- Dirac's eqn., generalization 1=15680-1
- Dirac's eqn., quasiclassical asymptotic soln. 4=53
- dispersion relations, derivation of elastic scatt. formula 1=19134
- dynamical systems with limit cycles 2=19426
- Dyson perturb. expansion for Møller wave operators, rigorous establishment 4=18065
- in e.m. fields, wave eqn. 0=5471
- eigenstate system, autocorrel. field 0=893
- eigenvalue calculation for self-adjoint operators 2=13236
- eigenvalue problems, use of Lagrange formula 1=2701
- eigenvalue relationship between relativistic and non-relativistic quantum mechanics 2=4932
- eigenvalues, rearranged and two-parameter problems, solution 1=4259
- electron charge distributions in 2-component representations of Dirac's eqn. 2=20309
- electron eigenfunctions, in one-dimensional periodic potential field 0=9875-6
- electron eigenvalues, det. by line integration 0=3454
- electron, internal energy distrib. 1=10030
- electron in periodic fields, one dimensional, with a defect 4=11072
- electron polarization vectors 1=18273
- electron scatt. on H, atomic distortion 0=1476
- energy level calculation 1=6780
- energy renormalization in wave mechanics 0=11079
- equation of motion, differential eqn. system, reduction 2=5
- ergodicity conditions and Van Hove's Hamiltonians 2=11292
- Eriksson's spinor formalism for construction of wave equations 0=12841
- error bounds for lower limit expectations 4=11083
- exact wave-functions, natural expansions 2=19427
- excited states, approx. wave-function validity 0=888
- excited states of one-dimensional systems, perturbed first order, integration 4=59
- expectation values, simple correction 3=14031
- extended particle, non-relativistic 0=12842
- fermions, Heisenberg 3-point functions 0=2116
- Feynman and Gell-Mann equations, hydrodynamic representation 1=5648-52
- Feynman histories, summation, Hamiltonian approach 3=3747
- Foldy-Wouthuysen transform., extension 3=5362
- for Foldy-Wouthuysen transformations 3=10065
- free electron near an atom, polarization and exchange effects 1=12239
- fundamental particles, wave description 1=16664
- general wave eqn. correspondence with Hamiltonian system 2=9189
- generalized cluster wave functions, interpretation 2=13957
- generalizations, non-linear, for arbitrary spin particles 3=10021
- gravitation as a zero mass limit, linearized classical theory 1=9309
- Green's function of potl. scatt. 3=14903
- Green's functions, relativistic, Coulomb-like, in closed form 4=2557
- Groenewald's propagator, modified Hamilton principle 0=8553
- H-atom wavefunctions, convergence 4=3775
- HF, LCAO wave-functions with Hartree-Fock AO's 0=1511
- Hamiltonian for eqns. of motion with linear constraint 2=21847
- Hamiltonian formalism, many-dimensional 2=7140
- Hamiltonian, rigid asymm. rotator-type, trace formulae 3=14029
- hard-sphere Fermi systems, density expansions 0=3921
- harmonic oscillator, isotropic, transformation matrix 4=24068
- harmonic oscillator wave-functions in nuclear spectroscopy 0=4025
- Hartree-Fock, density matrices, calc. 1=8071

Quantum theory--contd

wave equations--contd

- Hartree-Fock eqn. in terms of localized orbitals 1=4890
- Hartree-Fock eqns. with perturbing field 0=9734
- Hartree-Fock method, unrestricted 0=20769-70
- Hartree-Fock methods, generalized 1=2271
- Hartree-Fock and nuclear rotational states 2=9805
- Hartree-Fock, numerical soln. 4=3771
- Hartree-Fock states, stability 2=22879
- Heisenberg eqn., non-linear, causal interpretation 2=28
- Heisenberg exchange interaction, molecular model 1=8854
- Heisenberg formulation 4=27055
- Heisenberg nonlinear spinor theory 2=9768
- Heisenberg-type nonlinear unifying eqns., deriv. 3=10024
- Heisenberg uncertainty principle for harmonic oscillator and H atom 2=2631
- Heisenberg's non-linear spinor theory 1=5645
- Hermitian polynomials, table for harmonic wave-function calc. 0=14369
- hydrodynamic, classical, form 2=19431
- hydrodynamical model for particle in ext. e.m. field 4=24058
- infinite sums involving operator $\partial H/\partial \lambda$, sum rule 2=9191
- inhomogeneous wave eqn. in local relativistic field theory 1=2021
- interaction of degenerate configurations 2=20777
- interference expts., significance of potentials 0=10600
- internal structure of particles, associated waves 1=6781
- invariance under discontinuous groups and nuclear forces 1=7219
- Jost function, dynamical eqn. 2=21825
- Jost functions for potl. scatt. 3=14902
- K metal, electron wave-functions 0=13517
- Kemmer eqn. for spin-0 and spin-1 particles in Riemann space 1=4763
- Klein-Gordon difference eqn., covariant 3=12392
- Klein-Gordon, for 4-spinor, antilinearization 2=3248
- Klein-Gordon operator, rel. to Hamilton-Jacobi eqn. 4=11068
- Klein-Gordon, with reversed sign for mass term 3=14022
- limits of error at arbitrary point 3=10436
- linear potl. problem, normalized eigenfunction 3=3706
- liquid He⁴, structure 2=1324
- liq. helium, multiplicity of ground-state wave-function 0=8895
- M-shell, relativistic electrons, atoms of Z = 55 (5) 90 2=1956
- macroscopic bodies, state mixture rather than superposition 4=27057
- magnetic crystals, symmetry props. of wave-functions 2=18884
- massless particles, canonical form 4=16839
- matter waves, new postulates, extensions of theory 4=5062
- matter waves of spin 0 and 1, coupled to gravitational field 3=14025
- medium in motion 0=12443
- mesic atoms 0=11490
- molecular calculations, survey 0=9777
- molecular electronic energies, use of complex wave-functions 0=20680
- molecular Hamiltonian and Hamiltonian in group operator form 4=58
- molecular Schrödinger eqn., ground-state energies calc. by extrapolation 4=28171
- molecular Schrödinger eqn., Monte Carlo evaluation of integrals 4=28170
- molecular Schrödinger eqn., one- and two-electron systems 4=28172
- molecular Schrödinger eqn., one-electron solns. 4=28169
- molecular wave-function, one centre expansion 0=7794-5
- molecules containing H atoms, one-centre wavefunctions, improvement 4=12431
- molecules, diatomic, pot. energy function 2=6118
- molecules, n.m.r. relationship, valence-bond formulation 1=3562
- momentum and energy of waves 2=1043
- motion of classical charges 1=7185

Quantum theory—contd

wave equations—contd

- multishell configuration wave-function and transformation permutation group matrix 1=18275
- multishell configuration wave-function and transformation permutation group matrix 2=21827
- N-electron system, correlation energy 1=794
- n-electron system, without spatial symmetry, lowest antisymmetric eigenfunction 0=4942
- neutron wave function averaged over greater than average level spacing 1=16959
- nonlinear, generalizing particles with spin 0=15261
- nonlinear generalizations, review 0=12365
- non-zero rest mass, invariance, rel. to 15-parameter group transform. 0=9301
- one-centre two-electron integrals, general soln. 2=14183
- one-dimensional wave eqn., iterative solution 3=15317
- one-nucleon and two-nucleon wave-functions in fixed source theory 1=8449
- optimal functions for matrix element approx. calc. 3=21236
- oscillators, weakly coupled, beats 3=11694
- overlap integrals, for 2 harmonic oscillator functions 0=522
- particle with arb. mass and spin, Lorentz-covariant description 4=21038
- particle in one-dimensional Green's function new approach 2=11280
- particle, relation of frequency to total and potential energies 3=17229
- particle scattering problem 2=13264
- particle, spin ≤ 2 , soln. 3=10023
- particles with spin, soln. of general eqns. in spherical coordinates 3=2230
- particle trajectories, new method of generation 1=9324
- partitioning technique, perturb. theory, iteration 3=7115
- partitioning technique, projection operator formalism 3=44
- perturbation, gauge transformation in solution 4=5056
- perturbation series, Brueckner's, simpler formulation 3=3753
- perturbation theory, determinantal method 4=11066
- perturbation theory, Green functions, use 2=17360-1
- phase shifts of Dirac's equations for non-singular potential, exact method 1=458
- phases of wave-functions, iterative calc. 2=15485
- Picht eqn. for electron, rel. to e.m. field 3=10089
- Picht function, for scatt. at apertures 3=1582
- polynomial orthogonality and integration quadratures 4=11025
- position operator, relativistic, for free particles 4=810
- potential barrier penetration, demonstration models 4=2503
- power-series solns. for energy eigenvalues 2=19428
- probability of occurrence determination of a microcorpuscle 1=9323
- projection operators in perturbation theory 2=4933
- quantum mechanics generalization, unusual eigenvalues 2=11279
- quasi-stationary states in barrier penetration 1=11706
- radial, particle of any spin in central potential 4=16038
- radiation field of pulse soln. 4=24024
- radiation field, pulse soln. of $u_{tt} - \Delta u = 0$ 2=17362
- Rayleigh-Schrödinger perturbation theory 1=18269
- real massless scalar wave eqn. of second order, transformations 1=13313
- relativistic, compatibility in Riemann spaces 2=20233
- relativistic, use of complex scalar fields 3=7104
- relativistic Coulomb scatt. wave-function 0=15286
- relativistic, covariant theory 2=19429
- relativistic deuteron wave-function 0=7421
- relativistic fluid masses 0=10591-2
- relativistic, formulation rel. to spinning particles 4=11069
- relativistic Hamiltonian, Dirac linearization 2=16125
- relativistic, intermediate textbook 4=16031
- relativistic one-electron eqn., soln. 2=1064
- relativistic one-particle theories, "front" description 1=4764
- relativistic, particles with spin, operator limits 4=9063
- relativistic quantum mechanics, foundations 2=21817
- relativistic realizations, general method 4=9067
- relativistic, Regge poles 3=12424
- relativistic self-consistent fields, eqns. 1=13920

Quantum theory—contd

wave equations—contd

- relativistic single-particle Hamiltonians, transform. to odd and even forms 4=21811
- relativistic wave-eqns., with max. spin 2 0=12880
- relativistic wave-functions, associated with elementary particles 0=15259
- scalar massless, non-linear transformations, impossibility 1=18271
- for scalar and vector particles in gravitational fields 1=16659
- scaled eigenfunctions for energies of two-electron atoms 2=22887
- scattering of particle by identical-particle bound-state system 2=15491
- scattering problem, quasi-classical approx. 3=23763
- scattering theory using wave packets 3=3755
- Schrödinger, appl. to non-isolated systems 3=9345
- Schrödinger, approx. series solns. of nonseparable eqns. 4=24030-2
- Schrödinger, approx. solns. in momentum space 0=17655
- Schrödinger, approximation methods, review 4=5058
- Schrödinger, bound states of central potl. 3=9347
- Schrödinger, canonical quantization 4=27734
- Schrödinger, Cauchy boundary problem 4=14049
- Schrödinger, for central force, radial kinetic energy term 4=27068
- Schrödinger, coupled, and statist. boundary conditions 4=2571
- Schrödinger, deriv. from Galilean invariance 0=10593
- Schrödinger and Dirac, boundary conditions, solns. 3=10444
- Schrödinger and Dirac, scattering phase shifts 3=18728
- Schrödinger, with discrete energy spectrum, transformations 3=5358
- Schrödinger eigenvalue problem 0=6681
- Schrödinger eigenvalue problem 1=18268
- Schrödinger, energy levels, lower bounds 0=17654
- Schrödinger eqn., approx. solns., energy comparison as test 1=18270
- Schrödinger eqn. in Coulomb field, Green's function 1=4260
- Schrödinger eqn. with diffuse potential, soln. method 4=11071
- Schrödinger eqn., eigenvalue props. 1=4258
- Schrödinger eqn., eigenvalues and eigenfunctions determ., variational boundary condition in Tamm-Dancoff method 4=27060
- Schrödinger eqn., generalization, absorptive term 1=2702
- Schrödinger eqn., method for finding phase shifts 4=11073
- Schrödinger eqn. for a periodic lattice, soln. 1=12362
- Schrödinger eqn. with periodic potential in 3-dim. case 1=15685
- Schrödinger eqn., radial, WKB method for phase shifts 1=4264
- Schrödinger eqn., relativistic, for two-nucleon system 2=280
- Schrödinger eqn., separation of sets of variables 4=24064
- Schrödinger eqn. soln. of one-dimensional periodic potential fields, using free electron approx. 4=27059
- Schrödinger eqn., time-dependent, variational soln. 4=24063
- Schrödinger eqn. for 2-electron atoms, mathematical generalizations 4=25486
- Schrödinger eqn., WKB approx., semi-classical approach 2=2600-2
- Schrödinger, exactly renormalizable 0=5480
- Schrödinger, existence of scattering solns. 4=27070
- Schrödinger, Feynman integrals definition from Wigner integrals 4=11070
- Schrödinger, long waves, one-dim. propag. 3=14023
- Schrödinger-Maxwell eqns. equivalence to hydro-dynamical supercond. theory 3=1612
- Schrödinger N-particle, rotational degrees of freedom, separation 4=21042
- Schrödinger operator point spectrum 4=16034
- Schrödinger, for particle in Coulomb field 3=1576
- Schrödinger, periodic 1-D soln. by analogue computer 2=10348
- Schrödinger, radial, phases and amplitudes 3=9346
- Schrödinger, radial, solution by var. in partial ranges 4=29528

Quantum theory—contd

wave equations—contd

- Schrödinger, radial, stationary phase integral method, proof 3=16526
 Schrödinger, radial, with tensor and spin-orbit potentials 4=2550
 Schrödinger, scatt. amplitude 2=19439
 Schrödinger, scatt. amplitudes, regularity props. 2=3276
 Schrödinger, scatt. causality condition 4=21048
 Schrödinger, scattering amplitudes 0=2499
 Schrödinger, scattering theory 2=32
 Schrödinger, scattering theory in inhomogeneous medium 2=33
 Schrödinger with singular pot., exact solution diff. from perturbation sum 4=14048
 Schrödinger, soln. for molecules 0=18426
 Schrödinger, solvable potentials construction 2=21831
 Schrödinger theory, Born approximation for transition matrices 1=12058
 Schrödinger, time-dependent 0=887
 Schrödinger, time independent, for n material points 2=7115
 Schrödinger, trial potential soln. effectiveness 4=18064
 Schrödinger, two-electron atoms, solution 0=7682
 Schrödinger, WKB method, 3 dimensions 4=21036
 Schrödinger's eqn., lower bounds for eigenvalues 1=15686
 Schrödinger's eqn., soln. by iteration, for certain class of potl. 1=2703
 Schroedinger equation in const. magnetic field 1=8055
 second-order, four-component Dirac eqn. 0=5514
 simple molecules, direct soln. of Schrödinger's eqn. 3=12814
 single photon rel. to classical Helmholtz diffraction eqn. 1=18262
 singlet wavefunctions, pair-correlated atomic and molecular 4=9618
 solutions, accurate method, for digital computer, eigenvalues without symmetry 0=4940-42
 spin connection in terms of Dirac operators 4=9057
 spin $\frac{1}{2}$ massless particles, invariance of wave eqns. 1=13314-15
 spin $\frac{1}{2}$ particle, Klein-Gordon eqn. linearization 4=30199
 spin $\frac{1}{2}$ particles, anomalous equations 0=12848
 spin $\frac{1}{2}$ particles, classical motions from Dirac eqn. 4=21041
 spin 0 particle, eqn. in grav. field, rel. to unified field theories 2=1052
 spin > 1 particles 0=17247
 spin 1 particles, nonrelativistic eqn. 1=13293
 spin system coupled to damped oscillator 1=7002
 spin 2 particles, gravitational zero mass limit 0=329
 spinning particle precession, tensorial eqn. 4=8065
 spinor eqn., non-linear quantization 1=18267
 spinor eqn., non-linear quantization 3=3749
 spinor eqns., non-linear, in twisted space 1=19109
 spinor eqns., non-linear, in twisted space 3=4332
 spinor equations, nonlinear generalization 0=2491
 spinor field and isobaric spin rotations 1=16662
 spinor fields, connection 1=5643
 spinor fields, nonlinear theory 0=9280
 spinors, non-linear eqn. 1=13285
 spinors, normal, pseudo-and mixed types 0=11090
 spins 0 and 1, Kemmer-algebra and Foldy-Wouthuysen transformations 3=14859
 square-root Klein-Gordon, relativistic invariance 3=7812
 statistical optics, foundations 2=7313
 system with many degrees of freedom 2=21826
 system with many degrees of freedom 3=7118
 systems with indefinite metric 1=13276-7
 Talmi transformations for particles with different masses 1=19138
 tensor virial theorems 3=18726
 thermodynamics, "hidden", free energy introduction 4=8060
 Thomas-Fermi potential, soln. of Schrödinger equation 1=790
 transformations of relativistic two-particle eqns. 1=12803
 three-body system, asymptotic props. 2=21824
 three-particle problem, with point interaction 2=4934
 three-particle problem, with point interaction 3=3751
 three-particle wave function, for particles of comparable mass 0=17806
 three particles of different masses, symmetry classification 3=17182

Quantum theory—contd

wave equations—contd

- 3π system, ang. momentum, coordinate-energy form $\Delta=925$
 time and energy as conjugate variables 2=17392
 transcendental eqn., for Schrödinger eqn. 0=14509
 transformations of wave-functions in space and time reflections 0=5476-7
 tritons, energy calc., D-state wave-functions 0=17434
 truncated reaction operator formalism for Schrödinger 4=2553
 two-body problem, Schrödinger eqn., relativistic, in three variables 1=15684
 two-component first-order, from Feynman-Gell-Mann eqns. 3=5968
 two interacting particles, six-dim. problem 4=11082
 Ulehla-Petráš equations, rel. to Dirac-Pauli eqn. 1=16656
 unitary group, derivation of wave functions 1=8053
 variation principle, appl. to transport processes and mag. susceptibilities 1=4286
 variation principle for arbitrary operators 3=10066
 variation principles for arbitrary operator 3=22093
 variational wave-functions, hypervirial theorems 1=11705
 vector particles, polarization operators for $s = 1$ 4=11084
 velocity-dependent two-nucleon problem 0=5516
 water molecule, eigenfunctions and eigenvalues 0=9783
 wave field theory, rel. to wave statistics 3=40
 wave-function of disordered system 3=9349
 wave-function, minimization of r. m. s. error, and matrix elements calc. 4=8067
 wave-function stability under perturbation 1=4892
 wave-functions for anharmonic oscillators by perturbation methods 2=21822
 wave functions, change assoc. with Galilean transformation 2=15481
 wave functions, definition in terms of S-matrix 2=3286
 wave-functions in electron-atom scattering problems 0=7712
 wave functions, expansion in terms of Bessel functions 2=1060
 wave-functions and intensity calc. for rotating anharmonic oscillator 1=13991
 wavefunctions, optimization by scaling 4=20027
 wave-functions of quasistationary states, normalization 1=18274
 wave-functions of quasistationary states, normalization 3=3750
 wave-functions of single determinant type 1=15679
 wave functions, single valuedness condition 2=9188
 wave-functions of 2 particles, transformation brackets 0=5517
 wave-functions for zero-mass and arbitrary-spin particles, transformations 0=7288
 wave geometry, 1934-44 developments 3=14017
 wave mechanics, hydrodynamic model 3=21235
 wave mechanics, lower-bound energies and virial theorem 1=15687
 wave mechanics, rel. to stochastic model of physical systems 1=15666
 wave mechanics, review 0=16597
 wave-packet formulation 0=45
 wave-packet, reduction 0=8550
 wave packet, reduction indeterminacy 2=9196
 wave propagation in nonlinear fields 0=12882
 wave props., discussion 2=4917
 wave and scattering operators, theory 2=21835
 Weyl's reln., elementary proof 4=11972
 WKB approximation for Block electrons 4=25871
 WKB solutions with two turning points, connection formulae 1=2
 Yukawa potentials, generalized, scattering props. 4=2551
 H_2 mol., Schrödinger solution 4=30433
 H_2 , potential variation by low-lying states 1=11105
 H_2 wave-function 1=862
 H_2 wavefunctions, optimization by scaling 4=20027
 H_2^+ approx. wavefunction, nonuniform scaling 4=3856
 He^3 , solid, ground state 2=15840
 LiF wavefunctions, optimization by scaling 4=20027
 Na atoms, wavefunctions by effective pot. method 4=30383
 SU_3 wave-functions, properties 4=30295

Quartz

α and β , regularity of SiO_4 tetrahedra 3=18319
 α - β transition, cylindrical approx. calc. 2=14918
 α -form, colour centre prod. by electron and X-ray irradiat. at 77°K 0=2834
 α -form, electron density distrib. and thermal motion in lattice 2=10310
 α -form, H⁺ incorporation and i.r. absorpt. 2=21009
 α -form, neutron-irradiated, Raman scatt. 2=23540
 α , propagation of sound waves 1=3602
 α -quartz, acoustic-mode patterns, X-ray diffraction study 3=20087
 α -quartz, dielec. const. and anisotropy meas. 4=1646
 α -quartz, with Ge impurities, colour centres, e.s.r. study 3=22832
 α -quartz, neutron irradi., Raman scatt. 3=3026
 α -quartz, Raman lines, elec. field effects 3=18009
 α -quartz, structure changes when neutron irradi. 4=1542
adhesion of ice 2=23798
adsorption of Ca ions, rel. to pH and concn. 4=4672
adsorption of hexane 2=15098
adsorption of H_2O , thermodynamic quantities 2=2435
adsorption of n-heptane, Van der Waals forces present between the two mols. 4=23603
absorption spectra, 50-2500 μ 0=10035
acoustic generator, prod. of plane progressive wave in water 3=16705
addition to improve insulator thermal and dielectric props 3=8544
Ag ion migration in α -quartz 4=25966
Ag ion transport, in elec. fields, in α -quartz 3=10692
Al impurity, effect on structure and absorption 0=15865
amethyst, absorpt. spectrum and pleochroism 2=18800
amethyst, optical props. and paramagnetic resonance 4=25975
amethyst, synthetic, biaxial nature 3=25691
amorphization by milling, effect of medium 0=12058
amorphous-cryst. transition, on Ag diffusion 3=13396
amorphous form, produced under shock conditions 0=6324
amorphous, structural changes on heating in H_2 3=20917
annealing of X-ray damage 3=6555
artificial, twinning, rel. to Li, Na, Ge, Al impurities 4=30810
AT-cut plates, r.f. vibrations 3=21470
bars, flexural oscillation, frequency and Young's modulus 2=1222
bars, hypersonic waves, 10^{10} c/s, excitation 2=7286
bars, hypersonic waves, 10^{10} c/s, excitation 3=5492
in bent-crystal neutron spectrometer 0=11186
birefringence, revised data 4=26215
bonding to metal at liq. He temp. 2=11232
breaking strength of quartz glass rods, effect of immersion in liquids 1=1349
Brillouin splitting, scattering, in artificial quartz 0=11763
bulk-fused, breaking strength 1=12601
bulk impurities and surface contamination by mass spectrometry 1=11640
cavities and intergranular pits 3=17776
clocks, automatic regulation 3=7174
clocks, freq. divider, pulse-phasing device 1=105
colour centre formation during electrolysis of quartz plates 0=13551
colour centres due to powdering, e.s.r. meas. 4=6883
colour centres, electrolytically produced 2=12468
colour centres, Ge-doped 3=20238
colour centres, Ge-doped 3=20239
colour centres, spin-lattice interaction 4=20598
colour and luminescence centres 0=18135
colour, smoky, on X irradi., origin 4=4100
coloured, synthetic, pleochroism 3=17987
compliance, audio-frequency, in prestressed quartz 4=15418
conductivity and capacitance, meas. bridge, 5 c/s-500 kc/s, high temp. 4=2927
conductivity elec., ion exchange electrolysis meas. 4=20408
in contact with photographic emulsions, resensitization effects 1=18632
crystal imperfections, e.s.r., low temp. var. 4=20597
crystal lattice mechanics meas., low temp., 1000 Mc/s 4=30057
crystal oscillator, plated, for sputtering meas. 1=4671
crystal phonon scatt. of He-Ne laser light in cavity for freq. translation 4=24899
crystal structure 4=10546

Quartz—contd

crystalline and fused, dielec. constants rel. to temp. 3=25392
crystals, electron irradiated, optical props. 2=10428
crystals, mechanism of growth 0=18299
defect channels along optic axis 1=11212
defect structure 0=13530
defect structures on polished surfaces 4=17837
defects, large-scale, on fracture surfaces 2=2087
deformation, around $\alpha = \beta$ transform. temp. 3=15990
dielectric breakdown in high transient stress 2=12574
dielectric const. and refractive index, on fast n irradi. 3=17929
dielectric loss due to impurity cation migration in α -quartz 4=26104
dielectric loss, i.f., at low temps. and imperfections 3=20157
dielectric permittivity, sub mm, compared with Rexolite 4=4198
dielectric props., temp. var. and alkali impurity imperfections 4=12739
diffusion of Ag in quartz in elec. fields 1=12404
diffusion coeffs. of He 1=3685
Diffusion of H 3=8452
diffusion of O 3=2831
diffusion, substitution of Ag^+ for Li^+ ions, pot. and ionic charge 3=17788
disks, extensional vibs. 3=5482
dislocation obs. by etching 3=25284
dislocations, X-ray diffract., topography 0=1587
E'-centres, electron spin-lattice relax. 3=13009
E₂'-centres, e.s.r., theory and expt. 3=13008
effect of neutrons 1=17592
elastic const., fourth order, from non-linear acoustic reson. effects 4=16179
elastic constants, electric field change tensor, d.c., from reson. freq. changes 3=23009
elastic constants, neutron irradi. effects 0=11967
elastic constants, temp. coefficients 2=21393
elastic and current oscillations, during Ag^+ and Cu^+ conduction 3=25412
elastic, dielectric and piezoelectric props., dynamic meas. 1=5041
elastic moduli, zero-field, acoustic meas. 2=23727
elastic waves, 600-1200 Mc/s, generation 4=21232
electrical conduction by Ag^+ ions 1=11268
electrical conductivity, effect of γ -irradiation 2=3996
electromagnetic wave propag. in, harmonics, intensities and polarizations 3=24468
electro-optic effect, direct, meas. at u.h.f. 4=1743
electrostriction coeffs., Z-cut 0=11750
etched and ground regions, surface texture 1=20659
etching depressions using HF 4=23985
etching, magnetic field and X-rays, no effects 4=29037
extinction bands, correl. with plasma resonance 0=7876
F-centres, acoustic saturation 0=13732
fibre, counter torque adaptation of Curie-Chéneveau magnetic balance 0=19872
fine grinding, kinetics 0=21151
flat layers in contact with ice, sliding expts. 1=14932
fused and crystalline, structural defects 0=7877
fused and crystalline, thermal cond. 0=7859
fused, delayed u.s. pulse detection 2=2718
fused, diffusion of H_2 and D_2 2=6366
fused, elastic const., γ -irrad. effects 0=16203
fused fibres, Young's modulus variation with diameter 1=1298
fused, ground surfaces, diffusion of u.v. and visible light 0=14787
fused and irradiated, e.s.r. and thermoluminescence 0=10237
fused, Ne diffusion 1=17558
fused, phosphoresc. due to u.v., decay 2=16849
fused, photoemission 0=7141
fused, refractive index 0=2229
fused, u.s. attenuation, up to 1 kMc/s, rel. to temp. 4=12627
glass, colour centres rel. to γ -irrad. 2=16667
glassy, optical absorption in $\lambda = 150 - 275 \mu$ range 2=7341
grains, bombard. target, ion and electron emission 4=8826
grains, surface elec. cond. meas. rel. to humidity 2=21111
grinding of particles 3=8912
heat conduction determ. by velocity method 2=5197
heat pulse propag., low temps., and phonon traject. 4=25867

Quartz—contd

- heat transfer with liq. He II 1=13034
hydrogen-containing defects, i.r. spectral obs. 2=6320
hypersonic resonance 1=8177
hypersonic resonance from 3000 to 10 000 Mc/s 4=7053
hypersonic wave attenuation "bottleneck",
below 2° K 4=22485
hypersonic wave attenuation, effect of crystal orientation
and neutron irradiation 0=7867
i.r. absorption bands, ~ 3 μ α -phase study 0=18128
i.r. absorption, of defects 0=16070
i.r. absorption, effect of electrolysis, n-irrad. and
heat treatment 1=3847
i.r. absorption, ~ 3 μ 0=4416
impacted, piezoelectric behaviour 1=7696
imperfections, study by light scattering 0=11619
indentation depth, of steel projectile 0=10629
inert gas sorption at surface, in electrodeless dis-
charge 4=20821
interference phenomena, convergent light 0=2243
internal friction, decrease on elec. purification 4=15715
internal friction, effect of ionizing radiation 3=23302
internal friction, rel. to growth rate 2=10740
internal friction meas. 3=13336
internal friction measurement 1=9087
internal friction of strands at low freq., expt. 4=13447
interstitial clusters, due to neutron irradiation 3=10647
ionic charge exchangeability, Ag⁺ for Li⁺, from
pot. 3=17788
irradiation, optical effects, defects and paramag.
res. 4=28507
irradiated, optical absorption 0=16060
irradiated, u.v. absorption study 1=7708
irradiation effects by positive ions, surface refractive
index changes 0=13569
irradiation effects, and short-range order 0=15876
Lamb waves, velocity calc. 2=9338
laser, optical phonon type 4=30094
lattice constants, precise values 2=15014
lattice defects, rel. to neutron irradiation 3=22765
light absorption and scattering, distinction 0=5134
light emission by vitreous quartz, γ -irrad. 4=26246
light scattering coeff. of Kubelka-Munk theory 4=17556
luminescence centres in synthetic quartz, sector
distrib. 4=20486
luminescence, X-irrad., powder specimens 1=6227
luminescence, X-ray induced 2=6602
in Lyot-type birefringent filters 0=5153
masers, optical phonons, quantum electronics 3=9966
mechanical Q improvement during crystal growth by LiF
addition 2=21481
melting, structural changes 0=10321
in mine dust, i.r. spectroscopic determination 0=3337
mineral, shadows, due to gravity 4=13556
mirror, mount design rel. to rocket instru-
mentation 4=24360
mirrors, epoxy-resin bonded, for telescopes 4=5364
morphology of crystal cavities 0=4576
Mossbauer effect, of Fe⁵⁷, fused, similar to pyrex
glass 4=15405
natural plates, far i.r. absorption spectra 4=10207
as neutron activation sample container, evaluation 2=17112
neutron-irradiated, e.s.r. 1=11482
neutron-irradiated, heat capacity at low
temps. 4=6749
optical absorption, bulk coeff. rel. to wavelength 4=15595
optical absorptions, radiation induced 1=12406
optical components of fused quartz 3=16748
optical constants, i.r., temp. depend. 2=18788
optical harmonics, freq. ratio meas. 2=17605
optical props., i.r. lattice bands of α -quartz 1=3845
optical props. in i.r., theory 2=4154
optical rotation, effect of irradiation by
2 MeV electrons 1=11355
optical rotatory dispersion 0=2257
optical rotatory dispersion 1=16122
optical second harmonic generation, by laser
beams 4=28666
oscillator, BT-type, high Q 4=14252
oscillator for standard-frequency
generators 4=18021
percussion figures 0=3157

Quartz—contd

- phase transformation due to neutron irradiation 4=26564
phase transformations, Kr⁸⁵ diffusion meas. 2=4361
phonon-maser postulated in α -quartz 4=6718
phonon viscosity, effect on acoustic wave attenuation and
dislocation motion 0=6043
photoelastic examination of vibrating crystal 1=97
photoelectric emission, after crushing and
coloration 3=14634
photoluminescence of Ag-doped material 2=14725
piezoelec. oscillations and u.s. image conversion 1=6919
piezoelec. oscillations, effect of d.c. field 1=17855
piezoelectric modes, visual observation 3=21469
piezoelectric oscillations of slotted crystals 3=15625
piezoelectricity of α -form at high transient stresses 2=1374
piezoelectricity, principle coefficient, on hard-
sphere model 1=10083
piezoelectricity, two-dimensional statical defor-
mation 2=10566
plate, AT cut, frequency spectrum 3=5481
plate vibration in steady electric field 1=187
polarizers, circular, for i.r. work design calcs. 2=17654
powder, embedded, dielec. props. 0=3723
powder, existence of "flow layer" on particles 1=6557
powder, 3 μ dia., disturbed layer thickness 4=13660
powders, ground, respirable size, distributed layer 3=16128
powders, ground and shattered, X-ray diffrn. 3=3352
prism faces, micro-disk patterns 4=30878
production in SiO₂, fused, by n irradiation 4=4552
quantum electronics of optical phonons 4=24925
quartz, thermionic exo-emission 1=18914
radiation effects, by X-ray scatt. and diffr. 3=8473
radiation induced defects, obs. by u.s. and lattice wave
interaction 4=20263
Raman band intensities in Stokes region, temp.
depend. 1=5052
Raman light scattering in, near 2nd-kind phase-
transitions 0=20974
Raman scatt., ang. depend., 40-140° 3=20463
Raman spectra, linewidths and intensities, for
X-modification 2=2243
Raman spectrum, neutron 4=26216
range of H₂⁺, D₂⁺, He⁺, Ne⁺ in, at 7.5-52 keV 1=336
reactor-radiation defects, generation and annealing
out 2=20987
reflection coeff., meas. with vacuum u.v.
reflectometer 0=16829
reflection of X-rays by 1010 plane 2=14988
refraction and dispersion, far i.r. 2=18791
refractive index, i.r. absorpt. 2=21249
refractive index change during electrolysis 1=10092
refractive index 180-500 μ , by Michelson
interferometer 4=1703
refractive index and transmission, 50-200 μ 1=3817
refractivity and scattering of light, rel. to
defects 1=19949
resonator, for filter, spurious response tests 4=21650
resonator, polarizing field effect on frequency,
theory 2=16796
resonators, high Q, for Soviet freq. standards 2=13301
resonators, transient freq. excursion 3=14764
in rocks, piezoelectricity 0=2928
rose coloured, Ti colour centres 3=8459
sand, flow-stick transition 4=23538
sand, thermal coeffs. rel. to temp. and porosity 2=10328
second harmonic generation of laser beams 3=17083
second harmonic generation of light 3=1839
selective diffusion of He through quartz 1=10542
shock-wave compression, crystals and fused 2=6727
single crystals, far i.r. absorptn. at liquid He
temps. 3=3006
sintering in vacuum, phase transformations 1=20399
soldering, using active metals 1=4165
sound absorpt., temp. gradient produced calc. 4=17354
specific heat, 2-4° K 0=9852
spectra, emission, infrared 1=8998
spectrum absorption bands, smoky, heat treatment
effects 4=1742
spectrum, i.r., rel. to co-ordination 4=1744
spin-lattice interaction, phonon generation 2=18952
spin-lattice relaxation, rel. to neutron irradiation 3=18136
springs for sorption balances, winding
device 4=4998

Quartz—contd

sputtering, by Kr ions 4=12825
 sputtering by Xe⁺ 1=3026
 stress analysis for hollow rotating cylinder 4=21068
 stress relaxation, by He or proton irradiation 4=15507
 structure, microisomorphism, 10 natural and 35 synthetic specimens 1=15084
 surface finish, reducing energy losses, frequency standard 1=15172
 surface properties, when highly dispersed 0=12114
 synthetic, amethyst quartz, growth 0=18314
 synthetic crystals, light scattering 4=22884
 synthetic, effect of impurities on growth 0=16261
 synthetic, etching cavities rel. to growth, etching obs. 1=19795
 synthetic, internal friction 1=14858
 synthetic, internal friction, growth depend. 0=10259
 synthetic, i. r. and low-temp. u. s. absorption, rel. to OH defects 0=11764
 synthetic, optical properties 1=8979
 synthetic, optical studies of spirals 1=14566
 synthetic quartz, optical properties 1=8979
 synthetic, topography and etch patterns 0=16285
 synthetic, use for u. v. polarimetry 2=7411
 temp. change at boundary with superfluid He 3=5570
 temperature change at boundary with superfluid He 2=15838
 texture of single crystals, by parallel X-ray beam method 0=4628
 thermal conductivity 3=4831
 thermal conductivity at low temp. 1=923
 thermal conductivity, measured by five methods, as calibration standard 0=10795
 thermionic exo-emission 2=3065
 thermoluminescence 3=11020
 thermoluminescence measurements, structure defects 0=16117

Quartz—contd

thin films support, Fe, rel. to optical refl. 2=4112
 transmission in far i. r. 2=5023
 transmission, 40-200 μ , 300-750°K 4=13053
 transmission coeff. for ultrasonics, meas. 1=2825
 u. s. absorption, below 30°K, 500-10 000 Mc/s meas. 4=17353²
 u. s. surface waves, velocity and attenuation, meas. 0=8738
 ultrasonic absorption in fused quartz, to 1 kMc/s and 1.4°K 4=6725
 ultrasonic absorption, up to 1000 Mc/s 0=10733
 ultrasonic absorption in Z-cut crystals, rel. to thermal parameters 4=6724
 ultrasonic beam directions calc. 2=23061
 ultrasonic crystal, oscillatory behaviour 2=7274
 ultrasonic transducer, equivalent diagram 2=9347
 ultrasound velocity, new result 2=1239, 7312
 unit cell parameters, specimens from 10 deposits 0=14021
 vapour, h. f. discharge emission, 2500-4500 Å 0=1525
 vibrating crystal, as cryogenic thermometer 4=14473
 vibrating, internal displacements, by X-ray diffraction 3=15982
 vibrating plates 0=16751, 19253-5
 vibration modes of double-convex lenses 0=14713
 walls, Hg²⁰¹ nuclear quadrupole relaxation 4=6493
 wedge, effect on transmittance meas., 2-15 μ 4=20443
 whiskers, growth 1=6505
 whiskers, growth and structure 2=10804
 whiskers, mechanical strength 1=20371
 X-cut, sound velocity to 10 Gc/s 3=18934
 X-irradiated, luminescence and coloration 0=16089
 X-irradiated, thermoluminescence and decoloration effect of Na and Li ions 0=18154
 X-ray diffraction, small-angle, surface effects 2=8899
 X-ray diffuse scattering, before and after n-irradiation 1=15058
 X-ray emission spectra, K β -bands 0=20639
 X-ray monochromator 2=5425
 X-ray reflect., and crit. angle and absorpt. 4=28675
 X-ray reflection, boundary effect from ground plate 2=10953
 X-ray spectrochemical analysis 0=16296

Radiation

See also Acoustic radiators; Bremsstrahlung;
Cherenkov radiation; Electromagnetic waves;
Electrons, radiation; Emissivity; Stars, radiation;
Sun, radiation; Sunlight,
absorber theory, cosmological considerations 2=13095
absorption and transformation of quantized
field 3=25085
accelerating electrons, ang. distrib. and polarization
of emitted radiation 1=1944
acceleration of cosmic rays 4=4879;
air, high-temp., absorption coeff. 2=9318
air, high-temp. equil., spectral calc. 3=1732
anisotropic media, equil. black body theory 4=18478
asymptotic studies, in null flat-space coord. system 4=5046
in atmosphere, conference Leningrad (1959) 1=2563
atmosphere, i.r., due to nuclear explosion X-rays 3=11418
atmospheric gases, shock waves 2=2757
atmospheric, i. r. and visual, meas. by Tiros III 4=13796
atmospheric, net outgoing flux, winter, Greenland 1=15230
atmospheric radiometer for ingoing and outgoing radiation
flux measurements 1=15221
atomic, freqn. shift in uniform field 3=1586
atoms, polyelectronic, opacity calc. at high temps. 2=9317
atoms, reson. freq. shift due to radiation field,
theory 4=9623
band absorption of gases, at high press. and
temp. 0=2184
beam, nondegenerate, information capacity 2=11459
black bodies, U-B and B-V colours 1=8002
blackbody, coherence and correl. tensors 4=18476
blackbody, correlation functions 4=5435
blackbody, electron mass renormalization 0=9335
blackbody, 4000°K, and spectrophotometric apparatus 0=204
blackbody furnace, 3000°K 4=2876
black-body, hole size, rel. to temp. accuracy 4=8496
blackbody, laws 0=8829
blackbody model, for high-temp. operation 1=18659
blackbody, photon fluctuations, detection, theory 0=8830
blackbody, practical realization, calibration
standard 0=19488
blackbody, Pt wedge for students' expt. 2=5212
blackbody, quantized, coherence and correl.
tensors 4=18477
blackbody source, slit-aperture, for 2000°C 2=2927
black-body source, temp. det. from absorpt.
analysis 1=18969
blackbody, spectral, direct reading nomographic slide
rule 0=14879
black body to space, temp. lowering, CO₂ effect 4=29288
black body, into space, temp. reduction 3=11403
blackbody, spectral variation 4=2882
black body standard 1=15448
black body statistics, classical source 4=14439
black-body, temporal complex coherence 3=1784
black-body, at ~10⁹°K, neutrino emission 1=2636
blackbody, 3-colour photometry, stellar applic. 0=8513
Bouguer's law and heterochromatic radiation 2=11534
brightness of celestial source, Bouguer's deter-
mination 2=923
cavity sources, theorems 1=8254
from charge moving in inhomogeneous medium 1=19163
charged particle in Coulomb field, realizable solns. 1=16650
charged particle moving in cyl. stratified media 3=16241
charged particles, in flight through hole in screen 0=278
charged particles, interference in stratified media 4=3116
charged particles, slowly-moving, radiation field 0=12673
charged particles, traversing plates 0=2505
coherence props. of blackbody radiation 1=226
coherence theory with two-point correl. functions 4=16193
in coherent field, quantum formalism 1=4291
coherent and incoherent, from plasma 0=9047
colliding particles, cyclotron radiation emission,
spectral and ang. distrib. 0=2500
constant flux in non-uniform exponential media 1=81
crystals, second harmonic generation 3=25429
currents passing through plasma boundary 2=11662
cyclotron, from plasma 3=7607
cyclotron radiation from hot plasma 1=9556
cyclotron radiation from hot plasma 1=9573
cyclotron radiation of ions in plasma, theory 2=192
cyclotron radiation from plasma, theory 2=191

Radiation—contd

cyclotron radiation from relativistic particles with
arbitrary velocity distrib. 1=3157
cyclotron radiation, from relativistic particles, collision
effects 0=15316
in cylind. and conical chambers 3=11993
cylinder, infinite, nonmonochrom. equil. temp.
distrib. 4=18479
damping in gravitational fields 0=8538
damping, relativistic charged particle 3=14744
diagrams, representation by translated functions 0=18569
diffuse, from layer in turbid medium, intensity 2=21855
diffuse reflection in inhomogeneous atmosphere,
invariance principle 1=10454
diffusion in anisotropic medium 2=19202
diffusion, integral eqn. soln. 0=4963
diffusion, in medium with specularly reflecting
boundary 1=5237
diffusion, in medium with specularly reflecting
boundary 1=10451
diffusion, resonance fluorescence, stationary and non-
stationary processes 0=53
diffusion, in stellar atmospheres 0=18796
diffusion in thick layer, asymptotes 4=18118
e.m. field, geometrical interpretation 1=16497-8
e.m. fields, quantum-mechanical correl. theory 3=9654
earth, leaving, determination 3=3437
earth's radiation belt, observation with 1958e 0=8398
electric corona discharges 1=4575
electric corona discharges 1=7033
electrical discharge, gas-ionizing radiation 2=17795
electromagnetic radiation, definition under
covariance 1=19014
electromagnetic radiation in magneto-ionic media 2=1592
emission processes, thermodynamics 0=12524
endergonic photoprocesses, max. energy
efficiency 4=16065
energy absorption by particle 1=15754
energy transfer in cyl. and conical chambers 3=11993
entropy radiation of incoherent beam mixture 4=5437
equivalence between continuous and discrete
sources 1=4727
extent of photon, rel. to emission theory 2=21988
extreme, u.v., detection with resist. strip magnetic
photomultiplier 0=7144
far infrared source, using optical maser beats 2=693
from fast particle in nonstationary inhomogeneous
medium 4=3366
from fast particles in magnetic materials 1=8443
field, effect on photon, rel. to galactic red shift 2=2605
flash discharge, high power, intensity meas. 2=11629
flat object underwater, irradiance 4=10688
flat surfaces separated by absorbing gas 3=288
fluorescent, distribution from disk-shaped
cuvette 1=4430
flux from cylindrical distributed source 1=16150
focusing, by random surface 0=8769
Fokker-Planck coeffs., exact relativistic 1=10703
from gas cloud, spherical 4=17969
and gas flow, magnetohydrodynamic 3=19425
gasdynamics, laminar jet mixing 4=218
gases, absorption and emission 0=8718
gases, density, from meas. on elec. arcs 2=15646
gases, as dissipative process in shock waves 3=1761
gases, transfer calc. 4=5108
in general relativity 1=8042
in general relativity, canonical variables 1=61
generalized potential in nonlinear theory of particles
with spin 1=15691
gravitational 0=12352
gravitational, in damping of nongravit. motion 0=12350
gravitational, detection above noise power require-
ments 4=11048
gravitational, energy, first approximation 4=27034
gravitational, in first approx. to Einstein's
eqns. 3=5334
gravitational, and Fokker action principle 4=8045
gravitational, form for integrable metrics 4=16027
gravitational, many bodies 4=29
gravitational, pure, new set of states 4=5040
gravitational radiation in Birkhoff's and general
relativity 4=8036

Radiation—contd

gravitational radiation, interstellar, effect on earth's vibrations 1=8040
 HF gas transfer calc. 4=5108
 harmonic oscillator, excited 0=6680
 and heat transfer in film boiling 4=11418
 high altitude balloon study during IGY 0=14266
 high-energy, charged, detection possibilities 3=4368
 from high-temp. argon arc 1=18805
 Hopf q-function evaluation, application to radiation transfer 1=80
 i.r., artificial, from stars 0=12330
 infrared, background discrim. criterion 3=16832
 i.r. container for test pieces 3=11999
 infrared, current research papers 3=9652
 i.r., history 0=154
 infrared, from shock-wave plasmas 1=15944
 infrared sources based on SC 2=5172
 i.r. spectral radiance of earth, meas. by inflight satellite 4=13795
 from identical oscillators in crystal, coherent phenomena 2=691, 23552
 impact-parameter and perturbation treatments 0=2142
 incoherent, mutual coherence of 3=9574
 induced emission, coherence 4=11883
 induced processes in quantum and classical theories 4=14440
 intense fields, first or second-order perturb. theory 4=22315
 interaction with matter, time correlation function appls. 4=29517
 ionosphere, E. region, due to solar eclipse 4=30960
 irreversibility, rel. to expansion of universe 3=16322
 isothermal discontinuity disappearance, at great radiation density 0=906
 Kirchhoff's law, generalization to strong absorption 1=18660
 Kirchhoff, Stefan-Boltzmann laws restated 3=11894
 Kirchhoff's law, strongly absorbing media 3=9653
 long-wave, from clear skies 4=2197
 luminance and intensity, definitions 1=12963
 media with large horizontal variations, transfer 3=1641
 metal surfaces, incandescent, polarized light emission 1=18622
 Milne's eqn. for general line profiles, power series expansion soln. 4=27309
 modulation of convergent beam 4=357
 molecules, in coherent field, induced and spontaneous 0=17094
 motion of a charged particle in a black body 1=9342
 moving charge, quantization by change of gauge 2=4937
 n bodies, energy 4=2608
 near earth's limb, i.r. spectral radiance variation 4=13797
 non-grey atmospheres, radiative transfer 1=15752
 optical radiometry 3=11880
 optical transparency and resistance to flash heating 0=19487
 parametric processes, quantum fluctuations and noise 2=1046
 parametric system with large modulation depth 2=20138
 particle traversing 2 media, energy loss, transition radiation 0=9321
 particle in uniform gravit. field 2=7131
 particles, high energy, charged, detection possibilities 2=3295
 perturbation theory with time-dependent wave functions 1=7220
 phase operators in radiation theory 1=18554
 photon packets and Lennuier effect, theory 1=11825
 photon statistics of arbitrary field, full quantum theory 3=23992
 photon streams, fluctuations in 0=5123
 Planck function for terrestrial temps. 3=18511
 Planck law, integral evaluation method 1=18661
 Planckian, colour temp. and tristimulus values 2=2859
 Planck's formula, in i.r. technology 0=6989
 Planck's law, generalization 1=18328
 Planck's law, generalization, effects of a quantum of length 1=10419
 Planck's law in h-c-l theories, generalizations 3=3918
 Planck's law restated 3=11995

Radiation—contd

Planck's law, statistical derivation 0=6702
 plasma, classical, rel. to conservation eqns. 3=12102
 plasma, cyclotron and bremsstrahlung, theory 1=15720
 plasma, cyclotron and Cherenkov radiation, theory 2=191
 plasma cyclotron radiation 1=9618
 plasma, e.m. wave harmonic excitation and reradiation, non-uniform plasma 4=519
 plasma, emission and absorption, general theory 4=24649
 plasma, due to impurity ions 0=1131
 plasma, incoherent microwave radiation from, theory 0=2370
 plasma, kinetic eqns. 0=9046
 plasma, Kirchhoff's law, theory 3=391
 plasma, laser, emission and pumping, review 3=22007
 plasma linear pinch 0=194
 plasma, local thermal equil., validity 3=19233
 plasma, local thermodynamic equil., departures 4=11575
 plasma, mag. compressed, vacuum u.v. 3=7505
 from plasma in mag. field, incoherent microwave emission, calc. 1=7075
 plasma in mag. field interaction with modulated charged-particle beam 2=190
 plasma in mag. field, kinetic eqns. 4=24632
 plasma, magnetically compressed (Scylla expt.), hard X-rays 1=10721
 plasma, nonuniform, radio emission by plasma oscillations 1=10725
 plasma oscillations, in bounded plasma 0=10917
 plasma from PRK-4 lamp in far i.r. 4=24650
 plasma phase oscill., Cherenkov-like 3=16962
 plasma, radial distrib. 1=11937
 plasma, radiative transfer of Doppler-broadened resonance lines 3=9813
 plasma, resonant cylindrical column, field and Q-value 1=10698
 plasma source in external mag. field 2=1436
 plasma, theta pinch, 70-250 μ meas. 4=5643
 plasma, toroidal discharge, u.v. and visible emission 0=9029
 plasma, transfer with electron collisions, semi-infinite 4=513
 plasma, transfer, without thermal equil. 3=14562
 plasma waves, by interaction mechanisms 4=2999
 from plasmas due to co-operative phenomena 1=9632
 plasmas with non-Maxwellian distrib., cyclotron emission 1=8323
 plasmas, non-Maxwellian, microwave emission 3=5657
 point charge, in hyperbolic motion 0=19886
 pressure, integral evaluation 1=15755
 production, nuclear reactor sources 1=13897
 propagation, in incompressible fluid propagating weak waves 1=1733
 pure radiation in general relativity 1=6772
 quantum mechanical description 3=12747
 radiance-coeff. profile of optically thin radiating medium 3=24004
 radiated power, bar undergoing zone refining 1=10613
 radiationless transitions, semiclassical model 2=14663
 radiative transfer, adiabatic temp. gradient 2=9210
 radiative transfer, algebra of resolving fluxes 3=18760
 radiative transfer, diffusion matrix 1=18326
 radiative transfer in dispersive media 4=2607
 radiative transfer, Eddington-Barbier soln. 2=15502
 radiative transfer eqn., appl. to scatt. in turbid medium, 3=14368
 radiative transfer, error function absorption coeff. 0=14549
 radiative transfer, finite atmosphere, diffuse reflect. and transmission 0=14551
 radiative transfer, between grey surfaces 0=12525
 radiative transfer, within hydrosol 0=8766
 radiative transfer, integral equation transform 0=14550
 radiative transfer, multiple scattering problem 2=2658
 radiative transfer, non-grey, moment method solution 1=15750
 radiative transfer, in nonstationary state medium 3=82
 radiative transfer, in non-uniform media 0=4961
 radiative transfer, reabsorption eqns. 2=6558
 radiative transfer, scattering and transmission functions 0=14552
 radiative transfer, spherically symmetric stellar atmosphere 0=2088

Radiation—contd

radiative transfer in stellar atmospheres,
sphericity correction 1=12770
radiative transfer, stellar classification, growth
curves 0=4905
radiative transfer, stimulated transitions, negative
absorption 0=4962
radiative transfer theory, book 1=4289
radiative transfer, three-dimensional solns. 4=5109
radiative transfer, through opaque atmospheres 0=12248
radiative transfer, transport eqn. numerical
soln. 4=24639
radiative transfer in uniform medium, non-
conservative 1=2720
radiative transfer, Wick-Chandrasekhar approx.,
convergence 0=10619
radiative transitions, theory, resonance and multiple
scattering 0=15515
Raman, moving charge in medium 3=24058
reaction, classical theories, review 3=17163
recombination radiation, from H plasma 1=7053
rectangular source, applic. shielding problems 0=16916
from relativistic charged particle traversing diffuse
boundary 1=19162
in relativity, axially symmetric fields 1=15652
relaxation times at high temp. 1=15753
resonance effects in laminar medium 1=16748
resonance radiation, transport, effect of reflecting
boundaries 2=7149
resonant and nonresonant cavities, steady-state stimulated
emission 4=24888
scattering in isotropic atmos., Chandrasekhar's method,
convergence 0=19003
scattering, isotropic, in semi-infinite atmosphere,
H-functions 0=19002
scattering and transmission functions in radiative
transfer 4=100
self-excitation of metal coated, plane-parallel crystalline
layer 3=23031
semi-infinite medium, non-stationary luminosity 4=17968
shell of flowing radiation in homogeneous universe 1=10412
shock layers, detached, convection coupling 2=9300
from shock wave in air at high altitude 2=1180
shock waves, e.m. driven, radiative attenuation 3=1758
before shock-wave emergence, intensity 3=21480
shock waves, relativistic 0=16771
shock waves, smoothing by radiative transfer 4=5285
from shock waves, structure of wave front 4=29688
sound, generated by impulsive force on plate 1=15990
source, far i.r., Hg arc 4=14620
source, infrared, for bulk production 2=11530
source, use of thermal arc plasma 3=10447
sources in far i.r. comparison 2=17685
spectral distribution, use of frequency and log
scales 3=24098
spectral distribution, various representations 1=2905
spectral emission, effect on thermodynamic
equilib. 4=27368
spectral flux density of scattered and primary
radiation, 250 kV 1=15362
spectral luminous efficiency, maximum for Pt 4=29798
spectrophone, with multiple passage of radiation 0=137
spectroscopy, far i.r., by attenuated total reflection,
review 4=14355
specularly reflecting plates, heat transfer 3=7381
spherical source, Poynting-Robertson effect 2=15291
spherically symmetric shell, discontinuities 0=8536
Sputnik III (1958₂), data 0=14477
standard source, use of C arc 2=19762
standards, low temp. of total radiation 0=19489
states in general relativity 1=15649
statistical theory, partial coherence theories,
bibliography 2=7315
temp. plasmas 1=2978
terminology 4=5361
terrestrial, and assoc. energy exchange, Antarctic
observations 0=14301
theory, correspondence theory approach 1=5624
thermal fluctuations, meas. 1=252
thermodynamic meas. by simulated isothermal
enclosure 4=18481
transfer, adjoint function perturbation theory
relations 4=11125

Radiation—contd

transfer in atm., Chandrasekhar's eqns. 4=24112
transfer in crystals, appl. to planetary atm. and
neutrons 2=6559
transfer in homog. sphere with central source 3=19061
transfer, improved differential approx. 4=16268
transfer, m. h. d. Couette flow 4=24813
transfer in non-uniform media, review 4=18117
transfer, numerical approximations, rel. to astro-
physics 3=21266
transfer processes, generalized reciprocity
principle 1=2708
transfer in scatt. media, Shuster-Schwarzschild
method 4=18119
transfer, slip concept for boundary condition discon-
tinuity 4=14090
transitional radiation, limit of applicability 0=8573
transmission across interface between two
dielectrics 4=10147
transport, modified spherical harmonic soln. 4=11126
transport, modified spherical harmonic soln.,
extension 4=11127
transport, scatt. anisotropic multiple 4=14088
transport, scatt., anisotropic multiple, numerical
solns. 4=14089
trapped, in varying mag. field, distrib. 4=21636
two-level quantum system, coupling 3=3744
two-stage radiant-energy 1=16151
units, and critical energies 4=6012
universal law, phenomenological
aspects 1=4497
in universe, density, time depend. 1=1630
vacuum u.v., abs. intensity meas. 4=8418
vacuum u.v. radiation physics, conference 3=5515
zeta, hot plasma, e.m. radiation emission,
sub-millimetre 1=9574
A, absorption rel. to shock wave flow 2=9307
H, high temp. plasma, impurity losses 1=18855
H₂-O₂ flame, emission and absorpt. meas. 3=5162
N, atomic ions in recombination 3=7443
N₂, high temp., i. r. continuum, polarization inclusion
in free-free calc. 4=27222
N and Ar plasmas, specific radiation, cal. and
meas. 4=29934
W, spectral power distrib. from colour temp. 3=7322
heat
ablating heat shield, transient heat flow eqns. 2=2909
absorbers, freely exposed, behaviour in radiation
fields 0=16918
absorbing and emitting media, boundary layer 2=22075
absorptivity-emissivity ratio, more complete
description 2=9445
air, high temp., i. r. continuum 4=27222
air, transmission, near water vapour bands 4=12471
atmosphere i. r. flux, upward, observed and
computed 3=13678
black ball observations, over US 0=12203
blackbody, coherence-time, effective bandwidth 3=14411
black bodies cooling, 5 radiator stages 3=14412
black body, from cylinder with reflecting walls 3=14409
blackbody, nature 2=127
black body, photon distance correlation 1=10620
black body, into space, cooling, impossibility 3=19060
blackbody standard, 1400-2400°K 0=19490
blackbody, 2450-26 000A 2=22085
calorimeter for very high flux meas. 0=19523
cavity, cylindrical, giving uniform diffuse radiation,
calc. 4=5442
conduction coeff., spectral line effect 4=21330
in core of a heated tube, radiational conductivity 1=1839
differential methods of study 3=21608
as diffusion process 2=11531
dosage meter, for high intensity radiation 0=8833
earth, field struct. characts. 4=26776
earth, satellite meas., data interpretation 4=26775
earth, Tiros VII meas. in CO₂ 15-micron band 4=13766
effect on boundary-layer forced convection 2=15787
effect on hydrodynamics 0=19049
effects, on n-type GaAs defect movements 2=8361
electromagnetic waves, thermal noise, in lossy
media 2=17772
electron-tube anodes, vacuum cooling 0=10944

Radiation—contd
heat—contd

emission by diffuse conical cavities 3=14410
exptl. determination of some parameters 1=16147
finite grey atmosphere 3=21267
flames, i.r., by extrapolation from lab. meas. 3=11992
flames in non-isothermal cavity 2=15798
flash-heated solid surfaces, gaseous species
formation 2=17088
flat infinite layer 1=16149
flux from heated cylinder, effect of specular
reflection 0=14877
gas, cooling after shock heating 4=18482
gas-fired panel, intensity distrib. 3=11991
gas-heating by radiation 2=2913
gas heating by radiation 3=1855
gas—radiation, matter—radiation energy exchange 3=14429
in gas, with variable props. 4=29790
gases, non-transparent, mean beam length 2=9446
glass, spectral emission 0=6988
global source, emittance measurement 1=11851
grey bodies, non-stationary radiative interact. 4=5412
heat transfer bibliography 3=7364
heat transfer, black surfaces in grey medium, appl. of
generalized ang. coeffs. 4=18480
heat transfer for conduction and radiation 3=24081
heat-wave propagation, frontal radiation 0=10798
heating bodies by radiation in diathermal
medium 2=15779
heating of body by radiant heat 3=24099
hemispherical source in contact with an infinite Lambert
plane 3=19059
image converter 1=4635
image furnace radiant power control 3=9646
imaging technique, for thermal cond. meas. 2=2907
infrared spectrum, recorder for changes in chemical
reaction 2=19768
interchange factors, nomogram 0=19491
investigation methods 4=29779
Kirchhoff's law, for freely radiating body 0=1054
laws, expression, use of "radiance" 3=1865
liquid-propellant flames, i. r. spectra 4=4699
measurement, at high-intensity by Moll-thermo-
piles 2=11535
metal specularly reflecting plates, evaluation of heat
transfer 4=2861
metal, rel. to surface roughness 3=7385
metals, radiation up to melting point 4=5436
moon, black-body temp. at 3200 Mc/s 2=4740
moon, during lunar eclipse 1=10377
moon, rel. to lunar surface heat flow 1=15423
non-equilibrium propag. in opaque cold gas 2=19763
non-equilibrium propag. in opaque cold gas 3=7382
nucleon pair prod. by thermal protons 2=20333, 22500
in ocean, energy variations 3=9010
optically black emitters, configuration problems 3=287
parallel plates with gas between them 1=16148
physics, brief review 4=8364
from plasma, opacity depend. 1=7052
in polydisperse turbid medium, scattering of
radiation 4=14441
protoplanetary cloud, solar heated, temp. 2=24084
quantities, symbols and units in i. r. technology 0=8832
"radiant exposure" as term in radiometric
nomenclature 3=11990
radiant interchange, specularly reflecting
surfaces 2=5211
radiation and conduction, simultaneous, through non-
absorbing medium 4=11388
radiative transfer, diffuse reflection and transmission
in finite, homogeneous atmosphere 1=2719
radiators, thermal, temp. distrib. meas. 3=11998
scattering, multiple, of waves by weak random
irregularities in the medium 1=8242
simultaneous conduction, effect of emissivity 2=19742
sky, clear, i. r. distrib. 3=3465
solar energy at focus of parabolic mirror 2=11472
Stokes' stream function, use for boundary
discontinuities 1=16146
stratosphere and troposphere, i. r. field 4=26795
sublimation, vacuum, heat exchange nature 3=16841

Radiation—contd
heat—contd

temperature image of i. r. system, theory 3=1864
transfer between grey surfaces 0=12525
tube, heated, flux from mouth, effect of specular
reflection 1=2904
U surfaces polished and oxidized 3=14413
uniformly accel. charge, classical relativistic
theory 0=10552
Venus, radiometric observations 0=6573
wires, Pt-10% Rh, 600-1450°C, emissivity 2=1306
CaO and MgO, incandescence, rel. to catalysis 2=7452
GaAs diodes, photon emission, refrigeration 4=10082
Xe flashtubes 4=14442

Radiation belts

(See also Atmosphere, radiation belts)
cislunar electron density, radar measurement 1=15331
geomagnetically trapped particles, mirror and
azimuthal drift frequencies 1=15327
inner van Allen, charged particles 1=15335
multiple development on Oct 18, 1959 1=15328
by neutron leakage from atmosphere 1=15332
outer zone radiation, rel. to auroral arcs,
Nov 28, 1959 1=15308
Van Allen belt, cosmic ray neutrons as
source 1=13593
van Allen belt, neutrons as source of β -decay
electrons 1=15329
van Allen electrons, X-rays 1=15330
van Allen, hydromagnetic waves and trapped
radiation 1=15336-7

Radiation chemistry

See Chemical effects of radiations, ionizing radiations;
Radiochemistry.

Radiation detectors

See also Bolometers; Photometry; Radioactivity
measurement,
absolute radiometers at NPL (England), status of intensity
scale 2=19767
absorbers, freely suspended 0=16918
actinometer, ferrioxalate, quantum yield 4=10649
actinometers, review of methods 0=4780
actinometric devices, effect of temp. and press. 4=5441
actinometric devices, temp. and press. depend. 3=21609
airborne spectroradiometer 1=1841
amplifier, EMR model 33, noise reduction 4=14545
amplifier for various types of chopped radiation
detectors 4=21351
arc-jet meas., collimated total radiation probe 4=14682
astronomical, far i. r., for planetary obs. 3=16349
background description methods, and utility 0=14884
black coatings for receiving plates 2=129
of black radiation, in form of 15° cone 3=14414
bolometric pyrheliometer as standardization instrument for
absolute meas. of solar radiation 4=24428
calorimeter, continuous flow 1=18663
calorimeter, for bursts 4=14449
Crooke's radiometer, as radiation modulator 0=1055
detectivity, for detectors limited by radiation
noise 0=19492
dielectric bolometer 1=4499
differential radiometers, theory 0=19497
discharge photocell 1=8255
double-radiometer and black ball, i. r. radiation
divergence in atmosphere 0=14300
efficiency, photon coincidence meas., 1216 Å 4=300
electrobalance application, Cahn, automatic 4=2884
electromagnetic mm waves, superheterodyne 4=19207
electromagnetic wave, microwaves, tuneable using
interference modulation 4=19206
energy detectivity, noise equivalent energy 0=14878
Evaporograph, for infrared imaging 2=15726
filters, i. r., analysis 3=19011
fluorides, Pr³⁺ doped, i. r. quantum counteraction 4=7132
G.M. counters, for u. v., stability, efficiency,
characteristics 0=14833
gases, i. r. bands, integr. intensity and line widths,
meas. method 3=7248
Gunn—Bellani radiation integrator 1=15219
horizon sensor optical system, linear output, wide-
angle 4=10938
image converters, theory 2=7455

Radiation detectors—contd

information capacity 1=255
 information capacity 3=11909
 information capacity, internal and radiation noise 3=3922
 information theory 2=2926
 i.r., Ag-O-Cs, photocathodes 0=9073
 i.r., assessment of photographic method 0=8812
 i.r. atomic emission spectra, progress of
 radiometric observation 1=797
 i.r., based on SrS:Ce,Sm phosphor 1=16153
 i.r., Cs oxide cathodes, fatigue effects 3=2018
 infrared, classification of materials 4=2810
 infrared, cryostat, elec. noise elimination 2=9468
 infrared, current research papers 3=9652
 i.r., doped Ge photocells 0=7960
 i.r., electrical and optical associated systems 0=19498
 i.r. evaporation technique, oil film evap.
 suppression 3=24104
 i.r., fundamentals 0=8838
 i.r., gases, Michelson interferometer 4=24367
 i.r., Golay pneumatic detector 3=24103
 infrared HgSd detector 2=130
 infrared, InSb PEM, nsec response 2=15799
 infrared, intrinsic and activated, comparative
 report 2=7454
 i.r., liquid nitrogen Dewar attachment 3=24102
 infrared, masers, for diatomic gas radiation 2=9449
 i.r. and microwave, combined system 0=14812
 i.r. missile-seekers, optical design 0=16831
 i.r., non-image forming systems, electronic circuit
 details 0=14885
 i.r., non-image forming systems, pre-amplifiers 0=14882
 i.r., nuclear radiation exposure 0=14881
 i.r., 1-7 μ , using InAs and InSb 0=19499
 infrared, in optical contact with lens of high refr.
 index 2=22087
 i.r., optical filtering 0=14815
 i.r., optics, review 0=14797
 infrared, optimum modulation of beam 1=11828
 infrared, PbS, effect of protons and neutrons 2=9447
 infrared, PbS, effect of 12 MeV protons 2=9448
 i.r., performance criteria 0=10801
 infrared, photoconductors, comparison 2=7457
 infrared photodetectors, detectivity analysis 2=22089
 infrared photodetectors, operational, review 2=22086
 infrared, pneumatic, properties 2=2931
 i.r., polycrystalline photocells 0=7962
 infrared, prep. of PbS cells 4=1695
 i.r., prism scanner 0=8780
 i.r., quantities, symbols, units 0=8832
 i.r. quantum counter 0=12529
 infrared radiation meter, direct reading 4=359
 infrared, radiation thermometer, appl. to remote temp.
 meas. 2=127
 i.r. radiometer, Mariner II 4=24429
 infrared radiometer, rel. to sea surface ht. flow 4=23722
 i.r., range eqn. for passive devices 0=8842
 i.r., range finding using pulsed technique 0=8843
 i.r., range prediction 4=5440
 infrared, recent advances 2=22001
 infrared, review 4=5438
 infrared scanners, spurious resolution 2=7458
 i.r. search system, design 0=14810
 i.r., semiconducting, use of antireflection
 film 1=9502
 i.r., semiconductor, comparative study 3=291
 i.r., silicon solar cell power supply 0=14951
 i.r., simulation 0=14886
 i.r., single-crystal based on intrinsic absorption 0=8840
 infrared, for space use 2=11201
 infrared, spectral filter optimization 4=24354
 infrared spectrometer 4=16286
 i.r. target and background radiometric meas. 4=358
 i.r., using thermal effects, standardization 3=3920
 i.r. tracking systems 1=12983
 i.r. and unmodulated solar, response characteristics,
 atmos. pressure depend. 0=14880
 i.r., uncooled, for long wavelengths 0=10800
 infrared, use and choice 2=15800
 i.r., use of Ge-Si alloys 0=2911
 i.r., use of semiconductors, applications up to 135 μ 0=18015
 i.r., with and without auxiliary lenses, theory 4=14340

Radiation detectors—contd

integrator, battery operated 0=14952
 laser radiation, using photoelec. device, noise 3=1810
 lenses, i.r., in contact with detectors 3=16736
 light detectors, square-law, correlation of outputs 2=1242
 light-pressure tube 1=12959
 light sensitivity, const. and alternating, and time const.,
 meas. 4=8498
 light spot tracking using Si p-n junction 2=22011
 light, using pyroelec. effect. 2=18768
 limiting sensitivity, rel. to fluctuations in photon
 streams 0=5123
 logarithmic meter, using noise 0=2267
 Lyman- α , by photoionization, CS₂ and bromethane 3=14416
 mm and sub-mm, by free-carrier absorpt. in
 semicond. 3=25385
 maser, NH₃, for far i.r. stimulated 4=19253
 mean square error, lower bound eval. 3=1580
 measurement of absorpt. and refl. 3=16789
 microwaves, low-level, Si diodes 4=11792
 modulation-noise-limited system, statist. props. 4=14448
 near infrared, compensating radiometer for fire
 research 1=18662
 net radiometer, polythene shielded 0=4782
 net radiometers, thermal transducer as 0=10799
 noise, physical mechanisms 0=8841
 optical, for absolute meas. 0=2264
 optical focusing systems 0=3607
 optico-acoustic non-selective receiver 1=12984
 optico-acoustic transducers 0=8714
 optico-acoustic transducers, with electrodynamic
 microphone, various characteristics 0=12527
 optico-acoustic transducers, gas analysis, sensitivity
 increase 0=4752
 optico-acoustic transducers, with optical microphone, max.
 sensitivity 0=12526
 optico-acoustic transducers, sensitivity threshold 0=2265
 optico-acoustic, using electrodynamic micro-
 phone 2=13483
 orthicons and image iconoscopes, for weak sources 0=8784
 parameters, measuring apparatus 1=13014
 partitioned cell, construction and background rejec-
 tion 4=14447
 phase sensitive for long integration time 4=14550
 photocell, for u.v., portable transistorized
 instrument 3=21536
 photodetecting instruments for u.v. to i.r. 1=10589
 photodetectors, u.v. description 3=7337
 photoelectric, review 1=1805
 photoelectric, spectral sensitivity meas. 0=16824
 photographic film, clamped, vibrations excited by
 light 1=4425
 photographic radiometry, accuracy limit 0=6931
 photomultiplier, 1100 to 2200Å detection 1=10733
 photon fluctuation detector, Ge phototransistor, i.r. 0=8831
 Planckian, max. quantum and thermal detection
 efficiencies 4=14438
 plasma sheath 2=4881
 pneumatic cell with rectangular aperture 2=2933
 pneumatic cell, sensitivity rel. to gas pressure 2=2932
 pneumatic i.r. detector 2=9450
 pulse amplifiers 1=2937
 pulse frequency meter, for low level radiation 2=5281
 pulse generator for testing and calibrating 2=5287
 using pyroelectric effect, sub-mm wavelengths 4=16287
 pyroelectric, fast response, thermal detector 2=19766
 pyroelectric thermal receiver, sensitivity 2=2929
 pyrometer, with Ge detector, for temp. meas. 2=9436
 quantum effects, upper limit of accuracy 4=29799
 radiation thermocouple, response characteristics 1=11853
 radiation transfer by pipe between high refr. index
 media 4=24350
 radiometer, absolute differential 3=24106
 radiometer, absolute, using transient temp. rise
 of Cu block 3=14415
 radiometer, balloon-borne for 6.3 μ water-vapour band
 radiometer for heat flux near buildings 2=11536
 radiometer, infrared integrating 3=7384
 radiometer, net, for optimum sensitivity 3=290
 radiometer, 100-300 Gc/s, high-sensitivity 4=745
 radiometers, for field use 0=8835
 radiometers for photometric use 2=19672

Radiation detectors—contd

radiometers, thermal transducer type 0=14185
 use of radiometric effect 1=5365
 readings, effect of background emission 0=3674
 receivers near sources, collection efficiency 4=2820
 relay unit MST-2 for radiation detector,
 transistorized 4=5903
 review 0=8839
 satellite i.r. emission 2=11199
 selective receivers, energy meas., optical
 wavelengths 3=21535
 semiconductor, diffused p-n junction, var. of window
 effect with bias, calc. 4=5891
 semiconductor junctions, leakage current 2=6479
 semiconductor photodetectors, reflection-reducing
 coatings 1=11852
 sensitivity increase, thin-film circuitry 2=19764
 sensitivity of radio and optical receivers, com-
 parison 3=3921
 sensitivity threshold, rel. to background continuum and
 apparatus 0=19496
 solar short-wave radiation, photocathodes 3=9150
 solarimeters, for field use 0=4781
 for space vehicles, i.r. 4=8364
 spectral radiometer 1=1840
 spectrophone theory 0=1033
 sub-mm, broad and narrow, band, ultimate sensi-
 tivity 4=14446
 in sub mm region, comparison 4=14445
 sub-millimetre e.m. wave detection by free carrier
 absorption in a semiconductor 1=12455
 superconductors as microwave and sub-mm-wave
 detectors 1=5400
 synchronous thermal detectors 0=19493
 thermal calibration 0=19489
 thermal deflectors, forced cycled cooling 2=128
 thermal dosimeters, using temp. sensitive paint 0=8833
 thermal i.r., low-frequency noise meas. 2=17774
 thermal power transducer 1=8256
 thermal, using linear expansion 0=2266
 thermoelements, with direct visual adjustment 0=6990
 thermopile, i.r., solid backed, evaporated 4=18484
 thermopile, ribbon type 2=2928
 TIROS II instruments for meteorological
 studies 2=1028-9
 tracking system using lateral photoeffect 2=21200
 21 cm maser radiometer, use of Y-type circulator
 switch 1=5578
 two-sphere non-directional radiometer,
 calibration 2=5213
 u.v., extreme, using planar analyser and electron
 multiplier 3=14631
 u.v., fluorescent type 3=18974
 u.v. integrating meter, with CdS photocathode 0=12472
 u.v., middle and vac., spectrally selective 3=14306
 ultraviolet receivers, spectral response meas. 2=17618
 ultraviolet, vacuum, photoemission-scintillation
 detector 2=19696
 Universal Radiometer, RUS-3 4=16740
 vacuum u.v., abs. intensity meas. 4=8418
 vidicon, i.r., with PbS photocond. films 3=11996
 wide-angle receiver, radiant intensity distrib. 3=24105
 wide-band radiometer 2=7459
 X-ray spectrometry, review 2=1621
 X-rays, counters, mica and Be-types, meas. channels 4=5734
 Ag sulphide photocell for near infrared range 1=9474
 BaF₂:Er, i.r. quantum counter action 4=22872
 BaTiO₃ pyroelectric detector 2=13482
 CaF₂:Er, i.r. quantum counter action 4=22872
 GaAs, sensitive photodiode for visible 0=16830
 Gd, magnetothermal effects, near Curie point 0=19494
 Ge, backward, for e.m. mm wave detection 4=19204
 Ge:Cu and Ge:Hg, relative performances 4=361
 InSb, i.r., cooled, photocond., time const. var. bias
 current 4=11401
 InSb, i.r., nanosec. time response 4=8497
 InSb photoelectromagnetic, 7 μ region 4=19279
 InSb photovoltaic, pre-amplifier details and
 detectivity 0=14883
 LaF₃:Er, i.r. quantum counter action 4=22872
 PbS, effect of cooled aperture 2=7456
 PbS, i.r., figures of merit 4=11400

Radiation detectors—contd

PbS photocell, effect of temp. on response 0=7965
 PrCl₃, i.r. quantum counter 1=6978
 Se-glasses for 8-15 μ transmission 4=20457
 Si photocells, surface-barrier, props. 2=18754
 Si p-n juncn., internal pulse amplification 4=28589
 Si p-n junctions, stable, high field 4=5890
 Si photodiode, for vacuum uv. 4=29747
 Si slices, cond. elec., meas., 4 probe 4=10064
 Si wafers containing diffused P₂O₅ 2=18602
 SrF₂:Er, i.r. quantum counter action 4=22872
 Te photoconductors, sensitivity 2=7460

Radiation effects

See Biological effects of radiations; Chemical effects
 of radiations; Physical effects of radiations.

Radiation monitoring

See also Dosimetry.

air sampling, emergency technique 2=20536
 α, β, γ transistorized portable counting-rate meter 0=5457
 ambient radiation monitor 0=19976
 area monitor, transistorized, using G. M. ion chamber
 probe 0=5437
 aspects in nuclear energy, encyclopaedia 3=4285
 β -contamination, atmospheric, continuous method 2=4617
 fallout, large particles from nuclear weapon
 debris 0=20362
 film-badge range extension 0=19977
 film badge reader and recorder 4=5896
 film dosimeters, for personal monitoring 2=16098
 γ , quantameter for high intensity 4=19472
 gamma-ray spectrograph for human body radioactivity
 meas. 1=7951
 gases, specific activity, using gas-flow chambers 3=4583
 hand monitor for simultaneous α and β meas. 2=5531
 health physics instrumentation 0=8438
 health physics research reactor, superprompt-critical
 behaviour 4=1128
 inhalation of Rn from air, absorbed dose 3=5285
 in-pole oxalic acid dosimeter 3=22453
 luminescent dosimeter for personnel 2=3218
 MERLIN reactor, gamma and thermal flux calc. 2=10169
 milk, iodine-131 deposition 2=3496
 monitors for α, γ, T and airborne Pu 0=5456
 multifield isodose contour plotter 0=8437
 nuclear reactors, core outlet water, Cherenkov
 monitoring 1=19571
 parameters of gauges 2=5613
 personnel monitoring by film dosimetry 1=19067
 personnel routine methods 2=13203
 radioactive effluents 1=7333
 radionuclides, efficacy of radiation detectors 0=7251
 reactor damage monitor using sputtering 2=14178
 reactor safety 1=5950
 sealed γ -sources 1=1599
 semiconductor detectors, uses 1=1993
 sound indicator for intensity, improved circuit 3=2169
 transistorized monitor 0=17157
 Vostok 3 and 4 space ship flights 4=26979
 whole body, A.E.E. Winfirth 3=17118
 wire activity in reactor, automatic recording 4=1153
 C¹⁴, sample absorption correction 0=9541
 Pu air contamination filters, background
 α -discrim. 4=9429
 T, by ionization chamber 4=15176
 X- or γ -rays, integrating multipoint monitor,
 > 50keV 4=27826

Radiation pressure

See also Acoustic streaming

acoustic, bearing 1=6926
 acoustic, calibrator for measuring systems 0=8757
 in acoustic fields 4=29704
 acoustic, independent of sound speed 3=18924
 acoustic, measurement 0=6886-7, 8756
 acoustic radiation force, meas. 0=141
 acoustic radiation stress, measuring and inter-
 pretation 0=10715
 acoustic, standing waves between concentric
 spheres 4=14268
 acoustic, three-sound-pressures theorem 2=17543
 demonstration, by torsion pendulum resonance 4=5356
 diffraction, e.m. waves, scalar, by spheroid,
 thin, oblate 4=691

Radiation pressure—contd

- elastic wave generation, by pulsing in solids, and radiation beam study 3=18889
- evaporation pressure in a radiation beam 3=19062
- forces between two spheres in plane sound field 3=1766
- gas, isotrope of tension of acoustic radiation 2=19617
- on gaseous cloud due to resonance line 3=16328
- general theory rel. to wave momentum 4=8025
- interstellar dust and star formation 3=3536
- laser, momentum transfer and cratering effects with solids 4=22638
- meas., use in vacuum gauges 4=5260
- on particles, in solar gravitational and radiation fields, Poynting-Robertson effect 0=14404
- planetary nebulae, comparison with gas pressure 0=10518
- radiometric effect, review 1=5365
- on rapidly moving (relativistic) surface 1=12960-2
- on rapidly moving surface 0=19353
- shell, thick cylindrical, in acoustic medium, axially symmetric vibrations 0=14711
- solar, effect on artificial satellite orbit 2=24189
- solar, forces and moments on body in space 4=2475
- solar, on satellites, artificial non-spherical, orbital effects 3=23715
- sound, extension of Rayleigh formula 4=272
- technique for U. S. absorpt. meas. in water 4=24209
- torsion balance meas. 3=18940
- two electrons, interacting, distrib. of incident light pressure 4=5760
- ultrasonic, in air 2=71
- ultrasonic, in liquids, pendulum meas. 4=21253

Radiation protection

See also Radiation monitoring

- Argonaut type reactors, trip circuits 2=17850
- aspects in nuclear energy, encyclopaedia 3=4285
- β -ray dosimetry 1=4838
- boiling water reactor, neutron and gamma shielding 2=8041
- bremsstrahlung due to β -particles, plexiglass and lead shields 4=3586
- building material for low-activity laboratories 4=19708
- bulk shielding facility, thermal neutron flux calc. 2=6012
- by chemical agents, e.s.r. studies on model systems 4=2478
- chemical methods 0=14138
- concrete cell for analysis of multi-curie materials 2=21606
- concrete shielding constns. 3=17516
- concrete shielding, neutron diffusion meas. 4=6061
- cosmonauts, van Allen hazards 1=21080
- cylindrical source with flat screen, dose factor 2=20532
- DFR reactor, safety assessment 3=2540
- DIDO, shielding calcs. 3=2515
- dose build-up factors, measurement 1=9818
- dose field of extended sources, calc. 2=6050
- dose field of line source, calc. 2=6053
- electro-filter, for radioactive aerosol removal 0=2631
- electron accelerator shielding 3=455
- from electron accelerators, up to 1 GeV, shielding 0=19817
- electron linear accelerators 2=7683
- flux meas. in shielding foils 3=19912
- γ , use of paraffin 4=21823
- gamma ray absorpt. in Pb and Pb-polyethylene shields 4=30206
- γ -ray build-up factor in cylindrical source, effect of multiple scatt. 0=9591
- γ -ray scattering by concrete 4=3372
- γ -ray shielding, albedo meas., 0.66 MeV 4=19467
- γ -ray shielding, back-scatter from concrete 3=10077
- gamma rays, best shielding material combination 4=30318
- γ -rays, by concrete, Monte Carlo calc. 4=16849
- gamma-rays, effect of holes in shielding media 2=5601
- gamma-rays in Pb and Fe, shielding rel. to atomic number of material 2=11922
- gamma-rays, reactor shield design curves 2=3667
- γ -transport problems, spherical harmonics technique 3=12736
- handbook 3=2146
- health physics progress report 2=13203
- heavy-water pressure tube reactor, shielding 3=19903

Radiation protection—contd

- ionizing radiations, rel. to long-term biological effects 2=7051
- layered shield for γ -rays, theory. 2=18091
- low-background target room, for Van de Graaff generator 0=318
- metal-water reactor shields, thermal neutron flux distrib. 1=17237
- Monte Carlo shielding calcs., importance sampling 3=22456
- neutron-absorbing CaF_2 bricks 1=2061
- neutron, reactor shielding materials data 2=3668
- neutron shielding calc. 2=9873
- neutrons, best shielding material combination 4=30318
- neutrons from relativistic synchrocyclotron 2=7868
- nuclear cascades in shielding materials 2=6043
- photon shields, permissible voids 0=12893
- Plexiglas, props. 2=20357
- polyethylene, props. 2=20357
- rel. to radiation chemistry theory 2=6895
- radiation streaming through channels 2=12256
- radiography, radioactive inert gas, as soft γ source, for minimum health hazard 3=12280
- radon leakage from ceramics, as potential health danger 4=6298
- reactor control rods, effectiveness determ. 2=18380
- reactor safety 1=5950
- reactor shielding, multigroup calc. 2=14175
- reactor shielding studies using neutron beam facility 2=18385
- reactor shielding, temp. and stress distrib. 1=777
- reactor start-up, rate and period meters 2=6071
- from rectangular source, various shielding problems 0=16916
- relative biological effect of various types of radiation 1=15361
- review article, covering European work 1=13874
- safety control badges design using film dosimetry 2=13707
- safety of UO_2 - ThO_2 - H_2O systems 2=3658
- from sealed γ -sources (handbook) 1=1599
- shield design, using EWA reactor neutron scattering studies 1=19569
- shielding barrier for γ -ray sources, shape rel. to attenuation 4=11961
- shielding barrier for linear source, shape 2=6052
- shielding calc., hydrogen-free "removal cross-section" method 3=17515
- shielding damage due to fast neutrons, determ. by dosimeter 3=10423
- shielding and filtering theory rel. to environmental activity levels 1=17225
- shielding glasses, effects of γ -irradiation 0=8254
- shielding, use of Li 2=12208
- shielding materials for neutrons and γ -rays 3=2539
- shielding materials, nuclear cadcs in 2=6043
- shielding of neutron point sources, by metal/hydrogenous shield 4=12318
- shielding, quantum mechanical calc. 4=19907
- shielding props., different types of concrete 2=14177
- shielding of rectangular γ -ray sources 1=7331
- shielding, review 2=14176
- shielding slabs, build-up factor determ. 2=10186
- of space vehicles, mag. shields 3=21139
- U-fission products, absorpt. by humic acids 3=22439
- V.V.R.-S reactor, flux meas. around horizontal canals 2=6057
- Van de Graaff accelerator, ozone hazards 2=20063
- water, props. 2=20357
- water shielding design for (α , n) sources 4=6086
- X-ray apparatus, installation to avoid direct radn. hazards 3=462
- X-ray scattering by shielding, quality and quantity 1=5710
- X-ray scattering by water slab, spectra and total flux 1=19171
- X-ray scattering, from Cu, at 90° 1=1954
- X-rays, safe universal mounting system for goniometers 1=20457
- Al, Al + Fe, Pb, plexiglass, polyethylene, shielding meas., and "removal cross-section" method 3=17515
- Cd-shielded γ -source, penetration measurement 1=7330
- Co^{60} source, cold-encapsulation 3=22315
- Co^{60} 2kC source at Boris Kidrich Inst. (Yugoslavia) 2=18092
- Li-Pb shielding alloy, props. 0=8273

Radioactive dating

chondrites 1=12744
 chondrites, radiation age 2=4752
 counter, liquid scintillation coincidence type, for
 radiocarbon 1=13216
 counter, proportional, for weak β -rays 3=7829
 Dirac's cosmology implications on 4=4835
 discordant Pb-U ages, linear relationship for many loss
 processes 4=20847
 for earth magnetic field inclination meas., by
 C¹⁴ 4=26877
 Galaxy 4=29411
 glass from Nördlingen Ries, K-A age 2=11009
 lead model ages 2=21616
 low-level counter, with high efficiency 0=17134
 meteorite Richardton, from Xe isotopic
 composition 0=4041
 meteorites, from A and K content, isotopic A
 composition 0=7
 meteorites, "Carbo" and "Treysa", cosmic-ray
 ages 0=8495
 meteorites, cosmogenic C¹⁴ and terrestrial ages 2=17118
 meteorites, erosion in space calc. 0=10496
 meteorites, inert-gas isotopic composition study 0=12272
 meteorite, Richardton, I-Xe method 1=18058
 meteorites, iron, exposure age, from Cl³⁹ decay 1=9266
 meteors, by potassium-argon activity 0=5683
 using mica, particle track visualization, fission 3=5907
 mica, by U fission tracks, and annealing 4=23708
 nuclear cosmochronology 0=14394
 nucleosynthesis, duration 0=5684
 pegmatite, zircon age 0=13163
 proportional counters for radiocarbon dating 3=6949
 radiocarbon in wood 4=26981
 review 0=3341
 rocks and meteorites, rel. to cosmology theories 3=7017
 sediments, Transylvania, by Ra²²⁶ 4=4745
 spontaneous fission of U²³⁸, decay const. meas. 4=9576
 tectonic, age estim, using Pb isotopes 3=7024
 tektites, K-A ages 0=8361
 thermal geochronology 2=12291
 C¹⁴ in benzene form, liquid scint. counter 3=12615
 C¹⁴ dating, proportional counter system, low-
 background 3=24538
 C¹⁴, expt. results at Gdańsk, Poland 3=1420
 C¹⁴ method, apparatus 2=1828, 22751
 C¹⁴ method, standardization of error calculations 0=9543
 C¹⁴ method using scintillation techniques 1=2178
 C¹⁴ procedure, apparatus 3=11382
 C¹⁴, review 1=5849
 C¹⁴ scintillation counting 0=15193
 C¹⁴ self-absorption on paper planchets 1=13672
 Ca⁴¹, possible use 4=12180
 CH₄ synthesis from CO₂ 1=7914
 CO₂ proportional counter for C¹⁴ dating 1=5609-10
 Pb method, rel. to U²³⁵ in meteorites 2=4588
 Pb²¹⁰, new half-life det. by geological method 0=9553
 Rb⁸⁷, half-life, new value 0=1387
 Re/Os and Os isotope methods 2=4758
 U fission, particle tracks in mica 3=6948
 by U²³⁴/U²³⁸ ratio, Pleistocene era 3=13647
 by Xe, meteorites, history 3=11525

Radioactive tracers

absorption study, applic. to CO adsorption on Ni 0=14152
 adsorption, optical method of meas., study 1=15185
 adsorption study of I⁻ and SO₄²⁻ on Cu 1=20685
 appl. to metal transfer in elec. contacts 1=16295
 applications 1=13676
 for atmosphere, movements, Cu⁶⁴O 3=18503
 for atmosphere movements, produced by cosmic
 rays 3=9022
 atmospheric circulation, cosmic-ray produced
 tracers 0=6441
 atmospheric tracers, use of natural radioactivity 0=13164
 in beryl lattice study 0=21191
 blood calculating system, ratemeter 0=21402
 chemical analysis uses, review 4=7804
 collimator for localization of radioactive regions 1=15366
 contacts, make and break, transport
 measurements 1=18814
 data manual 2=13699
 depth below surface meas. with β -ray spectrometer 4=1536
 diffusion coeff. det. in alloys, errors 1=17549

Radioactive tracers—contd.

diffusion investigation in metals and metal
 oxides 1=11221
 diffusion meas. in liquid In-Sn 1=2751
 for diffusion, meas., self, down to 10⁻²⁰ cm²/sec 4=12802
 in diffusion measurement, simult. 2-component
 diffusion 4=12779
 in diffusion measurement, use of Sb¹²⁴ and Ag¹¹⁰ 4=22609
 diffusion study of Cd and Zn in GaAs 0=9918
 electro-diffusion, in Fe-Al alloys 4=25968
 in electrode material transfer study, at pre-
 breakdown 0=9006
 electrode processes, diffusion layer study 2=6889
 flow measurement, with Geiger and scintillation
 counters 0=14605
 flow study in saturated porous materials 1=15830
 gas chromatography, labelled organics 1=20776
 gas clean-up, penetration depth investigation 0=9003
 impurity segregation in metals 0=11647
 isotope labelling, by gaseous discharge 0=15527
 labelling of membrane filters, for assay of airborne
 material 0=20364
 leak detection in hermetically sealed units 1=15981
 leveller following in electroplating bath 0=14125
 liquid diffusion coeff. meas. 0=3512
 liquid and gas flow measurement 0=19080
 for liquid surface ion adsorption study 4=8192
 for meas. diffusion in gels 4=10666
 measurement, review 4=15173
 for measuring solubility of gases in liquids 4=8172
 for medical science, review 4=15970
 methodology conference 4=7779
 use, new apparatus 1=13664
 oils, halogenated, water content 0=4766
 percolating filters, retention period, measurement 1=15831
 pneumatic transport of radioactivated grains, speed
 measurement 0=19041
 scintillation counting in liquids, relation between absorpt.
 and quenching 4=4728
 selective radioactivation, multiple coincidence
 spectrometry 2=4574
 tritium labelling of organic compounds in discharge
 tubes 0=20369
 tritium, for very low vapour pr. meas. 0=19512
 use in ionic self-diffusion study 4=2667
 in vacuum distillation camera sources 0=5358
 Ag self-diffusion during torsional deformation 4=9989
 As⁷⁶, in vapour-grown Ge, incorporation of As 0=17967
 Au sputtering by A⁺ and Kr⁺ ions 2=3098
 C solubility in α -iron, C¹⁴ technique 0=4684
 C¹⁴, contamination in layer formation 0=2304
 C¹⁴O and C¹⁴O₂ separation and analysis 4=30914
 Ca⁴⁶ ion diffusion in NaCl-CaCl₂ mixed crystals 0=6062
 Cd diffusion and solubility in Ge 0=553
 Cl³⁶, radio tracer study of anodic film composition 3=25830
 Co⁶⁰, flow velocity measurement method 1=6843
 Cs¹³⁷ diffusion in NaCl monocrystal 2=603
 Cs¹³⁷, for teletherapy 0=8436
 D(d, n)He³, counting rate meas., D diffusion in metals
 meas. 0=13559
 H₂-C₂H₆ reaction mechanism det. 0=745
 H₂O infiltrations under dams 4=3587
 for H₂O vapour density meas., in boiler 4=16130
 I¹³¹, diffusion from radioactive monolayer 0=2165
 I¹³¹, use in study of rain stimulation with
 AgI 1=4109
 I¹³¹, in vapour-grown Ge, incorporation of I 0=17966
 Kr in rare gas discharges, clean-up rates 2=5323
 Kr⁸⁵, adsorption method for surface area
 meas. 1=5246
 Kr⁸⁵, gas flow meas. by total count
 method. 3=155
 Kr-Xe separation by gas chromatography,
 labelling 1=1495
 Ni⁶³ to determ. solubility of Ni in liquid Na 2=5008
 Ni⁶³, diffusion of Ni in Cu crystals 1=2394
 P³², in autoradiography 0=14325
 P³², in diphosphate ion diffusion in liquids 0=3511
 Rb⁸⁶ ion diffusion in KCl-RbCl mixed crystals 0=6063
 Re^{186, 188} for H₂O vapour emulsion density meas. in
 boiler 4=26768
 Rn²²² and Xe¹³³ in crystals, thermal release 3=823
 T, gas counting, non-scintillation methods,
 review 4=10682

Radioactive tracers—contd

- T, for measuring H diffusion in CO_2 , CF_2Cl_2 , Kr, Xe 4=11240
 T, scintillation counting, in suspensions 4=10681
 T, for H_2O condensation meas. 4=21360
 Te^{129} , electrolytic purification 0=5680
 Tl^{204} halides, activator distribution determination in alkali halide crystals 0=13939
 U^{234} , self-diffusion study in β -phase U 0=11644
 W^{185} and Sr^{90} , in fallout, use in stratospheric studies 1=6597

Radioactivity

- See also Alpha-, Beta-, Gamma-rays; Atmosphere, radioactivity; Beta-decay theory; Chemical analysis, radioactive; Chemical effects of radiations, ionizing radiations; Fallout; Geophysical prospecting; Nuclear decay theory; Nuclear bombardment targets; Nuclear excitation; Nuclear reactions; Radiochemistry
 activity of daughters of long-lived nuclides 1=13667
 aerosols, atmospheric 0=4042
 aerosols, attachment of Th decay products, particle size depend. 1=2179
 aerosols, deposition and size spectrum 2=21598
 aerosols, small particle size, separation 3=1401
 air, concentration of small and large active ions 1=9821
 α -activity, from Tl, Bi, Pb bombarded by C ions 3=12644
 α -decay, fine structure of nuclear masses 3=6194
 α -decay, penetration factor 1=13698
 α -decay, semiclassical approx. 3=22319
 α -emitters, absolute activity meas. 2=14013
 α -particle spectroscopy, very low specific activity 2=5829
 α reduced widths in heavy nuclei, calc. 2=3499
 α -transitions, favoured, reduced widths 2=20542
 angular distribution analysis, corp. with expt. 3=24880
 applied spectroscopy conference, Seascale, June 1960 1=385
 of artificial origin in atmosphere 1=1521
 atmospheric precip. β -activity 2=8963
 atomic beams, determ. of props. by mag. resonance 0=472
 Auger effect, review 2=14052
 Auger transition probabilities, KLL 2=525
 background low-energy γ -radiation in Calcutta 1=13679
 background, var. and precipitation, Sweden 4=10730
 β -decay, first forbidden transition, in universal Fermi interaction 0=5548
 β -decay internal bremsstrahlung, effect of Coulomb field 2=16343
 β -decay and low-energy electrons emitted together 2=12163
 β -decay from oriented nuclei 0=7442
 beta-decay total energies, isobaric analysis 3=17426
 β -decay, 2nd forbidden transitions, ang. distrib. and polarization 0=9579
 β -decay, transverse polarization in allowed transitions 0=2643
 β -emitters identification, absorpt. meas. 3=12607
 β -emitters, total disintegration energy 0=15507
 β - γ coincidence study of radionuclide activity 2=5826
 β - γ ang. correl. at resonance energy 0=15548
 beta-irradiated samples, activity loss due product diffusion 1=644
 Bruderheim meteorite, cosmic-ray-produced species 2=2528
 Bruderheim meteorite: K^{40} , Al^{26} , Mn^{53} , Na^{22} radioactivity 2=2530
 Bruderheim meteorite: tritium, $\text{A}^{37,39}$ content 2=2529
 catalytic tritium labelling for organics 3=19800
 cosmic ray fragment atmospheric coeffs. 4=27926
 data manual 2=13699
 decay chains, disintegration laws 0=13167
 decay laws, uncertainty function generator 1=19376
 deformed nuclei, Peierls-Yoccoz theory 4=21997
 for density meas., sensitivity and accuracy 3=9396
 desorption energy meas. of Ag from Mo and Ni 3=23521
 diatomic molecule dissociation during β -decay of one nucleus 4=12530
 for diffusion in solids, meas., volatile impurity 3=20216
 directional-correl. data, variances 3=19804
 dose build-up factors, measurement 1=9818

Radioactivity—contd

- double quantum emission 0=17550
 due to underground nuclear explosions 1=15217
 earth, effect on shape under rotation and gravity 3=16188
 Earth, γ -radiation from ground, Sept.1- Nov. 30, 1961 4=13774
 earth, rel. to heat flow 1=20794
 of earth, water, and air 0=1373
 electron pair emission, internal, from aligned nuclei 4=12130
 electronic simulator 0=5673
 evaporation of solid body, effect on rate 2=7469
 even-even nuclei, α -decay 3=12616
 fallout, Bucharest 1960 2=7936
 fallout, Rumanian People's Republic, Nov. 1958-Dec. 1959 2=7937
 in ferromagnetic alloys, nuclear alignment and polarization 1=14155
 film sources, on organic substrates, electrocapillary deposition 2=1829
 fission-product mixtures, γ -ray scintillation spectra interpretation 0=15610
 flow meas. of open currents 3=1669
 fluorite, rel. to colour centres 3=8458
 in food processing 0=13165
 galactic, rel. to radio emission mechanism 2=2572
 γ -cascades, summing spectra 3=14944
 gamma dose in hole in uniformly contaminated plane 1=9822
 γ , effect on electron probe microanalysers in metallographic obs. 4=13634
 gamma-emitters, identification 1=13745
 γ - γ polarization—directional correlations involving multipole mixtures, graphical analysis 1=5866
 gamma-ray polarization, circular, Mossbauer analysis 4=17084
 γ -ray spectrum method to find Ra dispersion halos near ore deposits 4=2182
 γ -sources, effective use of radiation 3=2396
 gases, diffusion calc. 2=15634
 general properties review 2=20177
 ionization of atom, effect of nuclear recoil 2=23972
 isobaric pairs, naturally occurring 2=5843
 isotopic exchange, heterogeneous processes, influence of radioactive solid phase 0=14112
 lemongrass oil, C^{14} activity since 1954, world study 0=7499
 lifetime of nuclear state from K-shell ionization probability 4=3548
 light sources 0=2238
 low-activity samples, mean β -radiation energy determ. 4=30317
 low-level γ -radiation in Amsterdam 1=17008
 magnetic dipole transitions, in even-even nuclei, with collective excitations 1=19408
 magnetic dipole transitions, in even-even nuclei, with collective excitations 3=4585
 metallurgy, Czech, use in 3=6874
 meteorite, Toluca, rel. to solar prehistory 2=6998
 minerals containing U and Th 4=6249
 moon's interior, rel. to its thermal history 0=14396
 neutrino and antineutrino emission, probab. 4=10818
 neutron emission, time-of-flight analysis 2=9874
 nuclear orientation, applications, review 1=4827
 nuclear spectroscopy conference, Jan.-Feb. 1961 3=4286
 nuclei with oriented shells, ang. distrib. and correl. 0=9544
 nucleon pair production, pairing energies 0=9513
 nucleosynthesis, duration 0=5684
 one- and two- proton type, in n-deficient isotopes, stability limits 1=2180
 in optical instruments, with KBr components 0=19409
 parity nonconservation, rel. to weak interact. 4=9347
 preparation of materials for beta-spectroscopy 1=629
 proton-activity, possible nuclei 1=19379
 proton decay of radioactive nuclei 4=30319
 radioisotope techniques in non-destructive testing 1=13676
 radionuclide power generators 3=12063
 rainwater, natural 3=23590
 random disintegrations, assessment using glass plate fragmentation 0=2070

Radioactivity—contd

rare-earth nuclides, α -decay data, predicted 4=25336
 recoil particles, use for ion-optical imaging 1=3024-5
 reference samples, electrodeposition 4=22056
 report "Aims and Methods of the Umgebungsüberwachung" 2=12147
 resonance fluorescence expts. using thick scatterers and absorbers, analysis 0=1367
 rocks, high neutron flux 0=16404
 semiconductor current sources, double energy conversion 0=10867
 separation of nuclides, carrier free, rapid 2=4545
 shell model, particle-hole transitions, phase factors 0=9498
 single closed shell nuclei 0=17458-9
 solids, effect on surface structure 1=20656
 source, Ag, Co, Cu 3=24532
 source prep., e.m. separation method 3=12608
 sources, preparation 4=22051
 specific activity nomograms 1=13666
 spin $1/2$ nuclei, transitions between rotational states 0=9575
 statistical perturbations rel. to ang. correls. 2=16337
 terrestrial materials, cosmic-ray-induced 2=2460
 for thickness meas., sensitivity and accuracy 3=9396
 thin film preparation, deposition 0=3281
 time meas., by counting radioactive disintegrations 0=18891
 time scales, absolute, random processes 0=8532
 transuranic elements, superfluid model 1=16953
 two-proton, calc., by nucleon pairing analogy 4=27988
 two-proton radioactivity 1=19380
 units and meas., Internat. Commission recommendations 4=12163
 use in polarography for electric charge meas., Ag 4=7763
 use in various meas. by excitation of X-rays 1=20786
 vacuum deposition of radioactive materials 0=17514
 water, decontamination, filter efficiencies 2=4523
 A^{35} , β -decay interaction, det. from $e^- \nu$ ang. correl. 0=1385
 A^{41} , β - γ circ. polarization correl., isotopic spin conservation 1=660
 Ag^{110m}, β - γ correlation coeffs. 2=3525
 Ag^{110m}, β - and γ -ray spectroscopy 2=12176
 Am^{242m}, branching ratio 0=7508
 As⁷⁶, β -decay matrix elements 1=19390
 Au¹⁹⁶ 0=15533
 Au¹⁹⁶, absolute meas. 1=13723
 Au¹⁹⁶, β - γ ang. correl., analysis 0=11365-6
 Au¹⁹⁸, β helicity 1=7229
 Au¹⁹⁸, K-conversion $e^- \beta$ coincidences 4=3583
 Au¹⁹⁸, new activity with 19 hr half-life 0=4071
 Au¹⁹⁹, conversion and K and L-Auger spectra 0=11369
 Be⁷, in atmosphere above Atlantic Ocean 3=1454
 Be⁷ radionuclide prod. 2=20530
 Be⁷, in rain and snow 0=7500
 Be^{7,10}, in atmosphere 0=2041
 B⁸, β - α ang. correl. 0=5692
 B⁸, β - α ang. correl., rel. to Li⁸ 1=639
 B⁸, possible test of conserved vector current theory 0=9581
 B⁹ \rightarrow Be⁸ + p decay 2=3535, 7956
 B¹⁰, 5.11 and 5.16 MeV levels 3=24860
 B¹², polarization of high-energy β -rays 2=7943
 Bi²⁰⁵, decay energy 2=10061
 Bi²⁰⁷, relative yields of Bi^{205,206} and Po²⁰⁷ 4=9516
 Bi²¹⁰ (RaE), β helicity 1=7229
 Bi²¹⁰ (RaE), electron polarization, time reversal 0=2645
 Bi²¹⁰ (RaE), 1st-forbidden decay, circ. polarization of internal bremsstrahlung 0=11362
 Bi²¹⁴ (RaC), γ -ray spectra 3=8054
 Br⁸⁶, delayed-neutron emission 3=12625
 C¹⁴ from CO, freed from stalagmites in grottoes 1=5850
 Cd¹⁰⁷, γ -ray spectrum 2=16330
 Cd¹⁰⁹ radionuclide prod. 2=20530
 Cd¹¹⁴, in In single crystals, γ -ray ang. correl. 0=2656
 Cd^{115m}, negatron decay, γ -rays 3=24899
 Ce¹⁴¹ 4=6232
 Ce¹⁴¹, forbidden β -decay, matrix elements 1=5859
 Ce¹⁴¹, oriented, γ -ray distrib. 2=20568
 Cf, α reduced widths, even-even isotopes 2=20543
 Cf²⁵², α -decay 2=10160
 Cm, α reduced widths, even-even isotopes 2=20543

Radioactivity—contd

Co⁵⁶⁻⁷ radionuclides prod. 2=20530
 Co⁵⁸, pure Gamow-Teller decay, Fierz interference term 2=3519
 Co⁶⁰ 0=420
 Co⁶⁰, dose rate 0=20365
 Co⁶⁰, γ -sources, equiv. to 280g Ra apparatus 0=5678
 Co⁶⁰ polarized in Fe-Co alloy, β -ray anisotropy 3=4590
 Co⁶⁰ spectrum meas. at high counting rates 2=7535
 Co⁶⁰ + Sc⁴⁶ liquid source 3=22328
 Cr⁵⁴ radionuclide prod. 2=20530
 Cr⁵⁵, β -decay energy 3=22329
 Cs¹³⁷, γ field calc., plane isotropic source in air 4=17062
 Cu⁶⁴, E1 transitions 2=18304
 Cu⁶⁵, 1119 keV transition, internal conversion 2=12172
 Dy¹⁵⁹, K and L X-ray photons 2=14051
 Eu¹⁴⁸, giving levels of Sm¹⁴⁸ 2=10023
 Eu¹⁵², β - γ ang. correl. 1=659
 Eu^{152,154}, β -spectra shape factors 0=15546
 Fe⁵⁵ radionuclide prod. 2=20530
 Hf^{180m}, search for β^- decay 2=16347
 Hg¹⁹³ isomeric transition to Au¹⁹³ 2=18283
 Ho¹⁶⁰, K and L X-ray photons 2=14051
 Ga⁶⁷, Mössbauer effect in Zn⁶⁷ 0=13126
 Ga⁶⁸, β^+ helicity 1=7229
 Ga⁷², β -spectrum shape factor 0=15546
 Ga⁷², relative intensities of γ -lines 4=3603
 H³, solid, defect prod., e.s.r. study 0=20855
 He⁶, β -decay, energy spectrum 3=10183
 He⁶, β -decay interaction, det. from $e^- \nu$ ang. correl. 0=1385
 Hg¹⁹⁹, conversion and K and L-Auger spectra, from Au¹⁹⁹ 0=11369
 Hg²⁰⁰, new radionuclide 1=13714
 I¹²⁵, K-LL Auger spectra, satellites 3=4707
 I¹³⁰-Te¹³⁰ decay energy 3=22336
 In^{110m} 4.9 hr, search for isomeric decay to In¹¹⁰ 4=3571
 Ir¹⁹⁴, relative intensities of γ -lines 3=12602
 Ir^{194m}, possible existence 0=7510
 Kr⁷⁴, existence and possible existence of Kr⁷⁵ 0=20495
 Kr⁷⁹, charge spectrum of Br⁷⁹ atoms produced 0=4052
 Kr⁸⁵, solid defect prod., e.s.r. study 0=20855
 La¹⁴⁰ ($\beta\gamma$) circular polarization correl. 2=18288
 La¹⁴⁰, β -spectrum shape factor 0=15546
 La¹⁴⁰, γ -rays, high-energy, investigation 2=7957
 Li⁷ decay 4=6205
 Li⁸, β - α ang. correl. 0=5692
 Li⁸, β - α ang. correl. 3=12619
 Li⁸, β - α ang. correl., rel. to B⁸ 1=639
 Li^{8,9} fragments produced in emulsions by protons 2=20626
 Li⁹, "hammer" stars in emulsion 3=22325
 Lu, Auger electron spectra 2=10067
 Lu¹⁷⁶, 3.7 hr isomeric state 3=8010
 Mn^{52,56}, oriented, γ -ray ang. distrib. and circ. polarization 0=4076
 Mn⁵⁴ 4=6232
 Mo^{93m}, total conversion coeff. of 0.265 MeV transition 4=3569
 Mo⁹⁶, ang. correl. meas. 3=4591
 N¹⁶, γ -radiation from excited states 3=24862
 Na²², β -decay and low-energy electrons spectrum 2=12163
 Na²² radionuclide prod. 2=20530
 Na^{22,24} 0=420
 Nb⁹⁴-Zr⁹⁴ decay energy 3=12627
 Nd¹⁴⁰ + Pr¹⁴⁰, K and L X-ray photons 2=14051
 Ne¹⁹, 1st and 2nd excited levels 3=15102
 Ne^{19,23}, β -decay interaction, det. from $e^- \nu$ ang. correl. 0=1385
 O¹⁴, electromagnetic corrections 0=15379
 O¹⁴, ft value, rel. to CVC theory 2=18290
 O¹⁴, ft value, rel. to universal Fermi interaction 1=645
 O¹⁴, matrix element taking account of charge depend. of nuc. forces 4=3522
 Os, neutron-deficient isotopes 3=10273
 Os¹⁹¹, decay to Ir¹⁹¹, γ -ray resonance absorption 0=411-12
 P³², allowed decay, circ. polarization of internal bremsstrahlung 0=11362
 P³², β -decay and low-energy electrons spectrum 2=12163
 P³², β helicity 1=7229
 P³², longitudinal polarization of betas 2=16348
 P^{32,33}, in atmosphere 0=2041
 Pa²³³ \rightarrow U²³³ decay, effect on nuclear reactors 3=6332

Radioactivity—contd

- Pb²⁰⁹, first-forbidden β -decays, ft value computation 4=22080
 Pm¹⁴⁷, β -decay and low-energy electrons spectrum 2=12163
 Pm¹⁴⁷, electrons and autoionization X-rays emitted simultaneously with β -rays 0=20386
 Pm¹⁵¹, internal conversion electron spectra 3=12634
 Po, abnormally long-range particle emission 0=9542
 Po, long-range proton emission 1=7361
 Po²¹⁰, α reduced width, calc. 2=3499
 Po²¹², α reduced width, calc. 2=3499
 Po—Be and Pu—Be sources, neutron spectra, central group 4=15193
 Pr¹⁴⁴, E2-M1 mixing in 100 keV transition 4=3576
 Pt¹⁹⁷, Mössbauer effect in Au¹⁹⁷ 0=11312
 Pu, α reduced width, even-even isotopes 2=20543
 Pu, metallic, rate of heat generation 2=20572
 Pu + Be source, neutron spectrum 3=15159
 Ra, and ions, in rooms 4=12164
 RaE, nuclear matrix elements 2=20553
 Rb⁸⁵ daughter, rel. to characteristics of diode containing Kr⁸⁵ 3=24335
 Rb⁸⁶, β - γ ang. correl. 1=659
 Rb⁸⁷, specific activity 1=642
 Re¹⁸⁶, β - γ , ang. correl. polarization 2=5858
 Re^{186,188}, β -spectra of once-forbidden transitions 4=3616
 Rn active deposits 0=5711
 Rn, equilibrium with decay products in atmosphere 3=21042
 Rn and thoron, attachment of products to aerosol particles 1=15247
 S³⁵, in atmosphere 0=2041
 S³⁵, bremsstrahlung processes in β -decay, Coulomb field effects 1=10980
 S³⁵, thin source preparation 1=13673
 Sb¹²⁴, β - γ circular polarization correl., ang. and energy depend. 1=3417
 Sb¹²⁴, β - γ directional and circ. polarization correl., matrix elements 0=11360-1
 Sb¹²⁴, β -spectrum shape factors 0=15546
 Sc⁴⁶ 0=420
 Sc⁴⁶, β -decay, γ -ray circular polarization 2=14067
 Sc⁴⁶, β - γ circ. polarization correl., isotopic spin conservation 1=660
 Se⁸⁵, in rain and snow 0=7500
 Si²⁷, β^+ spectrum 1=19403
 Si¹⁸, 12.75, 12.80, 12.82, 12.85 MeV resonance states 4=1013
 Sm¹⁴⁵, K and L X-ray photons 2=14051
 Sm¹⁴⁵, β and γ -spectra 3=12635
 Sn¹¹³, γ -ray and inner bremsstrahlung transitions 0=15564
 Sr⁹⁰ in Cervidae antlers 1=19377
 Sr⁹⁰, in soil, grass, milk, bone (U.K.1956) 0=7502
 Sr⁹⁰, Y⁹⁰, amounts present in a source 2=5851
 T, decay energy 1=554
 T, initiation of T₂-ethylene reaction 0=3321
 T, low-energy β -spectrum 0=4053
 Ta¹⁸⁰, 8.15 hr, β^- and EC branching ratios 2=16347
 Ta¹⁸¹, attenuation in liquids of ang. correl. of 133-482 keV cascade 2=20557
 Ta^{182,183,184} from W(d, α) and W(d, α n) reactions 1=5937
 Tb¹⁶⁰, γ -spectrum below 1 MeV 2=16375
 Tb¹⁶⁰, nuclear orientation in Nd ethyl sulphate 1=623
 Tc⁹⁵ ground state, gamma radiation 2=10079
 Te¹³³-Sb¹³³ decay energy 3=22336
¹²⁵Te¹²⁵, K—LL Auger spectra, satellites 3=4707
 Th, α track, abnormally long, from star 3=22321
 Th decay products, attachment to aerosol particles 1=628
 Th, in emulsion, abnormally long α tracks 3=22320
 Th in glass 1=9820
 ThX, α -ray energies 2=18278
 Tl²⁰⁷, first-forbidden β -decays, ft value computation 4=22080
 Tl²⁰⁷($\frac{1}{2} \rightarrow \frac{1}{2}^-$), longit. β polarization, search for pseudoscalar interaction 0=4049
 Tm¹⁷⁰, β -spectra of once-forbidden transitions 4=3616
 U, α reduced widths, even-even isotopes 2=20543
 U, current from UO₂ 1=19378
 U²³³, α -decay, numerical integration study 0=1384
 U²³⁵, nuclear emulsion study 1=19388
 U²³⁵ \rightarrow Th²²⁹, α - γ ang. correl. 4=3593

Radioactivity—contd

- U—Th separation, by Th-specific resin ion exchanger 0=21302
 V⁵¹, M1-transition probability, calc., using configuration mixing 1=10988
 V⁵², β -decay energy 3=22329
 W, natural, no α -activity 2=5836
 W¹⁷⁸ 2=12136
 Xe¹³¹, double quantum emission 0=17550
 Xe^{131m}, search for double-quantum emission 0=11373
 Y⁹⁰, β -emission, energy and bremsstrahlung 3=12626
 Y⁹⁰, unique forbidden decay, circ. polarization of internal bremsstrahlung 0=11362
 Y⁹¹, β -decay, e- ν ang. correl. 3=8036
 Zn⁶⁵ radionuclide prod. 2=20530
 Zr⁹⁶-Nb⁹⁶ decay energy 3=12627
- artificial production**
 See also Nuclear reactions.
 activation by 660 MeV protons 4=6251
 activity calc., samples intermittently irradiated 2=20711
 α -emitters, prod. by O and C ion bomb. of Pb 0=9552
 atmospheric, due to nuclear explosions, 1958 1=15244
 basic reactions, kinetics and technology 3=642
 decay with proton emission, experimental obs. 4=6279
 by exploding wires containing deuterium 0=7496
 liquid loop as radiation source 1=13878
 neutron activation, 14 MeV, data tabulation 2=4572
 neutron activation, rapid assessment 0=5782
 by neutrons, activity nomograms for 70 nuclides 4=6250
 nuclear reactor, by n amplification in internal thermal column 4=1033
 in nuclear reactors, calc. of activity 2=3494
 pneumatic sample transfer from pool reactor 0=4036
 positron cow 1=13401
 proton, delayed, after β^+ decay in interactions due to nuclei $Z > 2$ 4=28066
 radioisotope prod. in nuclear reactors 2=20535
 radioisotope production in cyclotron 1=13674
 rare earth nuclides, by 660 MeV proton bombard. of Eu 2=14096
 in reactor, Ti and Fe sample containers 3=19905
 safe β source, Kr⁸⁵ trapped in a clathrate 0=4051
 specific activity calc. after intermittent irradiation 2=18273
 transuranic elements, review 1=8628
 102²⁵⁶ by U²³⁸(Ne²²,4n) 4=19740
 Ag^{108,110}, β -decay asymmetry, from polarized thermal neutron capture 2=14031
 Ag^{110m}, from neutron irradiation of Ag¹⁰⁹ 3=22401
 Al, proton bombardment, delayed proton emission 4=6275
 Al²⁵, proton emission following β -decay after proton bombardment 4=6275
 As⁷⁵, proton, α -particle irradiation, E1, E2 decays 2=10008
 As⁸¹ 0=9546
 Au^{195,196}, by electron bomb. of Au¹⁹⁷ 0=20473
 Be⁷, in N.R.X. reactor, by (p, α), (p,n), (d,n) reactions 0=20438
 Bi²⁰⁹(n, γ)Bi²¹⁰, γ - γ coincidences invest. 2=3591
 Bi(N ions, α), at 102 MeV 0=13249
 C¹¹, by 9GeV p's on plastics, diffusion loss 4=19717
 Cd¹⁰³, by 160 MeV O¹⁶ bomb. of Mo oxide 0=20394
 Cm²⁴⁰, by bomb. of Th²³² with C^{12,13} ions 0=11429
 Co⁶⁰ source for plant irradiation 1=15369
 Cs¹³⁴, occurrence in fallout 0=7501
 Cs¹³⁷ high-intensity irradiation 1=13668
 Cs¹³⁷ irradiator, design studies 1=13671
 Cs¹³⁷, for teletherapy 0=8436
 Cu⁶² using betatron 1=546
 Dy, from proton bombardment of Ta 2=18302
 F¹⁸ source production, carrier-free 4=6266
 Fe wall, by 10 GeV protons 2=22817
 Fm²⁴⁹, by O¹⁶ bomb. of U²³⁸ 0=7592
 Fm²⁵⁰ prod. in Pu²⁴¹(C¹³, 4n) and U²³⁸(O¹⁶, 4n) reactions 0=9649
 Gd, thermal neutron capture 4=6362
 He⁶ source, continuous generation and fast transfer 4=9433
 Kr⁸⁵-clathrate compounds, preparation 1=13683
 Li⁸, β -decay asymmetry, from polarized thermal neutron capture 2=14031
 Lu isotope 0=20385
 Lu neutron bombardment 1=16816
 Nd¹⁴⁰ from Ta bombarded by 660 MeV protons 2=18299
 No 0=7498
 No, by irradiation of Pu^{239,241} with O¹⁶ 0=7497
 Pa²³⁷, by U²³⁸(γ , p)Pa²³⁷ 0=9562

Radioactivity—contd**artificial production—contd**

- Pr¹³⁴, by proton bombard. of Eu 2=14096
 Pt¹⁹⁵, proton, α -particle irradi., E1, E2 decays 2=10008
 Rh¹⁰³ \rightarrow Ag^{103,104} 0=4055
 Sb¹¹³, Sb¹¹⁵ new isotopes 1=17010
 Sc⁴⁶, occurrence in fallout 0=7501
 Si, proton bombardment, delayed proton emission 4=6275
 Sr⁹⁰ + Y⁹⁰, beta-ray applicator, calibration 0=7491
 Ta^{178,180}, by electron bomb. of Ta¹⁸¹ 0=20473

dating

See Radioactive dating

decay periods

- absolute determ., improvement to coincidence method 2=22747
 actinides, neutron-deficient, extended deformed regions 4=22038
 age of elements and formation time 2=938
 α -decay, rel. to energy release, formula 2=5837
 α -decay, expressions for decay const. 0=13182
 α -emitters, short, meas. by ionization spectrometer 3=8023
 atmospheric aerosols, activity decay constants, determination 1=7337
 β -decay systematics, log T versus A relation 1=9828
 β -transitions, reduced-lifetimes rel. to degree of forbiddenness 2=18294
 decay curve fitting by exponential functions 1=13669
 disintegration rates, in electron capture decay 1=7353
 electric dipole transitions, retarded 2=14043
 even-even nuclei, first excited states 3=24871
 even-even and odd-odd nuclei, α -unstable, phenomenological expression 4=3590
 even nuclei, $150 < A < 190$, first excited 2⁺ states 3=8003
 excited level lifetimes of odd-A nuclei 0=7587
 excited nuclear states, new application of delayed coincidence technique 1=3406
 15 β^+ -emitters, superallowed transitions, half-lives 0=17535
 γ -decay meas., importance of isomeric states data 2=5596
 γ -transition rates, delayed-coincidence studies 2=5856
 γ -transitions of odd-mass nuclei, theory 0=11375
 giant resonance states 2=3478
 h.f. deflection method for short half-life measurements 1=4835
 half-life determ., by Rutherford, rel. to cosmochronology, review 2=2520
 half-life meas. 1=5855
 half-lives in α -radioactivity in rare-earth region 0=11343
 half-lives of daughters of long-lived nuclides 1=13667
 half-lives of 30 radionuclides, meas. 0=13178
 high-frequency deflection method of measuring short half-lives 0=17518
 hyperfragments 1=13685
 isobars, formed in high-energy nuclear collisions 0=9613
 isomers, new short-lived, from photonuclear reactions 1=19439
 lifetime meas., centroid shift method 2=20501
 lifetime of nuclear levels, recoil technique meas. 0=5688
 lifetimes, E2, for N = 82-126 region 2=13983
 lifetimes, short, meas. with background, statistical estimation 3=24669
 lifetimes 10⁻¹-10⁻⁵ sec., pulse meas. 2=17755
 light nuclei, lifetimes of first excited states, theory 0=17552
 light nuclei, theoretical and exper. results 3=19808
 msec region nuclear states 1=12163
 meas., from Doppler-broadened resonance fluorescence line 3=629
 meas., oscilloscope method, review 1=5855
 measurement, coinc. method, using high efficiency detectors 2=7781
 medium-heavy nuclides 1=4842
 metastable states, electronic time analyser circuits 0=17184
 mirror nuclei (2Z = A \pm 1), A = 19 to 39 0=7505
 moment analysis of delayed coincidence expts. 2=20529
 nanosecond techniques, review 2=5816

Radioactivity—contd**decay periods—contd**

- neutron half-life 0=2546
 nuclei of Z = 11 to 20, compilation of data 2=12131
 nuclides in meteorites, rel. to cosmic-ray intensity 2=2527
 odd-A nuclei, Coulomb-excited states 1=4841
 odd-A rotational nuclei, first excited state 1=8597
 proton emitters 4=30319
 pulse techniques, ultra fast 2=5815
 rare earths, extended deformed regions 4=22038
 reference manual 1=11043
 review of methods, results 2=5818
 second order half-life precise measuring equipment 3=645
 short half-lives, meas. 1=18740
 short half-lives, meas. methods 0=20371
 short-lived gaseous radioisotopes, meas. procedure 1=19382
 short, loading device for γ -ray spectrometer 2=20293
 spallation products of Cu target irradiation 1=5854
 spontaneously fissioning isotope, in U²³⁸ reaction with B¹¹, O¹⁶, Ne^{20,22} 3=24984
 sub-nanosecond, meas. methods review 2=5817
 tables for correcting for radioactive decay, 27 nuclides 3=15135
 tandem generator for 10⁻¹⁴-10⁻¹¹ sec range 2=5906
 time analyser meas. 0=11333
 transition rates, rel. to pair correlations 3=19802
 transuranic elements, review 1=8628
 unknown fission prod. of U²³⁸-Ne²² react. 3=6316
 unknown fission prod. of U²³⁸-Ne²² reaction 2=16443
 unstable systems, exponential decay law 1=16611
 vibrational state lifetimes in nuclei 0=4019
 102²³³? 0=7497
 102²⁵⁶ by U²³⁸(Ne²², 4n) 4=19740
 A in meteorites 1=18060
 Ac²²⁷, calorimetric determination 0=5686
 AcC¹¹, lifetimes, upper limits 1=16979
 Ag¹⁰²⁻⁴ 0=13171
 Ag^{103m} 2=16331
 Ag¹⁰⁴ isomers 1=631
 Ag^{107m,109m} 2=18271
 Ag^{108m} 0=9568
 Ag^{109m} 4=9538
 Ag¹¹⁰, excited states 4=6236
 Ag¹¹⁰, meas. 3=2403
 Ag^{110m} 0=5690
 Ag^{110m} 2=3497
 Ag^{110m}, half-life 1=2199
 Ag^{110m}, meas. using 4 π β counter 4=19333
 Ag¹¹² 3=650
 Ag¹¹² 3=24867
 Al²⁵, first excited state 3=12585
 Al²⁵, first excited state lifetime 0=17553
 Al²⁵, 450 keV level 3=22296
 Al²⁵, 450 keV state lifetime 2=14039
 Al^{26*}, ft value 3=6200
 Al²⁶, 416 keV state lifetime 2=14039
 Al²⁶, 418 keV level 3=22296
 Al²⁶, second excited level, 418 keV 2=365
 Al²⁷, excited-state lifetimes 0=2622
 Al²⁸ 0=13179
 Al²⁸ 2=18351
 Al²⁸, energy level half-lives 1=10994
 Al²⁸, meas. 3=2403
 Al³⁰, half-life 1=12168
 Al³⁰ isomer, possible, from Si³⁰(n, p), 14 MeV 4=6225
 Al²⁷(n, α)Na²⁴, compound nucleus, from cross-section fluctuations 4=1091
 Am²⁴¹, half-life for spontaneous fission 0=11465
 Am²⁴¹, spont. fission half-life 1=19540
 Am²⁴¹, spontaneous fission half-life 3=4675
 As⁷², 46 keV level 4=27967
 As⁷³, excited states, γ -decay 3=19781
 As⁷³ 66 keV state 4=3568
 As⁷⁴ 1=10995
 As⁷⁵, 402 keV level 0=408
 As⁷⁵, 280 keV state 2=3533
 As⁷⁵, 265 keV state 2=16310
 As^{75m} 1=9825
 As⁷⁸, metastable state decay 0=4064

Radioactivity—contd

decay periods—contd

As⁷⁹ 1=13747
 As⁸⁰ → Se⁸⁰ 0=5697
 As⁸¹, formed from (γ, p) reaction 1=7345
 At odd-even isotopes, calc. 0=13185
 At²⁰²⁻²⁰⁷ 1=19386
 At²¹¹ 1=634
 At²¹² 3=2419
 Au^{169m}, half-life 2=16341
 Au¹⁹⁰ 1=13738
 Au^{192, 193, 195}, first excited states 2=10012
 Au¹⁹⁵ 3=12628
 Au¹⁹⁶, half-life 0=5723
 Au¹⁹⁵, half-life 2=16341
 Au¹⁹⁵, 61.5 keV and 261 keV levels 2=1802
 Au¹⁹⁶ 0=15533
 Au¹⁹⁶, β-decay 2=16417
 Au¹⁹⁶, half-life 2=16341
 Au¹⁹⁶, negaton transition 2=12166
 Au^{196m} 0=17521
 Au^{196m}, half-life 0=20413
 Au^{197m} 2=18271
 Au¹⁹⁸ 1=13687
 Au¹⁹⁸, half-life meas. 0=13177
 B⁹, lifetime 2=3535, 7956
 B¹⁰ 0=9547
 B¹⁰, first excited state meas. 2=13981
 B¹⁰, lifetimes, upper limits 1=16979
 B¹⁰, 710 keV level, by pulsed protons 2=364
 B¹⁰, 720 keV level half-life 0=17557
 B¹⁰, 720 keV state lifetime 2=14039
 B¹¹, 2.14/excited state 3=15171
 B¹² 1=9825
 B¹², β-emission 3=15139
 B¹², first excited state at 0.95 MeV 4=6217
 Ba¹²⁹, positron and internal-conversion half-lives 1=5870
 Ba¹³¹, 133.5 keV level 4=1048
 Ba^{131m} 3=8001
 Ba^{135m, 137m} 2=18271
 Ba¹³⁶, meas. by time-to-pulse-height conversion 4=6229
 Ba¹³⁹ 0=20410
 Ba^{139, 141-2} 2=18291
 Ba¹⁴³ 2=12236
 Be⁸, 16.67 MeV level, from B⁸ → 2α decay 4=19715
 Be⁹, γ-ray lifetimes, calc. 3=2437
 Be¹⁰, 3.37 MeV level lifetime 3=10251-2
 Bi^{199, 201}, α-active isomer 4=17073
 Bi²⁰³⁻⁴ 1=5871
 Bi²⁰⁵ 2=10050
 Bi^{205, 206} 2=16356
 Bi²⁰⁶ 2=10050
 Bi²⁰⁷ 1=634
 Bi²⁰⁸ 0=426
 Bi^{208m} 1=19496
 Bi^{210m} 1=17013
 Bi²¹¹, 404 and 830 keV levels 3=10315
 Br⁷⁵, β⁻ and γ-decay 2=3518
 Br⁷⁵, β⁺ and γ-decay 3=2407
 Br⁷⁸ 1=10995
 Br⁷⁸, β⁺ decay 4=9447
 Br^{79m} 2=18271
 Br⁸² 2=22753
 Br⁸³ 3=19817
 Br⁸⁶ 2=18289
 C¹⁰, half-life 2=22754
 C¹², γ-ray lifetimes, calc. 3=2437
 C¹², 7.66 MeV state 3=12581
 C^{12, 13} in stars, (5 to 100) × 10⁹°K 3=3588
 C¹³, 3.85 MeV level 0=15535
 C¹³, 3.85 MeV level lifetime 2=16319
 C¹⁴, determ. with proportional counter 2=10034
 C¹⁴ half-life 2=5831-2
 C¹⁴, half-life meas. with CO₂ + CS₂ G-M counters 1=13200
 C¹⁴, mass spectrometric method, accuracy 4=15183
 C¹⁵, first excited state meas. 2=13981
 C¹⁶ 1=7343
 Ca²⁸ 0=7507
 Ca²⁸, 0 → 2 transition, lower limit 0=17536
 Ca³⁰ 0=2678

Radioactivity—contd

decay periods—contd

Ca³⁹ 4=22115
 Ca⁴¹, half-life 2=16360
 Ca⁴², excited levels 4=1014
 Ca⁴², 1.52 MeV level, coincidence technique 2=10025
 Ca⁴², second excited state, by new application of delayed coincidence technique 1=3406
 Ca⁴³, excited states 2=14004
 Ca⁴⁵ 0=5690
 Ca⁴⁷ 2=7970
 Ca⁴⁷, mixing ratio, and strong interactions, time-reversal invariance 3=24893
 Ca⁴⁵, formed from (γ, p) reaction 1=7345
 Cd¹⁰³, half-life 0=20394
 Cd^{111m} 2=18271
 Cd¹¹⁴, 556 keV level lifetime 0=9597
 Cd¹¹⁴, 4⁺ (1282 keV) level lifetime 3=15149
 Ce¹³², and possible existence of Ce¹³¹ 0=4058
 Ce¹³⁸ isomeric transition 4=22039
 Ce^{139m} 0=11336
 Ce¹⁴⁰, meas. by time-to-pulse-height conversion 4=6229
 Ce¹⁴⁰, 1.6 MeV level, by nucl. resonance fluorescence 0=1367
 Ce¹⁴⁰, 2.083 MeV level lifetime 2=13983
 Ce¹⁴⁰, 2.083 MeV two-proton level 3=12560
 Ce¹⁴⁰, 2083 and 2412 keV levels meas. 4=9459
 Ce^{141, 144}, in fallout 4=29304
 Ce¹⁴² 1=4842
 Ce¹⁴², α-decay 0=4044
 Ce¹⁴⁴, half-life 1=2199
 Cl³⁸ 3=6198
 Cl³⁸, 0.66 MeV isomeric decay 2=22732
 Cm²⁴⁴, first 2⁺ level 2=22730
 Cm²⁴⁴, 1042 keV state 3=22314
 Cm²⁴⁷, α half-life, lower limit 3=19825
 Co⁵⁸, by γ-ray scintillation spectrometry 1=8779
 Co⁵⁷, by γ-ray scintillation spectrometry 1=8779
 Co⁵⁷, 1.49 MeV level 2=20512
 Co⁵⁷, 1490 keV level 1=12163
 Co⁵⁸, by γ-ray scintillation spectrometry 1=8779
 Co⁶⁰ 3=22338
 Co⁶⁰, γ-resonance fluorescence 2=5798
 Co⁶⁰, twice-forbidden β⁻ transition 1=10981
 Co^{60m} 3=17432
 Co⁶³, formed from (γ, p) reaction 1=7345
 Co⁶³, half-life 0=7612
 Co^{64m, 64g}, half-lives 0=7612
 Cr⁵¹, 325 keV level 1=7518
 Cr⁵⁴, first excited level lifetime 1=2243
 Cr⁵⁶ 0=11351
 Cs¹³¹, γ-transitions 4=9407
 Cs¹³¹, K-capture 0=17539
 Cs¹³¹, lifetime and multipolarity meas. 4=25315
 Cs¹³¹, 123 keV level 1=12163
 Cs¹³¹, 123 keV level 4=9377
 Cs¹³² 0=15560
 Cs¹³³, energy levels 4=6230
 Cs¹³⁴, excited states 4=6236
 Cs¹³⁴, half-life 1=2199
 Cs^{134, 137}, by mass spectrometry 3=22337
 Cs¹³⁷ 3=22338
 Cs¹³⁷ 4=1047
 Cs¹³⁷, in fallout 4=29304
 Cs¹³⁷, half-life 1=7334
 Cs¹³⁷, mass spectrometric det. 3=12631
 Cs^{141, 142} 2=12236
 Cs¹⁴¹⁻³, by timed precipitation method 2=18277
 Cu⁶⁴, energy level half-lives 1=10994
 Cu⁶³, 668 and 961 keV level lifetimes 1=5876
 Cu⁶³, 669 and 963 keV levels, from resonance fluorescence 1=611
 Cu⁶³, 961-keV level 3=14938
 Cu^{63, 65}, excited by 36 MeV N¹⁴;4⁺ ions 3=10260
 Cu⁶⁵, 0.77 MeV level lifetime 1=2168
 Cu⁶⁵, 1.114 MeV level, nuclear resonance fluorescence 4=25309
 Cu⁶⁸ 4=15187
 Dy¹⁵² 3=2413
 Dy¹⁵⁹ 0=1378
 Dy¹⁵⁹ 2=14012
 Dy¹⁶⁰ 2=20513

Radioactivity—contd**decay periods—contd**

Dy¹⁸⁰, 86.5, 283, 866 keV levels 3=15121
 Dy¹⁸⁰, first excited state 3=24871
 Dy¹⁸⁰, first vibrational state 1=9834
 Dy¹⁸⁰, lifetime of 283 keV level 1=19365
 Dy^{180,182}, 2+ and 4+ states 3=10267
 Dy¹⁸⁵ 1=14179
 Dy¹⁸⁵, ground state 3=655
 Dy¹⁸⁶ 0=13175
 Dy¹⁸⁷ 0=9672
 Em, even nuclei, first excited states 2=18256
 Er¹⁵⁹ 2=5857
 Er¹⁵⁹ 3=4597
 Er¹⁶⁴ 2=14023
 Er¹⁶⁴, first excited state 3=24871
 Er¹⁶⁸ 3=12639
 Er¹⁶⁸, first excited state 2=13986
 Er¹⁶⁸, first excited state 3=24871
 Er¹⁶⁸, rotational levels 2=13990
 Er^{168,168}, 2+ and 4+ states 3=10267
 Er^{167m} 2=18271
 Er¹⁶⁸, 80 keV level, half-life 0=11303
 Eu^{145,146} 0=1381
 Eu¹⁴⁵⁻⁷ 3=8005
 Eu¹⁴⁷, h_{11/2} levels 1=5852
 Eu¹⁴⁷, 625 keV state 3=10300
 Eu^{147,149,151}, isomeric lifetimes 1=2181
 Eu^{147,149,151}, isomeric lifetimes 1=3405
 Eu^{147,149,151}, M1 transitions, l-forbidden 2=22765
 Eu¹⁴⁹, electron capture 2=1844
 Eu¹⁴⁹, 496 keV level 3=10301
 Eu¹⁴⁹, h_{11/2} levels 1=5852
 Eu¹⁵⁰ 3=2413
 Eu¹⁵⁰ 3=19822
 Eu¹⁵¹, h_{11/2} levels 1=5852
 Eu¹⁵¹, 21.7 keV state 3=17416
 Eu¹⁵¹, 22 keV first excited state 4=3579
 Eu¹⁵² 4=9413
 Eu¹⁵², excited states 4=6236
 Eu¹⁵³, 103 keV level 1=12163
 Eu¹⁵³, 103.2 keV level 1=19366
 Eu¹⁵⁵, excited levels, E1 transition probabilities 2=369
 Eu¹⁵⁵, measurement 0=7495
 Eu¹⁵⁹ 2=5844
 Eu¹⁶⁰ 1=17113
 F¹⁷, β⁺ decay 4=9447
 F¹⁷, first excited state 0=17551-2
 F¹⁷, first excited state lifetime 4=22015
 F^{17*} 3=19745
 F¹⁸ 0=5669
 F¹⁸, first excited state 3=22294
 F¹⁸, first excited states 4=1012
 F¹⁸, low-lying levels 3=17402
 F¹⁹, first excited state, by p scatt. at 1422 keV reson. 4=9394
 F¹⁹, 1.34 MeV level lifetime 1=2168
 F²⁰ 3=8030
 F²⁰, meas. 3=2403
 F²¹ 3=12621
 Fe⁵⁶, first excited state 1=19368
 Fe⁵⁶, half-life of 845 keV level 1=19367
 Fe⁵⁸, 0.845 MeV level 3=22303
 Fe⁵⁷, Coulomb-excited states 1=4841
 Fe⁵⁷, 136 keV level lifetime 0=17561
 Fe⁵⁷, trivalent, embedded in CoO lattice 2=14356
 Fe⁵⁸, first excited level lifetime 1=2243
 Fe⁵⁹ 0=11378, 15550
 Fe⁵⁹, measurement 0=7495
 Fm²⁴⁹ 0=7592
 Ga^m, half-life 0=17523
 Ga⁶⁵ 1=13663
 Ga⁷³ 0=7610, 9549
 Ga⁷⁶ 1=17113
 Gd¹⁴⁵⁻⁶ 0=1381
 Gd¹⁴⁶⁻⁷ 3=8005
 Gd¹⁵² 1=4842
 Gd¹⁵², 344 keV level 2=1803
 Gd¹⁶⁴, 122 keV level 1=12163
 Gd¹⁶⁴, rotational level lifetimes 3=10266
 Gd¹⁵⁵, 87 keV level 4=25317
 Gd¹⁵⁶, 105 keV level 0=11380

Radioactivity—contd**decay periods—contd**

Gd¹⁵⁷ isomer, 0.46 μsec 4=15164
 Gd¹⁵⁸, first-excited rotational level 2=10011
 Ge⁷¹ 1=10995
 Ge⁷¹, isomeric γ-decay 3=15134
 Ge⁷³, Coulomb-excited states 1=4841
 Ge⁷⁸ → As⁷⁸, half-life meas. of Ge⁷⁸ 0=20384
 ΛHe⁶, in emulsion 3=10233
 ΛHe⁶, in emulsion 3=10233
 He⁶, β-decay 3=614
 He⁶, meas. 3=2403
 Hf isotopes 3=8051
 Hf¹⁶⁸⁻⁷⁰ 1=8645
 Hf¹⁷⁰⁻¹ 2=22775
 Hf¹⁷⁴ 1=4842
 Hf¹⁷⁷, first-excited rotational level 2=10011
 Hf¹⁷⁷, first excited state, lifetime 3=6178
 Hf¹⁷⁷, 113 and 321 keV levels 3=15121
 Hf¹⁷⁷, 133 keV level 3=12568
 Hf¹⁷⁷, 321 and 113 keV levels 2=1843
 Hf^{177,179}, first excited state 0=20397
 Hf¹⁷⁹, 93 keV level 1=8621
 Hf¹⁷⁹, 217 keV excited level 3=19792
 Hf^{179m} 2=18271
 Hf¹⁸⁰, 93.3 keV level 2=20527
 Hf¹⁸⁰, 2+ and 4+ states 3=10267
 Hf¹⁹¹ 0=5690
 Hf¹⁸², half-life 1=12169
 Hg, odd-A isotopes 2=3484
 Hg¹⁸⁵⁻⁹⁰ 1=13686
 Hg¹⁸⁸⁻⁹⁰ 1=13804
 Hg¹⁸⁹ 1=13738
 Hg¹⁹⁰ 1=13738
 Hg¹⁹² 1=9829
 Hg¹⁹⁴ 2=7958
 Hg¹⁹⁴ 4=28002
 Hg¹⁹⁵, first excited state 2=10012
 Hg¹⁹⁶ 1=4842
 Hg¹⁹⁶, first excited state 3=24871
 Hg¹⁹⁷, 134 keV level 1=19369
 Hg¹⁹⁸, 412 keV level 3=19796
 Hg¹⁹⁹ 3=12642
 Hg¹⁹⁹, M1 50 keV transition 2=1776
 Hg^{199m} 2=18271
 Hg²⁰¹, nuclear transitions, nsec region 2=3482
 Hg^{201m} 2=22734
 Hg²⁰³ 0=5690
 Hg²⁰³, β-decay rel. to centrifugal forces 4=9435
 Hg²⁰⁶ 1=13714
 Ho¹⁶³ 3=8048
 Ho¹⁵⁸, 11.5 min, γ-decay 2=22777
 Ho^{160m} 2=14012
 Ho^{160m}, half-life 0=17523
 Ho¹⁶⁸ 1=17113
 Ho^{168,170} 0=9672
 Ho¹⁷⁰ 1=17113
 I¹²⁵, electron capture decay 4=12185
 I¹²⁷, source for half-life expts. 3=12630
 I¹²⁸, energy level half-lives 1=10994
 I¹²⁹, first excited state 3=2367
 I¹²⁹, first excited state 3=19787
 I¹²⁹, 26.8 keV level, by delayed coincidence 3=12594
 I¹²⁹, 26.8 keV state 4=15163
 I¹³¹, 80 keV gamma transition 1=16227
 I¹³⁴ 1=6640
 In¹¹⁰ 4=3571
 In¹¹² 0=11382
 In^{113m,115m} 2=18271
 In^{114m} 0=5690
 In¹¹⁵ 1=8638
 In¹¹⁶ 0=9550
 In¹¹⁶ 1=13692
 In^{116,116m} 0=13287
 In^{116m}, half-life 0=17523
 In^{116m2} 2=16331
 In¹¹⁹ 1=17083
 In^{119a} 0=11352
 In^{121g,m} 0=11352
 In¹²² 3=4593
 In^{123g,m} 0=11352
 Ir isotopes 2=14054

Radioactivity—contd

decay periods—contd

Ir¹⁸² 1=13752
 Ir¹⁸³ 1=13752
 Ir¹⁸⁴ 1=13752
 Ir¹⁸⁴, from proton bombarded Au 2=14053
 Ir¹⁸⁶, from Au + p, 660 MeV 3=24912
 Ir^{187m,189m} 3=24911
 Ir¹⁸⁹ 4=3659
 Ir¹⁸⁹ 4=17104
 Ir¹⁹⁰ 0=17564
 Ir¹⁹¹, nuclear resonance absorption γ -rays 0=1368
 Ir¹⁹¹, 129.6 keV level 3=15121
 Ir¹⁹¹, 129 keV level, delayed coinc. meas. 3=2394
 Ir^{191m} 2=18271
 Ir¹⁹², half-life 0=13176
 Ir^{192,192m} 3=12628
 Ir¹⁹⁴, isomeric transition, 47 sec 3=2393
 Ir^{194m} 0=13169
 K^{39m} 0=2678
 K^{39m}, superallowed β^+ decay 1=19402
 K⁴⁰, β -decay constant determ. 2=20544
 K⁴² 1=8776
 K⁴² 2=22753
 K⁴² 3=6198
 K⁴³ 1=8776
 K⁴⁷ 4=12179
 Kr^{74,75}, new nuclides 0=20395
 Kr⁷⁶ 3=15144
 Kr⁷⁸ 4=12148
 Kr⁸³, low-energy M1 transitions 3=6172
 Kr^{87,88}, mass spectrometer meas. 4=12182
 La¹²⁴⁻¹²⁸ 3=8040
 La^{126,128,130} 4=22038
 La¹²⁷⁻¹³¹ 3=22339
 La¹³⁷, low energy M1 transitions 3=6172
 La¹³⁹, level lifetimes 0=20410
 La¹³⁹, lowest level 3=4573
 La¹³⁹, 166 keV level 1=7341
 La¹⁴⁰, 1597 keV level, from γ reson. scatt. by
 Ce¹⁴⁰ 4=22103
 La¹⁴¹⁻² 2=18291
 La¹⁴³ 1=8656
 Li⁶, 3.56 MeV level lifetime 1=5856
 Li⁶, 3.56 MeV state lifetime 0=4075
 Li⁷, first excited state 3=4370
 Li⁷, first excited state, mean lifetime 3=4564
 Li⁷, 1/2⁻ state lifetime 1=3434
 Lu heavy isotope 0=20385
 Lu¹⁶⁷ 2=16365
 Lu¹⁶⁸ 0=9569
 Lu¹⁶⁸⁻⁷⁰ 1=8645
 Lu^{169,171} 1=649
 Lu¹⁶⁹⁻¹⁷² 2=16364
 Lu¹⁷⁰ 0=20391
 Lu¹⁷⁰⁻¹ 2=22775
 Lu¹⁷¹, half-life 2=16341
 Lu¹⁷² 0=9570
 Lu¹⁷², half-life 2=16341
 Lu¹⁷³ 0=5725
 Lu¹⁷³ 2=14012
 Lu¹⁷³, half-life 2=16341
 Lu¹⁷³, 123.6 keV level 4=15182
 Lu¹⁷⁴ 0=4059
 Lu¹⁷⁴, ground and isomeric states 4=22078
 Lu¹⁷⁴, half-life 2=16341
 Lu¹⁷⁴, isomer state 0=13211
 Lu^{174m} 0=15538
 Lu^{174m}, half-life 2=16341
 Lu¹⁷⁵, first excited state 0=20397
 Lu¹⁷⁵, 113.8 keV excited state 2=13992
 Lu¹⁷⁶, 114 and 396 keV levels 3=15121
 Lu¹⁷⁵, 343 keV level, M1 transition 2=7954
 Lu¹⁷⁵, 396 and 113 keV levels 2=1843
 Lu^{176,177}, first excited state, lifetime 3=6178
 Lu¹⁷⁶, half-life 1=17011
 Lu¹⁷⁶, liquid scintillation technique 4=12187
 Lu^{177,178m} 1=16816
 Lu¹⁷⁸ 1=5926
 Lu¹⁷⁸, β -ray, γ -ray, 4=25356
 Lu^{178,178m,179} 2=5844
 Lu¹⁷⁹ 3=10311

Radioactivity—contd

decay periods—contd

Lu¹⁸⁰ 1=17113
 Lw²³⁷ (element 103) 1=13700
 Mg²³ 0=425
 Mg²⁴, first excited level lifetime 1=2243
 Mg²⁴, first excited state 0=2567
 Mg²⁵, first excited state 3=12585
 Mg²⁵, first excited state lifetime 0=17519, 17553
 Mg²⁵, 1.61 MeV level half-life 1=12161
 Mg²⁶, 1.83 MeV level half-life 1=12161
 Mg²⁷ 9=13179
 Mn⁵¹, positron decay 1=12174
 Mn⁵² 1=12175
 Mn⁵³, 555 keV level 1=12163
 Mn^{52m} 1=12175
 Mn⁵⁴, by Geiger counter 1=8779
 Mn⁵⁵, Coulomb-excited states 1=4841
 Mn⁵⁶, energy level half-lives 1=10994
 Mn⁵⁶ to Ge⁵⁶, T₁, of β decay 4=25346
 Mn⁵⁶, lifetimes of first three excited states 0=4024
 Mn⁵⁷ 0=7610
 Mn⁵⁸, new isotope 1=7390
 Mo⁹³ 4=17093
 Mo⁹⁵, Coulomb-excited states 1=4841
 N¹², β -emission 3=15139
 N¹³, from N¹⁴(γ , n)N¹³ reaction 0=2679
 N¹⁴, first excited state 1=664
 N¹⁴, 5.83 and 6.44 MeV levels 4=17024
 N^{14,15} in stars, (5 to 100) $\times 10^6$ K 3=3588
 N¹⁶ 0=13179
 N¹⁶ half-life 4=9446
 N¹⁶, meas. 3=2403
 N²⁴, β -decay half-lives 1=17063
 Na²² from meteorite "Breitscheid" 1=9260
 Na²³, first excited state 3=15103
 Na²³, first excited-state lifetime 0=5726
 Na²³, first excited state, mean lifetime 3=4564
 Na²⁴ 2=5850
 Na²⁴ 3=6198
 Na²⁴, half-life by β - γ coincidence method 1=10985
 Na^{24m} 1=9825
 Na^{24m} 1=19496
 Na^{24m}, half-life 0=17523
 Na²⁶ 1=7347
 Nb⁹⁰, isomeric γ -decay 3=15134
 Nb⁹², 191 min activity 0=17563
 Nb^{92k} 1=19496
 Nb⁹⁴, isomeric state 3=17484
 Nb⁹⁵, in fallout 4=29304
 Nb⁹⁵, measurement 0=7495
 Nb⁹⁸ 1=17113
 Nb⁹⁸ 2=12236
 Nb¹⁰⁰ 1=17113
 Nd¹³⁹ 3=10303
 Nd^{143m} 0=5728, 11336
 Nd¹⁴⁴ 1=4842
 Nd¹⁴⁴, 2.18 MeV(1⁻) level 4=6233
 Ne¹⁷ 4=25343
 Ne¹⁸ 1=4850
 Ne¹⁸ 4=6272
 Ne¹⁹, half-life 2=22754
 Ne²⁰, first excited level lifetime 1=2243
 Ne²⁰, low-lying levels 2=1811
 Ne²⁰, low-lying levels, from C¹²(C¹³, α) reaction 1=16989-91
 Ne²⁰, rel. to overlapping-rotational-band theory 2=1812
 Ne²⁰, 7.02 MeV level 3=6165
 Ne²¹ 4=22017
 Ne²¹, 1st excited state lifetime 0=11333
 Ne²², first excited level lifetime 1=2243
 Ne²², 1.28, 3.34, 4.47 MeV states 4=22016
 Ne²³ 2=1821
 Ni⁵⁸, first excited level lifetime 1=2243
 Ni⁶⁰, first excited level lifetime 1=2243
 Ni⁶⁰, first excited state lifetime 0=13215
 Ni⁶⁰, lifetimes, upper limits 1=16979
 Ni⁶⁰, second excited level, by β - γ coinc. 4=3602
 Ni⁶⁰, 2.50 MeV 4+ state 3=10287
 Ni⁶², first excited level lifetime 1=2243
 Ni⁶³ 2=5833
 Ni⁶⁴, first excited level lifetime 1=2243
 Ni⁶⁵ 3=17434

Radioactivity—contd**decay periods—contd**

Np²³⁷, spontaneous fission half-life 1=19541
 Np²³⁷, spontaneous fission half-life 3=4676
 Np²³⁹, half-life 0=5700
 Np²³⁹, 74.6 keV level 3=10277
 Np^{240,241} isomers 0=9603
 O⁺ excited levels 2=375
 O¹⁴ 1=645
 O¹⁴ 2=18290
 O¹⁴ 4=6272
 O¹⁴, and O⁺ → O⁺ partial half-life 1=2183
 O¹⁴, unitary symmetry model 3=22062
 O¹⁶, lifetimes, upper limits 1=16979
 O^{16,17} in stars, (5 to 100) × 10⁸°K 3=3588
 O¹⁷, first excited state 0=17551-2
 O¹⁷, first excited state 4=22015
 O¹⁷, first excited states 4=1012
 O¹⁸, low-lying levels 3=17402
 O¹⁸, 1.98, 3.63, 3.92 and 4.45 MeV states 4=22016
 O¹⁹, meas. 3=2403
 Os isotope, with 23 minute half-life 2=14044
 Os¹⁸¹ 2=14044
 Os^{182,183} 0=7524-5
 Os¹⁸⁶, 137 keV level 1=8568
 Os^{186,188}, first excited states 2=16325
 Os¹⁸⁸, 2⁺ state 3=4555
 Os^{190m} 3=10273
 P³⁰, β⁺ decay 4=9447
 P³¹, first two excited states 4=3599
 P³¹, 1.26 MeV level lifetime 1=2168
 Pa levels at 63, 93 keV 4=25326
 Pa²³³, 87 keV level lifetime 1=13688
 Pa²³⁴, half-lives 3=2395
 Pa²³⁷ 0=9562
 Pb neutron deficient isotopes, β-decay systematics 1=9828
 Pb¹⁹⁴ 0=7514
 Pb^{201,203,205}, nuclear transitions, nsec region 2=3482
 Pb²⁰³ 1=19415
 Pb²⁰³⁻⁶ 1=5855
 Pb²⁰⁵, i_{1/2} state 0=9583-4
 Pb^{205m} 0=9571
 Pb²⁰⁷, first excited state 4=3602
 Pb²⁰⁷, 570 keV level 2=382
 Pb²⁰⁷, 570 keV level meas. 4=9459
 Pb²¹⁰ by geological method 0=9553
 Pd¹⁰⁵, 319 keV state 3=6169
 Pd¹⁰⁹ 2=5849
 Pm¹⁴¹, isomeric γ-decay 3=75134
 Pm^{141,142}, half-lives 0=5689
 Pm¹⁴³ 4=6290
 Pm¹⁴⁴ 0=428
 Pm¹⁴⁴ 4=6290
 Pm¹⁴⁵, lowest level 3=4573
 Pm¹⁴⁶ 4=6290
 Pm¹⁴⁷ 0=5690
 Pm¹⁴⁷, 91 keV level 3=4576
 Pm¹⁴⁷, 92 and 412 keV level, half-life 0=17481
 Pm¹⁴⁸ 1=5878
 Pm¹⁴⁸ 2=16369
 Pm^{148m} 2=16369
 Pm¹⁵³ 3=4595
 Po isotopes 3=10316
 Po isotopes, calc. 0=13185
 Po light isotopes 0=7589
 Po^{195,196} 0=7591
 Po²⁰⁷, 69 keV first excited state 3=19798
 Po²¹⁰, 1431 and 1478 keV levels 3=6183
 Po^{211m,212m} 2=18268
 Po²¹², ground state 2=3534
 Po^{212,214}, partial half-lives for α and γ emission 1=4843
 Po²¹⁴, calculated $\frac{1}{2}$ -life 1=13697
 Po²¹⁴(RaC') 1=3407
 Po²¹⁴, (RaC') 1=13702
 Pr¹⁴¹, first excited state 0=13180
 Pr¹⁴³, 57 keV first excited state 3=4575
 Pr¹⁴³, 57 keV first excited state 4=1049
 Pr¹⁴³, 57 keV level 4=9377
 Pr¹⁴³, 57 and 351 keV levels 4=9410
 Pr¹⁴³, 351 keV state, lifetime upper limit 1=17038

Radioactivity—contd**decay periods—contd**

Pr¹⁴⁴, p-γ correlation 4=17001
 Pr¹⁴⁴, three excited levels 2=22741
 Pr¹⁴⁸ 0=9672
 Pt isotopes 2=14054
 Pt^{186,7} 4=3659
 Pt¹⁸⁷, from proton bombarded Au 2=14053
 Pt¹⁸⁹ 1=13738
 Pt¹⁸⁹ 4=17104
 Pt¹⁹⁰ 1=4842
 Pt¹⁹⁰ 3=4602
 Pt¹⁹⁰ 2=3502, 5836
 Pt¹⁹² 2=12146
 Pt¹⁹⁵, 97 keV level 0=407
 Pt^{195m} 2=18271
 Pt^{195m}, half-life 0=5723
 Pt¹⁹⁷, half-life 0=5723
 Pt^{197m}, confirmation of 80 min period 4=9421
 Pu, even nuclei, first excited states 2=18256
 Pu²³⁹, half-life 1=17014
 Pu²⁴⁰, half-life 1=17014
 Pu²⁴¹, from mass analysis of isotopic mixture 4=9460
 Ra, calorimetric measurement 0=9685
 Ra, even nuclei, first excited states 2=18256
 Ra products, activity measurement 1=7337
 Ra²²⁴, effect of long decay chains on counting statistics 4=12192
 Ra²²⁴, first excited state lifetime 0=5688
 Rb⁸⁵ 1=5855
 Rb⁸⁵, first excited state 0=13180
 Rb⁸⁷ 0=1387
 Rb⁸⁷ 2=3510, 20545
 Rb⁸⁷, half-life 1=642
 Rb⁸⁷, half-life 1=12162
 Rb^{91,92} 2=12236
 Rb⁹² 1=666
 Rb⁹³ 1=666
 Rb^{94,95} 1=7335
 Re¹⁷⁹ 0=15538
 Re¹⁸⁴ 0=7540
 Re¹⁸⁴ from e⁺, e⁻ conversion spectra, from W + d, 13.6 MeV 3=24910
 Re^{185,187}, first excited state 0=20397
 Re^{185,187}, first excited states 3=19794
 Re¹⁸⁷ 2=3511, 20541
 Re¹⁸⁷, γ-decay 4=22046
 Re¹⁸⁷, 686 keV 2=3488
 Re¹⁸⁷, 686 keV level, half-life 2=12142
 Re¹⁸⁷, 206 keV level 4=9419
 Re¹⁸⁷, 206 keV state 3=24839
 Re¹⁸⁷, 686 keV 3=4580
 Re¹⁸⁹ 3=6209
 Rh⁹⁷, 32 ± 2 min, positron decay 2=16357
 Rh^{103m} 2=18271
 Rh¹⁰⁴, energy level half-lives 1=10994
 Rh^{104,104m} 3=10360
 Rh^{104m2} 0=13179
 Rh¹⁰⁵ 2=5849
 Rh¹¹⁰, γ-decay 3=24894
 Rn²²², calorimeter meas. 1=4836
 Rn^{219,220} 1=19382
 Rn²²², effect of long decay chains on counting statistics 4=12192
 Ru⁹⁷ isomer with 227 keV γ, from Mo + α, 22 MeV 4=12153
 Ru⁹⁹, 90 keV level, from Mossbauer effect 4=17058
 Ru¹⁰² first excited state 3=24871
 Ru¹⁰³ 0=5690
 Ru¹⁰⁵ 2=5849
 Ru¹⁰⁶, half-life 1=2199
 S³⁰ 4=6272
 S³⁰, new isotope 1=7336
 S³¹ 0=2678
 S³⁵ 0=5690
 S³⁷ 0=13179
 Sb¹¹³ 2=16358
 Sb¹¹⁵⁻¹¹⁶ 2=1851
 Sb^{118m2} 2=16331
 Sb¹¹⁹, 155 keV level 1=12163
 Sb¹²¹, 70 keV level, by delayed coincidence 3=17413
 Sb^{122m} 4=3572
 Sb^{122m}, isomeric transition 2=5861

Radioactivity—contd

decay periods—contd

Sb¹³³, first excited state 3=12593
 Sb¹²⁴, meas. 0=5690, 17356
 Sb¹²⁷⁻⁹ 2=5873
 Sc⁴⁰ 2=16374
 Sc⁴¹, beta decay 2=16350
 Sc⁴², superallowed β^+ decay 1=19402
 Sc⁴⁴, first excited state 4=9400
 Sc⁴⁷, first excited state, by new application of delayed coincidence technique 1=3406
 Sc⁴⁷, mixing ratio, and strong interactions, time-reversal invariance 3=24893
 Sc^{50m}, γ -decay 3=24894
 Se⁷⁵, half-life 1=2199
 Se⁷⁶, excited state lifetimes 0=13143
 Se⁷⁶, first excited level lifetime 1=2243
 Se⁷⁸, 0.559 MeV level, lifetime 3=10262
 Se⁷⁷, Coulomb-excited states 1=4841
 Se⁷⁷, 245 keV level 1=12163
 Se^{77m} 2=18271
 Se^{77m}, meas. 3=2403
 Se⁷⁸, first excited level lifetime 1=2243
 Se⁸⁰, first excited level lifetime 1=2243
 Se⁸², first excited level lifetime 1=2243
 Si²⁶ 0=20417
 Si²⁶ 4=6272
 Si²⁸, first excited level lifetime 1=2243
 Si³², cosmic-ray produced 0=430
 Si³², from Fe spallation cross-sections 4=15216
 Sm^{142, 143}, half-lives 0=5689
 Sm¹⁴³, isomeric state 3=6174
 Sm^{143m} 0=5728, 11336
 Sm¹⁴⁴⁻⁹ 1=4842
 Sm¹⁴⁷ 0=11346
 Sm¹⁴⁷ 1=10979
 Sm¹⁴⁷ 2=5836
 Sm¹⁴⁷, liquid scintillation technique 4=12187
 Sm¹⁴⁷, 121, 198 keV levels, from coincidences 3=19788
 Sm^{147, 148} 2=16373
 Sm^{147, 148, 149} 1=13703
 Sm¹⁴⁹, 22 keV first excited state 4=3579
 Sm¹⁵¹, 65 and 100 keV levels 2=404
 Sm¹⁵², 961 keV level lifetime 0=20337
 Sm¹⁵² 1=531 MeV level 1=19401
 Sm¹⁵², 122 keV level, by pulsed protons 2=364
 Sm¹⁵², 1531 keV 4=22077
 Sm¹⁵², 1409 keV transition 2=10053
 Sm¹⁵², partial lifetime of 807-122 keV E0 transition 0=11415
 Sm¹⁵³, half-life 1=19381
 Sm¹⁵⁵ 0=9572
 Sm¹⁵⁷ 0=9672
 Sn^{113m} 0=15534
 Sn^{113m} 2=383
 Sn^{113m} 3=10291
 Sn¹¹⁵ 4=22035
 Sn¹¹⁸ 1=10978
 Sn¹¹⁶, 1.27 MeV level, self-absorpt. meas. 3=17412
 Sn¹¹⁷, first excited state 3=12593
 Sn^{117m} 2=18271
 Sn^{118, 120}, excited states 1=16997
 Sn^{118, 120}, 5- levels 2=16300
 Sn¹²⁰, meas. by time-to-pulse-height conversion 4=6229
 Sn¹²¹, unified model calc. of ft value 1=8604
 Sn¹²⁷ 2=5873
 Sn¹²⁸ 2=5873
 Sr⁸³ 2=3513
 Sr⁸⁵, half-lives for two γ -rays 2=18300
 Sr⁸⁶, 1.07 MeV level, coincidence technique 2=10025
 Sr^{87m} 2=18271
 Sr⁸⁸, 1.85 MeV level, and quad. nuclear surface vibrs. 4=30312
 Sr⁸⁹ 2=20538
 Sr⁹⁰, product of U²³⁵ fission 0=11363
 Sr⁹² 1=666
 Sr^{94, 98} 1=7335
 T 1=554
 T, half-life 0=13193
 T²⁰³ 2=12146
 Ta isotopes, neutron deficient 3=8051
 Ta¹⁷³⁻¹⁷⁵ 0=9605

Radioactivity—contd

decay periods—contd

Ta^{173, 175} 4=1052
 Ta¹⁷⁷, excited states 1=17027
 Ta¹⁷⁹, 30.7 keV level, and nuclear models 4=17072
 Ta¹⁸¹ 1=5855
 Ta¹⁸¹, first excited state 0=20397
 Ta¹⁸¹, 48 keV level 1=12163
 Ta¹⁸¹, 480 keV level, half-life 4=9377
 Ta¹⁸¹, 619 keV level 3=17420
 Ta¹⁸¹, 6-25 keV level 1=17064
 Tb isotopes, n deficient 3=10302
 Tb^{148, 150, 152}, β^+ 3=10303
 Tb¹⁵⁰ 0=1379
 Tb¹⁵⁷ 3=22341
 Tb¹⁵⁷ 4=9453
 Tb¹⁵⁷, from spectra of internal conversion electrons 4=19734
 Tb¹⁵⁹, 58 keV state 3=12597
 Tb¹⁵⁹, 136 keV level, half-life 4=9377
 Tb¹⁵⁹, 364 keV level 2=3489
 Tb¹⁵⁹, 364 keV level 3=4577
 Tb¹⁵⁹, 362 keV level 2=382
 Tb¹⁵⁹, 362 keV state lifetime 0=5717
 Tb¹⁶³ 0=9672
 Tc 1=10995
 Tc⁹⁴, 4.5 hr 2=1849
 Tc^{99m}, effect of compression in Tc metal, calc. 0=5718
 Tc¹⁰⁰ 3=10360
 Tc¹⁰¹ 0=7610
 Te¹¹⁵ 0=15532
 Te¹¹⁵ or ¹¹⁹ isomer with 234 keV γ , from Sn + α , 22 MeV 4=12153
 Te¹¹⁶⁻¹¹⁹ 2=1851
 Te^{119, 119m} 0=20389
 Te^{119m} 3=15151
 Te¹²¹, use in Sb¹²¹ level scheme determ. 4=19694
 Te¹²¹, 214 keV level, 1 nanosec. upper limit 3=22306
 Te^{121, 123}, first excited state 3=12593
 Te¹²⁵, 35.5 keV level 2=13973
 Te¹²⁵, 35-5 keV level 3=6145
 Te^{128m} 33d, and I¹²⁹ levels 4=27973
 Th, even nuclei, first excited states 2=18256
 Th series, time intervals for time correlated decay 1=7329
 Th²³⁰, half-life 2=5834
 Th²³², half-period 0=17526
 ThB products, activity measurement 1=7337
 Ti⁴³, superallowed β^+ decay 1=19402
 Ti⁴⁴ 0=1388
 Ti⁴⁴, from Fe spallation cross-sections 4=15216
 Ti⁴⁸, first excited level lifetime 1=2243
 Ti⁴⁸, second excited level, by β - γ coinc. 4=3602
 Ti⁴⁷, Coulomb-excited states 1=4841
 Ti⁴⁸, first excited level lifetime 1=2243
 Ti⁴⁸, 4⁺ (2310 keV) level 4=9401
 Ti⁵⁰, 1.58 MeV first level, on Coulomb excitation, 30 MeV, N ions 4=1015
 Tl neutron deficient isotopes, β -decay systematics 1=9828
 Tl^{194m, 190m} 0=7514
 Tl¹⁹⁵ 2=373
 Tl¹⁹⁷ 2=412
 Tl¹⁹⁹, electron spectrum and half-life meas. 1=643
 Tl²⁰⁰ 0=7478
 Tl²⁰⁰ 4=6246
 Tl²⁰¹, 330 keV state half-line 0=11387
 Tl²⁰³, first excited state 2=5835
 Tl²⁰³, 279 keV first excited state, half-line 0=15539
 Tl²⁰³, 279 keV level 0=15540
 Tl²⁰³, 279 keV level, by delayed coincidences 1=7358
 Tl²⁰³, 279 keV level lifetime 1=5879
 Tl²⁰³, 279 keV level, by resonance fluorescence 1=7357
 Tl²⁰⁴ 2=3497
 Tl²⁰⁴ 3=12628
 Tl²⁰⁴, using Al-stearate gel scintillator 4=22055
 Tl²⁰⁶ 1=13714
 Tl²⁰⁶ 1=17013
 Tl²⁰⁷, 351 keV level 3=10315
 Tm¹⁶³, from β^+ conversion 3=22345
 Tm^{163, 164} 1=652
 Tm¹⁶⁴ 2=14023
 Tm¹⁶⁶ 0=13172

Radioactivity—contd**decay periods—contd**

Tm¹⁶⁶ 2=14012
 Tm¹⁶⁷ 1=3428
 Tm¹⁶⁷, half-life 2=16341
 Tm¹⁶⁸, half-life 2=16341
 Tm¹⁶⁸, 8.4 keV level 4=1050
 Tm¹⁶⁹, 8.4 keV level 4=3615
 Tm¹⁶⁹, 8.4 keV level, from β coincidences 4=3581
 Tm¹⁶⁹, lifetime of 118 keV level 0=20397
 Tm¹⁶⁹, 118 and 139 keV levels 0=407
 Tm¹⁶⁹, 138.9 keV level meas. 4=19698
 Tm¹⁶⁹, rotational levels 2=13990
 Tm¹⁷⁰, half-life 2=16341
 Tm¹⁷¹, ground state rot. band, two lifetimes 4=19699
 Tm^{173,175} 2=5844
 Tm¹⁷⁴ 0=9672
 Tm¹⁷⁴ 1=17113
 Tm¹⁷⁶ 1=17113
 Tm¹⁶⁵ \rightarrow Er¹⁶⁵, conversion electrons, no. per decay meas. 4=30327
 Tu¹⁹⁹, 379 and 316 keV level lifetimes 0=9586
 U, even nuclei, first excited states 2=18256
 U²³³ 2=5840
 U²³³, α -decay 2=396
 U²³⁴, isomeric state 3=22313
 U²³⁵, α -decay 4=17107
 U²³⁵ fission products 0=13301
 U^{235,8} fission products, γ activities 0=13350
 U²³⁷ 0=7620
 U²³⁵ and Pu²³⁹ fission fragments, γ -emission 0=4081
 V⁴⁹, 89 and 152 keV levels 4=3566
 V⁵⁰ 2=5862
 V⁵⁰, half-life 1=12180
 V⁵¹, excited states 2=14004
 V⁵¹, M1 transition probab., calc. from configuration mixing 1=8659
 V⁵¹, 320 keV level, by pulsed protons 2=364
 V⁵¹, 325 keV level 1=12163
 V⁵¹, 321 keV level lifetime 0=11389
 V⁵³ 0=7610
 W, half-life of possible α -activity 0=11347
 W^{173,175,177,178} 4=1052
 W¹⁷⁶ 4=3658
 W¹⁷⁸ 2=12136
 W¹⁸⁰ 1=4842
 W¹⁸⁰, first excited state 3=24871
 W¹⁸⁰, 102 keV level 2=20527
 W¹⁸⁰, 102 keV level 4=3566
 W¹⁸¹ 1=5869
 W¹⁸¹, fallout and laboratory samples 2=7940
 W¹⁸², 152 keV transition 3=657
 W¹⁸², 67.7, 100, 222 keV transitions 3=10272
 W^{182,184,186}, first-excited rotational levels 2=10011
 W^{183m} 1=7359
 W^{183m} 2=18271
 W¹⁸⁴, 111 keV half-life 0=7540
 W¹⁸⁵ 0=1375
 W¹⁸⁸ 2=16370
 Xe¹²⁶, first excited state 3=24871
 Xe¹³¹, 638 keV level 2=387
 Xe¹³¹, 364 keV level 1=8658
 Xe¹³², 673 keV level 2=386
 Xe^{133m} 2=3516
 Xe¹³⁶, matrix element of M4 transition 1=5865
 Xe^{136,138}, mass spectrometer meas. 4=12182
 Xe^{135m} 0=11336
 Xe¹³⁷, 3.9 min 4=3609
 Y⁸⁵ 2=20554
 Y⁸⁵ isomers 4=6281
 Y^{86m,90m,91m} 1=10973
 Y⁸⁸, isomeric γ -decay 3=15134
 Y^{89m} 2=18271
 Y⁹⁰ 0=17520
 Y⁹⁰, isomeric level 1=19375
 Y^{90m} 1=12185
 Y^{90m} 1=19374
 Y^{90m}, β , 0.620 MeV 4=27992
 Y^{90m}, half-life 1=12184
 Y⁹² 1=666
 Y⁹³ 1=666
 Y^{94,95} 1=7335

Radioactivity—contd**decay periods—contd**

Yb¹⁸³, from β^+ conversion 3=22345
 Yb¹⁸⁴ 2=14023
 Yb^{185,184} 4=27998
 Yb¹⁸⁶ 3=10310
 Yb¹⁸⁷ 0=20393
 Yb^{189m,175,177m} 0=17524
 Yb¹⁷⁰, 84 keV transition 2=14005
 Yb¹⁷², half-lives of 1174, 78.7 keV excited states 3=8009
 Yb^{172,174,176}, first-excited rotational levels 2=10011
 Yb¹⁷³, 79 keV state 3=12597
 Yb¹⁷³, 351 keV level 2=3489
 Yb¹⁷³, 351 keV level 3=4577
 Yb¹⁷³, 351, 637 keV levels 3=8008
 Yb¹⁷⁵, 1520 keV level 4=27980
 Zn^{84,86,88}, first excited level lifetime 1=2243
 Zn⁸⁵ 1=13689
 Zn⁸⁵, 54 keV level 1=648
 Zn⁸⁵, half-life 1=2199
 Zn⁸⁵, by spectrophotometry 2=5853
 Zn⁸⁷, Coulomb-excited states 1=4841
 Zn⁷² 1=9891
 Zn⁷² 3=24896
 Zr⁸⁸, half-life rel. to decay 4=22069
 Zr⁸⁹, decay to Y⁸⁹ $\frac{9}{2}^+$ level at 1.5 MeV 2=22746
 Zr^{90m} 3=17432
 Zr^{82,94}, first excited level lifetime 1=2243
 Zr⁹⁵, in fallout 4=29304
 Zr⁸⁹ and Zr^{89m} 4=9450

decay schemes

actinides, neutron-deficient, extended deformed regions 4=22038
 aligned nuclei γ - γ triple ang. correl. analysis 4=22005
 α -decay near 82-neutron closed shell 4=19733
 ang. correls., mag. dipole and elec. quadrupole interact effects 3=12614
 β -decay, coupled β -spectrometer cloud chamber obs. 4=16878
 beta-decay meas. with split anthracene crystal spectrometer 1=3410
 β - γ - γ triple angular correlation 1=17033
 β , matrix elements for type $3^-(\beta)2^+$ 4=19728
 coincidence, complicated spectra, evaluation 3=24881
 complex, calibration by 4π β - γ coincidence counting 2=14011
 data on all known radioactive nuclides 1=11047
 decay constants, meas. methods 0=20370
 deformed nuclei, vibrational states, Coulomb excited 4=22040
 double β -decay, expt. and theory 1=17018
 electric-monopole enhanced $2^+ \rightarrow 2^+$ transitions 1=8661
 even-even nuclei, γ -ray transition probabilities predicted 1=8605
 even-even nuclei, $152 \leq A \leq 186$, rotational levels 4=22003
 fluctuation phenomena 4=8078
 the four series. review 1=4839
 14 short-lived nuclides 3=19809
 fractional parentage coeffs. for several shell configurations 1=19325
 heavy nuclei, α -decay, zero vibrations of shape, effect on probability 1=19385
 heavy nuclei, M₁ γ -transition probab. 1=12178
 hypernuclei prod. by K⁻ and Σ^- interactions in nucl. emulsion, non-mesic decay 4=6206
 isobars with A = 129 3=15153
 1-forbidden transition probabilities, calc. 1=17042
 μ meson decay, with intermediate vector meson 1=16701
 nonspherical nuclei, α -decay 1=17012
 non-spherical nuclei, em transition probabilities for β - and γ - vibrational levels 1=19360
 nuclei containing a nucleon in excess of a closed shell 1=19338
 odd-A rotational nuclei, mag. dipole transition probabilities 1=8597
 odd A > 230 nuclei, α -decay, fine structure 2=16342
 odd A > 230 nuclei, α -decay mass, fine structure 3=8026
 origin of 47 sec. β -activity from neutron-bombarded Ir 1=12171-2

Radioactivity—contd

decay schemes—contd

proton decay, double, ang. and energy correl. 3=10281
 two-proton decay of neutron deficient light nuclei 1=590
 rare earths, extended deformed regions 4=22038
 reference manual 1=11043
 transuranic elements, use in identification 0=11332
 tritium determination by liquid scintillators and d.c.
 photomultiplier meas. 1=19400
 Y*-type nucleus, from X(a,b)Y*-type reaction 4=11953
 A³⁸ 1=653
 A⁴¹, β - γ circular-polarization ang. corr. 1=19405
 A⁴¹, γ polarization, β - γ correlation 2=22759
 A⁴¹-K⁴¹ 0=2634
 Ac, particles lighter than α , origins from (α , p) reactions
 discounted 1=7338
 Ac²²⁵, α -decay 3=17446
 Ac²²⁷, M₂ γ -transition probab. 1=12178
 Ag¹⁰² 4 0=13171
 Ag¹⁰³ 2=18293
 Ag¹⁰⁴ 0=4055
 Ag¹⁰⁴ isomers 1=631
 Ag¹⁰⁵, K-capture 2=14046
 Ag¹⁰⁵-Pd¹⁰⁵ 2=3531
 Ag¹⁰⁸ 1=12181
 Ag¹⁰⁸, γ -ray spectra 1=16951
 Ag¹⁰⁸, levels in Pd¹⁰⁸ 1=8652
 Ag^{108m}, internal conversion spectrum 4=22070
 Ag^{107,109,111} 2=10072
 Ag¹⁰⁸ 3=15215
 Ag^{108m} 0=9568
 Ag¹¹⁰ 0=7530
 Ag¹¹⁰ 3=6206
 Ag^{110m}, β -spectrum and conversion electrons 4=15188
 Ag^{110m}-Cd¹¹⁰ β -transition 3=8038
 Ag^{110m} \rightarrow Cd^{110*} \rightarrow Cd¹¹⁰; p, γ correl. 0=1391
 Ag^{110m} to Cd¹¹⁰, conversion electrons 3=24898
 Ag^{110m}, internal conversion from Cd¹¹⁰ levels 4=19725
 Ag^{110m}, 253d, search for intermed. level following 0, 116 MeV
 transition 4=27971
 Ag¹¹¹, β - γ directional correlation 1=7349
 Ag¹¹¹, β -polarized γ ang. correlation 4=17095
 Ag¹¹¹ and 610 keV state 4=27993
 Ag¹¹² 3=650
 Ag¹¹³ 0=13205
 Al²⁴, β decay, circular polarization 3=17428
 Al²⁵, branching study 0=13181
 Al²⁵, proton emission following β -decay after proton
 bombardment 4=6275
 Al²⁸ 1=7377
 Al^{28*}, β^+ end point energy 1=19464
 Al²⁸, γ coincidences, and Mg²⁸ levels 3=22295
 Al³⁰, new nuclide 1=12188
 Am²⁴¹, α -decay 3=2421
 Am²⁴¹, α -decay 3=15162
 Am^{241,243}, α -decay 4=28004
 Am^{242m}, α -decay 2=1831
 Am²⁴³, α - γ ang. correl. rel. to mag. fld. 3=6211
 Am²⁴⁴, 10.1 hour 2=7938
 Ar⁴¹, β^- decay, K ion electron shake-off 3=19954
 As⁷⁰ 3=12624
 As⁷³, excited states, γ -decay 3=19781
 As⁷³, $\gamma\gamma$ correlation, 359-66 keV 4=3568
 As⁷⁴ 1=8620
 As⁷⁶, β - γ correlations 4=17091
 As⁷⁶, β -transition, β - γ ang. correl. 0=15549
 As⁷⁶ \rightarrow Se⁷⁶ 0=4065, 13213
 As⁷⁶ \rightarrow Se⁷⁶ 1=662
 As⁷⁸ 0=4064
 As⁷⁹ 1=13756
 As⁷⁹ 2=3505
 As⁷⁹ \rightarrow Se⁷⁹ 1=13747
 As⁸⁰ \rightarrow Se⁸⁰ 0=5697
 At²¹⁰, electron capture (8.3 hr) 4=6297
 At²¹² 3=15157
 Au^{191,193} 2=12160
 Au¹⁹⁴ 0=7523
 Au¹⁹⁴ to Pt¹⁹⁴, transition multipolarities 4=27982
 Au¹⁹⁶ 0=15533, 17556
 Au¹⁹⁶ 2=10022, 10059, 12168
 Au¹⁹⁸ 3=10274
 Au^{198m} 0=17521

Radioactivity—contd

decay schemes—contd

Au¹⁹⁷, γ -emission 4=9421
 Au¹⁹⁷ 1-forbidden transition probabilities, calc. 1=17042
 Au¹⁹⁷, 191 keV transition 1=8665
 Au¹⁹⁸, β -decay, β - γ correl. electron vel. 3=6204
 Au¹⁹⁸, β -decay, longitudinal polarization 1=19391
 Au¹⁹⁸, β -polarization, longitudinal 4=19730
 Au¹⁹⁸, β -ray longitudinal polarization 1=19396
 Au¹⁹⁸, β -ray spectra 3=2418
 Au¹⁹⁸, internal conversion coeffs. 2=1848
 Au¹⁹⁹ 0=11369
 Au¹⁹⁹, β - γ directional correl. 1=19404
 Au¹⁹⁹, to Hg¹⁹⁹, mag. moment of Hg¹⁹⁹ 158 keV
 level 3=658
 Au¹⁹⁹, K and L-shell coeffs. 3=12643
 Au²⁰⁰ 0=4071
 Au²⁰¹, possible presence of Hg^{201m} 2=22734
 B⁸ 0=9555-6
 B⁸, β - α ang. correl., rel. to theory 2=3508
 B¹⁰ 0=13133
 B¹⁰ 1=7322
 B¹⁰, γ -ray branching ratios 2=417
 B^{10*}, from Be⁹ + p, sequential two-body
 decay 1=11007
 B¹¹ 2=10144, 14121
 B¹¹, 3=6277
 B¹¹ \rightarrow α + Li⁷ or \rightarrow N + B¹⁰ 1=19502
 B¹² 3=10284-5
 B¹², from C¹² μ^- -capture 0=9695
 B¹², calc. 0=4130
 B¹² \rightarrow 3He⁴ + π^- 3=7975
 B¹² and N¹² \rightarrow C¹², β -ray spectra, test of conserved
 vector current theory 3=15137
 B¹³ 2=18285
 Ba¹³¹, conversion electrons 4=1048
 Ba¹³³ 0=13170, 17540
 Ba¹³³, by e capture, and Cs¹³³ level spins 3=19820
 Ba¹³³, by γ - γ ang. correl. 3=17440
 Ba¹³³, γ - γ directional correl. meas. 4=22073
 Ba¹³⁴ 3=15114
 Ba¹³⁶, γ - γ ang. correl. 1=9833
 Ba¹³⁷, 662 keV transition study 0=7517
 Ba¹³⁹ 0=20410
 Ba¹³⁹ 1=7341
 Ba¹⁴⁰ 0=4054
 Ba¹⁴⁰, and γ -ray spectra 3=8039
 Ba¹⁴¹⁻² 2=18291
 Be⁷, in supernovae 2=5757
 Be^{7*}, branching ratio meas. 2=18298
 Be⁸, p- α branching ratio meas. 3=10250
 Be⁸, 16.626 and 16.921 MeV levels 4=17088
 Be⁸, 16.67 MeV level 2=366
 Be^{9*}, 2.43 MeV state, theory 0=9548
 Bi²⁰⁵ 4=3621
 Bi^{205,206} 2=1797, 16356
 Bi²⁰⁸ 0=426
 Bi²¹⁰ 0=11339, 20377
 Bi²¹⁰, alpha-branching 2=10035
 Bi^{210m} 1=17013
 Bi²¹¹, $\beta/(\alpha + \beta)$ branching ratio 2=22756
 Bi²¹² 2=3534, 16359
 Bi²¹², α and β branching ratio 1=12165
 Bi²¹² \rightarrow Po²¹², branching ratio 0=17546
 Bi²¹² \rightarrow Po²¹² \rightarrow Pb²⁰⁸ 0=7509
 Bi²¹² (ThC) 1=2186
 Bi²¹³, α -fine structure 4=19738
 Bi²¹⁴ \rightarrow Po²¹⁴ 1=657
 Bi²¹⁰(RaE), analysis, rel. to parity nonconservation 0=11356
 Br⁷⁵, β^+ and γ -spectra 2=3518
 Br⁷⁵, β^+ and γ -spectra 3=2407
 Br⁷⁷ 0=4068
 Br⁷⁸ 0=13174
 Br⁷⁸ 1=8630
 Br⁷⁸, β^+ decay 4=9447
 Br⁸² 4=22030
 Br⁸³ 1=13748
 Br⁸³ 3=19817
 Br⁸⁸ 2=18289
 C¹¹, γ -ray transitions 2=20511
 C¹² 0=20491

Radioactivity—contd

decay schemes—contd

C^{12} , α -decay of 15.1 MeV state 1=13699
 C^{12} , 15.1 MeV level 1=13762
 C^{12} , 9.0 MeV γ -emitting level 0=17558
 C^{12} , produced by 90 MeV protons, 3 α -particle decay 1=17105
 C^{12} , 7.656 MeV level, nuclear pair emission 0=9573
 C^{12} , 7.66 MeV level, from $B^{10}(He^3, p)$ 1=17058
 C^{12} , 7.66 MeV level, β -decay 1=19363
 C^{12} , from 7.66 MeV, radiative and α -decays 4=19670
 C^{12} 2^+ level, to $\alpha + Be^8$, from $B^{11}(p, \alpha)$ reaction 4=22064
 C^{12*} , from $B^{11} + p$, sequential two-body decay 1=11008
 C^{12*} , three α -particle break-up 2=1833, 10038
 C^{13} , γ -decay widths, calc. 1=8585
 C^{13} , rare E2 transition 0=20406
 C^{13*} , (on) decay, neutrons study 2=18329
 C^{15} 0=2635
 C^{15} 1=7343
 Ca^{39} , branching study 0=13181
 Ca^{40} , elec. monopole transitions 2=3529
 Ca^{40} , monopolar transitions, double γ emission 4=6219
 Ca^{42} , electric monopole transition 1=10986
 Ca^{43} , excited states 2=14004
 Ca^{47} , β - γ - γ ang. correl., rel. to time reversal 3=10033
 Cd^{110} , γ -cascades, directional correlations 3=15148
 Cd^{115} , 2.3 day 3=17437
 $Cd^{115}, ^{115m}$ 4=19692
 Cd^{115m} 0=2636
 Cd^{116m} 3=7999
 Cd^{115m} 3=17438
 Cd^{116m} , 43 day activity 4=15189
 Cd^{117} 4=19726
 Cd^{118} , 49 min 1=7344
 $Cd^{119}, ^{119m}$ 2=1800
 $Cd^{103} \rightarrow Ag^{103}$ 0=20394
 $Ce^{128} \rightarrow La^{128} \rightarrow Ba^{128} \rightarrow Xe^{128}$ 3=15153
 Ce^{132} , and possible existence of Ce^{131} 0=4058
 Ce^{138m} 4=22039
 Ce^{140} 2=22776
 Ce^{141} , β -cascade 2=408
 Ce^{141} , β -decay, relativistic matrix elements 1=19392
 Ce^{142} , search for α -decay 0=4044
 Ce^{143} 4=9410
 Ce^{143} , 33 hr 3=10297
 Ce^{144} 0=11368
 Ce^{144} 3=10296
 Ce^{144} , β -decay 4=3577
 Ce^{144} , β decay to Pr^{144} 1=16988
 Ce^{144} , β -decay, Pr^{144} level scheme 0=17501
 Ce^{144} , β - γ cascade angular correl., rel. to Pr^{144} spin 4=3539
 Ce^{144} , β - γ coincidences, lifetimes of Pr^{144} levels 2=22741
 Ce^{144} , β - γ and γ - γ coincidences 2=3523
 Ce^{144} , number of photons per decay 3=8041
 Ce^{144} , study by coincidence method 2=14022
 $Ce^{144} \rightarrow Pr^{144}$ 0=5698
 Cf^{249} , α -decay 3=19826
 Cf^{249} , α decay, preferential polar emission rel. to temp. 3=4608
 Cl^{33} , β^+ decay 4=9447
 Cl^{34m} 1=8653
 Cl^{36} , 2nd forbidden β -decay and ground state transition 4=3600
 Cl^{36} , two-step γ -cascade study from Cl^{35} thermal-neutron capture 1=8746
 Cm^{242} 1=9845
 Cm^{242} , α -decay superfluid effects 3=19805
 $Cm^{242-248}$ 4=6299
 Cm^{244} , 1042 keV state 3=22314
 Co^{55} 1=13684
 Co^{55} , β - γ coincidences 3=6192
 Co^{58} 2=20552
 Co^{58} 4=19719
 Co^{58} , allowed β^+ decay, higher-order effects 1=2185
 Co^{57} 1=16979
 Co^{57} 3=17431
 Co^{58} 3=649
 Co^{58} , β -decay 0=8963
 Co^{58} , to Fe^{58} , second 2^+ 4=15159
 $Co^{58, 60}$ 0=8963

Radioactivity—contd

decay schemes—contd

Co^{59} 1-forbidden transition probabilities, calc. 1=17042
 Co^{60} 1=17121
 Co^{60} , β -decay, β - γ correl. with electron velocity 3=6204
 Co^{60} , β - γ correl. 0=13200
 Co^{60} disintegration function 1=19376
 Co^{60} , γ - γ coincidences 1=7011
 Co^{60} , twice-forbidden β -transition to Ni^{60} , intensity 1=10981
 Cr^{51} , γ -ray spectra 3=22330
 Cr^{51} , 750 keV state 3=10258
 Cr^{54} , up to 3 MeV excitation 2=452
 Cs fraction, from U proton fission 3=24995
 Cs^{128} 1=8637
 Cs^{129} 1=5868
 Cs^{131} 1-forbidden transition probabilities, calc. 1=17042
 Cs^{131} , 1S electron capture, internal bremsstrahlung 2=5860
 Cs^{132} 1=13749
 Cs^{132} 2=22767
 Cs^{132} 3=10295
 Cs^{132} , half-life and γ -ray emission 0=15560
 Cs^{133} , γ - γ correl. 1=7351
 Cs^{133} , influence of 1 forbiddenness on 82 keV transition 0=5668
 Cs^{133} 1-forbidden transition probabilities, calc. 1=17042
 Cs^{134} 0=2657
 Cs^{134} 2=20552
 Cs^{134} 3=24903
 Cs^{134} 4=1046
 Cs^{134} 4=6231
 Cs^{134} , β - γ , circular-polarization ang. corr. 1=19405
 Cs^{134} , by γ - γ ang. correl. 3=17440
 Cs^{135} , 53 min isomer 2=18276
 Cs^{137} , Auger 1=7354
 Cs^{137} , internal conversion coeffs. 2=1848
 $Cu^{59} \rightarrow Ni^{59}$ 2=12167
 Cu^{65} , K fluorescence coeff. 3=7993
 Cu^{66} 0=13173
 Cu^{68} 1=13748
 Cu^{68} 4=15187
 Dy , conversion electron spectra 2=18302
 Dy^{151-53} , α -decay 4=19733
 Dy^{153} 3=17443
 $Dy^{153}, ^{155}, ^{157}$ from conversion electron coincidences 3=8047
 Dy^{155} 2=20537
 Dy^{155} , positron spectrum 3=19823
 $Dy^{155}, ^{157}$ 1=10958
 $Dy^{155}, ^{157}$ 1=3426
 Dy^{157} , to levels in Tb^{157} 2=22342
 Dy^{159} 0=20390
 Dy^{160} 2=22776
 Dy^{160} , relative transition probabilities 1=8663
 Dy^{162} 1=8622
 Dy^{165} 3=10306
 Dy^{165} , β decay 1=12179
 Dy^{165} , ground state 3=655
 Dy^{165m} 0=9600
 Dy^{166} 0=13175
 Dy^{166} 1=17059
 Dy^{166} , K = 0 rotational band in Ho^{166} 1=8601
 Dy^{166} , transitions in Ho^{166} 4=19735
 $Dy^{152} \rightarrow Tb^{152} \rightarrow Gd^{152}$ 2=14050
 E^{253} 1=8660
 E^{253} , α decay, preferential polar emission rel. to temp. 3=4608
 Er^{158} 2=12152
 $Er^{158} \rightarrow Ho^{158} \rightarrow Dy^{158}$ 3=10308
 $Er^{159} \rightarrow Ho^{159} \rightarrow Dy^{159}$ 3=4597
 $Er^{160}, ^{161}, ^{158} \rightarrow Ho^{160}, ^{161}, ^{158} \rightarrow Dy^{160}, ^{161}, ^{158}$ 3=10307
 Er^{161} 0=20383
 $Er^{161} \rightarrow Ho^{161}$ 3=10308
 Er^{161} , 3.1 hr 1=2196
 Er^{163} , 5/2 - [523] - 7/2 - [523] electron capture transition 4=3613
 Er^{171} 0=17565
 Er^{172} 1=8639
 Er^{172} 1=19394
 $Er^{159} \rightarrow Ho^{159} \rightarrow Dy^{159}$ 2=5857
 $Er^{173} \rightarrow Tm^{173}$ 1=10977
 Es^{254} , 39.3 hr, β -decay 2=18287
 Eu isotopes, neutron deficient, α -activity 3=2413

Radioactivity—contd

decay schemes—contd

Eu¹⁴⁵ from γ 's 3=8044
 Eu¹⁴⁵⁻⁷ 1=13750
 Eu^{145,147} 4=6237
 Eu¹⁴⁶ 4=22076
 Eu¹⁴⁶, γ -decay 3=12595
 Eu¹⁴⁶, γ - γ directional correls. 3=24905
 Eu¹⁴⁷ 2=13988
 Eu¹⁴⁷ 3=10298
 Eu¹⁴⁷, electron capture decay 2=14047
 Eu^{147,148} 2=16373
 Eu¹⁴⁸ 3=15117
 Eu¹⁴⁸ 4=6291
 Eu¹⁴⁸, levels in Sm¹⁴⁸ 2=7946
 Eu¹⁴⁸ 3=8045
 Eu¹⁴⁹, electron capture 2=1844
 Eu¹⁴⁹, to Sm¹⁴⁹ 2=5865
 Eu¹⁴⁹, to Sm¹⁴⁹, resonance absorption of 22 keV γ -ray 2=22744
 Eu¹⁵⁰ 1=13751
 Eu¹⁵⁰ 3=19822
 Eu¹⁵⁰, to Sm¹⁵⁰ and Gd¹⁵⁰ 2=14000
 Eu¹⁵² 0=20411
 Eu¹⁵² 1=5860
 Eu¹⁵² 1=19407
 Eu^{152m} 3=15085
 Eu¹⁵² β^- decay 1=638
 Eu¹⁵², β - γ directional correlation 0=5705
 Eu¹⁵², E2 K conversion coeffs. 3=2411
 Eu¹⁵², interpretation of 1483 keV β -decay 2=7945
 Eu¹⁵², mono-energetic positron 2=10053
 Eu¹⁵², positron emission, monoenergetic 4=22077
 Eu¹⁵², to Sm¹⁵², monoenergetic β^+ 1=19401
 Eu^{152,154}, β -decay 4=19728
 Eu^{152,154}, first-forbidden β -decay, nuclear matrix elements 4=15192
 Eu^{152m} 0=4069
 Eu¹⁵⁴ 1=663
 Eu¹⁵⁴ 1=17044
 Eu¹⁵⁴, β - γ directional correlation 2=406
 Eu¹⁵⁵ 1=656
 Eu¹⁵⁶, number of photons per decay 3=8041
 Eu¹⁵⁶ 1=17021
 Eu¹⁵⁶, β -decay 2=1801, 3481
 Eu¹⁵⁶, beta decay 3=10299
 Eu¹⁵⁷, from β -decay 4=19731
 Eu¹⁵⁷, rel. to Gd¹⁵⁷ 0.46 μ sec isomer 4=15164
 Eu¹⁶⁰ 1=17113
 Eu¹⁴⁷ to Sm¹⁴⁷ 2=5866
 Eu¹⁴⁷ to Sm¹⁴⁷ 4=27997
 Eu^{152,154} to Sm¹⁵² 0=9566
 F¹⁷, β^+ decay 4=9447
 F¹⁹, γ -decay for 6 levels 2=3574
 F²⁰ 4=6353
 F²⁰, β -decay, β - γ correl. 3=6203
 F²¹, β^- decay 3=12621
 Fe 1=13651
 Fe⁵⁶, 1st excited state 3=17407
 Fe⁵⁷ 1=8609
 Fe⁵⁷ 1-forbidden transition probabilities, calc. 1=17042
 Fe⁵⁹ 0=11378
 Fe⁵⁹ 2=20552
 Fe⁵⁹ 3=648
 Fe⁶⁰, γ - γ ang. correl. meas. of 0.337 \rightarrow 1.10 MeV cascade 4=1043
 Fe⁶⁰, γ -spectroscopic enquiry 1=13753
 Fe⁶⁰, in supernovae 2=5757
 Fm²⁵⁵, α -decay 4=9462
 Ga⁶⁴, β^+ decay 0=5699
 Ga⁶⁵ 1=648
 Ga⁶⁸ 1=13663
 Ga⁶⁸ 0=13173
 Ga⁶⁸ 2=16345
 Ga⁷¹, K fluorescence coeff. 3=7993
 Ga⁷² 4=22066
 Ga⁷², β -decay 4=19728
 Ga⁷², β - γ correlations 4=17091
 Ga⁷², nuclear isomers 2=18275
 Ga⁷⁴ 0=15545
 Ga⁷⁶ 1=17113
 Gd isotopes, neutron deficient, α -activity 3=2413

Radioactivity—contd

decay schemes—contd

Gd(n, γ) reactions, γ rays and conversion electrons 4=6239
 Gd¹⁴⁶ \rightarrow Eu¹⁴⁶ \rightarrow Sm¹⁴⁶ 0=4060
 Gd^{146,147,149}, by β - γ coincidence study 2=18258
 Gd¹⁴⁷ 3=10300
 Gd¹⁴⁹ 3=10301
 Gd¹⁵¹ electron capture 3=24906
 Gd¹⁵², β - γ ang. correl. 3=17417
 Gd¹⁵³ 0=17543
 Gd¹⁵³ 1=615
 Gd¹⁵³ 4=30326
 Gd¹⁵⁵ 2=3480
 Gd¹⁵⁹ 2=18307, 20537
 Gd¹⁵⁹ \rightarrow Tb¹⁵⁹ 4=6292
 Gd¹⁵⁹, and Tb¹⁵⁹ levels 3=22340
 Ge⁶⁶ 1=3412
 Ge⁶⁹ 4=9403
 Ge⁷¹, isomeric γ -decay 3=15134
 Ge⁷², elec. monopole transitions 2=3529
 Ge⁷⁴ 2=16321
 Ge⁷⁷ 4=3604
 H⁵ 3=12620
 Λ He, π^+ mesonic decay 3=19757
 He⁴ \rightarrow π^+ + H³ + n 3=7976
 Λ He³, non-mesonic 3=6146
 He⁶, electron loss after β^- decay 3=10182
 He⁶, ionization of recoil Li 4=17087
 He⁶ \rightarrow Li⁶ + β^- , from B¹¹ (γ , 3p)He⁶?, 320 MeV 3=15136
 Hf¹⁶⁰⁻⁷⁰ 1=8645
 Hf¹⁷² 2=10016
 Hf¹⁷³ 2=10015
 Hf¹⁷⁵, coincidence study 2=5863
 Hf¹⁷⁷ 2=18259
 Hf¹⁷⁸, nuclear isomers 2=18275
 Hf^{180m} 1=4849
 Hf^{180m} 1=19410
 Hf¹⁸¹, coincidence study 2=5845
 Hf¹⁸¹, levels in Ta¹⁸¹ 1=8627
 Hf¹⁸², new nuclide 1=12169
 Hg, neutron deficient isotopes 3=659
 Hg¹⁸³⁻⁸⁰ 1=13686
 Hg¹⁸⁸⁻⁹⁰ 1=13804
 Hg¹⁹² 1=9829
 Hg¹⁹² 3=22350
 Hg¹⁹⁴ 4=28002
 Hg¹⁹⁴, γ -decay 2=7958
 Hg^{195m} 2=373, 3484
 Hg^{197,197m}, produced by He-bombardments 4=9422
 Hg^{197m}, ang. correl. in conversion electrons- γ -cascade, time-dependent attenuations 1=3421
 Hg²⁰³ 4=3620
 Hg²⁰³, β -decay 3=10314
 Hg²⁰³, beta decay, rel. to conversion electron transverse polarization 3=4603
 Hg²⁰³, lifetime of Tl²⁰³ 279 keV level 1=7358
 Hg-Tl isotopes, β -decay systematics, break at Tl²⁰² 1=8664
 Ho¹⁶⁰ \rightarrow Dy¹⁶⁰, from conversion electron coincidences 3=15154
 Ho¹⁶⁶, γ ang. correl., differential, 1380-81 keV cascade, statistical perturbation effects 3=22343
 Ho¹⁶⁶, 60 keV transition, Er γ -spectral data 4=12156
 Ho¹⁶² 1=8622
 Ho¹⁶⁵, Coulomb excited 4=22043
 Ho¹⁶⁶ 1=13659
 Ho¹⁶⁶, β - γ correlation 4=17101
 Ho¹⁶⁵, β -ray longitudinal polarization 1=19396
 Ho¹⁶⁶, γ - γ correl. in mag. field, Er¹⁶⁶ gyromagnetic ratio 1=2160
 Ho¹⁶⁶, high energy gamma-ray spectrum 1=8655
 Ho¹⁶⁶, internal conversion, 94 keV transition, penetration effects 3=6176
 Ho¹⁶⁶ isomer, > 30 yr 2=7939
 Ho¹⁶⁶, levels in Er¹⁶⁶ 2=5846
 Ho¹⁶⁶, 1380-80 keV γ -decay 4=12157
 Ho^{166m}, orientated, β -emission 1=8643
 Ho¹⁶⁸ 1=17113
 Ho¹⁶⁹ 4=9454
 Ho¹⁷⁰ 1=17113
 I 1=13651
 I¹²³ 0=4073

Radioactivity—contd

decay schemes—contd

- I^{124} 0=20415
 I^{124} , search for β^- branch 1=17022
 I^{125} , electron capture ratio 4=12185
 I^{126} 2=1841
 I^{128} , 1.2 MeV β -decay 2=402
 I^{131} 1=13757
 I^{131} 3=10294
 I^{131} 3=15152
 I^{131} 4=19719
 I^{131} , γ -spectr. study 2=10075
 I^{131} , low-energy gamma-ray region 1=8654
 I^{132} 1=9847
 I^{132} , γ -cascades 2=16336
 I^{132} , internal conversion 3=22335
 I^{132} , internal conversion studies 3=2409
 I^{134} 1=8640
In 4.5 min activity identified as In^{118m} 1=7344
 In^{107} , positron emission and electron capture 3=19819
 In^{108} , removal of In^{110} contamination effects 3=15150
 $In^{108,109,112}$ 2=18253
 In^{110} , β - and γ -ray spectroscopy 2=12177
 In^{110m} 1=17055
 In^{111} , 173–247 keV γ - γ cascade, ang. correlation 4=19466
 In^{114} , internal conversion, double, 192 keV transition 3=6170
 In^{114} polarized, β -decay, asymmetry, in alloy with Fe 3=2417
 In^{114m} , two-quantum decay 3=2388
 In^{115} , fourth-forbidden β -decay, end-point energy 1=8638
 In^{116} , 54 min 0=9601
 In^{116} , isomers 2=18275
 In^{118} , 5.1 sec 1=7344
 $In^{118,120,122}$ 4=22071
 $In^{119,119m}$ 2=1800
 $In^{119,119m}$, high-lying states in Sn^{116} 2=5807
 In^{119g} 0=11352
 $In^{121g,m}$ 0=11352
 $In^{123g,m}$ 0=11352
 In^{124} 4=27994
 Ir^{188} , 15.8 hr 3=10313
 Ir^{188} 2=18263
 Ir^{190} 0=17564
 Ir^{192} 2=22752
 Ir^{192} 4=9458
 Ir^{192} , β -decay, matrix elements 3=12645
 Ir^{192} , β and electron capture decay, L and M conversion ratios in Os^{192} and Pt^{192} 0=20407
 Ir^{192} , internal conversion coeffs. 2=1848
 Ir^{192} polarized, β -decay, asymmetry, in alloy with Fe 3=2417
 Ir^{193} 1-forbidden transition probabilities, calc. 1=17042
 Ir^{194} 0=4018
 Ir^{194} 1=654
 Ir^{194} , γ -rays, 860 to 2130 keV, relative intensities 4=9420
 Ir^{194} , isomeric transition, 47 sec 3=2393
 Ir^{194} , isomers 2=18275
 Ir^{194} , triple isomerism, decay 1=8631
 Ir^{195} 2=20569
 $Ir^{195,197}$ 1=13713
 K^- mesic atoms 3=17546
 K^{40} γ : β branching ratio 1=13734
 K^{41} , 8.92 MeV level 4=3565
 K^{42} , levels in Ca^{42} 1=7356
 K^{42} , $2^- \rightarrow 2^+$, β - γ (circularly polarized) correl. 4=15186
 $K^{44}-Ca^{44}$ 1=12170
 K^{45} 4=30321
 K^{47} 4=12179
 $Kr^{74,76}$ nuclides 0=20395
 Kr^{82} , γ -cascades, following Br^{82} decay 4=22030
 Kr^{85} 2=5847
 Kr^{85} branching ratio measurements of β - and γ -rays 1=10932
 Kr^{85} , γ branching ratio 4=12149
 Kr^{85} , γ -ray quantum yield 1=19418
 Kr^{90} , 33 sec, fission product 4=22067
 La^{131} 0=4057
 La^{137} 1-forbidden transition probabilities, calc. 1=17042
 La^{140} , β -decay 4=19728
 La^{140} , β -decay, nuclear matrix elements 3=6207
 La^{140} , γ -decay 1=17060
 La^{142} , 92.5 min 4=17097

Radioactivity—contd

decay schemes—contd

- Λ Li, muonic decay 3=19757
 Li^8 0=9555-6
 Li^8 , β - α ang. correl., rel. to theory 2=3508
 $Li^8 \rightarrow Be^8 + \beta^-$, from $B^{11}(\gamma, 2p)Li^8$, 320 MeV 3=15136
 $Li^9 \rightarrow Be^9 + e^- \rightarrow He^4 + He^4 + n + e^-$ 1=11028
 $Li^9 \rightarrow Be^9 + e^- \rightarrow He^4 + He^4 + e^-$ 1=11028
 Lu^{168} 0=9569
 Lu^{168} 1=10975
 Lu^{168-70} 1=8645
 Lu^{169} and Lu^{170} , conversion electron spectra 1=13737
 $Lu^{169,170}$, conversion electrons, > 1000 keV 4=28000
 $Lu^{169,171}$ 1=649
 $Lu^{170,172}$, relative conversion intensities 2=16366
 Lu^{172} 0=9570
 Lu^{172} , conversion electrons 750-2560 keV 4=27999
 Lu^{174} 0=4059
 Lu^{174m} 4=6242
 Lu^{175} , internal conversion, 114 keV transition, penetration effects 3=6176
 Lu^{176m} , β -branching ratio 4=9456
 Lu^{177} 4=12158
 Lu^{177} , β -decay to Hf^{177} 2=10041
 Lu^{177} , to levels in Hf^{177} 1=17027
 Lu^{178} 1=5926
 Lu^{178} , β -ray, γ -ray energy 4=25356
 Lu^{179} 3=10311
 Lu^{180} 1=17113
 $Lw^{257}(\text{element 103})$ 1=13700
 Mg 1=13651
 Mg^{23} 0=425
 Mg^{23} , branching study 0=13181
 Mg^{24} 2=1805, 3573
 Mg^{26} 1=7377
 Mg^{27} 3=2405
 Mg^{27} 3=6199
 Mg^{27} 4=30320
 Mg^{27} , from $MgO + d$, 9 MeV, γ - γ coincidence, absence of 0.84-0.81 MeV or 0.84-1.01 MeV cascades 3=24892
 Mn 1=13651
 Mn^{51} , positron decay 1=12174
 $Mn^{51}(\beta^+)Cr^{51}$, positron branching 4=19718
 Mn^{51} β - γ coincidences 3=6192
 Mn^{52} , β - γ circ. polarization correl., Fermi and GT contrib. 2=22768
 Mn^{52} , β - γ , circular-polariz. ang. corr. 1=19405
 Mn^{52} , Fermi matrix element, empirical and calc. 0=9576
 Mn^{52} , levels in Cr^{52} 2=17929
 Mn^{53} , positron decay 1=12175
 Mn^{53m} , positron decay 1=12175
 $Mn^{54,56}$ 0=8963
 Mn^{55} , K fluorescence coeff. 3=7993
 Mn^{56} 0=9515
 Mn^{56} 4=12170
 Mn^{56} , β -decay, β - γ correl. 3=6203
 Mn^{56} , from β , γ spectra and coincidences 3=8032
 Mn^{56} , β -ray longitudinal polarization 1=19396
 Mo^{93} , branching ratios 4=17093
 Mo^{94} , γ - γ ang. correl. 1=9833
 Mo^{96} 2=3485
 Mo^{99} , and γ -ray number 3=8037
 N^{13} 3=10284-5
 N^{12} and $B^{12} \rightarrow C^{12}$, β -ray spectra, test of conserved vector current theory 3=15137
 N^{14} , 5.83 MeV state 3=17401
 N^{14} , 9.17 MeV level 0=17562
 N^{14} , 10.43 MeV state, γ -decay 4=17025
 N^{14} , 10.22 MeV level 3=17399
 N^{15} , 7.57 MeV level, γ -decay 2=18260
 N^{16} 0=2635
 N^{18} 1=9826
 N^{18} 1=9830
 N^{17} , delayed neutrons 1=7362
 N^{24} , β -decay, 2.5–5.5 MeV range 1=17063
 Na 1=13651
 Na^{21} , branching study 0=13181
 Na^{21} , 3.56 MeV level 4=12143
 Na^{22} 0=15547
 Na^{23} , autoionization and X, K, L line intensities 1=8641
 Na^{23} decay, β + γ ang. correlation 1=13725

Radioactivity—contd

decay schemes—contd

Na²³ 0=13206
 Na²⁴, β decay, circular polarization 3=17428
 Na²⁴, β - γ circular-polarization ang. corr. 1=19405
 Na²⁴, β -ray longitudinal polarization 1=19396
 Na²⁴, Fermi matrix element, empirical and calc. 0=9576
 Na²⁴, high energy γ -rays 2=18308
 Na²⁴, isomers 2=18275
 Na²⁴-Al²⁹, β -decay 2=1834
 Na²⁶ 1=7347
 Nb⁹⁰ 0=1363
 Nb⁹⁰, isomeric γ -decay 3=15134
 Nb⁹², 191 min activity 0=17563
 Nb⁹² \rightarrow Zr⁹² 2=18292
 Nb⁹⁴ 2=16351
 Nb^{94m} 2=16351, 18301
 Nb⁹⁴, ^{94m} 3=6168
 Nb⁹⁸ 3=22305
 Nb⁹⁸, levels in Mo⁹⁶ 2=3485
 Nb⁹⁸ 1=17113
 Nb¹⁰⁰ 1=17113
 Nd¹⁴⁰ \rightarrow Pr¹⁴⁰ \rightarrow Ce¹⁴⁰, β^+ and Auger electron spectra 1=13721
 Nd¹⁴¹ 0=5727
 Nd¹⁴¹ 3=17441
 Nd¹⁴¹, revision due to new level in Pr¹⁴¹ 1=11030
 Nd¹⁴⁴ 3=12633
 Nd¹⁴⁷ 0=427
 Nd¹⁴⁷ 1=8649
 Nd¹⁴⁷ 1=17040
 Nd¹⁴⁷ 4=25352
 Nd¹⁴⁹ \rightarrow Pm¹⁴⁹ 4=17098
 Ne¹⁷, delayed p emission 4=25343
 Ne^{17*} \rightarrow F^{17*} + β^+ \rightarrow O¹⁶ + p 4=25342
 Ne¹⁸ 1=4850
 Ne¹⁸, states in F¹⁸ 1=5841
 Ne²⁰ 0=13206
 Ne²⁰ 2=3623
 Ne²⁰ \rightarrow α + O¹⁶ 2=1807
 Ne²⁰, anomalously weak ground-state transition from 13.51 MeV state 0=20442
 Ne²⁰, γ -emission 2=1810
 Ni¹², branching fraction to C¹² 7.6 MeV state 2=16353
 Ni⁵⁸ 3=15143
 Ni⁵⁷, by scintillation techniques 3=2386
 Ni⁶⁰, 4⁺-0⁺ cross-over transition 1=2189
 Ni⁶⁵ 3=17434
 Ni⁶⁵, β - γ coincidences 3=6192
 Ni⁶⁵, 2.6 hr 1=655
 Np²³⁵ 0=15541
 Np²³⁷ 2=3500
 Np²³⁷ 3=4605
 Np²³⁷, M₂ γ -transition probab. 1=12178
 Np²³⁸ \rightarrow Pu²³⁸ 1=5862
 Np²³⁹ 0=2647, 5700
 Np²³⁹, high-energy γ -rays 1=19419
 Np²³⁹ \rightarrow Pu²³⁹, β - γ coincidence study 2=7935
 Np²⁴⁰ 7.3 min state 0=1380
 O¹⁴, β^+ longitudinal polarization 1=3415
 O¹⁴, Coulomb effects and β -decay matrix element 3=647
 O¹⁴, decay energy, accurate value 1=4847
 O¹⁶, α -decay, spin and parity conservation 1=19387
 O¹⁶, e.m. transitions 4=6220
 O¹⁶ 8.88 MeV (2⁻) state parity-forbidden α -decay 1=8634
 O¹⁶, elec. monopole transitions 2=3529
 O¹⁶, fourth excited state, search for low-energy γ -rays 0=4078
 O¹⁶, giant dipole states, in (γ , n) reaction 4=25374
 O¹⁶, intermediate, in C¹²(α , 4α) reaction 2=3619
 O¹⁶, intermediate, in C¹²(α , 4α) reaction 3=4671
 O¹⁶, monopolar pair angular correlations 4=6218
 O¹⁶, monopolar transitions, double γ emission 4=6219
 O¹⁶, 7.12 MeV, γ -branching ratio 2=16326
 O¹⁶, 6.92 and 7.12 MeV branching ratios 2=16327
 O¹⁹ 0=2635
 O¹⁹, β -decay 0=9560
 O²⁰ 0=5731
 Os^{182, 183} 0=7524-5

Radioactivity—contd

decay schemes—contd

Os^{181, 181m} 3=10312
 Os¹⁹² 2=22738
 Os¹⁹⁴ 4=25359
 P²⁹ 1=8588
 P³⁰ 1=8576
 P³⁰ 2=5915
 P³⁰, β^+ decay 4=9447
 P³¹, e.m. transitions 2=22743
 P³¹, excited states 2=22742
 P³¹, gamma-decay 2=3567
 P³² β -decay 0=13196
 P³², β -decay, deviations from allowed form 3=6201
 P³², β -decay and internal bremsstrahlung 2=10045
 P³², Kurie plots, nonlinearity 1=17024
 P³³, slow electrons due to ionization 3=10286
 Pa²²⁸ \rightarrow Th²²⁸ 1=4832
 Pa²³¹ 2=16344
 Pa²³¹, α -decay, fine structure 2=3501
 Pa²³¹, α -decay, fine structure 3=2420
 Pa²³¹, conversion electron and γ -spectra 4=17106
 Pa²³¹, M₂ γ -transition probab. 1=12178
 Pa²³² 2=3490
 Pa²³² 3=4581
 Pa²³², β -decay 3=12604
 Pa²³³, beta-decay 3=10318
 Pa²³³, β -decay, low energy electron spectrum 0=11371
 Pa²³³, levels in U²³³ 2=5814
 Pa²³⁴ 0=17531
 Pa²³⁴ 3=2395
 Pa²³⁴, β -decay 2=7944
 Pa²³⁴, internal conversion coeff. of 92 keV radiation 0=15552
 Pa²³⁴, 1.14 min isomer UX₂ 3=15158
 Pa²³⁴, (UX₂) 0=1386
 Pa²³⁴, (UZ) 0=2638
 Pa²³⁴(UX₂), internal conversion coeffs., L, 63, 29 keV 3=7998
 Pa²³⁷ 0=9562
 Pb, neutron deficient isotopes 3=659
 Pb^{197m, 199m}, internal decays 2=18305
 Pb²⁰⁰ 3=6210
 Pb²⁰¹, conversion electron obs. 4=19737
 Pb²⁰³ 1=19415
 Pb²⁰³ 2=3515
 Pb²⁰³, L_T/K ratio and decay energy 1=19415
 Pb²⁰⁵, 13₂ state 0=9583-4
 Pb²⁰⁵, partial decay scheme 4=3621
 Pb^{205m}, from Bi²⁰⁵ decay 0=9571
 Pb²⁰⁶, γ - γ directional correlations 2=1842
 Pb²⁰⁸, 3.403 MeV state 1=9832
 Pb²¹⁰, alpha-branching 2=10035
 Pb²¹⁰, probability for α -decay, possible detection 1=8664
 Pb²¹¹ 2=20549
 Pb²¹¹, β^- emission 3=10315
 Pb²¹² 0=10967
 Pb²¹² 1=2197
 Pb²¹² \rightarrow Bi²¹² 1=17039
 Pb²¹² descendants, γ -ray intensities 0=9607
 Pd¹⁰⁰, γ -decay 4=22033
 Pd¹⁰⁰ rel. to Ru¹⁰⁰ levels 4=22032
 Pd¹⁰⁷, extinct radionuclide, decay to Ag¹⁰⁷ in iron meteorite 1=2608
 Pd¹⁰⁹ 2=5849
 Pd¹¹¹, two isomers 0=11354
 Pm¹⁴¹, isomeric γ -decay 3=15134
 Pm^{143-4, 148} 1=650
 Pm¹⁴⁴, electron capture decay 1=16988
 Pm¹⁴⁴ \rightarrow Nd¹⁴⁴ 0=428
 Pm¹⁴⁴, oriented in Nd ethyl sulphate 1=3587
 Pm¹⁴⁵ 2=18280
 Pm¹⁴⁷ 0=7512
 Pm¹⁴⁷, γ -transitions 1=17041
 Pm¹⁴⁸ 2=16369
 Pm¹⁴⁸, β -decay matrix elements 3=8043
 Pm¹⁴⁸ \rightarrow Sm¹⁴⁸ 3=19821
 Pm^{148, 148m}, β -decay 3=15116
 Pm^{148, 148m}, levels in Sm¹⁴⁸ 2=7946
 Pm^{148m} 2=16369
 Pm¹⁴⁹ 0=17532

Radioactivity—contd

decay schemes—contd

- Pm¹⁴⁹ 1=640
 Pm¹⁴⁹ and nuclear alignment of isotopes 1=8633
 Pm¹⁵¹ 4=12186
 Pm¹⁵¹, absence of 1.5 MeV γ -transition 4=6289
 Pm¹⁵¹ β -decay, Sm¹⁵¹ levels, int. conversion coefft. 4=17064
 Pm¹⁵¹, from energy and coincidence meas. 3=8042
 Pm¹⁵¹ and nuclear alignment of isotopes 1=8633
 Pm¹⁵³ 3=4595
 Po, light isotopes 0=7589
 Po, particles lighter than α , origins from (α , p) reactions discounted 1=7338
 Po^{195,196} 0=7591
 Po^{199,200,201,203}, α -decay to electron capture ratio 3=24914
 Po^{200,201,203}, α -decay to electron capture ratios 3=10316
 Po²¹⁰, α -decay, energy precision meas. 1=19461
 Po^{211m,212m} 2=18268
 Po²¹³ 1=5821
 Po²¹² 2=3534
 Po^{212,214}, α barrier penetrabilities, calc. 1=4843
 Po²¹⁴ 0=9604
 Pr¹³⁸ 1=13772
 Pr¹⁴⁰ 0=15562
 Pr¹⁴⁰, K/ β^+ ratio 4=6288
 Pr¹⁴² 2=1850
 Pr¹⁴³, $2^- \rightarrow 2^+$ first-forbidden β -decay 4=22074
 Pr¹⁴³, autoionization and X, K, L line intensities 1=8641
 Pr¹⁴³, 57 keV first excited state 3=4575
 Pr¹⁴³ 1-forbidden transition probabilities, calc. 1=17042
 Pr¹⁴³, 351 keV state, β - γ coincidence 1=17038
 Pr¹⁴⁴, β -decay 3=12632
 Pr¹⁴⁴, β - γ correlation 2=3526
 Pr¹⁴⁴, β - γ correlation 3=2410
 Pr¹⁴⁴, β - γ correlation 4=17001
 Pr¹⁴⁴, and γ -ray number 3=8039
 Pr¹⁴⁴, ground state, β decay, β - γ directional correl., energy depend. 3=19753
 Pr¹⁴⁴ \rightarrow Nd¹⁴⁴, β , 2.3 MeV, and Pr¹⁴⁴ spin 4=3611
 Pt, α -decay 3=4602
 Pt isotopes, α decay 3=17444
 Pt isotopes, short-lived 3=8052
 Pt, neutron deficient isotopes 3=659
 Pt¹⁸⁸ 3=8016
 Pt¹⁸⁸, β - γ coincidences 4=12176
 Pt¹⁸⁹ electron capture decay 4=12161
 Pt¹⁸⁹, Ir¹⁸⁹ \rightarrow Os¹⁸⁹ 4=17104
 Pt¹⁹¹ 2=12160
 Pt¹⁹² 2=10077
 Pt¹⁹², gamma-decay 2=5804
 Pt¹⁹⁷ 3=24913
 Pt¹⁹⁹ 4=15169
 Pt¹⁹⁹, and Au¹⁹⁹ low levels 3=17422
 Pt²⁰¹ 2=20540
 Pt²⁰¹, 2.5 min 4=3619
 Pu, particles lighter than α , origins from (α , p) reactions discounted 1=7338
 Pu²³⁸, α -decay superfluid effects 3=19805
 Pu²³⁹, α -decay 2=3503
 Pu²³⁹, α -decay 3=4606
 Pu²³⁹, fine structure of α -groups 3=10319
 Pu²³⁹ \rightarrow U²³⁵ 3=15160
 Pu²⁴¹ 4=19739
 Ra^{222,224,226} 0=13184
 Ra²²³, decay products 0=17525
 Ra²²³, M₂ γ -transition probab. 1=12178
 Ra²²⁸ 0=7511
 Ra²²⁸ 2=389
 RaE, β -decay, shell model invest. 3=8055
 RaE(Bi²¹⁰), β -decay, shell prediction rel. to experimental matrix elements det. 1=19397
 Rb⁸², 1.25 min. 2=20567
 Rb⁸⁴ \rightarrow Kr⁸⁴, β decay, calc. 3=17435
 Rb^{84,86}, 1st-forbidden β -decays 3=22331
 Rb⁸⁵ 1-forbidden transition probabilities, calc. 1=17042
 Rb⁸⁶ 2=5849
 Rb⁸⁶, β - γ directional correlation 4=9449
 Rb⁸⁶ \rightarrow Sr⁸⁶, β decay, calc. 3=17435
 Rb⁸⁷ 2=3510
 Rb⁸⁷, third-forbidden β -spectrum, shape analysis 0=13194

Radioactivity—contd

decay schemes—contd

- Rb⁹⁰ 4=22068
 Re¹⁸⁴ 3=10271
 Re¹⁸⁴, from e⁺, e⁻ conversion spectra, from W + d, 13.6 MeV 3=24910
 Re¹⁸⁶ 4=25358
 Re¹⁸⁶ β - γ correlation measurements 1=9835
 Re¹⁸⁶ polarized, β -decay, asymmetry, in alloy with Fe 3=2417
 Re¹⁸⁶, 631-137 keV γ -decay 4=12157
 Re^{186,188}, first-forbidden β -decay, nuclear matrix elements 4=15192
 Re^{186,188}, first-forbidden $1^-(\beta^-)0^+$ and $1^-(\beta^-)2^+(\gamma)0^+$ transitions 4=3617
 Re¹⁸⁷, γ - γ ang. correls. 3=22348
 Re¹⁸⁷, in natural Re, possible atomic decay 2=3511
 Re¹⁸⁸ 0=5733
 Re¹⁸⁸ 2=18263
 Re¹⁸⁹ 4=3618
 Re¹⁸⁹, γ - γ coincidence 3=6209
 Rh⁹⁷, β - and γ -ray spectra 3=2408
 Rh⁹⁷, positron emission and electron capture 2=16357
 Rh¹⁰⁰ rel. to Ru¹⁰⁰ levels 4=22032
 Rh¹⁰¹ 1=667
 Rh¹⁰² 1=13718
 Rh¹⁰³ 2=22776
 Rh¹⁰⁴, β -decay, 2.5 MeV 2=12156
 Rh¹⁰⁴, β , γ transitions, coincidence, spectra 4=1045
 Rh¹⁰⁴, energy levels of Pd¹⁰⁴ product nucleus 4=17094
 Rh^{104m} 2=20525
 Rh^{104m}, 4.4 min isomer, gamma-decay 3=4569
 Rh¹⁰⁶ β -decay 4=19724
 Rh¹⁰⁶ 0=15563
 Rh¹⁰⁶ 2=5872
 Rh¹⁰⁶, levels in Pd¹⁰⁶ 1=8652
 Rh¹⁰⁶ \rightarrow Pd¹⁰⁶ 0=11358
 Rh^{106m} \rightarrow Pd¹⁰⁶ 0=11359
 Rh^{107,108} 2=20539
 Rh¹¹⁰, γ -decay, 5.5 MeV 3=24894
 Ru⁹⁸, β - and γ -activity suggested new scheme 3=19818
 Ru¹⁰⁵ 2=5849
 Ru¹⁰⁵, levels in Rh¹⁰⁵ 0=11357
 Ru¹⁰⁵ \rightarrow Rh¹⁰⁵ 0=11385
 Ru^{107,108} 2=20539
 S³⁰ 1=7336
 S³¹, branching study 0=13181
 S³², excited, γ decay, from P³¹(p, γ)S³² 3=22377
 S^{32,34}, proton bombarded 2=451
 Sb¹¹³, positron emission, electron capture 2=16358
 Sb¹¹⁵ 2=3532
 1h-Sb¹¹⁶ 1=2190
 5.1h-Sb¹¹⁸ 1=2190
 Sb¹¹⁸, 5 hr, search for β^+ emission 1=2198
 Sb^{118,120}, energy levels in Sn^{118,120} decay 1=16997
 5.8d-Sb¹²⁰ 1=2190
 Sb^{120m}, levels in Sn¹²⁰ 1=622
 Sb¹²², β -decay matrix elements, by orientation in Si 1=12173
 Sb¹²², β -ray longitudinal polarization 1=19396
 Sb^{122m} 3=10264
 Sb^{122m}, isomeric transition 2=5861
 Sb¹²⁴ 1=3420
 Sb¹²⁴, β -decay 4=19728
 Sb¹²⁴, β - γ directional correl. 3=24901
 Sb¹²⁴, first-forbidden β -decay, nuclear matrix elements 4=15192
 Sb¹²⁴, γ - γ correlations, Te¹²⁴ levels 4=17096
 Sb¹²⁴, isomeric levels 2=20560
 Sb¹²⁴, rel. to levels and transitions 4=17061
 Sb¹²⁴, matrix elements including finite size effects 4=22072
 Sb¹²⁴, 2.31 MeV β -transition, tensor type (f B_{ij}) component, matrix elements 1=17034-5
 Sb¹²⁸, 10.8 min 2=18306
 Sc⁴⁰ 2=16374
 Sc⁴¹, β -decay to Ca⁴¹ mirror nucleus 2=16350
 Sc⁴², β^+ decay 2=1929
 Sc⁴², β decay to Ca⁴², anomaly 3=22301
 Sc⁴², β^+ decay 2=3533
 Sc^{42m} 3=10257

Radioactivity—contd

decay schemes—contd

Sc⁴³, β^+ , by coincidence 3=17471
 Sc⁴⁴, β - γ circular-polarization ang. corr. 1=19405
 Sc⁴⁴, Fermi matrix element, empirical and calc. 0=9576
 Sc⁴⁴, levels in Ca⁴⁴ 1=7356
 Sc^{44m} 4=9400
 Sc⁴⁴, 44m 3=12623
 Sc^{44,44m}, produced by He-bombardments 4=9422
 Sc⁴⁵, 1.660 MeV level γ decay, from spectra and coincidences 4=6278
 Sc⁴⁶, β - γ circ. polarization correl. 3=15142
 Sc⁴⁶, β - γ circ. polarization correl. 3=22328
 Sc⁴⁶, β - γ circular-polarization ang. corr. 1=19405
 Sc⁴⁸ 3=10288
 Sc^{48,50,50m} 3=12622
 Sc⁵⁰ 3=7992
 Sc⁶⁰ 3=10287
 Sc^{50m}, 258 KeV γ -ray 3=24894
 Se⁷³, isomeric pair, scintillation spectrometry study 1=8642
 Se^{73m} 1=13756
 Se⁷⁵ 1=17056
 Se⁷⁵, γ -decay 4=9411
 Se⁷⁵, states in As⁷⁵ 2=3533
 Se⁷⁵, transitions of As⁷⁵ 0=13204
 Se⁷⁵ and Sb¹²⁵ 0=2653
 Se^{76,78}, Coulomb excited, γ -decay 4=22029
 Se⁸¹ 0=2658
 Se⁸¹ 1=13756
 Se^{81m, 81} 3=2406
 Se⁸³, β - γ coincidences 3=6192
 Si²⁸ 0=20417
 Si²⁷ 2=1793
 Si²⁷, branching study 0=13181
 Si²⁸ 1=8588
 Si²⁸ 3=19811
 Si²⁸, γ -decay 2=1805
 Si²⁸, suppression of dipole radiation 1=8772
 Si²⁸, γ -ray from Al²⁷(p, γ) 4=28025
 Sm^{138m} 2=383
 Sm¹⁴⁶, γ -decay 4=9411
 Sm¹⁵², excited states 4=22077
 Sm¹⁵², 2⁺ and 4⁺ rotational levels 4=22042
 Sm¹⁵³ 0=2639
 Sm¹⁵³ 1=615
 Sm¹⁵³ 1=13733
 Sm¹⁵³ 1=19366
 Sm¹⁵³ \rightarrow Eu¹⁵³ 2=3528
 Sm¹⁵⁵ 0=9572
 Sn isotopes, β -transitions, theory rel. to exptl. ft values 3=6196
 Sn¹¹³ 1=9842
 Sn¹¹⁵ 2=5808
 Sn¹¹⁶ 0=20408
 Sn¹¹⁸, E2 transition, pair correl. effects 2=384
 Sn¹¹⁹ 1-forbidden transition probabilities, calc. 1=17042
 Sn¹²⁰, E2 transition, pair correl. effects 2=384
 Sn¹²⁰, γ - γ cascade 1=16998
 Sn¹²⁸, 62 min 2=18306
 Sr⁸⁸ 2=3513
 Sr⁸⁵ 2=18300
 Sr^{87m}, 0.65% K-capture branch 0=20392
 Sr⁸⁹, search for 10 day isomer 2=20538
 Sr⁹⁰, β -decay 1=17002
 Sr⁹⁸ 2=20570
 T¹⁸⁰, orientated, β -emission 1=8643
 Ta¹⁷³⁻¹⁷⁵ 0=9605
 Ta¹⁷⁸ 3=15155
 Ta¹⁷⁸, γ -rays following decay 3=24909
 Ta¹⁷⁷, to levels in Hf¹⁷⁷ 1=17027
 Ta¹⁷⁸ 2=12153
 Ta¹⁷⁸, levels in Hf¹⁷⁸ 1=8621
 Ta¹⁷⁸, two-particle states analysis 2=12112
 Ta¹⁸¹, γ - γ angular correl, 133-482 keV 4=9388
 Ta¹⁸¹, hindered E1 decay of 6 keV state 1=8650
 Ta¹⁸² 1=19348
 Ta¹⁸² 4=9457
 Ta¹⁸², γ -decay 3=12601
 Ta¹⁸², γ - γ cascades in W¹⁸² 0=11390
 Ta¹⁸², 115-day, β -decay, revised scheme 4=22079
 Ta¹⁸² \rightarrow W¹⁸², β spectra 4=28001

Radioactivity—contd

decay schemes—contd

Ta¹⁸² \rightarrow W¹⁸², conversion electron spectra 2=22774
 Ta¹⁸² \rightarrow W¹⁸², γ - γ directional correlation 3=4599
 Ta^{182m}, 16 min 1=3404
 Ta¹⁸⁴, β -decay to W¹⁸⁴ 4=17102
 Ta¹⁸⁵ 0=20418
 Tb isotopes, positron decay 1=17031
 Tb^{148m, 151}, α -decay 4=19733
 Tb¹⁵¹ 3=10305
 Tb¹⁵² 2=5867
 Tb¹⁵² \rightarrow Gd¹⁵² 1=2200
 Tb¹⁵⁵ 2=14048
 Tb¹⁵⁶, electron capture decay 2=7922
 Tb¹⁵⁷ 4=9453
 Tb^{157, 158} 2=20551
 Tb¹⁵⁹, Coulomb excited 4=22043
 Tb¹⁶⁰ 4=6293
 Tb¹⁶⁰, β -decay 3=19790
 Tb¹⁶⁰ Dy¹⁶⁰ 3=12599
 Tb¹⁶⁰, K-forbidden β -decay to Dy¹⁶⁰ 4=25355
 Tb¹⁶⁰, transition probabilities in Dy¹⁶⁰ 1=8663
 Tb¹⁶¹ 0=9585
 Tb¹⁶¹, β -decay 2=10010
 Tb¹⁶¹, β disintegration 0=7473
 Tb¹⁶¹ decay, rel. to Dy¹⁶¹ levels 4=25318
 Tb¹⁶¹ \rightarrow Dy¹⁶¹ 2=20562
 Tb¹⁶³ 2=20537
 Tb¹⁸⁰ \rightarrow Dy¹⁸⁰ 0=5712
 Tc⁹², e⁺, γ , and Mo⁹² energy levels 4=19691
 Tc^{93, 95} 2=10079
 Tc⁹⁴, 293 min. 3=15145
 Tc^{94m}, 4.5 hr 2=1840
 Tc⁹⁴ and Tc^{94m}, β^+ and γ rays 4=30323
 Tc⁹⁵ 2=18261
 Tc⁹⁵, γ - γ cascades 1=13730
 Tc⁹⁵ isomer 1=8657
 Tc^{95m, 97m} 0=1377
 Tc⁹⁸ 3=22305
 Tc⁹⁸ 4=30324
 Tc⁹⁸, levels in Mo⁹⁸ 2=3485
 Tc¹⁰³ 4=3606
 Te, neutron deficient isotopes 3=659
 Te¹¹⁶⁻¹¹⁹ 2=1851
 Te¹¹⁷ 3=24902
 Te¹¹⁹ 0=20389
 Te¹¹⁹ 2=14066
 Te¹¹⁹ isomers 3=15151
 Te¹¹⁹ \rightarrow Sb¹¹⁹ and Te^{119m} \rightarrow Sb¹¹⁹ 2=14061
 Te¹²¹ 4=3574
 Te¹²¹ isomers 4=12184
 Te¹²¹ 1-forbidden transition probabilities, calc. 1=17042
 Te¹²¹, positron decay 3=10293
 Te¹²¹ and Te^{121m} 0=20416
 Te¹²⁴ 0=7538
 Te^{129, 129m} 4=19729
 Te¹³¹ 0=11386
 Te¹³¹ 1=13757
 Te¹³¹ 2=20548
 Te^{131m} 1=13694
 Th active deposit, γ -ray intensities 0=9607
 Th, particles lighter than α , origins from (α , p) reactions discounted 1=7338
 Th²²⁷, alpha decay, spins and parities 1=13705
 Th²²⁸ 1=17061
 Th²²⁸ to Fm²⁵⁰, mass range, α -decay, hindrance factors 2=1832
 Th²²⁹ 1=19371
 Th^{230, 232}, 2⁺ \rightarrow 2⁺ transitions, E0 enhancement 1=8661
 Th²³², Coulomb excited 4=22043
 Th²³⁴, 24 day 3=15158
 Th²³⁴ \rightarrow Pa^{234m}, γ -transitions 2=22766
 ThC branching ratio 1=13704
 Ti⁴⁴ 0=1388
 Ti⁴⁴ 4=9400
 Ti⁴⁵ 1=9836
 Ti⁴⁵, γ -ray search 3=17429
 Ti⁴⁶ 3=10344
 Ti⁴⁸, γ - γ correl. attenuation 4=12146
 Ti⁴⁷, 160 keV level, positron decay, search for 3=12587
 Tl, neutron deficient isotopes 3=659
 Tl^{194m, 196m, 198m} 0=9514

Radioactivity—contd

decay schemes—contd

Tl¹⁹⁹, to Hg¹⁹⁹, mag. moment of Hg¹⁹⁹ 158 keV level 3=658
 Tl²⁰⁰ 0=4072
 Tl²⁰⁰ 2=10054
 Tl²⁰¹ 1=658
 Tl²⁰² 0=1376, 7539
 Tl²⁰³, E2/M1 mixing amplitude for 279 keV γ -ray 1=7357
 Tl²⁰³, 404 and 279 keV transitions 0=5713
 Tl²⁰⁴ 2=7941
 Tl²⁰⁴ to Hg²⁰⁴, electron capture 4=28003
 Tl²⁰⁴, longit. polarization of β -rays 0=5704
 Tl²⁰⁶ 0=11339
 Tl²⁰⁶, once-forbidden β -spectrum, decay energy 1=17028
 Tl²⁰⁷, β -branch to p_{1/2} level in Pb²⁰⁷ 3=17445
 Tl²⁰⁷, 1-forbidden transition probabilities, calc. 1=17042
 Tl²⁰⁸, β -decay, then Pb²⁰⁸ γ -cascades 2=14030
 Tl²⁰⁸, β -decay transition intensities 0=17546
 Tm¹⁸², β^+ conversion spectrum 3=22345
 Tm^{182, 164} 1=652
 Tm¹⁶⁵ 2=14049
 Tm¹⁸⁶ 3=10309
 Tm¹⁸⁶ 0=13172
 Tm¹⁸⁶ 1=13720
 Tm¹⁸⁸ 4=12188
 Tm¹⁸⁸ \rightarrow Er¹⁸⁸ 3=8049
 Tm¹⁸⁷ 1=3428
 Tm¹⁸⁷, from γ -ray, β conversion spectra 4=1027
 Tm¹⁸⁸ 1=17029
 Tm¹⁸⁹ 2=14040
 Tm¹⁸⁹, Coulomb excited 4=22043
 Tm¹⁸⁹, γ - γ angular correlation 0=20409
 Tm¹⁷⁰, first-forbidden β -decay, nuclear matrix elements 4=15192
 Tm¹⁷⁰ \rightarrow Yb¹⁷⁰ 1=7355
 Tm¹⁷¹ 1=9831
 Tm¹⁷² 1=8639
 Tm¹⁷² 1=19394
 Tm¹⁷³ \rightarrow Yb¹⁷³ 1=10976
 Tm¹⁷³ 4=1051
 Tm¹⁷⁴ 1=17113
 Tm¹⁷⁶ 1=17113
 U²³³ 2=14015
 U²³³ α 2=396
 U²³³, α -decay 1=17012
 U²³⁴, α -decay superfluid effect 3=19805
 U²³⁴, isomeric state 3=22313
 U²³⁶ 2=14016
 U^{236, 238}, 2⁺ \rightarrow 2⁺ transitions, E0 enhancement 1=8661
 U²³⁸, Coulomb excited 4=22043
 U²³⁹, transition probab. of neutron-capture γ -rays 1=8667
 U²³⁹, 23.5 minute 4=25361
 U²³⁹⁻²⁵⁵, from "Mike" thermonuclear device 0=17512
 U²⁴⁰ 0=1380
 V⁴⁷, β - γ coincidences 3=6192
 V⁴⁸ 2=20552
 V⁴⁸ 3=19812
 V⁵¹, excited states 2=14004
 V⁵¹, K fluorescence coeff. 3=7993
 V^{51-2*} 1=2173-4
 V⁵², β -decay to Cr⁵² 4=9448
 V⁵⁸, 305 keV state 3=10258
 W isotopes, short lived 3=8052
 W¹⁷⁶, rel. to Ta¹⁷⁶ unpaired proton and neutron configurations 4=17103
 W¹⁸² 2=16335
 W¹⁸², internal conversion coefficients 4=15167
 W¹⁸³ 5.3 sec isomer 1=8632
 W^{183m} 1=7359
 W¹⁸⁷ 4=22046
 W¹⁸⁷ \rightarrow Re¹⁸⁷ 0=20388
 W¹⁸⁷, 24 hr 2=14021
 W¹⁸⁸ 1=16370
 Xe¹²⁹, 1-forbidden transition probabilities, calc. 1=17042
 Xe¹³¹ 3=6171
 Xe¹³¹, E2/M1 mixing ratio of 364 keV transition 1=616
 Xe¹³³ 2=3516
 Xe¹³³, levels in Cs¹³³ 0=5667-8
 Xe¹³³, test of parity conservation 0=17547

Radioactivity—contd

decay schemes—contd

Xe¹³⁷, 3.9 min, rel. to superconducting nuclear matter 4=3609
 Y⁸⁴, 43 min 2=20571
 Y⁸⁵ isomers 4=6281
 Y⁸⁶, levels in Sr⁸⁶ 1=8610
 Y⁸⁶, states in Sr⁸⁶ 2=5855
 Y^{86m}, β 1=10973
 Y⁸⁷, internal conversion coeffs. 2=1848
 Y^{87, 87m}, produced by He-bombardments 4=9422
 Y⁸⁸ 2=1773
 Y⁸⁸, isomeric γ -decay 3=15134
 Y⁸⁸, positron decay 3=6205
 Y⁸⁸ \rightarrow Sr⁸⁸ 0=20396
 Y⁸⁸ to Sr⁸⁸, Sr⁸⁸ levels deduced 4=25348
 Y⁹⁰, autoionisation and X, K, L line intensities 1=8641
 Y⁹⁰, β -decay 1=17002
 Y⁹⁰, β -decay and internal bremsstrahlung 2=10045
 Y⁹⁰, low-energy spectrum, rel. to theory 2=390
 Y^{90m} 1=19374
 Y^{90m} 1=12185
 Y⁹¹ 0=11364
 Y⁹² \rightarrow Zr⁹² 2=18292
 Yb¹⁶², β^+ conversion spectrum 3=22345
 Yb¹⁶² \rightarrow Tm¹⁶² \rightarrow Er¹⁶², from Ta + p (660 MeV) 3=22345
 Yb¹⁶⁴, 75 min. activity 2=14025
 Yb¹⁶⁴ \rightarrow Tm¹⁶⁴ \rightarrow Er¹⁶⁴ 1=646
 Yb¹⁶⁴ \rightarrow Tm¹⁶⁴ \rightarrow Er¹⁶⁴ 2=14023
 Yb¹⁶⁶ 3=10310
 Yb¹⁶⁶ \rightarrow Tm¹⁶⁶, γ 's 3=24908
 Yb¹⁶⁷ 0=20393
 Yb¹⁶⁹ 0=17565
 Yb¹⁶⁹ 2=14040
 Yb¹⁶⁹ \rightarrow Tm¹⁶⁹ 3=12640
 Yb¹⁶⁹, and Tm¹⁶⁹ levels 3=22346
 Yb^{169, 175, 177}, isomers 2=18275
 Yb^{169m, 175m, 177m} 0=17524
 Yb¹⁷⁵, coincidence study 2=5852
 Zn⁶³ 1=8644
 Zn⁶⁷, 1-forbidden transition probabilities, calc. 1=17042
 Zn⁶⁸, search for E0 transition 1=17047
 Zn⁶⁸, β -ray spectra 3=2418
 Zn⁷¹ 4=22065
 Zn⁷¹ isomers 2=391
 Zn⁷² 3=8035
 Zn⁷² 3=24896
 Zr⁸⁶, and Zr^{87, 88} γ -decay 4=22069
 Zr⁸⁹, allowed β^+ spectrum, deviations from theory 0=13195
 Zr⁸⁹ and Zr^{89m} 4=9450
 Zr⁹⁰, elec. monopole transitions 2=3529
 Zr⁹⁰, monopolar transitions, double γ emission 4=6219
 Zr⁹⁰, two-phonon de-excitation of U⁺ level 1=13732
 Zr⁹⁵-Nb⁹⁵, standardization 4=19723
 Zr⁹⁷ \rightarrow Nb⁹⁷ \rightarrow Mo⁹⁷, γ -ray spectra 3=17436

electron capture
 absolute activity meas. with proportional counter 4=6255
 activity measurement 0=1374
 atomic overlap and electron exchange effects 3=10283
 decay of oriented nuclei 0=422
 disintegration events counter 2=14010
 disintegration rates, determination 1=7353
 electron spectrum, continuous, accompanying K-capture, meas. 0=5710
 inner bremsstrahlung-nuclear recoil ang. correl. 0=17538
 K-capture, ang. correl. of internal bremsstrahlung and nuclear γ -rays, calc. 0=9590
 K-capture, ang. correl. between neutrino and γ -quantum 1=13735
 K-capture, internal bremsstrahlung γ -quanta anisotropic distrib. 0=9595
 K-capture, transition probabilities, and β^+ emission 1=17048
 K-hole formation, re-alignment after-effect 2=22772
 L-capture, ν - γ ang. correl. 0=5720
 L/K capture ratios, exchange effects 3=15131
 L/K and positron emission ratios, exchange and overlap effects 4=1038
 M/L ratios, effect of electron exchange, theory 3=22324
 neutrino emission, proposed detection in crystals at low temp. 0=3954
 nuclides, absolute activity 0=5674

Radioactivity—contd

electron capture—contd

- orbital, experimental results 0=5707
- oriented nuclei 0=17537
- radiative, nuclear orientation 0=1390
- radiative orbital capture, and internal bremsstrahlung 2=12171
- ratio to β^+ decay, rel. to nuclear matrix elements 4=19710
- standardization of radionuclides, source self-absorpt. 3=10278
- stellar interiors, for arbitrary forbiddenness 4=10813
- theory, review and bibliography 1=2192
- time-dependent attenuation of ang. correl. pattern between successive radiations 1=3421
- X-ray emission, $K\alpha$, by atomic transitions 4=9665
- A²⁷ 1=19411
- A³⁷, L/K-capture ratio 1=647
- A³⁷, L/K ratio meas. 2=7950
- Ag¹⁰⁵ → Pd¹⁰⁵ 2=3531
- Ag¹⁰⁶ 0=15563
- Ag¹⁰⁶, population of Pd¹⁰⁶ 3=17410
- Ag¹¹⁰, K-electrons, upper limit 3=22333
- Ag^{110,110m}, possibility 2=14062
- Ar³⁷ 3=8032
- Ar³⁷, 1S orbital electrons, γ -spectrum 3=4589
- Ar³⁷, L to K ratio, exchange effects 3=10283
- As⁷⁴, K/ β^+ ratio 0=13198
- At²¹⁰ (8.3 hr), transitions meas. 4=6297
- Au¹⁹⁶, decay 2=12168
- Ba¹³¹, to Cs¹³¹ 620 keV level, L/K ratio 4=6287
- Ba¹³³ 0=17540
- Ba¹³³ decay, and Cd¹³³ level spins 3=19820
- Ba¹³³, energy levels in Cs¹³³ 0=5667-8
- Ba¹³³, with γ -ray emission 0=13170
- Be⁷⁺, branching ratio meas. 2=18298
- Be⁷, from continuum orbits in stars, nuclear matrix elements 3=2404
- Bi¹⁸⁹, half-life 4=17073
- Bi²⁰⁵ 2=10050, 10061
- Bi²⁰⁵, mono-energetic positrons 2=10052
- Bi²⁰⁵, prod. of Pb^{208m} 0=9571
- Bi^{205,208}, subsequent K-positron transitions 2=16356
- Bi²⁰⁶ 2=10050
- Bi²⁰⁶, followed by monoenergetic positrons 1=9832
- Bi²⁰⁸ 0=426
- Br⁷⁶, capture/ β^+ emission ratio 0=4066
- Br⁷⁷, excited levels study in Se⁷⁷ 4=9404
- Ca⁴¹, possible use in radioactive dating 4=12180
- Cd¹¹¹, γ -ray nuclear resonance fluorescence 2=7955
- Cl³⁶ → S³⁶ 2=22771
- Cl³⁶ → S³⁶, 2nd order non-unique forbidden decay 4=1042
- Co⁵⁷ 2=16361
- Co^{57,58}, L/K ratio 3=19813
- Co⁵⁸, K/ β^+ ratio 2=3519, 16363
- Co⁵⁸, K-capture, effects on nuc. alignment 3=17433
- Co⁵⁸, K-hole re-alignment after-effect 2=22772
- Co⁵⁸(2+) → Fe⁵⁸(2+), internal bremsstrahlung 2=12171
- Cr, K-capture 2=16362
- Cr⁵¹ 3=8033
- Cr⁵¹, L/K-capture ratio meas. 2=12169
- Cr⁵¹, L/K probability ratio 2=14045
- Cs^{125,127}, ratio to positron emission 2=22769
- Cs¹²⁹ 1=5868
- Cs¹³¹, electron spectrum, continuous, accompanying K-capture 0=5710
- Cs¹³¹, K-capture, excitation of the second K-electron 0=17539
- Cs¹³¹, L/K capture ratio 1=2193
- Cu, K-capture 2=16362
- Dy¹⁵⁵, K/ β^+ ratio 3=19823
- Dy¹⁵⁹ 0=20390
- Dy¹⁵⁹, branching ratios 0=1378
- Dy¹⁵⁹, decay to Tb¹⁵⁹ 3=2414
- Er¹⁶¹, 3.1 hr 1=2196
- Er¹⁶⁵, atomic excitation accompanying decay 4=3614
- Er¹⁶⁵ meas. 3=2415
- Er¹⁶⁵-Ho¹⁶⁵, exptl. matrix element 3=12639
- Eu¹⁴⁸, 4.7 day 3=4596
- Eu¹⁴⁷, to levels in Sm¹⁴⁷ 2=14047
- Eu¹⁴⁸ 2=7946
- Eu¹⁴⁹ 2=1844
- Eu¹⁴⁹, decay of Sm¹⁴⁶ 4=10294
- Eu¹⁵⁰, electron capture branching 3=2413

Radioactivity—contd

electron capture—contd

- Eu¹⁵² 0=2646
- Eu¹⁵², in EuFe garnet, mag. hyperfine interaction 2=12647
- Fe⁵⁵ 3=8033
- Fe⁵⁵, atomic electron ejection, energy spectrum 3=24895
- Fe⁵⁵, with internal bremsstrahlung 0=7518
- Fe⁵⁵, L/K-capture ratio 0=2641
- Fe⁵⁵, L/K-capture ratio 2=20559
- Fe⁵⁵, L/K ratio 3=19813
- Fe⁵⁵, 1S electron capture, internal bremsstrahlung 2=5860
- Ga, K-capture 2=16362
- Ga⁶⁵ 1=648
- Gd¹⁴⁹ 2=20558
- Gd¹⁵¹, γ and γ - γ coinc. spectroscopy 3=24906
- Gd¹⁵³ 3=654
- Gd¹⁵³ → Eu¹⁵³ 0=7535
- Gd¹⁵³ → Eu¹⁵³, γ -ray transitions meas. 4=17100
- Gd¹⁵³, in NaI:TI 0=17543
- Ge⁷¹ 0=17132
- Ge⁷¹ 3=8033
- Ge⁷¹, auto-ionization and excitation 0=9738
- Ge⁷¹, L/K and M/L-capture ratios 2=20559
- Ge⁷¹, L/K probability ratio 2=14045
- Ge⁷¹, M/L-capture ratio meas. 2=12170
- Ge⁸⁸, L/K capture ratio 1=2194
- Hf¹⁷² 2=10016
- Hf¹⁷³ 2=10015
- Hg—Tl isotopes, anomaly at Tl²⁰⁸ 1=8664
- Hg¹⁹⁷, Mössbauer effect in Au¹⁹⁷ 0=11312
- I¹²⁶, K/ β^+ ratio 0=13198
- I¹²⁶, K/ β^+ ratio for decay → Te¹²⁶ 2=1841
- I¹²⁷, conversion electron—gamma correlation 4=6286
- K⁴⁰, β^+ emission, upper limit 0=1389
- Kr⁷⁸ 3=15144
- Lu¹⁶⁸ 0=9569
- Lu^{169,171} 1=649
- Lu¹⁷⁰ 0=20391
- Lu^{170,174m} 0=15538
- Lu¹⁷² 0=9570
- Lu¹⁷³ 0=1370, 5725
- Lu¹⁷⁴ 0=4059
- Lu¹⁷⁴ 2=3491
- Mn, K-capture 2=16362
- Mn⁵⁴ 2=16361
- Mn⁵⁴ 3=8033
- Mn⁵⁴, L/K ratio 3=19813
- Na²², capture/positron emission ratio meas. 4=15185
- Na²², K/ β^+ branching ratio rel. to Fierz interf. 4=17089
- Nb⁹² 2=18292
- Nd¹⁴⁰, L/K ratio 2=18299
- Nd¹⁴¹ 0=5727
- Ni⁵⁹, K-capture interference, decay through virtual state 3=19816
- Ni⁵⁹, virtual, γ -ray spectrum data 3=8034
- Os¹⁶¹ 2=14044
- Pa²³⁸ → Th²²⁸ 1=4832
- Pb²⁰⁰ 3=6210
- Pb²⁰³, ang. correl. of 404 and 279 keV transitions of Tl²⁰³ 0=5713
- Pm^{141,142}, ratio of K-capture to β^+ emission 0=5689
- Pm^{143-4,146} 1=650
- Po^{199,200,201,203}, ratio to α decay 3=24914
- Pr¹³⁹, E.C./ β^+ ratio 1=17049
- Pr¹⁴⁰ 2=18299
- Pr¹⁴², K-capture 2=1850
- Pt¹⁸⁹, excited levels of Ir¹⁸⁹ 4=12161
- Pu²³⁷, K-to-total electron capture branching ratios 0=1455
- Rb⁸⁴, K/ β^+ ratio 0=13198
- Rb⁸⁴(2-) → Kr⁸⁴(2+), internal bremsstrahlung 2=12171
- Re^{179,181} 0=15538
- Sb¹¹³ 2=16358
- Sb¹¹⁵ 2=3532
- Sb¹¹⁵, probability ratio to positron decay 4=9451
- Sb¹¹⁸, 5 hr 1=2198
- Se⁴⁴ 3=12623
- Se⁷⁵ 2=3533
- Se⁷⁵, circ. polarization of resonance-scattered γ -rays following decay 0=13214
- Sm^{142,143} ratio of K-capture to β^+ emission 0=5689

Radioactivity—contd**electron capture—contd**

- Sm¹⁴⁵, prod. of Pm¹⁴⁵ 2=18280
 Sn¹¹³ 1=9842
 Sn¹¹³, M/L ratio meas. 4=25351
 Sn¹¹³, $P_{LMN} \dots / P_K$ ratio meas. 4=19727
 Sn^{113m} 2=383
 Sr⁸⁵ 2=18300
 Sr^{87m}, 0.65% K-capture branch 0=20392
 Ta¹⁷³⁻⁶ 0=15538
 Ta¹⁷⁷ 1=17027
 Ta¹⁷⁸ 1=8621
 Ta¹⁷⁹, L/K ratio 1=17050
 Tb¹⁵⁵, subsequent gamma-ray transitions 2=14048
 Tb¹⁵⁷, K Auger spectra 2=10068
 Tc⁹⁴, 293 min 3=15145
 Te¹¹⁹ 0=20389
 Te¹²³, K-capture 2=5843
 Ti⁴⁴ 0=1388
 Tl¹⁹⁹, branching ratios 3=658
 Tl²⁰⁰, K/ β^+ ratio 0=13198
 Tl²⁰⁰, 2⁺ → 2⁺ transition, K/ β^+ ratio 2=10054
 Tl^{201, 202}, decay energy 1=651
 Tl²⁰² 0=1376
 Tl²⁰², transition energy 0=7520
 Tl²⁰⁴ 2=7941
 Tl²⁰⁴, L/K ratio 1=10989
 Tl²⁰⁴, 1S electron capture, internal bremsstrahlung 2=5860
 Tm^{162, 164} 1=652
 Tm¹⁶⁶ 0=13172
 Tm^{166, 168}, levels in Er^{166, 168} 0=5714
 Tm¹⁶⁸, study of levels in Er¹⁶⁸ 4=9455
 V⁴⁹, L/K capture ratio 3=15131
 V⁵⁰, rel. to half-life 2=5862
 V⁵¹, γ -ray nuclear resonance fluorescence 2=7955
 W¹⁸¹, L/K ratio 1=17050
 W¹⁸¹, levels in Ta¹⁸¹ 1=8627
 Y⁸⁸, γ -ray ang. correl., calc. 0=9590
 Yb¹⁶⁶, K-capture probability 3=10310
 Yb¹⁶⁷ 0=20393
 Yb¹⁶⁸, K α X-ray of Tm¹⁶⁸, isomeric shift 3=12640
 Zn⁶⁵ 2=16361
 Zn⁶⁵, L/K-capture ratio 2=22770
 Zn⁶⁶, L/K capture ratio 3=15131
 Zn⁶⁵, L/K probability ratio 2=14045

protection

See Radiation protection

Radioactivity measurement

- See also Dosimetry; Radiation monitoring; and the specific radiation, e.g. Gamma rays
 absolute activity meas. of electron capture radiation 4=6255
 absolute meas. by β - γ coincidence method 4=6253
 absolute strength meas. of neutron sources 0=7389
 accuracy improvement using auxiliary control-flux 4=16721
 activity of inert gases, in fission product mixture 2=14006
 activity of nuclide, when other sources are present 1=17003
 aerosol particles, β -activity 1=20770
 air sampling, emergency technique 2=20536
 α -active thin sources, prep. using vacuum sublimation apparatus 0=7489
 α -spectrometry with thick sources, theory 2=5836
 anticoincidence counting for standard materials 3=643
 atmosphere, due to nuclear explosions 0=11331
 atmospheric aerosols 1=7337
 atmospheric α -activity, by nuclear emulsion 2=5830
 atmospheric precipitates 0=2630
 atmospheric, simple method 3=16231
 atmospheric tracer 0=13164
 backing material, thickness meas. 1=630
 β -activity, low-level, using plastic scintillator anticoincidence 4=9431
 β -activity, use of liquid scintillation spectrometer 4=25334
 β -activity in solids, flow counter meas. 0=7241
 β -disintegration, absolute rate 0=7492
 β -emitters, maximal energies 2=5825
 β -emitters, using liquid scintillation counter 4=25333
 β -emitting isotopes, thick samples, specific activity determ. 4=13755

Radioactivity measurement—contd

- β - γ coinc. technique, 4 π , for abs. decay rates 4=6254
 β - γ coincidence method, dead-time correction 3=4584
 β - γ coincidence technique, for decay schemes 2=7935
 beta ray counting, 4 π , self-absorpt. reduction by adding Teflon particles 4=9425
 β -ray longit. polarization and γ -ray circular polarization 0=5677
 beta-ray, weak, two counter technique 4=27984
 β -source grounding by auxiliary α -source 1=5847
 β^+ + one γ emitters, with NaI:TI, absolute 4=6261
 biological, distrib., by γ rays, use of Tc^{99m} 4=15971
 calibration of Ra sources, correction factors 2=14007
 coincidence expts., electrons adapted β -ray spectrometer 2=3318
 coincidence techniques, survey 3=9706
 condensation processes in meas. of air samples 0=5681
 conversion lines, photographically recorded, intensity det. 2=22749
 counting systems, performance
 computation 1=13236
 curie, definition, rel. to natural materials 3=641
 cylindrical source, dose rate 0=20365
 debris in stratosphere, time residence 0=6487
 decay constants, methods 0=20370
 decay rates, coinc. method, using high efficiency detectors 2=7781
 delayed coincidence methods for γ -transitions 2=5856
 differential counting of Cr⁵¹ and Fe⁵⁹ in mixtures 1=13675
 distributed radar recording 0=20363
 effluent streams, monitoring cells 0=17515
 electro-filter for removal of aerosols 0=2631
 electron spectrum, continuous, accompanying K-capture 0=5710
 exponential decay curves, multicomponent, analysis 0=821
 extended source activities, abs. determ. 4=27986
 fission products, gaseous with solid daughters 4=9424
 fission products, yields and half-lives 1=8793
 4 π β -counting, self-absorption error
 elimination 1=13235
 4 π β - γ coincidence, decay scheme correction
 elimination 4=9426
 4 π β - γ coincidence, no use for complex β decays 4=25335
 γ -dose received by moving bodies 2=5827
 by γ - γ coincidence, use of simple discriminators for each channel 4=6265
 γ -lifetimes $\sim 10^{-11}$ - 10^{-10} sec, using conversion electrons 0=407
 γ -ray logging, normal to interface bet. media 3=23576
 γ -ray spectrometry of airborne fission product radioactivity 3=5206
 γ -rays, plane polariz. meas. method 4=17082
 γ source, strong, ionization chamber 4=6262
 γ -testing of minerals, effect of nonuniform distrib. 3=2397
 gas flow-counter, sources of error due to field disturbances 0=11069
 gas flow meas. by total count method 3=155
 Geiger-Müller demountable counters,
 applications 1=13204
 h.f. deflection method for short half-life
 measurements 1=4835
 half-lives of meta-stable states, oscilloscope
 method 1=5855
 Hoogenboom method, level identification 4=6238
 of human body, using large NaI crystal 1=9819
 internal conversion coeffs., direct det. 0=9589
 internal conversion coeffs., to $\pm 0.5\%$ 0=13202
 lifetimes, delayed coincidence meas., analysis 3=2384
 lifetimes of excited states, new application of delayed
 coincidence technique 1=3406
 lifetimes of nuclear levels, recoil technique 0=5688
 lifetimes of nuclear rotational levels $\sim 10^{-10}$ sec. by
 microwave method 0=20397
 logarithmic intensity meter circuit 2=19839
 low level beta activity, cancellation technique
 for counting 1=2176
 low-level counting against γ -ray background 1=13679
 of mixtures, solid and liquid 4=19706
 of moon's surface 3=21145
 multicomponent time dependent decay spectra,
 analysis 4=12185
 natural β -activity, hourly meas. 3=15124

Radioactivity measurement—contd

natural dust, size distribution 0=4819
 natural radioactive elements, calorimetric measurements 0=5685
 natural radioactivity in atmosphere 1=15243
 neutron source standardization, using reactor graphite stack 0=7383
 nomenclature for standards 1=13665
 nuclides, absolute activity 0=5674
 overlapping lines, error in difference meas. method 4=15172
 parent-daughter mixture standardization 4=19723
 photographic identification of radioactive aerosols 0=7486
 preparations with electron capture decay 0=1374
 proteins, C^{14} -labelled, use of scintillation counter 1=17004
 radiation monitoring, in Sweden, γ -ray activity, after fall-out 0=8433
 radio-isotopes with complex decay schemes 3=15123
 radon in air, continuous dosimetry 0=15528
 radon daughter products, hourly meas. 3=15124
 rainfall and dust, separate sampling 3=3476
 recoil nuclei, measurement of angular and energy distributions 1=12187
 review 4=15173
 review, for clinical and biological appl. 2=10028
 scintillation scan data, magnetic tape recording 3=21147
 short half-lives 0=20371
 short half-lives, h.f. deflection method 3=12606
 short-lived isomers (10^{-4} - 10 sec) meas. 4=6246
 soil, natural α -activity distrib. in profiles 2=10030
 soil surface contamination, detector calibr. 4=6258
 source calibration, $Ce^{144} + Pr^{144}$, by $4\pi \beta-\gamma$ coincidence counting 2=14011
 stratosphere, above Paris 0=21325
 student's experiment, using activities filtered from air 2=3493
 synthetic substances in solution 4=8170
 tables for correcting for radioactive decay, 27 nuclides 3=15135
 thick-layer activity, by self-absorption and self-scattering 2=20533
 thoron daughter products, hourly meas. 3=15124
 total radiated energy of sources 2=5819
 transitions $\sim 10^{-20}$ sec., by proximity scatt. 2=3537
 tritiated water, liquid scintillation counting 1=13219
 tritium in aqueous and organic systems, bremsstrahlung method 1=19399
 two-channel spectrometry, calc. of two-comp. system 0=12804
 and units, ICRU report 4=6259
 water, α and β activity 0=5691
 water containing fallout, activity det., over-estimation 0=5679
 weak activities, limits of meas. 2=22750
 weak samples 0=11328
 Au^{198} solution, β specific, absolute 3=22349
 Ba^{140} 0=4043
 Be^8 , ground-state, detection method 3=22269
 C^{14} , aqueous solutions, scintillation counting 0=5687
 C^{14} det. by immersion of counters into sample 1=8629
 C^{14} , with G.M. counters, CO_2 - CS_2 filled 0=15530-1
 C^{14} , using liquid scintill. method 3=8022
 C^{14} , liquid scintillation counting 4=19716
 C^{14} , sample absorption correction 0=9541
 C^{14} self-absorption on paper planchets 1=13672
 C^{14} standard, recalibration by Geiger and proportional gas counting 0=13159
 Ce^{141} and Ce^{144} , determination in presence of each other 0=13166
 Cs^{137} sources, decay rate by tracer method 4=27995
 use of K^{40} as calibration material 4=6257
 K^{40} as NaI scintillation counter background 1=19061
 Kr^{85} , determination of uranium ore deposit size 0=4777
 Nd, natural 0=11346
 Pm^{147} , β -disintegration energy 4=22075
 Pr^{143} , β -disintegration energy 4=22075
 Pr^{147} , liquid scintillation counting 4=25353
 Pu on air filters, by $\alpha-\beta$ coincidence 1=7332
 Ra, emulsion technique 4=6252
 Ra in liquids, method of assay 0=13160
 Ra in soln., microdosage using nuclear emulsion 3=4582

radioactivity measurement—contd

Ra-Be n source, by Mn activation 4=19522
 RaD standards, prep. and calibration 2=12150
 Rn^{220} , atmospheric, by ionization chamber 4=23770
 S^{35} , β -disintegration energy 4=22075
 S^{35} , content in sulphur, using a liquid scintillation counter 1=20778
 Sm, natural 0=11346
 Sn^{116} , 1.27 MeV level, resonant self-absorpt. 3=17412
 Sr^{90} 0=4043
 Sr^{90} in milk and rainwater, Mexico 4=25347
 $Sr^{90} + Y^{90}$ beta-ray applicator calibration 0=7491
 T, aqueous solns. scintillation counting 0=5687
 T det. by immersion of counters into sample 1=8629
 T, estimation in proportional counter 0=4756-7
 T, using internal gas counter 4=19714
 T, using liquid scintill. method 3=8022
 T, in rain, by conversion to benzene 4=13744
 T, in water samples 4=15180
 Th^{232} as NaI scintillation counter background 1=19061
 U^{235} , enrichment, checked by γ -intensity 0=11388
 U^{238} as NaI scintillation counter background 1=19061
 Y^{90} 0=4043
 Zr^{95} - Nb^{95} parent-daughter mixture standardization 4=19723

apparatus
 See also Particle detectors
 activity ionization chambers 1=8399
 α -activity, short-lived, accelerator-produced 4=9430
 alpha gauge, for small density meas. 3=3781
 for atmospheric radon and thoron, coinc. system 2=18274
 atmospheric sedimentation, extensive check procedure 1=17005
 β - β coincidence apparatus, for short β half-lives 0=17518
 β -emitters, calibration 4=19709
 beta emitters, comparison of liquid scintillation counters with ionization chambers 4=15175
 β end-window counters, low activities 4=17083
 for β - γ correlations from oriented nuclei 0=2652
 calorimeter, double-static type, for half-life meas. 1=4836
 calorimeter for γ -ray intensity meas. 1=5706
 calorimeter for γ -ray intensity meas. 1=10872
 collimator for γ -rays 1=3155
 collimator for localization of radioactive regions 1=15366
 correlation, with circ. polarization 2=22748
 count integrator for relative activities 4=27985
 counter arrangement for weak activities 3=4288
 counter, Geiger, H, externally quenched, for tritium 3=644
 counter, liquid scintillation, water content and counting efficiency 4=22058
 counters, 4π , β , β - γ activities 4=3589
 counters, 4π , for low activities 4=17079
 counters, scintillation, fragmented, for aqueous solns. 4=15174
 dead time correction, automatic 2=13700
 dead time corrections, short lived activities 4=22057
 decay rates, abs. det., coincidence method 2=22747
 disintegration events counter, for electron-capture materials 2=14010
 electrostatic filter, for atmospheric activity estimation 0=6488
 emanometer, for Rn decay in aerosols 2=20531
 end-window counter for absolute β -activity 2=20316
 fast time analyser for short lifetime meas. 1=18739
 γ -detector calibr. in $\mu\text{C}/\text{cm}^3$ with point source 4=6256
 γ -irradiator, Co^{60} , dose distrib. in working chamber 4=1034
 γ -radiometer, universal recording, 0.002-200 r/hr 2=20301
 γ -spectrometer, 2-channel, for wells 3=23577
 for gas or liquid streams, tritium β^- and C^{14} α -activity 2=14009
 gases, specific activity, using gas-flow chambers 3=4583
 grinder, for sectioning solid diffusion specimens 0=3388
 half-life meas. in μ - and msec range 1=4540
 heavy-ion detection system 3=12609
 heavy water leak detection 1=2259
 hot liquids, continuous γ -ray counting 1=13381
 integrating RC-circuit voltage fluctuation meas. 4=17081

Radioactivity measurement—contd
apparatus—contd

- intensity meter, scale nonlinearity correction 2=19854
 ionization chamber, for γ 4=6264
 ionization chamber, for C^{14} and S^{35} labelled gases 4=17080
 ionization chamber, pulsed, two-grid, for low-energy particle spectra 0=15186
 ionization counter for large samples with weak α -activity 1=4842
 irradiated soln., rapid handling system 3=24885
 laboratory apparatus, for very low activities 2=5820
 large samples, 2π scintill. counter 3=6186
 for lifetime measurement 2=14039
 low-activity counting equipment 2=5822, 22353
 microcalorimeter, adiabatic 3=6188
 microcalorimeter, adiabatic, 1% accuracy 4=6260
 multiparameter pulse-height analysers 4=22054
 nuclear lifetimes to 10^{-11} sec, methods 3=12605
 nuclide identification using two Geiger counters 1=2177
 particle differentiation by electron microscopy and autoradiography 1=9242
 photomultipliers, for high-temp. operation, in oil-well logging 1=2996
 photomultipliers, for low-energy sources 1=2995
 pneumatic transfer of sample from reactor to detector 0=5810
 positron distribution 4=19707
 radioactive liquids, high-efficiency G.-M. counter 1=7165
 radiogaschromatograph, for C^{14} and T-labelled organic molecules 4=22063
 reactor sheath rupture detection 1=2257
 recoil product separation by elec. field, appl. to $Br(n,\gamma)$ and $I(n,\gamma)$ 3=8110
 review, tracers 4=15173
 sample changer, automatic, for α -, β - and γ -sources 4=25330
 sample containers of Ti and Fe 3=19905
 scintillation counter, liquid, for C^{14} -labelled cpds. activity meas. 3=5901
 scintillation counter for low level 4π β -counting 4=12169
 scintillation spectrometer, sum-coincidence, appl. 4=6263
 scintillators, gel, for high activity aqueous solns. 4=22055
 source prodn. by cathode sputtering 3=19801
 sources, α - and β -spectroscopy, prep., chemical techniques 4=25331
 sources, rare earth metals, electro-deposition, molecular plating method 4=17867
 sources, vacuum sealing 4=12172
 sources, Th and U, electrodeposition, molecular plating method 4=17866
 spectrometer, automatic single-channel 3=15126
 sum-coincidence spectrometer, stabilization 3=5979
 for T, counter, liquid scintillation, water content and counting efficiency 4=22058
 T counter, proportional, for $>125^\circ C$ 4=15177
 T counters, liquid scintillation, review 4=15178
 T ionization chamber 4=15176
 T, low level proportional counter 4=12177
 thickness measurement system, C^{14} source and counter 2=14008
 three crystal pair γ -spectrometer for small amounts 4=9161
 transistorized fast coincidence circuit 3=5614
 20 sources, simultaneous positron detection 3=12610
 types, methods, sensitivities 0=1373
 tracers, industrial use 1=13664
 for tritiated compounds on paper chromatograms 1=20777
 vacuum deposition of radioactive materials 3=15125
 vibrating reed electrometer for decay periods 0=7495
 for C^{14} , counter, liquid scintillation, water content and counting efficiency 4=22058
 CO_2 sampler, high-volume, atmospheric 3=13690
 $C^{14}O$ and $C^{14}O_2$ activity meas. 4=30914
 C^{14} , T counter, simultaneous, liquid scintillation 4=15179
 Co^{60} source, cold-encapsulation 3=22315
 Mn^{56} , two stage facility design 4=30322
 NaI: Tl crystal, well-type, radioisotopes with 2- γ 's in coincidence, absolute 4=3588

Radioastronomy

- See also Cosmic radiations, radiofrequency; Sun radiation, radiofrequency.
 aerial array optimum size, cost consideration 4=15950
 aerial filters, small, for fine structure study 4=20937
 aerial meas., 36 m telescope, 53-67 cm 3=25976
 aerial, wide band, 100-1000 Mc/s 2=13156
 aerials, grating response correction 3=9256
 aerials, r.f. noise meas, rel. to radiation temp. 2=9111
 amplifier, parametric for 21 cm H line meas. 3=7044
 amplifier parametric, 1370 Mc/s, test 3=18649
 amplifiers, low-noise, usefulness 3=5840
 amplifiers, parametric, development, problems of use 4=4927
 antennas, 200 ± 50 ft. optimum diameter 4=30976
 aperture synthesis method, results of observations 1=12784
 apparatus, comparison radiometer with switched mixing, diode for improved sensitivity 4=7987
 atmospheric absorption, refraction and scintillation at 4700 Mc/s 1=6595
 atmospheric refraction errors, correction 3=9948
 atmospheric scintillation, observed with centimetric waves 0=16474
 aurora 0=8409
 aurora borealis, radar echoes, 300 and 500 Mc/s 2=24173
 aurora, echoes, arrival angle determination 0=6481
 aurora, echoes, height and geometry 0=18508
 aurora ionization radar observations 1=10332
 aurora, noise, l.f. 0=4815
 aurora, radar echoes at 488, 944 Mc/s 3=21068
 aurora, radar observations, Terre Adelle 1=4132
 aurora, radar reflections 0=798-9
 auroral echoes and magnetic disturbances 1=21060
 auroral echoes at 40 Mc/s 1=9206
 auroral radio-echo activity, temporal variations 1=21061
 ballistic theory of light, tests 0=834
 brightness distribution, using two-aerial interferometer 2=24165
 broadband radio-star scintillations and ionospheric refr. 4=30956
 cm-wave solar bursts and associated effects 1=8025
 Cassiopeia-A and Cygnus A at 127 and 3000 Mc/s, structure 1=18177
 Cassiopeia A, flux density, secular variation 1=18207
 Cassiopeia A, 45 Mc/s, decreases and reception 0=18671
 Cassiopeia A, 45 Mc/s scintillation rate 0=18672
 Cassiopeia A scintillations, positions and durations 4=17942
 Cassiopeia A, 7.6-41 Mc/s scintillation statistics 4=26851
 Cassiopeia, 45 Mc/s, study of ionospheric drifts 3=3493
 Cassiopeia, spectrum below 30 Mc/s 0=18667
 catalogue of radio sources between declinations -20° and -50° 1=8029
 celestial sources, bright at 10.2 cm 0=12260
 Centaurus A, central component polarization 3=7052
 Centaurus A, extended component 0=6563
 Centaurus A, radio source, central component 1=18191
 Chapman corona, test for existence 1=15535
 circular aerial arrays 1=18144
 comet Arend-Roland 0=18623
 and communication through space, review 4=20933
 compound interferometer telescope, single lobed receiving pattern 0=4878
 conference, Colgate University, April (1961) 1=12777
 continuum emission, uniform, extragalactic contrib. 1=18187
 corona electron density, from radio emission 2=1008
 cosmic electrical discharges rel. to galactic evolution 1=18189-90
 cosmic noise absorption during eclipse of sun by riometer 4=26848
 cosmic noise absorption in ionosphere, measurements 1=15279
 cosmic noise attenuation by ionosphere at 18Mc/s 1=15280
 cosmological models, background criterion 3=9157
 rel. to cosmological theories 1=15523
 cosmology theories, evidence for distinction 2=2522

Radioastronomy—contd

counting sources, in steady-state cosmology 2=2555
 Crab nebula, coronal eclipse, 169 Mc/s study 0=18669
 Crab Nebula, eclipse by solar corona 1=15537
 Crab Nebula, radio waves, scattering by solar corona 1=15534
 Crab nebula, 10 cm radiation, polarization 1=15567
 Cygnus-A radio source, observations at Boulder, Colorado 1=10397
 Cygnus loop emission 0=18664
 Cygnus Loop and IC 443 radio sources 1=18179
 Cygnus spectrum below 30 Mc/s 0=18667
 Cygnus-X source, nature 1=18181
 danger from increasing man-made interference 3=3615
 data analysis, digital system 2=24166
 decametre-wavelength observations of planets 1=11685
 declination meas. of radio sources 3=23702
 desmoothing of 21 cm data, calc. 4=2456
 detector pair fluctuations as for spinless nuclear particles 4=21695
 developments, review for USA 2=9108
 discrete sources, dm, flux density meas. 4=15960
 discrete sources, scattering by solar corona 2=4781
 discrete sources, on 22 m radio-telescope at Lebedev Physics Institute (Russia) 2=1017-18
 discrete sources, 500 Mc/s observation 0=18662
 discrete sources, observations at 3 cm using maser 0=18616
 distances to sources, determ. 4=2453
 eclipse of Oct. 1959, radio observation 0=6554
 emission spectra, apparent spectral index, in presence of red shift 0=18654
 extragalactic radio sources, brightness distrib. 1=18208
 extragalactic sources, dimensions, spatial density and power 0=18656
 extraterrestrial signal focusing by aerial in ionosphere 1=18145
 in France, review 4=4919
 Freiberg radio spectrograph 1=18158
 Freiburg solar spectrograph, 48-165 Mc/s 0=2076
 frequencies protection 3=11586
 galactic arm relativistic particles 2=17301
 galactic clusters, neutral hydrogen, detection 1=18195
 galactic coordinate system choice, relevant radio data 0=18657
 galactic emission spectrum 0=18678
 galactic emission from spur at $l^{\text{II}} = 30^\circ$, polarization 1=10398
 galactic plane, survey at 408 Mc/s 2=4854-5
 galactic radio emission, 1.5-10 Mc/s, -42° declination 3=9281
 galaxies, external, as radio sources 3=5283
 galaxies, normal, emission, 35 sources 1=10399
 galaxies, radio, "normal" concept 2=2571
 galaxies, radio and optical magnitudes, relation 1=12786
 Galaxy, anti-centre, 21cm, and Lindblad's dispersion orbits 3=13928
 the Galaxy and external galaxies, large-scale structure, evidence 1=18183
 galaxy M82, interference at 1420 Mc/s 3=3627
 Galaxy, radio continuum 0=4860
 Galaxy, structure 1=18130
 Galaxy, 38 Mc/s survey 0=18677
 Galaxy, 21 cm determination of principal plane 0=18675
 galaxies, neutral hydrogen mass, limits 4=13971
 galaxies, Virgo cluster neutral hydrogen ratio, radio obs. 4=13972
 Gaussian analysis, approx., of 21 cm profiles 4=2454
 Gaussian analysis, electronic, of 21 cm profiles 4=2455
 H, ionized, continuous absorption coeff. 0=20592
 H I, galactic disk, 21 cm observations 0=10482
 H-line observations, interferometric analogue, correl. function 0=12252
 H-line profiles, at high galactic latitudes 0=12261
 historical review of developments 1=15397
 identification of radio sources 1=18210
 identification of sources 0=3409, 8477
 images obtained using ring of aerials 2=1253
 instrumental techniques used in solar studies, review 1=18150
 interferometer, compound-grating, Stanford 4=23933
 interferometer, compound, with 1.5 minute of arc fan beam, construction and use 4=4931

Radioastronomy—contd

interferometer, compound type, 10 cm wavelength 0=12262
 interferometer, crossed-grating, solar observations at 20 cm wavelength 4=4944
 interferometer, at Nançay 0=826-7
 interferometer for radio source size measurement 1=8022
 interferometer, swept-freq., 7.6-41 Mc/s, Boulder, USA 4=26964
 interferometer, 10.7 cm, parametric amplifier for 2=13157
 interferometer, tracking, three base-line 3=18648
 interferometer for very-long baseline use 3=3616
 interferometers, high accuracy 2=15396
 interferometers, multiphase, for locating solar source 2=7034
 interferometers, N-antennae, spatial frequency spectrum 4=26966
 interferometers, phase-sensitive, for spatial brightness distrib. study 0=3
 interferometers, sensitivity and directivity increase 1=18140
 interferometric multiplex spectrometer, theory 0=16832
 intergalactic neutral H absorption 4=29490-1
 interplanetary electron density, meas. 2=11104
 interstellar clouds, mag. fields meas. 3=5282
 interstellar clouds, 21 cm studies 0=8478
 interstellar communication with advanced societies, collected papers 4=15901
 interstellar communication by radio transmissions, and signal detection 4=20936
 interstellar communications, suitable frequencies 0=4846
 interstellar gas, density and velocity distribution 0=8470
 interstellar ionized gas clouds, size meas. 0=18614
 investigation of universe, review 1=41
 ionosphere, elongated irregularities 0=12163
 in ionosphere studies, electron density in irregularities 1=1528
 ionosphere, study above Pacific Ocean 0=8482
 ionospheric inhomogeneities, investigation 2=4637
 ionospheric scintillations, conference 4=15947
 ionospheric scintillations, correl. with spread-F 2=2505
 Italian cross telescope, aerial and receiver design 2=11152-3
 Jodrell Bank high-resolution studies at 22 cm 1=2665
 Jodrell Bank research, phys. basis 3=11587
 at Jodrell Bank, review and current investigations 4=4921
 Jovian decimeter radiation 1=18171
 Jupiter, decameter sources, rotation period change 4=4942
 Jupiter, decametric, cause 3=18658
 Jupiter, decametric emission 3=18655
 Jupiter, 18-23 Mc/s observations 0=18622
 Jupiter, 5-86 Mc/s, sporadic 4=29473
 Jupiter, magnetic field 1=2660
 Jupiter, polarization and mag. pole orientation 3=18656
 Jupiter, polarization at 16 Mc/s 4=23939
 Jupiter, polarized decimeter radn., source 3=3620
 Jupiter, radar study, high-echo area 4=29472
 Jupiter, and radiation belts 3=21130-1
 Jupiter, radio spectrum 1=18172
 Jupiter, 610 Mc/s, flux density 4=2458
 Jupiter, spectrum, 18-20 Mc/s, drifting pips 4=23938
 Jupiter, 10 cm observations 1=5168
 Jupiter, 10 cm observations, 1961-3 4=23937
 Jupiter, 31 cm emission 0=6553
 Jupiter, three sources 3=18654
 Jupiter, 26.3 Mc/s, 2 components 4=30977
 Jupiter's radio emission, relation to solar activity 1=1659
 lunar brightness variations with phase at $\lambda = 4.3$ mm 1=5169
 lunar occultation of a source, accurate position det. 1=15569
 lunar occultations of radiosources 4=26973
 lunar radar scattering, comparison of surface electromagnetic prop. with tektites 1=5145
 lunar slopes, radar detm. 4=2457
 lunar surface radio wave reflection 1=15558
 lunar thermal radiation 1=15423
 M17 region, at 3.75 cm wavelength, study 1=18203
 magnetic bremsstrahlung radio-emission 0=831

Radioastronomy—contd

maser radiometer, 21 cm, use of Y-type circulator switch 1=5578
 maser, review of uses 1=7145
 maser, 21 cm, for Harvard radiotelescope 4=24881
 measurement of a.u., discrepancies and velo. near large masses 4=29470
 meteor, echoes, Brysk analysis, criticism 3=16427
 meteor echoes, noise suppression in receivers 1=11686
 meteor echos, 300 Mc/s, interpretation 3=13925
 meteor associations, radar, visual and photographic obs. 4=15954
 meteor echoes 0=10486
 meteor echoes, calc. of meteor mass distrib. 0=18706
 meteor echoes, calc. of meteor mean hourly rate 0=18717
 meteor echoes, distrib. by duration 0=18679
 meteor echoes, duration, effect of electron attachment to O_2 0=8480-1
 meteor echoes, at 500 and 300 Mc/s 2=24172
 meteors echoes, factors affecting apparent height and distributions 0=18682
 meteor echoes, Geminid stream study 0=4874
 meteor echoes, height distrib., in non-isothermal atmos. 0=4876
 meteor echoes, height variation with velocity and magnitude 0=18715
 meteor echoes, rel. to ionosph. conditions 2=11161
 meteor echoes, 1954-8, new shower in Boötes 1=2661
 meteors echoes, oblique, from over-dense trails 0=4875
 meteor echoes, obs. survey 2=19351
 meteor echoes, persistent 1=8027
 meteor echoes, Quadrantid shower, mass distrib. function, S-parameter 0=18684
 meteor echoes, Quadrantid stream, structure study 0=18719
 meteor echoes received by forward scattering, altitude distrib. 4=13962
 meteor echoes, rough-trail, duration rel. to atmospheric height 1=5170
 meteor echoes, in S hemisphere 0=18680
 meteor echoes, wind vel. meas. 3=11520
 meteor echoes, trail height distrib. 0=4873
 meteor echoes, trail irregularities 0=14388
 meteor echoes, u.h.f. invest. technique 2=9114
 meteor orbits, radar detm. 2=17306
 meteor obs. techniques 4=7989
 meteor observations, density of matter near earth's orbit 4=4943
 meteor radar echoes, 1961 results 3=9273
 meteor radio echoes, duration distrib. 1=18173
 meteor radiant distributions and echo rates, observed by forward scatter 0=14389
 meteor scattering echo, over-dense ionization column 3=16428
 meteor showers, detection limitations 0=6566
 meteor showers, radar observations, latitude depend. 2=4844
 meteor signal reflections, decay rates 3=13924
 meteor stream survey, southern hemisphere 4=20940
 meteor trail observation for upper-atmosphere wind determination 0=14390
 meteor trail reflections, fading 1=1975
 meteor trails, ambipolar diffusion 4=10912
 meteor trails, amplitude distrib. of reflected signals 2=15405
 meteor trails, c.w. equip. study 0=6565
 meteor trails, dense, specular echoes 2=11162
 meteor trails, diffusion in earth's mag. field 4=30978
 meteor trails, E-region winds 1=4123
 meteor trails, fewer plasma reson. due to elec. field 4=20938
 meteor trails, oblique reflections, azimuth distribution 0=14391
 meteor trails, radio equipment for meas. 4=4935
 meteor trails, scatt., Eshleman's model modification 3=23709
 meteor trails, scattering of radio waves 3=7049
 meteor velocity meas., pulse-diffraction method 0=18714
 meteors, activity and mag. field alignment 2=11165
 meteors, echo durations and ht. 4=30980-1
 meteors, 15th-magnitude, radar studies 2=17307
 meteors, head echo 1=6744
 meteors, incident fluc det. 2=4848
 meteors, luminosity and ionization obs. 3=5252

Radioastronomy—contd

meteors, moon effect 4=13961
 meteors, Sextanid orbit. obs., little diff. from Geminid 4=20939
 meteors, sporadic, orbit measurements 1=12785
 meteors, subvisual, radar obs. 4=30979
 meteorological noise effects at X-band 4=4923
 and millimeter wave optics, review 4=4918
 molecules, diatomic, spectra, meas., by paramag. reson. absorption 3=19988
 moon 0=12258
 moon 2=11154-5
 moon, angular scatt. law, at 10 cm wavelength 2=1009
 moon, atmosphere 0=18620
 moon, echoes and emission 0=18627
 moon, echoes at 10 cm 0=18617
 moon, echoes at 100 Mc/s, fading 0=18616
 moon, eclipse temp. var., rad., calc. 4=2396
 moon, 4 mm wavelength study 2=1010
 moon, 1420 Mc/s thermal radiation 1=6697
 moon, as r.f. scatterer 1=15556
 moon, radar cross-section 4=4939
 moon, radar depolarization 2=19350
 moon, radar reflections, composite correl. function 4=13942
 moon, radar reflections at 425 Mc/s 3=11596
 moon, radar reflections from rough surface 2=15402-3
 moon, radar scatt. and surface mean slope 4=13952
 moon-reflected signals appl. to ionosphere electron content meas. 4=26837
 moon, reflection characteristics 0=18619
 moon, reflection of u.h.f. signals, fading rate 2=4840
 moon, review 4=29471
 moon, roughness, as radar reflector 0=14384, 18652
 moon, scattering behaviour, at 3.6, 68, 784 cms wavelength 3=11598
 moon, scattering props. 0=18651
 moon surface porous nature 4=13944
 moon, surface props., density and dielec. const. meas. 2=24091
 Moon, temp., 8.5mm 4=13957
 moon, and temp., 1.2 cm 4=13959
 moon, 10 cm study 0=18618
 moon, Tycho crater, radar reflectivity enhancement 3=9267
 multi-element arrays for precise positions meas. 3=9274
 multiplicative arrays 3=9261
 multiplier-square law detector 4=23935
 Nançay grating interferometer, for 169 Mc/s solar studies 0=4849
 Nançay interferometer, N-S array 1=18141
 nebular, apparent recession and nature of radio stars 1=18002
 negative absorption, from radiative transfer theory 0=4962
 in Netherlands, current research 4=4920
 new centre, University of Sydney 1=42
 noise absorption in ionosphere during auroral and magnetic pulsations 1=15262
 noise obs. using satellites, use of Z-mode propag. 3=1537
 non-thermal sources, spectra rel. to brightness temp. 3=1541
 normal galaxies, emission 0=16527
 North Polar spur, bright feature study 4=20946
 novae outbursts, cause *3=3586
 observations at cm wavelengths, using masers 0=8473
 observations, interferometer and total power set, comparison 1=18139
 observations from satellites 0=5, 10543
 1.5 m solar emission, polarization 1=15533
 optical identification of bright radio sources 1=18198
 orbiting dipole belts round earth, properties 1=6725
 orbiting scattering medium, radio properties 1=6727
 parabolic cylinder aerial, use 4=10910
 parabolic mirrors, radiation pattern, re-setting technique 1=15529
 Paris symposium (1958) 0=10477
 pencil-beam system, 4.5 min. arc 3=9276
 in-phasing of aerial system elements 1=15526
 planet, Jupiter, dynamic, repeatability 3=18657
 planet Jupiter, mag. moment, from polarization, correction 3=18613

Radioastronomy—contd

- planet, rotating, Doppler-freqn. spectrum 4=15953
- planets 2=11154-5
- planets, conference, Liège (1962) 3=13862
- planets, distant, radio transmission detection, review 4=20934
- planets, echoes and emission 0=18627
- planets, ionosphere 0=18624
- planets, microwave radiation, as research tool 3=18599
- planets, radio emission 1=12779
- planets, review 3=18652
- planetary radar, survey paper 4=13943
- point sources, discovery 1=15565
- polarimeter, for solar emission 0=16524
- polarization distrib., meas. method 4=15949
- polarization, linear, search, 21 cm 3=18660
- project Ozma 1=12781
- project Ozma 4=20935
- radar astron., surface roughness, statistical methods 4=4922
- radar astronomy, review 2=15394
- radar astronomy, ruby maser use 3=5894
- radar echo from moon and planets, theory 1=15559
- radar-lunar investigations at low geomagnetic latitude 1=15555
- radar probe, ionospheric, with 1000ft bowl 1=8015
- radar reflection from moon and planets, theory 1=15557
- radio-echo obs. of aurorae 1=1565
- radio galaxies, distances and formation 2=1020
- radioheliograph, visual display of radio bursts 4=4945
- radio interferometry and spectral sensitivity island diagram 1=8019
- radio-meteors, incident flux determination 0=18683
- radiometer calibration, high temp. waveguide termination 4=738
- radiometer, continuum, 1400 Mc/s 4=4928
- radiometer for H line 1=47
- radiometer for H-line extragalactic studies and continuum observations 1=2664
- radiometer, low-noise, sensitivity 1=4215
- radiometers, noise generator for calibration 3=24162
- radio source observation at for frequencies 1=2666
- radio source problems 0=18653
- radio sources, spectra 1=15566
- radio star observations rel. to ionospheric drift 1=20925
- radio star scintillation 1=9196
- radio star scintillation, statistical analysis 1=15266
- radio-star scintillations in auroral zone 1=9195
- radio-star scintillations, effect of aurora 0=16465
- radio-star scintillations, use in ionospheric drift meas. 1=1545
- radio-star scintillations rel. to ionospheric irregularities 4=2267
- radio-star scintillations, ionospheric origin 0=769, 770, 774, 2006, 2018-9
- radio star scintillations, magnetic storm time variation 1=4224
- radio-star scintillations, simultaneous obs. on diff. freq. 0=14385
- radio star spectra 0=18661
- radio stars, mechanism of charged particle capture by mag. fields 1=10339
- radio stars, mechanism of charged particle capture by mag. fields 1=4699
- radio telescope interferometer at Royal Radar Establishment 1=15527
- radiotelescope, learning 4=23932
- radio telescope, theoretical limitation in sky brightness det. 1=18143
- radio telescope, 360 ft, Ohio State University 1=8013
- radio telescope, two-feed system for noise elimination at cm wavelengths 4=13941
- radiotelescopes, sensitivity, low input-noise levels 1=4216
- ray paths from cosmic radio source to satellite in orbit 1=15531
- receiver, L-band, travelling wave tube 3=7045
- receiver output rel. to aerial scan rate and radiometer time const. 1=18142
- receivers, linearity meas., simple 3=13918
- receivers, low-noise, comparison 4=4926

Radioastronomy—contd

- receivers, multi-channel, for hydrogen line profiles 4=4934
- recent counts, cosmological implications 2=15293
- red-shift detection at $\lambda = 21$ cm 0=18912
- review 1=4212
- ruby maser radiometer 1=8018
- San Diego Symposium (October 1959) 0=14382
- satellite-borne aerials, effective area 3=23703
- satellite radar echoes 1=9302
- satellites and rockets, application 2=9109, 15397
- Saturn, 18-23 Mc/s observations 0=18622
- Saturn, radio detection at 3.45 cm 1=43
- Saturn, polarization 3200 Mc/s 4=23940
- scintillation correlation in N and S hemispheres 1=4223
- 16-aerial array at 9300 Mc/s, Nançay, France 1=15525
- solar activity study 0=18732
- solar bursts, very intense, at 10-25 Mc/s 3=3619
- solar, conference 1=15532
- solar, conference 3=13916
- solar corona, optical and r.f. emissions, relationship 1=18087
- solar corona, outer, emission, special array 0=4
- solar corona, structure obs. 0=18749
- solar corpuscular clouds, observation by direct continuous-wave reflection 0=4896
- solar, developments and techniques 1=44
- solar emission and earth's field 0=18469
- solar emission at 9500 Mc/s 0=18644
- solar event, metrewave, Nov. 4 1957 1=18163
- solar flares, SIL radio detect. method 4=20931
- solar flares, rel. to X-ray emission 3=3579
- solar parallax determination 1=10395
- solar particle stream detection by h.f. radio waves 4=10892
- solar radio bursts 1=18161
- solar radio bursts, association with flares 0=12255
- solar radio bursts at metre wavelengths, investigation techniques 4=4945
- solar radio bursts, receiving equipment 1=5167
- solar radiopolarimeter operating at 74 Mc/s 4=15952
- solar spectrum analyser, swept-frequency receiver 1=8021
- solar supercorona, data 1=15536
- solar systems 0=18615
- solar type IV, rel. to concurrent dm radio bursts 1=18170
- solar type II radio bursts, spectral characteristics 1=18169
- source count interpretation, cosmological 4=20955
- source counts, cosmological implications 2=15293-4, 21688
- sources, angular structure, investigation apparatus 4=4933
- sources, distribution and classification 1=18197
- sources, nature and identification 4=20932
- sources at 3.5 m wavelength, survey 1=18188
- southern radio sources, optical identification 1=18199
- Soviet cosmic rocket, interference methods 0=16557
- spectral sensitivity functions, formula 3=5269
- spectrograph, 60-channel receiver for 160-320 Mc/s 4=26965
- spectrometer for 21cm 3=16430
- spectroscopy, narrow-band, fast-response 1=18155
- sporadic meteors, S hemisphere survey of radiants 0=18681
- Sputnik 3, variation of signal strength 0=19
- Stanford interferometer, preliminary observations 0=6552
- Stanford microwave spectroheliograph and pencil beam interferometer 1=8016
- star scintillation rel. to ionospheric diffraction 3=11427
- star scintillation rel. to ionospheric zenith angle 3=11426
- stars, red dwarf, flares and 240 Mc/s emission 3=18659
- steady-state model failure by recent radio observations 1=10368
- stepped cylindrical mirror for radioastronomy 1=8020
- sun 1=15538
- sun, continuum bursts 25-70 000 Mc/s 3=3617
- Sun H II region and galactic radio cut off near 1 Mc/s 4=29422
- sun, radar echoes 0=4871
- sun, radar echoes, reception possibility 4=29477
- sun, radio brightness distrib. at 21 cm 1=18165

Radioastronomy—contd

- Sun, and temp., 1.2 cm 4=13959
 Supergalaxy direction, emission 1=18194
 supernovae, nature 1=18204
 survey, activities outside U.S. 1=12778
 survey of methods 1=15524
 Tau A, radio emission intensity in decimeter region 4=26970
 Taurus-A, 8 mm wavelength emission 1=18206
 telescope, Arcetri Observatory 2=13169
 telescope, Benelux, proposed cross-antenna 1=15528
 telescope, cross-type Benelux 4=4936
 telescope, cross-type, Sydney University 4=4932
 telescope at Greenbank (West Virginia), description and programme 1=9292
 telescope, high resolving-power, at Pulkovo Observatory 1=2643
 telescope, at Medicina, 327 Mc/s 0=18687
 telescope, Mills cross, 19 Mc/s, Australian 4=4930
 telescope, N.R.L., 84 ft, observations 0=18625
 telescope, at Nançay 2=7032
 telescope, paraboloidal, steerable in azimuth 3=9260
 telescope, for 7.9m wavelength 1=12782
 telescope, 600 ft, West Virginia 2=15398
 telescope, 360 ft, at Ohio State University 0=4877
 telescope, 210 ft, Australian, description and research programme 4=4924-6
 telescope, 210 ft, Australian, equipment, research programme 4=15951
 telescope, using aperture synthesis princ. 2=15395
 telescopes, cross-type, simple theory 4=4929
 telescopes, design, diffraction theory 0=8786-7
 telescopes, for extragalactic surveys, design 2=7033
 telescopes, for extragalactic surveys, design 3=7042-3
 telescopes, giant, realization by synthesis techniques 4=4937
 telescopes, interstellar H radio-emission meas. 0=10485
 telescopes, large, future instruments 2=9110
 telescopes, noise generators 2=17302
 telescopes, sensitivity 0=18686
 telescopes, 60 ft, ruby maser preamplifier for 21 cm wavelength 1=4214
 telescopes, for solar 3 cm radiation 2=7035
 telescopes, synthesis 0=18685
 telescopes in the USSR 4=4938
 telescopes, wide-area image formation 2=4833
 three antenna patterns from same aperture, resolving power 0=828
 3 radio star surveys, comparison 1=12783
 tracking of radio star by lobe comparison, angular accuracy 0=16529
 tracking technique, high resolution obs. 3=9257
 21 cm H line, Galaxy, review 1=4218
 21 cm study of kinematics of local gas system 1=7978
 two-aerial interferometer, for localized solar disturbances, 3.23 cm 0=4852
 two-element interferometer for 960 Mc/s position determination 1=8017
 u.h.f. aurora-traversing signals, moon-bouncing studies 0=8408
 uncertainties due to confusion in surveys of sources 1=18134
 University of Illinois radio telescope 1=8014
 Venus, apparent radio radiation at 11 m 0=10479
 Venus, astronomical unit det. from radar data 2=13175
 Venus, atmospheric microwave absorption and emission 1=2659
 Venus, brightness distrib. 3=16426
 Venus, at 8.6 mm 0=18621
 Venus, 4 mm emission 3=3622
 Venus, high surface temp., explanation 3=21129
 Venus, intensity versus phase angle, temp., rot., ~20m 4=13956
 Venus, Mariner 2 microwave radiometer results, temp. 4=13954
 Venus, 1962 radar obs. 4=13946
 Venus, radar cross-section 4=13948
 Venus, radar cross-section var., 38 Mc/s 4=13949
 Venus, radar depolarization 2=19350
 Venus, radar depolarization and surface roughness 4=13951
 Venus, radar echoes 1=10395
 Venus, radar exploration 1=15560

Radioastronomy—contd

- Venus, radar obs., astronomical unit det. 4=29474
 Venus, radar obs., c.w., rot. 4=13947
 Venus, radar obs. 440 Mc/s 3=11594
 Venus, radar obs. libration fading, echo area, 50 Mc/s 4=13950
 Venus, radar observations 2=4842, 13174
 Venus, radar scatt., and surface small mean slope, ang. velo. 4=13952
 Venus, radar zero Faraday rot. 4=13953
 Venus, radio echoes 0=4872
 Venus, reflections, astron. unit determ. 3=9272
 Venus, rot., radius, A.U., U.S.S.R. obs. 1962 4=2459
 Venus, rotation. period and direction 3=11518
 Venus, temp. 3=16358
 Venus, temp., 8 mm 4=13960
 Venus, temp., 8.6 mm 4=13945
 Venus, temp., enhancements 3=21127-8
 Venus, and temp., 1.2 cm 4=13959
 Venus, and temp., size, ~10m 4=13955
 Venus, temp., 2 cm 4=13958
 Venus, 10.6cm, lack of polarization 4=2468
 Venus, 3 cm, effect of solar illum. phase 3=18653
 Virgo A source, observations at 8.7 cm wavelength 1=10396
 Virgo A source, observations at 8.7 cm wavelength 1=11687
 X-band radiometric sky temperatures 4=29468
 Young, sources, nonthermal emission, spectra, non-stationarity 3=3614
 Zeeman splitting in spectra, meas. technique 4=7954
 200 Mc/s solar emission, polarization 1=18162
 SH spectra, meas. by paramag. reson. absorption 3=19988
- Radiochemistry**
 See also Chemical analysis, radioactive; Chemical effects of radiations; Radioactive tracers
 β -emitting nuclides, standardization, complex ion efficiency tracing method 4=9427
 book, experimental treatment 1=4744
 concrete cell, for analysis of multi-Curie materials 2=21606
 diffusion, from monolayer of reaction products 0=2165
 extraction of fallout fission products by ion-exchange 1=13677
 fission gases, short-lived, det. 2=4577
 fission products determination, nonirrad. natural and depleted U salts 2=5987
 fluoro-organic cpds., $F^{19}(n, 2n)F^{18}$, F^{18} retention 3=5171
 gas phase reactions of hot atomic F 3=21005
 at high pressure and temp. 2=12978
 hot H atoms, billiard-ball collisions 2=4561
 identification of new transuranic elements 0=11332
 ion adsorption on Pt 2=15105
 irradiated soln., rapid handling system 3=24885
 neutron-activation study of GaAs contamination by quartz 3=1274
 nitrate crystals, radiation damage 2=17099
 nuclear track chamber 2=1646
 organic compounds, labelling with tritium 2=21604
 (p, pn) reaction studies in complex nuclei 0=11403
 preparation of materials for beta-spectroscopy 1=629
 probability distrib. of recoil energy in neutron-capture γ -ray emission 1=4179
 separation of fission products, and corrosion elements on Al_2O_3 0=21301
 separation of isomers of $Te^{127, 129, 131}$ 4=7780
 solids, chemical damage due to radiation 3=2841
 species identification by e.s.r. 2=3180
 transuranic elements, review 1=8628
 tritium-labelled aromatics, distribution of radioactive atoms 1=15206
 Ag, colloidal, γ recoil products from neutrons, separation 3=6929
 As in Zn, Gutzeit method of detm. 3=1399
 Be^7 isotope, extraction from cyclotron targets 4=10652
 Br^{80m} decay in Co, Rh and Ir pentamminebromo complexes 3=23553
 CH_3Br^{80} , β^- -decay, fragment ion abundances 4=2168
 CH_3F^{18} , β^+ -decay, fragment ion abundances 4=2168
 CH_3I^{126} and $C_2H_5I^{126}$ decay, formation of fragment ions 3=18459
 C_6H_5T , dissociation following β^- -decay 0=8322

Radiochemistry—contd

- CO, α -radiolysis 0=12108
 Cf²⁵² spontaneous fission yield study 0=15609
 use of CsI:TI-scintillation spectroscopy 4=12187
 Ga⁷³ separation 0=9549
 I¹²⁸ activated ion reactions, with gaseous molecules 2=4564
 Mo isotope separation, from U-fission products 2=21593
 P; contamination by As, Mn, Ga, neutron activation detm. 3=1398
 Sr uptake by glass and polythene 4=2154
 T-ethane reaction, mechanism 0=745
 T in Li salts, n irradi., and thermal release 3=23552
 Tc¹⁰⁶ and Ru¹⁰⁶ separation from U-fission products 2=21594
 Te sources, from irradiated NH₄I, separation 2=1851
 Te¹²⁹, purification 0=5680
 U²³⁵ fission study 0=1448
 U²³⁵, ²³⁸ fission, by neutrons, rel. to two-mode fission theory 1=17167
 U-Th separation, by Th-specific resin ion exchanger 0=21302
 Zr⁹¹, ions, hot, from U fission, exchange with ZrCl₄ 3=21006

Radiography

- See also Luminescent devices; X-ray tubes
 apparatus for contact microradiography at 200-500 V 1=18967
 of Armco iron, shock-loaded 3=9549
 autoradiography, β -active sources 0=15261
 auto and electron microscopy, radioactive 1=9242
 auto, for metallurgy, equidensitograph 4=16264
 autoradiography of defects in worked steel 3=5143
 autoradiography between metal powders and X-ray films 1=18635
 autoradiography determination of Fe distrib. on magnetic tape 0=12668
 autoradiography, with fine-grain emulsions 0=12799
 autoradiography, histological specimens 0=14325
 cinefluorography, X-ray image television-type amplifiers 0=4541
 diagnostic X-ray grids, comparative performance 0=10456
 electron microscopy, autoradiog. 3=16439
 electron microscopy of autoradiographed radioactive particles 0=7487
 electronic control of exposure-time 0=16500
 emulsion autoradiograms, quantitative, possibilities 3=17158
 flash radiography, review 4=11735
 flash X-radiography for hypersonic air flow density measurements 0=19188
 image intensifying panels 0=19407
 industrial with high-energy X-rays 1=13144
 industrial review 1=10753
 industrial, tomograph 0=14088
 information vol. on radiographs from density-to-thickness curves 4=14843
 inspection device, using p-i-n juncn. detectors 4=30010
 low-voltage technique for metals 3=2073
 medical, reduction of scattered X-rays by grids 4=21328
 microradiography, review 1=6659
 modulation transfer function det. 2=17668
 neutron 1=10287
 neutron image detectors, review 4=11380
 neutron, of metals, review 4=10993
 neutron radiography technique 3=16475
 photographic process, appl. 2=1284
 photographic response to successive exposures of different types of radiation 1=16129
 radioactive inert gas, as soft γ source, for minimum health hazard 3=12280
 radioactive particles, electron microscopy 0=7487
 radiographs using Si single cryst. wafers 4=15478
 recording radiographic information by scintillography 4=24783
 resolving power, microauto systems 4=14417
 scattered beam method 2=5427
 spectral flux density of scattered and primary radiation, 250 kV 1=15362
 stroboscopic, with linear accelerator 0=6958
 systems containing fluorescent screens, line spread-function meas. 4=11379
 tracer methodology conference 4=7779
 X-ray absorpt. coeffs., quantitative det. 3=21198

Radiography—contd

- X-ray dosimetry and colour film 0=349
 X-ray emulsion, solarizing, rate depend., sensitometric props., number and structure of developed grains 4=11378
 X-ray films, commercial, comparison 4=3081
 X-ray intensifying screen, using photoconductive layers 0=19408
 X-ray quantum fluctuations recording 2=19739
 X-ray, of radioactive specimens 3=7668
 Al, fatigue fracture, autoradiography 2=19015
 Al, H distrib., autoradiography 4=2106
 CCl₄, penetrant in surface cracks 2=23933
 I¹²⁸ low-energy γ -source 3=21150
 T diffusion, in Zr, autoradiography 2=21073
 UO₂ nuclear fuel pins, by 14 MeV X-rays 4=9614
 V, neutron 4=10993

Radiometer gauges

See Vacuum gauges

Radiowave propagation

See Electromagnetic wave propagation

Radiowave spectra

See Nuclear magnetic resonance and relaxation;
 Paramagnetic resonance and relaxation; Spectra,
 radiofrequency.

Radium

- dosimetry in air, continuous 0=15528
 L X-ray fluorescence yield meas. 4=15307
 Lennard-Jones parameters 0=17725
 in liquids, radiometric assay 0=13160
 Ra A atoms in atmosphere 3=9056
 Ra-Be photoneutron source, absolute calibration 2=3355

Radium compounds

- neutron sources, emission rate, application to photo-neutron sources 4=25102
 ore deposits, prospecting method 4=2182

Radon

- in atmosphere, radon and thoron radioactivity meas. 2=4610
 in atmosphere, transport study 2=8979
 in atmospheric air, continuous dosage meas. 1=15242
 atmospheric content. 3=25900
 atmospheric and diffusion of continental and oceanic masses, low altitude 3=21034
 atmospheric, and products, rel. to prospecting for U ores 0=16498
 atmospheric, vert. and temporal distrib., effect of met. variables 0=14320
 in ceramics, leakage, as potential health danger 4=6298
 concn. above Atlantic, effect of weather 3=9052
 conc. determ. in air, scintillation counter 4=3243
 daughters, in atmospheric aerosols. 3=25910
 decay product equilibrium in atmosphere 3=21042
 decay products, aerosol conc. detm. 2=20531
 decay products, attachment to aerosol particles 1=15247
 electron orbit angular momentum, distrib., pressure depend. 0=13388
 flux at earth-air interface 1=15246
 gas diffusion in Al, Ti, Fe, Th and U oxides 1=17563
 luminescence chamber counter 4=30329
 natural, concentration near ground for atmospheric diffusion estimates 0=14319
 Rn^{220,222}, atmospheric vertical distrib. and decay products. 3=25899
 Rn²²² ion range, by analysis of α -line shapes 3=14677
 Rn²²² ions, 2-450 keV, range in Al, W. 3=14676

Rain

- See also Condensation; Snow
 artificial prod. in clouds 3=13676
 and atmospheric electricity, pot. gradient, lower troposphere 3=18513
 and atmospheric electricity, pot. gradient, Poona, IGY 3=18514
 charge and current, carried vertically 0=802
 cloud formation, pptn., review 3=1439
 condensation nuclei and drop size 4=13791-2
 conductivity, elec. and precipitation rate 4=4768
 convective showers, drops size meas. rel. to model 3=5201
 daily, singularities, statistical value 3=3460
 drop charge, field meas. 0=8434
 drop size, det. using photographic emulsions 1=12853
 drop size distrib. of monsoons at Poona (India) 1=20830

Rain—contd

- drop size, electronic disdrometer and results 1=12687
- drop size, radio obs., 3 cm 3=18508
- drop sizes, rel. to condensation nucleus concn. 3=18507
- drops, coalescence, allowing for condensation 3=16217
- drops, evaporation 3=9040
- drops, size distribution, var. during fall 3=13672
- electricity in rain 1=1515
- electrification 1=20828
- evaporation, droplets, freely suspended and charged, in humid air 4=2891
- evaporation in lower atmosphere, meas. 2=2473
- fallout, altitude distrib. 3=9053
- fallout, at Sydney, from 1962 Christmas Island tests 3=15128
- hail form., isotope method study 4=29277
- heavy drops, theory 3=11388
- and ice nucleus conc., lunar influence 3=11399
- intensity peaks correl. with meteor activity 3=6958
- meteor particles initiation 2=15193
- noise, acoustic, heavy 3=21503
- radioactive aerosols removal rate 4=15877
- radioactive dust capture coeff. 4=15876
- radioactivity of artificial origin 1=1521
- radioactivity, artificial (Sept. 1960-Dec. 1961) 2=4612
- radioactivity meas., T, by conversion to benzene 4=13744
- radioactivity, natural 3=23590
- radioactivity in rainwater, from nuclear weapon tests 0=5679
- radioactivity, after Sept. 1961 Russian weapon tests 2=2492
- and radioactivity wash out 4=29305
- rainbow, primary, caustic locus 3=9577
- raindrop breakup, causes 1=20829
- raindrops, size distrib. 3=1435
- raindrop-size distrib. with height. 3=25883
- raindrop spectrum analysis 2=15192
- raindrops and gusts, distrib. in showers 2=17141
- rainfall anomalies, rel. to meteor vapour condensation products 4=10714
- rainfall peaks, correl. with meteor showers 4=17890
- rainfall rate, radar meas. 3=13669
- rainfall recording, attended long period operation 0=3436
- stimulation with AgI, use of I^{131} 1=4109
- terminal velocity, rel. to momentum exchange 2=21634
- thermometer, thermistor 3=13656
- thunderstorms, vertical cross-section, radar analysis 1=20833
- tritium analysis, rel. to nuclear explosions 2=4613
- tropical, continuous, quiet, electricity, origin 3=13671
- wind meas. using radar Doppler shift 3=1433
- Be⁷, and Cs¹³⁷, var. 3=25904
- D and O¹⁸ content. 3=25897
- T, fallout, var., and Sr⁹⁰. 3=25896

Raman spectra

See also Luminescence.

- absolute intensities, method for gases 2=8097
- adsorbed layers on silica gel, rel. to bulk spectra 4=7100
- alkali halides, mixed crystals, second order 2=702
- anti-Stokes components of compounds with H bonds 0=15718
- band intensities, rel. to nature of chem. bond 2=6172
- band widths compared with liquid-phase i.r. absorption bands 1=2758
- bond polarizability calc. 0=17789
- book 2=13451
- calc. polyatomic molecules 4=1237
- calcite, temp. dependence 2=14690
- chloroform, in soln. with dioxane, ethyl ether, ethyl alcohol, acetone, phosphoryl chloride, rel. to intermol. inter-acts. 4=25784
- classical theory for intensities, analysis 4=3832
- combination and overtones intensity calc. 4=22334
- complex molecules, isotopic frequency rule 0=15715
- conference on applied spectroscopy 4=5378
- crystal impurity centres 3=20464
- and crystal lattice vibr., using small solid samples 4=15581
- crystal lattice vibrs. and e. m. fields, interactions 4=28346
- crystals, ang. depend., quartz 3=20463
- crystals, cubic, scattering matrix 3=23059

Raman spectra—contd

- crystals, diamond and zincblende, theory 3=23061
- crystals, rel. to e.m. wave quantization 2=20914
- crystals, rel. to e.m. wave quantization 3=2703
- crystals, expt. and theoretical progress 3=937
- crystals, first-order Raman effect, theory 3=25448
- crystals, i.r., second order effects and finite number of vibr. modes 4=7099
- crystals, line broadening due to molecule rotation 2=703
- crystals, rel. to phonon spectra 2=4146
- crystals, piezoelectric tetragonal 2=21254
- crystals, piezoelectric tetragonal 3=3025
- crystals, polarizability theory approx. 3=20462
- crystals, resonance scattering 2=21255
- crystals, resonance scattering 3=3024
- crystals, near 2nd-kind phase-transition 0=20974
- crystals, var. with elastic wave vector dirn. 4=10155
- crystals and vitreous solids, temp. depend. of band intensities in Stokes region 1=5052
- depolarization rel. to exciting light frequency 3=16765
- depolarization factor of Raman lines 1=4455
- depolarization, rel. to polarized irradi. beam 3=732
- dipole liquids, line width 2=7216
- e.m. waves scattered on ferrites 0=9210
- excitation, use of Tl 5350A line as source 4=5388
- ferroelectrics, near 2nd-kind phase-transitions 0=20974
- fluorite, temp. dependence 2=14690
- gases, abs. intensities, rel. to polarizability 2=7258
- gases, broadening by dipole and quadrupole forces 3=9508
- gases, in electrostatic field 2=13378
- gases, at h.p., optical cell observations 0=6932
- gases, line intensity, temp. depend. 2=7259
- gases, scattering function 2=1202
- gases, temperature dependence of intensity 1=19642
- gases, theory and expt. 2=1203
- glassy polyphosphate (thermally dehydrated H₃PO₄ and (NH₄)H₂PO₄) 3=15695
- high-temp. apparatus 1=11764
- higher-order coherent effects, Boltzmann eqn. for density matrix 4=20006
- illumination geometry, rel. to intensities and depolarization 3=7332
- impact line broadening from anisotropic intermol. forces 3=8226
- indicatrix, expt. and theory 2=6173
- induced, two-quantum processes and lasers 4=16686
- intensities, rel. to absorption intensities 2=3748
- intensities, influence of u.v. absorpt. frequencies 2=20784
- intensities, in liquids 1=15780-1
- intensities, temp. depend., harmonic and anharmonic approx. 2=22945
- intensities, temp. dependence 0=4206
- intensities, theory 1=8841
- intensity meas., ratio of exciting and Raman lines 0=14816
- laser source 4=18408
- laser, stimulated, parametric coupling bet. vibr. and light 4=19262
- laser, Stokes harmonic generation and amplification by coherent source 4=24883
- laser, travelling-wave amplifier and self-excitation 4=16685
- lasers theory, ang. var. 4=24907
- light modulation 2=17646
- light source, Hg lamp, l.p., high power 4=319
- light source, high intensity electrodeless arcs 3=7350
- light source, laser, ruby 4=14372
- line broadening, impact theory 2=20783
- line intensities, rel. to frequency 2=10259
- line intensities, in liquid and gas phase 2=7217
- line intensities, quantum model 2=6170
- line intensities, theory 0=19413
- line intensity, freq. depend., meas. by internal standard 4=24366
- line intensity, light transformation by linear oscillator with periodically varying parameters 4=20008
- line intensity meas. by electromechanical integration 4=5380
- line intensity and shape, measurement 1=2859
- line intensity theory, classical model 4=20007
- line shape, and molecular vibr. and rot. 3=19963
- liquid solutions, binary, band intensities theory 2=17465

Raman spectra—contd

- liquids and diffuse scatterers, spectrometer for
3600-6400 Å 0=3633
- liquids, excited by He-Ne laser, continuous photoelec.
recording 4=27179
- liquids, line width rel. to depolarization coeff. 3=15329
- liquids, micro-technique using capillary 0=10765
- low temperature cell, for spectrophotometer 4=29755
- maser, line ladder model of substance in cavity 4=14920
- medium-pressure gases, optical cells 3=24034
- molecular analysis 3=17553
- molecular oscill. freq. shift by intermol. interact 4=12420
- molecules, Fermi resonance obs., intermol.
effects 3=10487
- molecules, overtones of intramol. vibr. 3=10486
- molecules, vibr.-rot. band intensities calc. 2=6153
- orange, red regions, excit. by He lamp 3=1821
- overtone lines, intensities 2=18447
- photoelectric detection system 0=3618
- photoelectric recording 0=3619
- photoelectric recording of line intensities, short-width
effect 0=16864
- photography, high speed, using image intensifier 4=24368
- piezoelectric crystals, depolarization rel. to
scattering angle 3=15693
- piezoelectric cubic crystals 2=12606, 14691
- Plachek's formulae, for scattering function 1=2891
- polariton decay 2=12590, 14670
- polyatomic molecules, intensity calc. formula 2=14282
- powdered crystals, specimen mounting 0=14817
- powdered crystals in tablet form, methods 1=11837
- quartz, α -phase, linewidths and intensities 2=2243
- quartz, α -phase neutron irradi. 2=23540
- quartz, i.r., theory 2=4154
- quartz, temp. dependence 2=14690
- radiation of moving charge in medium 3=24058
- Raman lamps, using Rb and K, microwave
powered 2=7368
- Raman phonon scatt. in spin-lattice relax. 3=25562
- Raman tensor, form, 32 point groups 4=29752
- resonance region, intensity, rel. to electronic levels,
theory 0=15716
- rotational, molecular motion and moment analysis 4=17273
- rotational shifts, quadratic interpolation calc. 4=6518
- scattering indicatrix 0=19412
- scattering, laser action 4=5844
- scattering, stimulated, gain theory 3=14374
- scattering, stimulated, from lattice vibrs. 3=23060
- scattering tensor for all crystal vibrations 1=14613
- 7 compounds, rel. to intermolec H bond vibrations 3=25152
- solids, F-centre, theory 4=15500
- solids, Hg vapour lamp, for exciting 3=5524
- solids, at low temp., apparatus 0=12484
- solids, powdered, band intensities, effect of
absorption 0=13687
- solutions, solute band intensity, solvent effects 0=15717
- source, He-Ne laser, red, continuous 4=8437
- source, use of ruby laser 3=7347
- source, using ruby optical maser 2=5171
- spectrometer applications in molecular analysis 0=3620
- spectrometer, fast diffraction grating 4=27316
- spectrometer, plane-grating, modified 1=847
- spectrometer for recording 3=24033
- spectrophotometer, polarization compensator 2=105
- spectroscopy, advances and appl. 3=5517
- stimulated, amplification effect 4=16687
- stimulated Raman effect 3=14373
- superconductors, reflection from 1=14614
- symmetric top molecules, profile calc. 1=14025
- symmetric top molecules, rotational constants calc. 1=7456
- temperature variation, influence on glycerin 1=14043
- theory, driven osc. model, damping const.
effects 4=22330
- theory of Raman scattering with excitation near
electronic-vibrational transitions 1=4479
- third-order radiation process, analysis 4=17272
- trans-hexatriene, secondary effect 4=3899
- water, effect of electrolytes 2=5022
- wave interactions in forced Raman scattering 4=27338
- BaTiO₃ 2=8538
- Br₂, aq. soln. 2=5022
- Br₂, liquid 2=7368

Raman spectra—contd

- CaF₂, polarization characteristics 2=6586
- Cl cpds. with 2 or more oxygen ligands 3=12838
- Cl₂ aq. soln. 2=5022
- D₂PO₄⁻, rel. to normal coord. treatment 2=12330
- GeCl₄, liquid, second order 2=7215
- H bond, in crystal hydrates 2=6583
- H₂, D₂ and HD, high resolution 2=2721
- H₂, at 100-2000 atm. 2=1204
- H₂, Raman scatt. of Lyman α 2=22968
- H₂-A gas mixtures, at 100-2000 atm. 2=1204
- H₂-He gas mixtures, at 100-2000 atm. 2=1204
- H₂PO₄⁻, rel. to normal coord. treatment 2=12330
- H₂SeO₃, aq. solns. 2=2772
- K alum, polarization characteristics 2=6586
- KHSO₄, molten 2=19562
- LiCl 2=18850, 23577
- MoF₆ 2=14276
- (NH₄)₂M(SO₄)₂·6H₂O, M = Mg, Zn, Ni, Co 2=6585
- (NH₄)₂SO₄ 2=6584
- NaNH₄SO₄·2H₂O 2=6585
- P cpds. with 2 or more oxygen ligands 3=12838
- ReF₆ 2=14277
- SO₃, liquid and in solution 2=1154
- SiCl₄, gaseous state 2=22957
- SiCl₄, liquid, second order 2=7215
- SnCl₄, liquid, second order 2=7215
- SrTiO₃, i.r. active modes 2=2242
- TcF₆ 2=14276
- TiCl₄, liquid, second order 2=7215
- TiO₂, at room and liq. air temps. 2=16840
- XY₄ mols., tetrahedral, fundamental bands of
species F₂ 3=22586
- inorganic substances**
- alkali earth hydroxides 1=1171
- alkali halide mixed crystals 1=1172
- alkali hydroxides 1=1171
- α -quartz, before and after neutron irradi. 4=1542
- α -quartz, elec. field effects 3=18009
- α -quartz, neutron irradi. 3=3026
- arsenic oxide 1=2326
- boric anhydride, rel. to B coordination transitions rel. to
Na₂O content 4=20449
- calcite 0=16072
- carbon disulphide, crystals heat capacity calc., rel. to
polymerization 4=30691
- chlorates, use in lattice vibr. and rot. studies 0=1839
- crystals, electronic transitions, possibility of
observation 3=8588
- crystals, freq. shift and broadening, temp. var. 3=10922
- crystals, shell model theory 4=26169
- diamond, Stokes and anti-Stokes lines, laser
stimulated 4=7105
- ferroelectrics, width and intensity rel. to crystal
orientation 4=1717
- glasses, phosphate, two and three-component 3=8602
- gypsum, H-bond bands, rel. to temp. 4=10176
- gypsum, polycrystalline 0=16072
- ice crystals, H positions 0=10044
- ice VI and ice VII 4=28691
- ice, Ih, Ic, II, III and V 4=17570
- ice monocrystals, 226 cm⁻¹ line 0=7843
- ionic interactions in aq. solns. 4=2687
- mercuric chloride 1=846
- molten nitrates 1=1764
- nitrate solutions, aqueous, complex formation, spectro-
photometric obs. 4=8213
- oleums, relative integrated intensities 4=18206
- oxyanions of group VII 1=7474
- oxyanions, intensities of A₁ lines 0=4208
- parahydrogen, solid, theory 0=4197
- polyhalide ions 1=14029
- pyroselenites, study of X₂O₅²⁻ 0=11526
- pyrosulphates, study of X₂O₅²⁻ 0=11526
- quartz, ang. depend., 40-140° 3=20463
- quartz, near 2nd-kind phase-transition 0=20974
- quartz, neutron effects 4=26216
- Rochelle salt, H-bond bands, rel. to temp. 4=10176
- Rochelle salt, H bond, para-ferroelectric transition
mechanism 3=20484
- selenious acid, molten, detection of
H₂SeO₃ 3=137

Raman spectra—contd

inorganic substances—contd

silica, vitreous 0=11581

silicate glasses, interpretation 0=1499

spodumene, crystallization 3=5086

sulphates, anhydrous, comparison, and crystal forces 3=13186

thiocyanate complexes, i.r. 3=3012

from Van de Graaff beam passed through foil and imaged on Raman spectrograph 3=19918

Ag cyanide anions 1=14036

AgNO₃, molten, giving nitrate ion structure 4=15355AlBr₃, solid and liq., meas. 3=8591AlCl₃ in SOCl₂, 0.11-0.73 mole per mole 3=14170AlCl₃, solid and liq., meas. 3=8591Al(OH)₃ 1=1171AsCl₃ soln. in liquid Cl₂, solvent effect 1=18414B BrCl₂ 1=847BCl₃ 1=847B₂O₃(OH)₃ (orthorhombic metaboric acid) 1=3542BaF₂ 3=23065BaF₂:Sm²⁺ 4=13085Ba (NO₃)₂, overtone and combination bands, rel. to NO₃⁻ vibrations 4=10163BaTiO₃ tetragonal single crystals 4=13021BaTiO₄ 3=17995BeCl₂, aq. soln., rel. to polymerization 3=9463BeF₂, aq. soln., rel. to polymerization 3=9463CBr₄, crystalline state 3=15677CCl₄, light intensities, ang. distrib. 4=16118CCl₄, using laser, ruby, light source 4=14372CCl₄, Raman lines depolarization 3=732CF₄, ν₁(a₁) modes, vibrational intensities 3=22559CHCl₃, CDCl₃, intensities 3=20006

CO, line broadening rel. to collision diameters 3=7247

CO, line broadening rel. to collision diameters 3=7247

CO₂, rotational and vibrational lines 0=17746CS₂, light intensities, ang. distrib. 4=16118CS₂, overtone lines 0=87CS₂, at 28°C and -80°C 4=5182CaCO₃, laser stimulated, 2 Stokes and 4 anti-Stokes orders 4=20451CaCO₃, Stokes and anti-Stokes lines, laser stimulated 4=7105Ca(NO₃)₂ aqueous solns., complex formation, spectro-photometric obs. 4=8213

CdS, and i.r. absorpt. spectra 4=17559

Cl₂, liquid solvent effect on AsCl₃ 1=18414Cl¹M (M = Pd, Pt, Se, Sb, Pb, Sn, Ti), and mol. vibr. calc. 4=9738CoSO₄·7H₂O 1=12499

Co tetracarbonylate anions 0=11528

CsBr, Raman scatt. meas. 3=15692

CsI crystals 4=22883

CsI, using 2537A excitation 4=1725

Cu cyanide anions 1=14036

D₂, laser stimulated, four photon, difference from H 4=9704

Fe tetracarbonylate anions 0=11528

GaBr₃ soln., study of GaBr₄⁻ ion 3=5444Ge₂H₆ and Ge₂D₆ 3=2627Ge₂H₆ and Ge₂D₆, liquid 4=9739

H bond, in Rochelle salt, para-ferroelectric transition mechanism 3=20484

H₂ gas, compressed, vibr. freq. perturbations 4=22353H₂, laser stimulated, four photon, difference from D₂ 4=9704H₂, liquid, laser stimulated 4=8210H₂, Q₁ branch, high-resolution obs. 3=24034H₂ rotational and vibrational lines 0=17746HNO₃, line intensities rel. to NH₄NO₃ additions, complex formation interpretation 4=28223H₂O, effect of SO₂, CO₂ 4=14169H₂O structure 4=21093H₂SeO₄ aq. solns., molecular species 4=182Hg halides, HgCl₂, HgBr₂, and HgBrCl, molten state 3=9460

Hg halides, trichloro- and tetrachloromercurate ions in molten salts 3=9461

Hg, relative intensities for 60 lines, 3900-6250 Å 0=14816

HgCl₂-KCl in molten KNO₃ 4=18204

Raman spectra—contd

inorganic substances—contd

HgCl₂-TiNO₃, molten, correspondence with HgCl₂, TiNO₃ 4=180Hg₂Cl₂ 1=9925HgI₄²⁻, rel. to force consts. and vibr. freqn. 3=6402Hg(NO₃)₂·1/2H₂O, liquid 4=18204

In sulphate, incomplete dissociation in aq. soln. 0=10671

In sulphate, nitrate and perchlorate aqueous solns. 3=7211

IrF₆ soln. in n-C₇F₁₆ 0=15723

KBr crystals 4=22883

KBr, shell model theory 4=26169

KI crystals, at low temp. 1=17903

K₂M(SO₄)₂·6H₂O, M = Mg, Zn, Ni, Co 1=12499KNO₃, fused, splitting of Raman frequencies 3=4761KNO₃, molten with ionic admixture 4=16115KReO₄ crystals 4=26213KTcO₄ crystals 4=26213LaCl₃, lattice vibr. modes analysis 4=12614LaCl₃, vibrational spectrum 4=9746LaF₃ 4=22478LiNO₃, fused, splitting of Raman frequencies 3=4761LiNO₃-KNO₃ eutectic, and Li NO₃ liquid structure 4=8211MnSO₄·4H₂O, monoclinic 0=2947MSO₄·7H₂O (M = Mg or Zn) 0=4422MoO₄²⁻, aqueous 4=26213N₂ 4=8210N₂, Q-branch rotational structure, temp. and press. depend., impact broadening 0=11527N₂, rotational and vibrational lines 0=17746N₂F₄ vibr., and two molecular forms 3=22569NH₃ in water, var. with solution conc. 4=14169NH₃CNS 0=4411N₂H₄ and N₂D₄, liquid 4=1277NH₄OHCl 4=26199(NH₄)₂SO₄, in para- and ferroelectric states 4=7107N₂¹⁴O₄, liquid and solid 0=13436N₂¹⁵O₄, liquid and solid 0=13436Na borate, 2-component, rel. to B coordination transitions rel. to Na₂O content 4=20449NaClO₃, polarization 0=13689NaH₂PO₄·2H₂O, OH groups 1=2444

NaI crystals 4=22883

NaI, shell model theory 4=26169

NaI, 2537A meas. 3=25465

Na₂MoO₄ crystals 4=26213Na₂MoO₄·2H₂O crystals 4=26213NaN₃, single crystals 4=22894NaNO₃, fused, splitting of Raman frequencies 3=4761NaNO₃ in H₂O, absorption and line intensity 1=12291NaNO₃, molten with ionic admixture 4=16115Na₂WO₄ crystals 4=26213Na₂WO₄·2H₂O crystals 4=26213Ni(CO)₄, liquid and solutions 0=19156Ni(CO)₄, vapour 0=19218NiSO₄·6H₂O (tetragonal and monoclinic) NiSO₄·7H₂O, (orthorhombic) 0=2947O₂ 4=8210O₂, gas at 1 atm, rotational and rotational-vibrational 0=7763O₂ liquid, Rayleigh line study rel. to temp. 1=18417O₂, rotational and vibrational lines 0=17746O₂, at 7-125 atm 0=7764OH⁻ calc. 4=25651PbCl₂-KCl system, liq. and solid 4=18205PCL₄F, PCL₃F₂, PCL₂F₃ and PF₅, giving molec. structures 4=25679PrCl₃, electronic Raman effect 3=15694PrCl₃, electronic and vibrational spectra 4=9746PtBr₄, and mol. vibr. calc. 4=9738ReF₆, rotl. 3=2623

S, α, Stokes and anti-Stokes lines, laser stimulated 4=7105

SF₆, ν₁(a₁) modes, vibrational intensities 3=22559SOCl₂, AlCl₃, and SOCl₂·2AlCl₃ complexes 3=14170SbBr₃, solid, liquid and in CS₂ and CCl₄ 0=13688SeF₆, ν₁(a₁) modes, vibrational intensities 3=22559SiCl₄, variation of intensity with temp. 1=15879SiF₄, ν₁(a₁) modes, vibrational intensities 3=22559SnBr₄, crystalline state 3=15696SnCl₄ 1=847SnCl₄, crystalline state 3=15696

Raman spectra—contd

inorganic substances—contd

- Sn—F complexes 1=833
 Sr(CO₃) 0=2946
 SrF₂, singlet shift of 285 cm⁻¹ 4=17582
 SrF₂:Sm²⁺ 4=13085
 Sr(NO₃)₂, overtone and combination bands, rel. to NO₃ vibrations 4=10163
 Sr(OH)₂·8H₂O crystals, rel. to O—H bond 1=7717
 SrTiO₃, deviations from ideal symmetry 1=12500
 SO₃ in water, var. with solution conc. 4=14169
 TeO₄²⁻, aqueous 4=26213
 TeF₆, $\nu_1(a_1)$ modes, vibrational intensities 3=22559
 TiCl₄, crystalline state 3=15696
 TiCl₄, second-order spectrum 1=848
 TiCl₄, variation of intensity with temp. 1=15879
 TiNO₃, molten, vibration assignment 4=181
 VCl₄ 4=1281
 XeO₃ in H₂O 4=25689
 XeOF₄, rel. to Xe—O bond 3=17590
 ZnCl₂ solutions 4=5184

organic substances

- acetamide, liquid and crystal phases 0=5948
 acetic acid and water equimolecular solutions 1=146
 acetone, temp. dependence in gaseous and liquid phases 1=9395
 acetonitrile, temp. dependence in gaseous and liquid phases 1=9395
 alcohols, intensities rel. to bonds 2=11375
 alcohols, ten, depolarization meas. 3=22579
 alcohols, ten, solvent effects on intensities 3=25115
 alcohols, twelve, characteristic bands 3=22578
 aldehydes, relative line intensities 0=85
 allene, integrated intensities and polarizations 4=6609
 amides, shifts in mixtures 2=7218
 amines, rel. to N—H stretching and bending freqs. 2=7219
 anisal-para-amino-azobenzol, investigation using ruby laser 4=2841
 aromatic cmpds. 0=8917
 aromatic compounds, intensities and depolarization degrees rel. to metallic molec. model 4=6612
 aromatic hydrocarbon molecules, effect of adsorption 3=8932
 aromatic, large conjugated systems, in host matrix 4=17547
 azoxyanisol, investigation using ruby laser 4=2841
 benzene crystals, -209°C, heat capacity calc. rel. to hydrogen bonding 4=30691
 benzene, intensity, temp. depend. 2=8098
 benzene laser 4=21675
 benzene, using laser, ruby, light source 4=14372
 benzene, light intensities, ang. distrib. 4=16118
 benzene, Rayleigh line study rel. to temp. 1=18417
 benzene, scattering cross-sections 4=17300
 benzene, temp. dependence in gaseous and liquid phases 1=9395
 benzenes, trisubstituted, to -180°C 1=14035
 binary solutions, molec. scatt. power, conc. depend. 3=21372
 bromodichlorofluoromethane (CBrCl₂F) 0=4207
 n-butyl alcohol 2=8099
 carbon tetrachloride, temp. dependence in gaseous and liquid phases 1=9395
 carboxylic acids, intensity 1=14033
 chloroform and deuteriochloroform mixed crystals 4=10203
 chloroform, effects of change of state 3=731
 chloroform, gaseous 1=7473
 chloroform, intensity, temp. depend. 2=8098
 chloroform, liq. and crystalline 4=10203
 chloroform, temp. dependence in gaseous and liquid phases 1=9395
 p-chloriodobenzene, linewidths meas. 4=6618
 chloromethanes, polycryst., liq. N₂ temp. 4=22905
 conjugated mols., effect of free electrons of nitrogen 3=20004
 conjugation effects on intensity 1=14032
 crystalline powders, compared with solutions 3=6650
 cyclic sulphur-containing compounds 1=14115
 cyclobutane 4=30457
 cyclobutane, C₄H₈ and C₄D₈ 2=16543
 cyclobutane, rel. to normal vibrations and potential constants 4=6614

Raman spectra—contd

organic substances—contd

- cyclohexane, deuterocyclohexane, intensity and depolarization calc. 4=12501
 cyclohexane, line broadening, due to molecular rotation 2=703
 cyclohexanes, 9-methyl-substituted, low-freq. 4=6632
 deuteriochloroform, liq. and crystalline 4=10203
 diamines and diammonium ions, effects of ionization on C—H stretching freqs. 4=22403
 dibromochlorofluoromethane (CBr₂ClF) 0=4207
 p-dichlorobenzene, line broadening, due to molecular rotation 2=703
 p-dichlorobenzene, wave numbers and intensities 0=14817
 dichlorotoluenes, to -180°C 1=14035
 1,2 difluoroethane 1=3540
 diglycine barium chloride monohydrate single crystals 4=13063
 diphenyl, and 45° change in angle between ring planes on melting 4=6635
 diphenyl decapentene, rel. to excited state lifetime 4=6621
 diphenyl dodecahexene, rel. to excited state lifetime 4=6621
 dyes, resonance effect 0=7765
 electronic band spectra relationship, vibrational structure 0=4209
 esters, intensity 1=14033
 esters, relative line intensities 0=85
 ethane-d₆, rel. to config. and dims. 3=4765
 ethane, hexadeuteroethane, electro-optical, depolariz. consts., calc. 4=25702
 ethyl alcohol 2=8099
 excited-state lifetimes of normal vibrations 4=6637
 fluorinated ethanes 0=5938
 fluorobenzene crystals, rel. to liquid, dimer formation 1=14034
 fluorinated ethanes 1=8839
 formic acid, effects of change of state 3=731
 glycerin 1=14043
 glycine and addition cpds 4=22907
 α -glycine, crystalline 0=4421
 group Ib and IIb complex cyanide solns., CN stretching bands 0=16706
 hydrocarbons, rel. to conjugated double bonds 2=20848, 22990
 iodoacetylene, giving ground-state rot. const. and C—I bond length 4=6624
 iodoxybenzene 0=3619
 ketones, relative line intensities 0=85
 methane 0=17752
 methane, and its isotopic forms, absolute intensities and depolarizations, calc. 4=9758
 methane, laser stimulated, four photon 4=9704
 methane, line broadening at 15-250 atm. 3=176
 methane and methane-d₄, $\nu_1(a_1)$ modes 3=22559
 methane, ν_2 band, rotational structure 3=22586
 methanol and deuterated methanols 1=8836
 methyl alcohol 2=8099
 methyl alcohol, effects of change of state 3=731
 methyl alcohol, gaseous 1=7473
 methyl borate 2=8100
 methyl iodide, polycrystalline 4=28715
 naphthalene, fluoresc. spectrum, 2°-100°K 3=25493
 naphthalene halogenated derivatives 4=28249
 naphthalene, l.f. shifts 4=4281
 naphthalene, wave numbers and intensities 0=14817
 nitriles, intensity 1=14033
 n-nitroaniline in benzol, absorption and line intensity 1=12291
 nitrobenzene from laser, two-step process for anti-Stokes line 4=5191
 nitrobenzene, scattering cross-sections 4=17300
 organic liquids, rel. to electronic absorpt. spectrum 4=21135
 paraffins, relative line intensities 0=85
 para-nitrosodimethylaniline, freq. depend. of scatt. intensity in electronic absorpt. band 4=25713
 penta-deutero-fluoro-benzene 0=20626
 perchlorofluoride, structure 0=17754
 n-phenylenediamine, liquid and crystal phases 0=5948
 polyatomic mols., intensity of scatt. lines 3=11797

Raman spectra—contd**organic substances—contd**

polyene compds. 0=9816-17
 polyethylene, vibrational 3=10556
 polyethylenes 3=8321
 polymers, diphenyl, intense harmonic and combination lines 4=6637
 polyoxymethylene 1=12279
 polytetrafluoroethylene 4=20144
 powders mixed with naphthalene 4=26170
 n-propyl alcohol 2=8099
 pyridine, comparison with Debye-Scherrer patterns 0=6370
 pyridine, in diff. solvents, analytical use 0=942
 73 compounds 0=2175
 use in spectrochemical analysis, hydrocarbon mixtures 4=10673
 stimulated emission, liquids, ring compounds 3=5445
 styrene, stimulated, combination lines 4=20094
 substituted methanes 1=14008
 tetradeuterioallene, integrated intensities and polarizations 4=6609
 tin-alkyls. 2-25 μ 1=843
 toluene 0=3619
 toluene, light intensities, ang. distrib. 4=16118
 toluene, scattering cross-sections 4=17300
 tribromoethylene-d 0=17753
 tricyanomethanide ion 3=6407
 1,2,4-trichlorobenzene, to -180°C 1=14035
 vinyl acetylene, rotational 4=9762
 p-xylene, line broadening due to molecule rotation 2=703
 BF₃·diethyl ether 3=15361
 BF₃·tetrahydrofuran 3=15361
 CCl₄ 1=847
 CCl₄, depolarization factors 0=86
 CCl₄, intensities, calc. allowing for internal fields 1=2759
 CCl₄, intensity, temp. depend. 2=8098
 CCl₄, overtone intensities 2=18447
 CCl₄, overtone lines 0=87
 CCl₄, second order 2=7215
 CCl₄, variation of intensity with temp. 1=15879
 CD₄ 1=6018
 C₂D₆, rotational, rel. to mol. structure 2=10260
 C₆D₆, vibr., second order lines 4=22393
 CDCl₃, CD band, effect of H bonding 1=6020
 CF₄, vibrational lines and rotational structure 1=6019
 CF₃Br—CCl₃Br 1=14026
 CH group, intensity, var. with excitation freq., 5461-3021A 3=25117
 CH₄, abs. intensities rel. to polarizability 2=7258
 CH₄, rotation and vibrational lines 0=17746
 C₂H₂, line broadening rel. to collision diameters 3=7247
 C₂H₆, rotational, rel. to mol. structure 2=10260
 C₆H₆, depolarization factors 0=86
 C₆H₆, intensities, calc. allowing for internal fields 1=2759
 C₆H₆, vibr., second order lines 4=22393
 CHBr₃, rel. to vibrational interactions 0=20640
 CH₂Cl₂, CHDCl₂ and CD₂Cl₂ 4=22396
 CHCl₃, depolarization factors 0=86
 CHCl₃, overtone intensities 2=18447
 CHCl₃, overtone lines 0=87
 C₂H₂Cl₂, overtone lines 0=87
 C₂H₄Cl₂, overtone lines 0=87
 C₆H₅Cl, overtone lines 0=87
 C₂H₃D₃, rotational, rel. to mol. structure 2=10260
 CH₃OH, overtone lines 0=87
 CNH₂N and CND₂N, vibrations and inversion 4=3872
 C₃N₂F₃, liquid 4=22376
 CO bonds relative position, effect 2=18465
 C = O, C \equiv N and C \equiv C groups in various molecules 2=15596-7
 CS₂, intensity, temp. depend. 2=8098
 CS₂, overtone intensities 2=18447
 Cd(CH₃)₂ 1=844
 Cd[Co(CO₄)₂] 2=2000
 Hg(CH₃)₂ 1=844
 Hg[Co(CO₄)₂] 2=2000
 Ni(CO)₄ 2=1999
 SnCl₄-ester complex solution 4=5189
 SnCl₄-ester complexes 2=18468
 Zn(CH₃)₂ 1=844

Random functions

See also Random processes. (Heading abolished in 1963)

cross-spectral density meas., improved accuracy 1=2586
 generation of function X(t) = ± 1 1=19376
 master equation, power series expansion 1=7969
 music composition employing random probability system 1=12947
 and musical composition 2=2840
 products, probability distribution 2=21794
 radiation focusing, by random surface 0=8769
 random linear systems, stability 0=8467
 signals, photographic investigation 2=1349

Random processes

See also Brownian movement; Fluctuations; Statistical analysis

atomic diffusive motions in solids and liquids, study by γ -ray resonance absorption, theory 0=18992
 book on stochastic processes 1=4180
 cluster size and percolation problems for random 'lattice' 1=10426-7
 conditional probabilities, estimating method 0=14186
 conference 0=4957
 controlled chain, ϵ -optimal homogeneous Markov strategies 4=21050
 critical percolation probabs. for two-dim. site and bond problems 4=27081
 critical percolation probabilities, series methods 4=8081
 digit generation, with noise source and counter 2=17368
 dispersion by continuous movements 0=14539, 19000
 distribution, time development, differential operator expansion 2=2637
 Doppler shifts in noise spectra 1=6790
 dynamic systems subjected to random excitation 4=2749
 eigenvalues of random matrix 3=5368
 electron-photon cascades, as stochastic problem 1=2038
 equal-sphere packing on plane surface 4=72
 equivalent linearization techniques 4=2752
 ergodic theorem, for random uniform fields 2=21838
 examining distrib. laws of chance, apparatus 0=3399
 fluctuations spectra, in complex systems 0=14526
 gas, ultrarelativistic, adiabatic one-dim. motions 3=7236
 grand canonical ensemble of statistical mechanics 0=894
 harmonic osc. system, one dimensional Bessel function series 4=18025
 impulsive noise, amplitude distribution 1=15395
 infrasonic signals, correlation function 2=15702
 integrability conditions 2=4946
 irreversibility of systems perturbed by random forces 0=6690
 irreversible thermodynamics of nonlinear processes and noise driven systems 0=902
 light detector outputs, correlations 2=1242
 linear systems, new treatment 3=14040
 Liouville eqn. reversibility, $N \rightarrow \infty$ 4=24103
 liquids, linear dissipative processes 2=9256
 Markov generator, electronic 4=427
 modulation of oscillations by random process 0=14522
 molecular chaos and Kirkwood superposition hypothesis 0=18971
 moments of output of linear systems 3=14038
 motion in expanding universe, energy, rel. to grav. changes 4=10779
 noise, intensity fluctuations, in N-dim. space 3=11706
 non-deterministic stochastic processes, structure 1=17985
 non-equilibrium, steady-state distribution 0=16617
 nonlinear problems 4=27079
 nonlinear stochastic systems, dynamics 2=4944
 nonlinear systems, perturb. techniques for random vibs. 4=2751
 nonlinearity in random vib. problems 4=2853
 non-stationary, relative running time 0=905
 nuclear reactor Fokker-Planck and Langevin equations 4=9605
 ocean waves, wind-generated 2=19191
 order-disorder phenomena, theory 2=19091-2
 Ornstein-Uhlenbeck processes, a master equation solution 1=6788
 packing of spheres 2=8867
 peaks, approx. 4=2574

Random processes—contd

- percolation, band and site problems, two dimensional 3=11734
- percolation, comparison of atom and bond processes 1=15742
- polydisperse polymer system, random degradation 2=23961
- probability distribution function, closed general solution 1=4179
- product property and cluster property equivalence 4=27078
- pulse trains, nonindependent, theory, appl. to Barkhausen noise 2=21837
- pulses, generation with Poissonian time distrib. 4=18651
- quantum Schrodinger equation transformation 4=16046
- random delays, deduction of law 0=6544
- random pulses, time and height analysing methods 1=5407
- random walk on lattices 1=15718
- random walk and multiple scattering 0=16616
- random walk problems, rel. to lattice vibrations 1=11149
- random walk, with reflecting barriers, with and without correlation 4=29535
- randomly scattering, amplitude and phase distrib. 2=15492
- randomly perturbed fields, propagation 2=15457
- rate consts. for collisions in disperse systems, size distrib. effects 4=73
- Rayleigh distribution, review of problems 2=15456
- response of linear system with random parameters and excitation 4=24079
- restless harmonic oscillator 2=4909
- sampled flow of random pulses, counting rate, errors 4=28089
- self-avoiding walks in d-dimensional space 3=18745
- self-avoiding walks on lattice 2=2640
- self-avoiding walks on lattices 4=8083
- self-avoiding walks of n (2n-1) steps in d dim., number 4=27082
- simple cubic lattice, Monte-Carlo method 4=13133
- sphere packing, radial distrib. meas., shear effects 4=14058
- spin relaxation, Fokker-Planck eqn. 3=1623
- stability of random systems 0=18580-1
- stochastic, correlation problem 1=18287
- stochastic, evolutionary point, sequent correl. 4=24078
- stochastic linear systems, Gaussian parameter variations 3=14039
- stochastic linear systems, with Gaussian variations 2=2639
- stochastic nonlinear systems, theory and applications 1=4267
- stochastic processes and Ehrenfest's urns 1=18286
- stochastic pulse sequences, analysis 1=15394
- thermally activated processes, frequency factors 1=4266
- transition probability, due to random perturbations 2=2638
- turbulence, Wiener-Hermite expansion 4=29597
- two-spin system, relaxation, theory 3=1624
- uniformly distributed, paradoxical features 4=21049
- waveform statistical analyser 2=17336
- zero crossings, peaks, of random responses 4=2750

Range of particles

- See also Particle range. (Heading abolished in 1963)
- in Agfa K2 emulsion, range-energy relation 0=5460
- charged particles, energy loss in thin absorbers, binding effect corrections 0=1261
- charged particles, range straggling in Al, Be, C, Cu, Pb and air, calc. 0=5560
- cosmic rays, rel. to mass 550 search 2=3448
- differential beam collector 1=18948
- electrons, 8-20 keV, in Bi, Cu, Ge, Si 0=15082
- electrons, 40-160 keV, in Cu, Ag and Au 0=2399
- electrons, 0.5-16 keV, in Au and collodion film 0=7163
- electrons, slow, in Al and Al₂O₃ films 1=7102
- electrons, slow secondaries, in metals 1=18925
- electrons, in solids, rel. to target atomic no. 1=17495
- elongation, in absorber, due to multi-scatt. 2=1670
- energy-range relation, for var. substances 0=9320
- fission fragments in U, from thermal-neutron fission 1=4883

Range of particles—contd

- heavy charged particles, range-energy relation 2=20285
- heavy ions, C, N, O, Ne and A, in emulsion, up to 10 MeV/nucleon 0=4105
- heavy ions, range-energy rel. in Ilford G-5 emulsion 0=11073
- heavy ions, range-energy rel. to Ni foil, gaseous O₂ and nuclear emulsions 0=17051
- heavy ions in solids, det. rel. to proton range 1=4667
- heavy ions, in various media, effective charge, theory 0=19624
- high-velocity, range-energy meas. 1=13421
- ions, in aq. solns., O¹⁷ n.m.r. shifts 2=5029
- ions, in emulsions, range-energy relationships 0=12771
- ions, heavy, energy loss and effective charge in Al 1=337
- ions, heavy, energy loss in Mylar and polyethylene 1=338
- ions, in keV region 1=16441
- ions, in nuclear emulsion, rel. to detection efficiency 2=20052
- mesons π , μ , in liquid propane 1=19201
- Monte Carlo method, for deep penetration problems 2=5602
- multichannel effective-range theory 1=12055
- multicharged ions, in solids and gases 2=7674
- neutrons in liquid propane 1=19201
- particle accelerators, mag. analysis limits 2=3106
- π^- -mesons, 750 MeV, in emulsion 1=17136
- in plasma, test particle energy loss, calc. 2=3027
- protons in rare-earth oxides 1=13790
- protons, relative ionization near end of their range 0=20141
- recoils, in In reactions with α and p 2=22811
- straggling effects, on resonant yields, calc. 2=3545
- thin foils, surface density meas. using α -rays 0=19039
- 20.4 MeV electrons in Freon 1=10879
- A ions, in emulsion 0=12772
- Ag recoil atoms from (γ ,n) reaction 1=4858
- As spallation products 1=7379
- At, in Al and Au, at 4-15 MeV, from nuclear recoils 1=2244-5
- Au recoil atoms from (γ ,n) reaction 1=4858
- B¹¹, in nuclear emulsions, energy depend. 1=12225
- Be ions, in air 0=2327
- C ions, in C, Al, Ni, Ag and Au 1=4668
- C ions in Au 1=4667
- C¹³, in nuclear emulsions, energy depend. 1=12225
- Cs^{134,137}, keV energies, in Ge 2=22276
- Cu (α , n) ion products, range in various gases 2=14136
- Cu recoil atoms from (γ ,n) reaction 1=4858
- D ions, imbedding in metals 2=13606
- H₂⁺, D₂⁺, He⁺, Ne⁺ in quartz, 7.5-52 keV 1=336
- He⁴ ions, in metals 2=1931
- Li^{6,7} ions, versus energy, in emulsions 0=9108
- N ions, in air 0=2327
- N ions, in emulsions 0=12772
- N¹³, from N¹⁴(N¹⁴,N¹⁵)N¹⁵ 1=11040
- N¹⁴ ions, in C and metals 2=1931
- Na²⁴ recoil, from 660 MeV proton reactions 0=1402
- Na²⁴ recoil, from 260 MeV photon reactions 0=1403
- Ne ions, in emulsions 0=12772
- Ne²⁰ ions, in C and metals 2=1931
- O ions, in C, Al, Ni, Ag and Au 1=4668
- O ions, in emulsions 0=12772
- Po, in Al and Au, at 4-15 MeV, from nuclear recoils 1=2244-5
- Tb¹⁴⁹, in Al, at 4-29 MeV, from nuclear recoil 1=2244-5
- U²³⁵ α -rays 1=19388
- U²³⁵ fission products by thermal neutrons, range and rate of energy loss in Al and Au 0=20512

Rare earth metals

- See also the individual metals
- abundance in chondritic meteorites 0=14402
- activation of phosphors, luminescence 0=1767
- allotropy at high temp. 4=23265
- alloys, with Y, electrical resistivity, low-temp. 4=1565
- antiferromagnetism, indirect exchange interaction 1=3917
- atoms, Auger electron groups, K, relative intensities 3=10468
- atoms, 4f config. interactions calc. 4=6484
- atoms, Zeeman effect in ground multiplets, theory 1=9901

Rare earth metals—contd

cohesive forces, localized states 2=12364
 crystal field theory validity 4=25809
 crystal fields, shielding, calc. 4=28311
 crystal structure, rel. to mag. ion interactions 2=15016
 divalent ions, fluoresc. selection rules 3=13204
 divalent ions, spectra in cubic crystals 4=7153
 e. s. r. in LuCl_3 and YCl_3 4=30731
 elec. resistivity, 1.3-300°K 0=18002
 electrical conduction, due to ionic moment disorder 2=3980
 electrical resist., effects of press. and temp. 4=10035
 electrical resistance anomalies 2=617
 electrical resistance, theory, rel. to mag. transitions 3=13032
 electro-deposition, molecular plating method 4=17867
 electroluminescence activation, in Al_2O_3 2=14756
 electroluminescence in semiconducting thiospinels 4=13069
 electrolytic deposition of Cu, small area 4=23665
 electron spin resonance, use in masers 0=2436
 electronic structure, effect of mag. ordering 2=23114
 electronic structure, and props. 2=23105
 energy gaps due to screw-type spin ordering 3=15465
 exchange interaction between conduction electrons and magnetic shell electrons 1=936
 Fermi surfaces and spin structures in heavy metals 3=22687
 ferromag. ordering; anisotropy energy rel. to screw struct. 3=975
 ferromag. spiral spin-configs., anisotropy effects 3=974
 ferromagnetic alignment, antiferromag. exchange interaction 1=12543
 ferromagnetic properties 1=11420
 ferromagnetic, Young's modulus anomalies 4.2°-300°K 4=23200
 fission products, isotopic composition 0=5805
 fluorescence 2=12622
 4f shells, indirect interactions 3=3076
 heat capacities 1=3605
 heats of sublimation, or vaporization 2=1316
 heavy, electron helical structures, interlayer turn angle 4=22548
 heavy, magnetic ordering, theory 3=973
 heavy metals, ferromagnetic resonance 2=14816
 hyperfine interaction constants and magnetism 3=15954
 impurity e.s.r. in CaO 4=26405
 internal field gradients, ionic contrib., calc. 3=742
 internal mag. fields, calc. 1=20041
 ion fluorescence enhancement, by oxide lattice processes 2=10618
 ion separation by electrolysis 4=20835
 ions in CaF_2 , e.s.r., rel. to irradi. and heat treatment 4=26425
 ions, in crystalline field, ground states in external mag. field 0=11946
 ions in crystals, L-S multiplet exchange splittings 4=25824
 ions, in crystals, shielding for internal elec. field 4=25808
 ions, in crystals, spectra rel. to phonon emission 2=12591
 ions, divalent, in cubic crystals, spectra 4=20465
 ions, doping CaF_2 , charge compensation invest. 2=4249
 ions, elec. quadrupole interactions calc. 4=1215
 ions, electron level splitting in crystal fields 0=6006
 ions, exchange polarization and magnetic behaviour 3=977
 ions, 14Å apart in non-defect structure, props. 3=13205
 ions, hyperfine interactions and nuclear magnetic moments 3=22607
 ions, influence on ferrimagnetic resonance 4=28865
 ions, maser action in crystals 3=12350
 ions, neutron mag. form factors, and X-ray atomic scatt. factors 2=23675
 ions, neutron mag. scatt. 2=12711
 ions, neutron magnetic form factors and X-ray atomic scattering factors, erratum 4=28781
 ions, optical absorption intensities, calc. 2=18421
 ions in Pd, magnetic polarization effects, long range 4=26420
 ions, relaxation in ferrimag. resonance of iron garnets 3=15925
 ions, spectra in cryst. fields, shielding and distortion 4=12567
 ions, spectroscopic and mag. props. Hartree-Fock calc. 4=30504
 ions, spectroscopy, for laser appl. 3=7330

Rare earth metals—contd

ions, spin-spin interactions in crystals 2=4272
 ions, structure of f⁰ configuration 3=15292
 ions, tri to divalent conversion in alkaline earth fluorides 4=29213
 ions, trivalent, e.s.r. in CaF_2 , crystal-field splittings 4=20585
 ions, trivalent, spin-lattice relax. in CaF_2 4=20586
 ionization on W, Re and Ir surfaces 4=29983
 luminescence activation in YGa garnets 1=5055
 luminescence in glass, radiative transfer between ions 4=15614
 luminescent states, perturbing influences 0=18136
 magnetic neutron diffraction investig. 3=1107
 magnetic order 3=8380
 magnetic ordering in the heavier metals, theory 1=14669
 magnetic ordering, in metals with more than half-filled 4f shells 2=4198
 magnetic ordering, temp. depend. 4=23008
 magnetic props. 0=11806
 magnetic props., crystal field theory and Mössbauer h.f.s. 4=22946
 magnetic structure, periodicity, rel. to dilution and temp. 4=1806
 Mössbauer effect, hyperfine splitting, temp. var. paramag. region 4=12580
 n.m.r., in crystals, Bloch equations for effective spin 3=20667
 nuclear magnetic moments 2=12119
 nuclei, rotation- γ - vibration interaction 3=2381
 oxygen-exchange reactions, with monoxides 2=1317
 paramagnetic neutron scattering, line width 2=8610
 physico-chemical properties 4=1335
 positron mean life, meas. 3=17695
 quadrupole-quadrupole interactions 1=6426
 resistance, electrical, anomalies, theory 1=10023
 resistance and spin disorder 3=10715
 s-f interact. theory and ferromag. anisotropy 4=4016
 specific heat, 0.4-4°K, nuclear term and mag. consts. 4=15429
 spectra, emission, neutral and ionized atoms 1=11071
 spectra, 1st and 2nd, presence in solar spectrum 3=19946
 spectra, of ions, time-resolved, meas. apparatus 2=14204
 spectra, self-reversed spectral line prodn. 2=19715
 spectra, summary tables 0=9771
 spectrochemical analysis, arc, atlas. 3=25854
 spin screw structure, modification 2=12640
 spin-wave spectra, energy gaps 3=25525
 spin-wave spectra and Fermi surface 1=11422
 spiral spin configurations, anisotropy effects 1=14668
 superconductivity and ferromagnetism 0=14932
 superconductivity of rare-earth doped La 0=12557
 thermal expansion, giant coeffs., 1.5-14°K 3=15442
 thermoelectric power, 7-300°K, rel. to mag. transitions 2=2198
 trivalent ions, spectra rel. to laser material suitability 4=19296
 trivalent ions, transferred hyperfine reaction, direct magnetic contrib. 4=26454
 virtual bound state model 3=2756
 X-ray analysis in Y-Fe garnet powders 4=10677
 X-ray diffraction techniques to 1400°C 1=10247
 X-ray emission spectra 2=8544
 X-ray spectra, K α lines 0=481
 in CaF_2 , thermoluminescence 0=665
 Er ion, in garnet lattice, mag. props., theory 4=28763
 Gd to Tm, growth of large single crystals 4=4551
 Nd ion, in garnet lattice, mag. props., theory 4=28763
 Pr ion, in garnet lattice, mag. props., theory 4=28763
 Tb ion, in garnet lattice, mag. props., theory 4=28763
 in Y_2O_3 and related hosts, luminescent behaviour 4=10221
 Yb ion, in garnet lattice, mag. props., theory 4=28763

Rare earth compounds

See also the compounds of the individual metals;
 Ferrites

alloys, nuc. mag. relaxation, 3 mechanisms 3=18155
 alloys, simultaneous ferromagnetism and superconductivity theory 0=7030
 aluminates, crystal symmetry and ferroelectricity 0=14026
 antiferromagnetic, neutron diffraction studies 0=10188
 arsenates, phase transformation pressure rel. to ionic radii 3=18225

Rare earth compounds—contd

beryllides, crystal structure 4=13601
 binary alloys with Au and Ag, structure 3=18336
 borate glasses, Faraday rotation 4=26217
 borides and carbides, anomalous thermionic emission, theory 0=2377
 carrier conc. and mobility, elec. and thermal cond., and thermoelectric power in cpds. and alloys 4=28566
 chelates, fluorescence quantum efficiency 4=29635
 chelates, fluorescence quantum yield, temp. depend., and decay time 4=22381
 chelates, luminescence, compared with hydrated chlorides, 90, 300°K 3=11001
 chelates, luminescence, intramolecular energy transfer 1=6228
 chelates in vinylic hosts, fluorescent props. 3=4990
 chlorides, anhydrous, prep. for electromagnetic isotope separator 0=17677
 chlorides, hydrated, luminescence, compared with chelates, 90, 300°K 3=11001
 chlorides, i.r. absorption 2=6577
 chromates, crystal structure 4=29135
 chromites, crystal lattice parameters 4=2088
 crystal elec. field, effects on rare-earth ions 3=10569
 crystal electron states, Gd impurity—electron interactions 4=15672
 crystal fields, quadrupole anti-shielding 4=3957
 crystals with rare-earth ions, spin-spin interactions 1=20243
 dicarbides, neutron diffraction studies 2=4419
 double nitrates, 2-particle spin-spin interaction internal elec. field effect 0=18213
 e.s.r., Gd impurity g shifts 4=15672
 ethyl sulphates, 2-particle spin-spin interaction internal elec. field effects 0=18213
 ethyl sulphates, crystal field splitting 2=23583
 ethyl sulphates, crystal phonon spectra, from anomalous specific heat and thermal conductivity 4=6714
 ethylsulphates, spin-lattice relaxation data 3=25579
 ferrites, ferrimag. reson. relax. 4=13297
 ferrites with garnet structure, crystal growth 1=11539
 ferrites, garnet structure, u.h.f. props. 0=6243
 ferrites, ortho, single crystals, mag. anisotropy consts. 3=8683
 ferromagnetic properties of 24 cpds. 3=11038
 ferromagnetic resonance materials, for high power-levels 0=11925
 ferromagnetic spin wave states calc., cubic cpds. 4=13219
 ferromagnetic, superconductivity, u.h. field 3=3964
 gallates, paramag. susceptibility 0=13735
 gallates, susceptibility, 300-1500°K 3=6693
 garnet ferrites, magnetic viscosity, fast component, rel. to mag. fld. and temp. 3=18102
 garnets, Al, Ga and Cr substituted, mag. props. 0=13827
 garnets, coercive force, temp. anomaly 1=20145
 garnets, energy levels for ions subject to exchange and crystalline fields 0=1540
 garnets, far i.r. resonance spectra 2=12713
 garnets, ferrimag. resonance measurements 0=11931
 garnets, ferrimag. properties, theory 3=13281
 garnets, ferrimag. props. and crystal structure 2=4242
 garnets, ferromag. resonance, theory 0=1820-1
 garnets, iron, energy levels 2=16629
 garnets (iron), ferrimag. resonance freq., theory 1=11467
 garnets, low-temp. mag. props. 1=6365
 garnets, mag. interactions and distribution of ions 0=10178
 garnets, mag. props. 0=4517
 garnets, magnetocrystalline anisotropy 2=12710
 garnets, paramagnetic study at high temp. 0=13739
 garnets, quenching of mag. moment of rare earth ions, at low temp. 0=13831
 garnets, rare earth ion e.s.r. lines 3=15937
 garnets, specific heats at low temps. 0=9855
 garnets, spin arrangement investigation 3=11099
 garnets, spin relaxation for exchange split ion levels 4=26427
 garnets, structure, mag. and elec. props. 2=16920
 garnets with Y garnets, magnetic and lattice properties 1=10171
 with group V anions, mag. structures 3=20609
 halides, heats of fusion and transition 3=19065

Rare earth compounds—contd

hexaborides, and pseudobinary alloys, production methods 1=13103
 hexaborides, thermal conductivities 3=25210
 hexaborides, thermal expansion and melting point 3=20113
 hexaborides, X-ray spectra and elec. props. analysis 3=10763
 hydrides, crystal structure 2=6812
 hyperfine fields, spin-orbit coupling, and nuclear mag. moments 2=12646
 intermetallic, with Fe, field at Fe nucleus, expt. and theory 2=10300
 intermetallic, magnetic order, neutron diffr. obs. 4=30716
 ions in garnets, spin-lattice relaxation 4=26399
 iron garnets, crystal chemistry 3=3282
 iron garnets, far i.r. spectra and ferrimag. resonance 3=8597
 iron garnets, Fe³⁺ quad. coupling const. 4=12575
 iron garnets, ferrimag. relax. analysis 4=10309
 iron garnets, mag. moments of ions 3=6725
 iron garnets, microwave resonance 0=10209
 iron garnets, rare earth radii and lattice consts. 0=3233
 lanthanide dinitrides, cubic, mag. props. theory 4=1797
 low-lying states, theory 0=11598
 luminescence, at low temps., ion-pair resonance theory 2=6603
 magnetic susceptibility and g-factor, effect of orbit-lattice interaction 4=7336
 metamagnetic and ferromagnetic properties 4=1838
 monazite, X-ray study 0=3242
 monochalcogenides (Ce subgroup), elec. props., 300°-1300°K 4=30613
 monoselenides, electronic structure 3=20131
 mono-seleno oxides (M₂O₂Se), crystal structure 0=8221
 monosulphides, electronic structure 3=20131
 monosulphides and nitrides, elec. and mag. props. 3=20343
 monotellurides, electronic structure 3=20131
 Mössbauer effect, review 4=20171
 n.m.r. rel. to cond. electron polarization 3=1202
 neutron diffr., paramagnetic, by rare-earth ions, crystal field effects 1=20054
 niobates and tantalates, defect fluorite- and weberite-type structures 4=20763
 niobates, transition at high temp. 4=20715
 nitrides, mag. ordering, neutron diff. study 0=11849
 nitrides, semiconducting, optical and electrical props. 4=20376
 organic chelates, in solution, 77°K, nonexponential decay of luminescence 4=28754
 organometallic, as laser materials 3=9980
 orthoferrites, ferromagnetic, weak, Curie temps., Mossbauer studies 4=13179
 orthoferrites, mag. susceptibility in strong mag. fields 4=28847
 orthoferrites, single-crystal, mag. props., at low temp. 0=10176
 orthoferrites, weak ferromagnetism 0=18202
 oxide phosphors, fluorescence props. 4=22922
 oxide systems, phase transformations 2=4356
 oxides, crystal structure, neutron diffrn. 3=5105
 oxides, cyclotron target prop. by electrophoresis 0=19843
 oxides, effect on props. of BaTiO₃ 2=14619
 oxides, electron bombardment evaporator for targets 4=27712
 oxides, energy loss of protons 1=13790
 oxides, meas. of atomic level energies 0=13391
 oxides, reactor control rod 0=13377
 oxides, Stark effect and neutron scattering 0=20776
 oxides, vaporization 1=8263
 oxides, vaporization 2=1315
 1:1 oxytungstates, luminescence and other phys. props. 3=23105
 paramagnetic susceptibility rel. to temperature 3=13231
 phosphate glasses, Faraday rotation analysis 4=10187
 phosphides, mag. ordering rel. to crystal fields 3=20051
 rare earth Al garnets, mag. props. of rare earth Kramers ions 4=26342
 rare-earth—Cu [Zn] alloys, crystal structure 4=10559
 rare-earth ethylsulphates, spin-lattice relaxation 1=14809
 rare-earth Fe garnets, Fe³⁺ n.m.r. 3=23260
 rare earth Fe garnets, magnetic exchange field 4=28848
 rare earth ferrites, paramag. susceptibility 1=20142

Rare earth compounds—contd

rare earth Ga garnets, mag. props. of rare earth Kramers ions 4=26342
 rare earth intermetallic cpds, neutron diffr. obs. of order 4=30716
 rare-earth iron garnets, Fe⁵⁷ n.m.r. 3=3196
 rare-earth iron garnets, internal field at rare-earth nuclei 1=8039
 rare-earth iron garnets, low-lying spectrum, theory 1=14611
 rare earth_{0.5} Na_{0.5} MoO₄, crystal growth, structure, mag. props. 4=13544
 rare earth—Ni compounds, mag. props. and crystal struct., down to 1.4°K 4=30854
 rare earth—Y dilute alloys, antiferromagnetic properties, 1.6° to 7.2°K 4=4392
 rhodites, crystal struct., atomic, density 4=23467
 ruthenates, Curie constant 2=12695
 salt solutions in D₂O, H₂O, fluorescence yields 4=2695
 salts, energy levels and energy transfer 4=25823
 salts, fluorescence, monochromatically excited 0=1747
 salts, spin-lattice relaxation 2=778-9, 14838
 selenides and tellurides, electrical properties 0=4351
 semiconductors, ferro- and antiferromagnetic interactions 3=20565
 sesquicarbides, structure 2=4420
 sesqui-oxides, vaporization, two dissociation modes 1=13022
 sesquisulphides, thermal, elec. cond. electron and phonon contrib. 4=30527
 solid solutions, rare earth pseudo-binary systems, Laves phases 2=17042
 solids, shielding and crystal fields at rare-earth ions 3=6453
 spectra of rare earth ions in crystals, effect of pressure 1=3832
 spin—lattice relax., field depend. calc. 3=18144
 spin—lattice relaxation in several cpds. 4=26428
 sulphides, selenides and tellurides, crystal structure, atomic 4=4625
 tantalates, transition at high temp. 4=20715
 with transition elements, antiferromag. coupling 2=12749
 trivalent ions in dilute salts, hyperfine structure from e.s.r. 3=1179
 tungstates, electroluminescence 4=1764
 tungstates, luminescence and other phys. props. 3=23105
 vanadates, phase transformation pressure rel. to ionic radii 3=18225
 AB₂ type, crystallographic investigation 1=20542
 B¹¹ nuclear mag. resonance 3=1197
 Co cpds., cubic Laves phase, mag. props. meas. 4=7285
 Co compounds with Cu₂Ca structure, magnetic moments 1=6382
 Cu₂, crystal structure, atomic 3=20874
 Cu₂R, antiferromagnetic exchange, weak 4=13122
 Dy and Yb ethyl sulphates, spin—lattice relaxation 4=15671
 ErMn₂, crystallographic investigation 1=20542
 Fe garnets, mag. behaviour 3=20620
 Fe garnets, spectra, ⁷F₀ → ⁷F₄ line, g factor 4=13054
 with Fe₂, similar crystal interval fields at Fe (except CeFe₂), from Mossbauer effect 4=15403
 with Ir, Os, and Ru, Curie points and mag. moments 0=1776
 Mn oxides, neutron diffr. exam. of mag. struct. 4=20516
 Pr³⁺ spectrum in rare-earth trichlorides, anion effects 3=13181
 RAl₂-type structrs, mag. spin moments, ferromag. coupling 3=991
 RBe₁₃ alloys, crystal structure 4=23421
 RSe, elec. conductivity, temp. var. 4=30614
 R²⁴Se—R³⁴Se alloys, elec. conductivity, composition, temp. var. 4=30614
 RTe, elec. conductivity, temp. var. 4=30614
 with Sb or Bi, crystal structure 4=15791
 TmMn₂, crystallographic investigation 1=20542
 XAl₂ cpds., conduction electron polarization, by n.m.r. 1=1277
 XAl₂, (X = rare earth metal), n.m.r. and conduction electron polarization 1=6431
 XNi₂ (X = lanthanide), magnetic props. of Laves phases 3=15746

Reaction kinetics

See also Catalysis; Chemical reactions; Exchanges, chemical; Explosions
 acetyl chloride hydrolysis 0=3307
 acetyl iodide + HI 2=19142
 acetylene decomposition flame, deduction from "global" flame kinetics 3=25827
 acetylene destruction rate in flame gases 4=30897
 acetylene—oxygen, induction periods 2=4531
 acridine orange, in solution, metastable states 0=18434
 acrylamide, radiation-induced solid-state polymerization 0=14135
 activated complex in collision theory 4=29207
 activation energies distrib. for kinetic phenomena 3=8947
 active N flame, CN band spectrum 3=8253
 active N with HBr, Br, and ethylene 1=4093
 active N with O and NO 1=20730
 addition of H atoms to olefines 1=20732
 air, ionization reactions, rel. to electron density calc. 2=3004
 alkali metals and liquid ammonia, decomposition 2=2447
 alkyl hydroperoxides, pyrolysis 4=13704
 alkyl iodides with HI 1=5108
 alkylamine ions, unimolecular decomposition 0=10350
 amino acids, protolysis, n.m.r. study 2=17083
 anils, thermochromy, time consts. 3=20979
 apparatus, flowmeter and circulating pump 4=23636
 atmosphere, subionospheric. 3=25872
 atmosphere, upper, three-body reactions 4=23783
 atom recomb., surface—diffusion control transition 4=2147
 atom recombination rate constants, three-body 4=17852
 atom recombination, by vibrational deactivations 2=8130
 atomic reactions, energy distribution 0=3294
 atomic recombination reactions 0=8298
 axiomatic treatment of reaction systems 2=8908
 basic laws 1=15191
 benzene, pyrolysis 4=3887
 benzyl-d-t alcohol, oxidation by chromic acid, isotope effect 0=4712
 bimolecular, in detonations, ignition temp. approx. 1=4098
 bimolecular dissociation reactions 0=3299
 bimolecular exchange reactions, Monte Carlo calculations 3=25811
 bimolecular gas-phase reaction, nonequilibrium effects, composition depend. 4=23632
 bimolecular gaseous ion recombination, rate constants 4=24557
 bimolecular reactions, diffusion theory 2=2655
 bimolecular reactions, fast, activated complexes 2=2445
 bimolecular reactions, mean-first-passage time and collision theory 0=3300
 bimolecular reactions, in solids and liquids 0=3301
 binary system, reaction diffusion 2=23950
 boroxine, gaseous, equil. with fluoro derivs. 2=19140
 burning rates of solid propellants 0=3314
 butane, photosensitized isomerization 4=13739
 butene-2, cis—trans isomerism, benzene-photosensitized 3=25828
 butyl peroxide, di-tertiary, pyrolysis 2=6872
 chain reactions, departure from steady state 2=4533
 chain reactions, diffusion theory 0=14104
 chain reactions, effect of periodic pressure change 2=4535
 charge transfer mechanism of reaction of conjugated molecules 0=14102
 chromatography, kinetics of zone structure 0=3334
 collision and activated complex theories for bimolecular reactions 1=12675
 in combustion chambers, relaxation oscillations 3=1389
 combustion of liquid and solid aerosols 1=11639
 combustion in supersonic flow 0=2270
 compensation effect, origin 0=10346
 complex chemical equilibria, free energy minimization 0=747
 crossed Maxwellian molecular beams 1=19680
 cyclopropane decomposition 3=16158
 cyclopropane with iodine 1=7903
 cyclopropane, unimolecular, statistical complexion calc. 4=13707
 decomposition in homologous series 4=30484
 in detonations, in 3-component gas mixture 1=7909

Reaction kinetics—contd

- deuterated polystyrenes with H and D atoms 4=29219
 deviations from thermal equilibrium among
 reactant molecules 1=11614
 diatomic molecules, dissociation, collision theory 0=1492
 diffusion and evaporation rate rel. to thermodynamic
 activity 4=17851
 diffusion and heterogeneous reaction 0=16370
 diffusion and heterogeneous reaction 1=11615
 diffusion theory 0=21266
 dissociating gas, perturbation by catalytic probes 3=18430
 dissociation of diatomic molecules behind shock
 front 0=14111
 dissociation of excited molecules, calc. 0=15683
 Eckart potential, tunnelling corrections for
 unsymm. 2=10964
 electrochemical charge transfer, current impulses
 meas. 2=6876
 electrodiffusion, random walk theory 1=20729
 electrolytic dissociation, rel. to sound
 absorption 2=10985-6
 equilibrium attainment, mass spectr. meas. 3=3379
 equilibrium, in complex mixtures 2=15124
 equilibrium in multicomponent polyphase
 systems 0=16369
 ethyl radicals in liq. ethane 4=25721
 ethylene, α -radiolysis 0=8321
 ethylene oxide, pyrolysis, hot molecule reaction 4=13722
 ethylenediamine, reaction rate of solvated electrons
 and water 4=7746
 exchange reactions, moderately rapid, double
 resonance study 4=7750
 exchange reactions, vibrational excitation 0=3295
 excited-molecule reactions, outer and inner
 mechanism 1=6059
 excited reactants, lifetime in neutral reactions 4=2145
 flame propagation, stability 1=1473
 flash desorption 1=4083
 flow of gases over reactive surface 3=21423
 in flowing fluids, bibliographic review 0=10631
 flux effects, synthesis of CaWO_4 and ZnSiO_4 : Mn
 with KCl or LiSO_4 4=10211
 formulation 0=18426
 Frank-Condon principle appl. to electron transfer in
 aqueous soln. 3=8943
 in free molecule flow 0=3302
 free radical formation in cyclohexane- O_2
 system 1=20727
 gas absorption and evolution, at const. press., meas. by
 automatic apparatus 4=13701
 gas evolution rates, measurement 4=23637
 in gas flows around lamina, temp. distrib. 0=14674
 gas mixtures, bimolecular reaction, heat flux 1=6567
 gas mixtures, doubly reacting 4=2144
 gas phase, deductions from statistical mechanical
 theory 1=11616
 gas-phase photochem. reactions, Slater's new
 approach 3=11357
 gas-solid reactions, const. pressure-differential gas
 apparatus 2=4534
 gaseous detonations 1=20740
 gases, use of greaseless, non-absorbing vacuum
 valve 1=6915
 gases, reacting, dynamical treatment 2=12958
 graphite, energy release on irradiation 4=12832
 halogen dissociation, in shock waves 2=10974
 halogenated pentaboranes, fragmentation patterns 0=21271
 at high pressure, explosive decomposition theory 2=6873
 hot-atoms, average collisional energy loss
 evaluation 4=26735
 "hot" atom reactions, kinetic theory 4=26734
 hot and thermal, comparison 0=3297
 hydrated electrons and var. substance 4=20073
 hydrodynamics of chemically reacting fluids 0=14109
 hydrolysis of KCN, ultrasonic meas. of rate 3=8952
 hydroxyl radicals in shock waves 0=6408
 inert gases, recombination rate constants, three-
 body 4=17852
 in internal flow systems, non-isothermal homog.
 reaction 0=8297
 iodine recombination rate, spectroscopy 1=10586
 ion recombination rates, gaseous 4=18694
 ionic decomposition processes, effect of initial
 prep. 4=13706

Reaction kinetics—contd

- ionic reactions, effect of inert salts 2=19135
 isobutyl radicals, thermal reactions 3=3390
 isomeric reactions 1=1472
 isomerization of isobutyl radicals 3=8948
 isopropyl iodide, pyrolysis 4=25631
 isotope effects, meas. method 0=14113
 isotope effects, secondary 0=14115-16
 ketene, photochemical dissociation, rel. to unimolecular
 reaction rate theory 0=15683
 in laminar boundary layer 0=6397
 laminar flames 0=6401
 long chain molecules 3=5157
 long chain molecules 3=25817
 in luminescent solids 1=6223
 malonic acid, decarboxylation, "exact" normal
 frequencies 4=13703
 mass spectra, quasi-equilibrium theory, improved
 expression 2=23951
 using mass spectrometer, time-of-flight type, pulse
 generator system 4=17855
 mass spectrometric observation 4=16563
 metal-gas reactions, with particulate product
 growth 3=18431
 mixing apparatus for observation 4=23634
 multiple zone reactions, first- or second-order kinetics,
 conditions 3=25810
 n.m.r. study, effect of fluctuating fields 3=15379
 naphthalene, electron transfer from negative ion, rel. to
 ESR 1=14803
 Navier-Stokes detonation problem, for small
 reaction rates 1=4097
 negative temperature production 4=4689
 nitrosylhydroxylaminesulphonate ion, decomposition, acid
 catalysed 3=20980
 one-dimensional condensed system 0=3296
 organic iodides, pyrolysis 3=16157
 oscillator systems, with statistical energy exchange in
 collisions 2=3679
 oxidation, gas, 1-100 msec. by adiabatic com-
 pression 3=20981
 oxide films, parabolic growth law 4=26745
 oxides, oxygen pressure series of chem. potentials 3=3391
 particle growth processes, statistics 4=2158
 pearlite nucleation rate, in Fe-C alloys 0=18393
 photochemistry, avoidance of explicit solns. of diff.
 equn. 4=29229
 photoconductivity and luminescence model 2=6487
 photosynthesis, flashing light spectrophotometer 4=16234
 plane detonation waves 0=16772
 polyatomic molecules, bimolec. pre-association and
 decomposition 4=9798
 polyethylene, irradi., trapped radical
 disappearance 2=16564
 polymerization 1=20734
 polymers, effects of neighbouring groups 3=8949-51
 polymethylmethacrylate, surface degradation 0=3309
 polypropylene, irradi., trapped radical
 disappearance 2=16564
 polyvinyl chloride, γ -irradi., kinetics of radical
 reactions 1=1489
 precipitation in alloys 4=23246
 precipitation, quasi-periodic; in interdiffusion of
 two subs. 3=8957
 precipitation, quasi-periodic, in interdiffusion of two
 substances 2=15123
 primary intramolecular kinetic isotope effect in
 nonequilibrium system 3=11347
 proton transfer in acid-base reactions 4=29210
 pyrolysis of cyclopropane and cyclobutane, isotope
 effects 3=8961
 quantum theory 4=4688
 quasiequilibrium rates, quantum calc. 4=62
 quaternization of poly (4-vinyl pyridine) with n-butyl
 bromide, steric hindrance 4=7741
 radiolysis, pulse apparatus for obs. 4=26763
 rate constants, calc. from transition-state
 theory 2=19133
 rate constants at low concentrations 0=8315
 rate theory, transmission coefficient 3=6909
 reactant isolation, one-dimensional systems 3=8946
 reacting gas mixtures, "thermal conductivity" 1=20726

Reaction kinetics—contd

- reaction rate of expanding fluid, effect on velocity of sound 0=10722
- reactive diffusion in crystals 0=6055
- reactor for high boiling liquids in gas phase 1=10293
- rearrangement collisions, quantum-mech. transition-complex theory 2=19141
- reflected-shock technique 0=16377
- use of reflected shock waves 3=13594
- relaxations, meas., temperature jump appar. 3=5158
- rotating anharmonic diatomic mols., unimol. rate theory 3=6907
- sarcosine zwitterion form, protolysis, n.m.r. meas. 4=2150
- scattering matrix and reaction rates 2=2444
- sec-butyl radicals, decomposition, unimolecular reaction theory 0=21274
- sec-deuterobutyl radicals, activated, unimolecular decomposition 0=8301
- self-heating chemical, criticality criteria 1=4092
- shock tubes, low-density type 1=2783
- simultaneous reactions, reciprocity relation 2=6875
- size effects among isotopic molecules 0=21265
- small systems 3=8964
- small systems, stochastic approach 4=23629
- solid-state reactions, kinetic model 1=11613
- solids, chemical equilibrium, activity coeffs. of electrons and holes 0=15914
- solids, with imperfections 0=4295
- solubility with gas-in-liquid reaction 2=2713
- spectrometer for observation 4=18404
- statistical computation of reaction probabilities 1=20725
- statistical mechanics and ion decomposition reactions and stability 3=19375
- statistical mechanics of reactive fluids 4=6662
- statistical thermodynamics, conditions for validity 2=21580
- steady-state unimolecular processes in multilevel systems 3=13596
- symmetry number and reaction rates 3=18429
- tert-butyl bromide, decomposition rate, comparative meas. with single-pulse shock tube 4=15838
- tert-butyl chloride, decomposition rate, comparative meas. with single-pulse shock tube 4=15838
- tert. butyl iodide-HI-isobutylene, equil. 2=19139
- thermal decomposition of diatomic molecules 0=3298
- thermal decomposition of tert-butyl cpds. at high temp. 4=15839
- thermal, along dislocations 3=8958
- thermally activated processes, frequency factors 1=4266
- thermochemical action, of ionizing radiation 2=4559
- thermodynamic pots. for reacting gas mixtures, new classes of 4=7739
- thermodynamic prop. meas. by dielectrometric titration temp. var. 4=23626
- thermodynamic relations for three-dimensional systems 0=19527
- thermokinetic potential, rel. to stable steady state 3=1878
- 3-body gas-phase reactions, cross-sections, phase-space theory 4=23627
- transport of solid through gas phase 2=23948
- tunnelling correction, approximate expression 4=7743
- and turbulence, in pipe, mass transfer 3=14103
- unimolecular, anharmonic effects 3=10489
- unimolecular, anharmonicity in vibrational state sums 4=24069
- unimolecular decomp. of chem. activated propyl radicals 3=20993
- unimolecular decomposition, near threshold 2=6874
- unimolecular gas reactions, theory 0=8302
- unimolecular rate const., comparison of integrals 0=14101
- unimolecular rate theory 0=6406
- unimolecular rates, due to multiple critical oscillators 2=4528
- unimolecular rates, strong collision theory, quantum-mechanical formulation 4=23628
- unimolecular reactions, anharmonicity 1=20724
- unimolecular reactions, chemical theories, comparison 3=16153
- unimolecular reactions, comparison of classical theories 2=8907

Reaction kinetics—contd

- unimolecular reactions, computation of statistical complexions 2=17085
- unimolecular reactions, high frequency factors 0=1948
- unimolecular reactions, high-frequency factors 1=10292
- unimolecular reactions, oscillator models 1=20728
- unimolecular reactions, oscillator models 4=26733
- unimolecular reactions, for vibr. excitation 3=3386
- unimolecular, statistical complexion calc., anharmonicity effects 4=13707
- unimolecular, transition-state theory 1=12320
- vacuum meas. apparatus 4=17854
- vapour phase, four-centre reactions 4=7742
- variational theory, three-body recombinations 0=8299
- waves in reactive media 2=19528
- Zircaloy-2, in dry air, at high temps. 0=12102
- Al films, oxide formation 0=8335
- Br and isotopic hydrogen mols. 4=29208
- Br, recombination rate constants, three-body 4=17852
- CD₄, unimolecular, statistical complexion calc. 4=13707
- CF₃ + CHD₃, H-D kinetic isotope effect 2=23955
- C/H system, equilibrium composition at high temp. 2=12348
- C₂H₂ + D₂O = C₂D₂ + H₂O, exchange equil. 4=30894
- 2C₂H₅NH = (C₄H₈NH)₂, in CCl₄, equil. 2=10961
- CN, formation and reaction in shock waves 2=6879
- C₂N₂, decomposition 2=12349
- CO, formation on incandescent W 2=8911
- CaO = Ca(g) + O₂, by mass spectr. 3=3379
- CdSe, impurity incorporation 3=13590
- Cl + HCl and Cl + DCl exchange rates, D-isotope effect, and tunnel effect models 4=29206
- Ce(SO₄)₂, aq. soln., radiation-induced reduction 1=1420
- Co-Cl complexes in methanol, kinetics of methanol exchange of solvation shell, -80° to +80°C 4=27201
- [Co(MeOH)₅Cl]⁺ in methanol, kinetics of methanol exchange of solvation shell, -60° to -80°C 4=27200
- Co-Pd oxidation, anomaly at Co Curie point 3=20982
- Cu, sulphurization mechanism 0=21268
- Cu-S, scale formation, causes and mechanism 4=23640
- D₂ abstraction from CD₄, (CH₃)₃CD, Cl₂, CD₄, rate consts. and activation energies 4=30895
- Fe oxidation to wüstite, rate law transition 4=10635
- Fe(NH₄)₂(SO₄)₂, aq. soln., radiation-induced oxidation 1=1490
- GaP with H₂O, and GaP range of stability 4=13709
- Ge, donor reactions 1=19854
- Ge iodides, reduction by H 4=13708
- Ge surface reaction with I 1=11612
- H atom catalysed gas-phase recombination at high temp. 3=16165
- H atom recombination on Al surfaces 4=13721
- H-atom recombination, ionic catalysis 3=16164
- H atoms with HCl and Cl₂, competitive rates 1=10294
- H atoms, hot, billiard-ball collisions 2=4561
- H atoms and molecules, with I atoms and molecules 2=10966
- H, ortho-para conversions and isotope exchanges 0=3293
- HBr chain reaction, effect of periodic pressure change 2=4535
- H and D atoms, with trans-butene 2=21586
- H-D isotope effect, at high temp. 2=4532
- H-D kinetic isotope effect, in reaction CF₃ + CHD₃ 2=23955
- H and D, dissociation rates 2=14333
- HI addition to isobutene and vinyl chloride 3=11338
- HI with ethyl iodide 3=20978
- HI, gas phase addition to ethylene 3=6915
- HI gas-phase reaction with CH₃I 3=11339
- HI with propylene 2=21582
- H₂, NH₃ and CH₄ with mixtures of (O + O₂) 4=4693
- H₂, o-p conversion 4=25646
- H₂ oxidation 4=17858
- H₂-Br₂, rate in nonsteady state, 1000°-1600°K 4=7744
- H-D, electrolytic, separation 0=748
- H + H₂ exchange reaction 4=17857
- H₂ + H, H₂ activated complex formation, calc. 0=1514
- H-I, D kinetic isotope effect 4=7745
- HI gas-phase addition to butene-2 4=26750
- H and N interaction with Mo ribbon 1=11600

Reaction kinetics—contd

- $\text{H}_2\text{--O}_2$, origin of OH chemiluminescence 4=13705
 H_3O^+ + substrate \rightarrow product reaction, D isotope effect 1=15195
 H_2SO_4 , dissociation 0=18433
 He , recombination rate constants, three-body 4=17852
 $\text{He}^+ \text{--H}_2$ and He--H_2^+ reactions, cross-sections, phase-space theory 4=23627
 He_2^+ formation 4=2145
 $\text{Hg } 6(^3\text{P}_0)$, with nine gases, spectroscopic meas. 2=6877
 I atoms, recombination in foreign gases 0=5868
 I lamps with W filaments, W deposition study 4=26741
 I , recombination rate constants, three-body 4=17852
 $\text{K} + \text{CH}_3\text{I}$, reactive collisions in molecular beams 4=28290
 $\text{K} + \text{HCl}$ and $\text{K} + \text{HI}$, in crossed molecular beams 4=28289
 K--NH_3 soln., decomposition, e.p.r. study 3=3381
 N_2 , recombination rate constants, three-body 4=17852
 N_2 , shock heated, recombination rate 2=7566
 NH_3 synthesis, activation energies 2=15138
 $\text{NH}_3 + \text{BF}_3$, kinetic isotope effect 1=6568
 NO decomposition rate between 3000 and 4300°K 1=7904
 NO , shock tube study, 3000°–8000°K 2=15134
 NO^+ , in upper atmosphere, formation 2=8985
 $\text{N} + \text{O}_3$, mass spectrometry 2=8909
 $\text{NO} + \text{N}$, low reactant partial pressure 2=2443
 $\text{NO} + \text{NO}_2 + \text{H}_2\text{O} \rightleftharpoons 2\text{HNO}_2$, vapour phase equilibrium 4=15835
 $\text{NO} + \text{O}_3$, in supersonic nozzle 4=7752
 N_2O , decomposition, shock-tube meas. 4=29216
 N_2O , thermal decomposition, by shock waves, 1500–2500°K 4=15834
 N_2O_4 , dissociation, u.s. study 2=4530
 $2\text{NO} + \text{F}_2 = 2\text{ONF}$, dilute diffusion flame study 0=16374
 NaN_3 photolysis 1=20758
 Ni ferrite, Ni formation by diffusion 1=7902
 Ni--Br , surface reaction, press. and temp. var. 4=10636
 O -atom reactions with olefins 3=11341
 O atoms, addition to olefins 0=21273
 O atoms with NO and NO_2 , mass spectra study 4=29215
 O atoms, recombination 0=18430
 O atoms, recombination, in absence of O_2 0=18429
 O atoms, recombination rates 0=6405
 O atoms, three-body recombination 0=20679
 O_2 , recombination rate constants, three-body 4=17852
 O_2 , dissociation in microwave discharges, catalytic effects of foreign gases 0=7737
 O_3 , decomposition 0=18431-2
 $\text{O} + \text{NO} + \text{M} \rightarrow \text{NO}_2 + \text{M}$ and $\text{O} + \text{N}_2\text{O} \rightarrow 2\text{NO}$, rates 2=4529
 $\text{O} + 2\text{O}_2 \rightarrow \text{O}_3 + \text{O}_2$, rate const. 4=15836
 $\text{P}(\text{CH}_3)_3 + \text{BF}_3$ 1=6569
 Pb azide, initiation by high-intensity light 4=30898
 Pt and Zr , attack of HBr , effect of α -ray irradiation 0=12100
 SO_2 , aq., ionic dissociation, rel. to u.s. absorpt. 2=5012
 Si crystal growth from SiCl_4 , decompos. 3=13423
 SrO , on W 0=3308
 UC_2 + graphite 2=7471
 UO_2 , hydrofluorination, optical interference meas. 3=24043
 XeF_4 and XeF_2 with NO and NO_2 4=23630
in ZnS:I vapour-solvent growth system, solid transport rate 4=15768
 Zr , in dry air, at high temps. 0=12102

Recombination

See Ions, recombination; Semiconductors

Recording

See also Sound recording

- cosmic ray data, multichannel transistorized apparatus 1=13538
d.c. response of mag. recording head 0=2424
displacements, photoconductive systems 2=3128
magnetic, "ghost" signals, linear filter elimination 0=8352
magnetic tape, multitrack 2=9751
magnetic tape, particle interactions 4=13165
magnetic tapes, particle interaction 0=11870
multichannel recorder-analyser system 2=1364
multipoint digital recorder, with punched-tape output 0=14897
nuclear data storage, high-speed system 2=9494
oscilloscope recordings, digitalizing on to punched tape 2=5263

Recording—contd

- periodic waveforms 0=5399
perpendicular head, for digital purposes 0=12665
punched tape recorder for use in low temp. calorimetry 4=11430
spark-chamber data 1=19076
strip chart recorder, single pen, long unattended period operation 0=3436
teleprinter tape, experimental results 0=4928

Rectifiers

See also Electron tubes; Semiconducting devices, diodes and junctions

- acoustic 0=19272
carnauba wax electrets, rectifying props. 1=6198
Corbino disc, experiment and theory 1=1886
dielectric diodes, space-charge-limited currents 1=266
electrolytic, mechanism and ion size effect 1=18749
Faradaic rectification, rel. to adsorption of reactants 2=2451
ignitron, stabilized switching 4=14546
metal-dielec.—metal sandwiches, theory 4=15565
metal-semicond. contact, Schottky barrier meas. 3=10847
metal-semicond., injection model 4=1638
metal-to-semiconductor contacts, rectification without injection 0=9983
non-isothermal diffusion theory 0=20881
phthalocyanines 3=17916
phthalocyanines 4=20394
piezoelectric effect in semiconductor contact 1=1092
polyethylene semiconductor 4=10073
potential barriers and emission-limited current between parallel metal electrodes 4=24720
r.f. detection by electron tunnelling between superconductors 4=18625
sandwiches, $\text{Se--Ti}_2\text{Se}$ and Se--InSe boundary diffusion 3=25293
thermal, $\text{He}^3\text{--He}^4$ 0=1085
 AlAs , conduction band minima 4=6944
 AlSb , conduction band minima 4=6944
 Cu--Cu oxide contacts 2=6482
 Cu_2O , effect of γ -rays 2=14572
 Cu_2O , γ -ray irradiation effects 4=4184
 Ge , point contact, thermal turnover 0=13623
 Hg arc, electrode contamination and arc formation 1=10686
 Hg arc, flashback, statistical charac. 2=17815
 IN26 crystals, power conversion gain and noise ratio 1=5580
 Se , V-I charac., capacitances, resistance, 4 Russian types 0=18051
 Se , γ -ray irradiation effects 4=4184
 TiO_2 rectifying barriers, current meas. 4=17525
 Zr , oxidized, electrolytic mechanism 1=20747

Reflection

- See also Neutrons, reflection; X-ray reflection
blackbody radiation, surface characteristics 2=127
diamond, X-ray reflection values 4=26188
efficiencies of periodic absorbing surface, calc. 4=14380
electrons from plasma, transition radiation fields calc. 4=29921
focusing, by random surface 0=8769
magnetohydrodynamic waves, at compressible media boundary 2=7721
magnetohydrodynamic waves, in interstellar matter 2=15996
matter waves, total reflection, associated transverse shift 1=6924
medium of atoms emitting dipole and quad. radiation 2=9359
phase-shift data taken through transparent window, interpretation 3=9599
plasma, hydromag. waves 3=483
plastic wave, from obstacle, theory 3=23968
Rayleigh waves, by wedges 1=1782
Rayleigh waves, by high impedance 1=1781
shock waves, nonlinear theory 1=8155
shock waves, at 2-media interface, oblique incidence 0=8743
Sommerfeld-Runge law in 3 and 4 dimensions 3=21
viscoelastic waves, rel. to new wave type 2=7277

acoustic waves

See also Echo; Reverberation

- acoustic materials, rel. to mounting conditions 2=17561
cavity, cylindrical, boundary value problem 4=11306

Reflection—contd**acoustic waves—contd**

- from coastal bottoms 0=2207
- corrugated rigid surface 2=2834-5
- cylindrical defect, plane waves 2=5097
- cylindrical shell in moving medium 4=11308
- disks, infinite and disk strips 2=70
- echoes, from solid sphere in water. 3=211
- effect of reflecting plane on arbitrarily oriented multipole 1=5330
- in elastic layers 2=21964
- elastic rod, moving 4=24323
- enclosure, mean free path concept 4=14322
- finite-amplitude waves, reflected wave with doubled freq. 1=4412
- flat surfaces, pitch versus distance meas. 4=21246
- focusing of high-intensity waves 1=4403
- from a grating 1=9450
- in guide, from tapered end, normal modes 4=2790
- high-energy reflections, distributions in various halls 0=19343
- impedance, slits, in laminar flow 1=1796
- by irregular bodies, summation formula 3=9560
- layered medium, pressure distrib. eval. 2=17563
- in liquid sphere, high-frequency 2=21974
- loudspeaker response 2=5121
- low-loss acoustic cavity 3=7287
- magnetoacoustic, from conducting fluid-elastic medium boundary 4=678
- measurement reflectometer for Kundt's tube 4=27269
- metals, at low temp., maximum at critical angle, theory 2=23062
- metals, at low temp., maximum at critical angle theory 3=8355
- in moving media, effect on audibility 0=14741-2
- in moving media, total reflection 0=16792
- from moving thin plate 1=18522
- multiterminal junctions 0=14724
- non-specular, thin rods in water 0=1001
- normal modes, at end of closed waveguide 3=14266
- by ocean surface, focusing effects 3=11385
- at open end of circular tube, reflection coeff. formula 3=16710
- parabolic, amplification factor off optical axis 3=14267
- perceptibility, of delayed sound signals, subjective 2=79
- perforated concave surfaces, model 2=5114
- plasma, at metal boundaries 2=11664
- plate, periodically inhomog., in liquid 2=21973
- point-source fields 3=11866
- pulse in solid sphere, calc. 4=5316
- pulses at two fluid interface, phase distortion 4=8341
- randomly rough surfaces 0=8751
- rigid body, pulse backscatt. theory 2=13411
- rigid piston array, acoustic radiation impedance 0=10731
- in rooms, automatic evaluation 0=19345
- in rooms, correlation method 0=1024
- rough surface, amp. and phase fluctuations, correlation functions 3=16708
- sea surface 3=9559
- sea surface, fluctuations 1=1794-5
- at sea surface, 400-6400 c/s 4=4751
- in seas 1=11814
- semi-anechoic test chamber 2=15711
- shallow water, bottom and surface 3=1773
- shells, spherical elastic 2=7296
- by shock waves 0=6872
- shock waves, weak, at acoustic absorbers in air 4=268
- silent zone formation, round explosions 0=14303
- sinusoidal surface, ampl. and phase fluct. 3=14268
- from sinusoidal surface, plane wave 3=18929
- soil, submerged, as function of frequency 1=10301
- from solid plane surface, perfect heat conductor and insulator 1=18524
- solids, in water 2=9342
- sonar, analogues in radar camouflage study 1=8190
- sonar eqns., generalized form 3=3854-5
- speech, perceptibility after multiple reflection in room 2=85
- stepped structure, for prescribed reflection coeff. 2=15685
- submarine detection, early 3=14278
- by thin infinite plate 1=11809
- total reflection according to Huygens' principle 1=9466

Reflection—contd**acoustic waves—contd**

- transmission structures, non-uniform, internal reflections 1=16028
- 2-component media, stratified, theory 2=17562
- underwater bottoms, acoustic characteristics 4=10689
- underwater, from overlying ice layer 4=15864
- undulating sea surface, statist. characteristics 3=14269
- uneven surface, amplif. and phase fluctuations 3=14265
- van Atta reflectors, model expts. 2=13410
- water-borne sound, high pressures 2=2833
- at water surface subject to waves 1=18523
- "zero sound", from a wall, rigid 4=27110
- acoustic waves, ultrasonic**
- back, obliquely incident to solid surface in water 3=18930
- from cavity flaws in media 0=1009
- concentrator, hemispherical 1=4404
- crystal boundaries, theory 4=6738
- in crystals, directn. of beams 2=23061
- echo amplitude 1=1793
- interferometers, Hubbard theory 0=10734
- liquid-solid interface, at critical angle, velocity det. 0=16766
- meas., pulse technique with two fixed reflectors 1=2825
- pulse-analysis testing, det. of geometry of defects 3=11302
- steel plates, reflection coeff. meas. 1=2825
- in thickness measurement, with Lamb waves 2=13300
- waves, turpentine-water interface, beamwidth var. 4=2789
- LiF, internal, polarization state change 4=22484
- electromagnetic waves**
- absorbing crystals, in average syngony, inhomogeneous waves 4=20440
- air shock waves in waveguide 4=30048
- anisotropic medium, and impedance 4=686
- atmospheric, partial, in wave propag. 2=20158
- aurora 2=9021
- aurora, azimuthal distrib. 2=917
- aurora, daytime max. 0=10444
- aurora, during intense activity 0=2039
- aurora, freq. dependence of reflection coefficient 2=4679
- aurora, ionization meas. 3=13793
- aurora-like radar echoes 0=10443
- aurora, 92.8 Mc/s 2=9013
- aurora, oblique, 90 Mc/s 3=25934-5
- auroral radar echoes, at 55 Mc/s 0=21326
- auroral radar echoes, and magnetic activity 0=21327
- auroral radar echoes, statistical props., anal. 0=6479
- auroral slant E echo 1=15319
- at boundary of two media, rel. to polarization 2=5476
- by cone, hollow 3=12311
- crystals, deformed 4=1706
- by crystals, optically active 4=20441
- crystals, total internal, nonuniform waves 3=15645
- cylindrical waves from wedge-shaped mirror with resistive walls 4=24834
- detection, chirped radar, by e.s.r. echo 4=11791
- dielectric sheet, with conducting backing, incidence angle depend. 0=5408
- dielectrics, decimeters, optical meas. 4=16383
- dielectrics, non-linear, simple wave soln. 4=27642
- diffraction grating, transparent with sinusoidal profile 4=8450
- earth heat-balance, meas. by satellite, discussion 2=2458
- at electron density gradients 1=3057
- at electron density ramps in a plasma 1=16331
- in ellipsoid, elec. discharge at foci, 3 cm pulsed excitation 1=16282
- film, nearly total, energy flux 2=5479
- filter, resonance, totally reflecting 3=17050
- grating, transparent sinusoidal profile 4=21654
- guide junction at dielectric load, quasi-static approx. 4=716
- guided, junction of circular guide and conical horn, H₁₁ mode 4=717
- hail, multiwavelength, rel. to properties 2=2479
- homogeneous absorbing layers and short-circuit plate 3=4270
- horizontal-polarization reflection coefficient eval. 2=22344

Reflection—contd

electromagnetic waves—contd

- iceshell, radio waves 1=16562
- ice spheres in free fall, radar studies 4=17884
- ice spheres, Mie back-scatt. calc. 2=2478
- ice-water mixture, radar reflection 4=8951
- imperfect plane dielectric 4=27654
- interface of 2 media, nonlinear 4=19218
- from ionization wave, in stationary plasma 1=19042
- from ionization wave, in stationary plasma 2=22347
- ionized gas layers 2=16035
- ionized media, indep. moving boundary 3=5844
- ionosphere, antenna 0=2003
- ionosphere, collision effects 2=897
- ionosphere, completely rough 2=9717
- ionosphere, curved anisotropic, v.l.f. mode 3=19462
- ionosphere, D-region, electron density 2=9000
- ionosphere D-region, 2.7 Mc/s 3=6978
- ionosphere, demodulation, near gyro frequency 0=3863
- ionosphere, deviative region, differential eqn. 3=5865
- ionosphere E_s -echo, polarizations at Waltair 2=11804
- ionosphere, E layer, fading 0=1221
- ionosphere, E-region, rate of height descent at sunrise 3=3500
- ionosphere E_s and irregularity movements 4=13848
- ionosphere, exponentially, varying, in v.l.f. 3=19463
- ionosphere, F_2 -layer, winter anomaly 2=17174
- ionosphere, field-aligned irregularities, geom. 2=9719
- ionosphere, ground patterns, diffraction microscopy anal. 0=757-8
- ionosphere, inhomog., perturbed exponential model 4=3186
- ionosphere, inhomogeneous, exponential model 4=8956
- ionosphere—ionosphere, in long-distance h.f. propag. 4=7910
- from ionosphere, long radio waves 1=16593
- ionosphere, long-wave processes 2=9720
- ionosphere, low-frequency, theory 0=1219-20
- ionosphere, low power ground source, 2.4-4.6 Mc/s 4=2280
- ionosphere, lower, pulse propag. mechanism 4=2257
- ionosphere, lower, stratification 2=11059
- ionosphere, magneto-ionic theory 0=17122
- ionosphere, plasma model 2=16072
- ionosphere, not sharply bounded 3=9955
- ionosphere, oblique incidence 2=21648
- by ionosphere, oblique incidence of l.f. signals 1=20929
- ionosphere, perturbation calc. 3=21053
- from ionosphere, phase-path variations, meas. apparatus 1=4733
- ionosphere, pulse reflection and Epstein profile 3=16251
- ionosphere, sech² model, long waves 3=2134
- ionosphere, short wave reflection coeff. 0=1222
- ionosphere, singly- and multiply-refl., autocorrel. coeff. 4=11811
- ionosphere, solution of diff. equations 0=7233
- ionosphere, spread-F echoes, at night, at Brisbane 0=3864
- ionosphere, stratified, anisotropic, long waves 3=2135
- ionosphere, treated as stratified plasma 3=16256
- ionosphere, 2.28 Mc/s, effect of sudden disturbance 0=4800
- ionosphere, 2.28 Mc/s pulsed, phase fading 3=4278
- ionosphere, v.l.f., coeffs. for arb. direction 2=11802
- ionosphere, v.l.f., perpendicular to magnetic meridian 2=5484
- by ionosphere, vertically, fading correlations 1=20930
- ionosphere, virtual height meas. improvement 4=7913
- ionospheres, model, vertically polarized waves 4=14910
- long radio waves from ionosphere, theory 4=16671
- from lunar surface 1=15558
- above magnetic dip-poles, magneto-ionic theory 0=296
- from magnetic field waves, in gyrotropic media 1=19042
- from magnetic field waves, in gyrotropic media 2=22347
- by magnetization wave in a ferrite, Doppler effect 3=4269
- magnetoplasma, lossy, v.l.f. refln. 4=16670
- magnetoplasmas, microwave reflection 3=24289
- mesosphere 1=15326
- metal-dielectric boundary, principle of reversibility, failure 0=5132
- metallic foil structural model 0=6392
- meteor radio echoes, duration distrib. 1=18173
- meteor head echo 2=11164
- meteor trails, Brysk analysis, criticism 3=16427
- meteor trails, dense, specular echoes 2=11162
- meteor trails, survey 4=14913
- meteors, echo height rel. to trail diffusion 2=4657

Reflection—contd

electromagnetic waves—contd

- microwave, by nonuniform plasmas 4=11615
- microwave obs. of oscillistor carrier behaviour 3=10862
- microwave, by Permalloy films at ferromag. resonance 3=11105
- microwave, by plasma, high electron density meas. 3=12181
- microwaves, in dense plasma diagnostics 4=18901
- microwaves from earth's surface 0=17100
- moon 0=12258
- moon, roughness, as radar reflector 0=14384
- moon, rel. to statist. model of surface 3=1513
- moving boundary, Fresnel formulae 4=3143
- moving field layer in non-linear medium 4=30049
- from moving parallel cond. planes 0=15141
- moving plane surface, ideally conducting 2=22333
- from moving plasma 1=19042
- moving plasma 2=22347
- nonlinear optics 3=14770
- paraboloidal-type reflectors, shape rel. to directivity pattern 4=8935
- parallel-wire structure, absorptive, cm waves 2=9711
- plane metal surface covered with absorbing layer 2=7737
- plane-parallel layer, wave optics 3=9605
- plane waves by random cylindrical surfaces 1=16561
- plasma 1=18852
- by plasma 1=18865
- plasma 2=11790
- for plasma accel. 4=24655
- plasma-coated sphere and other configurations 2=3170
- plasma cylinder, hot inhomogeneous 4=18872
- in plasma diode 2=13575
- plasma, fluctuation effects 4=16483
- Plasma, for freq. meas. 4=14666
- plasma, hot, mag. confined, right-circularly polarized microwaves 3=19252
- plasma, isotropic, and interactions 4=27665
- from plasma, linear pinch, electron density meas. 1=1904
- plasma, microwave refl. coeff. rel. to electron density, collision freq. and cyclotron freq. 4=14663
- by plasma in motion 1=11928
- plasma, motion near container walls 1=4616
- from plasma, moving 3=12141
- plasma, moving in dielec. medium 0=9057
- by plasma, moving, high-density, in semicond. depletion layer, for min. wave generation 3=9927
- plasma, moving in slow waveguide 2=9591
- plasma, non-uniform 2=3034
- plasma, pulse, for transient meas. 3=24301
- plasma, relativistic, for oblique incidence 2=1424, 22216
- plasma sheath, microwave techniques study 2=4880
- plasma sheath, surrounding slotted-sphere aerial 2=3157
- plasma, shock-produced, microwave refl. 4=29919
- plasma, in slow-wave waveguides 0=5410
- plasma spectrum 0=5409
- plasmas, at metal boundaries, theory 2=11664
- plasmas, microwaves through plane slab 2=7613
- plasmas, thin rel. to geometric optics hypothesis 2=5343
- radar angels, at 6800 Mc/s 2=3173
- radar camouflage, sonar analogues 1=8190
- radar corner reflectors 2=16034
- radar cross-section meas., laboratory, while falling and spinning 4=3144
- radar echo from moon and planets, theory 1=15559
- radar echoes, assoc. with visible auroral forms 0=6478
- radar echoes, at 55 Mc/s and visual aurora 0=21328
- radiation field of point-source illuminated plane 1=12969
- radio-aurora distribution 0=12199
- radio signals from ionosphere, fading 1=379
- in radiowave propagation 2=16041
- radio waves reflected from ionosphere, focusing 1=8392
- reflectometer, microwave three-port tuned 4=21653
- refractive layer perturbed by waves 2=16029
- reverberation room, at Göttingen Univ. 1=8191
- rough surface, coherent and incoherent power, theory and meas. 4=24833
- satellite signal in troposphere, rel. to Doppler shift 4=2471
- satellites, radar obs. rel. to orbit calc. 2=6976

Reflection — contd

electromagnetic waves — contd

- sea, with radiowaves, specular and diffuse refl., meas. 4=5805
 seawater under polar ice 2=4589
 and semiconductor carrier lifetime meas., high cond. 3=20296
 semiconductor plasma, pinched, moving 3=17827
 semiconductors, microwaves, theory and expt. 3=23043
 slab with varying refractive index perp. to inter-face 4=21652
 slot absorbers, 10-14 kMc/s 3=24474
 from sound waves in liquids 1=369
 from sound waves, theory 4=14887
 Sputnik III, 20 Mc/s w.w.v. bursts during last periods of 1958 1=18226
 stratified ionosphere modified by weak irregularities 0=9221
 stratified medium, specular and diffuse 4=5804
 surface current, induced, meas. 4=5806
 surface waves, over dielectric guiding surface 3=24469
 thunderstorms, vertical cross-section with radar 1=20833
 total, dielectric prism, damping, "bending" waves 3=19444
 total, penetration of microwaves into rare medium 0=17101
 tropospheric layer, v. h. f. refl. 4=26801
 tropospheric layers, undulating 4=3180
 undulating surface, echo amplitude distrib. 2=20166
 VLF, ionospheric, coeffs. by impedance and model concepts 1=19045
 by Vlasov-plasma half-space 3=19253
 water, excited by acoustic waves 0=7220
 waveguide, closed end, arbitrary angle end 3=19449
 waveguides, cylindrical plasma, open-end reflection 4=24852
 West Ford dipoles, lifetimes 1=18221
 wind meas. using radar Doppler shift 3=1433
 X-rays to microwaves, synthetic single crystals 2=16799

light

- See also Mirrors; Optical films
 absolute coeff. meas., with 2-beam spectrophotometer 0=5152
 in absorbing medium, with point source 1=5336
 from acoustical waves, single sideband modulation 4=5358
 albedo meas., over Ukraine 1=15232
 alkali metal films, phase difference 3=18387
 amplitude and energy coeffs., theory 3=1789
 antireflection coating for Ge photoresistors 1=10068
 antireflection coating, for low n glass 0=5154
 antireflection coatings, computed props. 2=7371
 antireflection coatings, i.r., equivalent films 2=7372
 antireflection coatings, triple-layer, for visible and near i.r. 2=19678
 antireflection film for i.r. detectors 1=9502
 aplanatism, system with 3-dimensional light source 2=1252
 apodizing diaphragms 4=27291
 atmosphere, cloud-free, of sunlight 2=2483
 atmosphere, u.v. from sun, rel. to ozone distrib. 2=4591
 atmosphere, upper, dust layer obs., using laser 4=13814
 band shape for single reson. 4=21304
 binary systems, critical opalescence, theory 4=8525
 from boundary of a cloud 3=9043
 boundary planes, rel. to point source illum. enhancement 4=21273
 boundary of two absorbing media, theory 4=8440
 at boundary of two media, rel. to polarization 2=5476
 catacaustic, rel. to surfaces of revolution 1=18563
 cirrus cloud i.r. refl. meas. 4=10713
 cirrus clouds, i.r. meas. 3=16219
 coating, diffusive, for Cherenkov counters 2=1629
 coeff., analytical determ. 4=14376
 collodion films, on polished Ag, colour in white light 0=12492
 complex surfaces, rel. to moon 4=2394
 cone, imaging props. 2=5137
 corner-cube reflectors, effects of small errors in angles 0=3602
 corundum, refl. power in far u.v., rel. to cutting angle, chromium content and temp. 4=7126
 critical angle, electrical control 2=88
 crystal, absorbing, arbitrary 3=15648

Reflection—contd

light—contd

- crystals, Faraday effect, effective mass det. 4=13055
 crystals, general theory, orthogonal polarization direction in incident and reflected waves 0=12497
 crystals, mono- and triclinic, refraction and absorption surfaces 0=13672
 crystals, obs. method 2=17621, 19707
 crystals, spectra, rel. to nature of incident light 3=9600
 n-decane- β , β' -dichloroethyl ether liquid mixture, opalescence, critical 4=24212
 for deflection, in prisms, invariance conditions 4=16204
 at dielectric-conductor interface, use for optical constant determ. 4=18412
 dielectric mirror systems, layer materials 2=1251
 dielectric multiple layers, manufacture 2=5174
 diffuse, characteristic factors, suitable standard measures, theory 0=19362
 diffuse, Helmholtz law 2=5138
 diffuse, by inhomog. plane layer, brightness coeff. 2=21991
 diffuse, in nonuniform atmosphere bounded by reflecting surface 4=16243
 diffuse, peripheral distrib. of scattered light, meas. 4=16253
 diffusers, opaque, total reflectance 2=22060
 diffusing layers 4=324
 double-layer system, phase shift 2=17638
 earth's albedo, meas. on 17 dates (1957-58) 0=21390
 echelette system, i.f. background 2=11471
 echelon 0=19441
 at electrochemical boundary layers 3=11933
 electrochemical boundary layers, total refl. 4=2160
 ellipsometry, fundamental eqn. 4=18435
 elliptical cylinder, pumping radiation 3=14332
 in Fabry-Perot interferometry, phase shift effects 0=14839
 films, dielectric multilayer, automatic computation 0=10779
 films, inhomogeneous, theory 2=6550
 films, solid, and thickness and density meas. 4=13679
 films, thin, organic, rel. to structure 4=4241
 films, thin, theory 1=18601
 films, with refr. index gradient, calc. 4=8442
 filter photometer for reflection meas. 0=2223
 Fresnel coefficients, for absorbing media 2=9365
 Fresnel formulae, for crystal surface 0=16035
 Fresnel's formulae, for elec. quad. radiation 2=19677
 frustrated total internal reflection spectra, surface study 0=10030
 glass, frosted surfaces, specular and diffuse, rel. to polarizing properties 4=20458
 at glass-metal interface, exptl. det. of phase change 3=24044
 gold black deposits, specular reflectance, 15-100 μ 1=3813
 Goos-Hänchen shift 4=29760
 by graphite particles, from scattering, mag. effects 4=30683
 grating, echelette, in polarized light 2=22058
 grating, sinusoidal, and irregular surface 3=258
 grating, sinusoidal profile, power calc. 4=18423
 gratings, concave, in soft X-rays, of powers comparison 4=18411
 in gyroelectric media 3=11925
 by infinite flat surface, illuminated from point source, applications 1=18564
 infrared, far, attenuated total, for spectroscopy, review 4=14355
 i.r. internal reflection appl. to surface study 3=18397
 i.r., meas. including both diffuse and specular refl. 3=16789
 invariant description and sense of transformation of the description 4=14379
 irregular surface, and transmission, film appl. 4=1707
 Laue diagram analogy 4=13562
 lenses, dioptric, imperfectly polished 4=18385
 by light scattering layers, with varying parameters 0=14846
 magnification by reflecting surface 3=1788
 from matt-glass surfaces, statistical interference 4=5391
 measurement, microscopic objects 4=5374
 measurement, partially reflecting layers 3=21518
 metal-dielectric boundary, principle of reversibility, failure 0=5132
 metal-dielectric interface, boundary conditions 2=19718

Reflection—contd

light—contd

- metal films, granular structure effects 2=5177
- from metal films, method of reduction 1=2875
- metal mesh refl. filters in far i.r. 4=307
- metal reflectors 2=11470
- metal surface, phase difference 3=16785
- metals of high purity 3=15531
- microscope objects, contrast improvement 2=7351
- minerals, cloudy, spectral depend., rel. to colour changes 2=23517
- mirrors, contrast transfer analysis 3=14310
- molecular crystals, long wave theory 3=20428
- monodisperse lattices, Bragg refl. 3=13622-3
- from moon, optical maser radar expt. (Project Luna See) 2=22015
- multilayer dielectric films, theory 3=14360
- multilayer stack, alteration methods 2=22046
- multilayer, theory of ellipsometry 2=17652
- multiple, number of images 0=5136
- multiple, number of images produced 2=9364
- multiple, ray passing through thin transparent plate 0=5171
- mutual reflections between diffusing surfaces 1=5337
- naphthalene, 20°K 2=23541
- non-linear effects 3=11940
- non-linear, exptl. verification of laws, with laser 3=24017
- optical constant measurement, methods 1=9467
- optical constants det. using dispersion relations 3=16790
- optical materials, infrared, bibliography 3=16750
- in optically-active isotropic media 1=13002
- organic films, on metals, i.r. study 0=6925
- organic thin films 4=1702
- p-component, phase shift 3=16784
- paraboloidal solar mirror, illumination 2=11469
- phase change, absolute, on semitransparent film, meas. 4=16244
- phase charge, at boundary between media 3=21557
- phase relations, det. using Fresnel eqns. 2=11473
- phase shifts eval. 3=3865
- from photocathodes 0=5130
- piezoelectric crystals, harmonic prod. obs., GaAs, Te 3=18956
- pile of plates, modified Lunelund and Stokes formulae 0=19378
- plane-parallel layer, wave optics 3=9605
- plane waves by random cylindrical surfaces 1=16561
- plates and lenses, flare meas. method 3=16801
- polarization prod., 900-1200 Å 4=14404
- polarized light, teaching expts. 3=19029
- polybutyl methacrylate-isopropanol solns., critical opalescence 3=21353
- polymethyl methacrylate-butyl chloride solns., critical opalescence 3=21353
- polystyrene-cyclohexane solns., critical opalescence 3=21353
- powders, comparison of theories 4=21277
- powders, under diffuse illumination 0=12469
- quartz, i.r. meas. 2=18788
- rel. to radial shearing interferometers, review 4=24383
- radiation field of point-source illuminated plane 1=12969
- random moving surface 0=14788-9
- reflectance ratios and optical const. det. 3=6640
- reflectometer, absolute, for use with Cary 14 spectrophotometer, at low temps. 4=11339
- reflectometer, for vacuum u.v., using $\text{CaSO}_4:\text{Mn}$ phosphor 0=16829
- reflectometer, for whiteness meas. 0=149
- reversibility and reciprocity principles, discussion 1=18601
- rotating mirror, relativistic theory 0=2224
- rough surface, specular reflection 4=18381
- ruby, refl. power in far u.v., rel. to cutting angle, chromium content and temp. 4=7126
- selective, by metal vapours 1=802
- semiconducting metals, 3000-1000 Å 0=8004
- semiconducting p-n junctions 3=23042
- semiconductors, frustrated total internal reflections, absorption of surface states 2=6575
- semiconductors, plasma oscill. theory 3=8584
- semiconductors, u.v., and critical points 2=21117
- simultaneous meas. of transmission and refl. coeffs. 3=18961
- solid thin films, rel. to thickness 4=13004

Reflection—contd

light—contd

- solids, reflectivity and reflection phase-angles, rel. to optical const. meas. 2=681
- spectrophotometer for meas. at normal incidence 4=10200
- spherical mirror interferometer, rel. to off-axis ray paths 4=18415
- from spherical satellite, near moon 1=2669
- Sputnik I, albedo variation during flight 2=9126
- standards 0=3658
- Stokes parameters, deduction of optical constants of reflector 1=13001
- Stokes' principle, appl. to film, metallic or dielectric 4=2845
- from superconductors, Raman scattering 1=14614
- surface irregularities study 2=19690
- thin absorbing layer 2=5175
- total "frustrated" reflection involving metals 3=14356
- total internal, frustrated, rel. to laser cavity design 4=21274
- total internal, isosceles reflectors 4=2812
- total reflection according to Huygens' principle 1=9466
- total reflection wave 0=16814
- transmission-like reflection fringes 3=9609
- turbid medium, plane layer 2=21855
- twin crystal boundary, Fresnel formulae 0=3654
- ultramarine powders, under diffuse illumination 0=12469
- wavefront change in shape, formulae 4=11327
- white coatings which absorb. i.r., diffuse 3=16786
- Ag-air interface, rel. phase change at refl., and its var. with Ag layer thickness 4=11349
- Ag films, coefficients at oblique incidence angles 1=10089
- Ag, phase shift dispersion meas. 4=28709
- Ag surface with dielec. films, phase changes 4=2843
- Ag, thin films, visible and near i.r. 2=18798
- Ag, u.v., effect of angle of incidence 0=4395
- AgCl, u.v. spectrum at 20°K 3=4959
- Al films 1=10087
- Al films, 0.4-1.2 μ 2=23538
- Al, phase shift dispersion meas. 4=28709
- BaF₂, i.r. 2=21236
- BeO, single crystal plates, i.r. 2=23536
- Bi, magnetoreflexion, rel. to Fermi surface 1=17488
- Bi, magnetoreflexion oscillations 3=8581
- Bi thin films, coeff. 0=10027
- Bi₂Te₃, i.r. semicond. props. 2=14687
- CaF₂, i.r. 2=3819, 21236
- Cd films, u.v. 4=10164
- CdS, polarization 1=17864
- CdS, polarized 1=10090
- CdS-CdSe, Ag-activated 2=18739
- CdSe 1=1151
- CdSe, with polarized light 2=23516
- CdTe, i.r., meas. 3=10812
- CdTe, p-type 1=12445
- CdTe, refl. coefft. meas. 3=23067
- Cr films, absolute phase change 4=27323
- Cs-Sb films 0=1667
- Cu, films, 4-20 μ m, anomaly 3=17996
- Cu, phase shift dispersion meas. 4=28709
- Cu-air interface, rel. phase change at refl. 4=11349
- Cu₂O, rel. to photoelectric spectral distribution 1=12457
- Cu₂O, u.v. reflection spectra 2=16808, 21232
- Cu-Sn, coeff. rel. to intermetallic structure 1=15125
- Ga films, i.r. and u.v. 4=28686
- Ga films, optical props., 4000 to 10000 Å structure, meas 4=28685
- GaAs, fundamental, low-temp. 2=21226
- GaSb, 0.5-5 eV, band structure 1=1143
- Ge, field-effect modulation 3=15572
- Ge, frustrated total internal reflection spectra, surface study 0=10030
- Ge, i.r., double, for polarization prod. 4=5400
- Ge, i.r., for polarization prod. 4=5401
- Ge and Se cooled mirrors 2=19695
- Hg-inert gas discharges, resonance radn., from walls 4=18711
- HgI₂, on different adsorbents 2=21233
- HgI₂, red, reflection spectrum 2=6565
- In films, i.r. and u.v. 4=28686

Reflection—contd**light—contd**

- InSb films, i.r. 4=26200
 InSb, visible and near-u.v. regions 4=1734
 KMgF₃, far i.r. meas. analysis 4=17579
 Mg fluorogermanate, diffuse reflection spectrum 1=9006
 Mg oxides, powders, under diffuse illum. 0=12469
 MgF₂, far i.r. meas. analysis 4=17579
 MgO, as diffuse reflector 1=12991
 MgO, layer on plastic scintillator, light collection increase 2=19689
 MgO particles, meas. on film 3=924
 MgO, powder; reflective power, rel. to temp. 2=6540
 MgO surface 2=6256
 MgO surface, for reflectance standard 0.3-2.6 μ 3=1786
 Mo, far u.v. 4=22877
 Mo films, 3-50 Å 4=22878
 NaCl, i.r. 2=6541
 Na-NH₃ soln., i.r. spectra 2=1151
 Ni electroplated films, rel. to structure 0=4393
 PbI₂ monocrystals at 4°K 1=1160
 PbO films, rel. to preparation 3=8927
 PbS, i.r., and dielec. const. 4=22874
 Re, far u.v. 4=22877
 Sb, phase shift dispersion meas. 4=28709
 Sb₂S₃, i.r. meas. 2=18786
 Si diodes, 0.8 to 2.0 μ , rel. to electric fields 4=10083
 Si, surface, B-doped 0=11751
 Si, thin layer 0=20975
 SrF₂, i.r. 2=21236
 Ta, far u.v. 4=22877
 TiO₂ layers 1=10091
 W, far u.v. 4=22877
 Zn vapour, selective reflection at 2139 Å 2=1199
 ZnS, polarized 1=10090
 ZnS, 1600-3000 Å 4=7161
 ZnSe 1=17763

Reflectivity

- See also Diffusion, light; Optical constants; Optical films.
 absorbing materials, selective, meas. using i.r. spectrometer 3=9598
 absorbing materials, simplified formulae 0=5133
 α -quartz, i.r. lattice bands 1=3845
 aluminized ground glass, specular reflectance data giving height distrib. of surface irreg. 4=8384
 aluminizing technique for u.v. efficiency 0=3402
 blackened surfaces, for radiation detectors, i.r. 2=129
 β -brass alloys, rel. to temp. 2=18789
 cavity, open, meas. rel. to emissivity 2=5138
 cellulose, on illumination, rel. to chemical changes 2=6891
 ceramics, rel. to irradiation 3=8585
 chloroform, i.r., rel. to optical constants 1=7698
 chromia-alumina catalysts, meas. of specific chromia area 4=29174
 chromia-alumina powders, reflection spectra 4=7124
 clouds, i.r. 4=13794
 crystals, small polarons, i.r. props. 4=22545
 dielectric films with slight inhomogeneity 1=16099-100
 diffuse, Sf-4 spectrophotometer 2=106
 diffusers, semi-infinite, effect of particle separation 1=4476
 dye solns., adsorption effects 4=16119
 effect of surface light traps 1=4470
 film systems of homogeneous-inhomogeneous type 1=10597
 films, conductive, meas. by depth of penetration 1=9482
 films, meas. in vacuum u.v. region 1=11836
 of films, nonabsorbing inhomogeneous 1=4472
 films, solid, at low temp., deduction of absorption data 1=19960
 germanium, n-type, heavily doped 1=14441
 glass and Al gratings, below 1000 Å 2=116
 glass (BK7) X-rays, 1.54 Å 3=23093
 glass, rel. to irradiation 3=8585
 glasses (soda), i.r. crystallization study 2=4124
 graphite, band model 1=4975
 integrating sphere for imperfectly diffuse samples 1=16053
 laser, He-Ne, optimum, 0.63 μ 4=19291
 liquids, use in determ. of i.r. optical constants 1=7698
 Mars, spectrophotometry 2=9061

Reflectivity—contd

- meas., auto-collimation adjustment of plane surface 0=12475
 measurement 0=10754
 measurement 4=16203
 measurement, from absorptivity 2=17584
 measurement, in u.v. at 4°K, special reflectometer 4=14364
 metal films, apparatus for vacuum study 0=19422
 metal surfaces, variation by Si-TiO₂ coating 1=9472
 metallic oxides, 300-1000 m μ 3=13154
 metallic reflection for molecular crystals 0=17847
 metals with bright surfaces, specular meas. 0=19459
 metals, in mag. field, interband transitions, theory 2=4109
 metals, meas., spectrophotometer adaptation 2=5168
 multiple film systems 1=16096
 Munsell value-surface reflectance relationships 1=10610
 non-metallic films, meas. of change to determine thickness variation 0=12085
 ocean surface 3=9010
 optical constants by one-angle reflection 3=21517
 planetary atmosphere, i.r. 0=18705
 polythene antireflection coating for i.r. 0=5155
 powders, optical absorption and diffuse reflectance 4=13005
 powders, theory 3=10901
 quartz, ion beam irradiation 0=13569
 radiating surfaces, method of meas. 0=6903
 rare earth iron garnets, visible and near i.r. 0=10045
 refractories, in i.r., modulation method 0=2935
 reststrahlen crystals, in far i.r. 2=2218
 rough surface, reflectance at normal incidence rel. to height distribution 4=8385
 ruby laser, optimum reflectivity, determ. 4=27709
 semiconductors, IV and III-V groups, u.v. 3=10908
 semiconductors, i.r., rel. to conductivity effective mass. 4=17390
 semireflecting surfaces, evaporation prep., assessment 4=2813
 shock front thickness meas. 0=16774
 shock fronts in 9 gases 1=167
 silica, vitreous, ion beam irradiation 0=13569
 snow, angular dependence 3=11383
 solid surfaces, graphs 1=11831
 solid thin films, rel. to thickness 4=13004
 solids, refraction determ., from results at two angles, graphs 3=11926
 spectral, at normal incidence, absolute meas. reflectometer 4=14363
 spectral radiance, of various terrains, 1-20 μ 2=4590
 specular, at normal incidence, relation to surface roughness 1=4471
 specular, precision absolute meas. 0=164
 superconductors, interband transitions, calc. 2=5233
 tetrachloroethane, i.r., rel. to optical constants 1=7698
 turbid media 2=5173
 uniaxial crystals, absorption anisotropy, Fresnel's formula 1=16120
 Venus, high, and glaciation 3=9180
 white dyes, calc. of fluorescence 4=15610
 Ag films 1=7700
 Ag, thin films, influence of formation rate 1=7701
 Ag, 2-10 eV 1=3815
 Ag, u.v., variation with incidence angle 0=4394
 Ag-Au alloys, absolute, for 1.8-5.0 eV 4=7158
 AgCl, absolute specular reflectance meas. at low temps. 4=11339
 AgCl, 2150-3750 Å 1=3814
 AgI films 1=17892
 Ag-O-Cs photocathode 4=3029
 Al, anodized bright, specular meas. 0=19459
 Al, evap. in u.h. vac., i.r. reflectance 3=20443
 Al, films, decrease due to oxidation 3=23039
 Al films, i.r. reflectance 2=23537
 Al films, oblique reflectance and transmittance 1=6204
 Al films, review 2=12944
 Al films, vacuum u.v., oxidation effects 3=11883
 Al films, in vacuum u.v. region 1=11836
 Al films, X-rays, 1.54 Å, 500-3000 Å thick 3=23093
 Al mirrors, at 1150 Å, decreased reflection after evap. 1=2863
 Al, vacuum u.v., 6-30 eV 3=13145
 Al₂O₃-Cr₂O₃ system 1=20539
 AIP 1=17717
 As, 0.5-25 eV meas. 4=13042

Reflectivity—contd

As-S-Tl glass, i.r. meas. 2=8479
 Au films, at -55°C, adsorption effect 2=23917
 Au, i.r. spectrum 1=3844
 Au, u.v., absence of temp. depend. 2=18790
 Au-Ni thin films 3=8580
 Au-Pb films, diffusion effects 3=20226
 Au-Sn alloy films, rel. to composition 0=10334
 Au-Sn alloys, at $\lambda = 450-640 \text{ m}\mu$ 1=1455
 BaTiO₃, far i.r. 2=23515
 BaTiO₃ single crystals, polarized light 0=2932
 Be hydroxyacetate, rel. to optical constants 1=17862
 BeO, sintered, diffuse and specular coeffs, 1 to 16 μ 4=28671
 Bi, i.r., in mag. field, quantum effects 4=7110
 Bi, single crystals, det. of tilt of optic axis 0=13667
 Bi, 0.5-25 eV meas. 4=13042
 Bi₂O₃-MgF₂ bilayer, antireflection theory 2=7371
 Bi₂Te₃-Sb₂Te₃, p-type, 2-15 μ 2=23510
 CCl₄, i.r., rel. to optical constants 1=7698
 C₆H₆, liquid i.r. 0=12426
 CS₂, i.r., rel. to optical constants 1=7698
 Ca halophosphate phosphors 1=6200
 Ca, thin layers, rel. to thickness during growth 4=28674
 CaF₂-Sb₂O₃ mixtures 1=8003
 CdS 1=2437
 CdS 1=6202
 CdS, rel. to energy terms linear in wave vector 4=26181
 CdS, polycrystalline films, effect of substrate heat-treatment 2=4134
 CdS, reflecting power 4=1724
 CdS, spectrum of wurtzite structure 3=8583
 CdSe, room, liquid N₂ temps. 3=20441
 CdSe, spectrum of wurtzite structure 3=8583
 CdSnAs₂, i.r. 1=8952
 CdTe, rel. to permittivity 2=14602
 CdTe, room, liquid N₂ temps. 3=20441
 CdTe, at room temp. 2=680
 CeB₆, and semicond. 3=20437
 Co, polished, variation with time 0=7998
 Cu films, ~1100 Å thick, 2-10⁵ eV 4=28676
 Cu halides, at low temp. 1=19960
 Cu, polished, variation with time 0=7998
 Cu-Bi 1=8981
 Cu₂O, reflection spectrum 1=19966
 Cu-Sn alloys, rel. to phase composition and structure 0=1718
 Fe, polished, variation with time 0=7998
 Fe thin films in air and vacuo 1=17863
 Fe, very thin films on quartz support 2=4112
 Ga, polycryst., 4000-8000 Å 4=26189
 Ga thin films, front-and support-side factors in vacuo and atmos. meas. 4=30680
 GaAs 1=17865
 GaAs 3=6641
 GaAs, fine structure and temperature dependence 130°-850°K 3=10909
 GaAs, i.r., electron effective mass 1=2414
 GaAs, room temp. 1=19945
 GaAs, visible, 300°K, evidence for spin-orbit interaction 0=18120
 GaAs and GaP, max. reflectance, rel. to d bands 2=16809
 GaP 1=17865
 GaP, 1-40 μ 0=10042-3
 GaSb, fine structure and temperature dependence 130°-850°K 3=10809
 GaSb, i.r., effect of carriers 1=17733
 GaSb, spectrum fine structure in near u.v. 3=4961
 GaSb, visible, 300°K, evidence for spin-orbit interaction 0=18120
 GaSb rel. to wavelength and temp. 1=19878
 Ge, evaporated films 4=28690
 Ge, extreme u.v. 3=20436
 Ge films, 12-60 $\mu\mu$, wavelengths 0.4-0.7 μ 3=10953
 Ge, fine structure and temperature dependence 130°-850°K 3=10909
 Ge, frustrated total internal reflection, surface levels 3=2989
 Ge, in fundamental absorption region, temp. and doping effects 1=8982
 Ge, heavily doped, heat treatment effect 4=7155
 Ge, modulation by electric field 1=11829

Reflectivity—contd

Ge, p- and n-type, 2-20 μ 0=18028
 Ge, rel. to permittivity 2=14602
 Ge, piezoreflectance 2=18799
 Ge, 7.6-18.0 eV 1=8978
 Ge, spectrum fine structure in near u.v. 3=4961
 Ge, after surface treatment, spectral response of photocond. 0=15990
 Ge thin films, u.v. 3=2995
 Ge in 2650-10000 Å region, effect of surface damage 4=7133
 Ge, u.v. line-shape and energy bands 3=17865
 Ge, vacuum u.v., 6 to 30 eV 3=13145
 Ge, var. with wavelength, and electron effective mass, As-doped 3=22930
 Ge, visible, 300°K, evidence for spin-orbit interaction 0=18120
 Ge-Si alloys, suggested band structure study 0=18116
 GeTe, 0.5-25 eV meas. 4=13042
 HgSe, 4-12 eV meas. at 12° and 300°K 4=10180
 HgSe, i.r. 2=8368
 HgSe, magnetoplasma reflection 0=4392
 HgSe_{0.5}Te_{0.5}, i.r. 2=8368
 HgTe, 4-12 eV meas. at 12° and 300°K 4=10180
 HgTe-CdTe alloys meas. 4=13048
 I crystals, specular, structure 3=6653
 In thin layers, rel. to evaporation 4=28692
 InAs 1=17865
 InAs 3=10910
 InAs, fine structure and temperature dependence 130°-850°K 3=10909
 InAs, i.r., electron effective mass 1=2414
 InAs, room temp. 1=19945
 InAs, visible, 300°K, evidence for spin-orbit interaction 0=18120
 InAs and InSb, max. reflectance rel. to d bands 2=16809
 InAs-In₂Te₃ alloys 3=10910
 In₂O₃, semicond. films, in i.r. 2=2219
 InP, at 90 and 296°K, peak at 3.15 eV 1=10094
 InSb 1=17865
 InSb 3=10910
 InSb, fine structure and temperature dependence 130°-850°K 3=10909
 InSb, magnetoplasma reflection 0=4392
 InSb, room temp. 1=19945
 InSb, visible, 300°K, evidence for spin-orbit interaction 0=18120
 InSb-In₂Te₃ alloys 3=10910
 In₂Te₃ 3=10910
 K, far u.v. 0=18117
 K mirror surfaces 4=26210
 KCl, crystal reflectance curve, using vacuum u.v. reflectometer 0=14821
 KClO₃ crystals, i.r. 1=11352
 KCl:TL, far u.v. 1=1181
 LaB₆, and semicond. 3=20437
 LaB₆, spectrum, and electron states 4=7139
 LaCoO₃, 2-15 μ , 290°K 4=13041
 LiF 1=17865
 LiF, β -irradiated, vacuum u.v. 3=13178
 LiF, in extreme u.v., calc. 1=19941
 LiF, extreme u.v., rel. to electron states 2=4123
 LiF films on Al mirrors, extreme u.v. 1=16070
 LiF, i.r. 0=6182
 LiF, 23-38 μ 2=23512
 LiF, u.v. spectrum 1=14591
 LiF, vacuum u.v., 400 to 1400 Å 3=13145
 Li⁺F films 0=6183
 Li⁺F films 0=6183
 MgF₂, films, on Al, 17 μ , minimum, after heating in vacuo 3=9601
 Mo, reflectance meas. 4=13050
 Na, far u.v. 0=18117
 NaCl, i.r. 0=8007
 NaClO₃ and NaBrO₃, i.r. 2=14648
 Ni, polished, variation with time 0=7998
 PbCO₃ paint layer, as suspension, meas. 2=10992
 PbI₂ films 1=17892
 PbO, effect of illumination and elec. fields 1=12462
 PbS 1=17865
 PbS, 0.5-25 eV meas. 4=13042
 PbSe, 0.5-25 eV meas. 4=13042
 PbTe 1=17865

Reflectivity—contd

- PbTe, i.r. 28°-296°K, rel. to carrier concentration 3=10907
 PbTe, 0.5-25 eV meas. 4=13042
 Pt films for vacuum u.v. 3=19005
 Pt films, in vacuum u.v. region 1=11836
 Pt, u.v., absence of temp. depend. 2=18790
 Rh films, in vacuum u.v. region 1=11836
 S, i.r. reflectance standard 3=11882
 Sb, 0.5-25 eV meas. 4=13042
 Sb, vacuum u.v., 6 to 30 eV 3=13145
 Se thin films, u.v. 3=2995
 Se, vitreous and metallic, vac. u.v. 3=15651
 Si, rel. to energy band structure 3=4960
 Si, in extreme u.v. 2=18787
 Si films 0=19423
 Si, fine structure and temperature dependence 130°-650°K 3=10909
 Si, heavily doped, heat treatment effect 4=7155
 Si, heavily doped p and n-type, 3.4-5.3 eV meas. 4=7156
 Si, 1-11, 3 eV 0=18116
 Si, p- and n-type, 2-20 μ 0=18028
 Si, peaks shift by stress 4=20471
 Si surfaces, reduction by SiO₂ formation 0=10031
 Si thin films, u.v. 3=2995
 Si, u.v. line-shape and energy bands 3=17865
 SiO films, with Ag and Au, rel. to surface conductivity 4=22888
 SiO oxidized films, at 0.25-15 μ 1=10095
 SiO on Al mirrors, effect of u.v. irradiation on far u.v. reflectance 3=19004
 Sn, grey, 1-25 μ meas. 4=22898
 Sn, grey single crystals, in fundamental absorption region 2=6539
 Sn, rel. to supercon. energy gap 2=5243
 Sn, vacuum u.v., 6 to 30 eV 3=13145
 SnO₂, n-type films 3=6642
 SnO₂, Sb-doped thin layers, 1.5-6 μ 0=16036
 SnTe, 0.5-25 eV meas. 4=13042
 SrTiO₃, far-i.r., ferroelec. vibration mode 2=6524
 Tb oxides, reflectance spectra 1=7705
 Te films, in vacuo, 2-13 eV 4=1754
 Te thin films, u.v. 3=2995
 TiO₂ paint layer, as suspension, meas. 2=10992
 Ti films, var. λ , thickness 4=26221
 VO₂, powdered, diffuse reflectance meas. 0=18112
 Y garnet, 1-6 μ spectrum 1=7704
 Zn-blende type semiconductors, fundamental spectrum 1=17762
 Zn telluride, cleaved crystals 2=8529
 ZnO, i.r. 0=11767
 ZnO paint layer, as suspension, meas. 2=10992
 ZnO, u.v. exciton spectrum 1=19982
 ZnS, in interband transition region 3=8582
 ZnS, spectrum of wurtzite structure 3=8583

Refraction

- crystals, transparent uniaxial, inhomog. waves 3=15842
 detonation waves, incident on boundary between gas mixtures 2=11406
 elastic waves, internal conical refraction in crystals 3=20098
 magnetohydrodynamic waves, at compressible media boundary 2=7721
 magnetohydrodynamic waves, gas, non-uniform mag. field 3=17043
 magnetohydrodynamic waves, in interstellar matter 2=15996
 plasma, hydromag. waves 3=483
 pulses, theory 0=8752
 shock waves, underwater explosion, by velocity gradient 1=6889
 Sommerfeld-Runge law in 3 and 4 dimensions 3=21
 surface flexure waves 2=21963
 viscoelastic waves, rel. to new wave type 2=7277
 waves in turbulent wake 3=23956

acoustic waves

- See also Dispersion, acoustic
 focusing with spherical structures 3=9561
 gas, moving, theory 4=16184
 h.f., formulae for general media 3=9931
 lenses, aberrations and focal surfaces 3=14271
 lenses, solid, amplification factor 3=14270
 lenses, solid, spherical aberration 2=74, 7297
 in moving media, effect on audibility 0=14741-2

Refraction—contd**acoustic waves—contd**

- ocean, due to heat source 4=23713
 in ocean, effect of internal wave 1=6932
 point-source fields 3=11866
 pulses, solution by Fourier superposition 1=4721
 pulses, theory 0=8752
 refracted rays, automatic plotting 0=19310
 in sea, by thermal gradients, shadow zone 1=2826
 by shock waves 0=6872
 by sound channel in ocean 2=21617
 by turbulent wake 3=23956
 underwater bottoms 4=10689

acoustic waves, ultrasonic

- double refraction in worked metals 1=20627
 focusing, cylindrical BaTiO₃ systems 1=2815
 lenses, focusing, gain meas. in liquid 4=11309
 mode conversion on solid-solid boundary 4=16183
 use in shutter for lasers 3=12348
 CaCO₃, internal conical refraction 3=21500
 NaCl, internal conical refraction 3=21500

electromagnetic waves

- See also Electromagnetic wave propagation
 absorbing crystals, of average syngony, inhomogeneous waves 4=20440
 air, damp and dry, and atmosph. gases 4=3145
 anisotropic medium, dispersion relations for refractive index 4=11795
 atmosphere calc., humidity effects 4=26804
 atmosphere, circularly stratified 0=17115
 in atmosphere, cm waves, radiometric det. 3=9949
 atmosphere, rel. to data at earth surface 3=21055
 atmosphere, errors in height finding 3=9948
 atmosphere, 4700 Mc/s travelling-wave tube radio-meter meas. 1=6595
 in atmosphere at medium height, vertical index distrib. 1=15267
 atmosphere, radio refractivity, model 0=21322
 atmosphere, radiosonde meas. 2=9714
 atmosphere, radiowaves, vertical distrib. 0=4821
 atmosphere, refractive index 0=16476
 atmosphere, total, rel. to surface refractivity 3=9947
 atmosphere, turbulence parameter deriv. 4=3183
 atmosphere, rel. to v.h.f. field strength distrib. 4=3182
 atmospheric, prediction 1=20870
 chloroform 4=3145
 in cloud of charged particles 3=9731
 coastal refraction, solution of integral eqn. 0=19939
 complex coefficient, classical formula 2=20159
 crystals, exciton contribution 0=19451
 by crystals, optically active 4=20441
 ensemble-average wave in irregular gases 3=17048
 group refractive index in case of no collisions 1=16586
 h.f., formulae for general media 3=9931
 interface of 2 media, nonlinear 4=19218
 ion ionizing medium, real and complex refr. index, review 3=5864
 ionosphere, D-region, rel. to electron densities 3=6983
 ionosphere, spherically stratified, analytic soln. 2=17971
 ionosphere and troposphere, effect on satellite comm., graphs 4=30067
 lens, microwave, for line source appl. 4=5807
 lenses, geodesic Luneburg, analysis 2=22343
 longitudinal waves, at dielectric-plasma boundary 3=9956
 magneto-ionic medium, eval. charts 2=16069
 metal-dielectric boundary, principle of reversibility, failure 0=5132
 microwave lens, Fresnel theory extension 3=2122
 moving field layer in non-linear medium 4=30049
 parallel-wire structure, absorptive, cm waves 2=9711
 phase jump at focal point, theory 4=19219
 plasma, circularly polarized microwaves 2=11659
 plasma, cylinder, parabolic density profile 3=12140
 plasma, magnetized, effect of positive ions 2=7616
 by plasma in motion 1=5455
 plasma, 3 cm waves 2=13565
 pulses, solution by Fourier superposition 1=4721
 pulses, theory 0=8752
 radar waves, in atmosphere 3=17061
 radiosonde lag constants, errors in ducting incidence calc. 2=5480
 radiowaves, at low angles, within various air masses 0=15155
 radiowaves, by spherical ionized layer 0=15158

Refraction—contd**electromagnetic waves—contd**

- satellite signals, by ionosphere, theory 4=15887
- from space vehicles, at ionospheric heights 0=1223
- surface, rel. to transhorizon transmission loss 3=513
- surface waves, 9240Mc/s, structure 3=7698
- X-rays to microwaves, synthetic single crystals 2=16799
- NH₃ 4=3145

light

See also Double refraction

- in absorbing crystals 1=16094
- aerosols, small, absorbing and nonabsorbing 2=17104
- amplitude and energy coeffs., theory 3=1789
- aplanatic points 4=14339
- astronomical obs., second approx. 4=10799
- bubble chamber optics, correction 0=1232
- compensation by vacuum prism, in astrometry 2=926
- conical surface, virtual image 4=16206
- crystal, rel. to circular optic axes 3=15648
- crystals, absorption and refraction surfaces 0=13673
- crystals, contrib. by interband transitions theory 2=10574
- crystals, molecular theory 2=6542
- diacoustic and rectification of caustics, calc. 2=9363
- dynamical aspects 0=1026
- electrolyte, aqueous solution 1=11761
- films, anomalous, in Drude eqns. 3=14357
- fluids, dense mixtures, Lorentz-Lorenz function 3=1709
- fluids, review 2=13342
- fluorescence anisotropy meas., with uncalibrated glass plates 0=19394
- Fresnel's formulae, for elec. quad. radiation 2=19677
- gas mixtures, second virial coefficients 3=3835
- Helmholtz eqn., Miyamoto-Wolf formula for vector potl., geometrical derivation 3=1785
- interreflection theory and fluorescent lamps 1=10581
- light beam deflector, electro-optic 4=16226
- liquid-air interface with moving liquid 1=2839
- liquids, critical angle modulation, for image conversion 2=9383
- in mag. field, possible det. of quantum effects on velocity 1=9465
- medium of atoms emitting dipole and quad. radiation 2=9359
- metal-dielectric boundary, principle of reversibility, failure 0=5132
- molecular aggregates, classical model of electronic refraction 4=26165
- molecular theory 0=8765
- non-linear effects 3=11940
- plasma, free electrons 2=19980
- plasma, meas. with ruby laser beam 4=18882
- pulses, solution by Fourier superposition 1=4721
- rainbow in fountain 3=21521
- relation between refractivity and ionization potential of atoms 0=2321
- thin prisms, testing of deflection 3=235
- transmission of optical energy along surfaces 4=27324-5
- twilight, formula, and scale height 4=10741
- twin crystal boundary, Fresnel formulae 0=3654
- wavefront change in shape, formulae 4=11327
- Wolter phase plate, light distrib. in image plane 4=18383
- Bi₂O₃, use in dielec. mirror systems 2=1251
- Bi₂Te₃-Sb₂Te₃, p-type, 2-15 μ 2=23510
- CHCl₃, second virial coeff. 3=3835
- CH₃F, second virial coeff. 3=3835
- CH₄, second virial coeff. 3=3835
- CO₂, second virial coeff. 3=3835
- CaF₂, theory rel. to expt. 2=3819
- HCl, i.r. refraction spectrum 2=3743
- N₂, second virial coeff. 3=3835
- O₂, second virial coeff. 3=3835
- PbF₂, use in dielectric mirror systems 2=1251
- Sb₂O₃, use in dielec. mirror systems 2=1251
- TeO₂, use in dielec. mirror systems 2=1251
- ZnS, use in dielectric mirror systems 2=1251

Refractive index

- air, above an outdoor surface 2=24004
- air, radiowaves and microwaves 2=20157
- atmosphere, e.m. waves, fluctuations 0=16474
- atmosphere, e.m. waves, potential rel. to meteorological analysis 4=10697

Refractive index—contd

- atmosphere, microwave, spatial distrib. up to 3 km 4=26798
- atmosphere, power spectrum, aircraft and balloon meas. 0=16477
- atmosphere, radio waves, near ground 0=3357
- atmosphere, radiowaves, vertical distrib. 0=4821
- atmosphere, for very short radio waves, meas. 2=13006
- complex, gases, quantum theory 0=19216
- complex, liquids, below 5 mm 0=81
- complex, metals and films 0=10032
- cracks, in vitreous polymers meas. 3=8579
- crystals, absorbing, magnetic 0=3652
- dielec. liquids, in strong mag. and elec. fields 0=5024
- e.m. waves, in atmosphere, up to 5000 ft. 3=7716
- e.m. waves, dispersion in high-density media, at high temp. 0=12709
- e.m. waves, dispersion in non-uniform medium 0=19932
- e.m. waves in drifting plasma 1=5599
- e.m. waves, interpenetrating moving media 0=9205
- fluctuations, focussing effects 4=8027
- fluoride films on UO₂ substrate 4=11350
- gases, irreg. ionized 3=9730
- glass, thermal-change rel. to lattice expansion and electron polarizability 2=10572
- glass, rel. to Young's modulus, from ht. treatment 4=22864
- group index of ionosphere 1=20933
- inert gases, solidified, Lorentz-Lorenz function 4=30688
- ionosphere, e.m. waves 4=29325
- ionosphere, l.f. 0=15159
- ionospheric downcoming radiowaves 4=14911
- Kramers-Kronig relationships, simple derivation 0=19377
- lower troposphere 0=16418
- lucite, 14 KeV γ 's, Mössbauer meas. 4=12599
- Lucite, at 0-86A, by recoilless resonance absorption 1=17868
- methyl chloride, 10 Gc/s, and susceptibility 4=239
- microwave index of atmosphere, aircraft meas. 1=20867
- microwave refractometer 4=19185
- molecular crystals, temp. dependence 0=16043
- moving plasma 1=3066
- plasma, cyclotron reson. regions 4=11630
- plasma, e.m. waves, cyclotron absorption 0=12613
- polymer systems, two-component anisotropic, for e.m. waves, theory 2=4116
- polystyrene, from refl. coeff., 23.6-113 A 4=22846
- quartz, 180-500 μ , by Michelson interferometer 4=1703
- radiowave, climatic charts and data for U.S.A. and world 1=15240
- random moving surface 0=14788-9
- semiconducting III-V compounds, films, rel. to temp. 2=23518
- semiconductors, dispersion near absorption edge 4=13002
- 17 aromatic cpds, rel. to dipole moments 4=18212
- solutions, rel. to conc. 4=16110
- troposphere, refractive index irregularities 3=9051
- troposphere, rel. to v.h.f. and u.h.f. propag. 2=5482
- tropospheric, time variation anal. 0=12205
- two dielectric media, ratio, rel. to transmissivity of interface 4=10147
- Ag, from refl. coeff., 23.6-113 A 4=22846
- Al, from refl. coeff., 23.6-113 A 4=22846
- Au, from refl. coeff., 23.6-113 A 4=22846
- Au colloidal 1=9393
- BN Christiansen filter effect in infrared 1=3816
- BaTiO₃, temp. var. 3=10903
- Be, from refl. coeff., 23.6-113 A 4=22846
- C, from refl. coeff., 23.6-113 A 4=22846
- CdSb, near absorption edge, anisotropy 4=26179
- Cr, from refl. coeff., 23.6-113 A 4=22846
- Ga, liq., in visible and near i.r. 4=24213
- Ga, polycryst., 4000-8000 A 4=26189
- Ge, from refl. coeff., 23.6-113 A 4=22846
- KCl, from refl. coeff., 23.6-113 A 4=22846
- LiF, from refl. coeff., 23.6-113 A 4=22846
- LiF, in extreme u.v., dependence on photon energy 1=19941
- MgF₂, from refl. coeff., 23.6-113 A 4=22846
- N¹⁴H₃, microwave region 3=21362
- N¹⁴H₃, near microwave inversion line 2=1200
- O₂, microwave dispersion, calc., 0.25 to 50 atm 1=12930
- PbSe, meas. rel. to effective electron mass 3=10904

Refractive index—contd

PbTe, meas. rel. to effective electron mass 3=10904
 SrF₂, from refl. coeff., 23.6-113 Å 4=22846
 Ti, from refl. coeff., 23.6-113 Å 4=22846
 UO₂ 4=11350

light
 See also Dispersion, optical; Double refraction; Optical constants
 ADP, 2000Å to 1.5 μ, meas. 4=30676
 actinides, ionic refractivity, calc. 1=3818
 air, 2302-6907 Å 0=6910
 air, variation with pressure 1=5296
 alcohol solns., with alkali metals 4=24174
 anisotropic crystals, theory 2=20974
 anisotropic crystals, theory 3=2767
 anthracene, thickness depend. 2=18794
 atmosphere, starlight scintillation theory 0=2085
 atmosphere, var. with pressure and humidity 2=15196
 pp'-azoxanisole, liq. crystals, rel. to degree of order 2=49
 benzene-CCl₄ solutions 0=10667
 benzene crystal 2=4149
 benzene-methanol solutions 0=10668
 carbonate minerals, rel. to O polarizability and point-dipole theory 4=30678
 chlorpromazine, rel. to temp. 2=14552
 coals and graphite, ultrathin sections 2=4115
 complex, Mie coeffs., computer programmes 0=5183
 use in composition determ. of gas mixture 1=4373
 condensed gases, at low temp. 0=740
 cryolite, evap. films 1=16100
 and crystal excitons 3=17692
 crystals, cubic, O_h symmetry, theory 3=17922
 crystals, $\epsilon_i(\omega, \vec{k})$ tensor theory, review 4=10145
 crystals, frequency shifting by Pockels effect 3=5536
 crystals, isonormal waves, absorption coeff coincidence 0=13674
 crystals, mag. absorbing optically-active 3=13148
 cumulus clouds, and their vicinity 0=21321
 dielectric mirror, rel. to phase change on refl. 4=21276
 dielectric films with slight inhomogeneity 1=16099-100
 dielectric thin films, determ. by Abelès condition 4=13003
 2, 6-, and 3, 5-dimethylanisole in benzene solution, Na D line, 34°C 4=18212
 eikonal eqn., from Fermat's principle and dynamical programming theory 1=16051
 films, gradient perp. to surface 4=8442
 films, review 1=1823
 films, solid, weakly absorbing, meas. 4=13001
 films, thin inhomogeneous, profiles 4=23559
 films, thin weakly absorbing, simple determination 2=2870
 gas, ideal monatomic, complex index 3=1733
 gases, condensed phases, rel. to absorption 2=5072
 gases, i.r., using Michelson interferometer 0=16820
 gases and liquids, small changes, 3-beam interferometer 0=5174-5
 gases, polar, press. depend. 0=6839
 glass, meas. by reflection from shock waves 1=16065
 gases, vac. u.v., using Cherenkov radiation 3=14214
 gases, vac. u.v., using Rayleigh scatt. 3=14215
 glass, meas. by reflection from shock waves 1=18577
 glass, optical 2=22000
 glass, optical, inhomogeneities 2=14649
 glass, silica, pressure effects to 160 kbar 1=12658
 glass, var. testing, autocollimating devices 4=8378
 gradient meas., using gratings producing moiré patterns 4=14384
 gramicidin S iodomercurate 4=30858
 by graphite particles, from scattering, mag. effects 4=30683
 heavy-light water, variation with composition 0=12471
 n-hexane, change prior to electrical breakdown 1=10518
 hydrocarbons, C-C bond refractivities 1=14076
 i.r. optical materials, calc. 2=7344
 i.r., recent results and techniques 2=21999
 ice, from lens focal length, teaching demonstration 4=17567
 inert gases, theoretical derivation 1=8164
 inert gases, u. v. wavelengths 4=27223
 ionic crystals, with microdefects, exciton absorption region 3=23034
 KDP, 2000Å to 1.5 μ, meas. 4=30676
 lanthanides, ionic refractivity, calc. 1=3818

Refractive index—contd**light—contd**

liquid crystals, nematic, rel. to degree of order 2=49
 liquid ionic salts, mag. rotativity and fundamental absorpt. band in far u.v. 4=179
 liquids, and dipole moment meas. 0=20690
 maser crystals, optical, temp. depend. 4=7092
 molecular refractivities 3=15332
 molecular refractivities, paraffins, normal, branched, and hydrogenated 2=22989
 mono-, di- and tri-ethanolamine complexes of Fe, Ni and Cu 0=13693
 montmorillonite gel, var. in different directions, var with swelling and solvents 4=15853
 optical materials, infrared, bibliography 3=16750
 optical system, rel. to spherical aberration 3=1792
 organic compounds, 150, valence refractivities 2=11372
 organic films, rel. to struct. 4=10200
 organic polar soln. mixtures, and mol. interactions 4=10637
 oxide films on Si 3=25439
 oxide films on U, immersed in refractive media 4=13060
 oxide glasses, 0.4-5.3 μ 3=20439
 Perspex, pressure coeff. 3=23036
 plasma, by laser phase measurement 4=2985
 plasma, wavelength dependence 1=5473
 Plexiglas, meas. by reflection from shock waves 1=16065
 Plexiglas, meas. by reflection from shock waves 1=18577
 polarized light, teaching expts. 3=19029
 polychloroprene, rel. to crystallinity 2=6544
 polystyrene soln., temp. increment 0=14658
 polyvinylpyrrolidone, dilute aqueous solutions 1=18410
 potassium dihydrogen phosphate, ordinary and extraordinary 4=10184
 quartz, change during electrolysis 1=10092
 quartz crystals, rel. to defects 1=19949
 quartz, rel. to energy dissipation by ion bomb. 1=336
 quartz, on fast n irradi. 3=17929
 quartz, far i.r. meas. 2=18791
 quartz, 50-200 μ 1=3817
 quartz, fused 0=2229
 quartz, ion beam irradi., surface changes 0=13569
 quartz, 70-300 μ 2=21249
 quartz, synthetic 1=8979
 refractivities of covalent bonds 1=14075
 ruby, change rel. to optical pumping 4=10189
 rutile 2=2221, 16585
 sapphire, far i.r. meas. 2=18791
 sapphire, synthetic, 0.265-1.586 μ 3=2992
 semiconductor films, effect of illumination, expt. 2=18793, 21227
 semiconductors, atomic, near absorption edge, calc. 0=11668
 semiconductors, oscill. in mag. field, in intrinsic absorpt. edge region 2=2220
 semiconductors, polarization-photometric method meas. 4=17545
 semiconductors, in strong mag. fields 0=7923
 silica, vitreous, ion beam irradi., surface changes 0=13569
 silicon, rel. to temp. 1=11353
 silicone oils 0=2230
 solid surfaces, calc. from reflectivity graphs 1=11831
 solids, from reflectivity at two angles, graphs 3=11926
 solutions of polar mixtures in nonpolar solvents 4=5207
 solutions and spectra freq. shift 4=18202
 stranskiite [mainly Zn₂Cu(AsO₄)₂] 1=4058
 36 hydrocarbons 0=8777
 thiocyanates, inorg. complexes, crystals 2=18819
 tolerances, in system with arbitrary number of surfaces 1=1809
 two immiscible fluids, elimination of optical discontinuity 0=3612
 variations, rel. to Seidel surface coefficients 2=7335
 vitreous borates and silicates and crystals of same composition and structure 4=2136
 water, meas. by reflection from shock waves 1=16065
 water, meas. by reflection from shock waves 1=18577
 water, and polarizability, temp. var., cavity radius 3=23899
 wavelength var., Herzberg equation test 3=20432
 A, liquid and solid, temp. variation 0=19153
 Ag, films, 4000-14 000 Å 4=7093
 γ-AgI thin films, first kind anomaly 4=28710
 Al, films, 4000-14 000 Å 4=7093
 Al, meas. from 300 Å to critical wavelength 4=13019

Refractive index—contd

light—contd

- Al, 300 to 800 Å 3=25434
 Al₂O₃ films, in far i.r. 2=4153
 AlSb, 20-38 μ 2=16838
 Ar. solid. meas. 3=15847
 Ar, vac. u.v., using Cherenkov radiation 3=14214
 As-S-Br glass 2=14647
 As-S-Tl glass, i.r. meas. 2=8479
 As₂Se₃-type glasses, 400-800 cm⁻¹ 3=10930-1
 B₂O₃ and Na₂O-B₂O₃ glass 2=10573
 BaF₂, 0.2652-10.346 μ, 25°C 4=17554
 BaTiO₃, image-displacement method refined, calc. 4=30673
 BaTiO₃, ordinary-ray refractive index, accurate determ. 4=28669
 Bi, oriented deposits 4=4252
 C, error, 4910 Å 4=22850
 C films 2=682
 CF₄, press. depend. 0=6839
 CH₃Cl, press. depend. 0=6839
 CH₃F, press. depend. 0=6839
 CS₂, accurate meas. in 2.5-10 μ region 1=10599
 Ca crystal, complex, 0.6-5 eV meas. 4=20450
 Ca films, by Mate's method 4=26182
 CaCO₃·H₂O 0=1907
 CaF₂ films 2=682
 CaF₂, 0.23-9.7 μ 4=4253
 CaF₂, 17-48 μ 4=7122
 Cd_{0.9}Hg_{0.1}Te, i.r. 2=4034
 Cd_{0.9}Hg_{0.1}Te thin films 4=13026
 CdS crystals, out to 1.4 μ 3=13152
 CdS, free electron contribution 1=17864
 CdS, visible spectrum 0=642
 CdTe, i.r. 0=10028
 CdTe meas. 3=23067
 CdTe, from prism refraction data 4=13061
 CeF₃-ZnS evap. films 4=7114
 CeO₂-CeF₃, optical films, evaporated 3=23035
 Cu covered with LiF film, in far u.v., meas. 4=28677
 Cu₂O, films on Cu crystals, anisotropy 2=17066
 Cu₂O, 0.5-12 μ results 1=19947
 Fe films, reproducible complex index 2=8480
 Ga, complex, for three axes over 0.4-8.0 μ 4=7134
 GaAs 3=6641
 GaAs, from 0.7 eV to absorpt. limit, 300°, 187° and 103°K 4=15588
 Ge, calc. from energy bands 4=20247
 Ge films, rel. to evaporation parameters 3=20926
 Ge, 0-18 eV 1=8978
 Ge, temp. dependence 1=17867
 Ge-ZnS films, 2.2 μ 3=10952
 H, liquid, density and temp. var., normal and para. 3=21363
 H₂, determ. by variation-perturbation method 4=25642
 H₂O, temp. var. discontinuities, as for viscous flow 4=21125
 H₂SO₄ solutions 1=5278
 He⁴, liquid 2=1323
 He⁴, vapour and liquid, near crit. temp. 3=9669
 Hg, derived in vicinity of optical resonance 4=11365
 Hg, liq., in visible and near i.r. 4=24213
 I crystals 3=6653
 In films on glass substrate, 400-1000 mμ 3=25435
 In, meas. from 300 Å to critical wavelength 4=13019
 In(As_{0.7}P_{0.3}), rel. to semicond. props. 0=1717
 In₂S₃ meas. 4=20374
 InSb, visible and near-u.v. regions 4=1734
 K, direct meas. in u.v. 0=16034
 LiF 0=2229
 LiF, β-irradiated, vacuum u.v. 3=13178
 LiF, extreme u.v., rel. to electron states 2=4123
 LiF, inhomogeneities rel. to crystal structure 2=14649
 LiF, 300-900 μ 2=18813
 Mg, meas. from 300 Å to critical wavelength 4=13019
 Mg platinocyanide 0=6168
 MgF₂ films 2=682
 MgO·Al₂O₃ (spinel) monocrystals 0=16033
 Mg₂Si, Mg₂Ge, Mg₂Sn, 7-10 μ 3=8576
 Mo, estimation from reflectance versus angle of incidence data 4=13050
 MoS₃, thin crystals 3=10957
 Na, vac. u.v., using Cherenkov radiation 3=14214
 NH₃, press. depend. 0=6839

Refractive index—contd

light—contd

- Na, direct meas. in u.v. 0=16034
 NaCl, inhomogeneities rel. to crystal structure 2=14649
 OH radical, behind shock waves, interferometric meas. 1=2788
 PbL₂ 4=26202
 PbMoO₄ 3=20479
 PbS, dispersion near fundamental absorpt. edge 3=25436
 PbS film, single-crystal 4=23582
 SO₂, press. depend. 0=6839
 SbI₃, ordinary and extraord., to 2.5 μ 4=1720
 Sb₂O₃, clear films 0=16880
 Se-Te alloys 4=20470
 Si, calc. from energy bands 4=20247
 Si, meas. in i.r. 3=20433
 Si, 109-750°K, 1.1-1.8 μ 0=16032
 Si oxide films on Si, meas. 4=4277
 Si, from reflectivity at two angles, using graphs, extreme u.v. 3=11926
 Si surface, B-doped 0=11751
 SiO₂ films on Si, rel. to compactness coeff. 4=23588
 SiO₂ films on Si, meas. 3=13149
 Sn films, complex index for 0.9-11 μ 2=10570
 SnO₂, semiconducting 0=15965
 SnS, p-type 2=2217
 Sr molybdate crystals 3=13150
 SrTiO₃ monocrystals 2=4097
 Ta₂O₅ anodic films 4=22896
 Te, polycryst., i.r. meas. 3=13151
 ThF₄ films 2=682
 Ti, i.r. meas., rel. to electron groups 3=17977
 Ti, in quantum-transitions range 4=15601
 TiO₂, antase and brookite 3=20052
 TiO₂ layers 1=10091
 TiO₂ paint layers, particles 2=10993
 TiCl₄, wavelength depend. 3=3023
 Ti₂SO₄-H₂O system, rel. to sedimentation 3=5172
 V, i.r. meas., rel. to electron groups 3=17977
 Zn crystal, complex, 0.6-5 eV meas. 4=20450
 ZnIn₂S₄ single crystals 4=28713
 ZnO paint layers, particles 2=10993
 ZnO, rel. to polarization 3=957
 ZnS crystals, out to 1.4 μ 3=13152
 ZnSe, from prism refraction data 4=13061
 ZnTe, from prism refraction data 4=13061
- Refractive index measurement**
 air, at r.f., using radiosonde 0=11045
 amines, as function of pressure, at 6 mm 0=14697
 aniline hydrobromide, optical props. 1=19942
 bulk material, by double-slit laser coherent light diffraction 4=21281
 coals and graphite, ultrathin sections, by interferometry 2=4115
 concentrated solns. and melts, comparison with theory 0=3529
 critical angle, absorbing media 4=302-3
 cryostat, liquid-He, for low temp. meas. 3=3674
 crystal fragments, microscope spindle stage 1=7855-6
 crystals, using Jamin interferometer 2=17591
 dielectric sheet, thin, using Brewster angle 4=16207
 far infrared, using two-beam interferometer 4=1703
 films on glass, polarimetric det. 2=15736
 films, inhomogeneous, Vašíček procedure 3=1826
 films, nonabsorbing, Vašíček procedure 3=1825
 films, from reflected through light fringe ang. var. 4=13678
 films, transparent, optical method 4=21004
 films on transparent substrate 4=21305
 γ-rays, by recoilless resonance absorption 1=17868
 gases, in i.r., using Michelson interferometer 0=16820
 gases, recording optical lever 0=5150
 gases in troposphere, fluctuation, light-weight device 1=10545
 glass, acid-leached 1=14573
 glass, variations, interferometric method 4=27300
 glycerine-water mixtures 1=9469
 gradients, by moiré technique, theory 4=11353
 Haber-Loewe interferometer for solutions, attachments 1=5278
 heavy-light water, phase contrast refractometry 0=12471
 ice, in i.r. and r.f. regions 0=8665

Refractive index measurement—contd

image displacement method refined Chaulnes' 4=30673
 inert gases, 77°-273°K and up to 100 atm. 3=7313
 i.r. critical angle method for absorbing liquids 0=83
 i.r., survey 1=16064
 i.r., 1-30 μ 0=14802
 infrared techniques, for 0.2-5 μ 2=96
 inhomogeneities, method and apparatus 2=119
 interference films, immersion spectrophotometry 3=11917
 interpolation formula, computer iterative process 1=9470
 ionic crystals, from reflectance data 4=22842
 ionosphere, group refract. index at l.f. 0=15159
 least-squares analysis of data by computer 1=10577
 of lenses, non-destructive method 3=236
 liquids, absorbing, very small differences, measurement 3=11899
 liquids, index gradient variations 2=17592
 liquids, intensity var., laser meas. 4=21134
 liquids, interferometric apparatus, 1-15 μ 0=14803
 liquids, medical oils and essences 1=9469
 liquids, in strong absorpt. region, use of layers of uneven thickness 4=8208
 liquids, 2.5-10 μ region, using Fabry-Perot etalon 1=10599
 metal films, with thickness 4=22823
 metals, extreme u.v. 4=10146
 metals, extreme u.v., critical angle method 4=10146
 Michelson-type interferometer, high-precision pointing 4=24384
 microwave, of gases, recording spectrograph 1=8395
 mineral fragments, oil immersion method 4=27301
 with modified Michelson interferometer 0=172
 use of Moiré patterns, for indices and index gradients 4=8379
 monitor for liquids, stationary or moving 4=5375
 particles in a liquid, by Kofler's heating microscope 4=8403
 photoelectric, comparison method 2=5153
 plasma, at 3 cm wavelength 2=13565
 polarization method for transparent minerals 0=19379
 small changes by laser amplifier 4=18410
 solid or amorphous substances, near absorpt. bands 2=23520
 solids and liqs., in i.r., refractometric method 4=21282
 solutions, incremental, by interference microscope and photoelectric indicator 3=14323
 solutions, stratified, gradient meas. by Schlieren method 4=8380
 sotet effect, small variations of μ , interferometric method 0=8664
 specific refractivity, temp. influence 2=6543
 spectral lines 2139-23254 Å for refractometry 4=2824
 thin film on base of similar material, small difference meas. 3=24007
 thin films 0=6941
 transparent films, on reflecting substrate, Brewster angle method 0=19380
 transparent materials, by reflection from shock waves 1=16065
 transparent materials, by reflection from shock waves 1=18577
 water, i.r. and r.f. regions 0=8665
 by wavefront-shearing interferometer 3=11936
 use of waves generated at interface 3=18751
 Zernike's 3-slit method, modified 2=7342
 A, r.f. discharge 0=3778
 Ar, 1600 Å 3=9592
 Bi thin films 0=10027
 CdS, double refraction up to 12000 atm. 2=4117
 CdTe, at room temp. 2=680
 He⁺ 0=8898
 HgCl₂, fused, rel. to temperature 3=11796
 KBr, fused, rel. to temperature 3=11796
 KCl, fused, rel. to temperature 3=11796
 KF, fused, rel. to temperature 3=11796
 KNO₃, fused, rel. to temperature 3=11796
 KSCN, fused, rel. to temperature 3=11796
 K₂SO₄, fused, rel. to temperature 3=11796
 Kr solid, 71°-109°K 1=19948
 LiBr, fused, rel. to temperature 3=11796
 LiCl, fused, rel. to temperature 3=11796
 LiF, fused, rel. to temperature 3=11796
 LiNO₃, fused, rel. to temperature 3=11796

Refractive index measurement—contd

Li₂SO₄, fused, rel. to temperature 3=11796
 Na₂AlF₆, fused, rel. to temperature 3=11796
 NaBr, fused, rel. to temperature 3=11796
 NaCl, fused, rel. to temperature 3=11796
 NaF, fused, rel. to temperature 3=11796
 NaNO₃, fused, rel. to temperature 3=11796
 Na₂SO₄, fused, rel. to temperature 3=11796
 Na₂WO₄, fused, rel. to temperature 3=11796
 PbCl₂, fused, rel. to temperature 3=11796
 TiCl₄, fused, rel. to temperature 3=11796
 ZnCl₂, fused, rel. to temperature 3=11796

Refractometers

for atmospheric measurements, 14.3 m long 2=15196
 automatic flow refractometer, differential system 3=21531
 cell for cryogenic temps., pressures up to 100 atm. 3=7313
 for gas dispersion measurement, instrumental corrections 2=1255
 interferometric recording instrument 2=1254
 for liquid refractive index determination 1=9469
 microscope type 2=15724
 microwave, calibration stability improved 2=17953
 microwave, limit of spatial resolution of cavities 0=19924
 oil immersion objective for mineral fragment ref. index determ. 4=27301
 photorefractometer, real and imaginary refractive index meas. 4=5370
 radiowave, balloon-borne 1=6594
 recording, for optical glasses 1=18587
 rel. to refr. index meas. in i.r. 4=21282
 resolving power—prism length calc. 4=14341
 rod, extension of sensitivity and range 3=11897
 Zeiss interference refractometer, in volatile liquid study 2=9376

Refrigerators

See Low temperature production

Relativity

aberration of extragalactic nebulae 0=18903
 absolute velocities and accelerations, causal significance 0=4929
 analogue of Newtonian result, spherical fluid system 1=15624
 apparent shape of large objects at relativistic speeds 1=5188
 artificial satellite and relativistic red shift 0=14505
 astrophysics 4=23821
 in astrophysics, rel. to age of universe 2=6981
 Birkhoff's gravitational field gradient 2=2607
 book, for non-specialist 2=19
 causality 3=5330
 causality principle and second law of thermodynamics 0=18966
 clock paradox in vertical free fall 4=11036
 collision and decay processes, space-time description 1=10860
 complex Lorentz transformation, normal form 1=12797
 conformal invariance at very high energies, exptl. consequences 3=12430
 conservation laws and general covariance 0=16565
 coordinate conditions 1=15595
 Coriolis forces in Einstein's universe and Mach principle 1=15654
 cosmological, corrections to theory 1=12738
 covariance classification, for non-Euclidean q.m. 2=9148
 covariant formalism for particle dynamics 1=5186
 current problems and development trends, review 2=15472
 Dirac's cosmology, in Riemannian space-time 2=940
 discussions with Einstein 3=3699
 Doppler effect, transverse, meas. in accelerated system 3=9332
 dynamics, Liouville eqn. 2=11274
 dynamics of relativistic particles 1=5200
 e.m. energy-momentum tensor, in charged matter 0=868
 e.m. wave propagation, in simple fluids, energy-momentum tensor 1=3056
 Einstein's empty space field eqns., new approach 1=15664-5
 Einstein-Friedmann equations, age, density, universe 0=2074
 Einstein spaces, Petrov's classification 1=6764-5
 Einstein's interior eqn., group movement 0=871
 electromagnetic and gravitational induction 1=15600
 elementary particles, space-time 0=17236

Relativity—contd

- empty space—time, properties 1=6763
- energy, inertial properties 0=16563
- ether drift, rel. to beam-type maser oscillation frequency 3=12357
- ether drift, experimental, using lasers 2=11253
- ether drift meas., first-order, using lasers 3=5343
- experimental checks with molecular and atomic frequency standards 3=21214
- extended tube, belonging of n-tuple of complex four-vectors 0=16604
- 5-dimensional 4=5027
- Friedmann-Lobachevsky space, geodesics 0=12349
- gas flows, from acute-angled container 0=93
- gas flows, in steady state 0=94
- general covariance, rel. to weak and strong interactions 3=10032
- general Lorentz group, spinor representations 0=18905-7
- general Lorentz transformations, matrix method of reductions 0=14367
- global properties of periodic closed space-times 0=16566
- gravitational field, freely falling observer 1=15605
- gravitational radn. by relativistic particle 3=5335
- gravitational red-shift, use of Doppler meas. from space vehicles 0=14479
- gravitational red-shift, in nuclear resonance 0=36
- gravity field of a particle 1=15603
- Hamiltonian formalism in space-time 0=14488
- holomorphic domain, of three-point function 2=2586
- hydrodynamics, Clebsch transformation 4=21030
- hydrodynamics with discontinuity of rest mass, eqns. of motion 1=15788
- inertia due to cosmic gravitational field 3=16504
- inertial rotation in weak gravit. field 3=9331
- inhomogeneous Lorentz group, relativistic kinematics of polarized states 1=15596
- interacting galaxies, low-velocity dispersion 0=2087
- intuition, geometry and physics 2=13244
- irreversibility and direction of time 4=27001
- kinematics of a rigid system of points 4=21064
- Klein-Gordon operator, Green's distrib. and Cauchy's problem 2=15446
- light paths between two freely moving bodies 1=4238
- linear field waves, simplest mathematical formulation 1=18241
- liquid sphere problem, analogue 0=6645
- Lorentz group, inhomog., zero-mass representation 2=11257
- Lorentz spaces, lower, generalized singular functions 2=19370
- Lorentz transformation, analogy with Foldy-Wouthuysen 0=12840
- Lorentz transformation, extension, by characteristic coords. 0=866
- luminosity distance and Doppler shift 1=4187
- Mach's principle 0=33
- Mach's principle, appl. to gravitation theory 2=1051
- magnetohydrodynamics, equations 3=4256
- Maxwell-Einstein eqns., for conformally flat metric 0=37
- Maxwell eqns., relativistic formulation 3=14739
- mechanics, continuum, inc. thermodynamics 4=16019
- mechanics, generalized, to Euler-Lagrange form 2=11273
- metric associated with nonsingular e.m. field 0=18904
- metric on rotating disk 0=10557
- Michelson-Morley experiment 4=5355
- Minkowski space-time, conformal, complex non-analytic manifold 0=6536
- model with additional space dimension 4=18039
- model universes in state of pure radiation 0=875
- Mössbauer effect appl. 1=17394
- motion, group theory treatment 3=19
- motion of Mercury, Thiry and Lichnerowicz theory 0=32
- motion of pole particle in scalar field 1=15611
- Nakano rotator, bilocal representation, classical props. 0=3442
- Nakano rotator, eqns. of motion, integration 0=6647
- new theory, postulates 1=15626
- optical transformations, Huygens' principle 0=19351
- Palacios theory, Trouton-Noble expt. 1=15617
- particle motion, inside rotating spherical shell 0=16564
- particle pot. energy rel. to creation and destruction of matter 3=5338

Relativity—contd

- particle systems, relativistic, with interaction, covariant description 1=7200
 - preferred velocity existence 3=1
 - quantized space-time, parametrizations 3=7119
 - and quantum theory 0=14492
 - quantum theory, microvariance and micro-causality 3=21234
 - Rainich's problem, symmetric tensor, as energy-momentum tensor 1=4236
 - relativistic cosmology, photon fluid models 3=1505
 - relativistic eqns., group props., Racah approach 3=3725
 - relativistic equations, group props., Racah approach 2=2615
 - relativistic fluid masses, internal motions 0=12355
 - relativistic fluid masses, kinetics 0=10591-2
 - relativistic mechanics, action principle 2=7124
 - relativistic particle kinematics, geometric soln. 3=9323
 - relativistic periastron motion of stellar binary 0=18802
 - relativistic quantum mechanics, foundations 2=21817
 - relativistic quantum theory, space-time translation group 1=11704
 - relativistic theory of motion, internal degrees of freedom 3=21204
 - review, consequences of equivalence principle 2=19402
 - Ricci tensor under conditions of rigidity 0=874
 - rotating disk, synchronization of infinitesimal clocks 0=872
 - rotator, classical motion 0=3443
 - rotators, hyperspherical (Nakano), relativistic, internal quantum states 1=10423
 - significance of Euler's aberration formulae 1=15594
 - simultaneity, absolute observer, paradox 2=17339
 - simultaneity, uniform and accelerated motion 4=11035
 - sound and light velocities, thermodynamic covariant principle 2=19389
 - space-time continuum, relation to relativity disputed 0=14499
 - space-time, curved, with spherical symmetry, invariant spatial dist. 2=19390
 - space-time operators, quantization 1=10422
 - space-time structure, and singularity of propagators 2=11276
 - space-time variables, removal from physical theory 4=16018
 - spatial isotropy, significance 2=17338
 - spin precession in classical relativistic mechanics 1=12794
 - spinor connections, assoc. with Euclidean 4-space 2=2603
 - "stationary" phenomena in closed circuit 0=873
 - stellar aberration due to motion of light propagating medium 0=18902
 - sun's perihelion rotation 4=23904
 - super-energy tensor, Petrov classification 0=867
 - super-energy tensor and Riemann tensor 0=6646
 - and tensor calculus, book 3=31
 - theory, fundamental expts. 4=24031
 - thermodynamics, elastic waves vel. 3=7094
 - Thomas precession eqn., matrix calc. 0=10582
 - time machine speculations 3=11659
 - time and relativity, introduction 2=19401
 - time retardation, in spherical and elliptic spaces 0=42
 - time and space, meanings 2=2608
 - transformation of e.m. null field 1=426
 - transformation laws, velocity and accel. of particle 2=15469
 - transformations in particle physics 0=15262
 - Úlehla-Petráš eqns. for particle of spin $\frac{1}{2}$ 1=16656
 - uncertainty principle 0=10555
 - universes with shear 2=4720
 - unstable particles, relativistic theory 0=333
 - variable mass body, equations of motion 4=11044
 - velocity of light, constancy principle 0=4932
 - wave propagation, in closed expanding universe 1=4235
 - Wigner's problem of reflected light signals in de Sitter space 1=15616
- general**
- See also Cosmology, Gravitation
 - aberration and Doppler effect, in Schwarzschild universe 3=14011
 - accelerated motion, rectilinear 0=16587
 - action principle, deriv. of field eqns. 3=1599

Relativity—contd
general—contd

affine spaces, conservation laws rel. to laws of motion 4=11047
 analogy between gravitation and electromagnetism 4=18056
 anisotropy of inertia, det. by Mössbauer effect, upper limit 0=7470
 antigravity 2=13245
 antisymmetric propagators, e.m. field quantization 0=869
 astronomical observations, interpretation 0=8468
 astronomical orbits, effect of great eccentricity 3=21221
 asymptotic invariants in grav. radiation fields 3=18706
 asymptotically flat empty spaces, behaviour 2=21809
 avoiding use of co-ordinates 1=5191
 axially symmetric conformastat electrovac universes 3=9337
 background space concept 4=5049
 Birkhoff theorem and central-symmetric Einstein space 4=27049
 Birkhoff's theorem is always valid 4=27048
 Boltzmann equation and applications 1=9343
 Bondi dipoles, rel. to collinear particles 4=24052
 book 3=24
 book, classical field theory 4=8037
 Born-Infeld charged-particle model, rel. to Møller theory 4=5048
 Bourbaki relativity, book 4=24034
 canonical method and quantization problems 4=11033
 canonical reduction, consistency 0=16586
 canonical variables 0=6660
 Cauchy's problem 2=21811
 Cauchy's problem, propagation of discontinuity waves 2=7133
 Cauchy problem, variations and equations with initial conditions 3=23756
 celestial mechanics, satellite orbits around rotating sphere in linear Minkowski theory 4=24053
 centripetal force reactions, aberrated, grav. theory 3=21224
 charged bodies, eqns. of motion 2=21807
 charged particle, e.m. energy and gravit. mass 2=2619
 charged particle motion, Lagrangian 0=4936
 class of dynamical quantities for arbitrary metric 1=18249
 class of spaces with metric connection, connected to vacuum spaces 4=5038
 classical field equations, class of exact solns. 2=9170
 clock in free motion, kinemat. and grav. effects 3=7109
 clock paradox 4=24054
 clock paradox, red shift of satellite clock, formula 1=2692
 clock rate in satellite, rel. to clock on earth 2=17355
 clock rates at perihelion and aphelion 1=12799
 clock reading in free motion, kinematic and grav. effects 4=2541
 clocks and distant matter, velocity-depend. interactions expt. limit 4=14042
 closed gravitating system, Lorentz invariance 4=16024
 commutators on characteristic surfaces in field theories 4=21032
 completeness of space-times, definitions 3=9343
 complex scalar fields introd. 3=7104
 rel. to conformal tensor calculus, review 3=5317
 conformal transformations, and space travel 2=7040
 conservation, energy and momentum, polymetric representation 4=8044
 conservation laws 1=15653
 conservation laws, and absolute parallelism 2=1056
 conservation laws, covariant 4=39
 conservation laws, energy and momentum localization 1=15628
 conservation laws in Lagrange formalism 0=14503
 conservation laws and Lagrangian from field eqns. 3=3739
 conservation laws, "symmetry method", 3=11684
 conservation laws, tensor-field in terms of tetrad-field 1=9316
 conservation laws, and two-body problem 2=11260
 constant electromagnetic fields 1=2650
 constraint problem, elliptic system of eqns. 1=15634
 continuous medium, spherically symmetrical motion 4=14038
 control and generation of gravitational forces 3=11678
 coordinate invariance and energy expressions 1=8047
 coordinate conditions 2=11262, 15452

Relativity—contd
general—contd

coordinate systems and geometrical representation of physical quantities 0=10584
 co-ordinate transform. to uniform. accel. frame 3=1586
 Coriolis and centrifugal forces, origin in stationary space 1=9320
 correspondence principle 4=18050
 cosmological const., role, rel. to Schrödinger's field theory 1=10414
 cosmological, expansion time - dependence and material density interpretation 1=18001
 cosmological models, physical time singularity, conditions of existence 1=7976
 cosmological models, static, spherically symmetrical 4=46
 cosmology, grav. eqn. and isotropic model 3=23661
 covariance principle, anti-Fock theory, invariant functions 4=11045
 covariance, validity in a quantum theory 3=14007
 curvature, meas. in two-dimensional universe 0=18929
 curvature perception by 2-dimensional beings 3=23754
 curvature tensor calc. in first relativistic approximation 1=6671
 curvature of universe, decrease due to conversion of matter into radiation 1=10412
 curvature waves, defin. and linear approx. 3=1601
 de Donder coordinate conditions 1=15630
 de Sitter space, Schrödinger's model 0=18930
 dense matter, static charge spherically symmetric distrib. 4=24050
 dielectric Coulomb field analogue 4=29525
 dimensionless quantities, spacelike intervals and proper time 1=15642
 Dirac equation representations 2=13261
 Dirac equation, Vierbein formalism 2=3249
 Dirac-Lichnerowicz theory, use of Franz-Kofink formula 3=36
 Dirac matrices, symmetrical form 3=18713
 Dirac theory, generalized to all particles 2=16123
 Dirac's wave eqn. in gravitational field 4=18058
 discontinuities, geometrical study 3=23755
 distortion in metric of small body by grav. attraction of large mass 3=16512
 Doppler effect, rel. to classical effect 2=17353
 Doppler effect for group motions, and Mössbauer effect 3=16513
 dynamical instability of gaseous masses near Schwarzschild limit 4=15902
 dynamical structure and definition of energy 0=2106
 e.m. absorption props. of accelerating detectors 4=16648
 e.m. cavity in accelerated ref. system, resonant freq. 4=16649
 e.m. field, energy-momentum tensor, uniqueness 3=1604
 e.m. field in external grav. field, energy-momentum tensor 4=45
 e.m. field, geometrical interpretation 1=16497-8
 e.m. field, geometry 4=24046
 e.m. field of localized charge-current distrib., asympt. props. 4=11759
 e.m. fields, static case 1=4252
 e.m. or gravitation radiation recoil 3=16515
 e.m. linear constitutive relations, wave propag. 0=16583
 e.m. radiation in grav. field, force terms and wave momentum 4=8025
 e.m. radiation, in presence of electromagnetic induction 0=18931
 e.m. wave, plane, soln. for arb. pulse shape 2=9163
 of e.m. wave velocity near large masses, and astron. unit discrepancies 4=29470
 e.m. waves as source of information 4=18057
 EIH and fast motion approx. methods, interrel. 4=18047
 EIH equations of motion up to 9th order 4=18048
 EIH and k-approximation methods, possible tests 1=15629
 Einstein equations, first approx. 4=21028
 Einstein equations in flat space 4=29521
 Einstein eqn., soln. 0=876
 Einstein eqns., generalized, non-zero graviton mass 0=3437
 Einstein exterior eqns., reduction for group movement 0=2109
 Einstein, existence of class of static spaces 1=4253

Relativity—contd

general—contd

- Einstein field eqns., divergence conditions 3=16500
 Einstein field eqns. with simply transitive groups of motions 3=16509
 Einstein-Schrödinger theory, generalized Lagrangian, matter and electromagnetism 1=4255
 Einstein spaces with maximum mobility 3=5346
 Einstein tensor, identities 1=4251
 Einstein field eqns., characteristic initial-value problem 4=5036
 Einstein-Maxwell field, Lorentz-invariant approx. 0=38
 Einstein-Pauli theorem, generalizations 4=18042
 Einstein, principles of relativity and equivalence 4=24041-2
 Einstein universe, Thirring effect, Mach's principle 0=18908
 Einsteinian gravitational field, test particle 2=19411
 Einsteins equations, stability, infinitesimal 3=9339
 Einstein's field eqns., vigorous solutions 1=10412
 Einstein's field equations, rel. to grav. and e.m. waves 2=21802
 Einstein's four-tensor 3=21223
 Einstein's gravitational equations, in vacuum, exact soln. 2=4925
 Einstein-Infeld-Hoffmann problem, appl. to five space 2=9149
 Einstein-Maxwell field equations, analogy 2=9174
 Einstein-Maxwell-Yukawa field equations, soln. 2=19413
 Einstein's vacuum field eqns., exact soln. 1=9318
 elastic medium, obeying Noll equation, waves 4=14039
 elasticity theory 3=7102
 elasticity theory, with modified Hooke's law 0=3445
 electric current fields and gravitation mass 1=1694
 electrodynamics in the expanding universe 3=21085
 electromagnetic waves, plane, in vacuo, solution 3=18721
 electromagnetism, spinor formulation 4=8899
 electron, classical point, Poincaré compensating stresses 3=1584
 electron models class, mass, vanishing grav. contrib. 4=18059
 electrostatic field, radial, cylind. symmetric 4=8043
 electrostatic fields 2=11265
 electrovac universes 2=15475
 elementary review, experimental data 2=24
 empty space metrics, containing hypersurface orthogonal geodesic rays 2=21810
 energy and criteria for radiation 0=10579
 energy density in Newtonian approx. 4=18052
 energy density, positive-definite, and local space 3=7106
 energy excess, static solns. 3=5354
 energy localization 1=4248
 energy localization, Møller's affine tensor density 1=8046
 energy, momentum and ang. momentum densities for general metrics 2=17344
 energy, momentum and angular momentum 1=18248
 energy and momentum for axisymm. system 4=21027
 energy-momentum complex, props. 0=12360
 energy-momentum tensor of point mass source of Schwarzschild field, nonclassical structure 1=5193
 energy-momentum tensor requirements, gravit. field 3=14012
 energy-momentum conservation laws, rel. to relative gravitation 4=11049
 energy partition in cosmical physics, Eddington 4=15903
 energy tensor correct form 4=18051
 eqns. of motion from field eqns., perihelion advance 1=15648
 equations of motion, derivation 0=10577
 equations of motion, harmonic coordinate conditions 2=13253
 equivalence principle, rel. to geometry of space-time 2=19405
 equivalence principle, negative mass and gravitational repulsion 1=9317
 equivalence principle, "paradox" in gyroscope motion 0=16590
 equivalence principle, satellite clock as test 1=2692
 equivalence, strong, proposed test 3=5350
 in Euclidean terms 3=7107
 Euclidian re-statement, three tests 3=23757
 evolution in cosmological model 1=11
 and expanding galactic systems 2=6980
 expanding universe, grav. canonical formalism 3=39

Relativity—contd

general—contd

- experimental approach 4=11051
 experimental test 2=10302
 experimental verification 0=31,878,4933-5,6663,8545
 experimental verification using nuclear resonance absorption 1=10411
 experimental verifications, using new metric 3=21225
 for experimentalists 1=15625
 experiments, US view 4=11050
 exponential representation of potentials 4=27037
 external sources, prescribed, for gauge fields 4=5014
 Fermi coordinates, in space-times V_4 1=4250
 Fermi Normal Coords., in differential geom. 3=16511
 fern equivalence 1=15628
 field equations, exact solns. 2=7127
 field equations, non-singular solns. 2=15471
 field eqns., exact three-variable solutions 0=2107
 field eqns., plane wave solutions 1=18246
 field of null vectors, satisfying Robinson eqn. 2=4927
 finite rotating universe 2=13255
 flat-space metric 3=14015
 flat space-times, with gravitational fields 0=8537
 flatness, conditions 3=23750
 flow surfaces, viscous fluid 3=14089
 fluid mass, rotating, grav. field 3=1600
 fluid spheres, Schwarzschild interior solution, generalization 0=2112
 fluids, charged, characteristic surfaces 3=18713
 Fokker action principle, generalized, applic. to fluid dynamics, droplet ensemble 0=6662
 force effect, non-gravitational 3=3730
 four particles, uniformly accel., exact soln. 4=5050
 free-rotating particle, general Lagrangian and canonical formalism 0=18925
 Friedmann-Lemaître model, Coriolis and centrifugal forces 2=9176
 and fundamental particle theory 3=23652
 and fundamental particles, mass spectrum 3=14873
 galactic red-shift, theory of "total relativity" 4=10789
 galactic systems, expanding, application 1=12737
 gas theory 4=18235
 gauge-invariant variables 1=15645
 Gauss-Poisson eqn. in static universes 1=15631
 general covariance principle, rel. to field and gauge theory 2=18052
 general covariant method of successive approximations 0=6666
 general energy mechanics of continuous media 4=2543
 generalized Schwarzschild space, flatter regions 3=18717
 geodesic congruence, shear-free, and Weyl tensor 2=17352
 geodesic deviation equation 3=14010
 geodesic equation, applic. to motion of point masses 0=6659
 geodesic equations and vector tetrads 2=15476
 geodesic eqn. of motion, from matter tensor and δ -function 1=15643
 geodesic hypothesis in gravitation theory 3=3721-2
 geodesic line eqn. 1=2689
 geodesic postulate, significance for finite mass 4=27052
 geodesical lines, solution of equations 1=6774
 geometrostatics, method of images 4=5034
 geometry, differential, rel. to 3=3735
 geometry, field equation derivation and initial value problem 4=11054
 geometry interval meas. 4=11053
 Goldberg-Sachs theorem, generalization 3=14016
 gravitation, cosmological tests 4=29349
 gravitation, ennuple formalism of Møller 4=27-8
 gravitation, extranewtonian eqns. of motion rel. to anharmonicity conditions 4=8034
 gravitational field constraints, Poisson brackets 2=9167
 gravitational field, e.m. fields, interaction 2=7132
 gravitational field energy and g_{00} 3=14002
 gravitational field eqns., Mach and anti-Mach solns. 4=2536
 grav. field eqns., Ozsvath-Schücking soln. 3=3736
 grav. field, first approx., simple normal form 1=18243
 gravitational field, high-order eqns. 4=11032
 gravitational fields, one dimensional 3=5333
 gravitational field, perturbed, Lagrangian 2=9165
 gravitational field, of point mass in expanding universe 2=1054

Relativity—contd
general—contd

gravitational field, super-energy, quantization 1=15641
 gravitational field, varying, moving particle 2=19410
 gravitation fields with zeros for $g_{\mu\nu}$, determinant 3=1596
 gravitation, flat space theory, energy-momentum tensor choice 3=16498
 gravitation theory, series of articles 4=8028
 gravitation in three-dim. space, theory 4=27029
 gravitation, waves field eqns., asymptotic soln. 4=27032
 gravitation, Whitehead, principle of equivalence 4=27031
 gravitational geon, self-consist. field method 4=21029
 gravitational Lagrangian, polynomial expansion, quantization 3=16502
 gravitational perturb., eqns. of motion 4=24038
 gravitational perturbations, fast-motion approx. 1=1682
 gravitational predictions, rel. to Lorentz-invariant theories 1=2683
 gravitational radiation in Birkhoff's and general relativity 4=8036
 gravitational radiation, classification 1=1686
 gravitational radiation, detection above noise power requirements 4=11048
 gravitational radiation reaction forces, theoretical difficulties 1=15650
 gravitational radiation soln., fluid, twist free 4=2535
 gravitational red shift, Mössbauer effect meas. 4=27046
 gravitational red shift, Mössbauer meas. 4=12598
 gravitational theories, conference, Varenna (1961) 4=24026
 gravitational vacuum field, test particles motion 2=11268
 gravitational wave detection 4=11055
 gravitational waves 3=21211
 gravitational waves 4=27032
 gravitational waves, type-N, in radiation-filled universe 4=2542
 gravity problems, use of $\sin x/x$, convergence investigation 4=27036
 Green's functions in Riemann space, calc. for weak fields 3=16510
 gyroscopic motion, rel. to linear grav. theories 4=18036
 Hamilton-Jacobi eqn., rel. to de Broglie waves in space-time 4=14024
 Hamilton's equations 4=24036
 harmonic coordinates application 4=2545
 harmonic coordinates use 4=21025
 harmonicity condition, coordinate 3=23751
 Harrison spacetimes, symmetry props. 4=24044
 Heisenberg representation 1=5192
 holonomy group, infinitesimal, theory 4=18045
 hydrodynamics, in Minkowski space 2=15470
 hydrodynamics, perfect fluid motion, Cauchy problem 0=14504
 inertia, rel. to mass change of universe 3=11497
 inertia origin 4=18044
 inertial mass anisotropy, detection with nuclear resonance 1=4245
 initial conditions on a characteristic half-cone 3=18715
 insular system, non-radiative, total 4-momentum 4=27054
 and interactions, unifying principle 4=5015
 interstellar large masses, observable effects 4=2388
 invariants, canonical formalism 0=18927
 invariants, classification of spaces 0=18928
 isospace and geometry of space time 4=19364
 isotropic medium, 3-dimens. continuum 2=19406
 Kepler's laws, modified, satellite motion 0=10559
 Lagrangian for continuous medium in Riemann's space 4=11029
 Lagrangian identities, 1st and 2nd derivative depend. 0=3447
 Leuristic approach, physical significance 1=1691
 Levi-Civita's theorem of mechanical equivalence 4=8048
 light deflection effect to test theory 3=5347
 light deflection, rel. to equivalence principle 2=9177
 light deflection by sun 3=38
 light deviation at solar limb, meas. 3=3731
 light-ray paths 0=18924
 light-ray reflection in galactic gravitational fields 3=21119
 light velocity, in flowing liquids 0=19356
 local observables, formulation, Poisson brackets 0=10578

Relativity—contd
general—contd

Lorentz group, restricted, and holomorphically related groups. 3=5320
 Lorentz-invariant eqns. of motion of point masses 3=37
 Mach, measurement theory 4=27051
 Mach's princ., rel. to steady-state cosmology 3=11502
 Mach's principle 3=2
 Mach's principle as a boundary condition 4=11059
 Mach's principle and creation of matter 3=5235
 Mach's principal, dynamical preference of reference frames 4=4841
 Mach's principle and equivalence 4=27050
 Mach's principle, expt. tests 2=1057
 Mach's principle, experimental evidence 4=23824
 Mach's principle, and finite universe 3=5348
 Mach's principle, rel. to grav. theory 2=9157
 Mach's principle, in grav. theory, invariance rel. to units 2=9156
 Mach's principle, not incorporated 4=18049
 Mach's principle and local grav. const. 2=2617
 Mach's principle, mass anisotropy expts. 4=11056
 Mach's principle, validity 3=23753
 magnetic and electric geon solution of Einstein-Maxwell equations 4=14045
 magnetofluid-dynamics, singular hypersurfaces 1=13163
 mass particle, in expanding universe 0=6669
 material momentum-energy tensors and calculus of variations 4=16026
 matter field theories, Lagrangian formulations 4=16025
 matter representation 0=10581
 matter waves of spin 0 and 1 3=14025
 Maxwell equations, derivation 2=11252
 mechanics of continuous media 4=41
 mechanics and fundamental particle interaction 3=17168
 mechanics of a mass point 1=15636
 meson field, scalar, equations, approx. solutions 4=2544
 meson, scalar, Klein-Gordon equation 3=19547
 metric and curvature spinors, exterior differential calculus 4=18053
 metric gravitational field, based on new-equivalence principle, relativistic study 4=26
 Mies' Lagrangian, restrictions 3=14009
 Misher-Arnowitz-Deser theory 4=24037
 Möller's energy-momentum pseudotensor in grav. field, deriv. 4=18043
 Möller energy-momentum tensor, deviation using Schrödinger affine theory 3=9338
 Möller formulation of gravitational stress-tensor in tetrads., discussion 4=5047
 Möller's theory, energy and its localization 2=2618
 monochromatic waves, and Doppler effect 2=9164
 monochromatic waves in perfect fluid-Einstein-Maxwell scheme 1=15646
 rel. to Mössbauer effect 4=8053
 Mössbauer effect, appls. 3=12565
 Mössbauer effect appls. 4=18642
 Mössbauer effect, photon frequency, gravitational field effect 4=27045
 Mössbauer effect, use in verification 0=9523
 motion of N particles 0=2105
 motion of point masses, Lorentz-invariant eqns. 3=37
 motion theory, geometrodynamical foundations 1=9319
 moving radiating particles 2=2614
 neutron core, massive, stability 2=13151
 neutron core, massive, stability 3=7036
 Newtonian eqns. of motion rel. to Einstein grav. theory 3=23758
 nonlinear model, plane-wave solution 0=12358
 nuclear field, with rigid charge distribution 0=17466
 null e.m. fields 0=10580
 null flat-space coord. systems 4=5046
 null surfaces, globally isolated, field eqns., singularity-free solns. 1=2686
 operative interpretation of standard quantities 3=1598
 optical, electromagnetic effects 4=11057
 and optical observations 1=8045
 particle clusters, stationary cylindrically symmetric 2=11264
 particle and gas behaviour in static spherical gravitational field 0=14496
 particle motion rel. to fluid frame of reference 4=8051-2
 particle, relativistic analytical dynamics 1=18247

Relativity—contd

general—contd

- particle system motion Lagrangian, and radiation 4=2539
- particle in uniform motion, and accel., field 2=7131
- Penrose formalism, generators of coordinate transformations 2=17354
- perfect fluid, world tube, isolated, surface dynamics 4=2546
- perihelion advance of Mercury 1=15648
- Petiau-Duffin-Kemmer theory 1=18251
- Petrov classification, permanence 2=9168
- Petrov's radiative solution reduces to Schwarzschild's 4=27048
- photon-graviton interaction in first approx. 3=5349
- photon rockets, mechanics in general theory 4=26976
- physical geometry 2=17349
- physical geometry of space-time 4=24043
- physical geometry and universal forces 3=14008
- physical interpretation, applic. to spectral line red shift 4=14040
- physical significance, systematic attempt 4=5748
- physical space, curvature verification difficulty, 3=11683
- Planck's constant, gravitl. origin 3=1605
- Planck's constant, rel. to red shift 3=1606
- Planck's elementary length, for $g_{00} > 0$ 2=15474
- plane wave solutions of field eqns., comparison with unified theory 0=12362
- planetary motion observation, approximations 0=10469
- planetary orbits 4=4844
- planetary radius vectors, corrections 2=19283
- point explosion, in gravitating continuous medium, corrections 2=939
- point masses in Kepler orbit, grav. radiation 3=16514
- point particles, classical, finite self-energy 0=10583
- point particles, spinning, energy-momentum tensor 0=5485
- Poisson brackets, initial value data 1=8048
- polytropic fluid spheres 4=29365
- Pound-Rebka photon-weighting expts., gravitational frequency shift 4=27044
- Poynting energy flow, source-free, gravitational effect 2=19412
- Poynting vector 0=6661
- projections on plane in infinity, as observables 2=2613
- propagators and commutators 1=15633
- propagators and commutators 3=3733
- propagators on quotient space 1=15632
- proper volume elements 3=14014
- pure radiation 1=8042
- pure radiation states, curvature tensor 1=6772
- quantization 4=11058
- quantization 4=24039
- quantization, functional integration 0=6651
- quantization of gravitational fields 1=6766
- quantization, one-particle theory, "position" operator 1=18261
- quantization, QED in classical gravit. field 2=7139
- quantization on Riemannian manifold 1=6762
- quantization, Q-number coord. transforms 4=24035
- quasi-static approximation 0=14501
- quaternions use 4=29523
- radiation axially symmetric fields 1=15652
- radiation, canonical variables, energy distrib., criteria 1=61
- radiation field, photon in, rel. to galactic red shift 2=2605
- radiation field, weak, first-order approx., comparison with Einstein-Schrödinger theory 0=16584
- radiation fields, pure, twist-free, fld. eqn. exact soln. 3=3732
- radiation, and Fokker action principle 4=8045
- radiation, gravitational and electromagnetic 0=18932
- radiation, gravitational, form for integrable metrics 4=16027
- radiation, gravitational, many bodies 4=29
- radiation, pure, new set of states 4=5040
- radiation states 1=15649
- reciprocal static metrics and scalar fields 0=877
- recurrent radiation 1=15651
- red shift to elliptic satellite orbits 1=18219
- red-shift expts. as confirmation, discussion 1=15627
- redshift of extragalactic nebulae, systematic error 1=18126

Relativity—contd

general—contd

- reformulation in accord with Mach's principle 4=5035
- reg graduation of scales and clocks, theory 1=10413
- Reissner-Nordstrom metric, oscillatory character for ideal charged wormhole 0=18938
- relativistic particle, internal movements 1=15637
- relativity theory of dielectrics 3=1607
- Riemannian geometry 4=11052
- Riemannian spaces, undulatory 3=18719
- Riemannian spin space 4=2537
- Riemann space spinors 0=10554
- Riemann tensor, propag. in gravitational theory 4=27053
- repulsion force and causality 4=14041
- rigid motion concept 0=6665
- rockets, relativistically moving, separation 0=16580
- Rosen metric, harmonic approx. and quantization 1=2691
- rotating bodies, ang. momentum of system, conservation law 1=15638
- rotating bodies, grav. and e.m. fields 3=3734
- rotating bodies, motion, action principle, Lagrangian det. 1=15639
- rotating bodies, oblate, eqns. of motion 1=15640
- rotating mass problem 4=5039
- rotating masses, general motion 0=12356
- rotating stationary gaseous mass 0=3444
- rotation, absolute or relative nature 2=9175
- satellite clock rate in elliptic orbit, Singer's formula 1=18219
- Schwarzschild external field, energy 4=8049
- Schwarzschild field, energy distrib. 1=62
- Schwarzschild field, geodesic motions, classific. 2=11259
- Schwarzschild field Green's functions calc. 4=21026
- Schwarzschild field in n-dimensions, dimensionality of space problem 3=7105
- Schwarzschild limit gas sphere instabilities 4=29357
- Schwarzschild line-element 2=11263
- Schwarzschild metric, empty-space generalization 3=18716
- Schwarzschild metric generalization 2=19407
- Schwarzschild metric, maximal extension 0=16588
- Schwarzschild, radiation sphere, possible obs. 4=5045
- Schwarzschild singular sphere, space-time metric 2=23
- Schwarzschild soln., approximate propagators of order 0 and 1 4=42
- Schwarzschild soln. and gravitational collapse of large masses 4=17964
- Schwarzschild soln., singularity at $r = 2M$ interpretation 4=28054
- Schwarzschild solution, completion and embedding 0=2108
- Schwarzschild solution, from Newtonian gravitation 3=18718
- Schwarzschild solution, simple approach 4=44
- Schwarzschild space-time, imbedding. 2=7134, 15473
- Schwarzschild space-time plane waves at ∞ 4=24045
- Schwarzschild universe, astronomical obs. 4=38
- Schwarzschild's exterior solution, application to class of interior solns. 2=19409
- Schwarzschild's solution, derivation from special theory and Newton's law 4=5037
- self interaction, and field theory of spin two in flat space 3=21222
- semi-closed worlds, theory 3=1588
- shell of flowing radiation in a homogeneous universe 1=10412
- shock waves, spherically symmetrical 4=5042
- Sommerfeld fine-structure constant, rel. to gravity 2=521
- source-free gravitational field, Einstein field eqns. soln. 2=7118
- space-time, curved, invariant spatial distance 2=11267
- space-time coordinates, arbitrariness 2=9173
- space-time coordinates, fixation, two-body problem 2=25
- space-time metric, fluctuations 0=18926
- space-time, Petrov type III 1=1690
- space-time, rel. propagators for integral or half-integral spin 4=8047
- space-time transformations, phys. signif. and representation theory analysis 3=3712
- space-times with bounded empty regions 4=14043
- space-times with field of null vectors 2=4926
- space-times and fields, asymptotic props. 3=9342

Relativity—contd**general—contd**

space—times, spherically symmetric, and their imbeddings 3=23752
 spaces conformal to a class of spaces 3=21228
 spherical non-rotating e.m. wave radiator 4=24048
 spherical pulsating particles, and radiation 1=2687
 spherically symmetric fields and Birkhoff's theorem 4=24040
 spherically-symmetric manifolds embedded in flat manifolds 3=1597
 spherically symmetric worlds embedded in a flat space 4=2540
 spin connection and environment of fermions 4=2538
 spin connection generalization to non-local case 4=29522
 spin field coupled to gravitational field, commutation reln. for canonical energy density 4=19365
 spin-particle in gravitational field, conservation laws 4=24049
 spinning charged test-particles, eqns. of motion 1=2688
 spinor and bispinors in curved space-time 4=21031
 spinor calculus 0=14500
 spinor compensating field formalism 4=14030
 spinor field anticommutator 1=15635
 spinor geometry, gauge covariance 1=18266
 spinors, 2-component, Rainich problem 0=12359
 stars, energy excess, static solns. 2=17233
 stars, massive, stability 4=30967
 stars, white dwarf, relativistic effects 1=8039
 static charged sphere, mass 0=16589
 static electromagnetic fields 1=8049
 static, everywhere regular solns. 2=19408
 static solutions 1=15644
 stationary ds^2 determ. 4=8046
 stationary solns., everywhere regular 3=35
 steady-state cosmology 0=16523
 stellar gravitational lenses, imaging props. 4=10806
 Stephenson's eqns., spherical symmetry 0=6667
 super-energy and Riemann tensors 0=2110
 tensor character of Einstein's action 2=9172
 tensor identities 4=18046
 tensor spinor, Laplacian 2=21808
 tensorial propagators, Schwarzschild approx. solution 4=43
 terrestrial tests 1=63
 test bodies, distrib. in sense of Schwartz 4=8050
 test body motion, multipole moments model 0=14502
 test by light defl. in galactic grav. field, possible 4=10854
 test particles, spinning, elementary and macroscopic 4=29526
 test, using phase velocity of oscillating grav. field, theory 2=17343
 tetrad formulation, generalized 3=21226
 tetrad orientability in electrodynamics 3=21227
 theoretical physics conference, Charlottesville (1962) 4=21719
 three-body problem, coplanar, canonical reduction 3=5231
 three-dimensional formalism, separation of time coordinates 0=12357
 three-dimensional geometry, and information about time 2=13259
 time dilation, for accelerated straight-line motion 2=11261
 time-measurement with moving bodies rel. to clock paradox 4=27047
 time standard var. 4=16004
 total energy, with gravitational correction 0=10560
 total energy-momentum vector, of closed system 2=2616
 total energy, standing waves metric 0=3440
 transformational properties of physical quantities 2=9169
 two-body problem, eqn. of motion 2=25
 two-body problem, parameter variation meth. applic. 3=3729
 two oscillating masses, on spring, eqns. of motion 0=8546
 type II metrics, asymptotic behaviour 0=16585
 ultra-relativistic gas, central-symmetric motions, discontinuous 2=22
 uniform e.m. field in 0=2111
 "uniform field", direct consequence 0=6664
 uniformly accelerated motion, transformation 3=7103
 vacuum field eqns., nonlinear Lagrangians, Palatini's device 0=16582

Relativity—contd**general—contd**

variation of field scalar curvature density 4=11046
 variation of fields 2=9166, 17350
 verification, equivalence principle and red-shift meas. 1=1693
 verification in laboratory 2=11258
 virial theorem in post-Newtonian approx. 3=18720
 wave solutions, with axial symmetry 2=7130
 wave zone, definition, propag. of gravitational radiation 1=4249
 waves, exact spherical 1=15647
 weighted mean Christoffel symbols, associated space-times 3=16516
 Weyl conformal curvature tensor 1=18250
 Weyls' solution for axial-symmetric gravitational fields 3=14013
 world-function, properties 1=9310
 world model, Friedmann, generalization 2=11269
 world model, stationary, without global space-like sections 2=17351

special

aberration of plane waves due to motion of the observer 1=1689
 accelerating reference frames, clock paradox 3=9334
 acceleration, uniform, definition and conformal invariance 1=15623
 action principle, Lorentz-invariant, nonlinear 3=18767
 aether drift expt., based on Mössbauer expt. 4=11043
 aether drift expt. proposed, using Mössbauer effect 0=18918
 analytic particle dynamics 0=18921
 in anisotropic space 3=21216
 anti-Minkowskian universes 2=21
 application to rotating mirror reflection 0=2224
 arc lengths, in Minkowski space 0=10576
 astronomical observation 4=37
 bibliography and teaching aids 2=13251
 book 1=11695
 Bose gas statistics 1=8077
 Brehme diagram, applications 3=9335
 causality rel. to Lorentz group 4=16021
 circular gravitational orbits 1=15612
 classical particle with structure, relativistic Lagrangian formalism 1=16666
 classical relativistic dynamics of "spin" particles 4=3284
 clock paradox 0=39, 40, 42, 2113, 6670, 12353, 14498
 clock paradox 1=15619
 clock paradox. 1=9315
 clock paradox 2=2611, 15468
 clock paradox 3=5339
 clock paradox 3=16506
 clock paradox, appl. of class of transformations 0=14497
 clock paradox, critique 0=8540
 clock paradox, experimental test using Mössbauer effect, assessment 0=18917
 clock paradox, geometrical aspect 1=10409
 clock paradox, and identical twins 0=41
 clock paradox, Lorentz transformations 0=8542
 clock paradox, motion of charged particle in mag. field 0=8543
 clock paradox, possible astronomical tests 0=8541
 clock paradox, relation to relativity disputed 0=14499
 clock paradox in vertical free fall 4=11036
 conditions for agreement of quantum field theory 3=4315
 conformal coords. for space-like motions 3=11682
 contraction rel. to stress effects 3=1589
 co-ordinate transform. to uniform. accel. frame 3=1586
 coordinate transformation to accelerated frame of reference 4=14034
 coordinate transformations, misconceptions 4=5032
 rel. to cosmological model of light propag. 4=26880
 crystallography, macroscopic symmetry in space-time 3=23366
 de Broglie wave mechanics, re-exam. 3=16527
 de Broglie's velocities, composition law 2=13252
 deflection of ultra-relativistic particles 2=7731
 dielectrics, anisotropic 4=18041
 disk, rigid and rotating, re-entrant motion 2=19403
 Doppler effect 2=7126, 11254
 dynamics, and applications 0=10572-3
 $E = mc^2$ and dialectical materialism 4=27038
 e.m. ballistic source theory 4=24033
 e.m. field and induction, connection 2=11256

Relativity—contd

special—contd

Einstein—Schrödinger theory, curvature tensor 1=15622
 electric and magnetic dipole moments 1=15621
 electrodynamics, general covariant formalism 2=20109
 electrodynamics of moving media, review 4=27620
 electromagnetic radiation, definition under covariance 1=19014
 and electromagnetism 1=9315
 electromagnetism, collinear electric vector addition 1=5190
 electromotive force, Faraday's law, analysis 3=17031
 electron mass—momentum reln., verification 4=8040
 elementary particles and signature of space-time metric 4=21024
 as energy formulation, in Newtonian mech. 2=17347-8
 energy—momentum tensors, physical equiv. 3=3711
 and ether concept 2=2609
 ether drift detection, interferometer and laser aerosol scatt. proposal 3=18711
 ether drift test by masers, theory 3=3727
 Euler's angles, generalized to space-time 0=10551
 Euler's theorem extension to Minkowski space 4=36
 experimental verification, using two maser oscillators 0=6656
 extended particle in inhomog. e. m. field, eqns. of motion 4=14869
 field theory, quantum, metric determinants correl. 1=19092
 Fitzgerald contraction, demonstration 4=5029
 Fitzgerald contraction model, stick drawn across elastic sheet 4=14036
 five dimensional temporal extension 3=21220
 force between parallel conductors 2=1560
 force transformation laws 3=21217
 frequency shift in accelerated system, Mössbauer meas. 4=11039
 Fresnel drag coefficient, theory 1=10410
 Fresnel drag meas. using ring laser 4=27280
 fundamentals of relativistic theories 4=40
 future tube holomorphic equivalence to irreducible bounded symmetric domain 4=14037
 Galilean and Lorentz transformations, teaching 2=13250
 γ -ray velocity meas. from moving source 4=27043
 gas, ultra-relativistic, one-dim. adiabatic flow 2=1174
 Gauss—Poisson eqns. for stationary universes 1=15620
 general form 1=9312
 general form, mass and kinetic energy equivalence 1=15614
 generalized, for variable reference velocity 1=57
 geodesics in Gödel's universe 1=9311
 geometrical introdn. 3=34
 geometrical representation of dynamical relations 4=11040
 gravitation field, Euclidean theory, energy 3=3715
 gravitation theory, experimental tests 4=14026
 gravitational field, relative localization 2=19395
 gravitational field, relative localization 3=1590
 gravitational field theory, Euclidian, action-integral identities 3=9329
 gravitational field theory, Euclidian, energy—momentum 3=9330
 gravitational field treatment using relativistic Dirac eqn. 1=9307
 Hamiltonian formalism for classical particles, rel. to interactions 4=5030
 Hamilton—Jacobi eqn., rel. to quantum-mech. operators 4=11068
 heat and temp. Lorentz transformation 3=24070
 Henri Poincaré's contrib., review 4=27040
 hydrodynamics, charged nonviscous fluid 0=9161
 hydrodynamics, stationary flow, general theory 2=13303, 19414
 hyperangle, solid, geometry 4=34
 hyperbolic motion in curved space-time 0=16579
 ideal fluid, one-dimension 1 motion in 0=879
 identical twins problem 0=41,4931
 induction, in gravitational field 2=4922
 inertial reference frames, misconceptions, critique of Sherwin's conclusions 3=1587
 invariance, and Hamiltonian theories of interacting particles 4=826
 invariant groups, appl. to extended particle models 0=18919
 kinematics 0=10571

Relativity—contd

special—contd

kinematics of inertial frames 1=15618
 kinematics, quantum mechanics, book 4=8038
 kinematics, relativistic and classical, common postulates 3=16508
 kinetic theory of gas in grav. field 3=21215
 Langevin's traveller paradox 0=18916
 length contraction paradox 1=8044
 length contraction paradox 2=20,9160
 length contraction and time dilation, teaching 1=11699
 length observation, by single observer 0=16573
 light propagation and other topics 1=15615
 light propagation, space—time diagram 4=8039
 light velo., moving source, Kantor's experiment 4=2808
 light velocity change, moving source expt. 4=30
 light velocity from moving source expts. 4=24032
 light velocity, from moving source, expt. 2=19666
 light velocity, moving source independence, exper. data 0=18922
 light, velocity from moving source, interpretation of Kantor's expt. 4=11038
 light, velocity, postulate on independence of source motion, confirmation 4=8365
 light velocity, proposed test of constancy 2=2612, 21805
 linear relativistic Hamiltonian and the e. m. field 1=60
 Lobachevskii's kinematics and geometry 4=18
 Lorentz contraction obs., light finite velo. effects 3=18710
 Lorentz contraction, possibility of photographing 1=11698
 Lorentz contraction, possible observation by pulsed radar 1=2685
 Lorentz contraction, stress effects 3=11681
 Lorentz contraction, theory of moving metre stick and camera expt. 1=9313
 Lorentz—Einstein transformation, vector method 2=19400
 Lorentz frames, geometric representation 3=21218
 Lorentz and Galilean transformations 4=11037
 Lorentz group irreducible representations 4=805
 Lorentz group, restricted, generalized factorization, isobaric space operators 2=16127
 Lorentz invariance, rel. to unitarity equiv. of fields 2=3239
 Lorentz, invariant eqns., motion of points 0=2103
 Lorentz-invariant linear eqns., analytic solns. 3=3728
 Lorentz transformation alternative derivation 2=2610
 Lorentz transformation coordinates, space—interval meas. 1=1692
 Lorentz transformation, derivation 4=14033
 Lorentz transformation, deriv. in one dim. 4=5028
 Lorentz transformation, geometrical representations 4=16020
 Lorentz transformation, teaching aid to illustrate 3=23748
 Lorentz transformation in undergraduate curriculum 3=14004
 Lorentz transformations, general, axiomatic deduction 3=32
 Loretz contraction, invisibility 0=2102
 mass concept, longitudinal and transversal 4=8042
 mass-zero eqns., norm. invariance under conformal group 4=18040
 Maxwell equations, nonuniformly moving media 2=15467
 Maxwell—Lorentz eqns., free-space bounded plane-wave solns. 4=21643
 measurement, basic concepts, rel. to Michelson—Morley experiment 4=32
 measurement in moving systems, theory 2=11255
 mechanical foundation 0=16576-7
 mechanics, particle, generalization of Lagrangian formulation 4=35
 Michelson—Morley experiment, alternative deduction 2=21806
 Michelson—Morley experiment, alternative deduction 3=5345
 Michelson—Morley type expt. using i.r. masers 4=11042
 Minkowski space closure 4=14032
 momenta, addition law, for interaction 3=5342
 moving body, coords. nonsimultaneously meas. 4=27041
 moving circuits and magnets 1=5189
 moving gas hydrodynamics, with radiation 2=1566, 11767
 moving light-sources and objects, observation 3=7101
 multipole moments, rel. to X-ray scattering by particle of arbitrary mag. moment 3=23749
 non-selfconsistency, theory 3=21513

Relativity—contd**special—contd**

- one-body problem, Hamiltonian—Jacobi differential eqns., variable separations 4=5033
- one-particle dynamics 4=33
- origins 0=12354, 16574
- oscillator with natural forcing functions 1=10408
- oscillator, nonlinear, damping effects 4=8041
- paradoxes, geometrical approach 3=21219
- particle gravity field 0=2101
- particle interactions, spinless, quantum theory 4=8077
- particle mechanics, four-dimensional canonical formulation 1=9314
- particle, spinning, radiation damping calc. 2=13729
- particles travelling faster than light 3=33
- philosophy, bearing on history of science 4=27039
- physical meaning 0=16575
- Planck's constant invariance in Palacios's relativity 1=18258
- principles of relativity and equivalence 4=24041-2
- proper mass, positive, negative, imaginary 3=7092
- pseudospinor, existence 0=6657
- quantization of free e.m. field 0=18920
- quantum geomerty, spacelike hypersurfaces 2=19420
- quantum mechanics, quaternionic 4=5059-60
- quantum theory, position and polarization operators 4=8062
- radiation irreversibility rel. to expansion of universe 3=16322
- reaction systems, asymmetry of time scales 0=6658
- re-entrant motion 4=5031
- re-entrant motion and clock paradox 3=16507
- re-entrant motion, Phipp's analysis criticism 4=2534
- reference frames, Newtonian and Galilean, comparison 1=6770
- relativity of uniform motion 1=58
- rest mass of a free particle 1=59
- revised theory 0=10574
- rigid-body translations, relativistic 3=14005-6
- rigid frames of reference 0=3441
- rigidity in accel. frames, and proper time 4=29524
- rigidity criteria for one-dim. translations 4=14035
- rocket dynamics 0=18923
- rotating disk, edge velo. 3=9336
- rotating fluid mass, near light vel., neutrino eqn. 1=8043
- rotating systems, ray-paths 4=2533
- rotation and deformation velocity considerations 0=2104
- rotations, Lorentz transformations, homomorphisms 4=27042
- rotators, Lie relations 0=16578
- second postulate 4=11041
- second postulate, expt. evidence 2=9161
- second postulate, terrestrial test 4=18373
- shock waves in an ultra-relativistic fluid 4=5279
- signal propag. in positive definite Riemannian space 4=16023
- skew tensors, algebraic properties 2=15989-90
- space-time discontinuum in $h-c-l_0$ theories 3=9328
- space-time geometry, rel. to elem. particles theory 2=11861
- space-time, macroscopic and microscopic concepts 3=5340-1
- spin, inertial tensor deduction from Dirac theory 2=3252
- spinning particles, Lorentz-covariant position operators 4=2555
- spinor, in Minkowski space 0=9275
- statistical mechanics of continuous media 2=19450
- super-light motion, generalized theory 1=15613
- superlight signals, and superlight sound propag. 4=16022
- teaching demonstration, relativistic electrons, speed and k.e. 4=21023
- teaching of length contraction and time dilation 1=11699
- temporal reversal of events 1=1688
- terrestrial ether drift, first-order 2=1055
- test proposed using propagation velocity of satellite signals 4=8930
- tests using masers, optical ring, travelling-wave 3=9401
- time dilation formula, proof using photon clocks 3=9333
- time dilatation meas., by Mössbauer effect 4=31
- time dilation meas. using μ -mesons 3=11680
- time gradient as fundamental magnitude 3=16505
- time interval meas. by single observer 1=11696

Relativity—contd**special—contd**

- time meas., in accelerated frames, review 3=18712
- time measurement 0=10575
- transformation, general inertial, rel. to kinematics 2=7125
- transformations, class of 0=14497
- transformations between moving observers, integrable 3=3726
- transformations of new fundamental group 1=12798
- two-particle system, kinematics 3=11674
- ultra-relativistic waves, propagation theory 1=18439
- ultra-relativistic waves, propagation theory 2=7233
- uniformly accel. motion, conformal coordinates 1=4247
- variational principle, homogeneous, with third-order derivs. 2=19399
- velocity, light, effect of receiver velocity 3=7303
- velocity, light, Einstein's postulate test, comments 3=23996
- velocity of light emitted by moving source 1=11697
- velocity, light, moving source, Kantor's expt., explanation 3=18957
- velocity of light, one-way, 2nd order constancy 3=5344
- velocity meas., light, moving sources 3=18958
- velocity of one-way light signal suggested as test of theories 1=4246
- velocity transformation, geometrical demonstration 3=23747
- visual appearance of rapidly moving objects 0=18915
- wave propagation, space and time isotropy 3=5332
- unified field theories**
 - asymmetric, generalization of equations 0=10587
 - asymmetric metric 0=2095
 - Birkhoff's theorem, extension to e.m. fields 1=18256
 - causality and multiply-connected space-time 3=20
 - charged particle mass, 2-particle interaction, Einstein-Infeld model 0=12364
 - commutators in n-dimensions 4=16030
 - conservation identities 1=1696
 - constrained fields, canonical formalism 2=11270
 - Coulomb's law basis 3=7108
 - covariant, quadratic Lagrangians, gauge invariance 0=16596
 - degenerate cases of the first class 4=14044
 - differential invariants of Maxwell field 1=1697
 - differential varieties whose coordinates belong to a quadratic extension of the real field 3=14018
 - effect of mag. dipole on gravitational field 1=15655
 - Einstein, composite field 3=1602
 - Einstein, composite field, grav. eqns. 3=3738
 - Einstein eqn. in terms of $*g^{\lambda\mu}$ 3=9340
 - Einstein, field equations 0=6671
 - Einstein, mathematical aspects 0=10585
 - Einstein-Maxwell equations, symmetries 2=11271
 - Einstein-Maxwell field, initial value problem 0=18934
 - Einstein-Maxwell field eqns., soln. for uniform e.m. field 0=2111
 - Einstein, modified version 0=18933
 - Einstein-Schrödinger, approx. field eqns., from action density 0=870
 - Einstein-Schrödinger, energy-momentum pseudo-tensor, current theory 0=16594
 - Einstein-Schrödinger, equations of motion of particle 1=6778
 - Einstein-Schrödinger, generalized, approx. 0=16593
 - Einstein-Schrödinger, generalized, with connection of zero torsion 4=24055
 - Einstein-Schrödinger theory, interpretation 1=10415
 - Einstein-Schrödinger type 4=24056
 - Einstein-Schrödinger, type, conservation identities 0=16592
 - Einstein-Schrödinger's 2=27
 - Einstein-Schrödinger's curvature tensor discontinuities 2=19417
 - Einstein-Schrödinger's, discontinuities of curvature tensor 2=9179
 - Einstein-Schrödinger's, rel. to gravitation effect of spin 2=1052
 - Einstein-Schrödinger's, problem of movement 2=9181
 - Einstein space under extended Lorentz transformation group 4=16029
 - Einstein, total radiation 0=6673

Relativity—contd**unified field theories—contd**

- Einstein, wave solution of field equations 0=14506
 Einstein's, composite electron-e.m. wave field 2=21815
 Einstein's connections in nonholonomic frame 4=21033
 Einstein's, degenerate cases of the first class 2=13257
 Einstein's, field eqns. I and II (singular cases), soln. 2=21814
 Einstein's field equations, particular solutions 3=16517
 Einstein's, orbit perihelion shift 2=9182
 Einstein's, spherically symmetric solns. 2=2622
 Einstein's theory, wave fronts 1=15662
 Einstein's theory, wave fronts 1=6776
 Einstein's theory, wave fronts and Maurer-Tison characteristic surface 1=6777
 Einstein's theory, wave solution 1=18252
 electric dipole motion, by Einstein's theory 0=6675
 electrodynamic eqns. of motion, with radiative reaction 0=11016
 electrodynamics, nonlinear, in gen. relativity 1=6775
 e.m. fields in homogeneous nonisotropic universe 4=10792
 electromag. field, non-singular, associated with Bonnor vacuum grav. field 3=16519
 electromagnetic fields, singular, in presence of induction 4=47
 electromagnetic fluid field 4=48
 e.m. sources in gen. relativity 1=11700
 elementary particle eqns. in curved space-time 1=2697
 elementary particles, development 3=12382
 Finslerian unified theory 1=15656
 five-dimensional, stellar charge correl. 0=10512
 Fock's harmonic coordinate systems, uniqueness 2=2624
 fundamental constants and trajectories 2=11272
 gauge invariance and Lorentz ponderomotive force 0=14508
 generalization of Born-Infeld electrodynamics 4=8054
 geometrical theory 1=8050
 geometrostatics, interaction energy 3=16518
 "gh field" theory of Djuric, reply to criticism 3=5351-2
 gravitation and e.m., using action function 3=1603
 gravitation and electromagnetism, unified field theory 1=2693
 gravitational and e.m. waves, unified theory, from gik tensor 1=11701
 gravitational-electromagnetic coupling and the classical self-energy problem 0=18935
 gravitational field, effect of mag. dipole 2=13256
 gravitational and meson field eqns., combined solution 1=4256
 Grosjean, principles of semi-metric geometry 2=13258
 H_{33} term in theory of photons, gravitons and Dirac particles 3=9341
 harmonic condition 2=4930
 indefinite metric 2=11853
 inertial fields, linear vector theory 2=4928
 inhomogeneous transport equations, explicit solution 1=6773
 invariant variation, theory, and generalized canonical dynamics 0=10589
 Jordan-Thiry, eqns., derivation by energy-momentum tensor method 0=6677
 Jordan-Thiry eqns., static solns. 3=11685
 Jordan-Thiry equations, solutions, spherically symmetric, $k \neq 0$ 3=18722
 Jordan-Thiry, 5-dimensional, singularities 0=3446
 Jordan-Thiry, gravitational case with unchanged matter 1=1695
 Jordan-Thiry, linear approx., quantization 0=12363
 Jordan-Thiry, quantization 0=10586
 Jordan-Thiry theory, equations of motion 1=9321
 Jordan-Thiry theory, identities and conservation laws 1=2695
 Jordan-Thiry theory, two-body problem 1=15660
 Jordan-Thiry's, perfect fluid distribution 2=9180
 Kaluza-Klein, cosmological models, static, spherically symmetrical 4=46
 Kaluza-Klein's five-dimensional theory, eqns. of motion 2=2623
 light-ray paths, nonsymmetric field V_4 2=9178, 19418
 matter representation 0=10581
 Maxwell field, geometrical representation in Minkowski space 0=7196

Relativity—contd**unified field theories—contd**

- meson fields, six-dimensional theory 4=3319
 meson scalar field, in Jordan-Thiry theory 3=23759
 modified five-dimensional theory avoiding difficulties of Jordan-Thiry theory 1=2694
 motion in five-dimensional space 2=4929
 multistate system, open first-order stochastic processes 0=16613
 non-symmetric field, Einstein's theory 0=8549
 nonsymmetric, problem of motion 1=15663
 non-symmetric theories, generalized plane wave solns. 1=12800
 particle model, classical, with variable grav. coefft. 2=19393
 particle motion, eqns. 0=2096
 particle motion, integrability conditions 0=6674
 particle trajectories 1=18253
 particles of spin 2, 1 and 0, 5-dimen. representation 1=18255
 physical bases 1=15658
 plane-wave solutions of field eqns., comparison with general relativity 0=12362
 Poisson brackets, field with linear Lagrangian 2=7136
 projective invariance, in non-symmetric theory 0=16595
 projective theory, metric spin tensors, axiomatics 0=18939
 propagators, singularity, structure of space-time 2=26
 quantum mechanics in curved space-time 1=2697
 quantum-relativistic for interacting fields, macroscopically causal, possibility 3=11686
 quantum theory, relativistic, as a group problem 2=4931
 Rayski, baryon interact. with grav. and e.m. fields 3=4334
 Rayski, vector boson field eqns. 3=3737
 Rayski's, gravito-electromagnetic field eqns. 2=2621
 in relation to theory using linear differential forms 2=5435
 relativistic rotors and elementary particles 1=3122
 Riemann tensor splitting 3=5353
 rotators, relativistic, similarity with Yukawa's bilocal theory 1=2696
 second quantization and Lorentz invariance 1=3113
 semi-metric geometry, principles, applications 2=19416
 simplifications 3=18723
 six-dimensional world, with singular metric 0=18937
 spherically symmetric solutions 0=6672
 static electromag. fields in gen. relativity 1=18254
 static spherically symmetric soln. in 5-dimensional theory 1=15657
 summary of 1934-44 developments 3=14017
 using tetrad vector field 4=18060
 theorem with non-symmetric $g_{\mu\nu}$ 1=15659
 Tonnelat's generalization, conservation identities 0=15691
 two-body problem, Schrödinger eqn., relativistic, in three variables 1=15684
 unification of quantum physics with general relativity 1=11702
 variational theory eqns. 1=15661
 wave propagation, in nonlinear fields 0=10590
 "weaker" equations, general static soln., spherically symmetric 0=14507
 wormhole, charged, ideal, oscillatory character of Reissner-Nordstrom metric 0=18938
 wormhole initial conditions, from source-free Einstein eqns. 0=10588

Relaxation

- See also Acoustic wave propagation; Dielectric phenomena; Elastic relaxation; Ferroelectric phenomena; Ferromagnetic relaxation; Molecules, relaxation; Nuclear magnetic resonance and relaxation; Paramagnetic resonance and relaxation
 acoustic absorpt. and velo., non-linearities 4=14281
 atmospheric gases, shock waves, thermodyn. theory 2=2756
 binary solid solutions, under strain, thermodynamic theory 1=11575
 Casimir coeffs. and minimum entropy prod. 0=14643
 cyclopropane, viscothermal and thermal relaxation 4=24271
 density operator theory 1=12815
 dielectric, theory review 4=28605
 dielec., time con., Cole-Cole calc. 4=29854
 dipolar liquids at 3 cm 1=6870

Relaxation—contd

- dipole orientation, in organic liquids, from light scattering 3=7207
 dispersions, symm. reln. theorem 4=14016
 ethylene, viscothermal and thermal relaxation 4=24271
 ferrites, magnetic relaxation spectrum 1=17976
 free-precession signal decay from mag. dipoles in a fluid 1=4693
 gas mixture, behind shock wave, entropy 2=9301
 gas mixtures, relaxation phenom. 1=15953
 gas of rough spheres, effects in transport props. 3=9495
 gas systems, non-equilib. 2=11416
 gases, meas. by shock recompression near obstacle 4=14212
 gases, polyatomic 2=1206
 gases, thermal relaxation 2=1198
 high polymers, mech., dielectric and n.m.r. relaxation 1=15165-7
 isolated ensemble of harmonic oscillators 0=14525
 liquids, dielectric relaxation 1=9404
 in liquids, vibrational 1=4322
 Markovian, canonical distrib., exact preservation conditions 4=16060
 mechanical, dielec. and mag. 2=6511, 13527
 mechanism, in soft mechanical testing machines 1=14892
 methane, viscothermal and thermal relaxation 4=24271
 microsystems, polarized, in external field 1=1711
 PVC, similarity of acoustic and dielectric 4=15419
 particle system, general theory 2=19453
 phase transforms., second order, slowing, microscopic mechanism 4=16289
 plasma, ion velocity distrib., theory 3=4111
 plasma, one-species, one-dimensional, thermal 4=14629
 polytetrafluoroethylene 1=12563
 quantum systems 3=21255
 quantum theory 2=13270
 quantum theory 3=5373
 quantum theory 4= 29566
 Redfields' semi-classical theory 4=21053
 responses of systems, comparison with dielectrics 4=14559
 shock front discontinuities 4=14281
 solids, near second-order transition pt., theory 2=23805
 solids, time-dependent tensile strength 0=11983
 by spin-exchange collisions 4=22322
 spin relaxation, Fokker-Planck eqn. 3=1623
 statistical treatment, rel. to temp. 2=11250
 tetradeuteromethane, viscothermal and thermal relaxation 4=24271
 theory, new method 4=2526
 thermodynamic theory 1=5209
 thermodynamic treatment 1=18329
 time distribution functions, for thermally activated processes 2=2597
 two-spin system, theory 3=1624
 ultrasonic, in polyatomic gases and vapours, meas. 1=8162
 vacancies in solids, as method of study 2=14429
 variation principle, extremum problem 1=4287
 viscoelastic materials, creep and relax. contraction ratio 4=23094
 weak coupling between system and thermostat 1=18319
 Be bronze, abnormal stress relaxation 4=7413
 Br, and acoustic absorption, liquid and solid 3=9458
 Ce-Al₂O₃ interface, elec., slow 4=25994
 He³ liquid, longit., n.m.r. meas., solid He effects 4=16316
 Hg¹⁹⁹, thermal, on walls of molten SiO₂, transverse, u.v. irradi. effects, n. m. r. obs. 4=24272
 MuS, α green, dipolar, due to adsorbed S 4=20406
 NaCl, due to impurity-vacancy complexes 4=28983
 O¹⁸, in ice, and defect, new type 3=6512
 ThO₂-CaO solid solution, dielectric and mechanical 3=20700

Resistance, electrical

- See also Conduction, electrical; Conductivity, electrical; Contact resistance; Magnetoresistance; Piezoresistance.
 a.c., for conductors of arb. cross-section 3=16900
 actinide elements, pressure-temp. effects 4=7500
 alkali antimonides, 200 A thick rel. to formation time 3=25351
 alkali metals, at low temp., theory 1=17439
 alloys, binary, effect of order 0=17986-7

Resistance, electrical—contd

- alloys, binary, formation of intermetallic cpds. 0=16354
 alloys, binary residual resistance 1=5002
 alloys, dilute, quenched-in 4=12848
 alloys, local order rel. to interference effects 4=25998
 alloys, Nordheim's theory, extension 0=1614
 alloys, ordered, theory, review 4=1555
 alloys, paramagnetic, dilute, minimum, theory 1=12411
 alloys of type Cu₃Au, influence of ordering, theory 1=19827
 anisotropic media, electron scatt. effects 3=25316
 antiferromagnetic, spin wave interaction with cond. electrons 1=5000
 brasses, abnormal, criticism of conclusions 3=15535
 bridge circuit, four-terminal, resistors comparison 2=17737
 bronzes, Al, abnormal, criticism of conclusions 3=15535
 conductor with elliptic cross-section for axial direction of a.c. 1=18747
 copper phthalocyanine, crystals, effect of halogens 3=6593
 diode, diffused parametric, series resist. 4=28593
 dislocations in metals, resistivity rel. to ideal resistivity 4=6843
 dividers, d.c., calibration by a.c. inductive divider 3=21673
 electrolytes, symmetrical, hydrodynamic and osmotic terms in relaxation field 4=10643
 Evan ohm wire, minimum, 15° to 20°K 4=30608
 ferrites, variation with field, temperature 0=6244
 ferroelectric ceramics with positive temp. coeff., current regulation 3=25395
 ferromag. films, at low temp., mag. field depend. 0=9937
 ferromagnetic alloys, theory 4=26001
 ferromagnetic dilute alloys, electron impurity scattering 4=4108
 ferromagnetic films, standing spin-wave excitation 0=21035
 ferromagnetic metals, electron localization 4=4113
 ferromagnetics, rel. to Hall coeff. 4=12846
 ferromagnetics at low temp., magnetic contribution 3=15532
 films, during deposition 0=8288
 galvanic cells, a.c. meas., characteristic curves 0=10352
 graphite crystal compounds 1=1015-16
 graphite, effect of neutron irradiation 1=17586
 graphite, 20-200°C, $3 \times 10^4 - 2.5 \times 10^6$ kg/cm² 3=6557
 graphite, 290°-420°K, atmospheric to 9000 atm. 4=6926
 graphite, neutron-irrad. effects 4=30599
 high pressure resistance cell 1=8288
 high resistance meas. by ionization chamber 1=16205
 high (10^{12} - 10^{14} ohms), using ionisation chamber as current source 1=8287
 hot wire, in ultrasonic field, changes due to cooling 0=16797
 induction method to meas. low resistances 3=19126
 inert gases, negative resistance 3=21449
 Liebman mesh adjacent points 4=24528
 liquid alkali metals, rel. to specific volume 4=14182
 liquid metals 4=29645
 liquid metals, theory 1=18428
 liquid Na, Li and Na solutions 1=5283
 between lubricated contacts 1=14930
 magnetite, temp. depend. 0=18000
 meas., for metals in bulk, a.c. induction methods 1=7004
 meas., semiconductors 0=3707
 meas., to 10^{13} ohm, using low-current source 1=16249
 measurement, in abs. units 2=1344
 measurement, d.c. induction method 2=2965
 measurement, effect of capillary constraints 3=7410
 measurement of high, ballistic galvanometer 3=24163
 measurement, linear ohmmeter, 10^{-2} - $2 \times 10^9 \Omega$ 3=16884
 measurement at low temp. and high pressures 4=16394
 measurement, pulse method for up to $10^{10} \Omega$ 4=16395
 measurement, semiconductors, 20 c/s - 20 kc/s, apparatus 0=19586
 measurement, 10^7 ohm, ionization chamber source 2=1346
 metal contacts, tunnel resistance 3=15537
 metal at edge dislocation 1=968

Resistance, electrical—contd

metal film resistors, prep. 0=8287
 metal films 3=15537
 metal films, on adsorption of H 4=2133
 metal films, rel. to deformation 1=8924
 metal films, effect of adsorption 2=3984
 metal films, resistance—strain characteristics 3=22902
 metal films, var. with deform. direction and thickness 4=4107
 metal lattice, residual resistivity of defect pairs 3=8486
 metal thin films 4=22660
 metallic filings, effect of nearby spark 1=16242
 metals, rel. to defect-induced electron-phonon interactions 3=22674
 metals, effect of neutron irradiation 1=10021
 metals, films, effect of adsorption of electropositive atoms 3=13040
 metals of high purity 3=15531
 metals, monovalent, at low temp. rel. to applied magnetic field 1=17624
 metals, pressure coeff., rel. to polymorphic transformations 2=618
 metals, rel. to temp., meas. simultaneously with X-ray diffraction pattern 1=10247
 metals, thermal vacancies, ion change 2=8206
 minimum, in dilute paramagnetic alloys 0=2844
 negative, differential, due to tunnel effect 3=20298
 negative, in semiconductor devices 0=6098
 negative, in semiconductors 1=14414
 nonlinear, solution of ladder networks 0=16963
 Ohm's experimental work 3=21692
 phenazine, rel. to temp. 1=10037
 for plasma generation, variable, up to 400 A d.c. 3=9694
 plasma, moving in mag. field 0=1129
 plasma, weakly ionized, effect of electrode regions 4=8674
 plate in trans. mag. field 4=27457
 plates, thin, in arbitrary mag. field 4=441
 polymers, semiconducting 4=22732
 rare-earth metals, anomalies 2=617
 rare earth metals, anomalies, theory 1=10023
 rare-earth metals, rel. to temp. 3=25525
 rare-earth metals, theory, rel. to mag. transitions 3=13032
 rare earth—Y alloys, low-temp. 4=1565
 resin-bonded carbon, piezo-resistive effect, use for pres. meas. 3=21288
 resistivity meas. by mutual inductance method 1=16204
 resistivity transistor-based meter 1=10651
 resistor, steplessly variable, water tank type 1=2924
 rutile, piezoresistivity 0=7949
 Saran charcoal rods, rel. to adsorbed water 4=30604
 semiconducting diode, tunnel, negative, meas. 3=22964
 semiconducting layers, measurement 2=2187
 semiconducting thin layers, meas. method 4=28552
 semiconductor—insulator—metal capacitors, impedance 4=12950
 semiconductors, bridge circuit for measurement 1=9518
 semiconductors, meas. at high frequencies 4=17485
 semiconductors, non-ohmic behaviour, acoustoelec. current 3=2876
 silicone polymer thin films, 500-2500 Å, negative 4=22768
 sodium tungsten bronze 1=11259
 solid cylinder with concentric spherical cavity 1=10485
 solids, impurity, theory 3=22885
 strip conductors with rt.-angle bend 3=9712
 sulphide films, dark resistivity 4=20810
 suspension, and particle size 4=10655
 tetracyanoquinodimethane, pressure effect 296°K 4=30602
 thermistor using BaTiO₃ 1=14494
 thermistors, as l.f. circuit elements 4=18641
 thermistors, l.f. wave filters 0=12572
 thermo e.m.f. rel. to 3=23025
 thin film resistances 1=6441
 toroidal coil, reduction by var. cross-section 4=18656
 tunnel diode negative resistance measurement 1=7661
 unit, meas., review, absolute, rel. to international 3=21189
 water, measured to det. cleanliness 0=110
 Wheatstone bridge, high resolution type 1=263
 Wheatstone bridge, precision type 2=1345
 wires, in arbitrary mag. field 4=441

Resistance, electrical — contd

A plasma jet 2=1459
 Ag binary terminal solid solns., temp. coeff. 4=22685
 Ag, effect of solutes on resistance minimum 0=20862
 Ag films 4=13674
 Ag films, effect of O₂ 4=26014
 Ag films, on glass and quartz, temp. depend. 1=2548
 Ag films, variations, causes, at -130° C 1=17614
 Ag, in point defects study, review 1=14249
 Ag, surface resistance 1=6201
 Ag whiskers, rel. to temperature 4=4124
 Ag wires, cold-worked and annealed 2=4335
 Ag—In, anelastic piezoresistance 4=12847
 Ag—Pd alloys, residual resistance 1=5002
 Ag—Pd, at low temp. 0=9942
 Ag—Zn, anelastic piezoresistance 4=12847
 Al alloys, at low temp. 0=6083
 Al films, rel. to oxidation thickness change 4=20801
 Al, 14-655° C, rel. to vacancy conc. 0=4315
 Al, in magnetic field up to 27 kOe, 4.2° and 20.4°K 4=28528
 Al oxide films, negative resistance 3=20321
 Al, rel. to plastic stretching at 78°K 1=11252
 Al, recovery 60° to 200°K, rel. to cold-working in liq. H₂ 4=12850
 Al, stage I recovery from neutron-irradiation 4=4097
 Al, rel. to vacancies, dislocations, and stacking faults 3=22891
 Al—Mg dil. alloys, rel. to vacancy—impurity interaction 3=22746
 Al₂O₃, effect of H-ion bombardment 0=20865
 Al₂O₃ films, negative 4=22760
 Al₂O₃ films, voltage depend., tunnelling 1=3731
 Al—Sn dil. alloys, rel. to Sn—vacancy interactions 3=22744
 Al—Zn, short-range order effects 1=14354
 Au, effect of solutes on resistance minimum 0=20862
 Au, exploding wire, behaviour at different current densities 1=16300
 Au films and contacts 3=15537
 Au, rel. to lattice vacancies 3=22883
 Au, low-temp. minimum, effect of plastic deformation 0=2847
 Au, monocrystals, meas. by a.c. method 0=1611
 Au, in point defects study, review 1=14249
 Au, stage I recovery from neutron-irradiation 4=4097
 Au, surface resistance 1=6201
 Au, rel. to vacancy density 1=3654
 Au, rel. to vacancy density 1=7577
 Au—Ag alloys, quenched-in 4=12848
 Au and Ag at low temp. 1=7615
 Au—Cu and Au—Cu—Ni alloys 0=4373-4
 Au—In alloys, quenched-in 4=12848
 Au—Mo, at low temp. 0=9942
 Au—Pd, at low temp. 0=9942
 Au—Rh, at low temp. 0=9942
 B, rhombohedral, 77-2000°K 0=560
 Ba, vs. pressure, 4-lead meas. system 4=30612
 BaTiO₃ ceramics, temp. var., anomalous, -180° to +200° C, intergranular barrier model 3=25399
 Be films, condensed on cold substrates, modifications 1=15179
 Be, resistivity, rel. to temperature 4=1561
 Bi, non-ohmic behaviour, acoustoelec. current 3=2876
 Bi, pressure effect 4=28760
 Bi, surface resistance and Fermi surface 2=2071
 Bi, thin films, temp. coeff., thickness depend. 0=10027
 Bi, vs. pressure, 4-lead meas. system 4=30612
 Bi and Bi—Sb alloys, var. with grain size 3=20323
 Bi—Te solid solutions, 77°-300°K 4=10045
 Bi₂Te₃, piezoresistance, deformation potl. and conduction band ellipsoids 0=17989
 Bi₂Te₃, rel. to pressure 4=10044
 Bi₂Te₃, rel. to pressure up to 200 000 kg cm⁻² 4=1616
 Bi Ti₂O₁₂ single crystals 4=23335
 C, fixed cracked resistors, current noise 1=7088
 C, rel. to low-temp. thermometry 1=2909
 C, thermometer, rel. to magnetic field at low temp. 1=10625
 Ca ferrite, Y₂O₃-doped 4=6951
 Cd films, rel. to adsorption 4=20326
 Cd, rel. to impurity 3=25324
 CdS, electron irradiated, intercrystal energy barriers 0=604
 CdS films, formed by co-evaporation, increase 4=29183

Resistance, electrical—contd

CdS films, vacuum-deposited 4=20805
 CdTe, rel. to pressure up to 200 000 kg.cm⁻² 4=1616
 Ce, effect of high pressures 1=14356
 Ce, effect of high pressures 1=17604
 Co, low temp., effect of domain structure 4=28529
 Co—Pt alloys, rel. to prelim plastic deformation 4=22981
 Co—WC 1=9144
 Cr films, residual resistivity, rel. to imperfections 4=20329
 Cr, influence of alloying 1 at. % V, Mn, Fe, Co or Ni 0=13844
 Cr—Fe alloys, temp. depend. 0=7910
 Cr₂O₃, effect of impurities of equal or lower valency 4=28612
 CrTe_x 3=23464
 Cs films, thickness depend. 0=1615
 Cs, liquid 1=15900
 Cs—Bi, thin films, rel. to structure 1=15142
 Cu alloys, with Cd, In, Sn, Sb, annealed, rel. to internal adsorption 0=14064
 Cu, effect of solutes on resistance minimum 0=20862
 Cu films, condensed on cold substrates, modifications 1=15179
 Cu, plastically deformed, temp. depend. 1=14358
 Cu, in point defects study, review 1=14249
 Cu, residual resistance at 4.2°K 1=6124
 Cu, residual resistance, theory 0=9292
 Cu, strip cold rolled from powder, along and across rolling direction 3=22900
 Cu, surface resistance 1=6201
 Cu whiskers, rel. to temp. 4=4116
 Cu—Al neutron irradiated 1=19821
 Cu—Au alloys, at low temp. 1=17606
 Cu₃Au 1=11255
 Cu₃Au, after quenching, long-range order 3=20889
 Cu₃Au, annealed, above critical temp. 2=2110
 Cu₃Au, short-range order effects 1=14354
 Cu and Cu alloys, rel. to stacking-fault electron scattering 3=22785
 Cu—Fe alloys 1=17413
 Cu—Mn, anelastic piezoresistance 4=12847
 Cu—Mn, temp. depend. 0=20868
 Cu—Ni alloy 0=4373-4
 Cu₂Pd alloys, residual resistance 1=12653
 Cu—Si—(Mn) alloys, rel. to deformation and annealing 3=22701
 Cu—Zn, anelastic piezoresistance 4=12847
 Cu—Zn, residual resistance 0=6024
 Dy films, spin-ordering effects 3=15547
 Dy, temp.—press. range 77° to 200°K and 15 to 120 kbar 4=30607
 Dy, vs. pressure, 4-lead meas. system 4=30612
 Er, vs. pressure, 4-lead meas. system 4=30612
 Eu, vs. pressure, 4-lead meas. system 4=30612
 Fe, effect of domain structure at low temp. 0=2846
 Fe, effect of pressure 0=11831
 Fe films, condensed on cold substrates, modifications 1=15178
 Fe, low temp., effect of domain structure 4=28529
 Fe, pure and doped, rel. to neutron-irrad. 4=12857
 Fe, vs. pressure, 4-lead meas. system 4=30612
 Fe wires, hydrogen-charged 3=10721
 Fe—Al alloys 0=20867
 Fe—Al alloys, rel. to short-range order 1=19828
 Fe—Al alloys, temp. depend. anomalies 1=12412
 Fe—Cr alloys, rel. to magnetic props. 0=4480
 Fe in Cu alloy, minimum 0=20861
 FeCr, short-range order effects 1=14354
 Fe—Mo alloys, resistivity, rel. to quenching temp. 4=1949
 Fe—Ni alloys, effect of pressure 0=11831
 Fe—Ni alloys, under isotropic compression at low temp. 0=13775
 Fe and Ni films evaporated in mag. fld, anisotropy 3=4120
 Fe—Ni films, rel. to magnetic field direction 4=28532
 Fe—Si, transverse effects 0=11666
 Ga, vs. pressure, 4-lead meas. system 4=30612
 GaAs_{1-x}P_x semiconducting p-n junctions, temp. var., direct—indirect transition 3=25377
 GaP crystal from vapour phase 1=20418
 GaP, n-type, rel. to temp. and press. 1=17735
 GaSb, n- and p-type 1=17733
 GaSb, n-type, rel. to press., 200°–400°K 1=17735

Resistance, electrical—contd

(90%)Ga₂Se₃—(10%)GaSe, anomalies 1=10072
 GaSe, rel. to temp. 4=12879
 Gd films, spin-ordering effects 3=15547
 Ge, As-doped 1=10042
 Ge, As-doped 1=17688
 Ge, effect of pressure and carrier mobilities 1=1056
 Ge, films, in ultra-high vacuum and acceptor levels 3=20309
 Ge, rel. to low-temp. thermometry 1=2909
 Ge, negative resistance characteristic, oscillations in mag. field 4=12897
 Ge, by photoconductive investigation 1=11325
 Ge, by photoconductive investigation 1=17801
 Ge, piezoresistance 0=6092
 Ge, thin films, 0=586
 Ge—GaAs n-n heterojunction, rel. to junction bias 4=12926
 GeSe, (100°–800°K) 1=8953
 Hg plasma, impedance characteristics 2=1425
 I, effect of pressure 1=10050
 I₂, up to 200 000 atm 1=3729
 In, rel. to impurity 3=25342
 In, surface impedance at 3000 Mc/s 1=14361
 InP, n-type, rel. to temp. and press. 1=17735
 InP, pressure depend., at 77 and 300°K 0=4362
 InSb, rel. to temperature—pressure phase diagram 3=20771
 K, changes at He temp. in pulsed mag. fields 4=4121
 K, films, thickness depend. 0=1615
 K, residual resistance, strain dependence 0=20870
 KCl, a.c. polarization effects 2=2112
 La, effect of high pressures 1=14356
 La, effect of high pressures 1=17604
 Li ferrite—chromite, 20° C to Curie pt. 4=4383
 Li, pressure coeff. at low temps. 3=22895
 Mg alloy, at low temp. 0=6083
 Mg, anisotropy in mag. field at 4.2°K 1=3726
 Mg—Mn dilute alloys, temp. depend. up to 33°K 0=17999
 MgO, effect of H-ion bombardment 0=20865
 Mn—Zn alloys, temp. depend., liq. H₂ and He temp. 0=6084
 Na₂WO₃, single crystals 2=2116
 16% Nb—Zr alloy, 475°–575° C, rel. to $\beta \rightarrow \alpha$ transform. 4=23281
 Nd, effect of high pressures 1=14356
 Nd, effect of high pressures 1=17604
 Ni binary alloys, short-range order effects 1=15128
 Ni, during film formation, effect of elec. field 0=8283
 Ni, effect of pressure 0=11831
 Ni films, with adsorbed H 1=11599
 Ni, films, effect of adsorption of Ba 3=13040
 Ni films, effect of annealing 1=10027
 Ni, films, effect of O₂ and BaO adsorption 3=20271
 Ni films, evaporated, rel. to thickness 4=17477
 Ni, low temp., effect of domain structure 4=28529
 Ni, after plastic deform. 3=20206
 Ni, Raney, diaphragm resistance 4=26758
 Ni wire, effect of ambient gas pressure 1=7613
 Ni—Au, decomposition study 0=14075-6
 Ni—Co alloys, after plastic deform. 3=20206
 Ni—Cr film resistors, stabilization rel. to annealing effects 4=26562
 Ni—Cr films on ceramic, temp. coeff., -55° to +150°C 1=8926
 Ni—Cr films, temp. coeff. 2=2120
 Ni—Cr films, vacuum-deposited on glass, rel. to thickness and composition 4=20809
 Ni—Cr solid solutions, rel. to composition 1=5034
 Ni—Cr—Fe alloys, 20–900° C, Lorentz number calc. 4=15424
 Ni₂Cr, anomalous 1=7612
 Ni—Cu alloys, effect of pressure 0=11831
 Ni—Cu alloys, rel. to magnetization 0=6074
 Ni—Cu alloys, after plastic deform. 3=20206
 Ni—Fe alloys, rel. to deformation and tempering 4=7437
 Ni_(1-x)Li_xO, room temp. to 700° C 4=12907
 Ni₂Mn alloys, residual resistance 1=12653
 NiO(Fe₂O₃)_{0.55} 1=1082
 Ni—Ta alloys 4=26273
 Ni—Ti solid solutions, rel. to composition 1=5034
 Ni—V solid solutions, rel. to composition 1=5034
 Os compounds 4=1618

Resistance, electrical—contd

- P, rel. to thermal cycling 4=10436
 P, up to 200 000 atm 1=3729
 Pb films, on glass and quartz, temp. depend. 1=2548
 Pb, rel. to impurity 3=25324
 PbS up to 200 000 kg cm⁻² 4=10061
 PbSe up to 200 000 kg cm⁻² 4=10061
 PbTe, p-type, piezoresistive effect 0=7943
 PbTe, rel. to pressure up to 200 000 kg/cm² 4=1616
 PbTe thin films 4=23583
 PbTe up to 200 000 kg cm⁻² 4=10061
 Pd and Pd-alloys, containing H, in acidic solutions 0=236
 Pr, vs. pressure, 4-lead meas. system 4=30612
 Pt, anisotropy in mag. field at 4.2°K 1=3726
 Pt, rel. to contact with H₂, air, Ar 4=10034
 Pt, low temp. precision thermometry 0=7002
 Pt-10%Rh, small diameter wires, 600-1450°C 2=1306
 Pu alloys, unusual behaviour 4=17542
 Pu, increase rel. to self-irradiation damage 3=22856
 PuC, up to 1200°C 4=4175
 Pu and δ Pu—Al rel. to order-disorder change 1=20622
 Rb films, thickness depend. 0=1615
 Re, alloyed with Au, Ag, Cu, down to liq. He temp. 4=22681
 Re alloys, pressure and temp. coefficients, meas. 1=19831
 Ru compounds 4=1618
 S, temp. var., polycrystalline 3=10839
 Sb, 90 k bars, rel. to phase transformations 4=4501
 Sc, vs. pressure, 4-lead meas. system 4=30612
 Se, dark-resistance variations, crystallization 0=10282
 Se, effect of pressure 1=10050
 Se—Ag, temp. depend. 0=10282
 Se—Pt, temp. depend. 0=10282
 SiC resistors, dynamic V-I characteristics 0=15886
 Si—SiO₂—metal diodes, S-type negative resistance and "multiple negative resistance characteristics" 4=30637
 Sn, critical resistance, at supercond. transform. 0=12563
 Sn, grey, 0.1-283°K 0=9931
 Sn, hysteresis loops, superconductivity 0=2287
 Sn, rel. to impurity 3=25324
 Sn, liq. He temp. 0=9932
 Sn, thin wires, rel. to temp. and thickness 2=2114, 23240
 Sn, vs. pressure, 4-lead meas. system 4=30612
 Sn, superconducting, surface impedance changes 4=16369
 Sn superconductor, microwave impedance rel. to direct current 4=16371
 Sn in Cu alloy, minimum 0=20861
 Ta films, rel. to sputtering time 4=20811
 Ta—C, rel. to composition 3=25368
 Ta—O, anelastic piezoresistance 4=12847
 Tb films, spin-ordering effects 3=15547
 Te, zone refined, as purity test 0=13963
 ThC, up to 1200°C 4=4175
 Ti rel. to 4 at.% Al, Mo, Cr, Re, Pd, Ta, La additions 4=22687
 TiC, rel. to vacancies 4=26017
 TiFe, temp. depend. 0=1788
 Tl, vs. pressure, 4-lead meas. system 4=30612
 U, α , anisotropy 3=22899
 UC, up to 1200°C 4=4175
 VC₂, through semiconductor-to-metal transition, rel. to press. 4=28576
 W, films, effect of adsorption of Cs 3=13040
 W, rel. to quenched-in vacancies 4=22563
 Y, single-crystal and polycrystal resistivities 1=11261
 Yb, effect of temp. and press. 3=13038
 Yb, vs. pressure, 4-lead meas. system 4=30612
 Zn, heat treatment effects 0=4569
 Zn, rel. to impurity 3=25324
 ZnTe 3=25374
 ZrSn₂, rel. to ferromagnetic transition 2=2118

Resistance thermometers

See Thermometers, resistance

Resistivity

See Conductivity, electrical

Resolving power, optics

See also Optical instrument testing

- aplanatic systems, image field structure 0=8787
 beyond Rayleigh's limit, diff. theory 4=8388
 calculated and detected images, various criteria 1=12978

Resolving power, optics—contd

- contrast transmission function 2=17589
 decision theory definition 4=16208
 diaphragmed lens, for two sources of differing intensity 1=12967
 diffraction gratings and echelles 1=1828
 effect of intensity of object and sensitivity of detector 4=18379
 electron microscopes, electrostatic, and misalignments 1=18930
 electron microscopes, impairment by image movement, causes 1=18931
 evaluation, for reconnaissance 4=14409
 exceeding of classical limit using moiré fringes 4=2818
 filters, multilayer, theory 4=14348
 human retina, with oblique incidence 0=18552
 image quality assessment, review 2=7317
 image resolution, increase by defocusing 2=5146
 improvement by simultaneous grating movement 4=5366
 information unit in optical instruments 1=18581
 Lummer—Gehrcke plate and transmission echelon, background depend. 0=8804
 magnification beyond Rayleigh's limit 3=14316
 measurement, with square-wave targets, photoelec. scanning 0=6908
 microscope, improved by mechanical pre-magnification 1=18591
 monochromators 2=7355, 17630
 monochromators, prismatic and grating, review 3=14352
 objective, with centred rectangular aperture 2=64
 in objectives, photographic, measurement 1=9494
 photogrammetric lenses, best average definition, test patterns 0=19402
 photographic emulsion, rel. to object contrast 2=15754
 photographic emulsions, effect of grain 3=5541
 photographic films, calc. 2=13465
 photographic lens—emulsion system 3=21575
 photographic lens with Mollar auxiliary lens 0=152
 photographic systems 4=27344
 radiography, microauto systems 4=14417
 relation of blur functions 1=8236
 refractometers, prism length, calc. 4=14341
 sampling theorem of second kind 0=2225
 self-radiant lines, shape resolution 4=16211
 spectral instruments 2=107
 spectral lines, of unequal intensity, in gratings, echelons and prisms 0=12490
 spectrometer, i.r., Perkin Elmer 221, improvement 4=21296
 spectrometers, high-resolution, rel. to slit and aperture size 4=8427
 spectrometers, improvement, by suppression of intermediate image 0=14825
 spectroscopic instruments 4=24369
 Strehl intensity and contrast transfer 1=16110
 super-resolution, for non-birefringent systems 4=29734
 systems with high resolving power 1=2847
 telescope, space, u.v. 2=4712
 telescope, rel. to 2 point sources of differing intensity 3=3873
 as test criterion for objectives, limitations 0=14801
 two sources with different intensities 0=8776
 in X-ray spectroscopy 4=24779

Resonance spectra

See Spectra, resonance

Resonators

- in air stream, vortex formation 0=6828
 cone, longitud. vibrations, analysis 4=8293
 crystal, whisker, mechanical, and geom. meas., Fe, 3 in. 4=2038
 cylindrical and spherical, loss factors 1=6917
 hard-spring, peak density in random response 1=9438
 hard-spring, random fatigue 1=9437
 mechanical, coupled, random response 1=2812
 optical, Fabry—Perot type, cavity theory 4=29765
 piezoelectric, thickness-mode 3=7266
 response when mounted on shock-platform 3=14247
acoustic (subheading abolished in 1963; for later entries see Acoustic resonators)
 arc lamps, standing waves 2=7347
 burners, stability 2=1296
 coupled tubes, simultaneous excitation of two frequencies 1=9443

Resonators—contd**acoustic—contd**

- cylindrical, absorption measurements 1=8186
- cylindrical, boundary-value problem, sound excitation 1=8187
- in ducts, attenuation and amplification, air-flow effects 1=8185
- edge tones, vortex theory 2=5102
- excitation and perturbation, integral theorem 0=16794
- gas columns, periodic shock waves 0=14730
- Helmholtz, absorption, for different arrangements in closed rooms 0=1023
- Helmholtz, coating duct, sound attenuation 2=2829
- Helmholtz, use in liquid bulk modulus meas. 0=8593
- Helmholtz-type, disposed about room, sound absorption 0=5119
- mode of vibration, investigation 1=16033
- organ fluepipes, mouth configurations interpret. 2=1757
- organ fluepipes, mouth vortex system 2=17573
- organ fluepipes, oscill. and mouth space vortices 2=17570
- organ fluepipes, root freq. and mouth tone 2=17572
- organ fluepipes, windstream and air column, theory 2=17569
- orifice in duct, with piston 0=16761
- panels for auditoria, design 1=221
- room, absorption coefficient, influence on 2=82
- slit in thin wall, acoustic length meas. 2=5101
- tubes, electroacoustic self-maintenance, coupling study 1=18511
- wall effect, on resonator tubes 0=5082
- wave propagation parameters, correl. 2=19661

electromagnetic

See Electromagnetic oscillations

Reverberation

See also Architectural acoustics; Echo,

- absorption coeff. meas. by reverberation chamber method 0=19312
- absorption coeff. measurement 1=10573
- use for acoustic power meas. in water 4=2799
- ambiphonic 2=5129
- under Arctic ice 4=15863
- architectural acoustics, var. by movable reflectors 4=14318
- artificial, method for production of 1=11816
- in auditoria, effect on acoustic perception 2=5131
- auditoria, effect of seat spacing 4=5347
- auditoria, variation by retractable absorbing curtain 4=5346
- boundary reverb., frequency spectrum 4=2794
- chamber calibration, by absorption of Silan SP100 4=5338
- chamber, diffuseness of sound field 1=16043
- chamber, meas. of total acoustic power 0=19311
- chamber power level meas. on sound sources 4=8358
- chamber reverberation time upper limit for acoustic and electromagnetic waves 1=4420
- chamber, sound absorption coeff., accuracy 1=16042
- chamber, sound distrib., 125-500 c/s 3=1776
- chambers with absorbers, diffuseness meas. 2=2851
- churches, review 4=11317
- in concert hall, Gothenburg, expt. and theory 2=1241
- coupled halls 3=21504
- decay, in enclosure, mean free path reciprocal 4=14321
- difference limens, for decaying noise-band pulses 0=18540
- diffusion effects 4=14284
- diffusivity meas. in reverberation chamber 4=296
- effect on subject reaction to impact noise 4=14315
- equations, proposed names 0=2218
- Festival Hall, controlled reverb. time 4=21258
- field distributions in nearly hard rooms 2=2852
- grand pianos, analysis 2=2838
- impulse noise assessment, effect on 3=3680
- levels, backscattering of underwater sound 0=2209
- levels in sea, probability distrib. 4=23712
- long-range shallow-water bottom reverberation 2=2830
- mean free path of reflections in enclosure 4=14322
- measurement, different impulse sources 3=18948
- ocean deep scattering layer, meas. with explosive sound sources 4=10691
- by ocean surface and bottom 3=16202
- optimum, for various factors of rooms and halls 0=6898

Reverberation—contd

- reverberant room method for sound transmission loss meas. 1=11824
- reverberant sound absorption of fibrous material 1=6930
- reverberation chamber at Moscow State University 1=4419
- reverberation curves, properties and evaluation 0=19319
- reverberation room, at Göttingen, for acoustic and e.m. waves 1=8191
- reverberation room, international comparison measurements 1=16044
- reverberation time, pre-eminence 4=24331
- room, diffuse sound fields, loudness of pulsating noise 4=21256
- rooms, review 4=16192
- sea bottom, different ping durations 1=18525
- Severance Hall, characteristics 0=5116
- sound diffusion, meas. in reverberation chambers 0=145
- speech rooms, optimum time 1=16046
- statistical model, for Poisson distrib. of scatterers 4=8359
- structural vibration of tall building, method of measuring 0=19337
- time, effect of sound velocity 3=11874
- time, variation with audience size 1=9460
- u.s., spectral broadening in Doppler-shift fluid flowmeters 4=24135
- underwater, from ice layers in the Arctic 4=4749
- underwater study in sea 1=10568
- volume reverberation developed as scattering phenomenon 1=5331

Reviews

(Heading introduced in 1961)

- accelerator, tandem van de Graaff, negative ion source 2=20062
- acoustic meas. and transmission in water, soil, and air 2=19660
- acoustic studies underwater, pseudonoise-correlation techniques 4=2672
- acoustics of churches 4=11317
- adsorbed layers, catalysis, n.m.r. investigation 4=2127
- adsorbed molecules, i. r. spectra 4=30884
- aerials and e.m. propagation, (1945-61) 2=16049
- aerials, progress 2=16032
- airglow, earth and other planets 4=13820
- alignment devices 1=18552
- alkali halides, A-centres 3=22838
- alkali halides, trapped holes 2=23103
- alkali metal thin films, electrical and photoelec. props. 3=15550
- alloys, elec. cond., theory, Soviet contrib. 4=1555
- alloys, ordering, X-ray investig. 4=1978
- alloys, X-ray and neutron scatt., theory, Soviet contrib. 4=2062
- α -particle scattering 1=13530
- α -particle scattering, on nuclei, non-specialist 1=726
- analyticity of perturb. expansions 3=24665
- anthracene, semiconducting props. 4=10610
- antiferromagnetic reson. 4=23036
- antinucleon production cross-sections 4=30222
- antiparticles 2=22458
- appearance-potential meas. by space-charge compensation 3=21700
- arc physics 3=7482
- arcs, electrode components 1=5434
- aromatic crystals and rigid glasses, energy transfer from triplet state 4=17391
- artificial dielectrics 1=7013
- astrophysics, cosmic ray origin and radio sources 4=17960
- astronomical instruments in space research 2=2519
- astronomical obs., γ -ray, by Cherenkov radiation from air showers 4=10795
- astronomical refraction, history and theories 2=19271
- astronomy, television, closed-circuit, appls. 3=16313
- astrophysics and cosmology of fundamental particles 3=23652
- astrophysics, relativistic 4=23821
- atmosphere, radiation belts 4=4795
- atmosphere, upper, chemical processes 4=26808
- atmosphere, upper, densities, ion, electron, neutral. 3=25916
- atmosphere, upper, electrical state 4=23790
- atmosphere, upper, ion-electron, -ion recombination 4=15884

Reviews—contd

- atmosphere, upper, and solar ionizing rad. 4=30936
 atmospheres of planets, knowledge from optical techniques 4=17990
 atmospheric diffusion 1=2562
 atmospheric electricity. 3=25889
 atmospheric i.r. transmission 3=3468
 atmospheric ice nuclei 4=10719
 atmospheric physics 2=17121
 atmospheric tracers and general circulation 3=23587
 atmospheric and underwater visibility 4=23756
 atmospheric visibility, early work 4=23757
 atom excitation and ionization by electron impact 4=25515
 atom, quantum mech. calc. 4=19921
 atomic clocks 2=17409
 atomic collision processes, Coulomb 4=17262
 atomic collisions 4=25574
 atomic emission spectroscopy 4=15263
 atomic masses 3=10221
 atomic polarizabilities and shielding factors 3=8173
 atomic scattering processes 2=3717
 atomic spectroscopy 3=19916
 atomic structure theory, Bohr contribution 3=19915
 atoms, mag. reson. 2=6081
 Auger effect 2=14052
 aural acuity meas. and hearing aids 2=17317
 aurora and nightglow, I.G.Y. and I.G.C. research 3=16282
 auroral morphology 4=29318
 auroral theories, observational data 3=13797
 balances 2=17404
 ball lightning, obs. and theory 4=2204
 beam-deflection and photo devices 2=15955
 beta decay, experiments since discovery of parity nonconservation 4=1035
 β -decay theory, for non-specialist 1=3409
 beta-decay theory 2=20546
 beta decay theory, since discovery of parity nonconservation 4=1036
 beta decay, universal Fermi interaction and conserved vector current, review 4=19711
 beta-ray spectrometer developments 1=487
 β -transitions, allowed, Fermi matrix elements 4=19713
 biology heredity "code" as D.N.A. nucleotide sequence, review 3=18669
 boundary layers, turbulent, heat transfer 3=11968
 breakdown mechanisms in high-voltage, high-pressure discharges 4=18750
 breakdown strength, electric, alkali halides 4=1647
 breeder reactors 2=14160
 bubble chamber, Nobel Lecture (1960) 2=9754
 bubble chamber photographs, evaluation 2=18040
 bubble chambers 3=17123
 calculating apparatus exhibits in 1964 at Physical Society 4=21011
 camera, high-speed, framing, for microsec. events 2=17667
 cathodes, cold, MgO polycrystalline layers 4=16518
 Cepheid theories 4=20891
 ceramic dielectric materials, development 3=20370
 ceramics, mechanical props. and microstructure 4=23084
 ceramics, polycryst., mech. behaviour 3=23357
 charged particle motion, adiabatic theory 4=685
 charged particle trajectory calc. and plotting 4=610
 chemical reactions, electron donors and acceptors, 1 : 1 interactions in soln., theory 4=23653
 Cherenkov radiation 2=20303, 22477
 Cherenkov radiation theory 3=14951
 Cherenkov and transition radiation 3=17239
 chromathermography, Soviet literature 2=11000
 chromosphere 4=29454
 cloud physics 3=1439
 cloud physics, recent research, Russia 4=10711
 cloud precipitation processes, electric field effects 4=10720
 coincidence circuits in nuclear physics 4=14983
 collision processes, charge transfer and ion-atom interchange, $> eV$, ion beam study 4=15306
 collision processes, charge transfer and ion-molecule, low energy, 4=12539
 colour and perception, Land's work 2=21771
 colour theory 3=11881
 colour vision, discrimination theory 3=5306

Reviews—contd

- comets, small bodies, and solar system problems, work in U.S.S.R. 2=21706
 communication satellites 2=15417
 computers in structure analysis, conference, Moscow 1961 3=16063
 computers, superconducting 2=15859
 conductivities, thermal, elec., gases, plasma, high temp. review 4=236
 conformal tensor calculus 3=5317
 cosmic matter, origin and composition 1=4211
 cosmic radiation history from isotopic changes in meteorites and on the earth 4=25230
 cosmic radiations, r.f., and cosmology 4=29469
 cosmic radio radiation 1=12780
 cosmic-ray primaries, composition and spectrum 4=9326
 cosmic ray showers, high-energy theories 3=4546
 cosmic ray showers, time variation 1=3369
 cosmic ray variations, meteorological, geomag. and more distant influences 4=6165
 cosmic rays, extensive air showers 3=22235
 cosmic rays, origin, primary, radiation, r.f. 3=22223
 cosmic rays, very high energy 4=16985
 cosmic rays, injection into mag. "accelerators" 2=13922
 cosmic rays, and interplanetary space 2=20468
 cosmic rays, isotopic comp. 2=20456
 cosmic rays, origin 2=20464
 cosmic rays, primary 4=25229
 cosmic rays, sources, supernovae 2=3427
 cosmic space mag. field data from satellites 4=26925
 cosmic spherules and meteoritic dust 2=17269
 cosmological hypothesis 3=25970
 counters, Cherenkov, theory and construction 4=27716
 Crab nebula 2=24164
 cryogenics 1=4509
 cryogenics and nuclear physics 2=1617
 cryotrons, thin films 4=21431
 crystal defects 4=28439
 crystal defects, electron microscope study 2=23193
 crystal dislocation, obs. 2=14448
 crystal dislocations, obs. 4=1475
 crystal dislocations, obs. by surf. methods and decoration techniques 4=28468
 crystal dislocations, Xray obs. 3=22782
 crystal electron-phonon interaction, ultrasonic amplification 4=3988
 crystal electron structure meas. by high press. optical absorpt. and elec. cond. 4=12667
 crystal excitons, especially Cu_2O , CdS , HgI_2 , spectra 3=22689
 crystal growth, imperfection effects 4=7541
 crystal growth, layer-spiral 1=7845
 crystal imperfection and charge carrier impurity interaction thermodynamics 4=28440
 crystal lattice dynamics with point defects 4=22470
 crystal lattice mechanics 4=17338
 crystal optics, spatial dispersion effects, exciton theory 4=26163
 crystal optics, spatial dispersion and exciton theory 4=10145
 crystal pattern indexing and lattice-parameter deduction rel. to patterns for polycrystalline substances 4=7583
 crystal point imperfections 4=17417
 crystal structure, atomic, transition metal sulphides, groups IV, V, VI 3=23449
 crystal structure calc. by image-seeking 3=1317
 crystal structures, n. m. r. study 4=10336
 crystalline materials, strength, physical concepts 1=3990
 crystallization apparatus and operation tech. 2=14953
 crystals, electron energy spectrum, calc. methods 3=4843
 crystals, ion bombardment sputtering 4=22641
 crystals, lattice mechanics, force constant model 4=1366
 crystals, many phonon processes 4=20183
 cyclotron resonance 2=6307
 d.c. cond. of macromolec. substances 3=20367
 defects in crystals, theory 2=3895
 deformation, high temp., crystals, and diffusion 3=23329
 deformation of solids, continuum theory 2=2319
 density matrix method 1=15716
 detonation waves in gases, in Russia 4=21229
 deuteron interactions 1=3457
 deuteron interactions, with nuclei 4=1099
 deuteron scattering, inelastic, $> 7 MeV$ 4=9311

Reviews—contd

diamond, spectrum, i.r., Raman's work 3=23069
 diamonds, fracture, cleavage, defect effects 3=23362
 diamonds, spectrum, irradiation, n, e, γ , thermal annealing effects 4=1729
 diatomic mols., intensities of electron transitions 3=15335
 dielectric polarization and internal field effects 4=28604
 dielectric relaxation theory 4=28605
 dielectric waveguides and aerials 1=7151
 dielectrics 2=17764
 dielectrics, digest of literature (1959) 1=1882
 dielectrics, progress in 1=5413-14
 dielectrics, progress in 1=8293-4
 dielectrics, props. at cryogenic temps. 4=17512
 diffraction 3=1834
 diffraction, e.m. waves, short, ray propagation and local emphasis 4=889
 diffraction of fluctuating fields, Soviet papers 4=2527
 diffraction grating pair meas. of length and angle displacements 4=18013
 diffraction images, intensity distribution and total illumination 1=18547
 diffraction scattering of particles, use of Regge poles 2=18082
 diffractometers, X-ray and neutron, automatic 3=8818
 diffusion and deformation, high temp., crystals 3=23329
 diffusion in metals 3=12997
 diffusion in metals 3=15507
 diffusion in metals, self, surface, mechanisms 4=9982
 diffusion in semiconductors 1=3739
 diffusion in solids 4=25957
 digital computers, evolution and development 2=15455
 discharge afterglow, recombination effects, sparks, review 4=14610
 discharge tubes, cold cathode 4=14582
 discharges of "classical" gas, to plasma physics 3=9784
 discharges, collision and radiation processes 4=8637
 discharges, high-freq., non-diffusion-controlled, recent work 4=18715
 dislocation distrib. and hardening in metals 4=28465
 dislocation visualization by etching, review 1=17539
 dislocations in metals, obs. and props. 2=12442
 dispersion relations, simple 4=11906
 ductility and strength of metals and alloys 4=13373
 e. m. wave propag., ionosphere—earth guided, 1960-62 U. S. work 4=30951
 e. m. wave propag. in ionosphere proposed U. S. IQSY studies 4=30950
 e. m. wave propag. since 1940 2=16050
 e. m. wave propagation in plasma 1=2982
 e. m. wave propagation, troposphere 4=3179
 e. s. r. meas., recent improvements 4=8959
 e. s. r. principles and applics. 2=20175
 e. s. r. spectrometers 3=24488
 earth elasticity and viscosity theories 4=23698
 earth, mag. field, meas., recent methods 4=4821
 earth, mag. field in space 4=4795
 earth, magnetic field, space research 3=25937
 earth's gravitational field, determ. from accurate meas. inadequately distributed 4=7811
 elastic const. meas., metals, vibr. 4=15684
 elastic constants of crystals 2=4304
 elastic scatt. of strongly interact. particles above 1 BeV 4=5972
 elec. conduction mechanisms in films 4=22661
 electric discharges, empirical rels. between parameters 2=15896
 electric fields, nonuniform 2=15861
 electrical conductivity of insulating liquids on nuclear irradi. 4=11211
 electricity generation by unconventional methods 4=2936
 electrification following contact of solids 2=22150
 electroacoustic meas. equip. and tech. 2=15704
 electrodynamics, dispersive medium 3=17033
 electroluminescence 1=3869
 electroluminescence 2=18880
 electroluminescence 4=26234
 electroluminescence in Zn and Cd sulphides 3=13220
 electrolytic capacitor films, anodic oxide 3=2934
 electrometer amplifiers 2=19834
 electron avalanches 1=4553
 electron diffr. exam., low energy 4=7664

Reviews—contd

electron-ion recombination 4=24558
 electron microscope crystallog., image contrast effects 3=1313
 electron microscopes, operation, performance, resolution 4=598
 electron microscopy 2=21576
 electron microscopy, recent developments 4=2102
 electron microscopy, "state-of-art" survey 3=21881
 electron-molecule collisions, inelastic 4=25760
 electron polarization vectors 1=18273
 electron-positron interactions, high energy 3=24692
 electron scatt. by H atoms, low-energy e^- and e^+ 2=22919
 electron scattering, fast, in nuclear Coulomb field 4=3644
 electron spin oscillator 4=16675
 electron tubes, recent developments 2=15954
 electronic and atomic collision processes in gases, leading to laser action 4=24895
 electrons in metals, guide to Fermi surface 2=18550-1
 electrons in solids, characteristic energy losses 4=17414
 electrophotography Nov. 1960 symposium 3=16815
 electrostatic, electrification 4=436
 elementary particle interactions, understanding 4=3360
 elementary particle reson. 2=18083
 elementary particle resonances 4=19456
 elementary particle resonances 4=19569
 elementary particle resonances 4=21910
 elementary particle theory 4=16797
 elementary particle theory 4=16798
 elementary particles, analyticity methods 4=21809
 elementary particles, brief non-technical 4=25050
 elementary particles, developments 3=4365
 elementary particles, dynamic props. 4=5927
 elementary particles, interaction cross-sections 4=3361
 elementary particles, interactions, resonances 3=24670
 elementary particles, neutrino differences and e, μ similarity 4=19455
 elementary particles, production, statistical theory methods 4=3307
 elementary particles, symmetry and conservation laws, review 4=24973
 elementary particles, unified field theories 3=12382
 elements, genesis 1=15412
 emission flame photometry (1960, 61) 2=17581
 emission formation by ionic vibrs. 2=1237, 7303
 entropy increase and quantum relaxation theory 4=8091
 equations of state, theoretical survey, statistics 3=20116
 Esaki diode, tunnelling 2=21174
 exchange interactions in dielectrics 4=22940
 excited nuclei, g-factors, meas. and theory 4=6200
 exciton concept, in semiconductors 1=3635
 excitons in crystals 1=14222
 exploration of space by satellites 1=15584
 far i.r. optics in Japan 4=24351
 faster-than-light phenomena 2=15460
 fatigue processes in metals 4=13382
 Fermi interactions, radiative corrections, to 1961 4=9104
 Fermi surface 1=19738
 fermion system, normal, theory, review 4=8106
 ferrimagnetic reson. 4=23036
 ferrimagnetism 1=14752
 ferrites, appls. 2=14803, 18917
 ferrites, props., applications and technical advances 4=26331
 ferrites, square-loop 4=1840
 ferro- and antiferromagnetism, modern theory 3=6697
 ferro- and antiferromagnetism, Soviet work since 1958 3=1135
 ferroelectric theories, Muller and Devonshire 4=4209
 ferroelectricity 2=21212
 ferroelectrics, recent work 4=26113
 ferromag. relaxation theory, present status 3=1162
 ferromag. thin films 3=6710
 ferromagnetic and antiferromagnetic anisotropy and magnetostriction theory 4=22970
 ferromagnetic domain obs. 3=23161
 ferromagnetic domains 1=14706
 ferromagnetic films, mag. props. rel. to structure 4=22976
 ferromagnetic films, resonance 3=21374
 ferromagnetic reson. and relax. linewidths 4=23034
 ferromagnetic resonance 2=14814

Reviews—contd

ferromagnetic resonance, high-power 4=28862
 ferromagnetism quantum theory, history 4=22954
 ferromagnetism, spin-wave quantum theory 3=15766
 fibre optics 2=15720
 fibre optics 3=241
 field theory, quantum, interactions, weak, recent developments, semipopular 3=17193
 film preparation by sputtering 4=20799
 films, effects of deposition conditions on growth, struct., and props. 4=4661
 films, monomolecular 2=15093
 flame spectra 3=10483
 flash photolysis 2=15155
 flash radiography 4=11735
 flow double refraction and macromolecular structure 4=14165
 flow separation 2=4979
 flow visualization tech. 2=17414
 flowmeters 2=19589
 fluctuations, electrical 1=5417
 fluids, refr., rot. and disp. 2=13342
 fog 2=11019
 form perception, origin 2=15435
 Fourier spectroscopy 2=22029
 fracture, rel. to plastic yield 4=4454
 fracture in solids 2=14906
 free radical chemistry, i. r. study at low temp. 4=25757
 fuel cells, 70 years of research 4=5549
 fundamental particle physics, history 2=20242
 fundamental particles 2=18087
 fundamental particles, new unstable objects 3=4364
 galaxies, classification 4=17985
 galaxies, irreg-shaped 2=15392
 galaxies, spiral structure persistence and, gas transport, review 4=13902
 galaxies, stellar content 1=18133
 galvanomagnetic and thermomagnetic effects 2=14486
 gamma-ray reson. scatt. in crysts. 2=10302
 gamma-rays, internal conversion, results 3=24879
 γ -spectroscopy, 1947-62 3=24683
 garnets, ferro- and antiferromag. props., Russian work 3=3092
 gas, conducting, compressible, inviscid, m.h.d. flow 4=11777
 gas determination in metals 3=11370
 gas discharge tubes 2=15897
 gas dynamic calculations, finite difference net methods, review 4=18225
 gas turbulence, meas. by glow-discharge 2=19591
 gases, collision phenomena 3=12078
 gases, elec. breakdown, theory 2=19927
 gases, secondary processes by slow ions 4=2939
 gases, transport properties, theory 4=5234
 generation of high mag. fields 3=21930
 geomagnetic disturbances, polar 4=13861
 geomagnetic field measurement 1=11653
 geophysical achievements of satellites 2=15409
 geophysical exploration, techniques 3=1409
 geophysics, radio techniques, conference address 4=4732
 giant resonances in photonuclear reactions 2=22790
 glass 2=15074
 glass, organic, viscoelastic props. 4=4685
 glass, relaxation phenomena 1=20633
 glass, space charge and electrode polarization 4=22765
 glasses, glass ceramics and sintered glass ceramics 4=26731
 grain boundaries and surface properties of metals 4=13622
 graphite, irradi. effect on thermal cond., crystalline parameter and internal energy, meas. 4=20226
 grating interferometer and Ronchi testing of materials 2=22049
 gravitation, Jordan's extended theory 4=27030
 gravitation and mass, cosmology, historical 3=21213
 gravitation theory, observational tests 3=3717
 gravitational waves 3=21211
 gravitons 4=8035
 gravity 2=15462
 gravity measurement 3=5181
 green flash at sunrise and sunset 2=15199

Reviews—contd

Green functions in nuclear physics 4=25250
 Green functions in statistical mechanics 4=24081
 growth of single crystals from melt 2=14958
 Hall generators 4=10088
 hard superconductors (2nd kind), physical and chemical props., review 4=8564
 hardening, precipitate and dispersion 4=28948
 hardness of diamond 3=25645
 heat cond. in solids 2=20944
 heat-elect. direct conversion 2=9517
 heat-to-electricity direct conversion 1=16371
 heat transfer 4=29780
 heat transfer, work in 1962 3=24071
 helium, liquid, theory, low temps. 4=21369
 Herschel effect in photography 2=15758
 heterogeneous nucleation 3=11206
 high-magnetic-field research 1=18976
 high temp. meas. spectral methods 2=15790
 high temp. research 4=18470
 hodoscopic systems with controlled pulse supply 3=24190-1
 human radiation hazards 3=3645
 hydrogen bond 4=22344
 hypernuclei 1=2165
 hypernuclei 4=19643
 hypernuclei, non-technical 3=631
 hyperons, interactions, weak, recent developments, semipopular 3=17193
 image converters, development for use as fast shutters 4=5715
 image formation 1=18546
 impact, high-speed 2=15526
 i.r. analysers, process control 1=12986
 infrared detection methods 4=5438
 infrared, far, applications 4=22828
 infrared induced absorption, in molecules under various conditions 1=3544
 i.r. refractive index meas. 1=16064
 infrared spectrometry 2=17607
 infrared spectroscopy by attenuated total reflection 4=14355
 insulators, current injection, volume-controlled 4=26097
 interacting particles spectra and collective loss on passage through matter 4=5078
 interaction of radiation with matter 3=2841
 interference colour 1=18550
 interference fringes, formation, and their conditions of observation 4=11357
 interference in quantum transitions 4=24073
 interferometers, radial shearing, using refr. law 4=24383
 intermetallic compounds, formation, properties, defects 4=9804
 intermolecular force obs., from isotope effects in phase equilibria 4=25765
 intermolecular forces 2=14341
 intermolecular forces and light scattering 4=20126
 internal conversion, effect of nuclear struct. 4=12132
 internal friction, Bordoni peaks 2=21410
 internal friction, and interaction between defects 2=21012
 internal friction, point defects cause 2=21394-6
 interplanetary navigation 2=19354
 interstellar magnetic field, theory and obs. evidence 4=23887
 ion-atom interchange processes, Birmingham, review 4=24556
 ion emission and microscopes, field 3=19371
 ion microscopy, field 4=21586
 ion sources, h.f. 2=1515
 ionic crystals, exo-emission 3=19295
 ionic crystals, lattice defects rel. to solid state reactions 3=12956
 ionic crystals with simple cubic lattices e.s.r. 4=26371
 ionization, in ion-atom collisions 1=4557
 ionosphere, current knowledge 4=17935
 ionosphere and earth's mag. field, 1960-62 U. S. work 4=30948
 ionosphere electron distrib., 1960-62 U. S. work 4=30952
 ionosphere, F-layer 1=4126
 ionosphere movements 4=26836
 ionosphere, nuclear explosion, e. m. Doppler shift, 1960-62 U. S. work 4=30953

Reviews—contd

ionosphere polar cap absorpt. and sun corpusc. radiation, review 4=26845
 ionosphere, radio study 2=24030
 ionosphere storm morphology 4=29324
 ionospheric storms, 1960-62, U.S. work 4=30949
 ions in gases, secondary processes 2=15881
 ions, negative 4=447
 irradiation effects in metals 3=4895
 irradiation effects in metals 3=4897
 irreversible processes, general theories 3=21251
 isotope effects, crystal structure, atomic, temp. var. 3=23439
 isotope separation, by thermal diffusion, in liq. phase 1=3524
 isotopes, stable, spectroscopic analysis 4=9679
 jets 3=4543
 Jupiter, radio spectrum 1=18172
 kinetic theory, gases, vibrational degrees of freedom, non-equilibrium distrib., review 4=226
 kinetic theory of rarefied gases 4=21170
 laser 4=16682
 laser devices 4=19258
 laser line classification for Cl, I 4=19287
 lasers 3=14799
 lasers and masers 4=24878
 lasers, mech., applic 2=22328
 lasers, solid materials, optical consts. 4=27696
 lasers, solid state, properties 3=22009
 lattice defects, X-ray investigations 1=3651
 lattice dynamics, Born theory and recent techniques 3=22634
 leak detection methods and apparatus 2=19640
 leak detection, vacuum apparatus and sealed components 1=4393
 lepton theory 3=4359
 leptons 4=24990
 leptons, experimental 3=4358
 light beam fluctuations and coherence 4=18367
 light scattering, in earth's atmosphere 1=4110
 light source, nanosec. 2=19697
 light sources, pulsed 3=1812
 liquid crystals 1=15838
 liquid dielectrics, conduction and breakdown 2=19572
 liquid diffusion phenomena, theory 4=16100
 liquid film surface forces 4=2648
 liquid helium, post-1956 work on He₃ 4=29820
 liquid intermolecular forces 4=24156
 liquid struct. 2=15563
 liquid theory and structure 4=24159
 liquids, luminescence quenching by foreign substances 3=21382
 liquids, monatomic, non-quantum statistical theory 4=150
 liquids, X-ray study 3=21303
 living matter, electrical properties 4=13980
 loudness measurement 4=289
 loudness, scaling techniques 4=289
 loudspeakers 2=15699
 low temp. physics 2=17705
 low temp. prod., below 1°K 4=11429
 low temperature physics, collection of articles (1964) 4=24463
 low temperature production 1=4521
 lubrication and wear 2=23796
 luminescence in solids 4=22910
 luminescent chamber 2=16106
 Lyot filter 2=22047
 magnet design, cylindrical 4=24787
 magnetic computer memories 3=14729
 magnetic domains and domain walls 4=13138
 magnetic fields, strong, production 3=24428
 magnetic films 2=20088
 magnetic heat treatment 4=22941
 magnetic internal hyperfine fields 4=12563
 magnetic materials, micromagnetics 4=11745
 magnetic materials, soft and permanent, radiation effects 4=17643
 magnetic materials study by neutron-diffraction 4=1816
 magnetic props. of thin films 4=22973
 magnetic recording 2=15988
 magnetic reson., double, electron-nuclear 4=8960
 magnetic resonance, acoustic tech. 2=17973

Reviews—contd

magnetic resonance, double, Overhauser effect 4=1896
 magnetic spin wave and other modes, review 4=22959
 magnetic storms, current theories 3=3518
 magnetism of dilute alloys 4=20513
 magnetism, theory, at Harwell 3=978
 magnetofluid dynamical stability and turbulence 4=11779
 magneto-fluid dynamics experiments 1=8381
 magneto-fluid dynamics problems 1=5545
 magneto-fluid incompressible flows, theory 4=11775
 magnetohydrodynamic power generation 3=5833
 magnetohydrodynamics 3=12297
 magnetohydrodynamics, theory, applic. 2=22315
 magneto-optical effects in semicond. 2=16805
 magnetothermal effects, theory 3=466
 magnets, high-field, superconducting, pulsed 3=21932
 magnox A 12 and ZA, comparison as canning materials 4=19902
 maser devices and materials 2=7733
 masers 1=7145
 masers and lasers, development, principles 2=16022
 masers, optical 3=7728
 masers, optical 3=22006
 masers, optical, crystal, data 4=14924
 masers, optical, gaseous 3=7730
 masers, optical, non-linear interactions 3=17093
 masers, optical, plasma, emission and pumping 3=22007
 masers, optical, semiconductor junction data 4=14940
 mass spectrometers, in USSR 1=4664
 mass spectrometry publications (1960, 61) 2=17903
 mass spectrometry, vacuum techniques 3=12263
 mass spectrometry of solids 3=14685
 material research studies 4=13621
 materials, testing and analysis, Phys. Society exhibition 4=23981
 matter transport in solids 4=25955
 mechanical prop. testing at low temps. 4=13357
 mechanical strength, crystals 3=25626
 meson decays and counter techniques, Boys' lecture 2=1699
 meson decays, exper. data 1=3204
 meson and hyperon decay 1=12092
 meson and hyperon resonances 4=12049
 mesons, interactions, weak, recent developments, semipopular 3=17193
 metal binding theory 4=6681
 metal fracture 1=3998
 metal testing, electromagnetic methods 1=10363
 metal whiskers 2=14963
 metallography 4=2097
 metallography, high-temp., Russian work 2=23861
 metallurgical meas. by radio isotopes 2=17029
 metals and alloys, vacancy precipitation 4=12733
 metals, cold-worked, X-ray diffr. studies 2=6743
 metals, Cu, Ag, Au, optical props. and band struct. 4=13047
 metals, electrical resistance and spin disorder 3=10715
 metals, electromigration, review 3=22829
 metals electron-ion interaction theories 4=17329
 metals, electron theory 1=3633
 metals, f.c.c., irradiated, point defects, review 3=8420
 metals in high mag. fields 4=1425
 metals of high purity 3=15531
 metals, lattice defects, produced by electrons 4=1474
 metals, liquid, electron transport and states 3=21401
 metals, physical props. at high frequencies 3=6448
 metals, radiation damage, nature 3=8466
 metals, slip deformation 4=28923
 metals, strength, rel. to dislocations 4=4436
 metals, surface purification, in vacuo, review 4=7699
 metals, theory, mag. particular reference to Frenkel's early work 3=22888
 metals theory, pseudo-atom model 4=25800
 metals, very pure, preparation and elec. and mech. props. 4=20147
 meteor showers and rainfall 1=20808
 meteorites, age 2=24108
 meteorites, Fe, cosmogenic nuclides analysis 2=19290
 meteorites, recent adv. 2=19291
 meteorological studies by satellite, non-Russian 3=18492
 meteorology, new devel. 2=19193
 meteors, composition and origin 3=16366

Reviews—contd

micromagnetics 4=13142
 microphones 2=15698
 microscopes, polarization interference type 4=29744
 microscopes, reflected-light, interference 4=305
 microscopy, modern principles 2=22008
 microscopy, optical, expanding applications 3=1803
 microstructure examination 4=23511
 microwave disp. and absorpt. in gases and liquids 2=19626
 microwave generators, high power, planotron 4=11786
 microwave-infrared gap, spanning 2=16011
 microwave interaction with matter 2=17952
 microwave magnetic devices 4=21644
 microwave meas. 2=16054
 microwave tubes, European 2=16052
 millimetre waves, generation, transmission and reception, recent progress 4=19186
 molecular beam scattering 4=25786
 molecular beams 4=20136
 molecular beams, scattering, and intermolecular forces 4=3935
 molecular collisions, energy exchange, vibr., in quantum and classical mechanics, review 4=20132
 molecular and crystal struct. 4=25631
 molecular data obtainable from microwave spectroscopy 4=3827
 molecular electron shell calc. 4=20018
 molecular magnetism 2=14238
 molecular Rydberg states 4=30420
 molecular spectra, abs. transition intensities, rel. to pressure 4=12418
 molecular spectra in far-u.v. 2=14284
 molecular vibration amplitude studies 1=11092
 molecules, electronic spectral band intensity and position, solvent influence 4=6517
 molecules, electronic structure, quantum-mechanical theories 3=22533
 molecules, intermolecular forces, post 1960 developments 4=12537
 molecules, internal rotation and rotational isomerism, spectroscopic investigation 4=6525
 molecules, simple, electronic states and spectra, computer calc. 3=10500
 molecules and solids, exchange, correl. and spin effects 2=14319
 Mollier diagram, significance and applications 4=8530
 monochromators, prismatic and grating, resolution 3=14352
 moon, exploration programmes 2=15309
 moon, reverse side 2=17250
 Mössbauer effect 1=599
 Mössbauer effect 2=18512
 Mössbauer effect 3=4557
 Mössbauer effect 3=19755
 Mössbauer effect 4=20173
 Mössbauer effect 4=3960
 Mössbauer effect, applications 4=30502
 Mössbauer effect, in chemistry and solid-state physics 4=28319
 Mössbauer effect, popular 3=20066
 Mössbauer effect in rare earth cpds 4=20171
 Mössbauer effect theory, and lattice mechanics 4=20191
 Mössbauer effects, solids 3=25170
 Mössbauer ν -transitions, methods 4=28321
 μ -meson 2=13828
 multichannel analysers 4=11861
 muon capture by nuclei other than H 4=15082
 musical consonance and crit. bandwidth 4=15978
 n.m.r., with comparable Zeeman and quadrupole interaction energies 4=20605
 n.m.r. instrumentation 3=14789
 n.m.r. non-destructive testing technique 1=10199
 n.m.r., principles and use in phys. chem. 3=25139
 n.m.r., u.s. stimulation 3=20665
 nanosecond tech. in nucl. phys. 2=5816
 National Physical Lab., recent developments 2=1037
 negative ions, radiative formation and destruction 3=4003
 neutrino, antineutrino, losses in nuclear processes 2=22485
 neutrino high energy interactions 4=21835
 neutrino interactions at high energy 4=21834
 neutrino problems 4=879

Reviews—contd

neutrinos 4=6017
 neutrinos, known properties and role in astro-physics 3=24686
 neutrino's role in astrophysics 4=30213
 neutrinos, theor. and exper. work 1=3160
 neutrinos, 2 types, theory 3=24687
 neutron beams, production 3=24744
 neutron cold beams production and uses 3=24745
 neutron detectors, thermal reactor spectrum 4=6448
 neutron diffr. exam. of spin arrangement of magnetic metals and alloys 4=17615
 neutron diffr. liquid struct. obs. 4=24165
 neutron diffraction crystallog. techniques, recent progress 3=1289
 neutron diffraction examination, experimental methods 4=17829
 neutron diffusion in Be, DeO, lattice struct. effects on temp. var. 4=19533
 neutron dosimeters 3=17292
 neutron generators, low-voltage 2=22541
 neutron radiography 4=11380
 neutron scattering in solids and thermalization 4=25455
 neutron source calibrations 1=13455
 noise, acoustic, underwater 4=15861
 nuclear collective model 4=25247
 nuclear emulsions, recent expt. 4=19343
 nuclear excitation, collective, by scattering, inelastic, charged particles 3=22287
 nuclear explosions, scientific applications 1=12030
 nuclear fission products in UO_2 , escape and structure changes caused 4=6439
 nuclear fission, results of work done 1=3466
 nuclear fission, spontaneous 4=3707
 nuclear forces by high-speed scatt. in matter 2=13947
 nuclear fusion plasma reactors 4=21545
 nuclear fusion research, Salzburg conference 3=15251-2
 nuclear instrumentation 4=3231
 nuclear instrumentation, E.M.I. developments 1=3079
 nuclear interactions from 30 to 10^8 GeV in cosmic rays, particle prod. 4=16882
 nuclear isomerism 2=7927
 nuclear isomerism, selected problems 2=7928
 nuclear mag. reson. and electron structure of metals and superconductors 4=12669
 nuclear mag. resonance, liquids 3=14184
 nuclear magnetic resonance, use in study of solids 3=3189
 nuclear matter 4=3525
 nuclear monopole transition theory 4=25284
 nuclear photoeffect 1=17074-5
 nuclear physics, basic principles 2=20177, 20695
 nuclear physics, data analysis systems 4=21691
 nuclear physics, high energy, conference 3=17094
 nuclear physics, low energy 4=16712
 nuclear power development in U.S. 1=9894
 nuclear power, materials, problems 2=20696
 nuclear quadrupole resonance 1=4742
 nuclear quadrupole resonance, recent work 4=761
 nuclear reaction mechanisms 3=12647
 nuclear reactions, compound, statistical theory 4=12194
 nuclear reactions due to deuterons 4=1098
 nuclear reactions due to nuclei of $Z > 2$ 4=19827
 nuclear reactions, single-channel, phase shift analysis 3=12650
 nuclear reactor ceramic coated particle fuels 4=12320
 nuclear reactor materials, book 1=4884
 nuclear reactor metals, aqueous corrosion 3=695
 nuclear reactor parameters, meas. in sub-critical and critical assemblies 4=25454
 nuclear reactor transfer functions 4=25453
 nuclear reactors, fast breeder problems 4=6407
 nuclear reactors, fast, world survey, in tabular form 3=6319
 nuclear reactors, instrumen. and control ccts. 2=14181
 nuclear relaxation in liquids 1=11769
 nuclear relaxation in magnetic materials 3=1198
 nuclear resonance 4=3201
 nuclear science and technology, advances 3=2511
 nuclear spectroscopy 1=16977
 nuclear structure, energy levels, electron scatt. obs. 4=25273
 nuclear structure, spectroscopy and reactions 3=12548
 nuclear structure study with nuclear reactions 3=24915

Reviews—contd

nuclear theory 4=12093
 nuclei and atoms, common shell structure 4=25245
 nuclei, light, shell theory 3=7963
 nuclei and nucleon struct., Nobel prize lecture 2=18224
 nucleon-nucleon potentials 2=3290
 nucleon polarization by scattering 1=3175
 nucleon structure 1=2047
 nucleon structure and pion-nucleon scatt. 4=3394
 nucleon structure, theory and expt. 4=6032
 nucleon scatt., inelastic, ang. correls. 4=17122
 nucleons, form factors, elec. and mag., 4=881
 nucleons, two, interactions 3=14973
 nucleus, models and surfaces 2=20489
 nucleus, optical model 3=17388
 objectives, ultra-rapid, limitations 3=16814
 ocean waves 1=11645
 Onsager reciprocal principle, derivation 4=24107
 optical apodization 4=18388
 optical engineering 2=17593
 optical erosion of condensed matter 4=17455
 optical film measurements 4=18413
 optical films, theory and applic. 2=22041
 optical harmonics and nonlinear phenomena 3=21505
 optical image assessment 2=19685
 optical image evaluation, using transfer function 3=11887
 optical and i.r. props. of ferromag. and antiferromag. 4=22815
 optical instrument testing 3=244
 optical lever, development and applications 1=2854
 optical masers 2=3160, 16023-4
 optical masers 3=9964
 optical materials, prep. and props. 4=14347
 optical orientation and its applics. 2=8068
 optical props. of crystals 2=8475
 optical pumping 2=14225
 optical pyrometry, of flames 2=19750
 optical pyrometry, rel. to temp. scale above 1063°C 2=15791
 optical rotatory dispersion, nature and origin 2=22063
 optics in Canada, history and current research 2=13423
 optics in France, current research 2=13427
 optics in Germany, current research 2=13430
 optics in Great Britain, current research 2=13426
 optics in Italy, current research 2=13428
 optics in Japan, current research 2=13429
 optics of lower atmosphere 4=13799
 optics in Netherlands, history and current research 2=13424
 optics, six review articles 4=14374-5
 optics in Sweden, history and current research 2=13422
 optics of thin films 4=28659
 optics in upper atmosphere 4=13819
 optics in Yugoslavia 4=24333
 orbitals, different, for different spins 4=15319
 organic semiconductors 4=26062
 oscillator strengths in atomic spectra 4=25475
 paramagnetic crystals in laser and microwave devices 3=24505
 paramagnetic and cyclotron resonance in diamagnetic semiconductors, 4=23042
 paramagnetic ion spin-phonon interaction 4=15409
 paramagnetic relaxation, theory 3=23219
 paramagnetic resonan. meas., resonators 4=8960
 particle accelerator, mainly proton synchrotrons 4=19149
 particle accelerator storage rings 4=8872
 particle accelerators, high-energy 4=19137
 particle beams, two-beam instability 4=590
 particle detectors 2=16084
 particle detectors, accelerators and particle beam production 4=24935
 particle detectors exhibited at 1964 Physical Society 4=21690
 particle detectors, semiconds. 2=20199
 particle and fields in axiomatic quantum theory 4=799
 particle physics (for non-specialist) 1=5896
 particle storage rings 4=14772
 particle tracks in bubble chambers 2=7803
 permanent magnet materials 4=15642

Reviews—contd

phosphors, electroluminescent, pulse excitation 3=18047
 photochromism 4=13736
 photoconductivity, processes and state of knowledge 2=10522
 photodisintegration of light nuclei 3=19831
 photoelectric emission from semiconductors 3=19312
 photoelectronic image intensifiers 1=16389
 photoelectronic image intensifiers 1=16390
 photogrammetry, methods and apparatus 2=11508
 photographic material densitization theories 4=16260
 photographic method of nuclear track recording 1=7178
 photographic objectives, wide-angle 4=335
 photographic optics in Japan, recent developments 4=24400
 photographic and other optical system detect. recognition 4=14410
 photography, high-speed 4=16263
 photography, ultrahigh-speed, instruments 3=21579
 photomagnetolectric effect and photoconductivity in semiconductors 1=3794
 photometry, heterochromatic 1=4427
 photomicrography 2=19692
 photomultipliers and photoelectric emission 4=11698
 photomultipliers, for use in scintillation counters 2=20020
 photon and electron high-energy physics, review lecture 3=14932
 photon and electron interaction in crystals 3=10101
 photon scatt. by gas molecules 3=7245
 photovoltaic methods in electricity direct conversion 4=27467
 physical constants, systematic errors 1=18240
 Physical Society 1964 exhibition 4=23980
 π -N interactions ~ 7 GeV, multiple π prod., secondary p's, review 4=25136
 π - and μ -meson phys., exptl. and theoret. 2=11972
 π -N resonances 3=4430
 piezoresistance of Si and Ge 3=2965
 planets, interior constitution 3=16335
 planets, Mars, Venus, Earth, atmospheres 4=2397
 planets, microwave radiation, as research tool 3=18599
 planets, radioastronomy, review 3=18652
 planets, temp. 2=15314
 plasma confinement by cusped mag. traps 2=15923
 plasma confinement, in magnetic traps 4=24673
 plasma and controlled fusion 3=384
 plasma diffusion in mag. field, low temp. 2=22208
 plasma electron and ion resonances 3=7616
 plasma, fully ionized, quadratic Stark effect on non-H lines 4=18853
 plasma, high-temperature, dynamics 1=16330
 plasma instrumentation 2=7624
 plasma, ion cyclotron resonance expts. 4=19005
 plasma, nature and props. 2=17816
 plasma oscillations, nonlinear mathematical theory 3=19287
 plasma, parameter definitions 2=19931
 plasma physics 2=22197
 plasma physics 4=2970
 plasma probes, lab. and space vehicles 4=21519
 plasma prodn. by e.m. driven shock waves 3=7684
 plasma, radiation, laser, emission and pumping 3=22007
 plasma research, using Langmuir probes, improvement of techniques and errors 4=27542
 plasma, spectral meas. techniques 3=7577
 plasma, theory, meas. and expt. 2=15907
 plastic flow and crystal fracture 3=25626
 plastic scintillators 1=2462
 plasticity and strength 2=18993
 plastics and ceramics, dielec. props. 2=16766
 point defects in ionic luminescent crystals 4=1526
 polarization microscopy 4=2823
 polymer construction 2=16574
 polymer semiconduction 4=26068
 polymer solutions, viscoelastic behaviour 1=15783
 polymerization, graft, radiation-induced 3=8959
 polymerization in solid state, radiation-induced 2=23970
 polymers, intermolec. interactions 1=3578
 polymers, investigations 1=4074
 polymers, irradiation effects 1=7603
 polymers, polar and non-polar, dipole relaxation 4=26108
 polymers, theory 1=3577

Reviews—contd

porphyrins, spectroscopy 3=25129
 precipitation 3=20893
 pressure effects on elec. cond. of solids 4=22658
 probe, Langmuir, dynamic studies 3=1993
 progress in cryogenics, book 1=13029
 progress in cryogenics, book 2=1321
 progress in optics 1=18544
 proton synchrotrons, high energy 3=19389
 pulse-height analysis, multichannel, recent
 devel. 2=17745
 pulse shape discrim. 2=17747
 pulsed spark gas discharges, for light sources 3=14546
 pyrometry, multicolour 4=16276
 quantized systems, large, perturbation theory 3=21256
 quantum electrodynamics 4=11881
 quantum field theory, basic ideas 2=22378
 quantum field theory of complex angular
 momentum 4=19450
 quantum field theory, complex angular momentum
 method 4=30182
 quantum field theory, indefinite matrices,
 quantization. 1=13278
 quantum field theory, local invariance and compensating
 fields 3=14021
 quantum field theory, local, relativistic, asymptotic
 condition 4=782
 quantum field theory, selected topics 1=13267
 quantum field theory, strong interactions, dispersion
 relations, S-matrix theory 4=25016
 quantum physics 3=3740
 quantum plasma in mag. field, props. 4=20250
 quantum statistics of energy levels 4=17007
 quantum theory, many-body assembly types 4=14074
 quantum theory, many particle systems, self-consistent
 field theory 4=11110
 quantum theory of two-electron atoms, (1925-1930) 4=12336
 r.f. spectroscopy 1=4743
 radar astronomy 2=15394
 radiation belt, outer 3=16283
 radiation belts 4=7898
 radiation chemistry 2=4554
 radiation reaction, classical theories 3=17163
 radiative recombination 1=3746
 radiative transfer in non-uniform media, 4=18117
 radio emission of interstellar neutral
 hydrogen 2=24174
 radio frequency interference meas. and
 standards 2=15410
 radio sources, galaxies, superstars, protostars 4=15962
 radio transmissions from distant planets,
 detection 4=20934
 radioactive atmospheric aerosols from nuclear
 tests 4=7862
 radioactive decay series 1=4839
 radioactive fallout 2=16340
 radioactive tracers in chemical analysis 4=7804
 radioactive tracers for medical science 4=15970
 radioactivity meas. for clinical and biol.
 appl. 2=10028
 radioactivity and particularly tracer meas. 4=15173
 radioastronomy 1=4212
 radioastronomy and communication through space 4=20933
 radioastronomy, devel. in USA 2=9108
 radioastronomy, galaxy (class II) sources 3=18662
 radioastronomy of moon 4=29471
 radioastronomy, planets, review 3=18652
 radioastronomy, 21 cm H line, Galaxy 1=4218
 radiocarbon dating 1=5849
 radiography, industrial 1=10753
 radiography, neutron, of metals 4=10993
 radiometric calorimetry 4=30115
 radionuclide power generators 3=12063
 radiotelescope, 600 ft., West Virginia 2=15398
 radiowave refl. from meteor trails 4=14913
 rare earth nuclear quadrupole moment ratios, Mössbauer
 obs. 4=19663
 Rayleigh distrib. in random walk 2=15456
 reactor science 3=2512
 relativity, current problems and devel. trends 2=15472
 relativity time meas., in accelerated frames 3=18712
 resonance effects in matter 3=5031

Reviews—contd

"restless" atoms in solids 2=14346
 rheological meas. techniques 4=8182
 ρ , w , η mesons 4=21911
 rock magnetism, continental opposite
 magnetization 3=3522
 rods and plates, transient wave propagation 3=21472
 room acoustics, criteria 4=24331
 room acoustics, sound propagation and human
 response 4=16191
 room acoustics, props. of halls and auditoria, meas.
 developed 4=16192
 rotation, ultra high-speed 2=15523
 S-matrix theory and dispersion relations 3=24643
 S matrix theory and Regge poles 4=15030
 satellite tracking methods 3=21141
 satellites artificial rel. to atmosphere and
 electrons 3=25990
 satellites, artificial, orbits, tracking 4=23955
 satellites, optical obs. methods 2=11173
 scattering, e.m. waves, random component medium,
 troposphere 4=3179
 scattering of fast electrons 1=13393
 scattering, potential, non-relativistic, complex
 angular momentum 4=832
 scattering, ultrasonic, at grain boundaries 4=6737
 Schrödinger eqn., approximation methods 4=5058
 scintillation chambers 2=18046
 scintillation counters 3=22032
 scintillation counting, liquid 4=11851
 scintillation spectrometry, computer analysis
 techn. 2=17991
 scintillators, solid 2=6633
 second law rel. to mechanics and electromagnetism
 equations 4=27001
 seismic waves 1=4108
 semiconducting cpds, III-V and II-VI, props. and technical
 advances 4=26027
 semiconducting devices 2=16734
 semiconducting devices, materials technology 2=16748
 semiconducting materials, four articles 4=12881
 semiconducting properties of naphthalene, anthracene
 and ice 4=28578
 semiconductor band theory, review of recent
 progress 3=10746
 semiconductor charge carrier effective mass 4=6779
 semiconductor counters, barrier-film 4=3250
 semiconductor crystal electron band struct. 4=28406
 semiconductor detectors 4=27718
 semiconductor diffusion device manufacture 4=25957
 semiconductor excess carrier transport 4=28543
 semiconductor Hall effect and conductivity
 meas. 4=26024
 semiconductor lasers 4=21683
 semiconductor light absorpt. 4=22827
 semiconductor masers 4=19251
 semiconductor surfaces, prep. and props. 4=4136
 semiconductors, band struct. 2=23264
 semiconductors, conduction at microwave freqs. 4=15531
 semiconductors, counters 2=16093
 semiconductors, crystal growth, diffusion, heat
 treatment 4=28297
 semiconductors, cyclotron reson. and magneto-optical
 effects 4=25916
 semiconductors, effective mass measurements 3=10743
 semiconductors, energy band struct. 2=12502
 semiconductors, Faraday effect, theory 3=23047
 semiconductors, high-field and space-charge
 effects 3=13055
 semiconductors, i.r. absorpt. spectra 2=23569
 semiconductors, impurities, behaviour, conc. and
 props. 4=28548
 semiconductors, impurity centres and e.s.r. 2=10461
 semiconductors, lattice vibrations 3=10576
 semiconductors, low-mobility transport
 phenomena 3=10738
 semiconductors, minority carrier lifetime meas. 2=16694
 semiconductors, neutron irradiation effects 3=25336
 semiconductors, optical properties 3=10906
 semiconductors, outstanding problems 3=843
 semiconductors, progress in 1=5007-8
 semiconductors, progress 2=14513, 18670

Reviews—contd

semiconductors, props. and technical advances 4=26028
 semiconductors, radiation effects 4=30591
 semiconductors, surf., props. 2=10449
 semiconductors, transport, experimental, recent developments 3=10730
 semiconductors, transport theory 3=10731
 shadows and depth perception 2=17323
 shielding against nuclear weapon radiations 4=17078
 shock tube applic. 2=19603
 shock tube design and operation 2=19604
 shock tube spectroscopy 4=18335
 shock waves, magneto-fluid dynamical 4=11778
 shock waves, nonequilibrium phenomena 3=16695
 shock waves, theory 3=18892
 shocks, gas dynamic—mol. flow transition 4=11296
 shockwaves in magnetohydrodynamics 4=2766
 single crystals, applic. 2=23809
 snow crystal growth 2=14946
 solar activity centres, optical phenomena 1=18071
 solar cells, photovoltaic, theory and appl. 2=19889
 solar corona, spectrum interpret. 4=15943
 solar corpuscular emission, radio evidence 4=23930
 solar far u.v. radiation, effects on earth and planets 2=15347
 solar flares and associated phenomena 4=2446
 solar i.r. spectrum 4=29453
 solar phenomena 1=18149
 solar protons, geophysical effects 4=29442
 solar radiation and its effects on the earth 4=20850
 solar radio emission, techniques and observations 1=18150
 solar research from rockets 1=15442
 solar spectroscopy, rocket-borne instruments and techniques 3=11531
 solar system element age, by inert gases in meteorites 2=15304
 solar system, origin, theories 4=7962
 solar system size meas. 2=17239
 solar u.v. and X-ray emission 2=15337
 solid films, reactivity rel. to irradi. 3=6896
 solid solutions, b.c.c. and f.c.c., electronic specific heat 3=8367
 solid state devices, other than semiconductors 2=16586
 solid state phys., work of US Bureau of Standards 2=18505
 solids, anelastic, stress waves 3=21477
 solids, phase transformations 4=1975
 solids, primary radiation damage 4=28502
 solids, radiation damage theory 4=30589
 solids, vacuum u.v. optical and photoelectric effects at Santa Barbara 3=13145
 solids, valence electron plasma, interaction with fast electrons 4=12712
 sound generated aerodynamically 2=11451
 sound reproduction 2=15697
 Soviet physics mathematics and astronomy 3=21185
 space-charge-limited solid-state devices, review 4=15564
 space data processing and information transmission 2=16058
 space flight limitations due to cosmic rays 1=5173
 space navigation trends 2=15408
 space propulsion, elec. 2=15415
 space re-entry problems 2=15411
 space research 3=11608-9
 space research, British work 3=7053
 space research, (1963) 4=10932
 space research by satellites 4=23955
 space technology 3=16433
 spark chamber development 1=9699
 spark chambers 2=18047
 spark chambers 3=17138
 spark chambers and counters 4=14958
 special relativity, Henri Poincaré's contrib. 4=27040
 spectra, astronomically important, transition probabilities 4=23778
 spectra excitation by shock waves 3=11012
 spectra, molecules, polyatomic, absorpt., i.r., review 3=15323
 spectra, molecules, in vacuum u.v. 1=17323
 spectra of solids of condensed gases 3=10929
 spectral excitation by ion bombardment 3=9594

Reviews—contd

spectral-line narrowing meths., rel. to length meas. 3=24037
 spectrochemical analysis data processing, i.r. 4=13753
 spectrochemical analysis, theory, plasma. 3=25841
 spectrometry, emission 2=19181
 spectrophotometric recording apparatus, u.v.—i.r. 1=4465
 spectrophotometry, photographic, optical line profile 2=22024
 spectroscopic optics in Japan, far u.v. 4=24363
 spectroscopic research on the major planets 4=17992
 spectroscopy, extreme u.v. 3=14337
 spectroscopy of far u.v. 2=22030
 spectroscopy of gases 2=20785
 spectroscopy, i.r., 1950-9 developments 1=2856
 spectroscopy, far i.r., light sources, accessories 4=14352
 spectroscopy, i.r., 1-5 μ , range, precision 3=248
 spectroscopy, microwave 3=21981
 spectroscopy, molecular, microwave 4=3827
 spectroscopy, time resolution 4=14354
 spectroscopy, vacuum u.v., recent advances 3=7325
 speech communication seminar, 50 papers 4=15972
 spin ordering 4=17614
 spin-spin relaxation, recent developments 3=1196
 spin waves in ferro- and antiferromagnetics 1=7739
 spin waves, ferromag. and antiferromag. 4=7226
 sputtering 3=7653
 sputtering 4=8637
 sputtering mechanisms 4=19122
 stabilized images on retina 2=15436
 star formation 1=12756
 stars, evolution 3=21114
 stars, evolution 4=26896
 stars, white dwarf 2=19335
 static electrification 2=19873
 stellar distance scale 2=15365
 stellar evolution 1=12762
 stellar magnetic problems 1=12758
 strain measurement, modern techniques 3=7170
 strange particles, decay props. 1=2094
 strange particles, strong interactions 1=2018
 stress waves in solids 4=11279
 strong interactions at high energies 4=30181
 strong interactions, up to 1960 2=22415
 subdwarf stars 2=15366
 sun, radiation, corpuscular 4=26935
 sun, spectrum, photosphere, chromosphere, corona, u.v. to i.r., 4=13928
 sun's magnetism 2=15349
 sun's ultraviolet radiation 4=17999
 superconducting devices 2=15858
 superconducting films, Landau-Ginzburg theory 4=8554
 superconducting layers of dirty and normal superconductors, 4=18544
 superconducting magnets 2=11554, 19809
 superconducting magnets 3=17028
 superconducting magnets 4=8896
 superconducting magnets 4=30021
 superconducting magnets, high field 4=19158
 superconductive alloys and hard transition metals 4=18564
 superconductivity 4=8552
 superconductivity 4=27407
 superconductivity, BCS theory 3=12025
 superconductivity, evidence for two types, sponge model 4=18528
 superconductivity, patterns 4=2913
 superconductivity theory, micro, reprint of nineteen basic articles 4=18532
 superconductivity, type II 4=18529
 superconductivity, type II, theory, models 4=18530
 superconductors, high-field 3=12021
 superconductors in instrumentation 4=8577
 superfluidity 2=15837
 superfluidity 4=24477
 supernovae 2=21721
 supernovae 4=29398
 supersonic turbulence, theory, review 4=8308
 supervelocity optics, Cherenkov radiation 1=3159
 surface diffusion 3=17780
 surface energy and processes on surfs. of solid bodies 2=12368

Reviews — contd

surface forces, effect on props. of heterogeneous systems 4=7692
 surface ionization, metals and semiconductors 1=4567
 teaching exhibits in 1964 at Physical Society 4=21001
 telescopes, refracting, objectives design 3=9141
 telluric emission spectrum, 1μ to 3mm 4=29311
 temperature meas., optical 4=18462
 temperature meas., spectral, 1000-5000°C 4=2871
 temperature measurement, in cryogenics 4=14429
 terrestrial waveguides, mode theory of radio propagation 4=7861
 theory development from Newton to Schrödinger 2=9139
 thermal conductivity for non-destructive testing 1=10614
 thermal motion of atoms in solids 2=16587
 thermionic energy conversion 2=15880
 thermoelectric generators and refrigerators 2=23488
 thermometers, calibration, fixed point 3=24089
 thermonuclear reactions, controlled 3=22442
 thermonuclear reactions, controlled, research in U.S.S.R. 1=5949
 thermonuclear reactions, controlled 4=6404
 thermostat materials 4=5432
 thin films, optical constants and structure 1=14569
 3-dimensional turbulent boundary layers 3=21299
 time and relativity 2=19401
 time scales, uniform and nonuniform 4=8012
 transition metal ion e.s.r. in TiO_2 4=26432
 transition metal oxides electron structure and elec. props., 4=25890
 transition metal superconduct. 4=18615
 transition metals and alloys, crystal electron struct. and supercond. 4=20229
 transition metals, electron theory 3=17676
 transition metals, electron theory 4=22519
 transistors, applications and development 1=2417
 transport phenomena in gases 1=12924
 transport theory, new devels. in tech. and theory 2=23270
 transuranic elements 1=8628
 transuranic elements 2=19085
 transuranic elements 3=4284
 transuranium elements 4=12335
 tunnel diodes 4=7016
 tunnel diodes, h.f. applications 3=15604
 turbulence meas. by anemometers, hot wire 3=18840
 twilight phenomena 4=10743
 u.v. radiation physics in astron. and geophysics 3=9187
 ultrahigh energy nuclear collisions, theories 4=9121
 ultrahigh vacuum meas. 1=5304
 ultra-high vacuum techniques 1=4381
 ultra-high vacuum technology 1=4384
 ultra-high vacuum technology 1=18477
 ultra-high vacuum technology (in Japanese). 3=179
 ultrasonic amplification in crystals 4=3988
 ultrasonic attenuation studies 4=22483
 ultrasonic wave absorption in paramagnetic materials 3=20097
 ultrasonics applications 3=9565
 ultrasonics, applcs. 2=15694
 ultrasonics applied to solid state 3=10594
 ultrasonics, cleaning 2=21978
 ultrasonics, microwave (1-24 Gc/s), in solids 3=6470
 ultrasonics, props. and effects 2=21979
 units, current and resistance, elec., pot., Faraday const., proton gyromag. ratio, meas. 3=21189
 universe, development of knowledge, 20th century 3=25966
 upper atmosphere, chemical reactions, H, OH, HO_2 , H_2 , NO_2 , O_3 , review 4=13718
 upper atmosphere, from 1666 to present day 2=15246
 upper atmosphere variations, by satellite drag 4=13818
 upper atmosphere wind meas. by Na, Li clouds 4=17916
 vacuum apparatus and tech. 2=1212
 vacuum demountable seats and heat-resist. valves 3=14230
 vacuum diffusion pumps 1=8168
 vacuum gauges and technique, ultra high, recent progress 4=8257
 vacuum gauges, ultra high 4=8274
 vacuum press. meas., partial 4=5261
 vacuum pumps, mechanical, Gaedes' influence 4=8267
 vacuum pumps, sputter-ion 4=8261

Reviews—contd

vacuum pumps, ultra high, recent progress 4=8258
 vacuum pumps, vapour 4=8266
 vacuum, ultra-high, methods of production, review 4=27231
 Van Allen particle motion and energy spectra 3=23642
 van Allen radiation belt 1=21080
 vapour pressure of isotopic mols. 3=21631
 Vavilov-Cherenkov, radiation 3=24685
 Venus, atmosphere, surface and biology 1=5136
 viscometers 3=14113
 viscosity, liquids 3=14112
 vision, discrim. functions, neural effects 3=5300
 vision, retinal image formation, optics 3=5293
 visual discrimination and orientation 3=16457
 visual sensation, origin 2=24231
 wavelength meas. in vacuum u.v. 3=21538
 weak interactions, theory 4=25000
 weather satellites 2=15416
 whisker crystals, mech., elec. props. 2=18974
 whiskers, growth and props. 1=15010
 wood-winds 2=15693
 work function, metals with adsorbed gases 1=4631
 X-ray absorption in solids, theories 4=15579
 X-ray absorption spectrometry 4=14844
 X-ray crystallog. 2=23829
 X-ray crystallography of biologically important macromolecules 3=23438
 X-ray diffraction examination, testing or control of materials 4=13623
 X-ray and electron diffr. crystallog., electron density distrib. (1950-60) 2=21495
 X-ray fluorescence spectroscopy 3=16185
 X-ray microscopy 4=7662
 X-ray microscopy, four methods 4=29155
 X-ray microscopy, monograph 1=20698
 X-ray spectroscopic analysis with radioisotopes 3=16186
 zodiacal light 2=15328
 zone melting 2=13229
 $\text{Al}^{III}\text{B}^V$ type cpds., elec. props 2=23390
 Al thin films, layer formation, oxidation, reflectivity 2=12944
 Bi, electronic band structure, crystal structure, elec., mag. and thermal props. 4=12882
 Bi_2Te_3 , single crystal, physical props. 4=13530
 C, diamagnetism, temp. var. 4=10240
 CdS, photocond. and optical props. 1=2436
 CdS photoconductive cells, preparation effects 4=7064
 Cs plasma measurements 4=18790
 GaAs, diffusion of 14 atoms, review 4=22612
 Ge, effect of pressure on props. 4=12895
 Ge, piezoresistance of n- and p-type, review 4=26046-7
 Ge and Si, impurity centre recomb. 2=23348
 H, ortho to para conversion 4=23644
 He atom and 2-electron systems, accurate calcs since 1957, 4=9630
 He, liq., handling methods 2=19795
 He, liq., uses in industrial labs. 2=19794
 HeII hydrodynamics 4=24473
 He II, thermal struct. 2=15829
 He^3 , liq. and solid, theories and props. 2=19801
 He^3 , liquid and solid, and superfluid phase 4=14476
 He^3 , Soviet and Western research 1=4523
 InSb, prep., props., and applcs. 2=21154
 LiF, point defects, rel. to physical props. 4=1458
 NaCl, surf. struct. and defect studies 2=21579
 Si, effect of pressure on props. 4=12895
 Si, electron states, optical absorpt., crystal structure and bonding 4=28413
 Si semiconductor counters 4=11855
 Sn, $\beta \rightarrow \alpha$ transformation 4=7514
 T counting with liquid scintillators 4=15178
 TiO_2 , rutile, photoconductivity, polarization, and space-charge-limited currents 3=17963
 U, its alloys and cpds., self- and heterodiffusion 3=8454
 U, $\alpha=\beta$ phase transition mechanisms 3=5129
 U carbides, crystallography, fabrication methods, compatibility irrad. behaviour 4=13611
 $\text{U}^{235,238}$, neutron cross-sections, 1 keV- 15 MeV 4=12252
Rhenium
 adsorption of Cs ion, linear var. of adsorption energy with work function of Re 4=29196

Rhenium—contd

- atoms, repulsion of energy levels 1=12237
 critical mag. field, down to 0.3°K 0=12561
 crystal mag. field in iron alloys, from Re^{186} β asymmetry at 0.1°K 4=20157
 de Haas—van Alphen effect 1=17931
 de Haas—van Alphen oscills., mechanism 3=23137
 desorption of Cs^+ and Ba^+ 3=8930
 desorption kinetics of Rb^+ , K^+ and Na^+ 4=2129
 electrical resistance, high press. 2=618
 electron emission, field, meas. 4=11691
 electron field emission, pulsed 4=27562
 electron paramag. reson. in cubic field 2=8671
 emittance, total, up to 2000°K 4=2883
 Fermi surface, by de Haas—van Alphen effect 4=12696
 Fermi surface, galvanomag. meas. at 4.2°K 4=4123
 films, on Si, polarized thermal light emission 3=17980
 internal friction, high temp. damping 0=3145
 ions, $\text{Re}^{185,187}$, e. s. r. in glass, h. f. s. 4=10331
 in iron meteorites, meas. 0=12273
 magnetoelectric effects in fields up to 180 kOe, at 4.2°K 3=4909
 magnetoelectric properties, in pulsed mag. field 4=2928
 natural radioactivity, possible atomic decay 2=3511
 optical emissivity, from 1100°K to melting point 4=28702
 radioactive dating in iron meteorites, appl. 2=4758
 reflection, light, far u.v. 4=22877
 single crystal, Ba adsorpt. and evaporation 4=30892
 specific heat, 1.2° to 24°K 2=6284
 spectrum, $\text{Re}^{185,187}$ mag. h. f. s. splitting and $\text{Re}^{186,188}$ mag. moment 4=28135
 sputtering, under Cs ion bombard., cathode sputtering ratio 4=24753
 superconducting anisotropy in deformed crystals 2=22121
 superconducting, effect of cold-working on domains 0=2293
 superconducting props., effect of plastic deformation and annealing temp. 2=2960
 superconductivity, change of transition temp. with press. 3=14461
 superconductivity, neutron irradiat. 0=3706
 thermal desorption of adsorbed Th 3=21856
 thermal expansion, 1.5° to 12°K 4=9864
 thermal expansion, 1.5-12°K, electronic and lattice contribs., and Grüneisen parameters 4=17370
 thermionic emission, in Cs vapour, low coverage, discontinuity 3=14624-5
 thermocouples with W for use in C atmospheres at >2000°C 1=4502
 vacuum technique props. 4=18297
 work function, effect of adsorbed Th 3=21856
 work function, wholly or partly covered by Th 4=11685
 X-ray L spectrum, emission 2=6588
 Re—W interdiffusion, rel. to intermetallic cpds. 2=8245
 Re—W thermocouples, stability in H_2 atmospheres 0=14955
 Re—W thermocouples, thermoelectric stability at high temp. 4=24417

Rhenium compounds

- alloys, with Au, Ag, Cu, elec. resist. at low temps. 4=22681
 $\text{BaB}_{0.5}\text{Re}_{0.5}\text{O}_3$ (B = Ca, Mg, Mn, Fe, Co, Zn, Cd), prep. and mag. props. 1=14694
 Re hexabromo-complexes, $\text{Br}^{90\text{e-}}$ spe. 2=17101
 Re hexahalide complexes, electron transfer spectra 0=20650
 Re—Al phase diagram, new phase ReAl_4 3=20882
 Re—Al (36.5-99.92 at.%), crystal lattice spacings 3=18339
 ReAl_3 , unit cell meas. 3=5115
 ReAl_{12} , crystal structure 4=7627
 ReB_3 , cryst. struct. 2=10881
 ReBe_{22} , cryst. struct. 2=21517
 ReBe_{24} , crystal structure 3=20839
 ReBr_{33} , crystal struct., atomic 4=17815
 ReCl_3 , crystal struct., atomic 4=17815
 ReF_6 , mag. suscept. 2=16889
 ReF_8 , rotl. Raman spectrum, Rayleigh scatt. depolarization 3=2623
 ReF_6 , vibr. spectra 2=14277
 Re—Fe alloys, nuclear sp. ht. 4=3994
 ReH_2^{2-} ion, H atom arrangement by neutron diffn. 4=29133
 Re—Hf, β -phase supercond., Re—W, Re—Mo 2=7522
 Re—Mo alloys, 2 σ -phase, atomic order, from powder photographs and X-ray diffn. 3=25752

Rhenium compounds—contd

- ReO_3Cl , and ReO_3Br , force constants and thermodynamic properties 4=6600
 ReS_2 , thermodyn. props. 2=17084
 Re_2S_7 , crystal structure 0=723
 Re_2S_7 , thermodyn. props. 2=17084
 ReSi_2 , prepn., props. of new semiconductor 3=872
 Re—W, Re—Mo, vacuum technique props. 4=18297
 Re—W for rotating anodes 3=17014

Rheology

- See also Plasticity; Viscoelasticity
 adhesives 0=3163
 Bingham fluid behaviour in cone-and-plate viscometer 3=14114
 bitumen, frictional behaviour 1=12611
 butter 1=14889
 characterization of non-linear viscoelastic flow 4=18128
 clay, and flow schemes 4=15854
 constitutive derivative in tensor fields 3=14074
 crystal melting 0=10321
 emulsions on ageing, changes in props. 4=10662
 equations of generalized Maxwell and Voigt models 1=12587
 eqns. of motion, non-Newtonian liquids 0=2149
 flow invariants, constraints due to incompressibility 4=2625
 flow lines, Bingham bodies 0=3161
 flow of non-Newtonian fluids 1=11739
 fluid flow, pseudo-plastic, similarity conditions 4=8137
 fracture, shear, liquids, viscoelastic 4=16081
 free energy rel. to relax. mod. and strain rate history 4=26480
 fundamentals, use of Euclid or Riemann space 2=9242
 granular masses, intergranular cohesion 1=20643
 H-bonded solids, tensile strength, theory, appl. to paper 0=13918
 high polymer extrusion flow curves, thermorheological simplicity 1=14884
 high polymer solids, rel. to temp., by creep strain recovery 1=20346
 inertial correction for concentric cylinder rheometer 4=29503
 intrinsic viscosity of stiff chains 1=10476
 Maxwell and Kelvin bodies, rel. to fluids 2=16957
 measurement techniques, review 4=8182
 milk gel 0=4746
 model which includes strain hardening 2=18989
 non-linear problems, dimensional analysis 3=23843
 non-Newtonian, superprobability of steady axi-symmetrical flow 1=15789
 petroleum asphalt, glass transition phenomena and rheological properties 1=11589
 photoelastic materials 4=2624
 plastometer for Bingham body, parallel-plate, theory 4=26479
 polyethylene, extension of Eyring—Ree theory 1=18367
 polyisobutylene, viscous flow 0=10266-9
 polyisobutene in cetane, vortices in cone—plate viscometer 4=21079
 polymer melts, flow at high shear rates 4=28974
 polymer melts, meas. 4=14112
 polymer solutions, steady flow, normal stresses 0=3497
 polymer systems, concentrated and bulk 1=18350
 polymers, crystalline, formulae 1=7820
 polymers, effect of second-order transition 1=7879
 polymers, extension of Eyring—Ree theory 1=18367
 polymers, solid, math. theory 3=18366
 polymers, viscosity temp. invariant characteristic 4=15695
 polyvinylchloride, dynamic and shear viscosities 1=18351
 powders 4=20786
 prestressed bound elements 2=12855
 pseudoplasticity, viscosity impulse theory 0=14581
 radial flow study using cone-plate viscometer 2=9245
 renneted milk gels 0=8122-3
 rheogoniometer, for colloidal systems and polymer solutions 4=114
 rheogoniometer, parallel-disk 2=15583
 rheological eqn. of state, conditions for application 3=8774
 rolling of viscous materials, stripe pattern 1=12844
 rubber viscosity theory, integrals 3=11166
 rubbers, viscous flow 0=10266-9

Rheology--contd

- solids, nonlinear model 2=6736
- sphere motion, in viscoplastic liquid 1=6826
- surface wave atten. on half-space 3=14240
- theory of models 4=8129
- thermodynamic theory 3=1658
- viscoelastic fluid, mechanical analogy 1=11738
- viscoelastic fluid normal stress oscillations 4=14124
- viscoelastic liquid, helical flow, single relaxation time 3=18789
- viscoelastic liquid, rheological equations 4=14111
- viscous buckling of multilayered fluids under strain, theory 4=18129
- viscous suspension, rheopectic flow 1=20340
- Weissenberg effect in white of hen's egg 1=6850

Rhodium

- conductivity, thermal and electrical 0=2797
- deformed, fine struct. 2=15109, 16664
- electric resist., temp. coeff. rel. to purity 2=21096
- electrical resist. of wire, after cold working 4=15523
- field emission and crystal growths 1=16359
- field emission, from single crystal tips, obs. by microscope 3=12233
- film, on Ag, interaction with dislocations 1=965
- films, evap. tech. onto glass 2=8885
- films, reflectance and transmittance 1=11836
- internal electric-field gradient, calc. 1=11143
- mirror reflectivity variation by Si-TiO₂ coating 1=9472
- optical emissivity, from 1100°K to melting point 4=28702
- stacking-fault density meas. 4=9978
- stacking faults, energy calc. 4=12769
- thermocouple, with Pt, reference tables, 0°-1800°C 4=27363
- thermocouples with noble metals, instability 3=1861
- vaporization 1=9506
- vaporization, heat of, at 298°K 3=1876
- vapour press., heat of sublimation, b.p. 2=5216
- X-ray continuous spectrum, Ohlin structure meas. 4=4242
- X-ray emission spectrum, N_{ii,iii} intensity distrib. 1=3514

Rhodium compounds

- Pt in Rh, solid solutions, optical constants, 0.01-1.5 at. %Pt 3=13153
- Rh complexes, transmission of electronic effects through the heavy metal atom 1=869
- Rh hexahalide complexes, electron transfer spectra 0=20650
- Rh pentamminebromo complex, Br^{80m} decay effects 3=23553
- Rh pentammino-complex, Br^{80m} separation 2=17101
- RhA₃ type complexes, visible and u. v. spectra 4=15354
- Rh₂(CO)₄Br₂, i.r. spectrum and dipole moment 2=10234
- Rh(CO)₂Cl, metal-metal bonding, and structure 1=11573
- Rh³⁺-Cr³⁺ ternary oxides, isomorphism 2=4425
- RhF₆, i.r. spectrum 3=12839
- RhF₆, vibr. amplitude and thermodynamic functions 4=17292
- Rh-Fe alloy, crystalline and magnetic structures 3=3320
- Rh-Fe, elec. cond. anomaly, 1°-50°K 4=15525
- RhP₃-As₃, -Sb₃, semicond. props. 2=8358
- Rh-Pd, Gd e.s.r. rel. to mag. props. 2=12821
- Rh₁₇S₁₆, crystal structure 3=8841
- RhSe, structure 1=5098
- RhSi, structure 1=5099
- Rh₅₀Si₄₈, structure 1=5099
- Rh-Ti alloys, superconducting transition temp. 3=21669
- Rh-Zr alloys, superconducting transition temp. 3=21669

Rochelle salt

- acoustic absorption, 5 Mc/s, near lower Curie point 1=19704
- dielectric nonlinearity 0=13653
- dielectric permittivity, rel. to applied elec. fld. 3=23001
- dielectric and piezoelec. props., effects of γ -rays 2=12565, 14609
- dielectric properties, ultra-high frequencies 3=20385
- e.m. and sound waves, interaction 2=21211
- e.m. and sound waves, interaction 3=2949
- e.s.r. study, rel. to irradiation 3=20654
- effects of γ -irradiation 1=14554
- electrostriction 3=13121
- electrostriction and piezoelec. effect 2=6532
- etching, X-ray damaged 1=19793
- ferroelec. domain walls in sudarés 3=2959

Rochelle salt--contd

- ferroelec. domains, polarizing microscope obs. 0=16010
- ferroelec. props., X-ray irradi. effects 1=10077
- ferroelec. structure, neutron diffraction study 3=899
- ferroelectric coercive field dispersion and jerky wall motion, low-freqs. 4=26126
- ferroelectric hysteresis loops, rapid "ageing" effect 2=10555
- ferroelectric properties, of X-ray damaged crystal 1=14555
- ferroelectric props. in different crystal regions 1=10079
- ferroelectric props. and oscills. in diel. pendulum 2=14611
- ferroelectric single-domain state 2=14621
- ferroelectric transient phenomena, effect of X-rays 2=23500
- free oscillations of X-cut sections 0=16030
- γ -irrad., X-ray diffuse scattering 1=12670
- i.r. spectra, fundamental frequencies of water molecules 0=9799
- internal friction, ampl. depend. meas. 4=15716
- internal friction, temperature effect 4=20683
- lattice disorder, ferroelec. aftereffects, dielec. relax. 4=10113
- luminescence of powders in elec. fields 2=14737
- n.m.r. of Na²³, ang. depend., quadrupole shifts, second order 3=25594
- nuclear magnetic double resonance 3=25593
- optico-acoustic and piezoelec. effects 0=20972
- permittivity during switching 2=18771
- permittivity, 10 Gc/s meas., temp. and elec. bias field depend. 0=10017
- photo-micrographic obs. when X-irrad. 4=2018
- piezoelec. oscill. damping 2=16797
- piezoelec. polarization, domain structure 0=13664
- piezoelectric constants, unipolarity and temp. depend. 1=3806
- piezoelectricity and electrostriction 1=10078
- polarization reversal in D-doped salt, Kerr effect study 0=18099
- polarization, by single square pulses 1=17836
- polarization processes, in slowly varying fields, domain study 1=3805
- proton magnetic resonance 0=4537
- radiation damage effects on ferroelec. and mech. props. 3=10883
- Raman spectra, H-bond bands, rel. to temp. 4=10176
- Raman spectrum, H bond, para-ferroelectric transition mechanism 3=20484
- sound absorpt. near upper Curie pt., frequency depend. 3=2726
- thermoluminescence after γ -irrad. 2=14759
- u.s. absorption near Curie pt. 2=16600
- u.s. effects on phys. props. 2=16972
- unipolarity, changes due to prolonged field action 1=19922
- water molecule bonds, orientation 0=15781
- X-cut, complex permittivity meas. 0=2302
- X-irradiated single crystals, paramagnetic resonance 1=11487
- X-rays effects, on anomalous props. 0=11741
- Cu²⁺ doped, effect on "delayed phenomena" 3=25404
- KNaC₄H₄O₆·4H₂O, dislocations and fine lines 1=12393

Rock magnetism

- (Heading introduced in 1962)
- anhysteretic remanent magnetization in small steady fields 2=6671
- apparatus, new magnetometer 3=9905
- basalt in hole EM 7, Mohole project 3=9137
- basalts, from Victoria (Australia), magnetization stability 3=1495
- Britain, Devonian, revised 3=16309
- chlorophaeite, effects of heating 3=1499
- data rel. to geomag. field in remote times 3=1484
- demagnetization by constant and variable fields 2=18902
- demagnetizing factor rel. to magnetization and susceptibility 3=11064
- and earth field reversal 4=26866
- and earth mag. polarity reversal 4=23812
- and earth radius increase 4=20845
- and earth rotation, fossil 3=11465
- electrical properties, equiv. cct. determ. 3=19135
- and evolution of earth-moon system 3=9136
- ferrimag. mineral component Curie pt. determ., high-freq. method 4=28830

rock magnetism—contd

- ferromagnetic composition, a.c. field detm.
method 3=13847
- ferromagnetic phase constitution determ. without
separation 4=10777
- geomagnetic total force, secular variation over last
5000 years 4=2329
- Great Dyke, S. Rhodesia, palaeomag. 3=11480
- haematite-ilmenite solid solns., magnetization 3=3523
- hematitic body, massive, mag. characteristics 3=1494
- igneous and metamorphic, susceptibility anisotropy 3=1493
- igneous and metamorphic, thermoremanent
magnetization directions, mod. stress effects 2=4704
- low temp. "cleaning" 4=29344
- magnetic anomaly, total intensity, digital computer
calc. 4=15900
- magnetic permeability, equiv. cct. determ. 3=19135
- magnetite and hematite, mag. props. 3=13845
- magnetite, mag. transformation and domain
structure 3=9138
- magnetization time effect 4=26876
- magnetometers 4=3082
- meas., astatic magnetometer, optimum sample
size 3=12287
- measurement coils, sensitivity maximization 4=4828
- mesozoic rocks of Eastern Australia 3=18578-82
- multidomain partially magnetized system,
stress effects 2=4705
- plutons, granitic, Upper Cretaceous, California 3=18577
- pressure effects, unidirectional, meas. 3=1498
- random magnetization, ang. dispersion 4=23820
- remanent magnetization, stress stability 2=4706
- remanent moment, temp. var. meas. 3=14708
- self-reversal in synthetic ilmenite-hematite solid
solutions 3=18576
- self-reversed and field-reversed rocks,
distinguishability 3=3522
- serpentine from Sierra Nevada, remanent, induced and
total magnetism 3=11476
- shale, cont. pyrrhotite, reversed on heat
treatment 2=24067
- single-component specimens, thermomagnetization
characteristics 3=13846
- small, randomly directed moments in demag. rocks 3=13848
- susceptibility anisotropy 3=11477
- susceptibility of stressed rock 2=24064
- susceptibility, total and anisotropic, meas. 3=14718
- tabular bodies, long, mag. anomalies, interpretation,
standard curves 3=16310
- thermochemical remanent magnetization 3=11479
- thermoremanence, single to multi-domain trans-
itions 3=5228
- thermoremanent magnetization, inversed-type,
production 3=11065
- thermoremanent magnetization in multidomain
grains 2=24065-6
- thermoremanent and viscous magnetization components,
separation by a temp. method 4=4829
- transitional layers between zones of direct and
reverse mag. 4=2328
- Welsh slates, susceptibility anisotropy rel. to bulk
susceptibility 3=11478
- FeO-Fe₂O₃-TiO₂, mag. props. 3=1497
- FeTiO₃-Fe₂O₃, reverse thermoremanent
magnetization 3=1496

Rockets

- acoustic properties, liquid and solid-propellant
rockets 3=11864
- Aerobee, ionospheric electron density det. 0=14208
- Aerobee-150, measurements of ionosphere electron
density 1=7936
- use of α -sources for low thrust sources 4=13975
- anomalous radiation at 310-340 km over Atlantic,
space-rocket results 2=11085
- Astrobee 200, ionosphere meas. instruments 3=5213
- astronomical-instrument carrying 0=10531
- atmos. temp., 100-150 km, by Na cloud
ejection 1=10319
- atmosphere data from rocket flights 1=6601
- atmosphere, upper, densities, ion, electron, neutral,
obs., review. 3=25916
- atmosphere, upper, research in Japan 2=19207
- atmospheric composition, mass-spectrum studies 2=15214

Rockets—contd

- atmospheric density data 1=6603
- atmospheric density, in USSR 2=13015
- atmospheric ionic composition, meas. 2=13021
- atmospheric temp., meas. 2=12994
- ballistics for large-range missiles 3=1544
- body of variable mass, motion in gravitational field,
optimal power variation 4=4961
- charge particle traps on Soviet rockets 3=3539
- Cherenkov detector of relativistic nuclei 2=17314
- combustion chambers, relaxation oscillations
in gas phase 3=1389
- cosmic-ray emulsions in, recovery 0=20251
- cosmic-ray observation from solar flare, delayed
protons 1=10937
- in cosmic-ray studies 0=12796, 20300
- cosmic rays, obs., 3rd Soviet space rocket 2=9948
- cosmic rays, obs. up to 200 km 2=9942
- cosmic rays, and radiation belt, data 2=9947
- cryogenic propellants 1=18222
- data on atmospheric density 1=7927
- data on radio wave propagation in ionosphere 1=6616
- electrical potential, space-charge theory det. 2=9121
- electrically-controlled demand-thrust, for satellite
guidance 0=12336
- electron density measurement to 1500 km 1=15323
- electrostatic propulsion 0=12333
- engine-noise data at launching 3=16438
- engines, fast reactors 2=20698
- exhaust radn. in upper atm., meas. 2=8982
- exhausts, e. m. props., effect of solid particles 4=10933
- falling, velocity and shock wave 0=57
- focusing trajectories in inverse-square field 0=3479
- free-molecule flow, interactions and energy
exchange 0=19172
- freely falling, angular motion 4=26912
- French, of March 10 and 12, 1961, Na line
intensities 1=11690
- gravitational paths in field of number of masses 4=2472
- heat transfer, bibliographical review 0=12507, 16906
- hypersonic speeds, ionized shock layer 2=4878
- I.G.Y. conference, Moscow, 31 July-
9 August (1958) 1=5172
- ideal fuel, pressure-temp. curve 3=1546
- illumination, by Na artificial comet 0=18889
- impact point, det. by acoustics 0=912
- interplanetary ionized gas and particles meas. 2=15301
- interplanetary, use of plasma for propulsion 1=16340
- interplanetary trajectories, miss distances,
meas. 2=11185
- interplanetary travel, chemical and electric propulsion
systems, comp. 0=12335
- ion Cs strip beam, end effect electrode design corr. 4=5722
- ion formation in upper atm., study 2=11045
- ion and plasma propulsion, comparison 0=12615
- for ionosphere, D, electron density radii meas. 4=20869
- ionosphere, free-electron concn. meas.
apparatus 2=17153
- ionospheric disturbance, local 2=19217
- ionospheric electric field intensity on surface 3=3487
- in ionospheric electron density meas. 0=6448, 12146
- ionospheric electron density, meas. 2=13019
- ionospheric F layer, electron density distribution
measurement 1=15286
- ionospheric obs., methods review 2=8992
- ionospheric positive-ion density measurement 1=11648
- Jason, high-altitude electron meas. rel. to nuclear
detonations 3=9114
- lunar missiles, photographing near moon, light level
criteria 1=2669
- lunar and planetary exploration, programme 1=18225
- magnetic meas. on earth radiation belt and moon
mag. field 2=11082
- magnetohydrodynamic propulsion, interplanetary 3=19424
- maximum range in horizontal flight 4=10934
- metal sphere in interplanet. space, potential 2=17315
- meteoric dust particles recording 2=9010
- meteorite impact, high velocity, theory 2=9068
- micrometeorite studies 2=13119
- moon, earth and lunar radiation belts obs. 2=9029
- moon, orbital behaviour of three Soviet rockets 2=11170
- motion equations, for variable mass gyroscope 0=8579
- motion, round earth or sun 0=18874

Rockets--contd

motors, acoustic instability 3=7287
 multi-stage, design and size rel. to cost 2=4875
 navigation theory for round trips to Mars and Venus 2=11183
 noise 1=12955
 noise, effect on missile motion 0=10741
 noise meas. with microphones, vibr. effects 3=14282
 nose-cone ablation 2=2910
 nuclear, design 1=17181
 nuclear, for terrestrial and space emissions 2=4873
 optimal climb, motion on ramp 1=1668
 payload technology 4=26912
 photon propulsion 0=12334
 photon rockets, mechanics in general theory of relativity 4=26976
 pilot-static tube for upper-atm. struct. meas. 2=2496
 plasma accel. 2=1414
 plasma acceleration 1=10694
 plasma sheath, e.m. wave absorpt., wind tunnel study 2=3166
 plasma sheath, microwave tech. study 2=4880
 plumes, Mie scatt. by μ -size spheres, 0.5-10.0 μ rel. to emissivity 4=22845
 potential of metal sphere in interplanet. space 2=11196
 power reduction, rel. to random processes 4=10935
 projectile aiming on moving earth 0=6719
 propellant optimization, computer analogue 3=16470
 propellant, solid, burning rate meas. 4=27359
 propellant, solid, determ. of shear modulus 4=7370
 propellants, liquid, thermal stability apparatus 4=23635
 propellants, thermodynamic props. of Al, B and Li halides, 0-6000°K 0=963
 propulsion by plasma ions 2=7045
 propulsion, relativistic theory 0=10573
 propulsion unit, with solid fuel 4=29492
 proton meas., during Nov. 12 1960 solar event 2=13900
 radioastronomy appl. 2=9109, 15397
 radiowaves, from rotation of plane of polarization, ionospheric electron concentration 0=21350
 reactor performances for propulsion 3=16434
 re-entering, shock-layer, electron density 2=2755
 relativistic dynamics 0=18923
 relativistically moving, separation 0=16580
 rolling, inertia instability 2=11315
 Scout rocket, aerodynamic noise meas. 4=221
 second Russian cosmic rocket, results obtained 0=10397
 silica heat shields for nose cones, conductivity and other parameters 4=15437
 sky u.v. emission study 0=10533
 Skylark rocket-grenade experiments 4=26811
 Skylark rockets, sodium experiment 0=21331
 solar corpuscular radiation observations 0=14381
 solar observations 0=14434
 solar radiation meas., rel. to X-ray absorpt. of Al 2=13127
 and solar research 1=15442
 solar u.v. spectrum observations 0=16545
 solid propellant, acoustic resonance 0=8735
 sounding, atmospheric press. meas. 2=17123
 soundings of upper atmos., formulae for wind and temp. 1=10315
 Soviet, brief data 3=21136
 Soviet, general data 3=3630
 Soviet, radioastronomical tracking 2=9132
 space flight problems 0=18872
 space, optical obs., comet props. appl. 2=9123
 space, visibility improvement using artificial "comet" 2=9124
 specific impulse and performance 3=1545
 spectrometers, grating, solar 3=11615
 Sputnik I rocket, re-entry 1=5176
 stability, differential eqns. system 0=12395
 stability, nonlinear differential systems 0=4977
 stellar astronomy 0=14438
 suborbital flights, orbits of least energy 2=24190
 sun spectra obs., resonance, He II 304 Å and He I 584 Å 3=11534
 symposium, control and guidance 2=4861
 thrust, method of increase 0=19182
 tracking, by Millstone radar 2=13202
 tracking systems, optical and i.r. 3=18666
 trajectories for continuously applied propulsive thrust 2=11187

Rockets--contd

trajectories, optimal accuracy 0=911
 trajectories, optimum, max. range and min. time 3=11614
 trajectories, optimum thrust 3=3778
 trajectory charts, generalized 2=11184
 upper atmosphere obs. of extreme u.v. 0=10451
 Vanguard II transit rel. to F-layer ionization reduction 1=20984-5
 Veronique, atmospheric press., 85 km 2=6928
 wakes, meas. of electrical conductivity 4=8588
 for wind study, night, upper atmosphere, chemiluminescence payloads. 3=25918

Rotating bodies

See also Angular velocity measurement; Centrifuges; Earth, rotation; Gyroscopes
 angular momentum conserv., demonstr. apparatus 3=3703
 annulus, role of Ekman layers in symm. regime 4=21074
 ball rolling between two surfaces, effect of elastic deformation on motion 1=4293
 beam with tip mass 3=18878
 beam, whirling Rayleigh type, vibs. 3=18879
 bearings for high speed rotors 1=15771
 centripetal force apparatus 0=6725
 cylinder, viscoelastic deformation 4=29576
 cylinders, stability enhancement of Conette flow 4=24143
 deformable, solid or liquid 2=4973, 11311
 disk, edge velo., and special relativity 3=9336
 e.m. induction 4=16625
 effect of resisting couple on rotational motion 1=15769
 elec. cond. sphere in medium in mag. field 4=16626
 elliptical vessels containing liquids, rotational vibration 0=6716
 ellipticity of slowly rotating configuration 4=4733
 fluid mass, differential rot., dissip. 2=1105
 fluid mass, grav. field 3=1600
 forced oscillations in self-rotating system 1=5244
 forced oscillation in self-rotating system 1=10461
 gaseous masses, oscillations and stability 2=4794
 gravitation, Einstein field, sphere 3=16503
 gravitation, vac. field eqns. 4=24028
 hula hoop, heteroparametric excitation 0=910
 Huyghens' theorem generalization 2=11313
 lamina, inf. plane, in non-Newtonian fluid 0=8615-6
 liquid column, stability 3=1666
 liquid, oscillations, slow forcing region, travelling-wave disturbances 3=18792
 liquid solutions in elec. field 1=5253
 liquids, effect of rotation on surface tension 1=15822
 mass attached to spring, mass correction 4=18123
 moment of inertia, new theorem 1=5241
 motion in elastic wave field 0=19033
 n.m.r. rel. to spin diffusion 3=6762
 orbital motion, three-dimensional polar eqns. 4=18121
 orbital stability, teaching demonstration 2=17389
 oscillations and stability of rotating gaseous masses 3=3591-2
 piezoelectric hollow quartz cylinder, stress analysis 4=21068
 plate, about diam. of central hole, stress analysis 2=9216
 polytropes, highly rotating 4=2633
 "product of inertia" concept, extension 4=27120
 quantum theory, Bohr-Sommerfeld conditions 4=8064
 relativistic, quantum states 4=24071
 relativity of uniform rotation 1=58
 resisting couple, effect on rotation of rigid body 0=16658
 rods, rigid, in dielec. liquid in shear and elec. fields 2=9254
 rotation of symmetric body in viscous conducting fluid 1=9676
 self-gravitating disk of matter, structure and stability 4=10787
 shaft position indicator 1=4297
 shells of revolution, supported on an elastic body 3=9387
 slip between metal and rubber-covered rollers 0=8134
 solid body subject to couples, spatial motions 0=14565
 sphere, in fluid, non-Newtonian, boundary layer, laminar 3=9409
 sphere, in non-Newtonian viscous liquid 3=111
 spheres in contact, rotating in viscous fluid 2=1109

Rotating bodies—contd

- spin-particle in gravitational field, conservation laws 4=24049
- stability of rotating space vehicles 0=14476
- supercond. film, persistent current and energy gap 4=21407
- theorem of Rodrigues and Hamilton, matrix proof 4=29571
- ultra high-speed, review 2=15523
- vector representation 2=13297
- PCl₃, n.m.r. spin-lattice relax. and rotat. freq. 3=20683

Rotatory power, dispersion

See Optical rotation

Rubber

- acoustic reflectivity in water 2=9342
- acoustic wave propag. 0=2196
- acoustic wave propag., plates and rods 0=14722
- antivibration mountings 2=2808
- anti-vibration mountings, choice 0=6870
- bulk modulus by "suspension method" 1=12578
- butadiene-styrene, particle size determ. by light scattering 4=4716
- cellular, closed pores, sound refl. 2=2833
- compressibility of natural rubber at press. below 500 kg/cm² 4=23201
- cork-rubber composition, thermal cond. 0=5204
- crack propagation 1=5084
- cracks, stress and strain distrib. 1=6479
- crosslinked, molecular packing rel. to physical behaviour 1=20655
- cross-linking and chain fracture by high-energy radiation 1=15204
- crude, kerosene swollen, X-ray study 0=1913
- crystal growth, low temp., differential thermal analysis 4=23347
- crystallinity, strain-induced, electron microscopy 3=18427
- crystallization kinetics, hydrostatic press. depend. 3=23421
- crystals, growth, stress effects, cyclic, smoked-sheet 4=23619
- deformation, shear and tension, theory and expt. 3=15972
- dielectric properties, 1958 digest 0=2300
- divinyl styrene synthetic rubber, meas. of dynamic viscous-elastic parameters 0=10270
- dynamic elastic props., rel. to crystallinity 1=14861
- dynamic mech. props., 0.01-4000 c/s 2=21392
- ebonite, formation of electrets, effect of alternating fields 0=635
- ebonite, permanent polarization 0=10022
- elastic constants, meas. with elastometer 1=12577
- elastic properties, static and dynamic determination 0=18235
- elastic relaxation, automatic meas. 3=13339
- elastic wave propag., finite, in filaments 3=7270
- elasticity, liquid-like theory 2=8140
- elasticity, teaching expt. 4=7367
- elasticity, when crosslinked by irradiat., temp. var., and internal energy 4=4485
- elasto-mechanical props., over wide strain range, phenomenological theory 1=3965
- elastomers, gum, tensile strength, mol. basis 4=7452
- electrets, on vulcanization, time var. for different fields 3=25409
- electric cond., effect of γ -irrad. 2=3996
- energy stored in flexure 4=7368
- etching, for filler electron microscope examination 3=23528
- filled and unfilled, dynamic elastic props., strain amp. depend. 0=8108
- films, fine structure, electron microscope study 0=21220
- films, natural, spherulite morphology 3=1343
- flexural Rayleigh waves in plates 1=2808
- friction, lubrication mech. 2=15559
- friction, var. temps. and velos., relation to visco-elasticity 3=16013
- glass transition and Young's modulus, pressure effects 4=7454
- gutta-percha, crystallization and crystal structure 0=6342
- latex, particle size distrib. meas. 3=6931
- latex particles, light-scattering, in aerosols 1=11638
- longitudinal viscous waves 2=7275
- magnetic field meas. using proton resonance fluxmeter, 2-340°K 4=8890

Rubber—contd

- mechanical damping, representation 3=18877
- mixtures, compression in plastometers, rel. to viscosity 2=12852-17418
- molecular motion, n.m.r. study 3=11125
- natural, application of three-parameter stress function 1=14866
- natural latex, coagulated, weak hydrogel properties 0=14142
- natural, longitudinal wave propagation 0=18251
- natural, 1000 A-thick films, spherulite morphology 3=20919
- natural rubber, bulk modulus by "suspension method" 1=12578
- natural, thermo-elasticity and dilation coeff., expt. 4=7455
- natural vulcanizates, cross-linked mechanical props. 4=10400
- oxidation, stress effects, cyclic, smoked-sheet 4=23619
- piezoelectricity, on vulcanization 3=25409
- polyurethane, filled with inorganic salt, nonhomogeneous straining and fracture mechanism 4=13438
- polyurethane, rheology, math. theory 3=18366
- pressure-induced transitions 3=23494
- pure, and foam, complex dynamic elastic modulus 0=1842
- radiothermoluminescence 0=21018
- rubber-covered pressure rollers, behaviour 1=11729
- rubber hydrochloride, stress relaxation 3=1133
- rubber-like materials, dynamic shear properties, machine testing 0=6289
- rubber-like polymers, viscoelastic behaviour 3=11167
- rupture, internal, bonded cylinder in tension 0=3159
- rupture and tearing energies 0=1865
- SBR, stress relaxation, at large strains 0=18244
- SBR, ultimate props., time and temp. depend. 0=21123
- shock compressibility 2=8716, 10745
- silicone rubber, X-ray diffrn. from lattice planes 3=3349
- silicone, for vacuum work, outgassing 4=8280
- silicones, phys. and elec. props. in thermal-vacuum environments 4=20414
- sound propag. and elastic props. 1=16024
- sponge rubber, vibrational mechanical impedance 1=18540
- strain dependence of visco-elasticity 0=697
- stress relaxation by viscoelastic mechanism 0=3160
- stress-strain relations, high sine deformation 4=17741
- stress-strain relns. in simple shear, meas. 4=7451
- tearing, analysis of stresses and deformation 0=1864
- tearing process, molecular mechanism 3=5074
- thermal conductivity below 1°K 4=6758
- thermal expansion, linear coeff., 76-300°K 4=12653
- tyre sidewall strain, meas. 2=7152
- various objects, simple prod. technique 3=13980
- viscosity theory, integrals 3=11166
- viscous flow 0=10266-9
- vulcanizates, dyn. elastic behaviour 2=5126
- vulcanization by irradiation 0=6419
- vulcanizates, stress-strain props., during aging 1=2505
- vulcanizates, unfilled, tensile failure envelopes 4=7453
- vulcanized, fluidifying degradation 1=14885
- wave propagation in, deformed beam study, shock waves 1=1780
- yarn and cord models 1=6450
- Fe-filled, magnetostriction 1=17965
- and ZnO₂ mixtures, permittivity 0=6151

Rubidium

- atom, coll. with benzene molecule, gaseous state, transient charge exchange 4=14580
- atom, oscillator strengths calc. 4=25501
- atom, red bands in Xe, effect of Xe press. 4=15290
- atomic excitation transfer collisions, from hyperfine relaxation 4=6510
- atomic g_r-factors of Rb⁸⁵ and Rb⁸⁷ 2=6113
- atomic heat, electronic and thermal contris., 0.35-2°K meas. 4=25852
- atomic l. r. emission spectra, 1.6 to 3.7 μ 4=3799
- atomic spectrum, Xe perturbed, red satellite band intensity analysis 4=22306
- atomic structure of Rb⁺ 0=17647
- atoms, electronic polarization relax., longit., effect of Rb-Cs exchange collisions 4=22321
- atoms, ionization on collision with H₂, D₂, N₂ and O₂ 0=19611
- atoms, magnetic relaxation on paraffin covered walls 4=6492

Rubidium—contd

- atoms, optically pumped, spin-exchange with electrons, theory 4=9654
 atoms, optically pumped, spin relaxation in molecular buffer gases 4=15308
 atoms, polarized, mag. relaxation at paraffin-covered walls 3=25060
 atoms, $\text{Rb}^{85,87}$, spin exchange collisions, e.s.r. meas. 4=25591
 atoms, Rb^{85} — Rb^{87} collisions, spin-exchange cross-section meas. 4=9676
 atoms, Rb^{87} electron g factor, Zeeman effect obs. 4=30382
 atoms, relax. on silicones and paraffins 2=18425
 atoms, $\text{Rn}^{85,87}$, h.f.s. in ground state 2=16478
 atoms, spin relaxation induced by H_2 and rare gases 3=4723
 coating for u.v. high reflectance 2=17641
 corresponding states behaviour 4=24460
 de Haas—van Alphen effect 3=1122
 de Haas—van Alphen effect, in steady mag. fields 4=26263
 desorption kinetics of ions from Re 4=2129
 elec. cond. 0=15826
 elec. resistance, pressure depend. over 500 kbar 4=1559
 films, elec. resist., thermoelec. power 2=6405
 films, elec. resistance, thickness depend. 0=1615
 flame resonance lines, optical cross-sections 1=1815
 fluorescent yield of L-shell 4=3774
 fusion curves, to 5 kb 2=17688
 ion emission, thermal, isotope effects 4=24749
 ion, scatt. process by Mo metal 3=22854
 ions, desorption by elec. fields 1=5105
 ions, range in Al 0=19804
 ions, Rb^+ , quadrupole antishielding factor calc. 4=3791
 ions, Rb^+ , resonance charge exchange, 900-2400 eV 4=18692
 ions, Rb^+ , scatt. on hot Mo 2=20050
 ions, Rb^+ , scattering on hot Mo 3=2047
 ions, Rb^{86} , range in Al 3=12608
 isotope separation in liq. by elec. current 2=10229
 Knight shift, $\text{Rb}^{85,87}$ isotope effect 1=14824
 light source, high-intensity, for optical pumping 2=1261
 liquid, density measurements 0=12398
 liquid, elec. cond., change on melting 1=150
 liquid, heat capacity calc. up to 800°C 3=23870
 n.m.r., electronic structure 0=4530
 optical pumping, disorientation cross-sections 3=8200
 optical pumping of Rb^{87} , efficiency of Rb^{85} filter 4=22313
 optical pumping, spin relax. 2=1963
 paramagnetic susceptibility rel. to temp., theory 1=12520
 resonance spectrum, effect of A at press. up to 1500 atm 0=5882
 specific heat and Debye temp. 2=16608
 specific heat, 0.2°-4.2°K, analysis 4=12643
 spectrum, pressure effects, Ar 3=22488
 thermoelectricity, electron and phonon scatt. 3=23027
 thermoelectricity, meas. below 1°K 0=18076
 vacuum deposition 3=11844
 vaporization, in arc, electric, var. with sample composition 4=484
 vapour, ionization, absolute cross-section 4=14573
 vapour magnetometer, using optical pumping 2=5430
 vapour, multiple ionization, by Auger effect, meas. 4=11520
 vapour, optically aligned, spin relaxation and disorientation collisions with buffer gases 0=482
 vapour, optically driven spin precession 1=8821
 Zeeman resonance 0=17694
 Rb I , $6^2\text{P}_{3/2}$ state, h.f.s. 1=2284
 Rb^+ , backscattering from W, Ta, Mo, Ti and Ni targets rel. to temp. 4=8854
 Rb^+ bombard. Mo and Ni targets, ang. distrib. of scattered secondary ions 4=8856
 Rb^+ radial electron density plots 4=22280
 $\text{Rb}^{85,87}$ mag. dipole transitions, g_J factors from e.s.r. 1=9914
 $\text{Rb}^{85,87}$ vapour, e.s.r. fine structure 4=12374
 Rb^{87} , h.f.s. splitting 1=7438
 Rb^{87} , 70c/s line width, optical orientation and microwave detection 0=17695
 $\text{Rb}^{87,85}$, e.s.r., vapour, optically aligned, fine structure 4=6471

Rubidium compounds

- halides, diffusion of Kr, prod. by n irradi. 3=15508
 halides, polymorphism 1=6516
 rubidium dihydrogen phosphate, i.r. band spectra 1=11377
 Rb actinyl nitrates, nuclear orientation 1=14153
 Rb cyanoplatinate, as γ -scintillator 3=6668
 Rb ethylamine solns., e.s.r. and absorpt. spectrum decay and mols. present 4=21156
 Rb halides, aqueous solns., u.s. behaviour 3=16623
 Rb halides, e.s.r. of F-centres 0=4300
 Rb halides, F-centres, short-wave absorption, higher excited states 0=17965
 Rb halides, lattice vibrations and specific heats, calc. 0=13480
 Rb halides, photoelastic consts. 1=12482
 Rb halides, sp.ht. rel. to spectroscopic behaviour 3=765
 Rb iodide, mirror coatings for u.v. region 0=16882
 Rb pentaborate, crystal structure 0=4644
 Rb pentaborate glass, radial distrib. curve 0=6360
 Rb perhenate in RbNO_3 , heats of soln. and dil., interaction parameters of liq.-liq. mixtures 4=10631
 RbAlO_2 , i.r. absorption spectrum 2=2239
 $\text{RbAl}(\text{SO}_4)_2$, e.s.r. line broadening of Cr^{3+} due to dipolar interaction 4=15670
 Rb-B glasses, electrical conductivity rel. to composition 1=10033
 Rb-B glasses, electrical conductivity rel. to composition 1=11270
 RbBeF_3 , crystal structure, atomic 3=20847
 RbBe_2F_5 , crystal structure rel. to silicate sheets 3=13484
 α - RbBi_2 , crystal structure 3=13518
 Rb_2Bi , crystal structure 1=4044
 RbBr , coloured with Na, colloidal absorpt. bands 4=17580
 RbBr , crystal structure and thermal expansion 1=19724
 RbBr , elastic consts., 300°K, from u.s. velocity 1=12583
 RbBr , F-centres, e.s.r. and ENDOR 3=15520
 RbBr , F and M centres, absorption spectra rel. to pressure 4=15502
 RbBr moving edge dislocations 3=10654
 RbBr , nuclear magnetic resonance 0=4531
 RbCl , coloured with Na, colloidal absorpt. bands 4=17580
 RbCl , crystal structure and thermal expansion 1=19724
 RbCl , decomposition by electron irradi. 3=17809
 RbCl , effect of pressure on elec. and mech. props. 1=11271
 RbCl , electron density distrib. in crystals 1=15072
 RbCl , electron energy loss spectra 2=3889
 RbCl , exoelectron emission spectrum 3=14618
 RbCl , F-centres, e.s.r. and ENDOR 3=15520
 RbCl , F and K bands, optical absorption 4=22634
 RbCl , F and M centres, absorption spectra rel. to pressure 4=15502
 RbCl , F-band shape under 6200 atm. 4=20313
 RbCl , F-centre absorpt. and emission, temp. depend. 4=25970
 RbCl , K-absorpt. spectrum of Cl 3=6660
 RbCl , molten, self-diffusion 2=15573
 RbCl , phase transform. rel. to press 2=23803
 RbCl -KBr mixtures, colour centres 3=10693
 RbClO_3 , X-ray K-absorpt. spectra of Cl 3=23090
 RbClO_4 , X-ray K-absorpt. spectra of Cl 3=20498
 $\text{Rb}_2\text{Co}(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$, crystal struct., atomic 4=23435
 $\text{Rb}[\text{CrAl}(\text{SO}_4)_2] \cdot 12\text{H}_2\text{O}$, paramag. reson. splitting, var. Cr^{3+} conc. 4=20599
 RbCuF_4 , cryst. struct. and mag. props. 2=23853
 RbF , F and M centres, absorption spectra rel. to pressure 4=15502
 RbF , i.r. lattice refl. spectrum analysis 4=1737
 RbF , internuclear distance 4=20060
 RbF , transformation f.c.c. to CsCl-type, 9-15 kbar 3=5077
 $\text{Rb}_2\text{Fe}(\text{CN})_6 \cdot 3\text{H}_2\text{O}$ ferroelectric properties 1=14558
 RbH molecules, excited, pot. energy 2=10238
 RbH , spectra, Franck-Condon factors and r-centroids 3=4757
 RbHSO_4 , absorption spectrum, 55 to 170 cm^{-1} 4=28668
 RbHSO_4 , ferroelectric props. 0=7980
 RbHSO_4 , i.r. absorption at ferroelec. Curie pt. 2=16833, 18841
 RbHSO_4 , vibrational spectra by Raman scattering method 4=1717

Rubidium compounds—contd

- RbI, elastic consts., 300°K, from u.s. velocity 1=12583
 RbI, moving edge dislocations 3=10654
 RbI, photocond. 2=8426
 RbI, polymorphic transition press. calc. 2=14922
 RbI, spectrum in PbS region 2=1991
 RbI, thermal expansion, low temp., X-ray method 4=28378
 Rb-K alloys, liquid, thermoelectric power 3=145
 Rb₂K₁-NO₃ mixed crystal, ferroelec. phase study 4=26125
 RbMnF₃, antiferromagnetism and antiferromag. resonance 3=3144
 RbMnF₃, antiferromag., n.m.r. of Mn⁵⁵, low temps., freq. pulling 4=13346
 RbMnF₃, antiferromagnetic resonance 3=18123
 RbMnF₃, cubic, antiferromag. resonance 3=15928
 RbMnF₃, mag. structure, neutron diffn. meas. 4=28859
 RbN₃, Mn²⁺ paramag. res. rel. to crystal orientation 4=23051
 RbNO₃, cryst. and molten, u.v. absorption changes 2=16822
 RbNO₃, dielec. props. 4=22779
 RbNO₃, fused, thermal diffusion meas. 4=163
 RbNO₃, fused, transport numbers 3=16172
 RbNO₃, phase transformation with absence of ferroelectricity, mechanism 4=4202
 RbNO₃, thermal phase transformations 3=1252
 RbNO₃, transition energies and temps. 2=8762
 Rb₂O, effect on Bi₂O₃ polymorphism 4=23253
 RbPF₆, specific heat and phase transitions 3=12927
 (RbPO₃)_∞, crystal structure 4=23468
 Rb₂Sb, crystal structure 1=4044
 RbSb₂, crystal structure 3=13518
 Rb₂Sb, crystal structure and electrical props. 1=15081
 Rb-Sb layers, secondary electron emission 0=12630
 Rb₂Sb, pair prodn. by low-energy electrons 2=8357
 Rb-Sb system, secondary electron sources 0=19727

Ruthenium

- atomic and electron heat, 10-273°K 0=1560
 atomic spectrum, isotope shifts 1=2292
 atoms, repulsion of energy levels 1=12237
 conductivities, elec., thermal, down to 2°K 4=12863
 crystals, electron distrib. and temp. var. 2=15019
 electron emission, field, meas. 4=11691
 isotope composition of meteorites 2=24106
 lattice parameters and volume, effect of press. 4=29136
 superconducting, absence of isotope effect 3=3963
 superconducting critical temp., no isotope effect 1=8285
 superconductive temp. controller, below 1°K 3=1880
 vapour magnetometer, for geomag. meas. 4=27603
 vapour pressure and heat of sublimation 4=8510
 vapour pressure and heat of sublimation meas. 4=24459
 vaporization data and boiling pt. 2=17694
 vaporization mechanism, high temp., coprecipitated with various agents 4=5469
 Ru¹⁰³ film on fallout particles 3=10280
 RuI spectrum 0=7729-31
 Ru¹⁰³-Ru¹⁰⁶ pair, analysis by β - γ coincidences 3=5990

Ruthenium compounds

- with rare earths, Curie points and mag. moments 0=1776
 ruthenocene-Ru¹⁰³ synthesis by ferrocene + U fission 1=20736
 semiconductors, resistivity and diamagnetic measurements 4=1618
 superconductivity 3=24148
 Ru hexahalide complexes, electron transfer spectra 0=20650
 Ru-As or Sb-S, Se or Te, semicond. props., crystal struct., atomic 4=26056
 Ru-B, orthorhombic phase (probably RuB₂), struct. 2=23866
 Ru-B system, crystallography 1=10260
 Ru₂B₃, crystal structure 0=18349
 Ru₂Be₁₇, crystal structure 3=8839
 RuC, preparation and crystal structure 1=1389
 RuF₃, mag. props., neutron diffn. study 1=1251
 RuF₆, i.r. spectrum 3=12839
 RuF₆, vibr. amplitude and thermodynamic functions 4=17292
 Ru₂O₄. Y₂O₃, mag. susceptibility of powder 2=21288
 RuSb, structure 1=4049
 RuSb₂, structure 1=4049

S-matrix theory

- See also Dispersion relations. (Heading introduced in 1963)
 analytic props. rel. to causality requirements 3=24633
 analytic regularization rel. to divergences 4=14996
 analytic structure of production amplitudes 4=19447
 analyticity in ang. momentum for singular potentials 4=30196
 analyticity basis, effect of external-mass singularity 4=5981
 analyticity in coupling const., ang. momentum and energy 3=19581
 in angular momentum space 4=3347
 asymptotic behaviour, analytic continuation in ang. mom. 3=12418
 asymptotic behaviour of function expressed through dispersion integral 4=25041
 asymptotic behaviour in potl. scatt. 3=14909
 asymptotic behaviour for small ang. momentum 3=10055
 behaviour of zero coupling constant 3=12410
 Bergmann potentials, many-channel 4=27803
 bootstrap approx., rel. to soluble model of p-wave dispersion eqn. 4=9137
 bootstrap calc. for top-lying Regge trajectories with set of N/D eqns. 4=21803
 bootstrap dynamics, SU, octet of Regge poles 4=16820
 bootstrap mechanism, origin of internal symmetries 4=3288
 bootstrap model, self-consistent sets of mesons 4=16819
 Borcher's second theorem, deduced from complete asymptotic states hypothesis 3=24645
 bosons, spinless, in two-dim. soluble theory 4=11899
 bound-state conditions, bootstrap deriv. 4=21744
 bound states and analytic properties in angular momentum 4=21743
 bounds on matrix elements, complex systems 3=22083
 canonical structure rel. to asympt. reduction methods 4=19412
 charge conservation deriv. and gravitational-inertial mass equality 4=27747
 cluster decomposition props. rel. to structure 4=5982
 complex ang. momentum in many-channel scatt. 3=7789
 composite particles, vanishing wave function renormaliz. consts. 4=30197
 connection with Neumann series expansion of wave function 4=11941
 consistency problem in two-body ampl. 4=9132
 construction without divergent quantities 3=12401
 coupled two-particle channels, resonances 3=10040
 coupling const. restriction by analyticity and unitarity 3=10062
 crossed channels, complex ang. momenta and unitarity 3=5949
 crossing relns. for arbitrary processes 3=10058
 degenerate systems, singularities in power series expansions 4=11067
 derivation from particle description in qu. field theory 3=2189
 deuterons stripping, by reduction techniques 3=15223
 dressed particles, S-matrix 0=7293
 Dyson S-matrix, definition, arbitrariness 3=12407
 electrodynamics, weak interaction parity effects 4=5957
 elementary particle interaction symmetry and group-theoretical properties 4=27819
 elementary particle, production, review of statistical theory methods 4=3307
 exploration, singularity structure 4=25036
 exponential potentials superposition singular like r^{-2} at origin 4=25045
 Feynman rules for massless particles of any spin 4=19359
 and field theory 4=21721
 forced harmonic oscillator, S-matrix solution 3=14032
 formfactor satisfying unitarity condition 3=14922
 functional formulation 4=27820
 functional formalism of the S-matrix 3=24646
 functional solution, rel. to divergence-free theories 4=9048
 fundamental integral eqn. for all quantum fields 4=791
 gauge-invariance conditions formulation 4=19444
 hermitian analyticity and extended unitarity 4=30195
 at high angular momenta, new calc. method 4=19448
 high-energy scatt. with anomalous threshold 4=19446
 Hori's strong-coupling method, modification 4=19445

S-matrix theory—contd

- impulse approximation, general discussion 3=5948
- inelastic collision theory, approx. methods, extremal props. 4=25039
- invariance 3=12421
- invariant amplitudes, for arb. spins and nonzero masses 3=10059
- rel. to infinite time formalism 4=11875
- integral operators, Carleman and Hilbert-Schmidt 4=9122
- isotropic spin indep. in high energy limit 3=7808
- Jost function construction including inelastic processes 4=25043
- Jost function, generalized, rel. to Levinson reln. 3=10061
- Landau surface on phys. sheet, singularities criterion 3=5941
- Lee model, exact and approx. bootstrap conditions 4=15010
- Levinson's theorem, derivation and props. 3=24663
- Levinson's theorem, relativistic extension 3=19578
- Lippmann-Schwinger eqns., generalized for theories with multipole ghosts 4=19373
- local operators and scattering matrix, new connections 4=25037
- Lorentz-invariant analytic amplitudes, conditions 4=16832
- Low-type condition without ref. to potential 4=70
- Mandelstam's programme in potential scatt. 3=10039
- many-body problem, connected graph representation 4=25040
- many-channel, poles and shadow poles 4=11943
- many-channel potential scatt., complex ang. momentum 4=5979
- many-channel scatt., detailed analysis 4=21786
- many-particle states, new relativistic ang. momentum representation 4=830
- massless particles and gauge invariance, amplitudes 4=15031
- meson prod., multiple, fire-ball model 3=22156
- mesons, charged spin-1, with arb. anomalous mag. moment, covariant electrodynamics 4=25006
- microcovariance and microcausality 4=8057
- multichannel, real unitary represent. for complex l and E 3=21245
- $N-N$ scatt., Mandelstam represent., strip approx. 3=7842
- nonrelativistic quantum mech., rotational invariance 3=10056
- nuclear reaction cross-section fluctuations 4=6305
- nuclear reaction cross-sections, use, book 3=12193
- nucleon-nucleon diffr. scatt., unitarity 3=4384
- optical theorem and energy spectrum 4=3352
- parity, intrinsic 3=2218
- phase shift, momentum depend. bound 3=7807
- $\pi-N$, $I = \frac{1}{2}$, $J = \frac{1}{2}$ state 3=2314
- $\pi-\pi$ amplitudes from boundary condition model 3=19676
- $\pi-\pi$ scatt., low-energy, self-contained study 4=21908
- $\pi-\pi$ and $K-K$ bootstrap calcs. 4=9246
- $p-n$ mass diff. calc. 4=27839
- $p-p$ matrix, direct reconstruction from triple scattering 4=11996
- $p-p$, T -matrix, off-energy-shell behaviour 4=6043
- p -representation, covariant formulation 4=16833
- pole trajectories in relation to potential coupling constant 4=5980
- poles close to threshold on unphysical sheet 4=21802
- poles, for complex ang. momentum 3=14907
- potentials with cores, Regge poles 4=11944
- production processes, partial-wave ampl., deriv. 4=849
- quantum electrodynamics, closed normal form with external e.m. field 4=21799
- quasipotential method, second Born term, analytical props. 4=5971
- radiative operators, eqns. of motion 4=25038
- reduction of elements and retarded functions 3=17204
- reduction formulae, asymptotic 4=21800
- reduction formulae by asymptotic condition, non-uniqueness 4=21801
- reflection property in complex λ -plane, consequences 4=25044
- Regge pole representation of pion 4=9235
- Regge poles, to calc. multiple pion production in π^-p reaction 4=30250
- Regge poles with complex singularities 3=22090
- Regge poles in presence of hard core 4=19449
- Regge poles, review 4=15030

S-matrix theory—contd

- Regge poles and Rosenbluth formula validity 3=2207
- Regge poles, threshold motion 3=14915
- Regge trajectories, bootstrapping method 4=11949
- Regge trajectories construction 4=3332
- Regge trajectories for square-well potential 3=2223
- relativistic, analyticity in ang. momentum 3=2217
- relativistic, introduction 4=27818
- relativistic particle dynamics 4=16834
- relativistically invar. construction without T -products 4=5984
- as replacement for space-time continuum, lecture 4=11002
- representation in terms of ang. momentum poles 3=7804
- resonance and s -matrix poles for broken symmetry 4=9294
- resonance pole position near a coupled channel threshold 4=9138
- review 3=24643
- review 4=5927
- review 4=25016
- S - and F matrix zeros in two static models 3=7790
- S -matrix construction, problem 3=24644
- S -matrix, spin structure 0=20069
- scalar electrodynamics, elements, i. r. singularities 4=5925
- scatt. amplitudes with complex singularities 3=19558
- scattering amplitude, relativistic, asymptotic Regge behaviour, and scale transformation 3=12429
- for Schrödinger equation, one-dimensional, rel. to quasi-classical region 3=7791
- self-consistent matrix with Regge asymptotic behaviour 3=10047
- "semiconductor model" 4=27821
- single integrals of Mandelstam representation rel. to double spectral functions 4=25021
- singularities 4=11906
- singularities in ang. momentum plane 3=10054
- soluble field theory 3=5331
- spatial separation of events, derivation 3=23767
- spin $\frac{1}{2}$ particles, ang. momentum poles 3=7803
- spin of massive particles, Feynman rules for perturb. calc. 4=11892
- spin $\frac{1}{2}$ particles, pseudoscalar charge density 4=15004
- spontaneous symm. breakdown, stability of solns. 4=27817
- statistical model for complete reduction 4=30194
- stochastic, prelim. definition with probability conservation 3=7792
- strip approx., consistency, Regge-pole conditions 4=21804
- strip approx., N/D eqns., artificial singularity 3=12425
- strong interaction, without elementary particles 4=9110
- strong interactions, e. m. corr. calc. 4=27797
- T -matrix, Coulomb, anomalous behaviour 4=11089
- T -matrix, optical theorem and off-diagonal elements 4=11942
- T -matrix regularity in Dirac potential scatt. 3=21246
- TCP invariance, interpolation of S -matrix 3=12408
- threshold branch-point of many-body channels 4=5983
- time duration definition in scatt. 4=27816
- trajectories of poles in l plane 3=2213
- use in transition probability calc. for quantum harmonic oscillator 4=11086
- two-particle resonances, in unphysical sheet 3=12483
- unitarity and causality with unstable particles 3=10014
- unitarity reln. and vertex functions 4=25042
- unitarity of S -matrix in theory of direct nuclear reactions 4=6308
- unitarity, scatt., pion-nucleon 3=5944
- universal bootstrap hypothesis, many-particle self-consist. model 4=21747
- unstable particles 3=19567
- unstable particles, masses and lifetimes 4=16805
- unstable particles, poles and thresholds 3=12394
- vector meson exchange model, bound states and Regge trajectories 4=21745
- vector-meson octet, nondegenerate, bootstrap model 4=5933
- Wick decomposition formalism for quant. electrodyn. 3=7766
- Yukawa, with finite number of boson modes, convergence 4=11925
- Z^0 particle, bootstrap calc. of mass 4=19394
- Sm^{3+} , i. r. absorption spectra in soln. 3=9462
- Sm^{3+} levels in $LaCl_3$, crystal-field splitting 3=2692
- Sm^{149} abundance in meteorites 3=13875

Samarium

- analysis in small conc. by (n, γ) reaction 4=13756
 antiferromagnetism at $\sim 0.15^\circ\text{K}$ 3=2468
 atom, $K\alpha$ X-rays from radioactive sources 4=9665
 atomic g_J factor 1=19585
 elec. cond., 1.3-300°K 1=5003
 heat capacity, 13-350°K 0=2788
 ions Sm^{2+} , in crystals, energy levels and fluorescence 2=4176
 ions, Sm^{3+} , in crystals, mag. and spectros. theoret. investig. 2=21295
 ions, Sm^{3+} , e.s.r. in CaF_2 , tetragonal, g factors 4=20590
 ions, Sm^{3+} , mag. hyperfine interact. and electronic relax. in EuFe garnet 2=12647
 isotopic shift peculiarities 2=16483
 mag. susceptibility, 300-1400°K 0=18169
 magnetic props. 2=8606
 new isotope, proposed formation 0=5805
 phase transition under high pressure 4=17768
 radioactivity, natural, half-life of Sm^{147} 1=10979
 specific heat hyperfine structure 1=9977
 specific heat, 0.4°-4°K, mag. and nuclear contri. 2=12387
 spectrum, visible, rel. to 4f shell transitions 3=13182
 target prep. from the oxide 2=19114
 Sm^{++} impurity ions in CaF_2 , valence control, electrolytic method 4=23667
 Sm^{+++} , ionic distrib. coefficient in CaF_2 1=14990
 Sm^{2+} in alkali-halide single crystals, spectra, 4.2°K 4=22887
 Sm^{2+} spectra, in alkali halide crystals, absorpt., 300, 77°K, luminescence 3=23079
 Sm^{3+} ions, scattering of neutrons in Sm oxide 1=12523
 Sm^{146} , rel. abundance in natural Sm 1=5987
 Sm^{149} , pile neutron absorption cross-section 0=4125

Samarium compounds

- magnetic susceptibility of 7 cpds. 2=8605
 $\text{Sm}(\text{III})$ aqua ions absorption bands, with sulphate ligands 4=2685
 $\text{Sm}(\text{III})$ dipyrindyl complexes, fluorescence spectra 4=20501
 Sm ethyl sulphate, $^6\text{H}_{5/2} \rightarrow ^6\text{F}_{9/2}$ transit. 2=2241
 Sm ethyl sulphate, Sm^{3+} spectrum anal., mag. sp. ht. 0=10047
 Sm ethyl sulphate, Sm^{3+} spin-lattice relax. calc. 2=12828
 Sm nitrate, electron transitions in far i.r. 4=1419
 Sm -substituted YFe garnet, Curie temp. 1=14749
 Sm^{149} double nitrate, mag. cooling, nuclear polarization 3=2468
 Sm^{149} ethyl sulphate, mag. cooling, nuclear polarization 3=2468
 SmAl_2 , Al Knight shift 3=1159
 SmAl_2 , Knight shift sign reversal, 77-300°K, theory 1=10192
 SmAl_2 , mag. moment and Curie pt. 3=991
 SmB_6 powder emissivity 0=16919
 SmB_6 prep. and properties 0=13468
 SmCl_3 , absorption and fluorescence spectra 3=3016
 SmCl_3 , 150 and 250 μ absorption bands 4=26214
 $\text{Sm}(\text{C}_2\text{H}_5\text{SO}_4)_3 \cdot 9\text{H}_2\text{O}$, Zeeman effect 1=6207
 SmFe garnet, exchange fields 3=1159
 SmFe garnet, far i.r. absorption spectrum 3=15680
 SmFe garnet, ferromag. resonance, theory 0=1820
 SmH_x ($x = 1.99 - 2.88$), mag. props., variation with temp 3=15744
 SmMg nitrate, absorption spectrum and Zeeman effect 1=2443
 SmMn_2 , magnetic characteristics 1=9024
 Sm_2O_3 paramagnetic susceptibility 1=12518
 Sm_2O_3 , specific heat and thermodyn. props 3=20105
 Sm_2O_3 , vaporization 1=8263
 $\text{Sm}_2^{149}\text{O}_3$, Mössbauer effect 2=14357
 $\text{Sm}_2^{146}\text{O}_3$, Mössbauer effect 3=6459
 $x\text{Sm}_2\text{O}_3 \cdot (3-x)\text{Y}_2\text{O}_3 \cdot 5\text{Fe}_2\text{O}_3$, lattice constants, mag. props. 0=10136
 SmR_2 (R is organic radical), for possible maser, optical, by internal energy transfer 3=17072
 SmS , elec. props. and Sm struct., 80°-1700°C 4=30626
 $\text{Sm}_2(\text{SO}_4)_3 \cdot 8\text{H}_2\text{O}$ Gd^{3+} e.s.r. 2=10698
 SmT , where $T=\text{Mn, Fe, Co or Ni}$; preparation and structure 1=7877
 SmT_2 , where $T=\text{Mn, Fe, Co or Ni}$; preparation and structure 1=7877

Samarium compounds—contd

- Sm_3T , where $T=\text{Mn, Fe, Co or Ni}$; preparation and structure 1=7877
 SmT_5 , where $T=\text{Mn, Fe, Co or Ni}$; preparation and structure 1=7877

Sampling

See Statistical analysis

Sand

- acoustic absorption, 4-50 kc/s meas. 4=21244
 acoustic waves, attenuation and velocity, meas. using small samples 2=73
 analysis for Pb and Cu, using γ -ray absorption 0=12121
 bearing plasters, skeleton strength and critical porosity 0=13916
 e.m. wave propagation over sand-covered conducting plane 0=1209
 elasticity, anisotropy 2=12840
 frozen, water-saturated, elastic wave propag. parameters 4=26781
 γ -ray scattering and energy degradation 0=5532
 impact cratering with bullets, study 1=18335
 intergranular cohesion 1=20643
 marine sediment, u.s. velocity and absorption 0=8739
 marine, velocity of compressional waves 0=2200
 mechanics, soln. of eqn. 2=15445
 motion through slit 2=11316
 pressure transfer and nonstationary gas flow 0=10686
 quartz, flow-stick transition 4=23538
 quartz, thermal coeffs. rel. to temp. and porosity 2=10328
 ripples in the desert 3=1421
 St. Peter sandstone, pressure solution and force of crystallization 0=10280
 and silica gel, desorption rates of Ar, He, CO_2 4=7729
 storms, electrification due to temp. gradient 4=10726
 structure, aqueous props. invest. 2=15081
 subsidence trough, random walk model 4=16068
 thermal conductivity 1=20650
 ultrasonic vel. and absorpt., moisture effects, quartz 4=5312
 water-filled, acoustic props. 3=23987
 water-saturated, motion 0=6752

Satellites, artificial

- acceleration due to air drag, fluctuations 0=14474
 acceleration during geomag. storms 2=13191
 accelerations, atmospheric-density model 1=15222
 aerial, ionospheric meas., 700-1000 km, 54°N-54°S 3=9092
 aeriels, breakdown with plasma sheath 2=4884
 aerodynamic lift and moment 0=18886
 air density det. from orbits 1=20882
 air density det. from orbits 1=20884
 air density meas., 500-1500 km, rel. to sunlight pressure 4=4782
 Alouette, electron flux in geomag. field, injected by nuclear explos. 4=29321
 Alouette, having particle detectors, for meas. on outer radiation zone at 1000 km 4=7899
 Alouette, ionosphere investigation 3=11431
 Alouette, ionosphere top-side soundings 3=13732-4
 Alouette, study of artificial radiation zones 3=23635
 Alouette topside sounder, radio propag. along mag. field aligned ionization sheets 4=7906
 analogy with gyroscopes 3=16320
 angular decel., correl. with solar noise intensity 0=8371
 animal in satellite, obs. 2=11210
 astronomical information obtainable 0=18875
 astronomical instrumentation 0=10532-3
 astronomical observation by, review 0=10534
 astrophysical lab., orbiting, system design 2=13200
 atmos. observations, escape level parameters 1=6642
 atmosphere information derived from satellite data 1=6601
 atmosphere, outer, obs. review 2=4683
 atmosphere sounding, spectroscopy 2=8954
 and atmosphere, temp., upper, mag. storm effects, satellite obs. 4=20860
 atmosphere, upper, densities, ion, electron, neutral, obs., review. 3=25916
 atmosphere, upper, effects on, h.f. radar search 2=2495
 atmosphere, upper micrometeorite particles invest. 2=9008
 atmosphere, upper, working model data 2=4619
 atmospheric density data 1=6603

Satellites artificial—contd

- atmospheric density, meas. 2=13013, 13015
 atmospheric drag effects 1=11689
 atmospheric ionic comp., meas. 2=13021
 atmospheric ozone vertical distrib. meas. 4=13780
 atmospheric props. det., density variation in upper
 atmos. 1=2570
 atmospheric props. det., temp. inversion in
 F1-layer 1=2569
 Brouwer theory for small eccentricities and
 inclinations 4=4962
 camera for faint satellite photography 2=1030
 Telescope, reconnaissance satellite, u.v.
 instrumentation 2=11198
 charge drag in ionosphere 1=18223-4
 charge and mag. field interaction 0=10538
 charged, interaction with ionosphere 2=4628
 Cherenkov detector of relativistic nuclei 2=17314
 circuitry for ionospheric F_2 charge density direct
 meas. 3=13767
 clock rate in elliptic orbit, Singer's formula 1=18219
 clock rate in satellite, rel. to clock on earth 2=17355
 clock test of gravitation theories, discussion 0=14494
 close-earth satellite motion 0=6630
 use for cloud altitude meas. 1=20837
 communication with ground, possible long-range
 link 1=1546
 communication satellites, review 2=15417
 communication systems, mutual interference 2=4882
 coordinate determination, using long-focus
 cameras 0=18890
 coordinates, computation 1=15573
 cosmic radio noise obs., use of Z-mode
 propag. 3=1537
 cosmic ray emulsions, recovery 0=20251
 in cosmic-ray studies 0=13074
 cosmic rays, meas. 2=12087, 12089-90
 Cosmos 3 and 5, instrumentation 4=26819
 D.R.B. for ionospheric topside sounding 2=13194
 deceleration, rel. to upper atm. density vars. 2=8984
 density of atm., refraction meas. 2=24001
 density of upper atmosphere, obs. 0=8372
 density of upper atmosphere, from orbit data 0=14201
 derivation of gravitational inverse-square law from
 elliptic orbit and Kepler's laws 0=3426
 Discoverer orbits, rel. to atmospheric
 density 1=20817
 Discoverer XVII, C nuclei from solar flare, obs. 2=13901
 Discoverer XVII, He^3 from solar flare 2=15360
 Discoverer XVII, radioactive Co^{60} , 57,60 and Mn^{54} in
 steel 2=24195
 Doppler obs., with relativistic considerations 2=5279,
 11194
 drag in conducting magnetized fluid, possible
 expts. 1=12787
 drag and e.m. absorpt. relation, and upper atmosphere,
 structure 4=7869
 dragless equations of motion 0=6632
 dynamical properties 1=6751
 dynamics, orbital and attitude motions 3=16433
 e.m. propagation fading along lines of earth's magnetic
 field 1=5601
 e.m. signal, refraction and Doppler shift in
 troposphere 4=2471
 e.m. wave communication, refraction effects,
 graphs 4=30067
 earth equatorial ellipticity, determination 1=9296
 earth flattening meas., geophysical appl. 2=6904
 earth gravitational field from satellite motion 1=4189
 earth heat-balance meas., disc. 2=2458
 earth's gravitational potential, observations 1=12740
 earth-oriented, use for solar studies 4=15968
 Echo balloon, mass loss 1=5178
 Echo balloon, orbit perturbations 1=50-1
 Echo I balloon, use for radio communication 1=8030
 Echo I, exosphere parameters at 1000-1700 km 1=20894
 Echo I, rel. to ionospheric disturbances 4=7907
 Echo I, orbit variations 2=9116
 Echo I, path, model of exosphere, 1000-1700 km 2=6931
 Echo I, photographic posns. 3=13838
 Echo I, radiation press. and perigee height 2=11192
 Echo I, spin rate 1=2672
 Echo I, transatlantic communication expt. 1=18233

Satellites artificial—contd

- effect of ionosphere on Doppler measurements 0=6633
 electric field neighbouring, calc. 3=21137
 electrical potential, space-charge theory det. 2=9121
 electromagnetic wave propag., Sputnik III, 20 Mc/s 4=10941
 electron streams, study 2=12088
 electrostatic drag, controversy discussion 3=11612
 elliptic motion, cosine functs., mean values 2=17313
 ephemerides, exact and approx. computation 0=18884
 equatorial orbit, first perturbations 0=4908
 exploration of upper atmos. and space, review 1=15584
 Explorer I, deceleration 1958-62, effect of solar
 wind 3=9068
 Explorer II, orientation, radio meas. 3=23716
 Explorer IV (1958 ϵ), atmospheric density
 observations 1=6602
 Explorer VI radio propagation measurements 1=15322
 Explorer VII, cosmic-ray observations, heavy
 primaries 1=8525
 Explorer VII, radio wave scintillation in iono-
 sphere 2=11057
 Explorer VII, 20 Mc/s transmissions, scintilla-
 tion 2=11056
 Explorer VIII, upper ionosphere comp., satellite-plasma
 interaction meas. 4=29330
 Explorer 9, optical observations, atmospheric
 drag 3=3631
 Explorer 10, magnetospheric boundary measure-
 ments 4=10774
 Explorer X, interplanetary plasma, direct obs. 2=12055
 Explorer X, mag. field meas. 2=13064
 Explorer XI, γ -ray data, prelim. report 3=617
 Explorer XI, search for primary cosmic γ -rays 2=16263
 Explorer XV, proton energy spectrum in upper
 atm. 4=29320
 Explorer XV, radiation belt obs., natural and
 artificial 4=13830
 expts. in u.v. and X-ray astronomy 0=14469
 fading of signals due to ionosphere
 irregularities 1=20928
 Faraday fading meas. of electron density 0=12147
 Faraday rotation formulae, second-order 0=19945
 Faraday rotation of radio signals, upper ionosphere
 data 0=14262
 focusing trajectories in inverse-square field 0=3479
 fuelling, air scooping vehicle 2=4874
 Galactic radio emission observation, theory 1=15530
 general theory of relativity, possible tests 1=63
 geodetic applications 2=19359
 geomagnetic meas. with Sputnik III 2=13063
 geophysical orbiting observations 3=5176
 geophysical results, review 2=15171, 15409
 geostationary, use for ionosphere electron content and e.m.
 wave propag. studies 0=16427
 gravitational field of earth from observations 0=6627
 gravitational red shift, altitude depend., Doppler cancel-
 lation technique 0=12361
 use for gravity meas. 1=20790
 heating, and atmosphere density meas. 4=7870
 high-frequency echoes from ionized trails 0=15
 high-speed electrometer circuits 0=14942
 high-speed photography, mirror-lens objectives 1=18229
 hyperbolic motion round oblate earth 1=11688
 I.G.Y. conference, Moscow, 31 July-
 9 August (1958) 1=5172
 I.G.Y. Kelvin Lecture 0=754
 illumination, by Na artificial comet 0=18889
 induction drag in magnetic-field-free ionosphere 0=14473
 inflight, for meas. of i.r. spectral radiance of
 earth 4=13795
 infrared radiometry 2=11199
 instrumentation, Langmuir probe uses 0=10542
 instrumentation, radiometer for cosmic noise meas. above
 ionosphere 0=4847
 instrumentation, review 1=49
 instrumentation, upper atmos. electron density and ion
 mass-spectrum meas. 0=10541
 intermediary orbit, formulae 1=18215
 interplanetary distance meas. 0=6574
 interplanetary flight 0=10535
 interplanetary matter, > 33 keV, and E-region
 irregularities 3=11437
 ion formation in upper atm., study 2=11045
 ion traps, for ionosphere meas. 2=8988

Satellites artificial—contd

- ionization, atmospheric, sputtering mech. 2=4877
 ionization phenomenon 0=12338
 ionosphere, electron content at mag. equator, obs. 2=13024
 ionosphere, electron content meas. 2=13020, 13030
 ionosphere, electron content, from simultaneous Faraday fading rate and differential Doppler shift 3=11434
 ionosphere, Faraday-fading obs., July 1959 2=885
 ionosphere, parameters, meas. with early Sputniks 2=13022
 ionosphere plasma motion effects 4=2470
 ionosphere, plasma perturbations, theory 2=8991
 ionosphere radio-sondes obs. 4=17936
 ionosphere, study, methods review 2=8992
 ionosphere, "topside" obs., v.l.f., whistlers and noise 3=21056
 ionospheric electron content and distrib., anal. from Sputnik III radio transmissions 0=14205-6
 ionospheric electron content measurements by Doppler effect 1=15258-9
 ionospheric information from signals 1=4121
 ionospheric refraction of signals meas. 4=15888
 ionospheric refraction of signals, theory 4=15887
 libration of circular orbital plane 3=11611
 libration, 24 hr earth satellite 2=7043
 lifetime, calc. 3=7057
 lifetimes, formulae for latitude effects 1=9298
 long range clock synchronization exper. 0=12344
 low-cost, aircraft-launched, prelim. design 2=4876
 lunar mapping and surveying 2=4732
 lunar orbits 2=1027, 17311
 lunar and planetary exploration, programme 1=18225
 Lunik 3, lunar and solar perturbations 2=24188
 Mariner II, high-energy radiation meas., Sept.-Oct., 1962 3=22231
 Mariner 2, i.r. radiometer data of Venus 4=10884
 Mariner II, solar plasma expt. 3=7028
 Mariner 2, solar wind vel. obs. 4=13930
 use for meas. of atmosph. i.r. cooling 3=1444
 meas. of ionosphere local electron density 0=3348
 meas. of solar and diurnal effects in high atmosphere 0=12150
 measurements made, review, (1963) 4=10932
 meteorite impact, high velocity, theory 2=9068
 meteorological, atmospheric i.r. radiation calc. 0=14298
 meteorological measurements, use 3=5189
 meteorological studies, non-Russian, review 3=18492
 micrometeorite impacts ≤ 135 km, measurements 1=9259
 micrometeorite studies 2=13121
 Midas 3, optical observations 3=3631
 minimum range from an observer, formula 1=9299
 moon exploration, review 0=10488
 moon and planet exploration, techniques 0=10490
 motion in asymmetrical gravitational field 1=15576
 motion, atmosphere drag effects 1=9295
 motion in axi-symmetric gravitational field 1=9300
 motion, Brown-Shook disturbing function, application 1=10401
 motion, about centre of mass 2=11172
 motion about centre of mass, under gravitational moments 4=10937
 motion of close-earth satellite 0=6631
 motion in earth's gravitational field 0=8529
 motion in earth's gravitational field, Hansen's theory 0=10537
 motion, effect of solar radiation pressure 1=18214
 motion, influence of solar radiation pressure 0=14472
 motion, long-period effects rel. to equator ellipticity 2=7041
 motion, long-period lunar and solar effects 2=4869
 motion, lunisolar effect, long-period 1=15577
 motion, osculating elements derived from modified Hansen theory 0=18883
 motion, problems 0=16531
 motion, relativistic effects 0=18880
 motion, round oblate earth 2=13189
 motion, theory for curved space time 0=16579
 motion in vicinity of critical inclination 0=14470
 motion in vicinity of critical inclination 1=1664
 navigational systems with auto-compensating channels, theory 1=15585
 navigational systems with auto-compensating channels, theory 1=18231

Satellites artificial—contd

- needle, orbital effects of radiation press. and grav. 2=15414
 needles, West Ford, collisions with micro-meteorites 3=25994
 nightglow observations 3=11445
 1957 α 1 (Sputnik I), decay of spin 1=5177
 1957 α 1 (Sputnik I), re-entry 1=5176
 1957 α (Sputnik I), Doppler observations of ionosphere electron distribution 0=14261
 1957 α 2 (Sputnik I), ionospheric information 0=8395-6
 1957 α and β , radar echoes 1=9302
 1957 α (Sputnik I), radio observations 0=18488
 1957 α (Sputnik I), 40 Mc/s signal, high frequency fading 0=15172
 1957 α , 1957 β (Sputnik I, II), amateur radio measurements 0=8526
 1957 α , 1957 β (Sputnik I, II), optical, radio and radar obs. 0=2089
 1957 β , orbit, air drag effect 1=1667
 1957 β (Sputnik II), radar observations, fading characteristics 0=8528
 1957 δ (Sputnik III), ionospheric electron content and distrib. anal. from radio transmissions 0=14205-6
 1958 α and γ , micrometeorite data 1=5141
 1958 α (Explorer I), cosmic-ray data, anal. of telemetered signals 0=20298-9
 1958 α , Explorer I, meteoric dust measurements 1=6706
 1958 α , radio scintillations 1=1666
 1958 β 2 (Vanguard I), determination of earth's gravitational field 0=8519
 1958 β 2 (Vanguard I), rel. to ionospheric electron content meas. 4=20867
 1958 β 2 (Vanguard I), rel. to ionospheric thickness meas. 4=20866
 1958 β 2 (Vanguard I) magnetic damping of rotation 0=853, 4910
 1958 β 2 (Vanguard I), perigee ht. perturbations 0=8531
 1958 β 2 (Vanguard I), period changes due to solar effects 0=20
 1958 β 2 (Vanguard I), recording of meridian passages 0=4912
 1958 β 2 (Vanguard I), secular perturbations 0=18881
 1958 ϵ , cosmic ray data 1=15338
 1958 ϵ (Explorer IV), electrons trapped in geomag. field, observations 0=10428
 1958 ϵ (Explorer IV), mag. storms and Van Allen radiation belt observations 0=14264
 1958 ϵ (Explorer IV), radiation observations 0=8398
 1958 ϵ (Explorer IV), solar cosmic rays observations 0=1323
 1958 ϵ , Explorer 4, radiation-belt trapped particles meas. 3=9111
 1958 δ 1, rotation period 1=9301
 1958 δ , Faraday rotation of signals rel. to ionospheric irregularities 4=7909
 1958 δ II, scintillation of 20 Mc/s signals 1=1543
 1958 δ 2 (Sputnik III), approaching descent 0=8527
 1958 δ (Sputnik III), derived air density data 0=12149
 1958 δ 2 (Sputnik III), detection of electrons in upper atmosphere 0=1979
 1958 δ (Sputnik III), final months and descent 0=18888
 1958 δ 2 (Sputnik III), 40 Mc/s transmission, Faraday effect and ionosphere, electron content 3=16272
 1958 δ (Sputnik III), induced ionization, observation 0=10540
 1958 δ 2 (Sputnik III), mass-spectrometer measurements of ions in the ionosphere 0=3342
 1958 δ 2 (Sputnik III), observations Nov. 1958-April 1959 0=4909
 1958 δ 2 (Sputnik III), radiation information 0=14477
 1958 δ 2 (Sputnik III), radio direction finder meas. of last few periods 0=12341
 1958 δ 2 (Sputnik III), radio observations 0=854
 1958 δ 1 (Sputnik III Rocket), flash period 0=17
 1958 δ 1 (Sputnik III Rocket), rotation, effect of upper atmos. winds 0=18483
 1958 δ 2 (Sputnik III), signal pulse modulation solar effects 0=18
 1958 δ (Sputnik III), upper atmosphere, observations 0=8373
 1958 δ 2 (Sputnik III), variation of signal strength 0=19
 1958 (Pioneer I), distant geomag. field investigation 0=10390
 1958 (Pioneer I), ionizing radiation at 3,500-36,000 km 0=9490
 1959 A.P.1 (Lunik I), terrestrial radiation and cosmic ray study 0=395

Satellites artificial—contd

- 1959 A.P.2 (Pioneer IV) and Pioneer III, radiation instrumentation 0=15184
 1959 A.P.2 (Pioneer IV), radiation measurements on outer zone 0=12189
 1959 A.P.2 (Pioneer IV) and Pioneer III, Van Allen belt extent 0=3353
 1959 α 1 (Vanguard II), geomagnetic rotational retardation 0=4911
 1959 δ 2 (Explorer VI), Able-3 programme 0=10536
 1959 δ 2 (Explorer VI), extraterrestrial current system characteristics 0=21318
 1959 δ 2 (Explorer 6), i.f. magnetohydrodynamic wave obs. 3=9127
 1959 δ 2 (Explorer VI), magnetometer data 0=10394
 1959 δ 2 (Explorer VI), Van Allen radiation observations 0=14267
 1959 η , (Vanguard 3), geomag. fld. obs. 3=9125
 1959 ι 1 (Explorer VII), corpuscular radiation exper. 0=15465
 1959 (Lunik II), impact on moon 0=3428
 1959 (Lunik II), impacts 0=4914
 1959 (Lunik II), radioastronomical observations 0=16557
 1959 θ (Lunik III), commentary on pictures of moon's averted face 0=8486
 1960 α 2 (Pioneer V), cosmic ray recordings 0=20295
 1960 α 2 (Pioneer V), magnetometer experiment 0=21317
 1960 α 2 (Pioneer V), particle detector information 0=17453
 1960 β 2 (Tiros I), meteorological data 0=16416
 1960 ϵ (Sputnik IV), sudden discontinuity in orbital period 0=18887
 1960 ζ 1, comparison flash period with 1958 δ 1 1=10402
 1961 $\alpha\eta$, Traac, artificial radiation belt obs., July 9, 1962 3=16287
 1961 $\alpha\eta$, Traac, July 9, 1962, 2nd artificial radiation belt obs. 3=16289
 1961k, Explorer 10, earth's magnetic field meas. 3=11468
 1961k Explorer 10, plasma meas. 3=25993
 1961 ν (Explorer 12) cosmic ray meas. rel. to SSC, 30 Sept. 1961 3=7955
 1961 ν (Explorer 12) cosmic-ray proton meas. 3=7954
 1961 ν (Explorer 12) galactic and solar proton meas. 28 Sept. 3=7953
 1961 σ , Injun, Geiger counter efficiency 3=16436
 1961 σ , Injun 1, artificial radiation belt. meas. 3=13809
 1961 $_{\text{sol}}$ [Injun 1] solar protons at 881-998 km 3=7952
 1962 α , ϵ , Telstar, artificial radiation belt meas. 3=13808
 1962, MA-6 Mercury; radio echoes during re-entry 3=11613
 1962, Sept 1 to 5, artificial radiation belt. meas. 3=16285
 node secular and periodic motions 0=14475
 oblateness of earth, effect on satellite orbit 0=18878
 observation, optical methods, review 2=11173
 observation of solar u.v. spectrum 0=16545
 observations of air density in upper atmosphere 0=1977
 observations in Finland 3=7055
 observations of high altitude nuclear detonations 0=10431-2
 observations 1959-60, conference 3=9139
 orbit, accurate intermediate, theory 1=18218
 orbit analyses for 15 satellites, upper atmosphere density det. 0=4787
 orbit analysis, atmos. scale height 1=20880
 orbit calculations 0=14471
 orbit changes, rel. to rotational speed of upper atm. 4=29308
 orbit, circular, distant, long-period motion of the plane 4=26977
 orbit contraction, rel. to atmosph. scale heights 4=2220
 orbit contraction under air drag influence 1=18220
 orbit dynamics, guide to literature 3=11610
 orbit, effect of equatorial asymmetry of earth 1=18216
 orbit, effect of oblate rotating atmosphere on orientation 1=15575
 orbit evolution under action of external bodies 3=3629
 orbit about oblate planet 0=6629
 orbit, osculating, det. from three obs. 1=18217
 orbit perturbation by extra-terrestrial grav. 3=3628
 orbit perturbations, shape of Earth 0=4907
 orbit perturbations in vector form 1=15574
 orbit plane orientation, circular 4=15967

Satellites, artificial — contd

- orbit, secular and crit. effects, by nonsingular set of vectoral elements 4=13977
 orbit to the sun 0=6634
 orbital behaviour 2=9118
 orbital behaviour, aerodyn. and grav. perturb. and orbital regression influences 2=9128
 orbital behaviour, atm. density, model based on 2=15260
 orbital behaviour, atm. density from theory 2=4626
 orbital behaviour, Brouwer's theory 2=19355
 orbital behaviour, Brouwer's theory and Cowell's method compared 2=11190
 orbital behaviour, contraction by air drag 2=13190
 orbital behaviour, earth's gravitational potential det. 0=16403
 orbital behaviour, finite difference eqns. 2=9120
 orbital behaviour, from ground-meas. data 2=9119
 orbital behaviour, luni-solar perturb. 2=15412
 orbital behaviour, periodic drag perturbations, calc. 0=18882
 orbital behaviour, radar obs., calc. 2=6976
 orbital behaviour, for telecommunications 2=13192
 orbital elements, effect of precession and nutation 1=1663
 orbital plane, effect of atmospheric rotation 0=18877
 orbital predictions, errors 2=1025
 orbital transfer 2=11186
 orbital true longitude, theory 1=15572
 Orbiting Astronomical Observatory, optics 2=9117
 orbiting dipole belts, properties 1=6725
 orbiting dipoles, charge drag, exptl. study 3=18664
 orbiting solar observatory, instruments 3=9286
 orbits, accurate control, using electrically-controlled, demand-thrust rockets 0=12336
 orbits, almost circular, calc. 2=11179, 21747
 orbits, astronautic chart 0=12264
 orbits, atm. density, meas. 2=11175
 orbits, rel. to atm. density scale height 3=3480
 orbits, atmospheric density data from Vanguard programme 1=6750
 orbits, atmospheric effects, book 4=10695
 orbits, calc. 0=18596
 orbits, calc. 1=9256
 orbits, calculation using Laplace's methods 1=6749
 orbits, circular co-planar, bi-elliptical transfer 2=11189
 orbits, closed-form soln., perigee oscillation 0=18879
 orbits, for communications 4=20962-3
 orbits, contraction, under influence of air drag 3=25992
 orbits, deduction of earth's gravitational potential 1=9181
 orbits, det., use of radio-signal Doppler effect 2=11174
 orbits, earth's gravitational potential deduced from 2=17114
 orbits, earth's mag. field effects 2=4865
 orbits, effect of air drag 1=52
 orbits, effects of solar radiation press. 0=8530
 orbits, elliptic, relativistic red-shift, Singer's formula 1=18219
 orbits, equatorial intermediate 2=15413
 orbits, escape and entry using low thrust, calc. methods 0=12335
 orbits, general soln. 2=11180
 orbits, general soln. for normal grav. field 2=21746
 orbits, and geophys. research, survey 2=23990
 orbits, from gravitational earth model 2=11188
 orbits, lunar and solar attractions, effect 2=11178, 21745
 orbits, lunar and solar perturbations 0=2090
 orbits, in oblate atmosphere 0=10539
 orbits, perturb. by external bodies 2=11177
 orbits, rates of change and atmosphere density 0=10407-8
 orbits, resonance behaviour calc. 3=9284
 orbits, resonant, rel. to earth's gravitational potential 1=9297
 orbits, second-order soln. without air drag 2=21744
 orbits, secular variations 2=4867
 orbits, shape calc. 2=4743
 orbits of small eccentricities 1=6746
 orbits of small eccentricity, close-earth satellite 1=6747
 orbits, theorem 2=4866
 orbits, theory 0=18876
 orbits, 24-hr, nearly circular, rel. to equator ellipticity 2=7042

Satellites artificial—contd

orbits, use of two fixed centres theory 3=16437
 orbits, uniformity props. of families 4=4842
 orbits, zonal harmonic perturbations 4=30994
 orientation about centre-of-mass 2=11195
 orientation and instrumentation for atm. temp. meas. 4=26824
 osculating orbits, Hansen's coordinates appl. 2=933
 outer radiation belt and auroral zone location studies 2=11083
 performance, control and guidance 0=12342
 perigree radius, rel. to earth's gravitational field 1=20791
 perigee variation, effect of solar radiation press. 2=24189
 periodic surface theory, application to orbit study 1=6745
 periodicity of orbits 1=6748
 perturbations due to extra-terrestrial gravitation and radiation pressure 0=10530
 perturbations due to sun and moon 0=16
 photoelectric observation method 4=20961
 photog. of far side of moon (book) 0=6569
 photographic obs., Asiago, 1959-60 2=11171
 photographic observation at Meudon observatory 1=6752
 photographic observations, limits of precision 4=10936
 photographic position, using 2 reference stars 0=8525
 photographic study, time recording method 3=21142
 photography, with 125 mm Schmidt camera 3=9285
 Pioneer 1, distant geomag. field oscillation obs. 4=13860
 Pioneer I, mag. storm, terrestrial sensitivity 2=4694
 Pioneer II measurements of variation with height of ionizing radiations 1=7295
 Pioneer IV, data on particle diffusion beyond outer radiation belt, comp. with theory 1=1571
 Pioneer V, interplanetary mag. field det. 1=9252
 Pioneer V, measurement of solar electric charge, hypothesis 1=10386
 pitching and yawing due to non-rigidity 1=15769
 plasma sheath, e.m. waves scatt. 2=3170
 position det., by large tracking camera 2=11206
 position prediction formulae 0=6628
 position, of 10 satellites, Oct-Dec. 1959, camera observations 1=5175
 potential, ionospheric limitations 2=4871
 problems of space flight (fun in space) 0=18872
 r.f. signal polarization fading, rel. to ionospheric electron concentration detm. 4=4809
 radar cross-section, effect of plasma sheath 2=4879
 radiation pressure 0=19353
 radio breakthrough below critical freqn. 4=4797
 radio communication, long-distance 2=11208
 radio communication, with earth, propag. problems 2=17316
 radio data, review 0=21319
 radio interferometer, tracking, three base-line 3=18648
 radio signal, Faraday rotation rate 0=850
 radio-signal reception, effect of ionosphere 1=6753
 radio-signal reception when satellite below horizon 1=16582
 radio signal scintillation 0=12211
 radio signals, Faraday fading rel. to orientation 2=2575
 radio signals scintillation, and E-region irregularities, vertical distrib. 3=11437
 radio signals rel. to skip distance ray-focusing 1=7934
 radio signals, polarization fading, in ionosphere 0=14224
 radio signals, scintillations, conference 4=15947
 radio, scintillations, variation with zenith angle 3=21124
 radio tracking, refraction of v.h.f. signals 0=1223
 radio transmission through ionosph. irregularities 3=514
 radio transmission of Mars and moon probes, signal/noise ratio, calc. 0=10544
 radio transmissions, Doppler shift, earth mag. field effect 3=6997
 radio wave signals, Faraday fading 0=10450
 for radioastronomical observations, above ionosphere 0=5
 radioastronomical observations from, potentialities 0=10543
 radioastronomy appl. 2=9109, 15397
 re-entry, heating 2=1180
 re-entry, plasma sheath, microwave tech. study 2=4880
 re-entry problems 3=16433

Satellites artificial—contd

re-entry, radio interference due to ionized layer 2=4883
 regular motion, stability, "arrow", "float" and "spoke" concepts 0=18885
 Relay I, proton energy spectrum in upper atm. 4=29320
 relativistic red shift 0=14505
 research programme, British 2=13199
 review, rel. to atmosphere and electrons 3=25990
 review, orbits, tracking 4=23955
 rockets and space stations, translational-rotational motion 0=18874
 rotating space vehicles, stability 0=14476
 rotation, effect of earth's oblateness, theory 2=9127
 rotation damping by eddy currents 1=2670
 Russian, orbit analyses 0=12339
 Samos II, retrograde orbit 2=11191
 secular acceleration 0=18704
 secular perturbations, for earth flattening and air resistance 0=18881
 shadow and sunlight, periods calc. 2=9122
 shock waves, air ionization rate meas. 2=3006
 signal absorption in F₂ layer 1=6625
 signal fading, electron density distribution determination 1=1550
 signal Faraday rotation in ionospheric transverse region 4=13842
 signal scintillation, ionospheric effects 3=13714-5
 signal scintillation obs. of ionosphere F-region 4=20873
 signal transmission through outer ionosphere, rel. to electron density 2=17163
 signals, Doppler shift, meas. 0=14478
 signals, effect of mag. storms 2=13184
 signals, ionospheric absorption, expt. and formula 0=16428
 signals, ionospheric scintillations 0=14314
 signals, propagation velocity, proposed test of special relativity 4=8930
 solar batteries used in satellites 2=11211
 solar cells, space radiation effects 2=13195
 solar corona extension into interplanetary space, suggested study 0=10504
 solar corpusc. radiation, after July 7, 1958 flare, Sputnik III results 2=11129
 solar energy, reflected, and energy received at ground, meas. 4=23752
 solar observations 0=14434
 solar plasma, observations 0=6600
 solar u.v. and X-ray meas., expts. 2=13128
 solenoid, round moon, stability and use 2=15306
 Soviet, brief data 3=21136
 Soviet, general data 3=3630
 space navigation, use of natural e.m. phenomena 0=12690
 space probes, cosmic ray variation meas. 0=20296
 spectrometer i.r. for meteorological satellite 2=15194
 spheroid attracted by a sphere, translational-rotational motion 2=935
 Sputnik I, albedo variation during flight 2=9126
 Sputnik I, fading of 40 Mc/s signals 1=1547
 Sputnik I, scintillations rel. to ionospheric irregularities 1=20909
 Sputniks I, II and III, observations of orbits 1=5174
 Sputnik II (1957), orbit behaviour, air density at 195 km 1=2671
 Sputnik III, data analysis 2=11181
 Sputnik III, geomag. meas. 2=13063
 Sputnik III, magnetometer 2=9133
 Sputnik III measurements of radiation belt 1=3307
 Sputnik III, meteoritic particles, invest. 2=9009
 Sputnik III, positive ions, mass-spectrometer obs. 2=8987
 Sputnik III, radio obs. rel. to atm. phenomena 2=4618
 Sputnik III, radio transmissions 2=7047
 Sputnik III, rocket-case, geomag. deceleration 1=18227
 Sputnik III, rotation and orientation invest. 2=9129
 Sputnik III, signal strength var. in last days 2=894
 Sputnik III, signal tracking tech. 2=9125
 Sputnik III, 20 Mc/s w.w.v. bursts during last periods of 1958 1=18226
 Sputnik III, upper atmosphere density obs. 2=8983
 stability in two immovable centres earth approx. 3=21084
 stellar astronomy 0=14438
 stellar and interstellar survey, plans 0=14439
 summary of launchings (to Oct. 1960) 1=18212
 sun, radiation pressure, orbital effects 3=23715

Satellites, artificial—contd

- surface temp. variations, theoretical model 2=4870
 survey US and USSR, 1960-1961 2=13193
 table of those launched in 1963 4=30993
 telecommunication uses 3=16433
 telescopes and components 0=14372
 television appls. to tracking and data transmission 4=4959
 terrestrial radiation and cosmic ray study by moon rocket 0=395
 thermosphere structure studies 0=10403
 3rd Soviet satellite, cosmic ray measurements 1=5797
 Tiros, meteorological obs., oceans, long-wave earth radiation 4=23726
 Tiros II, description of meteorological instruments 2=2574
 Tiros II, earth i.r. radiation meas. 4=17920
 Tiros II, radiation balance data treatment 4=7842
 Tiros II, radiation expts. 2=8950
 Tiros II, radiometers for meteorological studies 2=1028-9
 Tiros III, for i.r. and visual radiation meas. 4=13796
 Tiros III radiation data, giving cloud heights and night-time cloud 4=23747
 Tiros VII, earth radiance meas., in CO₂ 15-micron band 4=13766
 topside, ionization obs., field aligned, low latitude 3=25926
 top-side, ionosphere, electron density soundings 3=16245
 torques and attitude sensing, collection of papers 4=29493
 tracking, accurate, using radio Doppler effect 3=3632
 tracking, data reduction, review 1=48
 tracking and display 0=12337
 tracking by h.f. direction finder 0=849
 tracking methods, review 3=21141
 tracking by Millstone radar 2=13202
 tracking system focal plane screen slits, forming technique 4=14000
 tracking by triangulation 0=2091
 trajectory charts, generalized 2=11184
 Transit II A, cosmic noise meas. 1=15570
 Transit IV A, perturb. 2=11193
 transmission interruptions, due to γ -rays from radiation belt 1=18232
 transmissions, Faraday effect, fast spinning satellites 0=12340
 transmissions, Faraday fading rel. to ionosph. electron density 2=4643
 transmitter Doppler shift, effect of ionosphere 0=852
 transmitter Doppler shift, interpretation 0=851
 24 hour, perturbed motion due to ellipticity 3=18665
 24 hr, resonance orbits 3=13939
 24 hr satellite, motion 2=11182
 UK1 (Ariel, 1962 o), solar X-ray emission data 3=16388
 UK1 (Ariel, 1962 o), upper atm. electron density data 3=16236
 UK1 (Ariel, 1962 o), upper atm. ionization data 3=16235
 UK 1, research programme 3=1547
 US space research programme 0=8522
 u.v. spectroscopy without absorption by atmosphere 0=4913
 unretarded orbits, new solution 0=3427
 upper atmosphere, solar and diurnal effects, observations 0=8374
 upper atmosphere and space exploration, review 0=16419
 upper atmosphere variations 4=13818
 various meas., effect of medium and gases from satellite 2=11176
 vehicles for astronomical observations above earth's atmosphere 0=14371
 wake, damping in ionosphere 0=15129
 wake in ionosphere 0=9023
 water vapour, in atmosphere, meas. 2=6910
 weather satellites, review 2=15416
 X-ray telescope for satellite use 1=8
 108 Mc/s signal, fading 1=21012
 CO₂ atmospheric, i.r. emission obs. 2=2508
 H₂O, desorbed, ionization mech. 2=9130

Scandium

- anisotropy of electrical, mechanical and magnetic props. in single crystals 4=10143
 compression behaviour 4=17767
 electrical conductivity, temp. depend. 4=26013
 electronic polarizability 0=7698
 mag. susceptibility, 100° to 1000°K 3=25508

Scandium—contd

- magnetic properties, 77-1100°K 4=1807
 nuclear mag. resonance, Knight shift, 1.8 and 300°K 0=18228
 oscillator strengths of neutral atom 0=20590
 paramagnetic susceptibility, temp. depend. 4=26013
 physico-chemical properties 4=1335
 positron mean life, meas. 3=17695
 preparation, structure and mechanical props. 1=20427
 resistance, elec., 4-lead meas. system 4=30612
 resistivity, 1.38°-358.8°K 3=10722
 solubility, solid, of impurity elements 0=18396
 specific heat, 1.7° to 4.2°K 1=19720
 spectrum, in CaF₂, SrF₂, BaF₂, after 2 MeV β irradiation, d¹ 4=10167
 spectrum, ScI, 3d 4s 4p h. f. s. and electron struct. 4=25509
 stacking faults 0=552
 vapour pressure 2=2937
 vapour pressure 3=24119
 X-ray K-absorption spectra, fine structure 4=4272
 Sc₂ molec. dissociation energy determ. 4=12525
 Sc⁴⁺, n.m.r., low temp. var., Knight shift 4=20624

Scandium compounds

- sulphides, selenides and tellurides, crystal structure, atomic 4=4625
 Sc refractory compounds, X-ray K-absorption spectra, fine structure 4=4272
 ScB₂, thermoemissive props. 4=3027
 ScCd₃, crystal struct., atomic 4=17816
 ScF, singlet transitions, rotational analysis 4=20061
 ScF, spectrum, electronic 3=17583
 ScFeO₃, cryst. struct. 2=4424
 (Sc₂-xFe_x)O₃, cryst. struct. 2=4424
 ScGe₃, crystal structure 3=8842
 ScH₂, preparation and properties 0=21270
 Sc-In, ferromag. props. 1=20066
 Sc₂In, cryst. struct. 2=10882
 ScN, n.m.r. of Sc⁴⁺ 4=23076
 ScO, molec. rot. analysis 2=10246
 Sc₂O₃, diffuse reflectance, spectrum, 3.0 to 6.5 eV 4=20469
 Sc₂O₃, with Fe³⁺ added, cryst. struct. 2=4424
 ScO, Franck-Condon factors of band system 4=25660
 Sc₂O₃, work function 0=19707
 Sc₂O₃-Ga₂O₃ system, phase equil. relns. 3=12001
 Sc₂O(SiO₄), diagram of state, melting points, densities and optical props. 3=13485
 ScP, crystal structure 3=11258
 Sc-Sb alloys, crystal structure 4=2072
 ScSi, crystal structure 3=8842
 Sc₂Si₂O₇, diagram of state, melting points, densities and optical props. 3=13485
 Sc-Y phase transform, solidus, hexagonal to b. c. c. 4=5443
 Sc-Y system crystal structure, atomic 4=5443
 Sc-Zr phase transforms., solidus, hexagonal to b. c. c. 4=5443
 Sc-Zr system crystal structure, atomic 4=5443

Scattering

- amplitude, asymptotic behaviour, rel. to partial waves with complex orbital momenta 2=3272
 amplitude, asymptotic behaviour rel. to partial waves with complex orbital momenta 3=4357
 amplitude, high-energy limit 2=21832
 amplitude, plane-wave approximation 4=21780
 amplitudes, unitarity and analyticity, rigorous consequences 4=27800
 analytic completion in fourfold scattering 0=20016
 anisotropic multiple, numerical solns. 4=14089
 anisotropic multiple, radiative transfer 4=14088
 atom, Sc⁴⁺, h.f.s. 3=2361
 atomic systems, resonance, theory 2=10226
 atomic systems, resonance, theory 3=6368
 backscatter from inhomogeneous media 3=11676
 backscattering from conducting cylinder with surrounding shell 1=373
 Born expansion, optimization 3=11699
 bound states embedded in continuum and formal theory 3=14900
 central potential scattering, Brysk and determinantal approxs. 3=11702
 Chandrasekhar's formulation, uniqueness problems 4=14021
 with classical central-field repulsive forces, analytic approach 0=17686
 classical treatment for large angles 2=15458

Scattering—contd

- on cones, finite, backscattering 0=17106
- Coulomb field, phases and amplitudes 3=9346
- Coulomb Green's function, nonrelativistic 3=11701
- in crystals, group theory 1=17392
- definition of operator, algebraic 4=19428
- diffusion-type variable-order approximation, multiple scatt. 4=14019
- dissipation functions and invariant imbedding 0=19004
- distorted-wave approx. for phase shifts 3=17198
- domination by Gribov-Pomeranchuk fixed singularities, arguments against 4=25034
- dual diagrams in perturbation theory 1=2020
- elastic waves by cylinder 0=14718
- equilibrium, dynamical derivation 1=5205
- fibres, simplified cylindrical distrib. function 2=15083
- fourth-order amplitude with two complex invariants 0=16606
- Fredholm integral eqn. with Green's function kernel 4=5023
- general class of scatt. problems 2=19383
- grey, Rayleigh phase function 0=16634
- hard core due to orthogonality constraints 3=5364
- inverse problem in quantum theory 3=7123
- inverse problem, rel. to transmission 2=9407
- isotropic grey, stellar radiation 0=19001
- isotropic, in semi-infinite atmosphere, H-functions 0=19002
- J.W.K.B. phase shift and classical angle of deflection, calc. 4=14022
- Jost functions and potentials, singularities 2=11244
- length, and effective range in two-body problem 0=11106
- Lippmann-Schwinger eqns., field of validity 3=21243
- Mandelstam representation, quasipotential character 3=19560
- molecular beams, rainbow effect 3=6439
- multichannel, in Hilbert space, integral equations 0=337
- multichannel, nonrelativistic quantum mechanical theory 0=11109
- multiple, mean spatial and projected angles, theory 3=17211
- multiple scattering, new expansion formula 1=8072
- multiple scattering, theory 1=19029
- multiple scattering of waves 1=10571
- one-dimensional wave, phase-shift method 1=2707
- operators, integral representation 2=21836
- partial wave amplitude, essential singularity 3=22077
- perturbative expansion for large ang. momenta 4=5993
- phase of scattered waves 0=2498
- phase-shift calc., Pais method 0=12852
- phase shifts for low-energy scatt. 4=2573
- plane wave by double periodic surface of arbitrary shape 2=5089
- plane wave by fundamental surfaces for mixed boundary conditions 4=5021
- plane wave by potential, approx. for partial waves 2=13266
- plane wave by special potential well, phase-shifts 0=20063
- plane waves at apertures in plane screen 3=17
- potential, "invariant imbedding" techniques 3=11700
- potential, non-relativistic, dispersion rels. 2=3283
- potential, phase shifts and bound state energies 3=7124
- potential scattering, Mandelstam representation 0=12849
- quantum-mechanical, wave packet theory 3=3755
- radiation, statistical geometric basis 3=14041
- radiative transfer, generalized scatt. functions 4=100
- radiative transfer, three-dimensional solns. 4=5109
- random, amplitude and phase distrib. 2=15492
- random distrib., free-space scatterer formalism 2=19381
- random distrib., two-space scatterer formalism 2=19382
- random volume scattering, theory 4=27026
- ray pencil from point source, isotropic 4=14056
- recurrence relations, calc. of radial part of ang. momentum matrix 3=3756
- representation of scatt. amplitude, component 4=836
- Riccati eqn., application 3=11662
- S-matrix expansion, two lemmas 2=3277
- S-matrix invariance 0=17259
- S-matrix and scatt. operator from wave operators 2=21835
- S-matrix theory, "time interval" notion 2=19436

Scattering—contd

- scalar field, on spherically symmetric scatterer, dispersion relations 0=17261
 - scattering operator, existence 3=16536
 - Schrödinger, scatt. causality condition 4=21048
 - Schrödinger's eqn. solution, with holomorphic potential function quasi-classical approx. 3=23763
 - Schrödinger's operator, trace formulae in 3-dimens. space 2=15489, 19438
 - semiconductors, degenerate, ionized impurities 2=12507
 - single-body, theory, literature review 2=7402
 - singularities in the left half-plane 3=24628
 - small-angle critical scatt. from cooperative assemblies 3=52
 - spheres and cylinders, poles, Hankel function zeros 3=17053
 - theory, multiple scattering 4=14018
 - thermal radiation in polydisperse turbid medium 4=14441
 - three-body operator in nonequil. statist. mech. 4=88
 - treatment of exchange 3=19566
 - two-channel problem, complex ang. momentum 2=20276
 - unitarity 2=21830
 - variational principle for scattering phases 1=454
 - vector wave eqn., variational princs. 3=17056
 - wave function, quantum, one-centre expansion 3=3758
 - wave scattering by irregular surfaces, exact solution 1=5332
 - of waves in dense distributions of large tenuous scatterers 4=14020
 - waves, by dislocations 2=6342
 - waves, fluctuating, by large objects 3=18703
 - waves, by many discrete objects, literature review 2=7408
 - waves, multiple scatt. by arbitrary objects 2=2599
 - waves and particles by inhomogeneous regions 2=2598
 - WKB phase-shifts, second order 2=19440
 - Yukawa potential scattering, partial wave amplitudes 0=17253
 - Al, inelastic : elastic scattering cross section ratio 3=20974
 - Au, by $K\alpha$, 10-1000 eV, energy, by calorimetry 3=5724
 - C, inelastic : elastic scattering cross-section ratio 3=20974
 - Cr, inelastic : elastic scattering cross-section ratio 3=20974
 - Ge, inelastic : elastic scattering cross-section ratio 3=20974
 - H atoms, on nuclei 1=19575
 - H atoms, on nuclei 3=4701
 - Pd, inelastic : elastic scattering cross-section ratio 3=20974
 - Pt, inelastic : elastic scattering cross-section ratio 3=20974
- acoustic waves**
- angular distrib., meas. by directional array 2=19663
 - Arctic pack ice, acoustic backscatt. strengths 4=29259
 - in atmosphere, effect of wind 1=20875
 - in atmosphere, pulse meas. 1=2827
 - atmospheric, with turbulence 2=17151
 - atmospheric turbulent media, theory. 3=25915
 - backscatter from oscillating surface, reverberation spectra 4=2794
 - backscatter from rough boundary 4=5323
 - back-scattering cross-sections of short cylinders and fish in water, meas. and calcs. 4=27264
 - backscattering, by obstacle in water, 2=9341
 - backscattering pattern, detm. rel. to fish cross-sections 2=15691
 - baffle, nonrigid, coupling of elements 4=29705
 - beam attached to a plate 2=21975
 - bilocal perturbation method, turbulent thermally random medium 4=18357
 - boundary, rough, as a backscatter of wave radiation, model 4=21247
 - circular cylinder, h.f. plane wave, theory 2=21976
 - clusters of discrete inhomogeneities, coherent 3=14272
 - collinear, finite amp. beams, scatt. press. meas. 2=17566
 - concentric cylindrical or spherical waves 2=17564
 - by cylinders, solid or air-filled, in water 1=4413

Scattering—contd

acoustic waves—contd

- cylindrical, by cylindrical obstacle 2=1233, 7298
- cylindrical segments, in reverberation chamber 1=8207
- cylindrical shell in moving medium 4=11308
- cylindrical wave, by elastic cylinder 4=5321
- cylindrical waves, convergent, by a sphere, calc. 0=6875
- deep-sea bed backscatt. of explosive sound 3=3444
- by a disk, solution for an arbitrary wave 0=19303
- by double periodic surface, stationary problem for plane-wave 2=5089
- echo formation, rigid body in fluid, optical anal., errata 3=5501
- effect on loudness 1=12940
- in elastic medium, by small variations of parameters 4=285
- elastic prolate spheroid 3=11867
- elastic rod, moving 4=24323
- by fish models, ellipsoids 3=1775
- flat plates, totally reflecting, bistatic scattering 0=6879
- gas-filled balloons, transmission measurements 1=9451
- holes, acoustic-mode scattering by phonons 1=11275
- hydroacoustic, from pair of fluid spheres, expt. 4=14292
- isotropic turbulence of large Reynolds number 1=1799
- lattice, resonance, by isotopes, theory 3=10595
- metal spheres in water 1=16030
- moiré-fringe analogues in underwater acoustics 1=8182
- multiple, by parallel arbitrarily shaped cylinders 1=6934-5
- multiple scattering, theory 1=10571
- multiple, waves by weak random irregularities in the medium 1=8242
- non-uniform sinusoidal surface with normal acoustic admittance 0=6877
- ocean bottom backscatter 4=23714
- ocean bottom backscattering meas. 4=10690
- in ocean, deep. 3=25862
- ocean deep scattering layer, meas. with explosive sound sources 4=10691
- in ocean, on rough surfaces 2=7299
- by ocean surface and bottom 3=16202
- periodic surface, perfectly rigid, surface 2=7760
- periodic surface, rigid, general formula 2=5474
- periodically uneven near-sawtooth surface 3=16711
- phase lattices, meas. 3=5499
- plane, by row of small cylinders 0=2210
- plane, square cross-sections, intersecting at rt. angles 2=17564
- plane transverse, by spherical object, in elastic medium 0=8754
- plane wave scattering cross-section, calc. 4=27263
- plane wave at serrated edge 4=284
- pulses, by thin-walled metallic cylinder in water 3=5500
- randomly inhomogeneous medium, elastic waves 4=8300
- Rayleigh scatt. from corrugated surfaces 4=2793
- resonance on sinusoidal surface of small-amplitude waves 0=19305
- reverberation chamber, diffuseness of sound field 1=16043
- in reverberation chamber, 125-500 c/s, sound distribn. 3=1776
- reverberation noise, statistical model 4=8359
- rigid body, pulse backscatt. theory 2=13411
- Rijke phenomenon, small-signal analysis 3=18933
- room, absorpt. coeff., influence of diffusors 2=82
- rough surface analysis 3=18374
- rough surface, with two irregularity types 3=14273
- sea 0=5099
- in sea, random inhomogeneities study 2=23996
- sea surface 1=1794-5
- sea surface 3=9559
- sea surface, back-scatt. 4=23717
- sea surface backscatt. strength 4=30925
- sea surface, backscatt., theory 4=30924
- sea surface, rel. to its roughness 3=1423
- by sea surface and sea bed 3=21568
- in sea, at temperature discontinuity 0=132
- simple body shapes, h.f. echo struct. 2=13412
- small scatterers, random vol. distrib., bulk parameters 4=24321
- by solids with uneven surfaces 0=19304

Scattering—contd

acoustic waves—contd

- sound generated in nonlinear interaction 2=17565
- by spherical fluid obstacle in elastic medium 0=2211
- spherical segments, in reverberation chamber 1=8207
- spherical source above plane layer with inhomogeneities, scattered field 4=5297
- spheroid, prolate, embedded in fluid 2=2837
- strips system, forces and torque calc. 0=5097
- thermoelectric parameters calc. 1=14522
- turbulence and single vortices 2=21868
- by turbulence in surface layer of atmos. 0=12176
- in turbulent atmosphere 0=6878
- turbulent medium, nonisotropic 3=23986
- underwater scatt. from liquid sphere 3=11794
- underwater scattering by sea surface 1=5333
- volume reverberation 1=5331
- water containing solid particles 2=11458, 17458
- in waveguides with irregular surfaces 0=133
- wave scattering by irregular surfaces, exact solution 1=5332
- NaCl, by impurity ions, rel. to thermal cond. 2=10324
- NaCl, by impurity ions, rel. to thermal cond. 3=6473
- acoustic waves, ultrasonic**
- attenuation by Rayleigh scattering, calc. 1=18520
- backscattering of underwater sound from sea surface 0=2209
- α -brass, polycrystalline 0=13503
- by bubbles, in seawater 2=15690
- by cylinders, photographic observation 0=12462
- and e.m. wave scattering in turbulent medium, model for 4=30066
- liquid-liquid system critical transition, struct. effects 4=27140
- in liquids, by bodies of low shear modulus 3=18931
- by metal impurities, Coulomb effect on attenuation 4=20198
- metals, rel. to grain-size distribution 4=23512
- paramagnetic ions in crystal, anomalous 4=15416
- in polycrystalline solid, u.s. stress pulses 4=1387
- Rayleigh surface waves 0=8731
- sea surface, Doppler shift of sonar backscatter, 85 and 1400 kc/s 4=24322
- solid grain boundaries, review 4=6737
- sphere, solid, metal, in water 1=6936
- steel, SAE 4150, attenuation, Rayleigh scatt. 3=10590
- by u.s. waves 0=5098
- Cu, polycrystalline 0=13503
- U and grains, unrefined, detection, pulses 3=13496
- electromagnetic waves**
- abstract perturbation procedure 2=7742
- angular dependence of almost smooth surfaces 2=22062
- atmosphere, light, i.r. 4=7845
- atmosphere, troposphere, and anisotropy, u. h. f. 4=4754
- atmosphere, troposphere, var. with height 4=17911
- atmosphere, troposphere, review 4=3179
- atmosphere, tropospheric layer with sine boundaries 4=14909
- atmospheric inhomogeneities, nonisotropic 2=11796
- aurora, possible mech. 2=4679
- aurorae, alternative processes 3=11587
- auroral obs. 2=17190-1
- azimuthal scattering angle rel. to e.m. wave amplitude and size of scatterers 1=19031
- due to auroral disturbances 0=6480
- auroral ionosphere, multiple scatt. by irregularities 3=13716
- backscatter from artificial electron clouds 4=2269
- back-scatter, by dielectric spheres 4=14895
- backscatter, identical vanishing conditions 3=17055
- backscattering from conducting cylinder with surrounding shell 1=373
- back-scattering by infinite strip 1=16570-1
- backscattering by water bubbles of 3.21 cm waves 2=1603
- by bounded plasma 3=9790
- boundary value problems, recent solutions 4=707
- bump, semielliptic, on ground plane 4=19227
- bursts from T.V. transmitters, sweep freq. obs. 2=906
- circular disk, cross-section for plane wave, with amp. distrib. 0=301
- complex angles and supergain data 1=10602
- complex shapes, effect of absorbers, theory 4=8939

Scattering—contd

electromagnetic waves—contd

- composite cylinder, oblique, using basic principles 4=16652
- composite cylinder, optical model 4=5817
- by concentric infinite cylinders 1=8241
- by conducting cylinder in gyroelectric medium 4=19228
- conducting infinite strip in gyroelec. medium 4=8938
- by conducting narrow unidirectionally infinite strip 1=372
- conducting sphere in dissipative medium 3=497
- conducting sphere response to dipole field 0=12694
- conducting spheres, backscattering cross-section 1=7150
- conductor in semi-inf. dissipative medium, back-scatt. 3=21976
- cone, finite, plane waves striking nose on, theory and expt. 4=700
- cone, Rayleigh and resonance scattering 0=5404
- cones, large rel. to wavelength, theory 2=19729
- conference, Potsdam, NY (1962) 4=14392
- by corrugated sheet 0=5405
- corrugated surface of finite cond. 2=13694
- crystals, Rayleigh, and excitons 3=17989
- by cylinder coated with inhomog. plasma sheath 3=7703
- cylinder, conducting, dielectrically coated 4=705
- cylinder, elliptic, Mathieu soln. 4=19227
- cylinder, finite, h.f. 4=706
- by cylinder, large, of plane waves, Watson transform. use 4=24846
- cylinder, plasma-coated conducting 4=24847
- cylinders, elliptical, l.f. polar diagrams 4=30053
- by cylinders, infinite, at perpendicular incidence 4=14395
- cylinders, infinitely long, hollow, and coated 4=27653
- by cylinders, at l.f., general formulae 4=5814
- from cylindrical plasma, infinitely long, magnetized 0=17018
- cylindrical surface, effect of discontinuity 3=7706
- D region scatt. at v.h.f. 2=5490
- by dense distributions of large tenuous scatterer 4=14020
- diagrams, similar to Feynman 4=708
- dielectric, backscatter theory 3=11676
- dielectric bodies, geometrical optics method 4=5816
- dielectric-coated metallic cylinder, calc. 3=8933
- dielectric cylinder, infinite inhomog. 2=11794
- dielectric interface, sinusoidal, Luneberg-Kline analysis 3=7704
- dielectric and metal spheres, calc. 2=22337
- dielectric or plasma coated bodies, radar cross-section 4=8937
- dielectric rod lattice, 2-dimensional 0=11054
- dipoles, thin 4=30052
- dispersions, spheres 3=19447
- by electron beam 0=3859
- electron-phonon system, theory 4=4247
- on electrons, above ionosphere 0=18501
- electrons, free, into half original wavelength 3=24437
- by electrons, high energy 3=17057-8
- electrons in ionosphere, incoherent backscatter 3=13772
- by ellipsoidal particles 0=19447
- by extended randomly refracting medium 1=16587
- ferrite cylinders, coaxial 1=16566
- finite-beam incidence, theory 2=20154
- fluctuating medium, statistical theory 3=21973
- fogs 4=23758
- free electrons in ionosphere 2=6938
- on free electrons in strong mag. field 0=11020
- fundamental surfaces for mixed boundary conditions, plane scalar waves 4=5021
- grating of circular cylinders, infinite 3=7705
- grating, of identical cylinders, semi-infinite 4=21655
- grating, wide, arbitrary cylinders, plane waves 4=703
- by gravitational fields 0=10568
- ground-backscatter, high-freq. rel to solar flare 3=507
- ground, sea, land, mountains, back, 16 Mc/s 4=17951
- gyrotropic cylinder, longitudinally mag. 4=711
- half-plane and cylinder, infinite, cond. 2=3169
- in high-density media at high temp. 0=12709
- by ice spheres, attenuation and ang. scatter 4=14896
- ice spheres in atmosphere, backscattering 3=9041
- ice spheres, back-scatt. cross-sections 4=8950
- ice spheres, large, back, surface wave effects 4=19230
- ice spheroids, oblate, back-scatter meas. 3=9934

Scattering—contd

electromagnetic waves—contd

- on imperfectly conducting cylinder 0=12698
- incoherent by free electrons 3=7702
- infinite metal rod, elliptical, calc. 3=17052
- infinite ribbon, backscattering cross section 1=1973
- inverse scatt. problem 3=7123
- by ionized gas, electron distrib. det. 3=4136
- by ionized gas in magnetic field 1=9689
- by ionized gas in thermal equilibrium 0=17108
- by ionized gas in thermal equilibrium 1=16584
- by ionized gas in thermal equilibrium in static quasi-uniform magnetic field 1=19041
- ionosphere, backscatter, incoherent 440Mc/s, May 1961 3=7720
- ionosphere D-region, from man-made irregularities 4=4811
- ionosphere, at dielec. const. fluctuations, rel. to geom. optics 2=20167
- ionosphere electrons, 300 Mc/s 4=4808
- ionosphere, equatorial F-region, backscatter 4=7928
- ionosphere, vertical backscatter, rel. to height 2=4638
- ionospheric F-region northscatter, rel. to whistler-mode propag. 4=7857
- ionosphere F-region, obs. at Varanasi 4=29328
- and ionosphere, F-region, temp. vars., 200-700 km 3=11443
- ionosphere, 440 Mc/s backscatter, s.n. ratio versus height 0=16432
- ionosphere, incoherent, and movements 4=2271
- ionosphere, multiple scattering 1=9196
- ionosphere propag., long-distance 3=19461
- in ionosphere and troposphere, on inhomogeneities, turbulent pulsations 1=12021-2
- ionosphere, v.h.f. forward scatter, turbulence theory 0=12711
- ionosphere, v.h.f., near mag. equator 4=2256
- ionospheric backscatter characteristics at 440 Mc/s 1=20919
- by ionospheric plasma 3=16244
- by ions, appl. to ionosphere 3=6975
- ionospheric backscatter, incoherent, Faraday rotation effect 1=20923
- ionospheric temp. by incoherent scatter technique 1=15263
- by large objects 3=18703
- by large spheres, near-zone back-scatter 1=16567
- Lenauier effect, rel. to photon packets, theory 1=11825
- liquids, binary, pair correls., crit. opalescence and intermol. forces 4=16113
- by longitudinal plasma waves 0=11053
- Lorentz-Lorenz dispersion formula for electric quadrupole radiation 2=19668
- lower ionosphere 0=14318
- in lower ionosphere, metre waves 0=6453
- lunar surface, back-scatt., diffr. theory 3=1512
- in magneto-ionic media 2=3175
- in medium filling half of three-dimensional space 3=5848
- melting ice spheres 1=19032
- metallic sphere covered with a thin absorber, oblique incidence mechanism for increase 4=3150
- meteor trail v.h.f., field-aligned 2=11803
- by meteor trails 3=7049
- on meteor trails 3=19448
- by meteor trails, attenuation function 3=25984
- meteor trails, Eshleman's model modification 3=23709
- meteor trails, ionized columns, theory 3=11587
- meteor trails, radio echo, asymm. model 3=11599
- microwave aerial in hollow dielec. wedge 3=12317
- microwave, from unstable plasma waves 3=4168
- microwaves by cylindrical plasma 2=22203
- microwaves from cylindrical plasma, theory 1=16568-9
- microwaves, on nonspherical particles, analogue for light scatt. 1=2887
- microwaves by plasma 0=19684
- mid-field, forward, by large-radius spheres 2=20152
- Mie, with complex refractive index 1=8238
- in Mie region, diagrams 4=14891
- model simulation method 4=8940
- moon 3=11587
- moon, as diffuse reflector and scatterer 0=16526
- by moon, "quasi-smooth" model 0=16525
- moon as r.f. scatterer 1=15556
- by moon, radar determination of scattering props. 0=18651

Scattering—contd

electromagnetic waves—contd

- moon, Senior—Seigel theory 3=9263
- moon-surface, ang. scatt. law at 10 cm 2=1009
- multiple rel. to F layer spread 1=15293
- multiple incoherent 4=18428
- multiple, by parallel arbitrarily shaped cylinders 1=6934-5
- multiple scattering, spectral density 0=12674
- multiple scattering, theory 1=10571
- multiple scattering, theory 1=19029
- multiple, waves by weak random irregularities in the medium 1=8242
- in nondegenerate ionized gas 1=16585
- in non-uniform medium, scattering-angle dispersion 0=19932
- by obstacles, field analysis 0=5402
- ocean surface, near-vertical, calc. 4=30054
- parallel slits, in conducting screen, transmission coeff. 0=5406
- particles, nonspherical dielectric, expt. and theory 4=701
- particles, surface area det., low-angle, limitations 2=11795
- partly ionized gas, rel. to ionosphere, theory 4=5623
- from penetrable sphere at short wavelengths 1=16113
- periodic structures, multiple scattering 3=7697
- periodic surface, perfectly conducting 2=7760
- periodic surface, perfectly conducting, general theory 2=5474
- plane waves, on conducting disk 0=15145
- plasma-air interface 2=11666
- plasma, bounded column, plane wave 3=9791
- plasma, classical, effect of Coulomb collisions 4=11632
- plasma-coated sphere and other configurations 2=3170
- plasma columns, small-dia. 3=21785
- plasma, density fluctuations 4=2983
- plasma, during wave instabilities 2=11683
- plasma, by electrons, rel. to degeneracy 2=5355
- plasma, flare, comparison with approx. 4=14893
- on plasma fluctuations, cross-sections 1=18906
- plasma fluctuations, cross-sections 2=22236
- by plasma, harmonics predicted 3=232
- plasma, hot, incoherent scatter 4=521
- plasma, including collisions, calc. 3=16942
- plasma, incoherent, and ionospheric backscatt., Boltzmann eqn. calc. 4=11235
- plasma, inhomog., and conversion cross-sections 3=499
- by plasma, rel. to ionospheric propagation 0=19931
- plasma in mag. field 1=16314
- plasma, nonequilibrium states, theory 2=17837
- plasma oscillations, effect of collisions, theory 4=560
- plasma, peaks, minor, microwaves, and e density meas. 3=19254
- plasma, positive column, electrostatic resonance analysis 4=18886
- plasma, quantum electrodynamics 4=11631
- plasma sheath around satellite 2=4879
- plasma, thermal nonequil., rel. to number-density fluctuations 4=11627
- by plasma trail, behind moving body 1=16581
- plasma wave instabilities, directional effect 3=415
- by plasmas, r.f., incoherent 4=18884
- polarization, rough surfaces 4=3152
- potential, variational principles 3=17056
- power spectra, of temp., humidity and refractive index, aircraft and balloon meas. 0=16477
- pressure on charge in mag. field 0=11022
- in propagation in atmosphere, reflection in addition to turbulence refl. 4=21661
- radar, by coated perfect conductors 4=24844
- radar cross-section of a semi-infinite body 0=2443
- radially inhomog. spherical medium, dyadic Green's function 3=24467
- radiation intensity in interior of scattering and absorbing medium, theory 3=12314
- radiation transfer eqn. for aspherical indicatrix 3=7696
- radiofrequency, use of obs. for troposphere micro-structure 4=15874
- radiowaves, on γ -ray point source 4=27663
- radio waves by solar corona 1=1661
- radio waves by sum of scatterers 2=5475
- radio waves by weak auroral ionization 0=16466
- rain, mm band 2=9713

Scattering—contd

electromagnetic waves—contd

- Raman scatt., on ferrites 0=9210
- Raman scatt., stimulated, from lattice vibs. 3=23060
- random component medium, troposphere, review 4=3179
- "random media" distributions of identical discrete scatterers 4=3151
- random scatt., amplitude and phase distrib. 2=15492
- by random spherical surfaces, statistical theory 4=27652
- random volume scattering, theory 4=27026
- Rayleigh-Gans theory, extension 4=14394
- reciprocity theorem, for far-zone field 0=7223
- review of last 3 years work 4=30051
- rough sea surface 1=13183
- rough surfaces, reciprocity theorems 0=17107
- satellite, artificial, trail 4=2470
- short 4=19226
- sky radiation, effect of multiple scatt. 2=878
- by small particles, polarization 3=14772
- small resonant scatterer bounds 4=16659
- solar corona, discrete radio sources 2=4781
- solar corona, radio-wave scatt. props. 4=23927
- by solar corona, radio waves from Crab Nebula 1=15534
- solar radiation, in Martian atmosphere 4=7979
- sphere array, h.f., from geometrical optics, back scatt. 4=14894
- sphere, coated by large complex refr. index 3=498
- sphere, dielec. coated conducting 4=24845
- sphere, ideally cond., in inhomog. medium 2=239
- sphere, inhomog., Born approx. 2=22338
- sphere, penetrable, short wavelengths 4=704
- sphere, perf. conducting, as optics and creeping-wave terms sum 4=21656
- sphere, perfectly cond., with concentric shell 2=7751
- sphere, radar back-scatt. limit 2=11793
- sphere, radially inhomogeneous 2=22339
- sphere, radially inhomogeneous 4=19229
- sphere, translational addition theorems 2=11791
- spheres and cylinders, poles, Hankel function zeros 3=17053
- spheres, lossy dielec., bistatic scatt. with single surface impedance 4=8941
- by spheres, total scatt. efficiency, approx. formula 4=29773
- spherical earth, focusing effects 3=12323
- spherical non-uniform medium, calc. 4=14892
- spherical particles, inhomog. waves 3=17054
- spherical shell 4=30055
- spherically symmetric inhomogeneous objects 2=20153
- spread angle due to moving irregularities in F-region 0=16455
- statistical ensemble, average functions 4=5815
- statistically inhomogeneous medium 4=5813
- strip, perfectly conducting, l.f. scattering 1=19030
- by submicroscopic nonspherical particles, theory 1=16580
- surface current, induced, meas. 4=5806
- by suspensions, particle size and ang. var., polarization 4=15867
- theory, rel. to propagation in polymer systems 2=4116
- transient, plane 4=702
- in troposphere 1=7157
- troposphere mechanisms, inadequacy 0=4792
- troposphere, mult. scatt. 0=12710
- tropospheric inhomogeneities experimental technique 3=13687
- by tropospheric irregularities, theory 1=1518
- turbulent medium, u.s. model in water 4=30066
- in turbulent medium, without assuming small perturbations 3=12315
- by turbulent pulsations, allowing for average flow curl 1=13182
- by two arbitrary spheres, plane wave 4=710
- two circular or elliptic cylinders 2=7749
- from two concentric spheres 4=14393
- uneven surfaces, Fraunhofer zone 3=21975
- unidirectional surface waves, at cond. screen 3=21974
- v.h.f., at aurorae, data analysis 3=9080
- v.h.f., rel. to ionosonde echoes and auroral absorption 1=20981
- water drops and wet and dry ice spheres, backscatt. cross-sections 2=4597
- waveguides, equivalent network 0=9213-14
- X-band, back-scattering from sea 0=12700

Scattering—contd

electromagnetic waves—contd

- Al₂O₃ particles, cross-section from Mie theory,
5-10 μ 4=26175
MgO particles, cross-section from Mie theory,
5-10 μ 4=26175

light

- See also Diffusion, light; Raman spectra
near an absorption line 4=11364
acetone—chloroform, Rayleigh ratios and depolarization
factors 2=21909
acetone, intensity of Brillouin cmpts. 0=14847
acetone nitril, orientational interaction and rotation of
molecules 4=24162
acetone, orientational interaction and rotation of
molecules 4=24162
by adsorbed water on isotropic powders, theory 0=3650
aerosol droplets, angular variation 1=9486
aerosol drops and granularity meas. 3=21009
aerosol particle size distribution measurement 1=8186
aerosols, small, absorbing and nonabsorbing 2=17104
aerosols, small, spherical particles 2=19169
by aggregates, suspended in a liquid 3=5531
n-alcohols, Rayleigh line-width, orientational relax.
times 3=21366
alkali halide admixtures, line scattering images 4=15598
alkali halides, pure and doped 2=3929
alkali halides, spectral shifts 3=762-5
alkali halides, rel. to temp., 200°- 1000°K 4=28712
alkyl bromides, Rayleigh line-width, orientational relax.
times 3=21366
angular dependence, nearly polished surface 2=22062
angular distrib. rel. to properties of medium at large
depths 4=11367
asymmetry, meas. with photometer 1=4431
atmosphere, lower, nephelometry 3=6963
in atmosphere, meas. instrument 0=4783
by atmosphere, Mie scatt., spectral scatt. and polariza-
tion functions 4=15871
atmosphere, mol., plane-parallel homog., higher-order
scatt. 4=17894
atmosphere in Nevada Desert 1=9187
in atmosphere, searchlight for meas. of 0=171
in atmosphere, u.v., effect of ozone absorption 0=18518
atmosphere, visible and i.r., spectral coeffs. 2=19203
atmospheres, planetary, theory 4=2398
atmosphere, spherical 4=26796
atmosphere, by tropospheric refractive index vars. 4=7845
atmosphere, upper, by particles 4=17921
atmospheric 4=13798
atmospheric particles, solar aureole 0=18519
atmospheric, use of searchlight beam for density
measurements 1=6956
atmospheric, visual range meas. 0=8420
atmospheric, in visual and u.v. spectral
region 4=26793
atoms, hydrodyn. and statistical atom model 2=533
atoms, isolated and overlapping mag. sublevels 1=19599
atoms, redistrib. functions with Doppler broadening 3=7358
atoms, split excited state, modulated light scatt., freq.
conversion 4=21267
backscattering from conducting cylinder with surrounding
shell 1=373
benzene, absolute intensity, exper. determ. 4=24211
by benzene, const. 3=7208
benzene—methyl alcohol, Rayleigh ratios and
depolarization factors 2=21909
benzene, orientational interaction and rotation of
molecules 4=24162
in benzene, Rayleigh factor 1=6966
binary fluid mixtures, critical opalescence 0=10786
binary liquid mixtures 2=17462
blood cells, red 1=21112
by bubbles, applic. to bubble chamber photogr. 1=3097
butyl ether of ethylene glycol-water 4=24214
carbon disulphide, orientational interaction and rotation
of molecules 4=24162
carbon tetrachloride, absolute intensity, exper.
determ. 4=24211
cells, various, reflection corrections, with Brice-type
photometer 4=2854
Chandrasekhar's method for diffuse scattering problem,
convergence 0=19003

Scattering—contd

light—contd

- charged colloidal particles in salt solns. 2=23978
classical theory, molecular interaction 0=6950
clouds and hazes, visible and i.r. 4=13793
clouds, i.r. scattering, calc. by Mie theory 4=13794
coeff. of Kubelka-Munk theory 4=17556
collidine-water solns., conc. fluctuations
study 3=21365
by colloidal spheres 0=2255, 5182
by colloidal spheres 1=5359-60
by colloidal spheres 4=14398
colloidal spheres, Mie theory, comparison of approx.
methods 0=19445
colloidal spheres, scatt. ratio meas. 3=5530
by colloidal spheres, size distrib. curves determ. using
spectra of scattering ratio 4=10663
by colloidal spheres, size distribution
curves 1=8239-40
by colloids, micellar charge det. 1=20773
colloids, particle size meas. using two freqs. 4=13749
coloured spheres, Mie equations 0=10785
by cometary particles, solar continuum 4=15933
complex angles and supergain data 1=10602
complex surfaces, rel. to moon 4=2394
by concentric infinite cylinders 1=8241
concentric spheres, total coeffs. m₁ = 2.1050,
m₂ = 1.4821 2=11500
cones, large rel. to wavelength, theory 2=19729
conference, Potsdam, NY (1962) 4=14392
in copolymer, sequence, study 3=18443
copolymer soln., angular distribution 0=14851
critical opalescence of polystyrene in cyclohexane 2=5016
crystal impurities, in optical maser activity 2=8510
crystal impurity centres 2=8493, 14699
crystal impurity centres 3=20464
crystal lattice vibrs. and e. m. fields,
interactions 4=28346
crystal, near pts. of phase changes, rel. to dielect.
dispersion 2=23509
by crystalline polymers 0=14053
crystals, cubic, for Raman effect 3=23059
crystals, Raman reson. scatt. 2=21255
crystals, Raman resonance scattering 3=3024
by cylinders, infinite, at perpendicular incidence 4=14395
n-decane- β , β' -dichloroethyl ether liquid mixture,
opalescence, critical 4=24212
by dielectric ellipsoids 1=2888
diffuse refl., peripheral distrib. of scattered light,
meas. 4=16253
dioctyl phthalate aerosol droplets, angular variation 1=11844
dislocation networks, irregular, theory 2=6554
disperse systems, particle size determination, formulae
and nomograms 0=12496
dispersed media, absorption spectroscopy 1=2858
dispersion formula extension to very high
intensities 4=329
dispersions, spheres 3=19447
distinction from absorption, use of integrating sphere 0=5134
double frequency, Dirac equation calc. 4=14390
double frequency, using maser effect 2=17647
double frequency, Schrödinger equation calc. 4=14389
dust nebulae 4=29406
by dust particles, interplanetary and cislunar, rel. to
F-corona and zodiacal light 4=15936
from earth and overlying aerosol, outwards, intensity and
polarization 4=17893
in earth's atmosphere 1=4110
Einstein-Smoluchowski theory, validity 4=29770
by elastic strains in solids 4=15582
electric fields, polar molecule meas. possibility 3=24059
by electrolyte solutions containing charged colloidal
particles 4=14144
electrolyte solns., non-aqueous, property
fluctuations 4=24174
by electron beam, from ruby laser 3=16803
by electrons, captured in Van Allen belts 3=6996
by electrons (free), effect of relativistic mass
variation 4=868
by ellipsoidal particles 0=19447
by elliptical fibres, at oblique incidence 4=29772
emulsion, effect on exposure of uppermost elementary
layer 4=18438

Scattering—contd

light—contd

- ethyl acetate, absolute intensity, exper. determ. 4=24211
ethyl ether of ethylene glycol-water 4=24214
extinction of light by spherical particles 4=5397
film, solid, by freely-flexible macromolecular chain 4=3940
by films, effects of pigment size 0=6939
films, liquid, due to thermal corrugations, interfacial correlation effects 4=11171
films, liquid, surface corrugation correlation effects 4=16251
flexible chain molecule, theory 4=14141
by fluctuating inhomogeneities in crystals 4=25836
fluid mixtures, critical opalescence, theory 4=8526
fog formation from haze 4=7838
in fogs 0=10453
forward, approx. formula 2=15747
forward scattering by spheres 0=5135
by free electrons, harmonics predicted 3=232
gas, in inhomogeneous elec. field, intensity eqn. 3=23931
by gases, effect of elec. and mag. fields on depolarization 1=15957
gases, laser cross-sections 4=8456
gases, laser, depolarization 4=21186
in gases and liquids, molecular theory 1=6965
gases, low m.w., depolarization ratio meas. 4=14218
gases, non-ideal, temp. var. at constant pressure 1=15958
gases, non-linear effects, calc. 4=240-1
gases, nonlinear, in elec. or mag. field 3=11834
gases, Raman and Rayleigh scatt. in electrostatic field 2=13378
gases, Rayleigh, depolarization, meas. 4=242
gases, Rayleigh, for u.v. refr. index meas. 3=14215
gases, ruby-laser beams, cross-sections 4=8456
gases, tetrahedral mols., rel. to octupole moment 4=20031
glass, coherent 2=19730
glasses, depolarization, rel. to elastic strains 3=921
grafted copolymers, heterogeneity study 2=12937
by graphite particles refl., refr. and absorpt. meas., mag. effects 4=30683
by a grating 1=2885-6
group integrals appl. 3=14367
haloes, models, for scatt. by spherical droplets 3=21567
haze and fog 2=15198
heated gas in front of shock wave, under cosmic conditions 2=62
on hemispherical particles. 1=1833
hexamethylene amine-water, stratifying system, scatt. indicatrices 4=24215
hexamethylenimine-water solns., conc. fluctuations study 3=21365
high polymer solns., 25-200°C, apparatus 2=7407
hydrosols, meas. method 1=16114
i.r. in fogs 0=10452
i.r., by water drops in atm. 2=11027
in imperfect gases, Rayleigh's ratio 1=11788
incoherent, coherence props. theory 2=11462
inhomogeneities in medium, Mie theory 2=119
inhomogeneous plane layers 2=21991
integral eqns., soln. 4=27336
and intermolecular forces, from ang. dissymmetry, review 4=20126
interplanetary matter, phase law 3=3542
interstellar, effect particle sizes 1=2595
interstellar extinction, effect orientation of non-spherical particles 1=2554
by irregular particles, dimensions larger than λ 4=14397
by irregularities in dielectric evaporated layers 1=6959
isotropic, in atmosphere of finite optical thickness 2=17648, 13459
Krishnan effect 2=9409
large particles, spectral depend. meas. 0=14848
laser, by diffuse vibrating reflector, beating 4=18430
laser, for exam. of polymer struct. changes 4=20772
laser, granularity, analysis 4=8407
laser materials, stimulated emission scatt. 4=22838
laser radiation, coherent source pattern 3=14372
by latex particle aerosols 1=11638

Scattering—contd

light—contd

- lattices, particle size determ. 4=4716
layer of finite optical thickness, radiation field 2=19728
Lennuier effect, theory 0=14780
light-off-light scatt. in plasma, theory 4=27532
by light, in plasma medium, quantum calc. 4=27337
by light in plasma, theory 4=29927
by light, possible laser -40GeV $\rightarrow \gamma$ obs. 4=2856
line broadening on transition liquid to solution 0=3530
line source function frequency dependence for coherent scattering 1=4206-7
liquid, inhomogeneous, thermal, intensity effects 4=18409
liquid, from laser, at bubbles in boiling 4=2895
liquid, Raman and Rayleigh scattering, by thermal vibrations 4=11193
liquid, Rayleigh, convolution approx. errors 4=18434
liquid scintillator cells, light collection efficiency 1=1984
liquid, turbid, coherent light, granularity 3=19025
by liquids, absolute meas. by photometer 4=14330
liquids, anomalous, rel. to lattice-type vibrations 2=7213
liquids, asymm. and symm. top molecules 3=7209
liquids, binary mixtures, Rayleigh const. evaluation 2=9408
liquids, fine structure, diffraction by elastic thermal waves view 3=18814
in liquids, meas. apparatus 1=6966
liquids, mixtures, binary, organic, Rayleigh const. 3=5442
in liquids, molec. motion study, Van Hove's distrib. function 4=21094
in liquids, organic, dipole orientation relaxation 3=7207
liquids, Rayleigh, depolarization meas. using laser, 4=24210
in liquids, Rayleigh factor 1=6966
liquids, Rayleigh scatt. and molecular orientation 3=21369
liquids, rel. to rotational diffusion in molecules 3=15329
liquids, viscous, depolarization factor and absorption, acoustic waves 3=21360
macromolecular anisotropy, study 2=6239
by macromolecular coils 4=15392
macromolecular solns., in binary solvent, thermodyn. and mol. theories 2=7212
macromolecular solns., meas. 2=15746
macromolecular weight determ. in soln. 4=6674
macromolecules, linear, oriented in laminar flow, flexible necklace model 4=14140
by macromolecules, proteins, biological applications 4=15391
macromolecule solns., composition fluct. effects 4=18197
macromolecule solns., Rayleigh, diffusion broadening 4=14142
macromolecules, flowing, depolarization 3=14165
macromolecules, flowing, interference factor 3=14164
macromolecules, flowing, two-particle correl. 3=14163
by macromolecules, in soln., presence of optical harmonics 4=29771
magnetic fields, polar molecule meas. possibility 3=24059
meas., submersible meter, for seawater, design theory 3=19023
measurement error for finite collimating aperture, geometrical calc. 4=16252
measurement, review, definitions 0=163
in media with varying optical parameters 0=14846
in medium of finite optical thickness, anisotropic 3=7357
metal films, scatt. factor meas. 4=22837
by metal vapours 1=802
metal wires, thin, rel. to plasma props. 3=13159
metals, i.r., electron surface collisions theory 3=25245
by meteoric particles, density distrib. 3=7023
meter, for deep water meas. 4=23723
methane, Raman line broadening at 15-250 atm. 3=176
methane, Rayleigh scatt., depolarization. 3=175
methyl alcohol-chloroform, Rayleigh ratios and depolarization factors 2=21909
methyl ketone, absolute intensity, exper. determ. 4=24211
microinhomogeneous media, anomalous, model 3=9624
Mie, angular 2=7406
Mie, with complex refractive index 1=8238

Scattering—contd

light—contd

- Mie formula for unpolarized light 1=18617
 Mie, in forward area 2=17650
 Mie functions for $\mu=2.105$ 1=2890
 in Mie region, diagrams 4=14891
 Mie, soln., history 2=7405
 mirrors, dielectric, maser, optical 3=16805
 mixing, in plasma 4=18885
 modulated light, on atoms with closely-spaced excited states 4=3806
 molecular optical anisotropy, meas. by Rayleigh scatt. 2=18474
 molecules, non-linear intense beam theory 4=24394
 molecules, non-linear, for no inversion centre 4=28161
 by molecules, semi-stiff chain type 0=11546
 molecular, strong electro-optical field effects 4=30405
 by molecules, u. v. scatt., dimensions det. 4=3938
 monochromatic, parallel, coherent, without laser 4=328
 monodisperse solns. 2=15162
 in moving boundary media, quantum escape probability 0=19448
 by multi-component systems 3=23882
 multi-component systems, of optically anisotropic molecules 1=243
 by multi-component systems, molecular theory 1=16112
 multiple, in absorbing medium 3=11941
 multiple coherent scattering of light from optical resonance in gas 0=20548
 multiple incoherent 4= 18428
 multiple, in polymer suspensions, luminance curves 1=244
 multiple, using scatt. approx. 2=5189
 multiple scatt., problems 2=2898
 multiple, waves by weak random irregularities in the medium 1=8242
 Nevada Desert atmosphere 2=2487
 nitrobenzene-heptane, stratifying system, scatt. indicatrices 4=24215
 nitrobenzene-hexane, stratifying system, scatt. indicatrices 4=24215
 nitrobenzol, soln. in n-heptane, absolute coeff. 3=21367
 nitromethane — benzene 4=24214
 nitromethane — carbon tetrachloride 4=24214
 non-absorbing spheres, i. r. transmission of clouds 0=14302
 non-coherent, resolvent of auxiliary eqn. 3=3893
 non-coherent, in spectral line profiles calc. 2=22035
 nonlinear optical phenomena calc. 3=14371
 on nonspherical particles, microwave analogue 1=2887
 non-spherical particles, 3 cm wave scatt. functions 3=4275
 nonstationary, in moving medium 2=7409
 in nonsteady state medium 3=82
 objects subject to fading, theory 2=11501
 one-dimens. medium with moving boundary 2=118
 opaque object scattering cross-section 1=6949
 optical conds. in weakly absorbing scattering medium 0=1044
 optical image formation with incident light due to standing waves 4=11363
 optical resonance multiple coherent scattering in Hg 0=20549
 paper under dynamic compression 4=10591
 n-paraffins, rel. to bond polarizability 1=12296
 paraffins, normal, and dilute solns., anisotropy 3=136
 n-paraffins, Rayleigh line-width, orientational relax. times 3=21366
 by particle, use for structure determ. 4=18432
 particle size det., polychloroprene latex globules 0=19446
 by particle system, theory 1=16115
 particles, irregular shaped, astronomical appls. 4=18427
 particles, Mie scatt. coeffs. 2=1279
 by particles, size meas., higher-order Tyndall spectra 1=2560
 particles, spherical, ang. var. 4=2855
 from penetrable sphere at short wavelengths 1=16113
 in phase separations, diffusion-controlled 3=16802
 at phase transformations, second order, ferroelectric 3=20450
 in photographic emulsion, effect on blackening 3=11956
 photographic emulsions, diffusion halo 0=8813

Scattering—contd

light—contd

- photometry of solar surface, correction methods 2=7004
 photon beams, laser-produced, on γ -quanta, high-energy 4=9154
 β -picoline-water, non-stratifying system, scatt. indicatrices 4=24215
 β -picoline-water, none-stratifying system, anomalous scatt. 4=24216
 β -picoline-water solns., conc. fluctuations study 3=21365
 pigment suspensions 1=11845
 plane layer 4=14391
 plane layer, transfer integral eqn. 4=14388
 by plane-parallel inhomogeneous atmosphere 1=12829
 by plane-parallel semi-infinite atmosphere 1=12830
 plane wave spectra by finite number of bodies 4=5398
 plane wave spectra by infinite grating of identical cylinders 4=5399
 planetary atmospheres, rel. to u. v. spectra 2=15310-11
 plasma, d. c., laser radiation scatt., large-angle 4=18883
 by plasma, from laser, for electron density meas. 4=8719
 plasma, laser, width, and electron temp. meas. 4=14670
 by plasma oscills., laser driven 4=21509
 plasma, relativistic, freq. shift 4=14668
 plasma sphere, Mie theory 4=5659
 plasma θ -pinch, local parameter determ. method 4=18919
 plasma, θ -pinch, using maser, optical, ruby 3=19256
 plasma θ -pinch spectrum 4=24659
 plates and lenses, flare meas. method 3=16801
 point source in diffusing medium, light distribution 0=10783
 polarization, study by spherical harmonics 1=16117
 polyaceneaphthene solutions 0=14657
 polychloroprene, rel. to crystallinity 2=6544
 polydispersions, in particle size distrib. det. 2=10991
 polyelectrolyte multicom. solns. 2=11366
 polyethylene, annealing of stretched films, study 1=20641
 polyethylene, pattern analysis 2=2222
 polyethylene, scattering under dynamic conditions 3=10914
 polyethylene spherulitic films, structure studies 0=21221
 polymer films, with density and orient. fluctuations 2=14658
 polymer films under strain 0=6374
 by polymer films under strain 1=14624
 polymer, linear molecules in solution, rel. to extension determination 1=17382
 polymer solns., critical opalescence theory 2=11373
 by polymer solutions 4=14143
 polymer solutions and meas. of osmotic and other thermodynamic props. 4=2669
 polymer solns. structure, in elec. field 4=24180
 polymers, intramolecular configuration, macromolecules 1=8120
 polymers, oriented films 4=22836
 rel. to polymers, structure 3=16127
 polymers, theory 3=9623
 polymethyl methacrylate soln., rel. to concn. 2=5017
 polymethylmethacrylate, dilute solns. 3=134
 polystyrene in cyclohexane, critical opalescence 1=1743
 polystyrene latexes, monodispersed 0=10784
 polystyrene-PMMA, grafted copolymer study 2=12937
 polystyrene, soln. in cyclohexane, temp. var. 3=9459
 polystyrene solns., and anisotropy 4=8173
 polystyrene solns., Rayleigh, diffusion broadening 4=14142
 polystyrene suspensions, extinction of light 4=5397
 in pressed crystal powders, clouding 1=4024
 pure liquids and polymer solns., Doppler shifts 4=16111
 quantum kinetics of black absorpt. and white scatt. 4=8441
 quantum liqs., meas. of collective oscill. amplification 4=5097
 quantum theory of molecular excitation levels structure 1=9949
 quantum theory of molecular excitation levels structure 1=11114
 quartz crystals, rel. to defects 1=19949
 quartz, imperfections, study 0=11619
 in quinine sulphate solutions 1=145
 quinine sulphate solutions, fluorescent scattering 1=5282

Scattering—contd

light—contd

- radiation, in homog. sphere with central source 3=19061
- Raman, classical theory for intensities, analysis 4=3832
- Raman, in crystals 2=8492
- Raman, at freq. near electronic—vibrational transitions 1=4479
- Raman, in gases 2=1202
- Raman, for light modulation 2=17646
- Raman scatt., stimulated, of giant laser pulse 3=21569
- Raman scattering, forced, wave interactions 4=27338
- Raman, stimulated, gain theory 3=14374
- Rayleigh atmosphere, radiation emerging from top 1=6587-8
- Rayleigh, in aq. solns of acetone and methanol, density and concn. fluctuations 1=4341
- Rayleigh eqn., errors 2=13460
- Rayleigh—Gans theory, extension 4=14394
- Rayleigh, in liquids, photoelec. det. 2=11503
- Rayleigh, by liquids, theory 3=14166
- Rayleigh, from molecules, incoherence 4=15316
- Rayleigh, multiple scatt. at small angles, transport eqn. 1=16111
- Rayleigh, near absorption line 4=327
- Rayleigh, optical conditions inside medium 0=8809
- Rayleigh, rel. to orientational ordering in liquids 1=11747
- Rayleigh scattering depolarization factor, meas. for various vapours 0=19450
- Rayleigh, in sodium twilight flash 0=786
- Rayleigh, from thin layer, polarization effects 3=1835
- resonance, by atmospheric sodium 0=2029-30
- resonance, atmospheric sodium, twilight intensity theory 0=2031
- resonance, in image-forming filter 3=16780
- resonance radiation, transport, incoherent scatt. theory, verification 0=13394
- rock salt, frequency shifts, rel. to lattice vibs. 2=6260
- rock salt, optical density spectral distrib., rel. to plastic deformation 3=17988
- rock salt, worked (110) face 2=8491
- by rodlike macromolecules in liquid subjected to shear 1=4342
- by rod-shaped particles, size determination nomograms 1=2892
- seawater, meas., submersible meter, design theory 3=19023
- silica, vitreous, depolarization, rel. to elastic strains 3=921
- and sky brightness, calc. 4=29292
- sky radiation, by aerosols, polarization rel. to size distrib. 4=23759
- soap films, due to thermal corrugations, interfacial correlation effects 4=11171
- by sodium chlorate crystal, temp. variation 1=11389
- solar chromospheric, rel. to energy balance 2=979
- by solution of anisotropic rods, function for luminous intensity 0=19449
- solutions, Rayleigh scatt., meas. in region of critical opalescence 3=21367
- solutions, Rayleigh scatt., microstructure parameters 3=21364
- solutions, visual nephelometer 0=12495
- soot particles on prism, polarization 0=14856
- spectra in the sea-depths 3=9011
- in spectrophotometers, prism-type, stray light determination 0=12485
- spectroturbidimetry of emulsions 1=16072
- spectrum of scatt. sunlight in atmosphere 2=6913
- on spheres, dielectric, nonabsorbing 4=18429
- spheres, heterogeneous, theory 3=9623
- spheres, Mie scatt. functions, tables 2=22061
- spheres, "wavelength exponent" of turbidity 2=7404
- spheres, wavelength exponents at small α values, theory 4=18433
- in spherical homog. medium, with central energy source, applic. to nebulae 0=18842
- by spherical metal particles 0=5183
- spherical particles, absorbing and dielec., polarization, applic. zodiacal light 1=2609
- by spherical particles, descriptive functions 0=3649
- spherical particles, highly absorbing 3=14370
- spherical particles, scattering functions 1=4478

Scattering—contd

light—contd

- by spherical particles, various functions 0=14849
- by spherically symmetric objects with var. refractive index 4=14396
- by spider fibres 1=2889
- in stratiform cloud 3=9043
- streaming suspensions and solutions 0=939
- sugar solutions, turbidity meas. 0=6951
- by surface, nearly-polished, ang. depend. 3=21568
- suspension, semi-infinite 1=4476
- suspension, solid, continuous meas. by opt. method 2=2454
- suspensions of large coloured particles, interaction with absorption 3=9621
- synthetic quartz and fluorite crystals 4=22884
- by systems of particles, theory 0=14850
- by systems of spherical particles 3=11939
- theory, driven osc. model, damping const. effects 4=22330
- thiophene, orientational interaction and rotation of molecules 4=24162
- Thomson scattering of intense light beams 4=11366
- transfer, Shuster—Schwarzschild method 4=18119
- triethylamine—water solns., concn. fluctuations study 3=21365
- turbid media 2=5173
- turbid media, coeff. det. method 2=1280
- turbid media, expts. using white disks 4=321
- turbid media, particle size and freq. effects 4=14378
- turbid medium, anisotropic, in plane layers 3=14369
- turbid medium, radiative transfer eqn. 3=14368
- from two concentric spheres 4=14393
- two electrons, interacting, distrib. of incident light pressure 4=5760
- by ultrasonic waves in glycine sulphate 0=9845
- water—dioxane system 2=13345
- water, intensity of Brillouin cmpts. 0=14847
- water, rel. to liquid structure 4=29609
- water mists, near i.r. scattering indicatrix 4=29236
- water spheres, i.r. calc. 2=11502
- wavelength exponent of differential scatt. spectra 4=8455
- by wood smoke 0=5131
- xanthidrol soln. in glycerol, dil., rel. to fluorescence spectra 2=17469
- Ag, Al films 2=13455
- Ag, granular films 1=18618
- Ag granular thin films 4=22892
- Ag wire, meas. down to 2000 Å diam. 3=13159
- by AgBr monodisperse sols 4=15852
- AgBr particles, ang. var. 4=2855
- AgBr sols, Tyndall spectra, higher order 3=13629
- AgBr suspensions, rel. to turbidity 2=17103
- by AgCl-core aerosols 1=11637
- Al₂O₃ μ -size spheres, Mie calcs., 0.5-10.0 μ 4=22845
- As Rayleigh scatt., depolarization. 3=175
- Br₂, liq., Raman spectra 2=7368
- CaF₂, i.r., frequency shift 3=10942
- Cd vapour, resonance scatt., modulation 4=6499
- CsBr, Raman scatt. meas. 3=15692
- CH₃CN, Rayleigh's ratio 1=11788
- CH₃F, Rayleigh's ratio 1=11788
- CO₂, Rayleigh's ratio 1=11788
- COS, Rayleigh's ratio 1=11788
- DNA, comp. of molec. weights 0=7822
- H atom, metastable, coherent scatt. calc. 4=9655
- H, atomic, coherent, calc. 3=4715
- H₂, Raman, Rayleigh scatt. of Lyman α 2=22968
- H₂, Rayleigh, rel. to star opacity 2=11134
- He—Ne laser, as source 4=5396
- KCl, dislocation structure of scatt. units 4=7150
- KCl, Harshaw, ang. var., gamma ray effect vars. in different samples 4=1525
- KCl, scatt. by dislocation networks 0=11618
- KCl single crystals, effect of defects 3=920
- KI-dodecylpyridinium iodide solution 1=4477
- by Mg films, photoelec. meas. 4=2846
- MgO μ -size spheres, Mie calcs., 0.5-10.0 μ 4=22845
- MgO particles, rel. to wavelength 3=924
- NH₃, Rayleigh's ratio 1=11788
- NH₄Cl aerosols and cigarette smoke 3=19024
- Na-borosilicate glasses, rel. to X-ray scatt. 0=16040

Scattering—contd**light—contd**

- NaCl crystals with Ni, line scattering images 4=15597
- NaCl, cylindrical monocryst. 2=12584
- NaCl with Ni impurity 3=20451
- NaClO₃, 100°-170°C 3=10921
- Pt, dispersed on catalysts 2=21595
- ReF₆, Rayleigh depolarization 3=2623
- SiO₂ colloid, effect of NaCl 2=23977
- SiO₂, neutron-irrad., asymmetry 1=19946

X-rays

See X-rays scattering

Scattering, particles

See also Collision processes; Field theory, quantum, interactions; Fundamental particles; Nuclear forces; Nuclear reactions; Particle range; Particle tracks; S-matrix theory; and under individual particles, e.g. Alpha-rays

- absorptive part of amplitude, analytic props. 2=9803
- accelerator particle losses 2=5421
- acnodes and cusps on Landau curves 1=16696
- acnodes and cusps and Mandelstam representation 3=19559
- adiabatic switching 3=22084
- Aharonov-Bohm effect, symmetry theory 2=1068
- air, single-scatt. approx., Monte Carlo calc. 2=5598
- α_{33} phase-shift, energy depend. 0=17391
- Amati-Leader-Vitale phase shifts, expt. test 4=11994
- amplitude, asymptotic behaviour, for arbitrary spin 3=12416
- amplitude bound, exponential, at high energies and large angles 4=25032
- amplitude with complex singularities, integral rep. 2=20272
- amplitude expansion in relativistic spherical functions 2=20268
- amplitude, expansion in relativistic spherical functions 3=14921
- amplitude factorization, with spin at Regge poles 4=3346
- amplitudes and four-point function 2=16111
- amplitude growth at high energy, upper bound 4=835
- amplitudes, high energy, forward direction 3=2221
- amplitudes, integral representations in perturbation theory 1=19140
- amplitudes in perturbation theory, high-energy behaviour 3=17227-8
- amplitudes, pole pos. rel. to pole residue 2=3273
- amplitude, quasioptical approach 4=11932
- amplitudes, rate of decrease, limitation, two particles 3=17223
- amplitude, real part, calc. for particular imaginary part 4=5966
- amplitude, real part, with imaginary part approximated by a power 4=9142
- amplitude, relativistic, asymptotic Regge behaviour, and scale transformation 3=12429
- amplitude representation 4=11929
- amplitude representation, use of conformal mapping 1=13331
- amplitudes, single particle singularities 0=15282
- amplitude singularities on unphysical sheets 1=10855
- amplitudes from solvable potentials 2=21831
- amplitudes table, strong interactions model 3=2192
- amplitude at zero energy, analytic behaviour 1=13344
- analytic continuation in complex ang. momentum, rel. to integral eqns. 4=11931
- analytic continuation of partial-wave amplitude 3=24639
- analytic continuation of scatt. amplitudes 4=3325
- analytic functions, double phase represent 3=24659
- analytic properties of production amplitudes 1=5673
- analytic properties of production amplitudes 1=8431
- analytic properties of scattering function 1=8438
- analytic props. of amplitudes in perturbation theory 1=5668
- analytic props. on first "unphysical" sheet 3=22078
- analytic props. off-energy shell potential scatt. amplitudes 1=19136
- analyticity of amplitudes and separable potentials 1=12059
- analyticity in coupling const. and bound states 1=8056
- analyticity domain, envelope of holomorphy 3=12417
- analyticity domains, selection rules, particles of unequal masses 3=22080
- analyticity of perturb. expansions, review 3=24665
- analyticity principle in ang. momentum 2=11886

Scattering, particles—contd

- analyticity of production amplitude, dispersion relation 1=5671
- analyticity of square diagram 3=17185
- analyticity and unitarity 2=22426
- analyticity and unitarity conditions 3=5938
- analyticity, unitarity and resonances 0=7292
- angle, distrib., Coulomb excitation 0=12853
- angular distrib., 5-60 MeV, relativistic calc. 4=28011
- angular momentum analyticity in potential scatt. 4=9127
- angular momentum expansions in relativistic field theory 0=11103
- angular-momentum plane, cuts and poles 4=9128
- angular momentum singularities in scatt. amplitude for soluble potentials 3=2213
- anomalous imaginary part of scatt. amplitude, analysis 1=12061
- antiparticle-antiparticle, rel. to two particles 3=2264
- aperture in plane screen, for const. momentum 3=17
- apertures in screen, for Picht wave function 3=1582
- approach to equil., effect of initial correl. 4=18105
- approximation calc. for inelastic scattering 0=15284
- approximation method, based on R-matrix theory 4=21783
- approximation methods, comparison 0=15283
- on arbitrarily shaped body, by separation of variables 3=5366
- of arbitrary isotopic spin, amplitudes, crossing relations 3=12402
- asymptotic amplitude, unitarity 3=4349
- asymptotic behaviour rel. to baryon conservation 3=22058
- asymptotic behaviour, and Bethe-Salpeter eqn. solns. 4=27812
- asymptotic behaviour, high energies 2=16179
- asymptotic behaviour for large ang. momentum, using Langer's theory 4=2569
- asymptotic behaviour of partial-wave ampl. 4=11950
- asymptotic nonforward scatt. amplitudes, math. structure of model 4=3335
- asymptotic props. of multiperipheral model, weak coupling approx. 3=7799
- asymptotic props. rel. to poles of ang. momentum variable 2=13748
- asymptotic relations, T invariance importance 4=16830
- by atoms, dispersion relations, appl. to electron scatt. by H 0=13401
- axiomatic frame, Low-type condition 4=70
- background tail reduction by magnetic analyser 4=16752
- Bargmann's potential, causal description 1=13359
- Bargmann potentials, many-channel 4=27803
- baryon-baryon, relative parity determ. 1=2017
- baryon-meson, higher symmetry schemes 2=22421
- beams, effective cross-section for Maxwellian velocity distrib. 2=6238
- Bethe-Salpeter amplitudes, integral representations 1=3136
- Bethe-Salpeter eqns. in nonrenormalizable models 4=16789
- Bethe-Salpeter eqn., partial wave 3=12405
- Bethe-Salpeter eqn. for regular and singular potentials 4=9099
- Bethe-Salpeter eqn., singular, ladder approx. 4=9098
- Bethe-Salpeter eqn. for singular potentials 4=25024
- Bethe-Salpeter eqn., singularities at $l=-1$ 4=5970
- Bethe-Salpeter eqn., spinor, complex ang. momentum 3=22086
- Bethe-Salpeter scattering amplitudes, ang. momentum and energy 4=30188
- Biedenharn symm. Dirac-Coulomb Hamiltonian solns. 4=27072
- Blatt-Biedenharn formalism 2=22449
- bootstrap calc. for top-lying Regge trajectories with set of N/D eqns. 4=21803
- bootstrap technique, "degenerate kernel" approx. 4=27771
- Born approximation, partial wave integrals, calc. 1=3507
- Born approximation, for scatt. on spherically symm. potential 0=3932
- Born approx. for small phase-shifts, low energies 3=12420
- Born expansion, convergence 0=16631
- Born formula, 1st approx., distribution theoretic anal., mathematical meaning 0=20058

Scattering, particles—contd

- Born series convergence, bound states 3=21248
 Born series, potl. for two spin $\frac{1}{2}$ particles 3=2210
 Born expansions, distorted-wave, approx. calc. 4=19432
 Born series convergence and bound states existence 4=21046
 boson—baryon, in violated octet model 4=11893
 boson fields, by linear unquantized source 2=22422
 bosons, neutral, relativistic interaction theory 4=30185
 bound, identical, perturb. theory 2=11284
 bound particles, analysis of model related to stripping reaction 0=20090
 bound states embedded in continuum, matrix element 4=11064
 bound states for interaction poles in Chew—Mandelstam theory 1=12805
 bound states, non-perturbation approach 0=9248
 bound states rel. to renormalization props. 4=19352
 bounds, diffraction peaks, high energy 3=19584
 branch-pt. trajectories in complex ang. momentum plane 3=14908
 Brueckner theory, variational principle 1=18080
 bubble chamber, propane, meas., mass and momentum 0=1255
 bubble chambers, calc. by 2nd differences method 2=3227
 calculation, polarized vector particles in Coulomb field 4=21790
 cascade, as test of parity conservation 0=11128
 causal scattering matrix, in indefinite metric theory 0=9283
 causality requirement formulation 0=12860
 by centre of force, classical treatment 1=15695
 by centre of force, classical treatment 1=16693
 chamber, scattering, for use with solid state detectors 4=16588
 charge-particle collisions in mag. field 1=18989
 charge-particle collisions in mag. field 3=4253
 charge-transfer scatt. in prod. of fast atomic beams 2=6111
 charged, in emulsion, multiple, detm. 2=20577
 charged or gravitating particles, collisions and microfield 1=8330
 charged or gravitating particles, collisions and microfield 1=11936
 charged, interacting by Yukawa-type potential 2=22414
 charged particles, effect on emitted e.m. radiation 1=2037
 charged particles, effect on emitted e.m. radiation 1=3152
 charged particles, energy loss in thin absorbers, binding effect corrections 0=1261
 charged, true phase shift defin. 2=16156
 charged and uncharged with atoms in solid, review 4=30589
 Chew—Low extrapolation for $\pi^+ - p$ scatt. cross-sections 1=3222
 classical adiabatic scatt., dissociation of diatomic gas 2=6227
 classical, central-force, calc. 4=27125
 classical, by important repulsive potentials 2=19385
 classical, rotating coords. rel. to Born approx. 4=5022
 at collimator slit, calc. 3=5719
 collimators, multiple scatt. corrections 1=16440
 collision amplitudes, analytic structure in perturbation theory 0=15295
 collision density, asymptotic form 4=6419
 collision lifetime matrix 0=9282
 collision theory, identity 4=21047
 completeness of "complete scattering experiment" 4=30193
 complex ang. momentum, algebraic problems 3=24660
 complex angular momentum, group properties 4=19451
 complex ang. momentum theory, analyticity test 4=21810
 by complex atoms, differential elastic cross-section 0=9733
 complex l plane, separable potentials 3=14894
 complex partial waves, N/D method 3=10057
 with complex particles, quasiclassical approx. 1=10998
 complex poles of S -matrix, physical interpretation 1=12806
 complex potentials, simple inequalities 2=9795
 composite particles on nuclei, optical giant reson appearance 2=1852
 compound nucleus, average cross-sections in the continuum 4=6311

Scattering, particles—contd

- compound particles, analyticity, rel. to nonlocal separable potentials 4=27804
 compound systems, bounds on phase shifts 1=4265
 by compound systems, low-energy 0=4167
 compound systems, soluble problems 4=843
 by compound systems, upper bounds on scatt. lengths, appl. to N-D 0=5863
 conference papers 0=17277
 continuation of scatt. amplitudes through two-particle branch lines 1=5685
 converging procedure 4=15026
 Coulomb, asymmetry function, radiative corrections 2=11285
 Coulomb energy differences, for nuclei $A = 1 - 54$ 0=17486
 Coulomb excitation, ang. distrib. 2=20580
 Coulomb field, phases and amplitudes 3=9346
 Coulomb field, transition matrix elements between states 0=4947
 Coulomb, generalized Born approximation 0=15279
 Coulomb Green's function and its expansion 1=10850
 Coulomb, interference with nuclear scatt., high energy 0=20429
 Coulomb, multiple, effect on ionization losses 0=20073
 Coulomb, non-relativistic limit 4=22086
 by Coulomb potential, shielded, classical formula 4=12407
 from Coulomb potentials with exponential screening, total cross-section calc. 0=5865
 Coulomb scatt., amplitude, analyticity in complex ang. momentum plane 2=17365
 Coulomb scatt. amps. in complex ang. momentum plane 3=2212
 Coulomb scatt., charged particles on atoms, effect on certain interactions 0=12875
 Coulomb scatt., classical, cross-section and phase shifts 2=21798
 Coulomb scatt., in magnetic field 0=19618
 Coulomb scatt., multiple, from finite nuclei, calc. 2=3539
 Coulomb scattering by spherical charge distribution 1=5697
 Coulomb, time-dependent theory, asympt. convergence 4=18075
 Coulomb wavefunctions, Bessel functions expansion 3=3757
 Coulomb wave-functions, irregular, tables 0=6685
 Coulomb wave-functions, numerical tables 3=14924
 Coulomb wave-functions, in terms of confluent Appell functions 0=4946
 counters, scintillation, hodoscope 3=19506
 coupled scatt. and production amplitudes satisfying analyticity and unitarity, construction 0=12873
 covariant treatment 0=338
 cross-section dependence, dispersion relations 0=20077
 cross-section, low energy, energy dependence 1=19161
 cross-sections for large scattering angles, asymptotic relations, Regge pole method 4=857
 cross-sections, rel. to nuclei collective characteristics 4=9464
 cross-sections for reactions with polarized beams and targets 4=3362
 crossed channels, complex ang. momenta and unitarity 3=5949
 crossing relns. for helicity amplitudes 4=15023
 crystals, simple, Van Hove correl. functions 3=11703
 cut-off invariant momentum transfer at high energies 4=5976
 cyclotron scatt. chamber 2=20074
 DWBA and strong coupling calc., comparison 4=19769
 DWBA validity range 3=19829
 by deformed nuclei, inelastic scattering 0=17578
 demonstration expt., using marbles 4=2502
 depolarization due to target motion 0=20094
 differential cross-sections, asymptotic equality, high-energy particles and antiparticles 4=16828
 diffraction peaks, shrinking theorem 4=844
 diffraction processes, inelastic, at high energies 3=15169
 diffraction scatt., high-energy, and new Regge trajectories 4=9144
 diffraction scatt., Mandelstam represent 2=20396, 22437
 diffraction scatt. Regge poles use 2=18082
 diffraction scatt., spin-1 particles, in arbitrary field 2=7823
 diffraction scattering of elementary particles 1=13329

Scattering, particles—contd

- diffraction scattering, Pomeraunchuk's theorem, extension 3=24641
- diffraction theory for v. high energies 0=12850
- diffraction at very high energies, effect of leading particles 4=25033
- diffraction widths in terms of f^0 and residue of Pomeraunchuk pole 4=21806
- Dirac-Coulomb functions, exact radial integrals 4=11933
- Dirac particle on central scalar potential, asympt. behaviour for large imaginary ang. momentum 4=21792
- Dirac particle, by central scalar potl. 3=7770
- Dirac particles, azimuthal asymmetry 0=20059
- Dirac particles, Coulomb scatt., Johnson-Deck form 4=21018, 21791
- Dirac particles, Coulomb scattering 0=15279
- Dirac particles, elastic, high-energy approx. 4=15022
- Dirac particles, massive, by e. m. field, polarization change, relativistic, calc. and moment meas. 4=3292
- Dirac particles, by spherically symmetrical force centre, 2nd Born approx. 0=9269
- Dirac potential scatt., Mandelstam representation 1=19139
- Dirac potential, T-matrix regularity 3=21246
- direct-interaction inelastic scatt., reaction mechanism 0=1396
- direct-interaction with strong coupling 0=4087
- dispersion method in 2-particle approx., soln. of linear eqns. 3=5946
- dispersion relations, high-energy limit 2=5584
- dispersion relations, limitation of validity 0=17262
- dispersion relations and perturbation theory 0=1251
- dispersion theory, low energy scatt. 2=16162
- dispersion theory, N/D method 2=16166
- dissociation of beam particles by nuclear Coulomb field and diffraction scatt. at high energy 1=469-70
- divergence removal in zero momentum-transfer eqns. 4=5942
- dominating vacuum intermediate state model 4=15029
- double-charge exchange at high energies 3=14910
- double dispersion relation 3=14911
- double scatt. expt. azimuthal angles integration 2=7836
- double scattering, asymmetry and polarization 0=12855
- dynamical equations and angular momentum 3=5365
- e. m. scattering cross-sections, high energy behaviour 1=7214
- e. m. scattering of different spin $1/2$ particles 0=12854
- (e, N) and (e, N) rel. to symmetry behaviour 2=7830
- effective interaction radius, estimation 2=7835
- effective interaction radius, estimation 3=5974
- effective range, stationary expression 0=5499
- effective-range theory for r^{-4} potential 1=10852
- effective range theory, for Yukawa potl., s-wave phase shift 1=444
- effective target mass, pion exchange model 2=255
- effects of c. of m. motion in nuclear shell model 1=8559
- elastic, absolute phase shift 1=7420
- elastic, anomalous imag. part, dispersion reln. 2=16172
- elastic, behaviour of fermion spin 0=5503
- elastic, black sphere diff. formula 4=9471
- elastic, black sphere model 4=27811
- elastic, coupled amplitudes, occurrence of poles 4=9123
- elastic, coupled square-well model 1=8743
- elastic, cross-section for particles with spin 2=11903
- elastic, diffraction mechanism 4=25362
- elastic, dominance of exchange ampl. 4=21781
- elastic, forward, amplitudes, Regge behaviour 4=11939
- elastic, high-energy 3=5943
- elastic, high-energy, amplitude, imag. part, sign and derivs. 2=20271
- elastic, high-energy, amplitude, imag. pt, sign and derivs 3=7811
- elastic, high energy, formula derived from dispersion rels. 1=19134
- elastic, high-energy, separation of long- and short-range forces 1=7215
- elastic and inelastic, on black nonspherical nuclei, collective states excitation 0=11310
- elastic and inelastic, calc. of bounds 0=11108
- elastic and inelastic, nonrelativistic particles 0=12877
- elastic, large angle at high energies, lower bound 4=11940

Scattering, particles—contd

- elastic, near inelastic threshold, dispersion relations 1=19142
- elastic, nuclear particles, analytic preps. of cross-section 2=5591
- elastic, optical model, ang. distrib. calculation 1=13759
- elastic, possible asymptotic behaviour 1=19149
- elastic, possible asymptotic behaviour 2=22453
- elastic, quantum theory using statist. boundary conditions 4=2571
- elastic, relativistic, for spinless particles, Fredholm method 4=19434
- elastic, S-function struct. with infinite potentials 2=5583
- elastic scatt. amp., Regge pole depend. on l 3=2209
- elastic scattering amplitude at high energies, real part 0=20193
- elastic, spin $1/2$ particles, Minami phase shift 1=13348
- elastic, of spinless particles, amplitude calc. 0=15298
- elastic, in strong coupling model, amplitude evaluation 4=9463
- elastic, for strong interactions, expt. and theor. review 4=5972
- elastic, strongly interacting, 2-20 BeV 3=7911
- elastic and total cross-sections, tendency to 4 2=21834
- electromagnetic, spin $1/2$ particles 1=3141
- electrons, large angles, infinite medium 0=2398
- in emulsions, multiple, from sums of second differences of trajectory arrows 3=7753
- energy meas. of particles, knowing Q 4=3364
- energy moments of scatt. phase shifts 3=24634
- energy parameter in the dispersion relation 1=12057
- energy-time wave packet, from many-body system 4=18072
- equivalent Hamiltonians 0=7299
- even-mass nucleus, inelastic diffraction scatt., γ -ray correl. function 4=9383
- and excitation, multiparticle, and scatt. irregularities 4=19762
- excitons, on U-centres 1=19812
- excitons on U-centres 2=8257
- exponential potentials superposition singular like r^{-2} at origin 4=25045
- external-mass singularity rel. to analyticity 4=5981
- extrapolation of exptl. amplitude to spectral function region 2=15490
- fast, compound system anomalous thresholds 4=28010
- fast particles, on nuclei, with creation of other particles 1=5883
- fast particles in radiation belts 2=15269
- Fermi particle system, scatt. rel. to viscosity 2=4962
- fermion-boson, backward-angle, Regge treatment 4=16838
- fermion depolarization by e. m. scatt. 4=27815
- fermion-fermion, quantum, limiting process 2=3244
- fermion Regge poles 3=14878
- fermion Regge poles, and Compton effect 4=3368
- fermion trajectories, possible interreln. 4=21808
- Fermions, charged, parity-violation calc. for no charge exchange 4=3321
- fermions, e. m. scatt. of two fermions, fourth-order matrix element 1=486
- fermions, elastic scattering 1=5687
- fermions, forward scatt. amplitude 1=5231
- Feynman amplitudes, high-energy behaviour 3=17212
- Feynman diagrams, high-energy behaviour 3=12414
- Feynman diagrams, high-energy behaviour 3=14901
- Feynman diagrams, leading Landau curves 4=3313
- Feynman diagrams, majorization problem 2=11880
- Feynman diagrams, 2-particle, positions of singularities 1=16715
- Feynman diagrams, singularities 0=12876
- Feynman graphs, singularities 4=9130
- Feynman integrals, an inequality 3=4343
- Feynman rules for Regge particles 3=24658
- field theoretical potential, phase-shift interpretation 2=1662
- final state scatt. 3=2196
- final states, overlapping resonances effect 3=17195
- five-tail diagram, spectral representations 3=24650
- five-tail, physical region, rel. to Lorentz-invariant variables 4=5978
- by fixed centres, dispersion relations 0=3931

Scattering, particles—contd

fixed-point scatterer, relativistic scattering, exact theory 3=24640
 fluctuation theory 0=4957
 formal theory, and Chew-Low formalism 0=11114
 formal theory, criticism 0=9294
 formulation in terms of generating operator w.r.t. coupling parameter variations 1=10856
 forward ampl., real parts, inequalities 4=15025
 forward amplitude, zeros and asympt. props. 3=10037
 forward, exclusion of parity-unfavoured transitions 4=27074
 forward scatt. amplitude, structure 0=3934
 forward scattering amplitude, analytical props, in nonlocal theory 4=3348
 four-point function in p-space, rigorous analyticity props. 4=15024
 functional analysis appl. 4=21779
 functions, Lorentz group repres. 2=16171
 fundamental length, role at very high energies 4=19433
 G factor calc. for gas scattering 0=17276
 G₂ vector meson bootstrap, negative result 4=25015
 gas scattering in strong focusing synchrotron 0=19846
 gas, time-of-flight by coupled oscillator theory 1=12814
 Gelfand-Levitan eqn., three dims. 2=1661
 Gell-Mann-Goldberger and Lippmann-Schwinger eqns. 2=16153
 general processes, complex energy plane, unitarity and analyticity 4=9126
 general transition amplitudes, analyticity and unitarity 2=22428
 "ghost poles" in propagators, elimination 4=798
 giant resonances, model, appl. to S-wave neutron scatt. 0=1445
 grainy scatt. medium, diffusion approx. 4=18114
 hard-core interactions, variational treatment 4=19411
 hard-core potential, Mandelstam represent. 4=19430
 hard-core potl. scatt., ang. momentum analyticity 3=14905
 hard-core simulation by velocity depend. 3=7966
 harmonic oscillator, classical Liouville eqn. 2=6227
 heavy charged particles, by nuclei with vibr. and rot. states 0=11394
 by heavy electron-screened nuclei, Schwinger effect 0=13224
 heavy ions, elastic, quasi-classical analysis 4=22195
 heavy ions, interference concepts 4=22193
 heavy ions on medium and heavy nuclei 3=15232
 heavy ions, optical model analysis 4=22196
 heavy ions, phase shift analysis 4=22194
 heavy nuclei, diff. cross-section calc. 0=7586
 heavy particles, nonadiabatic transitions 4=16842
 high-energy amplitude, renormalization group method 4=16826
 high-energy amplitudes, identical behaviour 4=9139
 high-energy amplitudes, particles and anti-particles 2=1657
 high energy behaviour for negative momentum transfer 4=27809
 high-energy behaviour in perturbation theory 4=3358
 high-energy behaviour of real part 2=20265
 high-energy behaviour of real part 3=5961
 high-energy behaviour, rel. to unitarity 3=7802
 high-energy collisions, four or five particle prod., momenta distrib. 4=19440
 high-energy, conference, Edinburgh (1963) 4=25012
 high energy cross-section relations 4=19453
 high energy, difference between quantum and classical theories 4=21795
 high energy, diffraction—unitarity—analyticity model 4=25031
 high-energy elastic, Pomeranchuk trajectory slope det. 2=20266
 high-energy elastic, and Regge poles, qualitative survey 4=833
 high-energy, elastic, shrinking diffr. width verification 3=14917
 high-energy elastic scatt. cross-sections 4=5973
 high-energy, exact Fourier-Bessel theory 2=11891
 high-energy, exchange contributions and elastic amplitude 4=5975
 high-energy, inelastic, diffr. peak shrinkage 4=9136
 high energy, inelastic, Fermi theory limitations and modifications 4=3351

Scattering, particles—contd

high-energy, inelastic, with low momentum transfer 1=16697
 high-energy, inelastic, and unitarity 3=560
 high-energy, interference between Coulomb and nuclear scattering, meas. method 4=19460
 high-energy limit of amplitude 2=1656
 high-energy-limit cross-sections for particles and their antiparticles 0=5502
 high-energy limit, π -N forward peak domination 4=5965
 high-energy, meas. of small losses, by accelerator with middle target 4=21816
 high-energy model, consistency problems 4=3334
 high energy, moving branch point 4=21796
 high-energy, rel. to moving pole hypothesis 2=20264
 high-energy, rel. to moving pole hypothesis 3=5960
 high-energy, multiperipheral model 4=27806
 high energy, non-local potential model 4=21794
 high energy peak 4=27808
 high-energy, perturb.-theoretical integral represent. 4=9133
 high-energy, perturb. theory, terms other than leading terms 4=5989
 high-energy, Pomeranchuk-Regge term 2=13746
 high-energy potential scatt., phase shift 3=561
 high-energy potential scatt. with short-range forces 1=7215
 high-energy potential scattering 0=7300
 high-energy processes, diff. and total cross-sections, asymptotic relations 4=16829
 high energy production amplitudes, Regge pole-like terms 4=845
 high-energy, Regge pole domination 4=27802
 high-energy, Regge pole and phenomenological theories 4=9121
 high-energy, S-matrix theory, with anomalous thresholds 4=19446
 high-energy, secondaries, momentum distrib. calc. 4=21798
 high-energy, strong-shrinkage of effective core 4=16825
 high energy, strongly interacting 4=21797
 high-energy synchrocyclotron research, Joint Institute of Nuclear Studies, USSR 0=15305
 high-energy, total cross-section, Pomeranchuk's theorem proof 4=5974
 high-energy, relns. among total cross-sections 3=565
 highly-singular potentials, analytic props. of S-matrix 3=2206
 Hilbert space operator, phase shift formula 0=16605
 holomorphy domains, asymptotic forms of scatt. and partial-wave ampls. 3=10050
 Hulthén-type variational methods 0=5498
 hypervirial theorems, application 3=7127
 identical particles in bound state, scatt. by system 2=15491
 identical particles, high energy, phase shifts, rel. to conformal invariance 3=12430
 impulse approx. method on complex system 4=5071
 impulse approx., time-dependent 0=12868
 incoming waves in final states in matrix elements 4=14055
 indefinite metric in Lee model 0=17256
 inelastic, asymptotic behaviour, relativistic theory 3=22079
 inelastic, collision theory, approx. methods, extremal props. 4=25039
 inelastic, by deformed nuclei, theory 2=7959
 inelastic diffraction scatt., mechanism 0=432
 inelastic diffraction scatt. on nuclei, equivalence of distorted-wave Born approx. and adiabatic method 0=20426
 inelastic, direct interaction 0=20420
 inelastic, discussion 2=1853
 inelastic, effect on stripping reactions 4=25425
 inelastic effects in nuclear reactions 4=19744
 inelastic, formulation of problem and solution 2=31
 inelastic, high-energy, in renormalized strong-interaction theories 3=22067
 inelastic, interaction theory, rel. to optical model 3=625
 inelastic, by nuclei, collective effects 1=19424
 inelastic, from nuclei, parity change det. from ang. distrib. 1=5904
 inelastic, optical model treatment 0=11288
 inelastic, partial wave ampl. from dispersion relns. 4=69

Scattering, particles—contd

- inelastic, partial wave dispersion relations, soln. 2=1666
- inelastic, peripheral model 3=10052
- inelastic processes, analytical props. 4=855
- inelastic, Regge poles at high energies 3=5952
- inelastic, due to various types of moving poles 4=9143
- infinite slab 29532
- inhomogeneous regions 2=2598
- integral eqns. for spectral functions 1=12052-3
- integral operator, spectrum, in physical energy sheet 2=19441
- integral operators, Carleman and Hilbert-Schmidt 4=9122
- integral picture, semi-classical 3=17217-18
- integral representations for scatt. amplitudes with complex singularities 3=19558
- integration rules, rel. to gauge invariance 3=24585
- interacting, inelastic high energy collisions 3=14898
- interaction range, high-energy scatt. 2=16160
- interpolation problem, complex ang. momentum theory 2=21789
- intrinsic parities and spins, rels. between 3=14899
- invariant amplitudes 1=13347
- invariant functions, asympt. conditions and integral eqns. 4=16827
- inverse problem in quantum theory 1=10849
- inverse, quantum theory, Hylleraas approach 4=8072
- inverse-square force field, geom. soln. 2=19386
- ions, on atoms, ionization, review 1=4557
- isobar approx. 2=16155
- isobaric resonances 3=12406
- isotopic spin conservation, electromagnetic corrections 0=1239
- isotopic spin of exchanged systems 3=14914
- Jost functions, new defin. and generalizations 4=18077
- K-matrix bounds in inelastic scatt. 4=21784
- Khuri represent. using Legendre transforms 4=3339
- Khuri series convergence for single Yukawa potential 4=11945
- kinematics, Mandelstam representation, for two incoming and two outgoing particles 0=7298
- Klein-Gordon, Coulomb scatt., higher Born approx. 3=4341
- Klein-Gordon particles, Coulomb scattering 0=15279
- ladder approximation, Mandelstam representation 0=17255
- ladder, asymptotic behaviour 4=25023
- ladder diagrams in perturb. theory, complete high-energy behaviour 4=11948
- ladder graph approx., amplitude bounds 4=25022
- $\lambda \Phi^4$ theory, Regge trajectory 3=24656
- Lee model and conservation of probability 1=3127
- Lee model, dressed particle picture 3=12383
- Lee model, redundant zero and pole numbers 4=840
- Lee model, $V\theta$ amplitude, effect of production ($N\theta$) 4=5964
- Lee model, $V-\theta$ elastic scatt. amplitude 1=7204
- Legendre transforms rel. to crossing-symm. represent. 4=11936
- Levinson theorem, dispersive formulation 2=22432
- Levinson's theorem 4=21769
- Levinson's theorem, elementary derivation 4=30183
- Levinson's theorem, relativistic extension 3=19578
- light particles, cross-sections due to weak interactions 1=19121
- linked heavy particle model and multiple particle prod. 4=25029
- logarithmic singularities with two final-state interactions 4=11922
- Lorentz covariant analytic functions 3=22053
- low-energy amplitude, subtraction in Chew-Mandelstam eqn. 2=3274
- low-energy, charged particle by neutral polarizable system 2=6075
- low-energy, effect of target gas temp. on diff. cross-section 1=471
- low-energy, eqns. 2=22435
- low energy, field theory 0=15276
- low-energy limit of Compton scattering without TCP invariance 1=8433
- low-energy scattering parameter bounds 1=2706
- low-energy, theory based on spectral and unitarity conditions 4=30192

Scattering, particles—contd

- low-energy, Wigner's condition 1=5699
- Low eqn. for two-dim. crossing matrices, general soln. 4=9141
- macroscopic causality and analyticity of scatt. amplitude 1=3140
- Mandelstam representation with anomalous thresholds, validity in perturbation theory 1=7213
- Mandelstam representation, bound states and shadow states 1=5677
- Mandelstam representation, double, spectral function of amplitude 4=30191
- Mandelstam representation, Eden's proof 1=13338
- Mandelstam representation in perturbation theory, proof 1=449
- Mandelstam representation, perturbation theory proof 1=7212
- Mandelstam representation, proof for every order in perturbation theory 1=5680
- Mandelstam representation and Regge poles with absorptive energy-dependent potentials 3=2215
- Mandelstam representation for 6-th order ladder diagram 4=30190
- Mandelstam representation, spectral functions, extension 1=19153
- Mandelstam representation, strip approxn. 3=6047
- Mandelstam representation, two-parameter approx. for S-wave scatt. 1=7206
- Mandelstam representation, two-particle structure 1=13337
- Mandelstam representation and unitarity 1=5678
- Mandelstam representation, validity 1=448-9
- many-body, soluble models, complex ang. mom. 3=7125
- many-channel amplitudes, quasi-optical method and asymptotic behaviour 4=9131
- many-channel, detailed analysis and function D 4=21786
- many-channel model, nonrelativistic, Mandelstam representation 1=5675
- many-channel, in nonlinear field theory 4=837
- many-channel, phase-shift eqns. 4=24076
- many-channel potential scatt., complex ang. momentum 4=5979
- many-channel, Regge formula, rigorous establishment 4=19436
- many-particle, Watson-Sommerfeld transform. 4=16044
- matrix elements, degrees of growth 2=258, 22434
- measurement, use of CERN proton synchrotron 2=3119
- meas., filamentary scintillators, elastic, small ang. 3=17157
- in medium, with definite radiation energy loss 4=19478
- meson-baryon exchange competition 3=22135
- mesons by nucleons, Regge pole in u channel, contrib. 3=7809
- meson, scalar, pair theory, Landau singularity 3=24635
- model with fixed fermions, coupling constant 3=50
- molecular beams, phase shifts, semiclass. equivalence rel. 2=10290
- molecular beams, velocity dependence of cross-sections 1=4957
- molecular beams, velocity of WKB approx. 3=8317-18
- molecules, classical, differential and transport cross-sections 1=14131
- Molière's formula for small angles 1=4774
- Molière's theory for small angles, rel. to multiple scatt. effects 4=15194
- most probable path through plate 1=10853
- Mott scattering analysis of $\text{Co}^{60}\beta$ longitudinal polarization 0=20381
- Mott scattering, classical approach 1=15698
- Mott scattering, longitudinal electron polarization 0=17306
- $\mu \rightarrow e + \nu + \bar{\nu}$ 2=5699
- multichannel, bounds on exact reactance matrix 4=16831
- multichannel effective-range theory 1=12055
- multichannel, Levinson theorem 3=10041
- multichannel, Levinson's theorem 0=20071
- multichannel, minimum princip. 2=4938
- multichannel, minimum principle formulation 4=19438
- multichannel processes, time-depend. theory 4=838
- multichannel, reactions, analysis 2=11892
- multichannel, appl. of Sawada transformation 3=19580
- multichannel, subtraction of dispersion rels. 3=10063
- multichannel, threshold conditions, "wholley cusp" effect 2=9802

Scattering, particles—contd

- multichannel, variational principl. 2=5585
 multiparticle, systematic soln. using Lippmann-Schwinger eqn. 4=9134
 multiperipheral model, diffraction scatt. 3=17222
 multiperipheral model, diffrn. scatt. 4=3337
 multiperipheral model, high-energy integral eqn. 2=22431
 multiperipheral model, scatt. amplitudes 3=19556
 multiperipheral, rel. to singular Bethe-Salpeter eqns. 4=11938
 multiple, in absorber between 2 collimators 2=1670
 multiple, correction for energy losses 3=24667
 multiple Coulomb, meas. in emulsions 1=13282
 multiple Coulomb, in nuclear emulsions 3=8063
 multiple Coulomb, relativistic energy meas. 0=1260
 multiple dispersion representations, validity 1=10862
 multiple, in finite-dim. body, quantum theory 4=5070
 multiple, mean spatial and projected angles, theory 3=17311
 multiple, measuring apparatus, photoelec. transducer 2=20204
 multiple, one velo. theory, infinite scatt. media 3=19589
 multiple, of polarized particles 0=3930
 multiple, quantal multiple-scatt. eqns. 4=19742
 multiple scatt., effect on intrinsic particle field, emission on passing through 2 media 0=20093
 multiple scatt. of monoergic particles by amorphous foil, theory 0=9292
 multiple scatt. of particles of opposite charge 0=20165
 multiple, small-angle, using Molière screening 4=21838
 multiple, statistical problems 1=13195
 n-line graphs, kinematic branch points, new class 2=7817
 N-particle kernel, irreducible, Weinberg's conjecture 4=37073
 N/D calc. of Pomeranchuk and ρ -Regge trajectories 3=15019
 N/D method, with applications to π - π scattering 4=30187
 ND⁻¹ solutions for coupled scatt. amplitudes, symmetry 1=3137
 N-N pots. extended to hyperon-N scatt. 2=18190
 near reaction threshold, cross-section energy depend., resonances 0=11398
 neutral pseudoscalar theory, scatt. matrix 2=9797
 neutral scalar theory with recoil, s and p-wave solns. 4=846
 non-Born phase shifts, interrelationship 4=11090
 by non-central forces of given class 1=8434
 with noncentral forces, and two-body bound state 4=16974
 by nonlinear singularity, bounded, R-function construction 1=458
 nonlocal potential, variational scatt. 2=21829
 nonlocal theory, S-matrix construction 1=19130
 nonlocal theory, S-matrix construction 2=3275
 non-relativistic, causality and analyticity 3=24633
 nonrelativistic, variational method, differential form 3=5367
 non-shrinking diffr., slope of leading trajectory at $t=0$ 4=9135
 non-shrinking, elastic, high energy 3=14916
 nonspherical, at small angles, Schiff approx. 0=885
 normal thresholds in perturbation theory 1=10854
 Noyes and Wong eqn. for potential scattering 1=12607
 nuclear, elastic-inelastic phase relation 3=17447
 nuclear emulsions, meas. at long cell lengths 4=19341
 in nuclear emulsion, spurious 3=14543
 nuclear excitation, adiabatic approx. 0=9522
 nuclear excitation, collective, studies, review 3=22287
 nuclear potential, field theoretic definition 0=1252
 nuclear resonance, Regge represent. analysis 4=21807
 nuclear track emulsions, multiple scatt. 2=5554
 nuclear track emulsions, spurious scatt. 2=5553
 nuclei, average resonance parameters, R-matrix theory 3=8213
 on nuclei, black nonspherical, nuclear interaction 0=11392
 nuclei, closely coupled states rel. to optical potential 2=11286
 nuclei, complex, elastic, strong absorption model 4=6301
 by nuclei, coupled channel analysis 4=22128
 on nuclei, cross-section and polarization, optical model 0=5734

Scattering, particles—contd

- on nuclei, deviations from current models, review 1=8668
 on nuclei, direct interactions, effect of wave-function distortion of scattered particle 1=7363
 on nuclei, elastic and inelastic diffraction scatt., review 1=8679
 on nuclei, elastic, optical model 1=5884
 nuclei, elastic, optical model, potential independ. 4=25431
 nuclei, elastic scatt. rel. to elec. polarization 2=3538
 nuclei, elastic, strong absorption model 4=6300
 nuclei, elastic, strong absorpt. model, polarization of spin- $\frac{1}{2}$ particles 4=19741
 nuclei, elastic, threshold effect in optical model 3=6212
 nuclei, of fast particles, effect of boundary smearing 2=20578
 by nuclei, forward scatt. amplitude from optical-model potential, high energy limit 0=20428
 on nuclei (heavy), nucleon-nucleon correlation effects 1=5901
 on nuclei, inelastic, ang. distrib. and polarization 1=8674
 on nuclei, inelastic, collective effects 1=8676
 nuclei, inelastic, distorted-wave theory 4=25365
 on nuclei, inelastic, double-excitation, distorted-waves theory 3=661
 nuclei, inelastic, phases of partial matrix elements and parity rule 4=22085
 by nuclei, Monte Carlo study for geometrical barriers 3=12648
 on nuclei, near threshold for unstable particle production, cross-section 1=8672
 nuclei, optical giant reson., theory 2=3544
 on nuclei, optical-model analysis 0=20427
 on nuclei, optical model in the interior 3=2425
 nuclei, rel. to P_2 force in Elliott model 2=12110
 nuclei, phase shift analysis, review 3=12650
 nuclei, polarization 2=5876
 nuclei, quasi-elastic, distortion effects 3=8064
 nuclei, rel. to single-particle wave functions 2=20486
 nuclei, spin-orbit force 0=4015
 on nuclei, $Z \approx 50$, effect of shell closure 4=6191
 nucleon-deuteron, inelastic, impulse approximation 0=7344-5
 nucleon elastic scattering on target of spin 1 1=16769
 nucleon-nucleon, theory, rel. to nuclear forces 2=1757
 nucleon-nucleon, two-pion contribution 0=15293
 nucleons, by nonlocal potential, at high energy 0=9295
 by nucleus, black, inelastic diffrn. scatt. 3=2424
 on nucleus, with diffuse boundary, effect on ang. distrib. 4=25364
 nucleus, elastic, spin- $\frac{1}{2}$ particles, strong-absorpt. model 4=22083
 nucleus, generalized diffr. model at 660 MeV 4=1061
 by nucleus, inelastic, optical model rel. to direct interact. theory 3=2423
 nucleus, optical model, scattering amplitude 0=13109
 by odd-mass nuclei, collective effects 3=19747
 from odd-mass nuclei, oriented, deformed, elastic 3=19823
 off-forward scatt., dispersion relations 0=3935
 off-shell ampl. deriv. from on-shell ampl. 4=19442
 one-dimensional model, discontinuous Markov processes theory 4=25018
 one-particle production amplitudes, integral represent. 3=5942
 one-photon exchange processes, radiative corrections 3=7777
 one-variable dispersion relns., using JLD represent. 4=16823
 optical conditions within a weakly absorbing scattering medium 0=1044
 optical model potential, target exchange corrections 0=15566
 optical potential 4=21966
 optical potential ambiguities 3=22361
 optical theorem, with incoherent mixtures of pure states 0=20078
 optical theorem for particles with arbitrary spins 4=27814
 optical theorem, spin-depend. analogues 3=17208
 overlapping resonances, using $e^+ + e^- \rightarrow \pi^+ + \pi^- + \pi^0$ 3=17246
 p-p, p-n, electron excitation effects, calc. 0=1278

Scattering, particles—contd

- Pais approx. for phase shifts, rel. to Born approx. 2=13735
 parametric dispersion rels. 2=264
 "parity-unfavoured", forward and backward "selection rule" 3=24637
 partial amplitudes from nonlocal separable potentials 1=12059
 partial-wave amplitudes 0=2499
 partial-wave amplitudes 3=24636
 partial-wave amplitude, analytic continuation in complex plane of ang. momentum 2=22430
 partial-wave amplitudes, analytic props. 0=12859
 partial-wave amplitudes, analytical props. at any l 4=5967
 partial-wave amplitudes, analytical props., Fredholm's method 4=5968
 partial-wave amplitude, boundary conditions 4=18073
 partial-wave amplitude, for complex l 2=18077
 partial-wave amplitudes, complex singularities in perturbation theory 0=20068
 partial-wave ampl., continuation in total ang. momentum, for arbitrary spin 4=9120
 partial-wave amplitudes, high ang. momentum, props. 1=19135
 partial-wave amplitude, and scatt. amplitude, asymptotic behaviour 2=16175
 partial-wave amplitudes and scatt. amplitude, asymptotic behaviour 3=5957
 partial-wave ampl., singularities due to third double-spectral function 4=11937
 partial-wave amplitudes, spectral functions 1=16723
 partial-wave amplitudes, uniqueness theorem 4=847
 partial-wave analysis, relativistically invariant 4=3333
 partial-wave analysis, spinless particles 3=2208
 partial-wave and scatt. amplitudes 3=7801
 partial-wave scattering amplitudes, arbitrary ang. momentum 3=19587
 partial-wave scatt. amplitude in terms of unitarity condition and inverse amplitude 1=3220
 partial-wave scattering eqns. 1=5679
 partial waves, analyticity and crossing 2=257
 partial waves, in perturbation theory, analytical props. 2=21833
 particle—hole excitation effects 3=22360
 particle by identical bound particle, perturb. theory 3=9353
 particle posns. introd. into relativistic quantum mechanics 3=7797
 particle systems, "non-physical" steps in perturbation theory 0=15278
 peripheral collisions at 9-27 GeV and π - π interaction 2=16167
 peripheral, $\gtrsim 10$ GeV, effective target mass 2=9834
 perturbation series of S-matrix element 1=16722
 perturbation theory at high energy 3=17209
 perturbation theory, high-energy behaviour at fixed angle 4=25035
 perturbation theory, integral representations 2=5579
 perturbation theory, Mandelstam model, anomalous mass rel. 1=13339
 perturbation theory, use of quasiparticles 3=17194
 perturbation theory, scatt. amp. singularities, "open envelope" diag. 1=13345
 perturbation theory for strong repulsive potential 4=18074
 perturbation theory, time-ordered Green's functions 1=7203
 perturbing potential, determ. from scatt. phase shifts and bound states energy levels 4=27805
 phase approach generalization, for Dirac particles 4=24074
 phase meas. using intensity correl. 4=5999
 phase method generalized to nonlocal potentials 4=24075
 phase represent. of analytic functions 3=14895
 phase shift ambiguity, generalization, helicity 3=22075
 phase shift analysis, ambiguity for arb. spin 4=839
 phase-shift analysis with D-waves for track-chamber histograms 1=5698
 phase shift analysis, multiplicity removal 2=259, 22433
 phase shifts, approximation method to known case 4=8074
 phase shift behaviour when reaction channels present 2=20575
 phase shift bounds in single channel scatt. 4=21784

Scattering, particles—contd

- phase shifts, bounds, for static central potentials 0=17252
 phase shifts, calc. for centrally symmetrical case 0=20060
 phase shifts, calc., improved Born approx. 0=17251
 phase-shift calc. for long-tailed potentials 1=3135
 phase shifts, coupled errors 0=3943
 phase shift, derivation of new series 3=16537
 phase shifts, distorted wave approximation 0=20061
 phase shift energy derivative, rel. to macroscopic causality 2=3279
 phase shifts, extension of Born approx. 3=14906
 phase shift, g-derivative, props. 1=12065
 phase-shifts for long-range pots. 3=7793
 phase-shifts for low-energy scatt. 4=2573
 phase shift, momentum depend. bound 3=7807
 phase shift, momentum derivative, lower limit from macroscopic causality 1=10857
 phase shifts, negative energy moments 4=16042
 phase shifts rel. to no. of bound states 0=17264
 phase shifts due to repulsive potentials strongly singular at origin 4=27071
 phase shifts and scatt. matrix parametrization 4=3340
 phase shifts, variational principle 3=7800
 phase-space integrals, statist. mech. evaluation 4=9068
 physical regions and phase space volume, kinematical restrictions 4=21785
 π -nucleon, amplitude zeros rel. to dispersion reln. 3=564
 pion-nucleon by s-wave pion-pion interaction, classification 1=13325
 $\pi\pi$, Feynman diagram singularity determination by Landau's meth. 1=16714
 pion-pion, Shirkov dispersion eqns. 2=263
 in plasma, scatt. pot., calc. 0=2363
 polar surface, ideal 3=21898
 polarization and absorption phenomena 3=10060
 polarizations, in crossed reactions asymptotic relations 4=16948
 polarization, method of study 1=2026
 polarization of nucleons by, review 1=3175
 polarization relations, rel. to charge independence 2=5586
 polarized particles, multiple elastic scatt., diffusion theory 0=5524
 poles in production cross-sections 1=5672
 Pomeranchuk and Okun rules, math. implications 3=7784
 Pomeranchuk-Regge trajectories, two, conjecture 3=7805
 potential, amplitude analyticity 3=12413
 potential, asympt. expansion in inverse powers of wave number 4=8073
 potential, Born approx. for arb. spins 4=11928
 potential, complex ang. momenta 2=22423
 potential, deriv. from Agranovich-Marchenko eqns. 2=19437
 potential, dispersion-theory impulse approx. 3=5951
 potential fitting amplitude at given energy 1=13343
 potential, Mandelstam's programme 3=10039
 potential, many-channel, complex ang. momentum 3=558
 potential, many-channel, complex ang. momentum 3=7789
 potential, in momentum space, spectral represent. 4=14054
 potential, with n bound states 2=16159
 potential, non-relativistic, complex angular momentum, review 4=832
 potential, phase shift formulae 2=22425
 potential, reduction formalism 3=5939
 potential, Regge poles and branch cuts 3=12412
 potential representation, quantum field theory 2=9796
 potential scatt., asymptotic behaviour of S-matrix 3=14909
 potential scatt., for complex energy and ang. momentum 2=9798
 potential scattering, dispersion relation 0=2495
 potential scattering, double dispersion relations, analytic props. 1=16721
 potential scatt., Green's function 3=14903
 potential scatt., Jost functions 3=14902
 potential scatt., kinematical and dynamical resonances 1=7218
 potential scattering, Mandelstam representation 0=5500
 potential scatt., max. and min. principle 3=14904
 potential scatt., min. variational princ. method 2=9799
 potential scatt. at negative ang. momenta, Regge trajectories 3=24630
 potential scatt. in S-matrix theory of strong interactions 1=16702

Scattering, particles—contd

- potential scatt., Yukawa, dispersion relations 2=3284
 potential theory, analytic props. of scatt.
 amplitude 3=24631
 potential theory calc. by quasiparticle method 4=11935
 potentials with cores, Regge poles 4=11944
 potentials with inverse-square attraction 4=14053
 probability amplitude, quantized field, physical
 consequences 3=19588
 probability distrib., cross-section 3=4346
 production processes and moving Regge cuts 4=9148
 prolongation into complex ang. momentum
 plane 2=13749
 proton collimator, slit scatt. effects 2=1685
 proton-proton, spin correlation coeff. C_{nn} 0=7347
 proximity scatt., cross-sections for unstable
 particles 2=3537
 pseudoscalar coupling in Chew-Low formalism, s-wave
 scattering 0=20199
 quadrupole potentials, long-range, low-energy
 expansion 4=19981
 quantum calc., semiclassical treatment 3=1618
 quantum field theory, rel. to truncated vac.
 expect. values 3=14846
 quantum-mechanical problem, dependent and independent
 of time 2=13264
 quantum number exchange rel. to optical theorem 4=21789
 quantum potential approach 1=13360
 quasiclassical, in central-symm. field,
 amplitude 4=5969
 quasi-elastic scatt. of fast particles by nuclei 0=4085
 quasi-optical approach in quantum field theory 3=24577
 quasi-potential character of scatt. amplitude 4=3336
 quasipotential method, second Born term, analytical
 props. 4=5971
 quasi-stationary states, with complex energies 0=11110
 r^{-2} potential, bound states, scatt. 2=17364
 radial wave funcns., analytic properties 0=17254
 radially inhomog. spherical medium, dyadic Green's
 function 3=24467
 radiative corrections, unified treatment 3=12423
 radiative transitions, theory, resonance and multiple
 scattering 0=15515
 rate consts. for collisions in disperse systems, size
 distrib. effects 4=73
 reaction amplitudes, n-particle, kinematic branch
 points 2=11896
 rearrangement collisions, Born approximation 1=10858
 rearrangement collisions, coupled eqns. 4=27799
 rearrangement collisions, formal theory 1=9327
 rearrangement collisions, using optical
 potential 2=11287
 rearrangement, collisions, theory 2=22779
 reflection of charged particles by r.f. field 1=16419
 Regge amplitude, singularity 3=17203
 Regge analysis, rel. to partial wave expansions and
 crossing symmetry 4=850
 Regge behaviour, renormalization group methods 4=5990
 Regge cut, experimental test 3=24655
 Regge cuts and three-particle states in nonrelativistic
 model 3=23770
 Regge formula extension to whole l-plane 2=20259
 Regge formula, removal of background integral 3=7796
 Regge hypoth., in multiple meson prod. 3=19661
 Regge method for nonrelativistic 3-body problem, total
 arg. - momentum plane 3=24662
 Regge parameters, dispersion relns. 3=12426
 Regge parameters, dynamical eqns. 4=852
 Regge plane, cuts, cancelling 3=12428
 Regge poles, due to analyticity and unitarity 3=10042
 Regge poles, asymptotic value of amplitudes 4=861
 Regge poles, behaviour in a potential at high
 energy 3=2214
 Regge poles calc. by continued fractions 3=2204
 Regge poles contribution to high-energy total cross-
 sections 4=5991
 Regge poles as conventional field theory elem.
 particles 4=9146-7
 Regge poles and diagram technique 3=24661
 Regge poles, eval. from perturb. theory 3=4347
 Regge, poles, factorization of coupling 2=13263
 Regge poles, factorization of residues 2=20263

Scattering, particles—contd

- Regge poles, fermion, use 4=6113
 Regge poles, rel. to form factor data 3=566
 Regge poles generaliz., expt. consequences 2=16165
 Regge poles for hard-core potential scatt. 3=10043
 Regge poles and high-energy elastic scatt. 3=5945
 Regge poles and high-energy limits 2=20261
 Regge poles in high-energy potential scatt. 4=841
 Regge poles in high-energy scatt., impulse approx. 3=5948
 Regge pole hypoth., rel. to high-energy π photo-
 prod. 3=19672
 Regge pole hypothesis, polarizations 3=12493
 Regge poles, inelastic cross-sections, asymptotic
 behaviour 4=3343
 Regge poles and Landau singularities 2=22446
 Regge poles and Landau singularities 3=14923
 Regge poles in the light of Levinson's theorem 3=24663
 Regge-pole-like high-energy behaviour of perturb.
 theory 4=3357
 Regge poles localization in potential scatt. 4=25047
 Regge poles and multiple production 4=834
 Regge poles, nonrelativistic problem, local and singular
 interaction 4=3349
 Regge poles in nonrelativistic quantum theory 4=8076
 Regge poles, nonrelativistic trajectories 4=5992
 Regge pole parameters, dynamical determination 3=19569
 Regge pole parameters, dynamical eqns. set 4=3355
 Regge poles and particle prodn. by γ -rays 3=22088
 Regge poles and perturbation theory 3=14891
 Regge poles, rel. to perturbation theory 4=9145
 Regge poles, physical interpretation 4=2561
 Regge poles, position, influence of spin 3=5955
 Regge poles, positions and residues, analyticity 2=20260
 Regge poles in presence of hard core 4=19449
 Regge poles, propagator ghost elimination 3=17201
 Regge poles, quasiclassical potential well 4=860
 Regge poles for reactions of 2 spin- $\frac{1}{2}$ fermions and 2
 spin-0 bosons 4=25004
 Regge poles, rel. to real/imag. parts ratio 3=17213
 Regge poles in relativistic wave eqns. 3=12424
 Regge pole represent. below elastic threshold 4=5988
 Regge poles, resonance nuclear reactions 4=17109, 30334
 Regge poles, for S-potential 4=3341
 Regge poles, solvable cases from Mandelstam
 represent. 2=22445
 Regge-pole theory, exact form for scatt.
 amplitude 4=3331
 Regge pole trajectories, analytic props. 3=24653
 Regge pole, trajectory, removal of "ghost" 3=5954
 Regge pole trajectories, restrictions on 4=3354
 Regge-pole trajectories for Yukawa potl. 3=19570
 Regge-Pomeranchuk trajectory and 80 m_{π} reson-
 ance 3=19572
 Regge represent. for potential scatt., new 4=21805
 Regge representation and e.m. form factors 2=20323
 Regge representation, extension 3=10049
 Regge surfaces and singularities, relativistic theory 3=10044
 Regge trajectories, in Bethe-Salpeter eqns. 4=16836
 Regge trajectories, bootstrapping method 4=11949
 Regge trajectories for class of weak short-range
 potls. 4=3332
 Regge trajectories and diffraction shrinkage 4=853
 Regge trajectories, dominant, signatures 4=25048
 Regge trajectories and elementary poles 3=10048
 Regge trajectories for repulsive Yukawa potential,
 analytic props. 4=16043
 Regge trajectory, lower bound 3=10045
 Regge trajectory and resonant partial-wave ampli-
 tude 3=10046
 Regge trajectory, restrictions by maximal
 analyticity 3=21250
 Regge trajectories singularities rel. to Landau curves
 asymptotes 4=3353
 Regge trajectories, square-wall potl. 3=14907
 Regge trajectories, WKB and variational calc. 4=25046
 Regge trajectories, weak-coupling limit 3=22089
 Regge vacuum poles, trajectory 4=3342
 Reggized photon theory 3=19574
 regularity props. in scatt. amplitude 2=3276
 relativistic amplitudes, invariant expansions 4=19435
 relativistic, book 4=8038
 relativistic, complex angular momentum 4=27801

scattering, particles—contd

- relativistic Coulomb scatt. wave-function 0=15286
- relativistic, cuts in ang. momentum plane 4=5986-7
- relativistic model, satis. unitarity and crossing symmetry 2=3280
- relativistic particles with spin, Regge formalism 4=5985
- relativistic potential scattering 1=8436
- relativistic, Regge pole method 3=19571
- relativistic, singularities in complex ang. momentum plane 4=3338
- relativistic theory, rel. to Regge poles 2=18074
- relativistic threshold energies 1=11708
- relativistic two-body eqn. 2=9788
- relativistic two-body problem governed by Dirac eqn. 3=21247
- renormalization group method for high energies 2=22450
- resonance classification and Ball-Frazer formula 3=10036
- resonances, dispersion rels. for overlapping levels 1=4852
- resonance, rel. to extra solutions of dispersion relations 1=3133
- resonances, interpretation in terms of unstable particles 1=5646
- resonances, kinematical and dynamical, distinction 1=7218
- resonances, overlapping, elimination of interference and bias 3=14931
- resonance poles near inelastic 2-particle threshold 4=15027
- resonance poles and reaction matrix 1=8424
- resonance reactions, Blatt-Biedenharn formalism, extension 0=7543
- resonance, by spherically symm. potential, theory 2=9792
- resonances in unstable particle scattering 4=30189
- resonance, and virtual binding 0=17568
- resonance widths, effect of target thickness, beam straggling 3=12651
- "resonons", mass spectrum, by nonlinear field theory 3=22056
- retarded functions, potential scatt., theory 2=22440
- review, elementary particle cross-sections 4=3361
- ρ mesons, universal coupling in scattering expts. 4=6125
- ρ trajectory, phenomenological treatment 4=11946
- Riemann sheets, amplitudes 2=22419
- Riemann surface of scattering amplitude 1=13342
- by rigid rotator 0=20609
- rigorous inequalities satisfied by double-spectral function 4=25020
- rotating coordinates, use of 3=51
- rotation matrices corresponding to complex ang. momenta 4=3329
- Rutherford, grav. equivalent theory 2=11259
- S-amplitudes, analytical props., momentum depend. 2=22452
- S-matrix, analytic continuation in ang. momentum 3=2205
- S-matrix, in ang. momentum, uniqueness of analytic continuation 2=16161
- S-matrix, angular operators 0=883
- S-matrix, angular operators, calc. 1=4771
- S-matrix, determinant form 1=12065
- S-matrix, divergence exclusion 2=18086
- S-matrix, divergence-free iterative expansion 0=20066
- s-matrix, for elastic collisions, unitarity relations 1=457
- S-matrix, for elastic one-dimen. scatt. 2=9793
- S-matrix, expansion in terms of multiple impulsive peripheral interactions 2=22441
- S-matrix, as function of complex ang. momentum 2=9794
- S-matrix, functional expansion, in asymptotic fields 1=19146
- S-matrix, generalized propag. function use 2=13721, 18056
- S-matrix, generalized quantization method 0=9256
- S-matrix, group represent. in relativistic quantum theory 3=2203
- S-matrix, holomorphy domain 2=11884
- S-matrix, independence at very high energies 2=1659
- S-matrix, Jost function construction 4=25043
- S-matrix, left-hand cut discontinuity and equiv. potential 2=11885
- S-matrix, left-hand cut discontinuity and potential 1=8432
- S matrix, many-channel structure 1=4773
- S-matrix, meromorphic prop. in complex plane of ang. momentum 2=17366

Scattering, particles—contd

- S-matrix, of multi-GeV strong interactions 2=18078
- S-matrix, multiplicity of interpolating field 0=15281
- S-matrix, rel. to N/D solns. 2=1667
- S-matrix, near threshold reconstruction 2=16174
- S-matrix, non-relativistic, structure 0=20070
- S-matrix, physical interpretation of complex poles 0=14520
- S-matrix, point transformation of field operators 2=3240
- S-matrix, poles for complex ang. momenta 2=22443
- S matrix, principal value singularities 1=4775
- S-matrix, rel. to quantum electrodynamics asymptotic condition 1=4761
- S-matrix, reduction formulae 0=7294
- S-matrix, relativistic, invariant parametrization 2=7831
- S-matrix, relativistically invariant, theory 1=3113
- S-matrix, scatt. amplitudes, general eqn. 0=5525
- S-matrix and scattering potential, analytical props. and uniqueness 1=4772
- S-matrix, soft photon contribution 1=10830
- S-matrix, space-like intervals contrib. 3=2219
- S-matrix, spin structure 0=20069
- S matrix, structure in presence of a bound state 1=452
- S-matrix symmetry props., appl. to resonance reactions 3=557
- S-matrix, for systems with bound states 2=5582
- S-matrix, for tensor potentials non-zero at origin 2=9791
- S-matrix theory, fundamental particles 2=22459
- S-matrix theory, fundamental particles, new approach 2=9772
- S-matrix theory, relativistic, complex ang. momentum 2=18081
- S-matrix, unitarity, rel. to removal of ghost-poles 1=3115
- S-matrix zeros, rel. to coupling constants 2=18075
- S- and T-matrix zeros in two static models 3=7790
- S-wave ampl. for large k, asymptotic behaviour 4=2570
- s-wave, energy moments of phase shifts 3=2220
- s-wave, pseudoscalar coupling 0=20199
- s-wave scatt., phase shifts for Gaussian potl. 3=24657
- S-wave, three body Green's function 2=13739
- S-wave, two-parameter approx. 1=7206
- SU₃, 8-dimensional representation and Pomeranchukon 4=854
- SU₃, invariant theory, baryon Regge trajectories 4=16944
- SU₃, octet of Regge poles, in bootstrap dynamics 4=16820
- scalar, local field theory asymptotic relations 4=5947
- scaling law for high energies 4=30201
- scatt. approx. for long range forces 3=2222
- scatt. involving a bound state, theory 0=3933
- scattered-wave phase 0=15297
- scatt. amplitudes, absorptive parts, appl. of transition amplitudes 1=12063
- scattering amplitude, analytic continuation through 3-particle cut 3=19561
- scattering amplitude, asymptotic behaviour, at inf. energy 1=16692
- scattering amplitude, at high energies 1=5667
- scatt. amplitude, perturbation expansion 1=16694
- scattering amplitude, pole position rel. to pole residue 3=568
- scattering amplitude, for separable potentials, Fredholm soln. 0=7301
- scattering amplitude from unitarity condition in field theory 1=16710
- scattering amplitudes, computation by Mandelstam method 1=16712
- scattering amplitudes, rel. to production amplitudes 0=17260
- scattering chamber, continuous rotation type 1=13237
- scattering equations for low energies 1=19151
- scatt. lengths when composite bound states exist, upper bounds 0=9288
- scatt. length, Kohn's variational method with n parameters 1=15700
- scattering lengths for static potentials, upper bounds 0=2496
- scatt. matrix, divergence exclusion 3=5962
- scattering matrix, with Pauli interaction correction 0=20074
- scattering matrix, relativistic invariant parametrization 3=5963
- scatt. matrix nr. threshold, reconstruction 3=5956
- scattering potential reconstruction, use of scatt. amplitude 0=11107
- scattering processes, kinematics, Mandelstam representation 0=7298
- scattering and production amplitudes 0=17260

Scattering, particles—contd

- scattering wave-function, distorted-wave calc. 1=19143
 Schrödinger and Dirac particles, by high-energy potential 2=13737
 Schrödinger eqn., in inhomog. medium 2=33
 Schrödinger eqn., limiting absorption and amplitude principles 2=32
 Schrödinger eqns., existence of solns. 4=27070
 Schrödinger particles, high-energy potential, approx. method 4=11088
 Schrödinger scatt. amplitude, analyticity 2=19439
 Schrödinger scattering amplitude 1=15696-7
 Schrödinger theory, Born approximation for transition matrices 1=12058
 screened Coulomb potential, Born approx. 2=1069
 semi-classical, by complex nuclear potential 2=11890
 separable nonlocal potls. and Regge poles 4=3330
 several groups of many equiv. particles, interaction energy 3=17207
 shrinkage of diffr. pattern and Regge pole effects 3=19582
 single-channel ampl., systematic approx. 4=11954
 single-channel, improved minimum princ. 3=9352
 single-channel phase shifts, static approx. and bounds 3=53
 single integrals of Mandelstam representation rel. to double spectral functions 4=25021
 single and multiple, angular distrib. 1=13330
 by singular potential in perturb. theory and in momentum repres. 0=12856
 singular potential theory, cutoff procedure 4=21782
 singular potentials with short range, Jost funct. method 4=21778
 singular potentials superposition, and peratization 4=25007
 singular potentials, weak-coupling limit 4=19431
 singular wave-function operator, applic. 2=11811
 singular wave-function operator, applications 1=10851
 singularities in ang. momentum plane 3=10054
 singularities in ang. momentum plane, pole-cut model 4=842
 singularities of 4-pt. function with variable masses 3=19590
 singularities of scatt. ampl., charged scalar fixed-pt.-source theory 3=14912
 singularities of scatt. amplitudes at isolated real points 2=13738
 singularities of scatt. amplitudes on unphysical sheets 1=450
 singularities on unphysical Riemann sheets 4=9119
 singularities in unphysical sheets 3=17210
 small-angle critical scatt. from cooperative assemblies 3=52
 small-angle multiple, fast charged, statistical theory 3=19585
 small-angle, systematic errors 0=15311
 small scattering chamber for large angular region 1=19072
 space-time description 1=10860
 spacially extended particle theory 3=7767
 spectral function analyticity, rel. to channel-spin 2=11883
 spherical dielec. particles of refr. index 1.25 3=16804
 spin, complex J partial wave ampl., energy analyticity 4=11927
 spin correlation coeff. C_{sp} , relativistic formula 1=2050
 spin effects, triangle inequalities eval. 2=22429
 spin 0 particles, elastic scatt., theory 1=17065
 spin $\frac{1}{2}$ particles, optical model 4=6366
 spin- $\frac{1}{2}$ particles, nonrelativistic, with spin-orbit interaction 1=19133
 spin $\frac{1}{2}$ particles, polarization effects, relativistically covariant relations 1=19147
 spin-1, covariant polariz. analysis 2=18085
 spin- $\frac{3}{2}$ particles, by Coulomb field 0=2508
 spin-2, scattering by Coulomb field 0=2509
 spin-orbit potential with π -meson scatt. correction 0=15296
 spin polarization meas., study of techniques 0=1408
 spin-zero meson exchange criterion, Treiman-Yang test 4=24999
 spinless, charged, partial wave analysis 3=12411
 spin $\frac{1}{2}$ —spin $\frac{1}{2}$, Lorentz-invariant S-matrix ampl. 4=16832
 spinless, Lorentz-invariant, quantum mechanics 4=8077
 spinless particles, rel. to quantum-mech. equations 1=5648-52

Scattering, particles—contd

- with spins, Regge poles contribution 4=16837
 spinors in Coulomb field, relativistic, theory 2=22436
 spinors in Coulomb field, relativistic, theory 1=19129
 spurious, in nuclear emulsions 4=27732
 stable and unstable particles, dispersion relations 3=24632
 static-source theory, recoil model, quantization 2=9801
 statistical model, large-angle elastic scatt. 3=7794
 stopping power of electron gas for charged particles, rel. to dielectric constant 4=27572
 strip approx., consistency, Regge-pole conditions 4=21804
 strong interaction resons., rel. to Regge poles 2=13740
 strong interactions at low momentum transfers 1=12054
 sum rules, appl. to electron-deuteron scatt. 0=2530
 symmetric coupling matrix, use 2=4912
 T-matrix, Coulomb, anomalous behaviour 4=11089
 t-matrix for potentials with hard core, calc. 1=8057
 by target possessing discrete excited states, complex eigenvalues 0=9293
 tertiary and general-order collisions 1=3134
 theory, using eigen-phase shifts and eigen channels 0=11111
 theory, using quantum-mech. many-body problem 2=5877
 theory, without channel radii 0=17567
 thick absorber, single-scatt. process deriv. 3=10138
 three-body, ang. momentum separation, Fadeev eqns. 4=21787
 three-body, approximation techniques 4=25027
 three-body, non-relativistic, discontinuities across cuts 3=12427
 three body problem, ang. momentum continuation without cuts 4=15028
 three-body problem with separable potentials, Regge cuts 4=19454
 three-body problem for short-range forces 3=14919
 three-body problem, Sturmian function appl. 2=20267
 three-body scatt. analysis 2=3271
 three-body system, with short-range forces, scatt. amp. 1=16713
 three-dimensional Lorentz group, complex ang. momentum 4=25025
 three equivalent particles, interaction energy 3=17206
 3-j symbols, symmetry relations 3=7798
 three-particle, planar, formal theory 3=13999
 three-particle, potential, complex ang. momentum 4=16045
 three-particle prod. near threshold when two interact. resonantly 4=19441
 three-particle states in complex ang. momentum theory 4=5977
 three-particle system, Hamiltonian eigenfunctions 1=19144
 three-particle system, resolvent of Schrödinger operator 3=21244
 three-particle unitarity 3=19564
 three-particle unitarity integral, prod. amplitude 4=25026
 3/2 and 0 elastic 3=19586
 threshold behaviour, close-coupling effects 3=22502
 threshold behaviour, rel. to N/D method 4=25019
 threshold effects in average cross-sections, R-matrix theory 3=10320
 threshold effects in three-body channels 0=15287
 thresholds, ordinary and anomalous, in perturbation theory 0=17266
 time dependence effects 4=19743
 time duration definition, causality—analyticity connection 4=27816
 time-of-flight obs., multiple scatt. correction by Monte Carlo anal. 4=6083
 total cross-sections, high energy, rel. to "universality" 2=22448
 transformation group for metrics with invariant ang. distrib. 4=30184
 transport in scatt. medium, quantum theory, incoherent processes 0=9298
 transverse moments distrib. and high energy scatt. 3=22082
 two-body central, asymptotic phase shifts and bound states 4=9129
 two-body Muskhelishvili-Omnès form factor 2=20269
 two-body problem, covariant 0=3923
 two-body problem, elastic and inelastic scattering 1=4768
 two-body problem, integral formalism, using Liouville eqn. 0=15288

Scattering, particles—contd

- two-body problem, number of partial waves 0=20062
 two-body reaction amplitude, Mandelstam representation 1=10861
 two-body unitarity relation, simplification 1=19137
 two-channel, non-relativistic dispersion relations 2=11878
 two channel, pole residue relations 3=17216
 two-channel process, dispersion relns. 3=4344
 two-channel reactions, simple model 3=14886
 two-channel, with unstable particles, N/D formalism 4=27813
 two-dimensions, scatt. amplitude 3=19563
 two interacting particles, six-dim. wave eqn. 4=11082
 2-particle, elastic, in 3-particle break-up 4=9097
 2-particle resonance systems, masses of 4=3311
 two-particle resonances, dispersion relns. 3=12483
 two spin-half particles, dispersion relations 4=30186
 ultraviolet divergences in Feynman diagrams, removal 3=12401
 uncoupled phase method for hard-core interactions 4=11930
 unitarity bound of ampl. and diffr. peak 4=27807
 unitarity conditions in terms of propagation kernels 1=12808
 unitarity condition applied to Regge scatt. amplitude 3=22085
 unitarity as direct eval. of discontinuity 2=22427
 unitarity and evaluation of discontinuities 3=24629
 unitarity impulse approx. 3=19565
 unitarity and Mandelstam representation 1=13336
 unitarity and production amplitudes 2=16168-9
 unitarity property of scattering operator 0=4945
 unitarity of S-matrix and analyticity 1=5683
 unitary scatt. amplitudes, construction 1=7216
 unphysical sheet amplitudes, and resonance poles 4=21788
 unstable, analyticity props. of Feynman diagr. 4=5935
 unstable particle quantum theory 4=24077
 unstable particle, with two stable ones 3=5923
 unstable particles, analyticity of particle wave amplitudes 2=1663
 unstable particles, diff. scatt. cross-sections, extrapolation method 1=456
 unstable particles, masses and lifetimes 4=16805
 unstable particles, scatt. amplitude 3=550
 unstable particles, scatt. amplitude determination 0=9296
 unstable particles and 3-body systems 4=25028
 upper bound, high energies, improvement 3=17221
 upper bounds at high energy 4=27810
 use of "damping" functions 0=9319
 vacuum pole trajectories, intersection 4=16835
 variational calc., phase-shift accuracy 2=1660
 variation principles for matrix elements 3=22093
 variational method, integral form 3=7122
 variational wave functions, hypervirial theorems 3=7128
 vertex functions, unitarity reln. 4=25042
 very-high energy collisions, ang. distrib. of secondaries in jets 4=5943
 very high energy, rel. to low-energy radn. 2=20229
 virtual particles not corresp. to usual type poles 2=13744
 wave amplitudes, partial, singularities for 2 ingoing and 2 outgoing particles 2=22420
 wave-packet formalism for finite time interval 0=15272
 wave-packet interpretation 0=12874
 wave-packet theory formulation 0=45
 Wigner's inequalities for spin 0 and $\frac{1}{2}$ particles 0=5501
 Yang-Mills field, Dirac quanta 4=11878
 Yukawa coupling const. calc. 3=10051
 Yukawa potential, use of improved Born series 4=2556
 Yukawa potential, Regge poles and asympt. behaviour of amplitudes in perturb. theory 3=21249
 Yukawa potentials, complex 3=4339
 Yukawa potentials, generalized 4=2551
 Yukawa, Regge pole trajectories for weak coupling 3=22092
 zero-energy parameters, rel. to various potentials 4=25017
 zero-energy scatt. problem 2=7832
 8.5 BeV, elastic, analysis 4=3350
 Ar molec. beam on LiF cleavage plane 3=2680
 Au¹⁹⁷-O¹⁶, optical model analysis 4=22196
 C¹² + C¹², elastic scattering at 6-35 MeV 1=11039
 C¹², by C¹², at 127 MeV, elastic and inelastic 2=16438
 C¹²-C¹², 127 MeV, elastic and inelastic 4=22198

Scattering, particles—contd

- C¹²-Li⁷, elastic 4=22197
 H and H₂ beams, by H and He gases 2=23017
 H⁺ ions, in CH₄, CF₄, C₂H₆, C₂F₆ 2=12354
 He beams, thermal, by H and He gases 2=23017
 He molec. beam on LiF cleavage plane 3=2680
 He II, liq., Van Hove correl. functions 3=11703
 He³- α , resonating-group struct. in one-channel approx. 3=24811
 He³, on medium-weight nuclei 0=9641
 He³, 29 MeV, by Au, polarization 3=24976
 He³, 29 MeV, by H, D, He³ and He⁴ 0=20250
 He³ by C¹², Ne²⁰ and A⁴⁰, at 28.5 MeV 0=20463
 He³-He³, elastic, 3-12 MeV meas. 3=12521
 Li atomic beams, by crossed Hg beam, de Broglie interference effects 1=820
 Li⁷-Li⁷, elastic 4=22197
 N¹⁴ + Be⁹, elastic, low-energy, optical model 4=22201-2
 N¹⁴-C¹², elastic, 8 to 20 MeV centre-of-mass energy 4=22199
 N¹⁴-N¹⁴, elastic, 8 to 20 MeV centre-of-mass energy 4=22199
 N¹⁴ + O¹², elastic, low-energy, optical model 4=22201-2
 O¹⁶ + C¹², elastic, low-energy, optical model 4=22201-2
 O¹⁶-C¹², elastic, 8 to 20 MeV centre-of-mass energy 4=22199
 O¹⁶-C¹², 168 MeV 4=22200
 O¹⁶ + O¹⁶, elastic scattering at 6-35 MeV 1=11039
 Pb²⁰⁸-C¹², inelastic 4=22204
 Pb²⁰⁸-O¹⁶, inelastic 4=22204
 Ta¹⁸¹-O¹⁶, 166 MeV, inelastic 4=22203

Schlieren systems

- colour schlieren analysis, use of colour film 1=6960
 colour schlieren photography in wind tunnels 3=271
 combined with high-speed cameras 2=19738
 demonstration apparatus 1=12998
 flow past cylinders, high velocities 2=15534
 glass, quantitative meas. 1=4447
 instrumented shock tube 2=7244
 layer, uniform and plane, spectral and ang. distrib. rel. to noise 3=3883
 light distrib. in image plane, rel. to refr. index distrib. 4=18383
 liquid free surface study 3=16744
 for obs. of gas flow at low pressure 4=8229
 photography of orthogonal pinch discharge 3=7585
 plasma density meas. in rail accelerator 4=14734
 plasma diagnostics, technique, using ruby laser light source 4=18900
 plasma, r.f., photography 3=4146
 quartz, fused, for delayed u.s. pulse detection 2=2718
 refractive index gradient meas. in solutions 4=8380
 sequential-spark with cylindrical-lens camera, laminar to turbulent flow transition 0=16727
 sharp-focusing, for flat flames study 2=7352
 shock-tube instrumentation 2=19602
 shock tube study, large-amplitude waves 1=8153
 time resolved study of discharge, 0.4-4 mm Hg 3=9739
 ultrasonic beams between plane-parallel plates 1=6939

Scintillation counters

See Counters, scintillation

Seals, glass—metal

See Glass—metal seals

Seawater

- acoustic vels., 500 kc/s small changes, meas. instrum. 3=13651
 acoustic wave "divergence" attenuation, calc. 0=5094
 acoustic wave propag., to great distances 0=12450
 acoustic wave propagation in shallow water 1=11811
 acoustic wave propag., transverse correlation on wavefront 1=4409
 acoustic wave refraction, by thermal gradients, shadow zone 1=2826
 acoustic wave scattering 0=5099
 acoustic wave scattering, at temperature discontinuity 0=132
 Arctic Ocean, sound transmission, long-range 1=20805
 artificial, light absorption 3=16626
 attenuation of explosive sounds 4=4752
 back-scattering of underwater sound 0=2209
 conductivity, electrical, var. with press. and temp. 3=14182
 deep ocean, long range sound propagation 1=8181

Seawater—contd

- electrical conductivity, CO₂ effect 4=26782
- electrical conductivity rel. to pressure 3=18486
- fallout, distrib. between soluble, particle and colloid states 3=6190
- Forel's Colour Scale 0=19462
- gravity waves, propag. over seabed, damping 0=8348
- hopper halite crystal growth by evaporation of seawater 0=8149
- ice, physical props., temp. depend. 1=1502
- light attenuation, ruby laser meas. 4=5178
- noise, acoustic, breakers 3=21503
- North Pacific surface water, T content 3=24888
- optical nature 3=6952
- optical props. of large bodies of water 0=8766
- optical polarization, natural, rel. to depth 3=16200
- origin, solar wind theory 2=15181
- photometer, integrating, for use underwater 2=1243
- plankton effects on u. s. absorption 4=4747
- propagation of sound 0=19267
- r.f. reflection under polar ice 2=4589
- radio communication in, theory 2=5478
- radio echoes at Casablanca, period and length of waves 0=8360
- radioactivity, Cs¹³⁷, off Cape of Good Hope 2=15182
- radioisotopes study 2=23997
- radiowaves, reflection from sea, study using a goniometer 4=5805
- scattering, light, meas., submersible water, design theory 3=19023
- sea ice, physical properties 0=1975
- solubility of inert gases 3=23877
- sonar, optimum freq. for given range 2=75
- sound absorption meas. 2=17556
- sound propagation at l.f. in shallow sea 0=19268
- sound refraction 1=11814
- sound reflection from surface 1=1794-5
- sound scattering by surface 1=5333
- sound scattering by surface, rel. to its roughness 3=1423
- sound speed down to 5760 m depth 1=12685
- sound velocity 0=989, 10721, 19276
- sound velocity, extrapolation of eqn. 2=17554
- sound velocity, l.f., meter 1=2831
- sound velocity, Mediterranean (1959) 1=2820
- sound velocity and temp. meas., pulse apparatus and thermistor bridge 0=16765
- sonic velocity variations, meas. by phase difference recorder 0=14756
- speed of sound, long-range measurement 1=5328
- speed of sound, new formula 1=4410
- spherical explosion, implosive phase 2=9306
- surface acoustic backscatt. strength 4=30925
- surface, Doppler shift of sonar backscatter, 85 and 1400 kc/s 4=24322
- surface, sound backscatt., theory 4=30924
- turbulence, spectrum at high Reynolds number 0=5000
- u. s. propagation, effect of internal wave 1=6932
- u. s. velocity meas., Mediterranean, Jan. 1961 3=3442
- underwater acoustic reverberation 1=10568
- velocity of sound, variation with depth of sea 1=5327
- volume scatt. function, from meter meas. 4=23723
- waves, capillary, damping by insoluble organic monolayers 4=5145
- waves, Hamiltonian method 3=23580
- X-band radiation back-scattering 0=12700
- CO₂ partial pressure 1=15223
- Fe⁵⁵ content from nuclear detonations 1=17006

Secondary electron emission

See Electron emission, secondary

Sedimentation

- balance, for sub-sieve sizing 3=21278
- body, amplitudes from underground nuclear explosions 0=10385
- boundary conditions, theory 0=986
- broken chains and wormlike coils, calc. 2=23973
- chemically reacting systems, rel. to isomerization and dimerization 3=3388-9
- clusters of particles in air 4=17872
- colloidal electrolytes, rel. to molec. wt. detm. 3=6938-41
- DNA, comp. of molec. weights 0=7822
- dispersed wave trains, anal. and synthesis 0=10714

Sedimentation—contd

- earth's core, equations of state 0=8353
- effect of fluid dielectric const. and powder conc. 4=10654
- electriator for ferrimag. mineral sands 0=10326
- electrosedimentation, dynamical theory 1=144
- equations 0=4739
- equilibrium achievement in mo. wt. det. 2=4521
- equilibrium second virial coefficient det. for polymeric solns. 0=77
- flotation equil. in ultracentrifuge 3=6932
- fluids, theory 3=9377
- gels, agar and gelatin 4=17873
- generalized reflection and transmission coeffs. 0=12451
- generalized theory 0=8323
- hydrodynamical model 0=2152
- hydrogen bomb explosion (1954) 0=4769
- hydrometer, for spec. gravity meas. 3=7167
- interferometer technique for obs. 3=8979
- Lamm equation exact soln. 4=23685
- Lamm eqn., Faxén soln., simple deriv. 4=18115
- liquid sprays, drop size analysis 3=11363
- long earthquake waves 0=12129
- longitudinal, in upper mantle, velocity, European study 0=4776
- long-period, from nuclear explosions 0=14158
- Love waves, in medium with single layer, propag. 0=12126
- low-velocity layers in earth, ocean and atmosphere 0=10386
- macromolecular chains in solvents, meas. 3=9454
- macromolecules, for mol. wt. determ. 4=25789
- measurement, three-beam interferometer 2=7386
- microscopic spheres in polymer solutions 0=76
- modes, rays and travel times 0=8349
- monodispersed species, rel. to press. and conc. 2=15165
- multiplet, in solid with plane homogeneous isotropic layers 0=12127
- off-shore areas, wave propag. in water 0=6764
- particle size distribution meas., single tube apparatus 0=14139
- particles in atmosphere, under gravity 3=9023
- plane n-layer general problem of reflection 0=14159
- polybutylmethacrylate in isopropyl alcohol, rel. to molec. wt. 0=12111
- of polydisperse macromolecules 0=16393
- polydisperse systems, ultracentrifuge centre-piece 3=3420
- polyelectrolyte multicom. solns. 2=11366
- polymer mixture, rel. to mol. wt. distrib. 3=23554
- polymer solns., molecular wt. det. 0=14141
- polymer solns., second virial coeff. calc. 4=27159
- polymer-solvent systems, coeff. rel. to conc. 4=13747
- polymers, theory, for 1, 2 and 3 branch points and rings 0=8657
- polyvinyl sulphonate alkali halides, rel. to polymerization 2=11367
- pressure and concn. depend. systems 3=6930
- propagation in inhomogeneous media 0=987
- pseudoplastic systems, viscosity impulse theory 0=14581
- quarry explosions, S. E. Australia 0=4768
- radiometric sedimentation analysis 1=15208
- Rayleigh-type, development in vicinity of small explosions 0=10382
- rod-like mols. in ultracentrifuge 3=11361
- short columns, interference optics study 3=6933
- sizing analysis, automatic decantation 0=8262
- solid spheres in silicone oil 3=13620
- spheres, moving through viscous liquid, interaction 0=8592
- suspensions, non-Newtonian, metal oxides, turbulent 4=15855
- theory, slow and fast reaction cases for dimerization 4=10657
- thermoelastic solid, attenuation of plane stress waves 0=8734
- underground explosions, surface motion 0=10384-5
- velocity in marine sand sediments 0=2200
- velocity, relation to effective viscosity 0=4740, 10368
- Voigt waves, plane compressional 0=8730
- water-laid sediments, remanent magnetism 1=1579
- ThO₂, slurries at high temps. 0=12112
- Tl₂SO₄-H₂O system, rel. to Svdeberg eqn. 3=5172

Seignette salt

See Rochelle salt

Seismic waves

- See also Seismology
 along cylindrical bore 2=15674
 analogue model for reflections, transmission 2=17116
 attenuation in dispersive medium 3=7093
 attenuation of wave trains 2=12987
 compression, plane, in stratified medium 3=9537
 conference, London, Nov. 1961 2=8944
 conical flow and Rayleigh scattering techniques 3=23966
 core-mantle boundary, refl. and refr. 3=3430
 correlation detection in duovelocity medium 4=24296
 crust and mantle, models, converted waves 3=3433
 diffracted, form and spectrum 4=24291
 dispersive surface waves, frequency-velocity-energy
 diag. 4=13768
 earth oscillation study from seismograms 0=8518
 earthquake generation by volume source with
 moment 3=1413
 earthquake, mechanism at focus 3=1412
 earth's interior, study 2=4586
 elastic, impulsive, diffraction and scattering 3=23965
 in elastic medium beneath unconsolidated surface
 layer 4=30917
 explosion-generated Rayleigh waves,
 signal-to-noise ratio 2=19186
 fluid sphere, compressible, pulses, analogue
 study 4=7815
 G, S_a wave generation theory 4=7816
 Halley Bay (Antarctica) observations 1=1497
 head waves from bed of finite thickness 3=6945
 head waves, low-freq., formation in thin layers 4=13769
 interface, pulse obs. 3=1416
 layered heterog. media, use of two-dim. perforated
 models 4=7814
 longitudinal head waves, in refracting layers 2=17540
 long-period, from large near-surface nuclear
 explosions 3=13642
 Love propag. in heterogeneous layer on homogeneous
 media 4=10684
 Love wave dispersion, anisotropic media 2=19646
 Love waves, in heterog. medium 2=11446
 Love waves, in homog. elastic crust 2=17538
 Love waves in a nonhomogeneous internal
 stratum 3=16688
 Love waves, propagation, theory 4=23701
 microseisms at Pulkovo 4=17882
 microseisms, as superposition from many elementary
 oscillators 4=29255
 microseisms, tripartite obs., Japan, IGY 1957/8 3=18478
 nonspecular boundaries in three-dim. models 3=3434
 P and PP waves, angle of incidence and amplitude
 ratio 4=13767
 P vel. and central density of the earth 3=16193
 photocells, cosine error correction 4=18376
 plane in porous solid, reflection at free plane
 boundary 2=17536
 primary, elastic displacement 4=21219
 propagation of intense shock waves into the earth 1=6584
 propagation, layered sphere 4=4741
 pulse in a fluid sphere, radius/8 below surface 4=23703
 pulses, Cagniard's method solution 1=15214
 quarry blast near Sydney, analysis 3=3426
 Rayleigh, from fault of arbitrary dip, radiation
 pattern 3=16687
 Rayleigh and Love waves from buried sources in elastic
 half-space, theory 4=23702
 Rayleigh, phase, for detecting soft layers in earth's
 mantle 3=18472
 Rayleigh, in a two-layer heterogeneous medium 3=18471
 Rayleigh wave dispersion in layer on elastic half-
 space 1=192
 Rayleigh wave propagation in earth 1=9182
 Rayleigh wave transmission on elastic wedges 4=4740
 Rayleigh waves, group and phase velocities 1=6585
 reflection, Cagniard's method 3=23570
 reflections at interfaces 3=21474
 review 1=4108
 rotational multiplets in spectrum of earth, analogue
 of Zeeman effect 1=10302
 S waves, radiation mode, deep-focus earthquake 3=18476
 SH interference wave propag., elastic spherical
 layer 3=18886

Seismic waves—contd

- SH, in semi-infinite region below crust 3=23963
 SH-waves, shadow zone 4=29254
 SH waves, total internal reflection 2=15176
 semi-infinite medium, disturbed shear-stress
 jump 2=15676
 shock waves, qualitative characteristics. 3=200
 side waves, diffracted and refracted at vertical
 contact 3=18477
 single layer over half space, PL modes meas. 2=11441
 Soviet Central Asia, 1958-62, physical nature 4=26779
 Soviet 50 megaton bomb, press. wave through
 N. Zealand 2=21613
 sphere, radially heterog., torsional disturb. 4=258
 from spherical cavities in rocks strained beyond
 the elastic limit, calc. 3=7279
 strong pressure wave amplitude meas., piezophotographic
 method 4=24302
 surface, dispersion curves, effect of irregularities 4=264
 surface Rayleigh velos. in orthorhombic symmetry medium,
 calc. 4=8304
 surface wave dispersion, meas. survey 2=12986
 surface waves from finite moving sources 1=20796
 surface waves on slowly rotating earth. 3=195
 thin layer, effect on reflected wave 3=16689
 torsional oscillations, surface displacement 3=11379
 upper mantle of earth 3=21026
 velo., P and S, var. with depth 3=16191
 Zoeppritz's amplitude eqns., solns. 3=1417
 zone of low velocities, particle displacements 3=3432

Seismographs

See Seismology.

Seismology

- See also Geophysical prospecting; Seismic waves
 absorption calc. rel. to freqn. and depth 3=6946
 analogies and applications to underwater sound 2=2836
 array signal enhancement 3=18475
 bibliography, Jan-Dec. (1960) 2=23993
 bibliography, Jan.-June (1961) 2=21614
 Chebyshev polynomials, use in design of arrays for
 seismic exploration 4=7813
 continuous signal 0=8351
 continuum distrib. of dislocations on faults 4=29253
 correction for transfer function of seismometer 3=1415
 data processing from automatic digital recorder 3=18473
 detection of nuclear explosions in atmosphere 2=12988
 e.m. seismographs, effect of galvanometer-seismometer
 reaction 3=5183
 earth fundamental oscillations and core rigidity 3=13643
 earthquake energy determ. for Carpathian region 4=23704
 earthquakes, magnitude scales 2=19187
 earthquake, New South Wales, May 22, 1961 3=13641
 earthquakes of planets 1=15424
 Edinburgh research group 3=9002
 elastic wave propagation in fluid-saturated porous
 solids 1=7925
 electro- and magnetoseismic effects 4=10687
 electro-seismic effect, lab. confirmation 2=23994
 energy transfer in anisotropic media 2=19189
 explosions, longitudinal waves vel. in upper
 mantle 2=19185
 finite deformations in interior of earth 3=13644
 geophone arrays, Chebyshev optimized 3=16192
 ghost reflections, on mag. record., linear filter
 elimination 0=8352
 hydrogen bomb explosion (1954) 0=4769
 IGY Kelvin lecture 0=754
 limestone, elastic props. invest., in situ 3=9003
 lunar 1=15422
 lunar seismograph for Rangerexpts. 3=9168
 and magnetic activity, for earthquake forecasting 4=23705
 mechanical vibs. through ground, Conference
 London, Nov. (1961) 2=8944
 microseisms rel. to cyclonic storms 3=6947
 Mohorovičić discontinuity, nature 3=18481
 multiplets of terrestrial spectrum, calc., rel. to
 Chilean earthquake 1=20797
 natural oscillations and their attenuation 2=19188
 observatories in USA for nuclear explosion detect. 3=5182
 photographic technique of surface motion 3=9004
 piezoelectricity meas. in quartz-containing rocks 0=2928

Seismology—contd

- presentation and analysis of seismic data in sound form 1=11644
- propagation of plane long. waves in inhomog. elastic media 0=987
- pulse frequency analysis, photomechanical method 0=8350
- reduction of instrumental distortions on short period seismograms 4=30916
- refraction, seismic, in uniaxial homogeneous medium 0=12128
- seismogram synthesis, with multiples and transmission coeff. 0=6430
- seismogram, variable-density, optical diffraction scanning 4=23700
- seismograph calibration, transient technique 3=1414
- seismograph, electronic, with capacitance pickup 3=3431
- seismograph, lunar 3=5241
- seismograph, piezoelectric detector, strong-motion 3=3435
- seismometer-galvanometer combinations, theory 2=15177
- seismometer, inverted-pendulum element 3=11378
- tectonic deformations, finite strain 2=17115
- theory applicable to earthquake stress and rupture determinations 0=699
- tiltmeters, electrodynamic and photoelec., comparison 4=2181
- transients, seismographs, analytical expression 3=18474
- underground explosions, detection, review 3=1418
- underground nuclear explosions 0=10383-5

Selenium

- absorpt. and i.r. emission spectra of amorphous and liq. Se. 4=15600
- absorption edge shape, thermal imaging 2=7455
- absorption spectra 0=10037
- absorption spectrum, amorphous impure solid 3=3017
- absorption spectrum, u.v. 1=7709
- acceptor levels, origin in oxygen 2=10494, 14561
- amorphous, electrophotographic latent image decay time meas. 3=5544
- amorphous, films, drift mobilities of electron and holes 2=6472
- amorphous, films, optical obs. and photocond. 2=16823
- amorphous, Hg-treated, photocond., trapping levels 4=1686
- amorphous, i.r. absorption spectrum 2=2235
- amorphous, photo-excitation and carrier-trapping meas. 4=22804
- amorphous, photoinduced discharge of xerographic plate 3=15613
- amorphous, shear modulus and Q changes on irradiation 1=20306
- amorphous, shear modulus and Q changes on irradiation 1=14849
- amorphous, spectral distrib. of anomalous photocond. 4=30667
- amorphous, spherulitic cryst., effect of doping 2=6780
- amorphous, volume contraction, isothermal 2=6287
- band structure in hexagonal crystals, exptl. 4=4019
- band structure, from opt. and photoelec. props. 2=23107
- barrier-layer cells, 16 types, slow response 0=2909
- carrier diffusion lengths 2=23406
- carrier mobilities and trapping centres 3=873
- carrier mobility and charge transport in monoclinic crystals 2=2170
- chemical analysis by neutron activation for Cu, Zn, As and Fe 4=23692
- conductivity, elec., Cl doped, reduction by Th, Na, K, As 4=4165
- conductivity, electrical, effect of grain size, various dopants 3=22951
- conductivity and photoconductivity, effect of addition of Tl and TlCl 0=7966
- conductivity, thermal, 85° to 450°K, crystalline and amorphous 4=28386
- contact potential, pure and Cl-doped layers 2=8374
- crystal growth, filamentary illumination effect 2=10802
- crystal structure of β -modification, thermal transformations 1=10257
- crystallization 1=14967
- crystallization, rel. to Cl doping 4=2033
- crystallization process on mica 2=21477
- crystallographic properties 1=8101
- crystals, ribbon-like, grown from vapour 1=11540
- dendrite crystals, shape rel. to twinning 4=26611

Selenium—contd

- density, temp., melting var., from lattice consts. 4=25865
- dielectric const. and resistivity of amorphous, poly- and monocrystalline Se 4=26057
- dielectric investigation 1=17818
- dielectric props., 500 c/s - 1 Mc/s, -40° to +160°C, Br-doped 0=10012
- dielectric relax. 2=6516
- dielectric relax. purified Se 2=12559
- dielectric relaxation 1=10073
- diffusion of Cl, temp. var. 4=4165
- diffusion in GaAs, n-p junction formation 4=17441
- diffusion in GaAs, radioactive and elec. meas. 3=22809
- diffusion in GaSb 0=4359
- diffusion in solid and liquid Te 2=18610
- diffusion of T³⁺, elec. 2=18611
- electrical conductivity, field effect 4=6985
- electrical cond., impurity effects 2=626
- elec. cond., press. depend., up to 30 000 atm. 0=613
- elec. cond., Se, temp. and voltage depend., rel. to plastic deform. 4=28567
- elec. cond., time rate of decrease, temp. depend. 0=18052
- electrical cond., rel. to Tl impurity 2=16731
- elec. and opt. props., theory 0=6127
- electrical properties, effect of Bi and Sn doping, temp. depend. 4=4164
- elec. props., effect of Br, Cl, I impurities, temp. depend. 0=1675
- electrical properties, rel. to Br and Tl doping 3=17892
- electron characteristic energy loss 1=14241
- electron energy loss spectra 2=3890
- electron-voltaic effect 2=23359
- electron-voltaic and photovoltaic effects 2=638
- electronic structure, composite valence and cond. bands 0=6126
- electronegativity, from alkyl cpd. p.m.r. spectra 2=2024
- etch studies of hexagonal single crystals 3=23385
- Faraday effect in refl., effective mass det. 4=13055
- films, amorphous, Faraday effect rel. to effective mass 2=4122
- films, annealing and oxidation, X-ray reflection studies 0=14089
- films, containing S, photoelectrets, depolarization 3=23006
- films, Hg-bearing, amorphous, non-photoconductive layers 1=14517
- films, Hg-bearing, amorphous, non-photoconductive layers 1=17803
- films (1000 Å thick) structure by electron diffraction 1=11595
- films, optical constants 3=25438
- films, structure, effect of In and Tl 0=18412
- foil polarizers, interference effect 0=10787
- force constant and vibrational spectrum detm. 3=17630
- gaseous and liquid, mag. susceptibility temp. depend. 4=16125
- glass transformation of amorphous Se 1=20637
- grain boundaries, elec. field strength across, meas. 2=23407
- grey, elec. cond. under shock wave action 3=830
- hole conductivity, photosensitivity 0=6134
- hole mobility 1=1083
- i.r. absorption by free carriers 3=13188
- intraband trans., influence on absorpt., refr., refl. 4=30617
- ionic radius, calculation 1=11562
- ionization potential-refractivity relation 0=2321
- K absorption spectrum, effect of bonding 2=23582
- layers on Ni, phase transformations 20°-400°C 2=12879, 19027
- liquid, elec. cond., field and temp. depend. 1=4355
- liquid and gaseous, mag. susceptibility temp. depend. 4=16125
- liquid, specific volume, rel. to temp. 4=27160
- magnetic suscept. and hole effective masses, 300° to 4.2°K 2=23631
- melting curves to 10⁴ bar 2=19778
- metallic state 3=17812
- mirror for infrared polarization 3=24060
- mirrors, cooled, optical props. 2=19695
- molecule, predissoc. and perturbation 4=3923
- optical absorption edge of hexagonal crystals 4=10190
- optical constants of hexagonal form 1=7699
- optical film, i.r. transmission 1=18602

Selenium—contd

- optical props., 0.7 to 4 μ meas. 2=16801
 optical props. of thin layers 0=7992
 optical transmittance of single crystals, 1.5-4.0 μ 4=10191
 oxygen free-prep. and effect of press. on elec. cond. 0=614
 peak electron density, curvature 1=15064
 photocarrier mobilities, meas. in amorphous state 2=10537
 photocell, open cct. e.m.f. 0=13637
 photocell, thermodynam. study micro-calorimeter for 0=10813
 photoconductivity 4=10133
 photoconductivity, negative, quenching effects 1=19909
 photocurrents, space-charge-lim., in films 4=20432
 photodepolarization, nonlinear, and carrier parameters 3=20417
 photoelectric elements, design, investigation 0=1147
 photoelements, as proton scintillation detectors 1=19063
 photoelements, spectral sensitivity 4=7075
 photo-Hall effect of vitreous state, n-type cond. 4=22805
 photovoltaic response to X-rays 1=14516
 polarizers, i.r., prod. 2=17653
 polycrystalline, conductivity ratio rel. to oxygen exposure 3=17893
 polycrystalline, elec. cond., effect of oxygen 2=8278
 polymerization of liq., effect of press. (up to 4 kbar), from viscosity meas. 4=25793
 positron annihilation in, ang. distrib. of γ -rays 1=19755
 rectifiers, capacitance meas. rel. to impurity densities 2=10512
 rectifiers, creep and forming effects, theory 2=10511
 rectifiers, effect of strong fields and Br impurity 0=6125
 rectifier, γ -ray irradiation effects 4=4184
 rectifiers, non-isothermal diffusion theory 0=20881
 rectifiers and photocells, turnover phenomena 3=6607
 reflectance of vitreous and metallic forms in vac. u.v. 3=15651
 resistance, effect of pressure 1=10050
 resistance, temp. coeff. at high press. 2=21156
 resistivity rel. to pressure up to 3×10^6 kgm cm $^{-2}$ 3=2902
 space-charge lim. currents and photocond. 4=1619
 space-charge-limited currents and trapping 1=11309
 specific heat at low temp. 3=8362
 spectra, absorpt. and refl., in u.v. 3=8596
 spectrochemical analysis, impurity effects, arcs. 3=25847
 spin-spin coupling with protons 3=719
 structure of S-Se mixtures 1=6514
 study phase boundary Se/H $_2$ SO $_4$ system 0=2901
 thermal cond., effect of added Br 0=6057
 thermal cond., effect of halogen content 0=546
 thermal cond., effect of Sn and Bi impurities 0=11589
 thermal conductivity, effect of Tl impurities 1=11170
 thermal conductivity, effect of Tl impurities 1=9989
 thin film, absorption and reflectivity, u.v. 3=2995
 u.s. absorption, polycryst. samples, temp. meas. 0=5095
 u.v. absorption and reflectivity 0=8004
 u.v. emission spectrum, use for analysis 0=16397
 vitreous, atomic distrib. curves calc. 4=23614
 vitreous, elec. and optical props. 3=13081
 wedge-shaped layers, thickness determination 0=3483
 X-ray K-absorption edge 0=20734
 xerographic, reciprocity failure 0=6956
 X-ray spectrum, K absorpt., in Se, and Ag $_2$ Se, discontinuity shift 4=10192
 zone refined, Sn distrib. 0=13942
 Ag-Se layers, resistivity and thermoelec. power 0=7968
 in GaSb, donor level above princ. cond. band edge 2=2162
 Se evaporated films for H α photography 1=9491
 Se-metal contacts, current creep, electropositive impurities 4=1630
 Se oxidation of radiation flux in nuclear reactors 1=15207
 Se photocell, sensitivity variation with magnetic field, as function of temperature 1=8966
 Se 75 , as monoenergetic γ -ray source 2=5611
 Se: As, i.r. absorption, As conc. depend. 1=5050
 Th, diffusion, optical obs. 3=15512

Selenium compounds

- selenates, metallic, i.r. absorption spectra and structure 0=20625
 selenious acid, molten, Raman spectra, detection of H $_2$ Se $_2$ O $_6$ 3=137
 H $_2$ SeO $_4$, Raman spectra of aq. solns. 2=2722
 Se alk. cpds., proton reson. spectra 2=2024
 Se-glasses, for 8-15 μ transmission 4=20457
 SeCl $_4$, crystal struct., atomic 4=23469
 SeF $_4$, mol. structure, by electron diffr. 3=25113
 SeF $_6$, mol. structure, by electron diffr. 3=25113
 SeF $_6$, Raman intensities for $\nu_1(a_1)$ modes 3=22559
 SeO mol., A $^2\Sigma^-$ -X $^2\Sigma^-$ system, rot. analysis 3=25105
 SeO, $^3\Sigma^-$ - $^3\Sigma^-$ system, rational analysis 3=4758
 SeO, spectrum, excited by r.f. discharge, and vibr. 4=25664
 SeO $_2$, cryst. structure 2=15024
 SeO $_2$, emission band spectra, 4700 to 2750 λ 2=8103
 SeO $_3$, vapour pressure, solid and liq. phases, 80-120°C 4=29807
 SeO $_4^{2-}$, fundamental vibr. frequ. 4=182
 SeO $_4^{2-}$, vibrational spectroscopic studies 3=15352
 [SeOXY] $^-$, vibrational spectroscopic studies 3=15352
 SeP (C $_2$ H $_5$) $_3$, structure 0=3254
 SePb, layer growth at solid Pb/liquid Se interface 1=10230
 Se-Te alloys, optical and electrical props. 4=20470
 Se-Te, liquid, cond. elec., temp. var., and chain struct. 4=24234
 Se-Te solid solutions, Hall effect, cond. elec., temp. var., thermoelectricity 3=22952

Semiconductor devices

- See also Counters, semiconductor alloying to III-V cpd. surfaces 2=10497
 α -detector, for dE/dx and E meas. 1=3255
 α -particle counting, low-level 2=7910
 amplification by the movement of carriers 1=1098
 amplifiers and generators, with carriers of negative effective mass 1=1057
 amplifier, hypothetical, based on negative effective masses of carriers 1=6132
 amplifiers, instability 0=15918
 amplifiers, low-noise 3=5841
 amplifiers, metal interface, current gain 2=18724
 amplifiers, using negative-mass carriers 0=15919
 assembly and expts. in teaching lab. 2=10498
 assistor 4=10089
 bolometer, for light pulse det 2=2858
 bolometer, low-power r.f., from C resistor 2=5469
 book, applications as circuit elements and detectors 4=8581
 carrier lifetimes, meas., by pulse method 4=17497
 characteristics, effect of phonon, photon, electron wave vectors 3=4927
 charge storage, surface effects, appl. 3=8540
 for use in computers, conference 1=16219-21
 conduction counter, use of high resistivity GaAs 4=12894
 conference, Philadelphia (1963) 3=14465
 conference, review, Pilani, India, Dec. 1962 4=603
 conference, Southampton (1963) 4=6996
 contacts, ohmic between CdS and In 1=14496
 contacts, scribe plating and etching technique 1=14956
 cooling by Peltier effect 2=5210
 Corbino disc, experiment and theory 1=1886
 counter, for α -particles 2=7911
 counters, α fission fragment spectra meas. 4=3252
 counters, barrier-film, review 4=3250
 counter, decade type 2=7796
 counter, review 2=16093
 counters, Si surface barrier with deep sensitive vol. 4=24950
 counters, theory and appl. to Si 2=18026-7
 current-voltage relns., rel. to injection 3=2880
 cylindrical, spreading resistance 0=13627
 data recording system, automatic 2=8394
 depending on energy band structure props. 2=12502
 detection of millimetre and sub-millimetre e.m. waves by free carrier absorption 1=12455
 detector of mm and sub-mm radiation by free-carrier absorpt. 3=25385
 detectors, 1960 Washington Scintillation Counter Symposium, development review 0=15195
 detectors, sub mm radiation, survey 4=14445
 diffusion manufacture 4=25957

Semiconducting devices—contd

effect of pulse irradiation 0=583
 electrophotographic device, using electret layers 0=10001
 electrostatic induction, rel. to collector transit time 4=29855
 encapsulation 0=9984
 epitaxial, Ge surfaces for substrates 3=6880
 Ettinghausen cooler, intrinsic semicond. appl 2=11529
 evaporated-film tunnelling devices with separating monomolecular layers 1=11320
 fabrication, trace-plating of soft metals 2=16749
 field-effect devices, hypercritical-field region 3=10865
 field-effect devices, saturation current, physical explanation 3=13101
 film vacuum deposition vapour source 4=26090
 fission probe for neutron detection 2=11462
 grain boundary amplifier 0=5397
 Hall-effect devices, mobility meas. 2=5249
 Hall effect, for low-level mag. detection 4=22736
 Hall-effect microwave frequency converter 3=10864
 Hall effect, as stroboscope and noise discriminator 2=2967
 Hall generator, design and appl. 4=22735
 Hall generators, review 4=10088
 Hall generator, side resistance 4=26088
 Hall gyrator of high efficiency 1=14497
 Hall plates, reduction of misalignment voltages 1=6172
 Hall probe, low offset 2=18727
 heat-elec. power conversion, efficiency of devices 1=16251
 hygrometer, automatic, using Peltier effect 0=14668
 IEEE standard letter symbols 4=30632
 i.r. beam modulation devices 3=1809
 i.r. detectors, use of InSb and Ge:Sb 0=18015
 i.r. photocells, single crystals 0=266
 i.r. photodetectors, comparative study 3=291
 i.r. photodetectors, detectivity analysis 2=22089
 improvement by elastic strain 2=10499
 indusistor, theory 4=12949
 laser, spectral output 4=27693
 lasers 4=11833
 lasers, review 4=21683
 lasers, two-stage action by tunnelling and injection 4=5872
 light source thermal radiators, selective, possibility 3=23993
 magnetoresistive, geometrical effects, InSb, InAs 4=6936
 magnetoresistors, for d.c. to a.c. conversion 4=22737
 masers, optical, GaAs, injection 4=3224
 materials technology, review 2=16748
 metal-interface amplifier, expts. and theory 3=888
 metal-oxide-semiconductor, model for space-charge capacitance 4=26089
 metal-semicond. contact, arbitrary injection levels, bipolar theory 3=20348
 metal-semicond.-metal systems, theory 2=23442
 metal-semiconductor contacts, ohmic, properties 3=25386
 microminiaturization 2=17743
 microprobing for internal voltage and current distrib. 2=16750
 microthermistor as thermal cond. transducer 2=21182
 microwave detection and mixing by thermoelectric effect 4=8924
 microwave switch, 100 dB 1=4547
 negative resistance 0=6098
 negative resistance, p-semi-insulator-n struct. 2=18726
 Nernst-Ettingshausen generator 3=3998
 Nernst generators and refrigerators, theory 3=10863
 neuristor line, semidistrib., using unijunction transistors 4=22751
 neutron detect., Si surface barrier, for thermal n, by covering with B, Li and U 4=9222
 neutron dosimeter 0=2551
 new components for electronics applications 3=20369
 nuclear instruments symposium 3=12364
 nuclear particle detectors, review 2=22365
 nuclear particle detectors, Si, Polish 4=9015
 nuclear radiation detector pre-amplifier, low-noise charge-sensitive 4=3251
 nuclear-radiation detectors, review 3=12375
 ohmic contacts, stable low-resistance, applic. to ceramics 0=12573

Semiconducting devices—contd

optico-electronic devices, review, amplifiers, modulators, computer elements 0=2929
 oscillator, semiconducting oscillator 0=18057
 oscillistor effect, mechanism and possible applications 3=10758
 p-n junction, non-uniformly irradiated, photoeffects 0=11721
 p-n-p-n Si controlled rectifiers, current gain 3=17921
 p-n transitions for radiation detection 2=3216
 particle detectors, fission fragments, multiplication phenomena, gold surface barrier 3=19509
 particle detectors, p-silicon, lithium, n-i-p 3=14830
 particle detectors, physical processes 1=3084
 particle detectors, prep. and uses, review 2=20199
 particle detectors, review (1961) 2=18015
 particle detector system, for 10-30 MeV masses 2=9746
 particle detectors, time characts. 3=22040
 photocells, efficiency, solar energy utilization 0=9987
 photoconductive, with metal contacts 4=22790
 photodetectors, grain-boundary photoresponse 0=18063
 photodetectors, reflection-reducing coatings 1=11852
 photoresistor bridge, for meas. of small d.c. voltages 0=19596
 piezoresistance effect, stress dependence 1=17787
 piezoresistive devices, recent advances review 3=22969
 point-contact rectifiers, turnover, phenomenological theory 2=10518
 processing furnace, ultraclean, with radiation heating 4=24421
 radiation converter 1=17781
 radiation damage, permanent, equivalence of particles 4=17498
 radiation effects 2=21183
 radiation monitor, transistorized 0=17157
 radioactive current sources, double energy conversion 0=10867
 rectifying monocryst. contacts between Ch, Cu oxide 2=6482
 refrigerating thermoelements, efficiency, temp. depend. 0=3733
 relay devices and electromechanical coupling poss., of metal-semicond. contacts 4=12877
 resistor, thermistor-Varistor type, temp. det. 2=8392
 review 2=16734
 review, especially of InSb devices 0=2871
 semiconductor-to-Cu soldered contact 0=6129
 semiconductor devices, of Au, low resistance 3=20360
 semiconductor-insulator-metal capacitors, impedance 4=12950
 single blocking electrode, boundary conditions at infinity 4=28580
 "Sogicon" characteristics 4=4193
 sogicon, semicond. oscillator 2=18722
 solar batteries 0=5265, 14950
 solar batteries used in satellites 2=11211
 solar energy converters 0=2312
 solar energy converters, maximum efficiency 0=19601
 space-charge-limited solid-state devices, review 4=15564
 spacistor, mark II 2=8393
 surface barrier counters, delay line pulse sorting 2=5286
 surface-barrier rectifiers, photovoltaic response 3=25387
 switching devices, review 2=16746
 tecnetron as circuit element 1=17782
 tecnetron, operation in hypercritical field 2=10521
 tecnetron, theory 1=17783-4
 tecnetron, theory, characteristics, secondary effects 1=7664
 terminal voltages, Fermi levels 3=20347
 thermistors, use as a.c.-d.c. convertor 0=5264
 thermistors, use for air humidity det. 1=1508
 thermistors, appl. in precision calorimetry 2=11528
 thermistor using BaTiO₃ 1=14494
 thermistor bolometer, wedge-immersed 2=22088
 thermistors, dimensionless charact. 2=16747
 thermistors, dynamic parameters, graphical analytical calc. 2=8390
 thermistor, F-type, as thermometer 3=7376
 thermistor hypometer 0=914
 thermistors for l.f. wave filters 0=12572
 thermistors, low temp. nonlinearity, contact effects 4=12947
 thermistors, for meas. on moving fluids 2=2689

Semiconducting devices—contd

thermistor Pirani gauge 0=19231
 thermistors, research in Roumania 2=10519
 thermistor, self-heated, theory and application 4=7024
 thermistors, small, for up to 200°C 4=4194
 thermistors, temp. gradient in, effect on accuracy 3=19132
 thermistors, thermal time const. 2=8391
 thermistor thermometer 3=24091
 thermistor thermometer, digital display 3=24090
 thermistor, as an ultrasonic receiver 1=9455
 thermistors, vacuum gauge 4=11266
 thermistor vacuum gauge 4=27234
 thermistors, voltage—current charact. calc., with convection 4=12948
 thermobatteries for refrigerators 1=12467
 thermobatteries for refrigerators 1=11903
 thermocouple refrigerators, heat transfer, under steady currents 1=2902
 thermoelectric cooler, performance, calc. and expt. 2=1380
 thermoelectric cooling to reduce photomultiplier noise 0=3731
 thermoelec. generators and cooling devices, efficiency calc. 0=3734
 thermoelec. generators and refrigerators, effect of temp. 0=13639
 thermoelec. generators and refrigerators, figure of merit, theory 0=4375
 thermoelectric generators and refrigerators, review 2=23488
 thermoelectric heat pump, use for maintaining temp. difference 4=24418
 thermoelectric, in heating, cooling, power generation 1=2427
 thermoelectric, lifetime effects 1=8302
 thermoelec. refrigeration 0=19574
 thermoelectric, theoretical and practical aspects, review 1=11904
 thermoelements, meas. of thermal parameters 0=12574
 thermometers, resistance, for low-temp. meas. 3=11984
 thermometry, low-temp., treatment of Ge 2=2918
 thin layers, "sandwich method" of preparation 4=1639
 tracking system using lateral photoeffect 2=21200
 transducer, depletion layer, analysis 4=24316
 transducers 4=10087
 transducers, piezoresistive stress and strain 1=14495
 transient phenomena meas., equipment 4=1640
 transistorized distributed amplifier 0=2299
 transistor-like, hypothetical, noise theory 3=13099
 transit-time mode in two-barrier devices 3=431
 triodes, hot-carrier, with thin-film metal base 3=20366
 triodes, tunnel, metal-insulator, mech. 2=10520
 tunnelling devices, review rel. to Esaki diode 2=8375
 use in radiation monitoring 1=1993
 varactor, surface 2=12537
 wafer heater, graphite resistance 4=26091
 washing system 0=4724
 water vapour getter, porous glass appl. 2=15101
 Al—Al₂O₃—Al, thin film sandwiches, ageing 2=16963
 Al—SiO—Al—SiO—Au triodes, pot. distrib. and negative resistance 4=28602
 Au-to-CdS rectifying contacts, at high impressed fields 3=22968
 Au—Si, surface barrier detector, construction and performance 4=27721
 Au—Si, surface barrier detector, pulse height meas. and calc. 4=28080
 Bi—Sb—Te alloy thermocouples, as refrigerating elements 0=2915
 Bi₂Te₃—Sb₂Te₃ solns., as thermoelements, elec. cond. depend. 0=2917
 CdS cells, pre-excited, for γ -ray detection 4=9160
 CdS cells, solar energy conversion 0=7967
 CdS, contact props. 2=18725
 CdS photoconductive cells, preparation effects, review 4=7064
 CdS, thin-film triodes 3=17920
 Co—Mn oxide thermistor bolometer 0=8836
 Cu₂O rectifiers, turnover phenomena 3=6607
 GaAs, with alloyed contacts, various alloys 4=12924
 GaAs barrier layer cell as X-ray detector 0=3198
 GaAs cells, solar energy conversion 0=7967

Semiconducting devices—contd

GaAs photocells, spectral characteristics 0=9994
 GaAs solar cells, characteristics 2=11603
 Ge bicrystal photocells for meas. on lasers 4=7080
 Ge bolometer, for mm band thermal energy 4=18485
 Ge contacts, as probes for injected carriers 2=18723
 Ge, effect of minute resistivity variations 3=15573
 Ge electrode, in aq. electrolytic soln., charge distrib. 2=6888
 Ge, etching in prod. of dice 2=10475
 Ge, masking against diffusants 1=19895
 Ge n-p-n structures, double diffusion production 0=13622
 Ge, n-type, microwave detector 1=16608
 Ge oscillators, carrier behaviour, microwave obs. 3=10862
 Ge photocells, γ -radiation, noise level increase 0=14881
 Ge surface barrier counters 0=12725
 Ge surface-barrier counters, response to N ions and α -rays 1=5616
 Ge—Al—Al₂O₃—Au amplifier, meas. 3=888
 He³-detector, for dE/dx and E meas. 1=3255
 InAs probe for small magnetic field meas. 1=16480
 InSb cells, applications 1=7653
 InSb Hall-effect oscillator 0=610
 InSb i.r. detector, nsec response 2=15799
 InSb, i.r. detectors, nanosecond time response 4=8497
 InSb i.r. photoelectromagnetic detector 0=10800
 InSb photoelectromagnetic detector, laser application 4=19279
 InSb photovoltaic detector, detectivity 0=14883
 PbSe, photoconductive det. 2=8447
 Se barrier-layer cells, 16 types, slow response 0=2909
 Se rectifiers, turnover phenomena 3=6607
 Si barrier detectors, manufacture 1=17785
 Si cells, solar energy conversion 0=7967
 Si controlled rectifier for control of projection lamps 4=27307
 Si crystal, Au doped, as ionization detector 1=3091
 Si, doping with AsCl₃ vapour 2=10478
 Si dynode photomultiplier 1=18923
 Si, epitaxial deposition tech. 2=14966
 Si, P-doped, solar batteries 1=7663
 Si p-n photocell, 650 MeV proton effect 4=28648
 Si particle detectors, n-type 3=2166
 Si photocells, carrier mobility and density 0=13587
 Si photocells, surface-barrier, props. 2=18754
 Si photoelectric energy converter 0=20938
 Si photo-elements, charge carrier diffusion length 0=9965
 Si photoelements, effect of crystal orientation 1=1109
 Si photo-elements, energy diagrams 0=9997
 Si photovoltaic cells, changes prod. by particle irradiation 3=912
 Si, piezoresistive pressure transducers 3=887
 Si radiation detector slices, cond. elec., meas., 4 probe 4=10064
 Si solar cell for photoconductive detector 0=14951
 Si solar cells, review 2=11602
 Si, study of alloying with Al 2=12539
 Si surface-barrier counters, response to N ions and α -rays 1=5616
 Si surface barrier detector, reverse current, effect and meas. 4=27719
 Si, surface barrier detectors, oxide stabilized 2=3217
 Si, surface barrier guard-ring β -detector 2=22487
 Si: Au π^- -meson detector 1=3224
 Si—Au, surface barrier particle det. 2=11834
 p-Si—P device as particle detector 0=9237

diodes and junctions
 abrupt junctions diode, theory 2=14568
 α particle detectors, Si p-n junction, 4=9014
 alloyed Si diodes as particle detectors 1=3092
 alloys, p-n in α -SiC, photoelectric props. 0=20939
 analysis of juncns. and devices by flux method 2=8383
 anomalous semilog d.c. behaviour, avoidance in abrupt junctions 4=4178
 avalanche breakdown in diode with limited space-charge layer 0=18058
 avalanche injection diode, static and dynamic theory 4=7008
 avalanche injection diodes 1=14492
 barriers, diffusion of hot and cold electrons 2=14526

Semiconducting devices—contd

diodes and junctions—contd

- bonded negative-resistance diode 4=20389
- breakdown, surface, Si diodes, alloy, D-209 3=10856
- capacitors for parametric amplification 0=13625-6
- carrier flow across junc., effect on carrier distrib. 2=2181
- carrier lifetime meas., tech. 2=23424
- carrier lifetime meas., technique 3=6606
- coincidence circuit of millimicrosecond resolution 1=16224
- contacts with metals, rectification without injection 0=9983
- counters 4=27717
- detectors, junc., energy of formation of electron-hole pairs 2=6478
- detectors, junc., for fast neutrons 2=18135
- as detectors in microwave spectrometry, sensitivity 1=1981
- diffused emitter junc., minority carrier injection 2=14567
- diffused p-n junction, emitter injection efficiency 3=4934
- diffused and surface barrier, hole-electron ionization energy 3=10859
- diodes, acoustic vibration excitation 3=25379
- diode, asymmetrical, V-A characteristic linear part 1=12451
- diode, conductivity and voltage transfer coeff. in non-stationary regime, calc. 0=4329
- diode, diffused parametric, series resist. and cutoff freq. 4=28593
- diodes, double-base, as switching device, review 2=16746
- diodes, as elec. thermometer 2=9438
- diode, electroluminescence source, internal absorption ghost peaks 4=30695
- diodes, forward-biased pt. contact, negative resistance, oscillation 3=10855
- diodes, forward current for fixed gain in active region 4=6777
- diodes, high-freq. phenomena 3=13092
- diodes, narrow-base, minority carrier storage 4=12937
- diode, parametric alloy-diffused, figure of merit 4=28592
- diodes, point-contact, effect of av. forward current 2=18715
- diodes, pulse generator for transient analysis 3=24194
- diodes, technology review 3=20352
- diodes, thick, trapping levels rel. to relax. current 2=8381, 10503
- diodes, volt-amp reverse characteristics 1=17768
- dosimeters for X-rays and γ -rays 2=16095
- double-diffused parametric diode, series resistance and cutoff frequency 4=30634
- electrical breakdown, at high inverse voltages, theory 0=15911
- electron emission, hot, by p-n junctions 3=13087
- electron field emission from p-n junction 3=14621
- electron and hole injection by metal-depletion layer contacts 4=17503
- electron microscope obs., Si, Ge, p-n 4=10580
- encapsulated Si p-n junc., as α -detectors, resolution 1=3252
- Esaki diode 2=8375
- Esaki diodes, current-voltage characteristics 0=6104
- Esaki diode, excess and hump current, origin 1=17766
- Esaki diodes freq. converter, theory 2=10510
- Esaki diodes, Ge and GaAs, excess noise meas. 1=17767
- Esaki diodes (Ge, Si, GaAs, GaSb), I-V characts. rel. to hydrostatic press. 2=23420
- Esaki diodes, hump struct. due to electrons 2=23428
- Esaki diode, large-area, distributed effects 2=23426
- Esaki diode, principles and properties 1=14491
- Esaki diode, tunnel current 4=12940
- Esaki diodes, tunnelling current, eqn. 1=3780
- Esaki diodes, tunnelling current, simple calc. method 2=18716
- Esaki diodes, tunneling process 2=12414
- Esaki diodes, tunnelling review 2=21174
- Esaki, Ge, As-doped, single crystal growth 0=21164
- Esaki junction, lattice model analysis 3=2938
- Esaki junctions, electron tunnelling, theory 3=6608
- Esaki tunnel-diode, V-A charact. 1=17765
- Esaki tunnelling, effect of magnetic fields, theory 1=19894

Semiconducting devices—contd

diodes and junctions—contd

- fast-response photocapacitors 0=622
- flexodes, based on reversible ion drift 3=20349
- formation, during oxidation 0=15936
- group III-V junctions, observation of polarons and phonons during tunnelling 0=13628
- heterojunctions, abrupt, interface states 4=12925
- heterojunctions, GaAs-GaP, GaAs-Ge and GaP-Ge, prep. and props. 4=26071
- high-low junc., static characts. 2=21165
- high-low junctions, dynamic behaviour 3=4931
- I-V characteristics, structure det. by differentiation 3=22957
- ideal p-n junc., carrier distrib. junction 2=8380, 10502
- impurity distribution, from capacity-voltage meas. 0=15972
- injection efficiency meas. of emitter point contact on Ge in drift field 1=1089
- injection efficiency, metal contacts, theory 3=22961
- insulating films between metals, tunnel resistivity versus voltage 4=4187
- inverted convertor, based on nonlinear p-n junc. capacitance 2=23433
- junction, biased, capacitance, variation with applied alternating potential 4=17499
- junctions, electron tunnelling in Esaki type, theory 3=6608
- junction lasers, e.m. mode props. 4=3216
- junctions, luminescence model with incipient tunnelling 4=7170
- junction pot. distrib., p-n, electron beam scanning obs. 4=10074
- junction, reverse-biased, capacity var. with alternating voltage 4=28581
- l.f. noise, 2 sources, exper. data 2=2180
- lasers, average mode photon population 4=5868
- laser, GaAs, response < 15 nsec 4=27700
- laser injection diode, non-linear theory 4=11832
- laser junctions, recombination and injection, data review 4=14940
- laser p-n diode efficiency 4=27695
- lasers, p-n junction, threshold current calc., absorption loss effects 4=27694
- light, reflection and guiding, p-n junctions 3=23042
- magnetodiodes, large-area, props. 2=10513
- magnetodiodes, theory and proposed design 1=14481
- masers, optical, GaAs, injection, quenching 3=22015
- masers, optical, p-n junction, loss reduction, by doping var. 3=22021
- metal point-semiconductor, photocurrent, pressure depend. 0=15992
- metal-semicond. contact, Schottky barrier meas. 3=10847
- metal-semicond. junc., one-carrier, accurate soln. 2=8387
- metal-semiconductor, spherical contact, ambipolar diffusion 1=17769
- microwave diodes, temperature meas., low-temp. range 4=2869
- microwave, review 3=6556
- minority carrier lifetime meas. 4=1626
- n-n heterojunctions 3=13088
- n-p junctions, I-V characteristics, carrier generation and recomb. 0=11675
- n-p junc., det. of 14.6 MeV α -particles 2=7996
- n-p-n, p-n-p junc., prod., impurity diffusion in semicond. melt. 2=6477
- n-type Si and Ge, saturation currents in chemical etching solutions 1=10055
- narrow-base diodes, switching times, approximation 4=12936
- negative-resistance two-state diodes, construction 1=14493
- noise in currents through insulating layers 2=22158
- noise non-rectification paradox 0=7064
- nonlinear operations on pulses 1=5411
- nuclear electronics, internat. symposium, Paris (1963) 4=11843
- nuclear particle detectors, p-n, p-p⁺ juncns. 2=9745
- p-i-n, carrier lifetime meas. 4=30635
- p-i-n diodes, plasma contraction, in magnetic 3=20353
- p-i-n diodes, transit time considerations 4=12935
- p-i-n, gate-controlled emission process analysis 4=26077

Semiconducting devices—contd

diodes and junctions—contd

- p-i-n juncn. detector, rel. to radiographic inspection device 4=30010
- p⁺-i-n⁺ juncn. diodes, Li-drifted, particle det. 2=20202
- p-i-n junctions, as particle detectors 1=5614
- p-i-n junction photodiode, m.w. modulated light detection 4=19277
- p-L-n structure, use in transient recombination meas. 4=15529
- p-n avalanche breakdown det. 0=581
- p-n, capacitive characteristics 1=10052
- p-n, elastic and plastic deformation effects 3=10844
- p-n Ge junction, tunnelling 3=22924
- p-n heterojunctions, space-charge theory 3=25375
- p-n, inductive impedance, simplified theory 3=882
- p-n junctions, abrupt, carrier conc. rel. to field 4=28547
- p-n juncn., barrier-layer photoeffect 2=21167
- p-n junctions, breakdown, effect of carrier space-charge 0=2862
- p-n junctions, capacitance at low temps. 0=6099-100
- p-n junctions, charge multiplication 3=13089
- p-n junctions, charged particle detectors 0=5630
- p-n junction, conditions with collected current, theory 4=6997
- p-n junction, conductivity in blocking dir., temp. variation 1=19890
- p-n juncn., as current generators, noise 2=16736
- p-n juncn., current-voltage characts. 2=12535, 14566
- p-n juncn., degenerate, neg. temp. state 2=645
- p-n junction, degenerate semiconds., prod. of negative temp. states 3=4928
- p-n junction, degenerate, theory 1=12449
- p-n junction detector, basic principles 3=4298
- p-n juncn., detectors, calib. with α -particles 2=20201
- p-i-n juncn. detectors, Li-drifted, prep. props. 2=22364
- p-n junction detectors, pulse rise-time 1=13230
- p-n junction detectors, transient response 1=13231
- p-n juncn., diffusion capacity, theory 2=21168
- p-n juncn., diode, graded-base, switching 2=14569
- p-n juncn. diode, response to protons 2=3341
- p-n juncn. diode, reverse transient charact. 2=16740
- p-n junction, effect of layer with strong recombination 3=17904
- p-n juncn., elastic deform. effect on resist. 2=18714
- p-n junctions, elec. field control at surface, in migration and surface breakdown 4=28582
- p-n juncn., in Ge, diffusion coeff. det. for As 2=21065
- p-n junctions, Ge and Si, at low temps. 1=16221
- p-n junctions for high resolution α -spectroscopy 1=1991
- p-n juncn., hyper-abrupt, space-charge layer width and juncn. capacit. 2=16742
- p-n junctions, impact ionization, tunnelling 1=5010
- p-n junctions, In-Si, characteristics 4=12930
- p-n junctions for ion detection 1=9920
- p-n juncn., Li ion drift 2=14469
- p-n junctions, Li-B ion pairing, effect on Li⁺ ion drift in Si 0=15940
- p-n junction lasers, qualitative study 4=3227
- p-n junction lasers, review 4=30088
- p-n junctions, microplasma behaviour, model 4=20385
- p-n juncn., noise rel. to generation currents 2=16737
- p-n junction, nonuniformly illuminated, photo-voltage 3=23024
- p-n junction particle detector, SiO₂ passivation 3=7749
- p-n junctions, PbS photosensitive layers 0=20934
- p-n junctions, photomagnetic effect 3=10846
- p-n junctions, photomagnetoec. effect, theory 3=17965
- p-n juncn., photomagnetoec. effect, appl. to light intensity meas. 2=6483
- p-n junction, photovoltage calc. 4=22794
- p-n junctions, plasma oscillations 4=6808
- p-n juncn., plastically deformed Ge, current-voltage charact. 2=2184
- p-n juncn., polaron and phonon observ. during tunnelling III-V cmpds. 2=23418
- p-n juncn., props., calc. 2=4047
- p-n juncn., quantum efficiency of absorbed X-rays 1=17679
- p-n junctions, recomb. statistics for Auger effects 3=13090

Semiconducting devices—contd

diodes and junctions—contd

- p-n juncn., rectifying photoeffect, arb. generating function 2=8382, 14565
- p-n juncn., Seebeck effect 2=14588
- p-n junctions, shadow electron micrographs, potl. distrib. 1=8961
- p-n junctions in Si 3=878
- p-n junction, Si, X-ray beam quality meas. 4=19152
- p-n junction solar cells, efficiency limit 1=6170
- p-n juncn., strong field effects 2=16738
- p-n junctions, surface phenomena 0=15915
- p-n juncn., surface recomb. and channel effects 2=10505
- p-n junctions, temp. depend. and lifetime 0=1631
- p-n juncn., thermoelec. cooling effect 2=14594
- p-n junctions, thermoelec. props., energy conversion efficiency 1=5033
- p-n junction, rel. to transition-region recomb. 3=2934
- p-n juncn., tunnelling 2=10504
- p-n junction using tunnelling process 1=14490
- p-n junctions, weak spot classification 1=11304
- p-n junction X-ray counter 1=16619
- P-N junction, Zener region inverse current abrupt increase, condition 1=14489
- p-n, for nuclear radiation recording 3=2168
- p-n photoelements, characteristic and quantum yield 0=11720
- p-n photoelements, recomb. const. and depth, from spectral data 0=10862
- p-n, position depth, meas. device 3=2933
- p-n potential distrib. meas., analogue method 3=17907
- p-n, reversed bias, light modulation 4=14325
- p-n reversed biased, visible light emission 0=2875
- p-n, shape, rel. to directed crystallization 3=17906
- p-n, switch-on transients 3=17903
- p⁺-n-n⁺ diodes, reversed-bias, for impurity profile meas. 3=25273
- p-n-p juncn., alloys, h.f. noise 2=6480
- p-n-p variable-capacitance, applied to microwave switching 3=25381
- p-n-p-n junction, anomalous switching characteristic 1=11312
- p-n-p-n, V/A characts., minority carrier distrib. and electric field 3=10850
- particle counters, diffused-juncn., for $\Delta E/\Delta X$ detect., development and use 2=18018
- particle counters, p-n; surf. barrier, p-i-n GaAs, Si 2=18014
- particle detector, α -part., operation chem. process streams 2=18196
- particle detector, B¹⁰ diffused juncn., in n-type Si 2=18021
- particle detector, diffused juncn., window thickness 2=18017
- particle detector, juncn., mass discrimination 2=7797
- particle detector, n⁺-i-p⁺ 2=18016
- particle detector, n-i-p, Li 3=14830
- as particle detectors, in nuclear reaction studies 1=3086
- particle detector, p⁺-i-n⁺, prod. tech. 2=18019
- particle detector, p-n, pulse shape discrim. 2=18020
- particle detector, Si, Au-doped, for bubble-chamber photog. control 2=18023
- particle detector, Si surf. barrier, with high reverse-breakdown voltages 2=18024
- particle detector, surf. barrier, encapsulated prod. tech. 2=18025
- particle detector, surf.-barrier, H-ion response, 25-250 keV 2=18022
- particle detectors, surface barrier type, from Ge and Si 1=1992
- as particle detectors, temp. behaviour 1=3090
- Peltier juncn., fast transient behaviour 2=16762
- Peltier junctions, ohmic contacts 1=14528
- photocells, p-n juncn., recombination parameters 0=15908-9
- photodiode, exponentially retrograded 3=13093
- photodiode, Ge point contact for 1000 Mc/s 3=886
- photodiode, VI characteristic, meas. circuit 4=17502
- photodiodes, use for detection of scintillation photons 4=9011
- photodiodes, transient parameters, surface recomb. vel. depend. 1=3776
- photomagnetic effect, in p-n juncns. 2=6503

Semiconducting devices—contd

diodes and junctions—contd

- photosensitive junction device, new type 4=1694
 photovoltaic solar energy converters, efficiency 3=15637
 phthalocyanines, rectification props. 3=17916
 piezo-junctions in Ge, Si 3=2940
 plasma, micro, at crystal dislocations, stair-rod, p-n junctions 3=20351
 point-contact diode for elec. characterization of films, design, calibration and operation 4=28569
 point-contact diode, for harmonic generation of mm waves 4=17501
 point contact effective area 0=2883
 point-contact rectification, dipole mode of minority diffusion 0=1633
 point contact rectifiers, effect of surface currents 1=11319
 position of juncns., det. device 2=6474
 pressure effects on p-n resistivity 1=7630
 radiation detector leakage, noise resolution 2=6479
 as radiation detectors 0=17156
 radiation detectors, amplifiers for, transistor and valve types 1=2938
 radiation detectors, diffused p-n junction, var. of window effect with bias, calc. 4=5891
 rectifier, statistical model, construction 4=28594
 rectifiers and transistors, metal-semicond., injection model 4=1638
 rectifying contact, piezoelectric effect 1=1092
 rutile diode, reduced, Schottky barrier layer model, expt. analysis 4=22746
 Schottky diodes, photoelec. det. of image force dielec. const. 4=26081
 scintillator-junction-diode combination, α and p counting 4=9010
 semiconducting junctions, p-n, n effects, max. allowable 3=22959
 semiconductor-metal contact, 2-carrier model theory 2=23422
 silicon carbide p-n junction, electron emission 1=7658
 solar-energy converters, theory 2=14519
 square law dielectric diode, noise power meas. 4=12839
 step junctions, symmetrical, space-charge-layer width and capacitance 3=881
 stepping diode, description of three types 3=10857
 surface-barrier diodes, as fast neutron detectors 1=3193
 surface-barrier diode, nuclear particle det. 2=5530
 surface-barrier diodes, as particle counters, 0.2-300°K, mechanism 1=3089
 surface barrier, particle detectors, protection, against Hg vapour in vac. pumps 3=22043
 for temperature meas., by leakage current 4=18463
 thermojunctions, review 0=10002
 thyristor, for thermoregulator 4=18469
 transient behaviour in pulse operation 4=1631
 transient processes, low injection levels, nonequilib. carrier storage and decay 4=26076
 triode, dielec., space-charge-limited 2=21181
 tunnel, $A^{11}B^V$ materials, conductivity minimum theory 3=20129
 tunnel, alloyed contacts of Au, to Si and Ge, low resistance 3=20360
 tunnel cathode, equiv. noise temp. 2=12532
 tunnel cathode, low-noise beams 2=8376
 tunnel diode, amplification conditions 2=23425
 tunnel diode band structure 1=11273
 tunnel diode, capacitance vs. voltage meas. 4=30639
 tunnel diodes, char. curve meas. 3=17917
 tunnel diode characteristic, temp. dependence 1=11316
 tunnel diode circuit for liq. scintillation counting 2=2978
 tunnel diode, circuits, fluctuations 2=15871
 tunnel diode, circuits for NaI:Tl detectors 2=5275
 tunnel diodes, construction method 3=13094
 tunnel diode, current-voltage characts. deriv. 2=10509
 tunnel diode decade counter 3=5611
 tunnel diodes, effect of degeneracy 3=17679
 tunnel diode development, review 3=8538
 tunnel diode discrimination, d.c., hysteresis 4=21439
 tunnel diode, discriminator, pulse-shaper 2=5276
 tunnel diode, electromech. transducer elements 2=17546

Semiconducting devices—contd

diodes and junctions—contd

- tunnel diodes, by epitaxial growth of Ge on Ge or GaS 0=18025
 tunnel diode, fast memory 4=12941
 tunnel diode, in fast pulse-shaping cct. 2=5283
 tunnel diode, in fast trigger cct. 2=2977
 tunnel diodes, field decay of local states 3=15453
 tunnel diode, in four stable state cct. 2=2976
 tunnel diode, hydrostatic press. transducer 2=6484
 tunnel diodes, I, G, and I/G values, electronic det. 1=13051
 tunnel diode, i.r. luminescence 2=10631
 tunnel diodes, impurity band conduction, excess current 1=11314
 tunnel diodes, junction potential studies 3=20357
 tunnel diodes, low-noise, microwave 3=6610
 tunnel-diode microwave oscillator, freq. shift 4=15551
 tunnel diode, negative resistance measurement 1=7661
 tunnel diode, optimum timing information from photomultipliers 2=19863
 tunnel diodes, oscillations in the longitudinal tunnel current 1=7660
 tunnel diodes, parameter determ. 3=25384
 tunnel diode, parameter det. cct. 2=22135
 tunnel diode, phenomenological analysis 2=16741
 tunnel diode, physical principles, low temp. phenomena 2=4048
 tunnel diode, power 2=12534
 tunnel-diodes, prodn. of oscillations 4=1637
 tunnel diode pulse generator 4=26083
 tunnel diode pulse-shaping circuits 3=19139
 tunnel diodes, ratio peak-to-valley currents 0=15971
 tunnel diode, resistance meas. 2=16739
 tunnel diodes, review 3=14604
 tunnel diodes, review 4=7016
 tunnel diode, scaling cct. 2=22136
 tunnel diode, series resistance meas. 2=19828
 tunnel diode, small bias direct tunnel-current noise 4=22748
 tunnel diode, stability calc. 4=30638
 tunnel diodes, static characteristic, analytic expressions 4=12939
 tunnel diode, stress effect on excess current 4=22749
 tunnel diode, symposium, London, (Feb. 1961) 2=2176
 tunnel diode, theory and applic. review 2=4049
 tunnel diode univibrator, improving 3=14488
 tunnel diodes, use in pulse pile-up rejector 4=14979
 tunnel diode, use in voltage sensitive pulse height discriminator circuit 3=24189
 tunnel diode, valley current, nature 2=2178
 tunnel diodes, voltage-current reln., temp. depend. 4=4186
 tunnel, as e.m. wave oscillators, freq. and power performance 4=19203
 tunnel-emission devices using metal-insulator-metal 1=8962
 tunnel, four as bridge, forming fast discriminator 3=19146
 tunnel junction, barrier thickness and height from J-V curves 3=20358
 tunnel junction, generalized thermal J-V characteristic 4=28597
 tunnel junctions, I-V relationship, low-voltage 3=13086
 tunnel, mm generator 4=21647
 tunnel, meas., negative resistance and capacitance 3=22964
 tunnel, n-PbS-p-PbO films, in Resistor charge-storage tubes 3=25419
 tunnel, osc., autodyne, for e.s.r. detect. at low temps. 4=8957
 tunnel, scaler circuit 0=12803
 tunnel, test set for V-I characteristics 0=7046
 tunnel, V-I curves, calc. 3=20356
 II-VI cpds., photovoltaic heterojunctions 3=20420
 uniform junctions and microplasmas, avalanche noise study 4=6998
 use of diode-ring as four-quadrant multiplier 0=2306
 varactor diode impedance meas. 4=22745
 varactor, Q meas. 3=19303
 white noise, temp. depend., calc. and meas. 0=1636
 Zener diodes, effects of 14 MeV neutron bombard. 2=23430
 Zener diodes as voltage-controlled capacitors 3=25380

Semiconducting devices—contd

diodes and junctions—contd

- Zener diodes as voltage reference sources in electron microscopy 4=3048
 Zener emission, non-observation of Stark ladders 2=4051
 Ag—SiO—Ag, S-type negative recryst. 4=28596
 Al oxide films, p—p junc. theory 1=3730
 Al—Al₂O₃—metal diodes, rel. to oxide props. 4=22760
 Al—Al₂O₃—Cu tunnel juncn., props., hysteresis effects 2=23432
 Al—Al₂O₃—Se—Au sandwich cells, negative resistance 4=28583
 Al₂O₃ tunnel juncns., rel. to electrodes 2=14545
 AlSb, grown-junction, Al₃Ta dendritic inclusions 0=16276
 AlSb, p—n junction prep. 1=19865
 Au—n-type Si Schottky barrier, cond. props. 3=20355
 Au—Ge junctions as particle spectrometers 0=1234
 Au—Si surface-barrier diodes, as proton detectors, in range telescope 1=3361
 Au—Si, surface barrier height and Si energy gap, equal temp. var. 4=15550
 BeO tunnelling structure, current at different temps. 4=7018
 Bi—Sb, p—n junctions, 100 laser 4=27697
 CdS analogue diode and triode 0=2892
 CdS, dielec. diode using space-charge effects 3=861
 CdS diodes, injection currents, space charge limited pulse and d.c. 3=15602
 CdS, film rectifiers, space-charge-lim. currents 2=18718
 CdS laser, excitation by fast electrons 4=21684
 CdS, ohmic contact, photovoltage 2=8435
 CdS, p—n juncn., photovoltaic effect 2=14582
 CdS p—n junction, photovoltaic barrier effect 0=20929
 CdS, sandwich cells, photovoltaic effect 3=8569
 CdS thin-film diodes, heterojunction 4=20390
 CdS, thin-film diodes, space-charge-limited and Schottky-emission currents 4=28595
 CdSe film—Au electrode, Schottky barrier current limitation 4=30633
 CdSe point contact diodes, relaxation oscillations of current 3=2936
 CdSe—Se, photocond. due to X-rays 2=23469
 CdTe, p—n juncns., photocurrents 2=680
 CdTe p—n photocells, u.v. quantum yield 0=15987
 CdTe solar cells, description 3=20420
 Cd telluride, p—n junction photocells 0=11723, 15948
 Cs diodes, current transmission in strong mag. fields 2=1479
 Cu—CuO contacts, I—V and photovoltaic characteristics 4=7010
 Cu₂O point contacts, effect of transverse field 4=7009
 Cu₂O rectifiers, effect of γ -rays 2=14572
 Cu₂O rectifiers, surface conductivity 0=13624
 Cu₂S—CdS, diode characteristics, interpretation 3=25382
 FeS₂ point-contact, rectifying props. 0=612
 Ga, p—n juncn., tunnelling theory 2=16741
 GaAs 3=25364
 GaAs alloy diodes, V—A curves 1=12452
 GaAs, carrier lifetime meas. 2=21127
 GaAs, diffused diodes 0=2895
 GaAs diffused junctions, recombination spectra, and phonons, 4°K 4=13078
 GaAs diodes, coherent, temp. effects 3=22962
 GaAs diode, laser action, 77°K 4=3223
 GaAs diode, laser action, 100°K 3=19491
 GaAs diode lasers, i. r. output, angular distrib. 4=19303
 GaAs diodes, doping effects on freq. of stimulated and incoherent emission 4=7012
 GaAs diodes, luminescence degradation 4=1771
 GaAs, diodes, maser, electroluminescence, mag. fields, shift, 90 kG 3=20542
 GaAs diodes, photon emission, refrigeration 4=10082
 GaAs diodes, recombination radiation 2=23393
 GaAs, double-injection diodes oscill. due to deep levels 3=15583
 GaAs, electroluminescence, i. r., effect of Cu impurities 4=7184
 GaAs electroluminescent diodes, antireflection films 4=7205
 GaAs electro-luminescent diodes, efficiency meas. 4=11834

Semiconducting devices—contd

diodes and junctions—contd

- GaAs, electroluminescent diodes with negative resist. 4=26079
 GaAs, electroluminescent emission, effect of truncated cone shape 4=15548
 GaAs Esaki diode, deterioration, due to interstitial diffusion 4=26078
 GaAs Esaki diodes for mm-wave region 1=11317
 GaAs Esaki diodes, rapid impurity diffusion 4=17504
 GaAs Esaki diodes, spot noise meas. 4=26080
 GaAs i. r. source, spontaneous, hemispherical, injection 4=16703
 GaAs injection lasers, diffusion problems 4=22613
 GaAs injection lasers, recomb. mechanisms 4=3228
 GaAs junction diode laser 4=11833
 GaAs junction diodes for thermometry 4=2870
 GaAs junction, laser action 3=9982
 GaAs junctions, laser action, coherent emission 3=4968
 GaAs junction lasers, light emission 3=25445
 GaAs junctions, stimulated emission mode structure line-widths and pressure shifts 4=3226
 GaAs laser, active region photomicrographs 4=5869
 GaAs, laser, amplification, var. current 4=14943
 GaAs laser, analysis 4=24911
 GaAs lasers, breakdown hysteresis 4=20380
 GaAs laser, c. w., in liquid He II, limited current range 4=5871
 GaAs laser, close pair threshold reduction 4=27699
 GaAs laser, continuous, 77°K 4=5877
 GaAs laser, delay between current and light 4=19305
 GaAs, laser, freq. tuning by uniaxial stress 4=5860
 GaAs, laser, injection, line width, var. current 3=14808
 GaAs, laser, injection, threshold and diff. loss, calc. 4=3225
 GaAs laser, kink in forward V—I char. 4=24917
 GaAs laser, polarization from var. regions, var. thresholds 4=24916
 GaAs laser, preferred beam direction with parallel piped crystal 4=5866-7
 GaAs lasers, pulsed, heating limitation theory 4=19306
 GaAs laser, room temp. 4=5870
 GaAs laser, two-line output due to impurity distrib. 4=24912
 GaAs laser, var. of emission with voltage 4=5876
 GaAs laser, with wide-gap emitters 4=30091
 GaAs, for lasers, Zn diffused junction etching obs. 4=8988
 GaAs, light modulation at 200 Mc/s 3=5895
 GaAs, maser, optical, GaAs, transitions, calc. 4=3222
 GaAs, observation of polarons and phonons during tunnelling 0=13628
 GaAs optical maser 3=9971
 GaAs p-n alloy diodes, meas. and models 4=7011
 GaAs, p—n fabrication, by Zn diffusion, reverse characteristics 0=4360
 GaAs p—n i. r. source, 1 W by elimination of internal reflections 4=5861
 GaAs p—n junctions, avalanche breakdown meas. 3=6574
 GaAs p—n junction, breakdown voltage 3=25376
 GaAs p—n juncn., delineation 2=18717
 GaAs, p—n junction as diode and photocell 3=17914
 GaAs p—n junction diodes, stimulated emission 4=2826
 GaAs, p—n junctions, elec. breakdown 3=20350
 GaAs, p—n junc., electrolum., carrier transport 4=22740
 GaAs p—n junctions, electroluminescence, and tunnelling 3=20543
 GaAs p—n junction, forward biased, stimulated emission, 77°K 3=7735
 GaAs, p—n junction, high solar conversion efficiency 0=16969
 GaAs p—n junction lasers, mechanism 4=3227
 GaAs, p—n junction laser, theory 3=12351
 GaAs p—n junctions, long-wavelength edge of photoeffect and recombination radiation 4=28643
 GaAs, p—n junction, maser action 4=19251
 GaAs p—n juncn., photocond. 2=18746, 23463
 GaAs, p—n junction, photoeffect, nonlinear 3=20421
 GaAs, p—n junctions, photoresponse near band edge 3=10848
 GaP, p—n junctions, preparation and properties 1=17775
 GaAs, p—n junction, radiative recombination through impurity levels 4=4299
 GaAs p—n juncn., recomb. radiation 2=21160

Semiconducting devices—contd
diodes and junctions—contd

- GaAs, p-n junction, secondary tunnelling evidence 1=17774
GaAs, p-n junctions, spectral photoresponse 3=13135
GaAs, p-n junctions, staining of p-region 4=6954
GaAs, p-n junction, stimulated exciton recombination emission 4=7182
GaAs p-n juncn., tunnelling theory 2=16741
GaAs p-n, light propag. in dielectric waveguide mode 3=10851-2
GaAs, p-n, photon emission, tunnelling-assisted 3=4933
GaAs, p⁺-on-n junction, voltage breakdown as function of n-resistivity 3=13085
GaAs, p-n-p, n-p-n slices, prep. by Zn and Sn double diffusion 4=26069
GaAs_{1-x}P_x p-n junctions, resistance, temp. var., direct-indirect transition 3=25377
GaAs, p-Si-n, i.r. emission, temp. var. 4=20481
GaAs, photodiode for visible 0=16830
GaAs point-contact diodes, various parameters, temp. depend. 1=3777
n-GaAs point-contact, prep. and props. 0=15974
GaAs pulsed diodes, internal 2nd harmonic generation 4=8987
GaAs, recombination radiation, depend. on current 3=13091
GaAs, recombination radiation in diode 3=10853
GaAs recombination radiation diodes coated by vac. evaporation, emission efficiency 4=8805
GaAs, S, Se and Te diffusion, n-p junction formation 4=17441
GaAs shallow junction, spectral photoresponse 3=13134
GaAs solar cells, effects of electron and proton irradi. 4=17538
GaAs, spectrum, recomb. radiation, 77-300°K 3=17990
GaAs, spectrum, 2.1°K, donor-acceptor absorbt. 3=25458
GaAs, spontaneous and stimulated emission 3=25495
GaAs tunnel, deteriorated, I-V relax. freq., temp. var. 4=10084
GaAs tunnel diodes 0=2896
GaAs, tunnel diodes, degradation, rel. to current and voltage 3=20359
GaAs tunnel diodes, excess capacitance 2=23438
GaAs tunnel diodes, secondary tunnelling 2=18720
GaAs tunnel diodes, Zn diffusion 2=21066
GaAs, Zn-doped tunnel diodes 0=7951
GaAs, Zn-doped tunnel diodes, degradation 4=26084
GaAs-GaP alloys, diodes 4=4546
GaAs-GaP diodes, injection electroluminescence 4=1772
GaAs-GaP, p-n heterojunctions, photoelec. props. 4=26070
GaAs-GaSb, epitaxial heterojunction, prod. and elec. props. 4=28587
GaAs-Ge, epitaxial heterojunction, prod. and elec. props. 4=28587
GaAs_{1-x}P_x diodes, light emission 4=24919
GaAs_{1-x}P_x diodes, light emission from junctions 4=7183
Ga(As_{1-x}P_x), electroluminescent 4=12934
Ga(As_{1-x}P_x) junction fabrication 4=24920
Ga(As_{1-x}P_x) junctions, forward biased, coherent emission, 77°K 3=7734
GaAs_{1-x}P_x p-n junction lasers, mechanism 4=3227
Ga(As_{1-x}P_x) p-n junction lasers, prep. and elec. and optical props. 4=24918
Ga-GaAs heterojunctions, meas. and theory 2=23437
GaP, breakdown and recomb. emission 0=18042
GaP diffused junctions, microplasma obs. 4=4030
GaP, diffused junctions reversed bias capacity/voltage meas. 4=10076
GaP diodes, electroluminesc. recomb. near energy gap 4=13077
GaP, observation of polarons and phonons during tunnelling 0=13628
GaP, p⁺-i-n⁺, two-carrier space-charge-lim. current 4=22741
GaP, p-n juncns., charge multiplication meas. 2=12527
GaP, p-n junction, electroluminescence and photovoltaic effect 0=13708
GaP, p-n junction, electroluminescent device 3=13221
GaP, p-n juncn., growth and characts. 4=23338
GaP, p-n juncns., injection electrolumin. 2=23621
GaP, p-n juncns., photovoltaic effect 2=21199

Semiconducting devices—contd
diodes and junctions—contd

- GaP, p-n juncns., recomb. centres and luminesc. 2=23436
GaP point-contact diodes, radiative recombination 0=20916
GaP point-contacts, characteristics 0=9974
GaP surface-barrier diodes 3=17912
GaP, recombination radiation 4=13076
GaP-Au, barrier height 4=10080
GaP, Zn diffused, red emission, at reverse breakdown 3=8532
GaP:Zn, p-n junction luminescence 1=14631
GaSb diodes, radiative recomb. effects 3=17913
GaSb Esaki diodes, spot noise meas. 4=26080
GaSb Esaki diodes, tunnelling current density rel. to crystallographic polarity 3=17911
GaSb, observation of polarons and phonons during tunnelling 0=13628
GaSb, p-n juncn. delineation by etching 2=10508
GaSb p-n junction, injection electroluminescence 3=15721
GaSb, tunnel diode, reversible degradation effects 2=21173
Ge alloyed n-type, breakdown voltage, temp. depend. 1=6168
Ge alloyed p⁺-n junctions, microplasmas 3=8533
Ge, backward, for e.m. mm wave detection 4=19204
Ge, backward, microwave detection calc. 4=27638
Ge diffused n-p junction α -particle detector 0=5466
Ge diffused p-n junction, visible light emission 1=1093
Ge diodes, direct tunnelling 0=2880
Ge diodes, inverse I-V characteristics, thermal breakdown 0=15976
Ge diodes, microplasma breakdown 3=25383
Ge diode, p-type, Au doped, V-I charact. rel. to negative resist. 4=30636
Ge diodes, radiative recomb. 2=21162
Ge diode recombination radiation shift on pulse current injection 3=20539
Ge diodes, static and pulse I-V characteristics, thermal breakdown 0=15975
Ge, electron-hole junctions, conductivity in reverse direction 0=20880
Ge Esaki diodes, spot noise meas. 4=26080
Ge Esaki diodes, tunnelling probability 1=10044
Ge, Esaki juncns., peak current behaviour 2=4045
Ge, Esaki juncns., phonon-assisted juncns. 2=4050
Ge, Esaki (tunnel) diodes, effect of doping 1=14486
Ge film evaporation onto Ge substrates 1=11297
Ge, i.r. beam modulator 2=22001
Ge, juncn. diodes, on plastically def. 2=16735
Ge junction diodes, use in β -ray detection 0=7493
Ge junctions, internal field emission 0=9961
Ge junctions, irradiation defects, mobility in elec. field 1=8902
Ge junctions, 1/f noise, rel. to surface channel 1=14485
Ge junction, p⁺-n, slow decay and noise meas. 1=17776
Ge junction photodiodes, threshold sensitivity and noise 0=9995
Ge junction, uniaxial stress effect on excess current 3=25378
Ge magnetodiode, carrier distrib. rel. to mag. fld. 3=17909
Ge, n-p diode, electron-hole transitions, inductive props. 3=17910
Ge, noise temperature ratio 0=7950
Ge, p-n junc., stress effects on characts. 4=22739
Ge p-type point contact, forward char. turnover, temp. var. 4=4182
Ge, p-i-n juncn., Li-drifted for γ -ray det. 2=10073
Ge p⁺-n juncn., alloyed, current distrib. visualization 2=21169
Ge p-n, anisotropic stress effect, on current 4=28584
Ge p-n and bicrystal junctions, photoresponse, temp. and bias effects 4=28645-6
Ge p-n diffused junction, donor conc. at n-surface 1=6149
Ge, p-n formation, due to As and Al doping 0=1640
Ge p-n junction, absorpt. edge shift by elec. field for modulation 4=26193
Ge p-n junctions, breakdown voltage, crystal axes depend. 1=6167
Ge p⁺-n juncn., alloyed, Zener breakdown 2=21170
Ge p-n junction, anodic dissolution in NaOH and H₂SO₄ 1=7657
Ge, p-n junctions, barrier temp. at turnover 0=4341

Semiconducting devices—contd

diodes and junctions—contd

- Ge, p-n junctions, breakdown, effect of carrier space-charge 0=2862
 Ge p-n junction delineation by electrodeposited Cu 0=13593
 Ge p-n junc., diffusion length, α - and p- irradi. meas. 1=3778
 Ge, p-n juncs., dislocation density effect 1=19857
 Ge p-n junctions, elec. breakdown 1=6165
 Ge, p-n juncn., γ -irrad. effects 2=16743
 Ge p-n junctions, at high current densities 0=6102
 Ge p-n junction, effect of illum. and temp. 1=14476-7
 Ge p-n junctions, imperfections, viewing 1=12453
 Ge, p-n junction, with irregular structure, characteristics 1=8964
 Ge p-n junction, effect of mag. field on photovoltaic response 1=7672
 Ge p-n junction, laser illuminated, excess photon noise 3=11908
 Ge, p-n juncn., noise rel. to generation current 2=18713
 Ge p-n junctions, noise due to illumination 3=22958
 Ge p-n junction particle detectors, charge collection coeff. 0=20886
 Ge, p-n juncn., photocurrent fluctuations 2=16756, 18744
 Ge p-n junctions, plastically deformed, reverse characteristics 0=13594
 Ge, p-n juncn., polaron and phonon observ. during tunnelling 2=23418
 Ge p-n junctions, preparation by diffused shot-melting 0=11695
 Ge p-n junctions, recomb. and generation phenomena 0=7924
 Ge p-n junction, reversed bias, light emission, origin 3=10845
 Ge p-n junctions, reversed-biased, l.f. conductivity fluctuations 1=14482
 Ge p-n junctions, reversed-biased, l.f. conductivity fluctuations 1=17770
 Ge, p-n junctions, spectral photoresponse 3=13135
 Ge, p-n juncn. transient photo-e. m.f. 2=18743
 Ge, p-n juncn. transition for high current densities 2=16744
 Ge, p-n juncn. transition point det. 2=12510
 Ge p-n juncn. tunnel current 2=21161
 Ge p-n junction, tunnel current 3=2931
 Ge, p-n junctions, tunnel current, temp. dependence 1=10053
 Ge, p-n junctions, tunnel current, temp. dependence 1=11313
 Ge, p-n junction-tunnel-junction combinations 2=8378
 Ge, p-n junctions, vacuum fabrication 4=6999
 Ge p-n junction, vapour grown, variable capacitance diode 0=18024
 Ge, p-n, plastically deformed, negative resistance and double injection 3=8534
 Ge, p-n, stress effect on I-V charact. 4=26072
 Ge, p-n-n' juncn. diode, props. 2=23423
 Ge, photoconductivity due to change in surface lifetime 1=19892
 Ge, photocond. due to change in surf. lifetime 2=6475
 Ge photodiodes 1=6166
 Ge photodiodes with barrier layer 4=4232
 Ge photodiode current, mag. field effects 3=20408
 Ge photodiodes, current decay, rel. to trapping 1=12450
 Ge photodiodes, electron irradi. optical charge exchange among impurities 4=1692
 Ge, photodiodes, $p^+ - n - n^+$ 2=23482
 Ge photodiodes, short time constants, high sensitivity 0=20900
 Ge piezo-diodes and triodes 3=2940
 Ge point-contact diode, influence of "forming" upon its characteristics 4=4183
 Ge point contact diode, minority charge carriers, lifetime, influence on switching behaviour 4=10081
 Ge point contact diode, n-type, turnover in reverse characteristics, obs. 4=7013
 Ge point contact diodes, negative resistance 3=2935
 Ge point-contact diodes, negative resistance 3=8535
 Ge point-contact, rectifying props. 0=612
 Ge rectifiers, surface phenomena 0=9981
 Ge, reverse characteristics 1=14478

Semiconducting devices—contd

diodes and junctions—contd

- Ge, reverse I-V charac., effect of carrier generation in barrier layer 1=1091
 Ge shallow junction, spectral photoresponse 3=13134
 Ge and Si, p-n junctions, resistance rel. to elastic deformation 3=17902
 Ge and Si parametric diodes, laser m.w. detection and amplification 4=19278
 Ge, solid circuit, resistor and capacitor elements 2=8388
 Ge surface-barrier diodes, as α -spectrometer 0=1644
 Ge, tunnel diode 2=2179
 Ge tunnel diodes, alloyed contacts of Au, low resistance 3=20360
 Ge, tunnel diode, cond. processes meas. 2=12533
 Ge, tunnel diode, current-voltage characts. 2=10506
 Ge, tunnel diode, electron beam analysis 2=23427
 Ge tunnel diodes, indirect interband tunnelling, temp. depend. 4=7019
 Ge tunnel-diode junctions, impurity drift 3=20362
 Ge tunnel diodes, nomograph for prepn. 3=885
 Ge tunnel diodes, p-type, Ga-doped prepn. 4=6971
 Ge tunnel diodes, peak current, rel. to acceptor conc. 3=8537
 Ge tunnel diodes, temp. depend. of max. current 1=11315
 Ge, tunnel diodes, theory and expt. 4=22750
 Ge tunnel diodes, voltage annealing of radiation damage 3=10860
 Ge tunnel diodes, theory, impurity-controlled current 4=1635
 Ge tunnel diodes, theory, phonon-assisted current 4=1636
 Ge, tunnel (Esaki) diodes, neutron-irradiated 3=17918
 Ge tunnel, etching to given peak current 4=20396
 Ge, vapour-grown, elec. props. 0=18023
 Ge variable reactance diodes, surface-dependent losses 0=1635
 Ge—GaAs, elec. props. rel. to crystal orientation 4=12927
 Ge—GaAs, energy band diag. and elec. meas. 2=23421
 Ge—GaAs heterojunctions photocurrent spectra 4=28586
 Ge—GaAs n-n heterojunction, field-effect interface conductance 4=12926
 Ge—GaAs, p-n heterojunctions, photoelec. props. 4=26070
 Ge—GaAs, rectifying characteristics 0=18026
 Ge—GaAs tunnel heterojunctions, phonon and polaron interaction 3=6609
 Ge—GaP heterojunctions, interface Fermi level 4=28585
 Ge—In, alloyed juncs., impurity conc. 2=12536
 Ge—In, p-n juncs., switching charac. rel. to surf. recomb. 4=10075
 Ge—In—Ga alloyed juncs., impurity conc. 2=12536
 Ge—In—Ga, saturation current rel. to solubility of Ga in Ge, 360°–550°C 4=30793
 Ge—Li drift, for γ -ray spectra 3=17238
 Ge, Sb-doped, tunnelling, strain effects 3=13095
 Ge—Si alloy junction 0=4347
 Ge—Si alloy junctions, indirect transition 1=14487
 Ge—Si alloyed junction construction 4=20381
 Ge and Si Esaki diodes, fast neutron bombard. 0=18029
 Ge/Si heterojunctions, abrupt, interface states 4=12925
 Ge—Si power generator, one-coupled 4=8607
 In phosphide arsenide diodes, spontaneous stimulated i.r. emission 77°K 4=12933
 InAs diffused p-n junctions, characteristics 1=14479
 InAs diode, maser, optical, mag. tunable, i.r. 3=19494
 InAs Hall effect sensor in magnetic field time change measurement 1=10760
 InAs, observation of polarons and phonons during tunnelling 0=13628
 InAs p-n, breakdown field 4=17500
 In—CdS—Au, dielectric diode, physical processes 4=15547
 In—Ge diode, for temp. meas., 20–60°C 1=5367
 InP diodes, recombination radiation, photoinduced, 6° and 77°K 4=4301
 InP Esaki diodes, prepn., props. 3=884
 InP laser, as GaAs, temp. var. of threshold current 4=14947
 InP lasers, prep. and props. 4=24921
 InP, observation of polarons and phonons during tunnelling 0=13628
 InP—GaAs n-n heterojunction, meas. 3=13088
 InSb, alloyed and diffused p-n junc., I–V charac. 1=6169
 InSb diodes, n- to p-type surface change 4=20391

Semiconducting devices—contd
diodes and junctions—contd

- InSb diodes, transition capacitance meas. at 78°K 2=21172
InSb Esaki diode, tunnel current, effect of Landau levels 1=2413
InSb, Esaki effect 0=11714
InSb, In and Cd alloyed p-n junction, photovoltaic cell 0=11726
InSb juncns., polar phonon-assisted tunnelling 2=14560
InSb large surface junctions, elec. props. 4=12928
InSb laser diode, i.r., line frequency and threshold current in high mag. fields 4=8990
InSb lasers, band gap mechanism, from var. mag. field at 1.9°K 4=24922
InSb, magneto-tunnelling for fields up to 88 000 G 0=18047
InSb, n-p diodes, neg. 2=14570
InSb narrow p-n junctions, internal field emission, field and temp. depend. 0=11715
InSb, observation of polarons and phonons during tunnelling 0=13628
InSb p-n, anomalous barrier capacitance 0=18045
InSb, p-n, electric props. 0=18043
InSb, p-n junctions 4=7000
InSb, p-n juncns., cryst. polarity rel. to fabrication 2=12538
InSb, p-n junctions, elec. and photoelec. props. 3=879
InSb, p-n junctions, photocond. and surface state 1=19906
InSb, p-n juncns., preparation and properties 1=7651
InSb, p-n, nature of electric currents 1=19889
InSb, for parametric amplifiers 0=6122
InSb, photodiodes, noise generation 1=14484
InSb photovoltaic cells, i.r. sensitivities 0=18069
InSb tunnel diodes, in high mag. fields 2=8377
InSb tunnel diode, mag. field effects 2=14571
InSb tunnel diode, process of tunnelling 2=2177
InSb tunnel diode, temp. and high press. effect 2=23431
InSb, tunnel, recombination radiation 3=23122
InSb, tunnelling, Stark splitting of energy bands 0=18048
Li-drifted p-i-n junction detectors for γ -spectroscopy 1=12075
P diffused in Si, dislocation distrib. near junction, meas. 4=28471
Pb-n-Ge junction, tunnelling characts. 4=20382
Pb-PbO-Pb, superconducting tunnel diode, Josephson a. c. current calc. 4=29837
PbS, p-n junctions, prep. by Cu diffusinn 3=15593
PbTe abrupt junctions, barrier capacitance, 100 kc/s 3=13106
PbTe diodes, magnetotunnelling 1=19893
PbTe p-n junctions, C-V and C-I meas., -196°C 4=12929
Pb-Te-Al, tunnel, and Pb-Te supercond. persist. beyond H_{c2} 4=18584
PbS point-contact diode, photocurrent and current slow relaxations in reverse direction. 4=25885
PbS point diodes, photocurrent excitation for const. voltage, transient region 4=7071
PbS, slow relaxations of reverse current 1=14480
PbSe, p-n juncn., photovoltaic response 2=8446
PbTe, p-n juncn., polaron and phonon observ. during tunnelling 2=23418
Sb-Cd, welded contact, thermoelec. inversion 0=16000
Sb-Mg, welded contact, thermoelec. inversion 0=16000
Se, electron-hole junctions, conductivity in reverse direction 0=20880
Se-metal contacts, current creep, electropositive impurities 4=1630
Se rectifiers, capacit. meas. rel. to impurity densities 2=10512
Se rectifiers, creep and forming effects, theory 2=10511
Se rectifiers, effect of strong fields and Br impurity 0=6125
Se-HgSe p-junctions, photo-e.m.f. rel. to energy gap 1=17752
Si alloy-diffused variable-capacitance diodes 3=8536
Si alloy diodes, breakdown effects 0=9966
Si alloy-junction, heat liberation 4=4188
Si, alloyed n-type, breakdown voltage, temp. depend. 1=6168
Si alloyed rectifiers, orientation dependent shape of p-n interface 4=12931
Si α -detectors, sensitivity for low-abundance groups 1=3254

Semiconducting devices—contd
diodes and junctions—contd

- Si barrier detectors, β -ray spectroscopy below 4.2°K 4=3253
Si barrier-layer counters, charge losses 4=14967
Si, with breakdown > 400 V 0=6103
Si, breakdown voltage, edge effects 4=26082
Si, breakdown voltage, effect of state of surface 0=6114
Si carbide p-n juncns., radiation for breakdown 2=8379, 10500
Si computer diodes, design 3=20354
Si counter diodes, neutron irradi., Si recoil spectra 3=25307
Si diffused films, conc. profile det. 2=2155
Si diffused junc., as α -detector 1=3251
Si diffused junc., as high-energy particle detectors 1=3088
Si, diffused p-n junction, position meas. 4=20383
Si diode low-level microwave detectors 4=11792
Si diode, multiplication, division, square roots 2=7112
Si diode, reverse characteristics 3=10858
Si diodes, breakdown region, high noise temp. 4=22747
Si diodes for cyclotron oscillator and magnet power supplies 3=5796
Si diodes, for multiplication and division 4=11016
Si diodes, negative resistance characteristics, oscillation phenomena 4=1634
Si diodes, p-n diffused, oxidized, surface charges 4=10079
Si diodes, reflection, 0.8 to 2.0 μ , rel. to electric fields 4=10083
Si double-injection diodes oscill due to deep levels 3=15583
Si, electron-hole junctions, conductivity in reverse direction 0=20880
Si Esaki diode, electron bombardment damage 1=10054
Si Esaki diodes, spot noise meas. 4=26080
Si Esaki juncn., excess current rel. to temp. 2=23419
Si Esaki juncn., phonon-assisted tunnelling 2=4050
Si grown junction, i.r. emission 1=1054
Si, h.f. varactor diodes 1=11318
Si, heat liberation in p⁺ region in forward p⁺-n-n⁺ 4=20392
Si, inversion behaviour, in moist gases 0=9982
Si junctions, Au-doped, electronic processes and excess current 1=12454
Si juncn., depth meas. 2=8384
Si junction detector, effect of forward-voltage ion-drift 3=2930
Si junction-diode amplifiers 0=12692
Si junction diodes, use in β -ray detection 0=7493
Si junctions, electro-luminescence, spectra 4=4305
Si junctions, epitaxial growth 3=23418
Si juncns., heavily diffused, props. 2=4046
Si junction as heavy-particle detector 1=5615
Si junctions, internal field emission 0=9961
Si junctions, ion drift, diffusion meas. of Li, 25-125°C 0=13561
Si juncns., microplasma density, voltage depend. 2=2183
Si junctions, npn and pnp, channel conductance 1=6157
Si junctions, p-n, n irradi. effects, max. allowable 3=22959
Si junctions, p- π -n, forward characteristics 1=17773
Si junction particle detector 3=529
Si junction particle detector 3=22042
Si juncns., particle det. appl. 2=11836
Si junctions, photoemission induced by internal elec. field 0=12627
Si juncns., radiation detector made by Li ion drift 2=21166
Si juncns., with surface inversion layer 2=18719
Si, microplasma instability, theory 1=11300
Si n-i-p junctions, as α -detectors 1=3253
Si, n-n⁺, p-p⁺ juncns., delineation 2=18717
Si nip junctions, mean ionization energy for α and β particles 1=8946
Si n-p junction charged particle detector 0=7247
Si, n⁺-p-p⁺, diffused, for dosimetry, fast n 3=24816
Si negative resistance diodes, prepn. 3=2937
Si, ohmic contacts, production 0=595
Si oxidized surface layers, n-type conversion 2=21164
Si, p-doped solar cells, prep. and props. 2=10543
Si p-i-n, as particle detectors 1=5614
Si, p-i-n juncns., characts. 2=21163
Si, p-i-n junction, neutron irradi. 4=1627

Semiconducting devices—contd

diodes and junctions—contd

- Si p-n alloy junction, improvement by As-S-I glass coating 3=20387
 Si p-n, anisotropic stress effect 4=26074
 Si p-n, anisotropic stress effect, on current 4=28584
 Si p-n barrier layers, avalanches, irradi. release 4=12932
 Si p-n barrier layers, avalanches, on particle irradi. 4=12932
 Si, p-n diffused, barrier capacitance 1=1090
 Si, p-n diffused, oxidized, surface charges 4=10079
 Si, p-n, hot electron emission 3=883
 Si, p-n junction, alpha monitor 2=5696
 Si p-n junctions, avalanche breakdown 3=15599-600
 Si, p-n junction, avalanche breakdown, microplasma phenomena 2=21159
 Si p-n junctions, anomalous forward currents 4=7007
 Si p-n junctions, anomalous surface channels 0=18031, 20508
 Si p-n junctions, avalanche breakdown, mech. damage effect 4=22744
 Si p-n junctions, breakdown 1=17772
 Si p-n junctions, breakdown charac., internal heating 0=1650
 Si, p-n junction, breakdown voltage lowered by stress 4=22742
 Si p-n junctions, capacitance at low temps. 0=6100
 Si p-n junctions, charge multiplication 3=13089
 Si, p-n junction, counters for heavy charged particles 2=18028
 Si p-n junction, deep trap levels 4=28591
 Si p-n junction, depth in Si solar cell, meas. 4=26075
 Si p-n junctions, for detecting minimum ionizing particles 0=19975
 Si p-n junctions, diffused, generation centres 1=19891
 Si, p-n junction, diffused, generation centres 2=4043
 Si p-n junction discharge, minority injection 4=26073
 Si p-n junctions, electron emission 0=2376
 Si p-n junction, electron field emission 3=14621
 Si p-n junctions, energy transfer between 4=4181
 Si, p-n junction, excess reserve currents and field effects 3=22960
 Si p-n junctions formed by Cs* implantation 4=10077
 Si p-n junction, freshly cleaved, surface measurements 1=1362
 Si, p-n junction, h.f. props. at low temps. 4=22743
 Si p-n junctions, heat treatment centres and bulk currents 0=1651
 Si p-n junctions, hot electron emission 3=13087
 Si, p-n junctions, hot electron emission 4=7003
 Si p-n junctions, impact ionization 0=15937
 Si p-n junctions, impact ionization, exp. and theory 0=596
 Si, p-n junctions, interact. between microplasmas 4=4179
 Si p-n junction, laser frequency mixing obs. 3=9981
 Si, p-n junction, light emission and microplasma phenomena 1=8949
 Si p-n junctions, light emission and noise generation 0=1648
 Si p-n junctions, metal precipitates 0=18032
 Si p-n junctions, microplasma breakdown 3=20351
 Si p-n junctions, microplasma interactions 4=22738
 Si p-n junctions, microplasmas 3=2929
 Si, p-n junction, neg. resist. at 4.2°K 2=21171
 Si p-n junction, particle detectors 1=3082
 Si p-n junction, as particle detectors 1=3083
 Si, p-n junction, in particle detectors 2=16096
 Si, p-n junctions, photoresponse near band edge 3=10848
 Si, p-n junction, polaron and phonon observ. during tunnelling 2=23418
 Si p-n junctions, prebreakdown microplasmas as γ detectors 3=14946
 Si p-n junctions, prep. by diffused shot-melting 0=11695
 Si p-n junctions, prep. by diffusion of B and P 0=597
 Si, p-n junction, proton bombard. effect 2=12458
 Si, p-n junction, as radiation tracking transducer 2=22011
 Si, p-n junction, recombination radiation 4=4180
 Si, p-n junction, reproducible delineation 2=10507
 Si p-n junction, reversed bias, light emission, origin 3=10845
 Si p-n junctions, reverse characts., heat treatment effect 3=15579
 Si p-n junctions, reverse characteristics, microplasma switching 4=7001

Semiconducting devices—contd

diodes and junctions—contd

- Si, p-n junctions, secondary ionization, avalanche breakdown and microplasma phenomena 4=7002
 Si p-n junction, selective inertia due to deep Zn levels 4=10078
 Si p-n junction, shallow diffused type, as particle detectors 1=3081
 Si, p-n junction, solar cells 2=10544
 Si, p-n junctions, spectral photoresponse 3=13135
 Si p-n junctions, "steep", barrier layer capacity 4=1633
 Si p-n junctions, "steep", breakdown mechanisms 4=1632
 Si, p-n junctions, stress effects on characts. 4=22739
 Si p-n junction, thermally oxidized, γ -irrad. effects 3=4930
 Si, p-n junctions, thin diffused, imperfection invest. by avalanche breakdown 2=23145
 Si p-n junction, vacuum cleaned, properties 1=7659
 Si p-n, microstructure exam. by electron beam scanning 4=7657
 Si p-n radiation detect. junction, internal pulse amplification 4=28589
 Si p-n, surface state effects on reverse current and drift 4=20386
 Si, p-n, n-p, voltage tolerance parameters, graphical analysis 4=28590
 Si, p⁺n and pn⁺ junctions, breakdown and ionization coeff. 1=14488
 Si, p-n-p-n switch 0=1649
 Si p⁺n step junctions, Au-doped, reverse-biased capacitance, freq. depend. 4=28588
 Si photodiode, current-induced impurity photo e.m.f. 4=1693
 Si photodiode, fast, high-sensitivity 2=23429
 Si photodiode, as vacuum uv detector 4=29747
 Si piezo-diodes and triodes 3=2940
 Si point contact diodes, negative resistance 3=2935
 Si point-contact diodes, various phenomena 3=880
 Si, point contact, heat treatment and ion bombard. effects 0=15973
 Si power, surge current failure 4=7014
 Si rectifiers, inverse characteristics, at surface breakdown 0=11702
 Si rectifiers, reverse current, surface effects 4=4185
 Si reverse biased junctions, gamma ray effect reduction by surface passivation 4=20388
 Si, review 0=20912
 Si shallow junction, spectral photoresponse 3=13134
 Si solar cells, crystal imperfection, electron microscope obs. 4=7006
 Si solar cells, crystal imperfections, X-ray obs. 4=7005
 Si solar cells, effects of electron and proton irradi. 4=17538
 Si solar cells, 4.6-4.8 MeV proton effects 4=17535
 Si solar cells, impurity effect on radiation damage 4=28649
 Si solar cells, X- and γ -irradiated, photovoltaic effect 1=1095
 Si, solar photoconverter, impurity distrib. in surface 1=19888
 Si solar photoconverter, impurity distrib. in surface 2=4076
 Si, step, avalanche multiplication 3=4932
 Si surface-barrier diodes, as α -spectrometer 0=1644
 Si surface-barrier diodes, oscills. under electron bombard. 4=12938
 Si, surface-barrier diodes, photoeffects 2=2195
 Si surface-barrier junction, minority carrier recombination time meas. 3=17905
 Si, surface barrier, use in neutron spectroscopy 2=5686
 Si surface-barrier particle detectors, with charge-sensitive amplifiers 1=3085
 Si, surface improvement by low melting glasses 0=6105
 Si three-layer diodes, uniform avalanche effect 1=2418
 Si tunnel diodes, effect of degeneracy 3=17679
 Si tunnel diodes, P diffusion-doping 3=20361
 Si, tunnel (Esaki) diodes, neutron-irradiated 3=17918
 Si, uniform junctions, breakdown and ionization rate 0=11703-4
 Si, variable-capacitance diodes, neutron irradi. effects 2=8385
 Si-Ag contact, visible light emission and rectifying props. 0=20909

Semiconducting devices—contd

diodes and junctions—contd

- Si—Au junction, reverse current enhancement 3=15603
 Si—Au reversed-biased surface barrier diodes, oscillation under continuous illumination 4=4236
 Si—Au surface barrier diodes, as particle detectors 1=3083
 Si—Au surface-barrier diodes, as α -counters 1=3250
 Si—Au, surface-barrier, heavy-particle counter 2=5527
 Si—SiO₂—metal diodes, negative resistance and oscillations 4=30637
 Si—SiO₂—Al structures, conductance laws meas. 4=20393
 SiC, Al-alloyed, various characteristics 0=11705
 SiC, hot electron emission from pn-junctions 1=17756
 SiC, p—i—n junction, V—I characts., photovoltaic effect, p—n luminescence 3=13082
 SiC p—n grown junctions 0=15960
 SiC, p—n, hot electron emission 3=883
 SiC, p—n juncn., current density over juncn. area 2=8386
 SiC, p—n junctions, electroluminescence 4=1777
 SiC, p—n junctions, electron emission 1=16360
 SiC, p—n juncn., hot electron emission 2=2182
 SiC p—n junctions, hot electron emission, by Au diffusion, 20°-400°C 4=569
 SiC p—n junction laser 4=9000
 SiC, p—n juncn., photo-e. m. f. 2=4069
 SiC, p—n juncn., recomb. radiation 2=4044, 6476
 Si—Hg junctions, surface barriers 3=15598
 SiO₂, p—i—p junctions, rectification and e.m.f. 3=10849
 Si:P p—n junc., as β -detectors 1=3166
 Si—SiO₂—metal diode, Si—SiO₂ surface states 2=23435
 Si—SiO₂—metal diodes, rectification 3=22963
 Ta oxide diodes, elec. props. 4=20395
 Ta₂O₅, p—i—p junctions, rectification and e.m.f. 3=10849
 Te—Mg, welded contact, thermoelec. inversion 0=16000
 Ti oxide anodic films, graded p—n junctions 3=4929
 Ti oxide, thin film diodes 3=17915
 TiO₂ diodes, compound barrier model 4=7015
 TiO_{2-x}—insulating layer—Ag contact, elec. props, up to 400°C 4=1629
 TiO₂, p—n junctions, piezoeffects 3=13127
 TiO₂, point-contact diodes 3=10854
 TiO₂ rectifiers, current-voltage characts. 2=10501
 U₃O₈, with other oxides, e.m.f. after reactor irradi. 2=6485
 W—Ge, V—I curves, effect of O and N ion bombard. 1=17771
 W—Si, V—I curves, effect of O and N ion bombard. 1=17771
 ZnS—Cu₂S heterojunction, electroluminescence and elec. props. 4=13088
 ZnSe, p—n junctions, electroluminescence 3=11011
 ZnSe—Cu₂Se heterojunction, electroluminescence and elec. props. 4=13088
 ZnTe, injection luminescence meas. 4=28747
 ZnTe—CdS heterojunctions, I—V characteristics 1=14483
 ZnTe—CdS heterojunctions, growth and props. 3=23419

transistors

- a.c. discriminator, transistorized 3=5613
 admittances, simplified approach 2=10516
 alloy-junction transistors, cutoff freq. rel. to thickness and recomb. 2=10517
 α -particle detector 1=5795
 as α -particle detectors 0=9238
 amplifier, low-noise, low freq. 2=15867
 amplifiers, high input resistance 3=14482
 analogous device using hot electrons in metal films 1=8925
 analogue multiplier using grounded base junction 1=4181
 avalanche, circuit 2=1368
 use in avalanche made for nuclear instrumentation 0=20008
 avalanche-mode, selection circuit 2=23434
 avalanche, use in 2 ns coincidence circuit 4=9024
 base, minority carrier lifetime determination 0=15980
 base resistance in saturated region 2=4054
 base width, critical, formula 4=28547
 c—c impedance, freq. var., mag. field, 2N34, 2N35, c—e stage 3=20364
 carrier lifetime, minority, in base region 2=4055
 characteristic curve tracer 3=15605
 characteristics, experimental, power-law nature 4=15552
 characteristics, theoretical derivation 4=15553

Semiconducting devices—contd
transistors—contd

- collector—base junction, avalanche effect 4=28598
 collector region, minority-carrier storage effect and storage time 4=7020
 collector space charge layer width, var. with current 4=4189
 common emitter breakdown, first-order model 4=10086
 cutoff freq. falloff, high current theory 2=14574
 cut-off freqs. 3=2941
 demonstration characteristics tracer 1=5405
 development and applications, review 1=2417
 development, review 3=8538
 diffused, base region transport characts. 2=2185
 diffusion, charged, force rather than flow rate formulation 4=1524
 diffusion path lengths of minority carriers meas. 4=7022
 with dispersed colloidal phase base 0=9979
 double diffused, depletion layer props. 2=2186
 double diffusion Ge transistors, props. 0=15978
 drift, cut-off freqn. rel. to collector voltage 3=13100
 drift, diffusion attenuation 0=543
 drift transistors, increase of cut-off frequency 0=9980
 drift type, effects of collector depletion-layer width 3=20363
 "drift" type transistors, anomaly in characteristics 1=17779
 effects of transit γ -radiation on various types 4=17506
 electrical thermometers 2=9438
 field effect, fluct. calc. 4=17508-9
 field effect, small doping profile effects, calc. 4=4190
 field-effect, small-signal h.f. theory 4=20397
 field effect, transfer charact., power law exponent limits 4=4191
 filamentary, inductive props. 3=22965
 fluctuations, electrical, alloy junction, low temps., shot theory 4=12943
 four-terminal field-effect, low-freq. operation 4=26085
 frequency effects, base conc. of electrons and holes rel. to operating principle and math. theory 4=28601
 frequency response and impurities, as charge—control calc. 4=7021
 gain, rel. to surface recomb. velocity 2=4052
 h.f. current gain meas. methods 4=10085
 high-frequency cut-off freq., calc. 2=21179
 high-injection level transistor, surf. recomb. vel. 2=10514
 hot electron type 2=21176
 impurity concn. in base region, meas. 1=17780
 impurity doping profile det. 1=17778
 inductive, input impedance analysis 3=22966
 junction, a.c. parameters rel. to injection level 3=2939
 junction, dynatron-type neg. resist. 2=23439
 junction, electric field in base at low injection levels 0=15979
 junction, large signal models comparison 4=26086
 junction, rise and fall time calc. 4=20398
 junction transistor charact., mag. field effects 2=23441
 l.f. noise, 2 sources, expt. data 2=2180
 light pulser, high-speed 1=6957
 magnetic current regulator 2=11576
 mesa, extrinsic collector resistance 0=13627
 mesa, Ge, contact fabrication 3=20365
 mesa type drift, minority carrier recombination in base region 0=11679
 mesa-type, Si—C contamination effect on props. 4=30883
 metal—oxide—semiconductor, characteristics 4=28599
 metal—semiconductors, hot electron injection model 4=1638
 microwave, review 3=6556
 multiplication and log. conversion by operational amplifier—transistor circuits 4=8592
 n—p—n, effects of modified collector boundary conditions 4=7023
 noise performance, model 2=16745
 noise, review 1=7088
 p—n junction, effect of surface recomb. and channel 2=10505
 p—n junction on n-type Ge, technique 0=15933
 p—n—p alloyed junctions, copper staining of sections 1=6171
 p—n—p juncn., transport factor variation 1=8963

Semiconducting devices—contd

transistors—contd

- p-n-p phototriode, with base floating, relaxation effects 0=4367
- p-n-p-n switches, turn-on transients, analysis 0=15977
- phototriode, theory 3=20419
- power control of current of Varian magnet 1=7005
- power gain and f (max) at high freq. 2=21178
- pressure sensitivity 4=12946
- probe unit for nuclear counters 3=4287
- pulse generator 4=26083
- as radiation detectors 0=17156
- radiation effects, transient, charge-control equiv. circuits 4=17507
- ratemeter, transistorized 0=21402
- Schottky emitter—metal base 4=28600
- second breakdown, description 2=14573
- short-circuit current gain in common emitter connection, formula 1=17777
- small signal theory, limits 2=18721
- studio equipment, transistorized amplifiers 2=15709
- surface effects of radiations, data and model 4=17505
- surface field-effect, design theory 4=22752
- switching devices, review 2=16746
- theory, assumptions reappraisal 4=12942
- thermal noise, in field-effect transistors 2=21177
- thin-film, theory extension 4=30640
- thin-film triodes, double barrier model 3=10861
- time-to-pulse-height converter, transistorized 0=19993
- transient response of transport factor, calc. 3=8539
- transistor testing voltmeter, pulse-sampling 1=9517
- transistorized electrometer voltmeter 3=12045
- transistorized fast circuit working in saturated region 4=9022
- transit-time mode in two-barrier devices 3=431
- transitory response to small signals 3=17919
- traps, influence on switching operation 2=14575
- uniform-base, d.c. characteristics and tee-model 4=22753
- white noise, temp. depend., calc. and meas. 0=1636
- use on wide band amplifier design 1=18729
- CdS, thin film, theory of operation, expt. behaviour, and fabrication 4=12944-5
- CdS, unipolar, surface 3=13097
- CdSe thin-film triodes, field excitation of electrons from shallow traps 4=26087
- GaAs, optical, using recombination radiation collection by diode 3=13096
- Ge alloy, current gain reduction by neutron bombardment 0=11678
- Ge, amine adsorpt. effect on principal parameters 4=20399
- Ge, evap.—condensation method for films 3=23511
- Ge, high-freqn. high-gain, surface depend. 3=13098
- Ge, impurity profile in base layer 4=15530
- Ge mesa, direct radiative recombination 3=22967
- Ge n-p-n junctions, prod. by Peltier effect 1=17786
- Ge n-p-n phototransistor, photoresponse, temp. and bias effects 4=28645-6
- Ge, neutrons effect 2=21180
- Ge, p-n junction with irregular structure, characteristics 1=8964
- Ge, p-n-p alloy transistor, effects of γ -irrad. 2=14576
- Ge, p-n-p, neutron-irrad., recomb. processes 2=4053
- Ge, p-n-p, protection by sulphide layer 4=20794
- Ge, parameter selection by moisture control 2=21175
- Ge phototransistor, for photon fluctuation detector, i.r. 0=8831
- Ge, production, by impurity and donor diffusion 0=11686
- Ge, surface recombination velocity by γ -irradiation 0=4342
- Ge, vacuum-drying effects on surface props. 3=2942
- Ge, water vapour effect 2=6481
- In in Ge, distrib. coeff., variation 1=3781
- InSb, n-p-n 2=10515
- InSb, n-p-n junctions, base width 2=2188
- Si, current gain change rel. to applied stress 4=28603
- Si, current gain, ultra high at low currents, surface inversion channel explanation 4=4192
- Si, drift of characteristics 1=7662
- Si, electroluminescence at reversed bias junctions 4=17608
- Si epitaxial films, p- or n-type, growth 1=15013
- Si field effect insulating gate, conds. var. with gate V 4=20401

Semiconducting devices—contd

transistors—contd

- Si field-effect transistor 2=23440
- Si and Ge based, neutron radiation effects 2=8389
- Si, glass-coated, γ -radiation effects 4=17510
- Si, impurity profile in base layer 4=15530
- Si, mesoplasma breakdown 4=1628
- Si, n-p-n mesa-type, junction temp. meas. 2=646
- silicon n-p-n type, production 1=3782
- Si p-i-n, double injection space charge limited current 4=15549
- Si, as particle detectors, with deep depletion layers 1=3087
- Si, photovoltaic effect in p-n-p structures, sign reversal 4=10119
- Si, symm., with epitaxial base region 4=20400
- Si transistor-based resistivity meter 1=10651
- Si transistors, p-n, mesoplasma breakdown 4=1628
- Sn oxide field-effect type, photographic technique 4=30641

Semiconducting materials

- See also Magnetoelectric effects; Photoconductivity; Photovoltaic effects
- A^{III}B^V cpds, bond character rel. to SiC and ZnS 3=2688
- A^{III}B^V, chemical bonds, nature 4=28302
- A^{II}B^{VI} cpds., cond. mechanism, Hall coeffs. 3=20327
- A^{III}B^V cpds., doping with group IV elements 3=12942
- A^{II}B^V cpds, lattice atom displacement energy, electron bombarded 4=12554
- A₁₁₁B_v cpds., mag. susceptibility 0=11803
- A₁₁₁B_v cpds., thermal stability, growth, structure, melt study 0=13465
- A₁₁₁B_v cpds., valency zone parameters, equiv. orbits method 0=11553
- A^{III}B^V, ionic effective charge, calc. 4=30495
- A₁₁₁B_{v1} tellurides, solid solutions 0=12083
- A^{II}B^{VI}—A^{III}B^V films, activation energies 2=21157
- A^{II}B^{VI}—A^{III}B^V films, activation energies 3=2882
- A^{II}B^{IV}C₂V type, chalcopyrite structure, conduction band calc. 3=17871
- A₂B^{IV}X^{VI} compounds, elec. props. 2=23370
- A₂B^{IV}X^{VI} compounds, elec. props. 3=2881
- absorption constants, i.r. 0=1734
- absorption and intraband transitions, 7 substs. 4=30617
- acetylene polymers, props. 2=23371
- albumin dry films 4=22731
- alkali, antimonides, properties 0=20927-8
- alloys 0=20891
- alloys, three component, as solid solutions of two two-components compounds 4=1586
- α , γ -Al₂O₃, doped and undoped, cond. 3=6591
- alumina, ruby and sapphire single crystal, cond. 4=22703
- amino acids 1=7654
- amino acids and proteins, paramagnetic resonance study 1=11115
- anthracene 2=23304
- anthracene, carrier mobility 2=4027
- anthracene, carrier prod. and mobility 0=13620
- anthracene, charge carrier mobility and production 4=22528
- anthracene, charge injection, effect of electrodes 2=14579
- anthracene, conduction rel. to hole injection theory 2=14521
- anthracene, dark currents, temp. depend. 3=15584
- anthracene, defect electron mobility meas. 2=8353
- anthracene, electron and hole mobility 4=22529
- anthracene, evap. films 2=2441
- anthracene, excess defect electrons, density of states 3=4844
- anthracene films, polarization and hysteresis 2=6424
- anthracene, Hall effect prediction from band theory 4=6993
- anthracene, review 4=10610
- anthracene, review 4=28578
- anthracene, space charge detection for excess hole currents 2=16715
- anthracene, surface cond. H₂O vapour effects 4=12921
- anthracene, transport of electrons and holes 2=8186
- anthracene, trapping centres, conductivity glow-curve study 1=2422
- aromatic hydrocarbons, polycyclic, elec. cond., impurity effect 4=26064
- benzidine: Br₂, conductivities at 27°C 1=17718
- benzidine: I₂, conductivities at 27°C 1=17718

Semiconducting materials—contd

- benzidine: tetranitromethane, conductivities at 27° C 1=17718
 benzimidazole elec. props. 4=26065
 bismuth, review 4=12882
 blood pigments, elec. cond. temp. depend. 2=16718, 21158
 bovine haemoglobin crystals 2=6473
 bulk lifetime, calc., nomogram 1=6144
 capture cross-section ratio meas., at recomb. centres 0=6091
 β -carotene, effect of O₂ adsorption 1=6180
 carrier distribution and potential charge, for arbitrary surface distrib. of minority carriers 0=6087
 carrier mobility, during melting 3=21402
 carrier mobility measurement, magneto-electric field effects 0=20883
 carrier recombination after high excitation 0=4337
 ceramics, single-phase, excitation processes 0=11590
 chalcogenides, complex, of As, vitrification 0=13610
 chalcogenide glasses of Te, As and Sb, optical props. 0=13609
 chalcopyrite, elec. props. 0=7938
 chlorophylls a and b 1=14513
 chlorpromazine, elec. props. meas. 2=14552
 chlorpromazine, props. rel. to temp. 1=19875
 complexes of aromatic hydrocarbons with iodine 1=3775
 compound semiconductors, physical chemistry 2=4006
 compound, III-V, band structure classification 2=8345
 compounds between graphite and polycyclic aromatics, electronic properties 1=3763-4
 compounds, conference, New York (June 1961) 1=14428
 compounds, survey article 1=1040
 compounds with wurtzite structure, hole energy 3=15568
 conductivity about melting pt. 3=21614
 conference, Moscow (1961) 3=13056
 contact electrification 0=13643
 contact prod. by sparking 4=12951
 copper phthalocyanine, crystals, resistance, effect of halogens 3=6593
 crystal growth, epitaxial, with close spacing 4=10487
 crystal structure and general valence rule 4=7601
 crystallographic orientation meas. 0=705
 cubic crystals, magnetoelec. and thermomagnetoelec. effects 1=17645
 diamonds 3=22943
 diamonds 3=22944
 diamonds, band structure, simplified tight-binding approx. 3=22622
 diamond, B-doped, Mott impurity level conduction scheme 2=18638
 diamonds, conductivity, decrease on irradiation by n, e 4=4146
 diamonds, current problems 2=23382
 diamond, crystal potl. and energy bands, self-consistent calc. 0=1629
 diamond, cyclotron resonance, millimetre, 70 Gc/s 3=10637
 diamond, heat treatment, elec. resistivity changes 0=4357
 diamond, holes, density of states mass 4=22533
 diamond IIb, hole masses from cyclotron resonance 1=14236
 diamond, i.r. absorption rel. to lattice vibration 3=10577
 diamonds, i.r. absorption between 450-600°K 0=16068
 diamond, luminescence and birefringence 4=10213
 diamond, luminescence excitation spectra 4=10214
 diamond, magnetic props. calc., from X-ray meas. of electron density 4=7216
 diamonds, natural and X-irrad., temp. depend. 0=15951
 diamond, opt. and elec. effects of electron beams 2=12477
 diamond, optical and electrical props. 1=19993
 diamonds, optical absorption spectrum, phonon effects 2=14688-9
 diamonds, p-type, irradiation damage effects 2=23558
 diamond, p-type, magnetoresistance 1=17728
 diamonds, p-type, warped valence band and magnetoelec. effects 0=6116
 diamonds, photoconductivity, optical transmission and electron states 4=28642
 diamonds, preparation methods 2=12894
 diamond, properties 1=888

Semiconducting materials—contd

- diamond, recombination radiation meas. analysis 4=13072
 diamond, Shockley surface states in MO method 2=23381
 diamond and sphalerite-type structures, activation energies 2=23307
 diamond, surface structure by electron diffraction 4=30877
 diamond type, vacancy formation, diffusion, calc. 1=19764
 diamond, type IIb, optical phonon effects 3=10933
 diamond-type, valence band Landau levels 3=10761
 diffusion length, photomag. meas., effect of specimen geometry 0=15906
 dirty contacts and resistivity meas. 2=14529
 dislocation-free, yield behaviour 3=23322
 dislocation velocities and densities, erratum 3=10660
 dislocations, review of work USA, UK, USSR and France, up to 1959 2=8224
 egg albumin, paramagnetic resonance study 1=11115
 elastic props. of diamond, blende, wurtzite types 3=23279
 "Electrofax" 0=4387-8
 electrolyte-n-type semiconductor contact 0=6101
 electrophotographic layers, photocond. props. 0=11728
 elemental, review of props. and technical advances 4=26028
 etching damage by ion bombardment 0=21172
 evaporation rate, in various gases, fundamental eqn. 4=29808
 excess carrier decay times meas., X-ray pulse study 0=13589
 extrinsic, surface elec. props., effect on reaction of xanthate with galena 0=15953
 ferrites, Ba and Pb, elec. cond. anisotropy 4=6953
 filament, photoconductive decay, influence of transverse modes 0=7954
 films, Au lead wire attachment 1=11670
 films, epitaxially grown, thickness meas. by interference method 1=11591
 films prodn. by evaporation, control of parameters 3=25776
 films, under vacuum, conductivity and Hall effect 2=145
 four-point measurements, specimens shape and cond. variations depend. 0=7045
 free-carrier lifetimes meas., from i.r. absorption relaxation times 0=4326
 fused-ring aromatic cpds., effect of pressure on resistance 2=18701
 gallium arsenoselenides, elec. cond. at high temps. 0=15955
 gelatin and gelatin-dyestuff complexes, films 4=22731
 generation-recombination noise in single crystals 3=4913
 glass, crystallite detection by electrical conductivity 3=8921
 glasses, alkali-free magnesia-lime, conductivity, electrical, effect of Al₂O₃ 3=17880
 glasses, based on Fe oxides, elec. cond. and structure 4=2137
 glasses, elec. cond., interatomic elec. field 0=578
 glassy, conduction 0=15902
 glassy semiconductors, photoconductivity 0=15902-3
 graphite, annealed pyrolytic, single-crystal characteristics 2=4035
 graphite, band model 1=4975
 graphite, n-irradiated, annealing effects 3=22867
 graphite, neutron irradiation, e.s.r. rel. to dose 1=12558
 graphite, pyrolytic, carrier density and mobility, temp. depend. 1=12447
 graphite, pyrolytic, magnetoresistance, Hall effect, unusual 4=20369
 Group III-V cpds., as catalysts 2=8918
 Group III-V cpds., band struct. parameters from optical absorption 2=23560
 Group III-V cpds., free carrier absorption due to polar modes 0=18010
 Group III-V cpds., lattice vibr. and effective ionic charge 2=18844
 Group III-V cpds., nuclear quadrupolar relaxation 2=8696
 Group III-V cpds. properties 0=20923
 group III-V cpds., radiative recomb. 1=3746
 Group III-V cpds., {111} surface damaged layers, rel. to cold working 2=23764
 Group III-V cpds., {111} surfaces, props. 0=11996
 Group III-V with Group V substituents, defect equilibria 3=22758
 Group III-V and (rare earth)-V, energy gaps 2=23310
 Group V sulphides, sp. ht. and entropy 0=13491

Semiconducting materials—contd

- Group II-VI, conduction electron spin resonance 3=20642
 Group II-VI, surface conduction 3=17900
 Groups IV, III-V, II-VI, band structure, photoemission
 investig. 3=20318
 growth by Czochralski method, resistivity
 control 1=6145
 guanine, -120°C to $+100^{\circ}\text{C}$ 3=866
 Hall effect and conductivity meas., a.c. apparatus 0=2854
 Hall effect, measurement, in pulsed mag. field 0=7044
 haemoglobin 1=7654
 with high impurity conc., elec. cond. 0=7920
 high resistance, cryostat for elec. props. 0=5241
 homogeneous growth of single crystals 0=12005
 ice, review 4=28578
 imidazole, effect of purification on elec. props. 3=10826
 imidazole, elec. props. 4=26065
 imidazole, energy gap calc. 1=17745
 impurities diffusion in melt 3=18804-5
 impurities, statistical mechanics 2=4353
 impurity anal., use of space-charge current meas. 4=29247
 impurity removal, by diffusion in evacuating
 chamber 1=14294
 n-indium phosphide low-field breakdown 0=1673
 i.r. absorption, differential absorption
 spectrometer 1=4459
 i.r., absorption study of surface props. 1=1034
 infrared properties 0=18015
 injected holes and electrons, number of, determina-
 tion 0=13585
 inorganic cpds., ionicities, effective charges and electron
 mobilities 2=6437
 inorganic and organic, effect of light on contact
 potential 0=1626
 intermetallic cpds., crystallographic types, high
 coordination number 1=4032
 iodine crystals, space charge limited currents 2=14525
 ionic photoconductive dyes, charge carrier sign 3=8531
 ionizing radiation effects on elec. props. and
 defects 4=10040
 iron oxide ceramics, granular structure 0=4363
 isoelectronic series 3=20297
 Keynon-Banfield radical 2=14584
 layers, resistance and surface potl. meas. 2=2187
 leucine, paramagnetic resonance study 1=11115
 lifetime decay waveshapes 0=7922
 magnetic resonance techniques for surface studies 1=1257
 magnetite, Nernst-Ettingshausen effect, rel. to
 conduction electron energies 1=2476
 magnetoelectric props., meas. and automatic recording
 instrument 4=17484
 magnetothermal props., meas., automatic recording
 instrument 4=17484
 measurements on. resistance and thermo e.m.f.,
 20 c/s-20 kc/s, apparatus 0=19586
 mesonaphthodanthrene and mesonaphtho-
 dianthrene 0=18056
 metal oxide films, semiconducting and electrochemical
 behaviour 0=21282
 metal oxides, space-charge distribution 4=4197
 metal-semicond. systems, barrier height
 studies 3=25387
 metallic oxides, reduced, elec. conduction 4=22702
 minority carrier diffusion, in mag. field 0=15905
 minority carrier lifetime, meas. methods,
 review 2=16694
 minority carrier lifetime, photomag. meas.,
 theory 0=15981
 n-type, parameters, dependence of dope concentra-
 tion 0=4327
 naphthalene 2=8369
 naphthalene, hole mobility, calc. 3=20339
 naphthalene, review 4=28578
 nesa, (tin oxide) film, optical properties and band
 scheme interpretation 1=8959
 new materials for electronics applications 3=20369
 optical constants, transmission meas. on single
 crystals 3=23041
 optical density, meas. in i.r. 4=26166
 org. complexes, single crystal and compressed micro-
 cryst. molecular comparison meas. 4=22728
 organic, aromatic hydrocarbon positive ions in
 solids 1=19866

Semiconducting materials—contd

- organic, charge-transfer complex single
 crystals 1=19887
 organic complexes, resistivities of 30 cpds 0=15969
 organic, conference 1=17676
 organic cpds 1=7655
 organic, dark elec. cond. and long-wave absorption,
 singlet excitation state 0=13619
 organic, dielec. props. of powders 3=8557
 organic, elec. cond. cell for cond.: temp. meas. 4=28577
 organic, elec. and thermal transport coeffs. calc. 4=12920
 organic, Hall effect prediction from band theory 4=6993
 organic, impurity effects, theory 4=26066
 organic, management appraisal 4=26061
 organic, mol. crystals and charge-transfer
 complexes 2=23304
 organic, photoconductivity, two-exciton ionization
 calc. 3=20396
 organic polymers, elec. props. 4=30631
 organic, review 4=26062
 organic solid molecular complexes 2=23305
 orientation, molten metal etches 3=3263
 oxidation, impurity redistrib. and junction forma-
 tion 0=15936
 oxide glasses, elec. props. 0=15942
 oxides, complex, elec. cond. and structure 1=19883-4
 oxides, complex, elec. cond. and structure 2=8370-1
 p-n transitions, Hall effect 0=4336
 paramagnetic resonance due to mechanical damage 1=14787
 parameters, det., photocond. compensation of photomag.
 effect 2=18669
 parameters measurement, photocond. and photomag.
 effect 4=1585
 pentacene, effect of pressure on resistance 2=18701
 peritectic compounds, zone levelling and
 crystal growth 1=5093
 perylene-iodine, charge-transfer complex 2=23304
 phenazine, elec. props. 4=26065
 β -phenylenediamine-chloranil complex 0=13621
 photoelectric emission from clean surfaces 1=6146
 photo-emitters, various, comparison 0=19719
 photo-piezoelectric effect, due to inhomog. pressure
 distrib. 0=2866
 photovoltaic effect at high voltages, in solar energy
 converters 0=2312
 phthalocyanine, charge carrier
 diffusivity 1=11307
 phthalocyanine in crystals, n-type conduction 2=16825, 18829
 phthalocyanine, elec. conductivity at high freq. and
 press. 4=26067
 phthalocyanine, metal-free crystals, bulk
 currents 3=8528
 phthalocyanine, metal-free, elec. and thermoelec.
 props. 4=12923
 phthalocyanine, metal-free, Hall effect 2=16730
 phthalocyanines, carrier mobility rel. to e. s. r. 4=10335
 plasma waveguide in transverse mag. field,
 theory 4=27657
 plastic deformation, effect of elec. fields 2=14884
 plastic deformation, effect on elec. props. 1=3735
 polyacrylonitrile, elec. cond. and thermoelec.
 power 1=7656
 polyacrylonitrile, elec. cond., Hall effect, thermoelec.
 power 4=22733
 polyacrylonitrile, pyrolyzed, current noise 4=22734
 poly copper phthalocyanine 0=4358
 polyenes, linear, mobility and elec. cond. calc. 3=4926
 polyethylene, electrical and paramagnetic props.,
 relation between 4=22952
 polyethylene, rectifying effect 4=10073
 polymer; coordination, Cu derivative 3=22950
 polymers 4=22732
 polymers, highly conjugated, synthesis and props. 3=10837
 polymers, organic, piezo-resistive effect 3=852
 polymers, review 4=26068
 proteins, DNA, RNA and purine and pyrimidine
 bases 4=12922
 purification and analysis of Ga, Ge, In, Si 0=2065
 quinones, effect of pressure on resistance 2=18701
 radiation-defect annihilation, kinetics, impurity
 effects 3=22710
 rare-earth-doped, proposed d.c. —pumped laser
 action 3=24521

Semiconducting materials—contd

- rare earth monosulphides and nitrides 3=20342
 rare-earth nitrides, optical and electrical props. 4=20376
 rare earth selenides and tellurides, electrical properties 0=4351
 reflection and transmission coeffs., simultaneous meas. 3=18961
 resistance meas. of thin layers 2=19826
 resistivity meas., continuous reading 4-point probe 2=11581
 resistivity meas., 4-electrode probe method, with Hg contacts 0=3707
 resistivity meas., four-point probe 4=26025
 resistivity meas. up to $5 \times 10^5 \Omega \text{cm}$ and for currents of 0.3–300 Mc/s 4=10069
 resistivity meter for semiconductors 1=10651
 review articles, four 4=12881
 rutile, Al-depend, effect of O_2 pressure 3=15586
 rutile, bulk-cond. 3=10842
 rutile, elec. cond. and Hall coeff., var. with doping and temp. 4=30628
 rutile, elec. conduction props. 2=14359
 rutile (TiO_2) piezoresistivity 0=7949
 rutile, var. of props. with doping 4=30627
 semiconductor-impurity systems, solubility, vapour press. 2=9452
 semiquinone-type molecular complexes 1=7655
 single crystals, high-voltage X-ray lane photography 4=10506
 skutterudite structure cpds. 2=8358
 slices, dice and island production with u.s. drill 0=14362
 solid solns., In basis, structure, props. 2=17053
 solid solutions, thermal conductivity 0=15819
 solid solutions, two two-component compounds 4=1586
 sphalerite and NaCl structures, prop. inter-relations 3=22922
 sphalerite-type structures, magnetic susceptibility rel. to chemical binding 3=20549
 structural defect study, X-ray camera 3=25693
 study, using vacuum microbalance 0=11681
 sulphate phosphors 0=20887
 sulphide semiconductors, sensitivity of rectification 1=1079
 sulphides, preparation in porous plug reactor 4=22723
 sulvanite-type, lattice constants 2=6813
 summary of theoretical papers, Exeter, 1962, conference 3=13047
 surface layer carrier mobility and density 0=13587
 surface props. from i.r. meas. 3=13557
 surface recomb. rate, calc., nomogram 1=6144
 surface recombination vel rel. to humidity 2=21175
 surface structure and props. of diamond-structure types 1=4078
 surfaces, hysteresis in large-signal field effect 2=18667
 susceptibility, meas. by modified Gouy method 3=21925
 synthesis, using vibrational mixing 0=7953
 ternary compounds, predicting props. 0=11680
 ternary cpds., some, thermoelec. power, resist., Hall const. 3=8518
 ternary semicond. cpds., ordering mechanism 3=18350
 ternary systems, mag. susceptibility formulae 0=16128
 tetracene, effect of pressure on resistance 2=18701
 tetracyanoethylene complexes 2=4040
 tetrahedrally bonded, band structure, relativistic corrections 4=9899
 tetramethylbenzidine: Br_2 , conductivities at 27°C 1=17718
 tetramethylbenzidine: I_2 , conductivities at 27°C 1=17718
 tetramethylbenzidine: tetranitromethane, conductivities at 27°C 1=17718
 thermal diffusivity, meas. by Angstrom's method 0=19468
 for thermoelectric cooling 3=19167
 thermoelectric power meas., rapid method 0=18075
 thiazine-iodine complexes, prep. and props. 4=6995
 thin films, elec. props., flicker effect 2=8280
 thin films, electrical props. 0=9953
 thin slices, elec. cond. theory 3=851
 thiospinels, electroluminescence of rare earths 4=13069
 II–V group cpds., non-cubic, props. 1=2416
 II–VI semiconductors, surface props. 1=14461
 III–IV, atomic heat, temp. var. 3=12928
 III–V compounds, crystal growth 4=29053
 III–V compounds, epitaxy by flash evaporation 4=7571

Semiconducting materials—contd

- III–V compounds, g factor, parabolic band 4=1418
 III–V compounds, galvanomagnetic effects rel. to conduction band structure 1=17672
 III–V compounds, mol. effective charge and atomic polarizabilities 3=17637
 III–V compounds, mutual solid solubility, flash evap. meas. 4=15726
 III–V compounds, negative elec. resistance 1=14414
 III–V compounds, thermal expansion coeffs. 1=4970
 III–V cpds., band structure, from press. depend. of absorption edge 1=8986
 III–V cpds., book 1=17671
 III–V cpds., polar scatt. of carriers, calc. 1=3768
 III–V cpds., polishing etchants for 3=6821
 III–V cpds., thermal props., bonding 3=2914
 III–V cpds., valence band structure 3=2753
 III–V cpds. with Zn-blende structure, properties 1=1087
 III–V and II–VI compounds, elec. resistance, temp. coeff. of high-pressure phases 3=859
 III–V and II–VI compounds, review of props. and technical advances 4=26027
 IIIb–Vb cpds., dodecahedral cleavage 1=2516
 "top" resistivity calc., of Czochralski crystals 1=6145
 22 elements and compounds, specific heat 0=1557
 transition element cpds., elec. props. rel. to overlap integral magnitude 2=23412
 transition element oxides, impurity energy levels 2=23308
 transition metal compounds, crystal chemistry 2=6447
 transition metal cpds., 4=1550
 transition metal cpds., criterion of semiconductivity 0=1625
 transition metal cpds with NiAs structure, elec. cond. 4=26043
 transition metal halides, oxides, sulphides, trend to semiconductors 1=17674
 transition metal oxides, classification 4=25890
 transition metal oxides, conduction by internal friction meas. 3=10836
 transition-metal oxides and sulphides, pressure effects on elec. cond. 3=25370
 transition metal semiconducting cpds., crystal chemistry 0=13932
 transition metal silicides 1=3709
 transition-metal silicides, props. 1=5004
 transport phenomena, summary of expl. papers at Exeter, 1962, conference 3=13046
 trap distributions, monotonic, in defective materials 1=14423
 trapping level meas., electrical 3=20326
 trapping levels, fast, meas. from photocond. 3=17846
 triethylammonium—(tetracyanoquinodimethane) $_2$, elec. conduction and charge transfer 4=22729
 tungsten carbide, "hot" electron emission 0=9066
 tyrosine, paramagnetic resonance study 1=11115
 wafer heater, graphite resistance 4=26091
 work function, freq. depend. 2=9611
 zincblende-type, trends in lattice "combination bands" 2=16591
 zone refining, theory 1=15002
 Ag halides doped with Ag sulphide, ionic cond. 2=10495
 Ag halides, electronic conductivity 0=20871
 Ag oxide, i.r. absorption 2=701
 Ag sulphide group semiconductors, theory of mixed cond. 2=2171
 AgBr, Hall mobility of holes 3=13080
 AgBr, Hall mobility of holes in photographic process 0=6955
 AgBr, hole mobility, and photographic process 4=4010
 AgBr, magnetoresist. and cond. band structure 3=8529
 AgCl, AgBr, electron mobility in polaron theory 3=2768
 AgCl, trapping level spectrum, thermal effects 3=8397
 AgFeTe $_2$ 0=15961
 AgFeTe $_2$ 4=10071
 AgFeTe $_2$, constitution 2=14562
 AgFeTe $_2$, existence of two separate phases 1=10049
 AgGeSbSe $_3$, $TiPb_2BiSe_4$, etc., ternary and quaternary systems, properties 1=10040
 AgI thin films, absolute absorption coeff., thickness depend. 0=9951
 AgInSe $_2$, prep. and props. 3=864
 AgInTe $_2$, prep. and props. 3=864
 AgIn $_3$ Te $_5$, cond., elec., Hall effect, and Seebeck coeff. 4=26060

Semiconducting materials—contd

- AgInTe₂-CdTe solid soln., elec. props. 3=876
 AgInTe₂-HgTe solid soln., elec. props. 3=876
 AgInTe₂-HgTe-CdTe solid soln., elec. props. 3=876
 (Ag_x/2 Pb_(1-x)Bi_{1/2}) Te, thermal and elec. cond. 0=4646
 Ag₂S relation btwn. crystal structure and electronic props. 0=7946
 Ag₃SbS₃ 4=26152
 AgSbTe₂ 0=11680
 AgSbTe₂, phase transform at 410° K rel. to elec. cond. 4=25868
 AgSbTe₂-GeTe, alloy, for thermoelectric power generation 1=8967
 AgSbTe₂-PbTe 0=2902
 AgSbTe₂-PbTe alloy, for thermoelectric power generation 1=8967
 AgSbTe₂-PbTe solid soln., elec. props. 3=876
 AgSbTe₂-PbTe-SnTe solid soln., elec. props. 3=876
 AgSbTe₂-Se, effect of doping 3=875
 AgSbTe₂-SnTe, alloy, for thermoelectric power generation 1=8967
 AgSbTe₂-SnTe solid soln., elec. props. 3=876
 Ag₂Se, beta ray effects, 2 MeV 4=10070
 Ag₂Se, Brillouin zone, chemical bonds and conduction mechanism 0=13605
 Ag₂Se, polycryst., diffusion of Cu 2=12459
 Ag₂Se, prep. and props. 4=1622
 Ag₂Se relation btwn. crystal structure and electronic props. 0=7946
 Ag₂Se, thermal and elec. props. 3=2926
 Ag₂Te, degeneracy study for, Hall coeff., resistivity and Seebeck coeff., 55-300° K 1=3772
 Ag₂Te films, conduction by dendrites 1=8957
 Ag₂Te films, electron mobility and conc. 4=23580
 α-Ag₂Te, galvano- and thermomagnetic effects 0=20922
 Ag₂Te, Hall effect and resistivity 1=17757
 Ag₂Te, properties, +20° to -190° C 3=20343
 Ag₃Te, prep. and props. 3=874
 Al oxide, negative resistance 3=20321
 AlAs, properties 0=20923
 Al₂O₃ films, tunnelling 1=3731
 AlP, prep. and props. 1=17717
 AlP, properties 0=20923
 AlSb 0=4598
 AlSb, atomic scatt. factors, electron density distrib. 2=23843
 AlSb, band structure, from press. depend. of absorption edge 1=8986
 AlSb band structure from pressure expts. 1=17706
 AlSb band structure and transport props. 1=17742
 AlSb, direct interband energy gap 3=8586
 AlSb, effect of group IVB impurities 2=16714
 AlSb, electron cond. near melting point 2=4014, 6448
 AlSb i.r. Faraday effect meas. 3=10816
 AlSb, metallic transformations at high pr. 3=11211
 AlSb, n-type props. from i.r. absorption 0=6184
 AlSb, n-type, Te and Se doped, 80-1200° K 0=598
 AlSb, phase transition due to pressure 2=16704
 AlSb, polar scatt. of carriers, calc. 1=3768
 AlSb, prep. and props., of monocrystals and p-n junction 1=19865
 AlSb, properties 0=20923
 AlSb, Ta doping and high resistivity 3=13068
 AlSb, uniformity, qualitative control 4=1587
 AlSb-GaSb alloys 0=12079
 AlSb-GaSb, conductivity and Hall effect 3=25352
 AlSb-GaSb system, hardness, energy gaps, X-ray data 0=6381
 Al-Se, elec. cond., temp. depend. 0=1657
 As, nonohmic magnetoresistance, thermal origin 3=8512
 As sulphides, tellurides, selenides 2=23309
 As₂O₃ sp. ht., structural prop. correl. 0=13490
 As-S-Te system, resistivity and thermoelectric properties 1=7644
 As₂Se₃, films, elec. and photoelec. props. 2=18692
 As₂Se₃, props. rel. to crystalline-vitreous transformation 3=10802
 As₂Se₃-As₂Te₃ 2=23309
 As₂Se₃-As₂Te₃ system, props. of vitreous semiconductors 0=12062
 As-Se-Te system, resistivity and thermoelectric properties 1=7644

Semiconducting materials—contd

- As₂Se₃, effect of impurities on conduction 0=15944
 As-Te-I and As-Te-Br Hall effect 4=26029
 B carbide, energy gap 2=8354
 B, energy gap meas. 2=10800
 B, magnetoelec. and charge storage effects 2=4032
 B, p-type, elec. cond., thermoelectricity 2=21149
 B, resistivity rel. to pressure up to 3×10^5 kgm cm⁻² 3=2902
 B₄C, 2SiC, non-linear properties 0=9972
 BN, cubic, crystal potential and energy bands, calc. 0=4354
 BN, preparation method 2=12895
 BP, properties 0=9971
 B-P alloys, elec. resistivity 0=4355
 B₂SiC, non-linear properties 0=9972
 BaB₆ 3=8330
 (Ba, Sr)TiO₃ with La, Ce and Bi impurities, elec. props. and struct. 4=26030
 (Ba, Sr)TiO₃, piezoresistance negative peak near Curie temp. 1=10085
 BaTiO₃ 1=1070
 BaTiO₃, doped, Hall effect and elec. cond., temp. depend. 3=8515
 BaTiO₃, bead resistor, thermally variable 1=14494
 BaTiO₃, single crystals reduced in H atmosphere, properties 4=15533
 BaTiO₃, La₂O₃- and V₂O₅-doped 2=18693
 BeO films, tunnel current, var. with voltage 4=7017
 Bi-0.2 at. % Sn, light and heavy holes 3=25355
 Bi, Bi-Sb, Ettingshausen figure of merit 3=13070
 Bi binary alloys, carrier mobility and conc. 0=1659
 Bi, carrier concentrations and mobilities 2=18637
 Bi, carrier props. from magnetoreflexion 3=8581
 Bi, carriers, from i.r. absorpt. data 3=4970
 Bi chalcogenide, fused, elec. props. 2=21917
 Bi, change of current carried due to Se admixture 2=3988
 Bi, current carried change due to Se admixture 3=4904
 Bi doped with Te or Sn, Hall effect and resistivity 4=30619
 Bi, effective mass of holes 2=4031
 Bi, elec. and thermal transport properties 3=10808
 Bi, Esaki effect, nonlinear theory 3=25353
 Bi films, large temp. coeff. of res. with Pb, Sn added 4=12883
 Bi, Hall coefficient 3=10807
 Bi, Hall effect, effect of residual vapour 4=1591
 Bi, magnetoelec. effects in strong mag. field 2=3989
 Bi, nonohmic magnetoresistance, thermal origin 3=8512
 Bi, quasistatic cond. in mag. field 3=2903
 Bi, scattering time at low-temp. 3=10809
 Bi telluride, growth of n- and p-type 1=9116
 Bi telluride, prep. of samples for elec. meas. 2=5252
 Bi telluride, single crystal, thermal diffusivity 0=19468
 Bi, thermomagnetic figure of merit 4=4141
 Bi and Bi-Sb alloy, magnetoresistance, non-linear, 2°-4° K 3=10803
 Bi and Bi-Sb alloys, resist. elec. and Hall coeff., var. with grain size 3=20323
 Bi₂S₃, carrier mobility and scattering 0=6089
 Bi₂S₃, Hall effect and cond., single crystals 3=22937
 Bi₂S₃, properties 1=19871
 Bi₂S₃ sp. ht., structural prop. correl. 0=13490
 Bi-Sb alloys, elec. props., concn. dependence 2=4029
 Bi-Sb alloys, Hall coeff. and magnetoresistance tensors, 77° to 300° K 4=10042
 Bi-Sb alloys, Hall const. and resistivity, Sb conc. depend. 1=1072
 Bi-Sb alloys, thermoelec. props., rel. to mag. fld. 77°-295° K 3=10894
 Bi-Sb alloys, thermomagnetic effects, 80° to 300° K 3=10806
 Bi-Sb alloys, thermomagnetic figure of merit, and Ettingshausen cooling 3=22938
 Bi-Sb, effective masses meas. 3=15587
 Bi-Sb system, thin films, resistivity and temp. coeff. 1=19826
 BiSb system, thin films, resistivity and temp. coeff. 2=3986
 Bi_{0.98}Sb_{0.02} temp. effect on transport props. 4=26033
 Bi₁₈Sb₁₅, magneto-, thermoelec. meas., Te doping effects 4=30618
 Bi-Sb-Te alloys 0=2915
 (Bi_{x-x₁}Sb_{1-x₁})_{1-x₁}(TySe_{1-y}), elec. props. 3=17869

Semiconducting materials—contd

- Bi₂Se₃, carrier mobility and scattering 0=6089
 Bi₂Se₃, doping mechanism 3=8516
 Bi₂Se₃, electrical props. rel. to elastic strain 3=10832
 Bi₂Se₃, galvanomagnetic effects at 42°K, erratum 4=15534
 Bi₂Se₃, n-type, galvanomagnetic effects rel. to band structure 1=19870
 Bi₂Se₃, n-type, piezoresistance effect 2=16716, 18695
 Bi₂Se₃ system, differential thermal analysis 0=12081
 Bi₂Se₂ and Bi₂Se₃, carrier concns. and mobility 4=7609
 Bi₂Se₃ and Bi₂Se₃-Se, high temp. props. 0=13606
 BiTe band structure, calc. by augmented plane waves meth. 3=10746
 BiTe, Cu doped, Cu diffusion to surface 2=10484
 BiTe, mobility 3=10805
 Bi-Te solid solns., props. 0=4352
 Bi-Te solid solutions, electrical props., 77°-300°K 4=10045
 Bi₂Te₃ 0=2915
 Bi₂Te₃, anisotropic carrier scatt. 1=5021
 Bi₂Te₃, anisotropic Cu diffusion 0=11643
 Bi₂Te₃, anisotropy of elec. cond. 2=640
 Bi₂Te₃, carrier mass, from i.r. absorption meas. 1=1146
 Bi₂Te₃, carrier mobility and scattering 0=6089
 Bi₂Te₃, carrier scattering on impurities 2=12525, 14546
 Bi₂Te₃, cond., Hall effect, thermoelec., var. with Ge, Pb doping, 100-400°K 4=15535
 Bi₂Te₃, donor and acceptor states 0=13607
 Bi₂Te₃, effects of heavy deform. and annealing 2=18697
 Bi₂Te₃, elec. potl., rel. to mechanical deformation 3=2901
 Bi₂Te₃, elec. props. and spec. heat 0=8858
 Bi₂Te₃, elec. resistance rel. to pressure up to 200 000 kg/cm² 4=1616
 Bi₂Te₃, elec. and thermoelec. props. 2=4079, 8449
 Bi₂Te₃, electrical props. rel. to elastic strain 3=10832
 Bi₂Te₃, electron scattering on phonons 2=6440, 10454
 Bi₂Te₃, electronic band structure 3=10627
 Bi₂Te₃, energy spectrum of holes 0=7936
 Bi₂Te₃, free carrier plasma edges 3=22939
 Bi₂Te₃, galvanomagnetic props., anisotropy 3=10804
 Bi₂Te₃, Ge doped, elec. and therm. cond. meas. 4=28380
 Bi₂Te₃, hole energy spectrum 1=12442
 Bi₂Te₃, impurity effects 2=23161
 Bi₂Te₃, magnetoelectric anisotropy, low temp., suitable cryostat 4=16310
 Bi₂Te₃, magnetoresistance, oscillatory, 77°, 4.2°, 2.08°K 4=6947
 Bi₂Te₃, n-type, electron cond. anisotropy 2=14547, 18694
 Bi₂Te₃, n-type, thermal diffusivity 2=4080
 Bi₂Te₃, opt. and elec. props. 0=4353
 Bi₂Te₃, p- and n-type, electrical and galvanomagnetic coeffs. 1=17719
 Bi₂Te₃, p-type, Hall coeff. temp. depend. 2=18696
 Bi₂Te₃, p-type, magnetoelec. props., model and anisotropy 1=19869
 Bi₂Te₃, p-type, magnetoelec. props., model and anisotropy 2=6462
 Bi₂Te₃, p-type, piezoresistance effect 2=4028
 Bi₂Te₃, piezoresistance effect 2=16716, 18695
 Bi₂Te₃, prediction rules of semiconductivity 0=11682
 Bi₂Te₃, resistivity rel. to pressure 4=10044
 Bi₂Te₃, single crystal films, prepn. by cathodic sputtering 4=4665
 Bi₂Te₃ system, differential thermal analysis 0=12081
 Bi₂Te₃, thermal cond. and thermoelec. power 1=1115
 Bi₂Te₃, thermal expansion 2=3846
 Bi₂Te₃, u.s. absorption 2=23054
 Bi₂Te₃, unit cell angle, rel. to transport props. 4=30846
 Bi₂Te₃-Bi₂S₃ 0=6387
 Bi₂Te₃-Bi₂S₃, carrier scattering 0=2890
 Bi₂Te₃-Bi₂Se₃ alloys, energy gap 3=13500
 Bi₂Te₃-Bi₂Se₃, carrier scattering 0=2890
 Bi₂Te₃-Bi₂Se₃, elec. cond. and thermo-e.m.f. ageing effects 0=2889
 Bi₂Te₃-Bi₂Se₃ systems, elec. cond. and carrier props. 2=16763, 18756
 Bi₈Te₇S₅, anisotropy of elec. props. 2=16717
 Bi₈Te₇S₅, infrared props. 2=14687
 Bi₂Te₃-Sb₂Te₃ alloys, energy gap 2=15050
 Bi₂Te₃-Sb₂Te₃, carrier scattering 0=2890

Semiconducting materials—contd

- Bi₂Te₃-Sb₂Te₃, p-type, transport props. 80°-370°K 2=23372
 Bi₂Te₃-Sb₂Te₃, doping effects of Pb, I, and Ag 1=8968
 Bi₂Te₃-Sb₂Te₃, effect of oxygen content on electric properties 1=17603
 Bi₂Te₃-Sb₂Te₃, effect of oxygen on elec. props. 3=860
 Bi₂Te₃-Sb₂Te₃, thermoelectricity, temp. var., and conductivity 4=1697
 C, resistivity rel. to pressure up to 3 × 10⁶ kgm cm⁻² 3=2902
 CSi, surface energy 0=13467
 CaB 3=8330
 CaO⁶, elec. cond. and thermoelec. power 1=17725
 CaO, n-type cond. and thermoelec. power 4=22705
 Cd cpds, electrical and optical properties 1=17670
 Cd telluride, surface layer investigation 0=7937
 CdAs₂ cpds., electrical and optical properties 1=17670
 CdAs₂, cyclotron resonance 0=1571
 Cd₃As₂, Cu doped, elec. props. analysis 3=2906
 Cd₃As₂, Fermi level, carrier mobility and conc. 1=17811
 Cd₃As₂, Hall mobility 36 000 cm²/volt-sec 0=603
 CdAs₂, cyclotron reson. 2=23133
 CdAs₂, n-type, galvanomagnetic props. 1=7645
 CdAs₂, preparation and properties 1=14462
 CdAs₂, props. 1=2416
 Cd₃As₂, density-of-states effective mass 2=6266
 Cd₃As₂, n-type, elec. props. 2=23374
 Cd₃As₂, preparation and properties 1=14462
 Cd₃As₂, props. 1=2416
 CdF₂, conversion from insulator 3=8522
 CdF₂, electron density and mobility 2=14551
 CdGeAs₂ 4=1593
 CdGeAs₂, thermoelec. power, resist., Hall const. 3=8518
 Cd_xHg_{1-x}Te alloys, optical and electrical properties 3=10938
 Cd_xHg_{1-x}Te, elec. and opt. props. 2=4034
 Cd_{0.1}Hg_{0.9}Te, prep., doping and elec. props. 4=28554
 Cd_xHg_{1-x}Te, forbidden energy gap from optical absorpt. meas. 4=13027
 CdIn₂Se₄ 0=18036
 CdIn₂Se₄, electron band symmetry 0=2891
 CdIn₂Se₄, prep. and props. 3=864
 CdIn₂Se₄, resistivity and thermal e.m.f. rel. to temp. 3=25350
 CdIn₂Se₄-type, energy-band structure 0=15947
 CdIn₂Te₄, n-type, elec. props., temp. depend. 4=6949
 CdIn₂Te₄, prep. and props. 3=864
 CdIn₂Te₄, resistivity and thermal e.m.f. rel. to temp. 3=25350
 CdO 2=21150
 CdO, conductivity, thermoelec. power 2=18698
 CdO, elec. and optical props. 0=11752
 CdO, electron mass and mobility 2=6553
 CdO films, elec. and optical props. 3=25359
 CdO, optical consts, rel. to electron concentration 4=10165
 Cd₃P₂, prep. and props. 4=26036
 Cd(P,As)₃(Cl,Br,I)₃, five ternary compounds 4=1594
 CdS, absorption by free carriers, rel. to effective mass 2=2159
 CdS acoustic wave amplification, by electron-phonon interaction 3=20092
 CdS, barrier-free contacts of Al 0=6117
 CdS, bound exciton complexes 2=2068
 CdS, bound excitons 3=10630
 CdS, carrier mobility and scattering 3=8523
 CdS, collective elastic wave propagn., freq. and temp. var., calc. 4=30516
 CdS, conduction oscs. 4=26041
 CdS, contacts with Au, In, Ga, Al, Cd 2=18725
 CdS crystals, deuteron bombardment effects 0=1662
 CdS crystals with hollow centres, growth 4=29046
 CdS, Cu-doped, capture cross-section rel. to energy of traps 2=4195
 CdS, current and field inhomogeneities 3=2905
 CdS, current noise due to ohmic contacts 0=13606
 CdS, current saturation, hypersonic wave generation 2=23377
 CdS, d.c. characteristics, majority carrier injection 1=19873
 CdS, donor imperfections rel. to hybrid Frenkel-type disorders 3=2788

Semiconducting materials—contd

- CdS, drift mobility of electrons and holes, 500-80°K 3=4918
 CdS, effect of defects on elec. conduction 2=642
 CdS, effect on elec. props. of neutron irradi. 3=4917
 CdS, effect of heat treatment in vacuum and O₂ 2=4060
 CdS, effect of hydrostatic pressure 3=15588
 CdS, effect of light on contact potential 0=1626
 CdS, elec. cond., effect of electron bombard. 2=14549
 CdS, elec. conductivity and contact materials 1=17722
 CdS, elec. properties after ionic bombardment 1=17721
 CdS, electrical conductivity and Hall effect 3=25360
 CdS, electrical pot. distrib., anode drop, sorbed gas effects 3=17872
 CdS, electroluminescence 2=6639
 CdS, electroluminescence in d.c., obs. 2=2263
 CdS, electron bombardment, energy transport processes 3=13072
 CdS, electron mobility 3=22941
 CdS, electronic processes 0=20914
 CdS, energy terms linear in wave vector, optical effects 4=26181
 CdS, evap. films, elec. breakdown mechanism 2=6464
 CdS exciton states and band structure 1=17475
 CdS, excitons, photon recoil during formation and decay 2=8191
 CdS, Faraday rotation due to free electrons 2=16806
 CdS, field effect in illum. monocrystals 0=6118
 CdS, films, current noise 3=25361
 CdS, films, defect annealing, effect on elec. props. 2=2160
 CdS films, elec. props. 2=18718
 CdS films, electrical conductivity, rel. to external electric field 4=10046
 CdS films, Hall effect studies 4=26040
 CdS, I-V curves, for static and pulsed voltages 0=18088
 CdS, γ -ray induced conductivity 3=2908
 CdS, γ -ray induced elec. cond. 0=15983
 CdS, Hall mobility of photoelectrons 4=17528
 CdS, high current-density distrib. 2=2158
 CdS, high temp. elec. conduction, ionic contrib. 1=17720
 CdS, hole injection from Cu₂S 3=25382
 CdS, hole mobility and lifetime 2=14550
 CdS i.r. absorption bands rel. to double phonon process 1=17401
 CdS i.r. emittance rel. to absorption processes, 323° to 473°K 3=10961
 CdS, i.r. quenching effects 0=1768
 CdS, illuminated u.s. absorption and elec. conductivity 2=3833
 CdS, impurity photocond., 2-4 μ , mechanism 0=15985
 CdS, impurity scatt. of electrons 4=1598
 CdS, internal friction due to photocond. 2=10739
 CdS, irradi., elec. stimulated currents 1=3762
 CdS, layer-like field inhomogeneities, artificial 4=12888
 CdS, light absorption edge, effect of high pressure 2=2225
 CdS, low temp. elec. cond., photocond. effects 1=19874
 CdS, luminesc. spectrum due to electron bombard. 2=10630
 CdS, magnetoresistance, negative, var. with Cl doping 4=12886
 CdS, mixed ambipolar and exciton diffusion 0=13525
 CdS, n-type, Hall mobility 3=863
 CdS, n-type, u.v. excitn., photo e.m.f. 3=2974
 CdS, negative resist. and double-carrier injection 4=12887
 CdS, Ohmic contacts problem 4=12984
 CdS, optical props. of free electrons 1=17864
 CdS, PEM and photocond., rel. to hole props. 2=8442
 CdS, persistent internal polarization, theory 2=4089
 CdS, phase transition due to pressure 2=16705
 CdS phonon drag rel. to piezoelectric scattering 1=17857
 CdS, photocond. decay time, rel. to temp. and illumination 1=19901
 CdS, photocond. due to X-rays, linearity 2=10530
 CdS, photocond., effect of strong elec. field 2=10529
 CdS, photoconductivity, role of contacts 1=19902
 CdS, photocurrent, effect of shadow region 3=13131
 CdS, photocurrent, X-ray effects 2=12545
 CdS, photodielec. effect, 50 c/s-300 kc/s 4=26145
 CdS, photoelectromag. anomaly, rel. to hot electrons 2=8443
 CdS, photoemission, exciton induction 2=5372
 CdS photoresistors, dark conductivity 2=21189, 23456

Semiconducting materials—contd

- CdS plate crystals, optico-mechanical effects 0=1715
 CdS, polycryst., photocurrent carriers 3=905
 CdS, polycrystalline, photodielectric props. 0=20953
 CdS, in pulsed mag. fields, current-voltage saturation 4=12885
 CdS, pure, photosensitivity, spectral depend. 2=10527
 CdS, recombination coefficient 1=3761
 CdS, reflection spectrum 0=6185
 CdS, self-activated conductivity meas. 4=1597
 CdS, shallow traps, capture cross-sections, modulated light method 1=1105
 CdS, shallow traps, props. 2=23375
 CdS single crystal, current oscillations induced by light irradi., local 4=28640
 CdS single crystals, elec. cond. process 0=1664-6
 CdS single crystals, elec. fields, conduction study 0=1664-6
 CdS single crystals having evaporated metallic contacts, elec. props. 4=12853
 CdS single crystals, i.r. quenching of photoconductivity 0=2910
 CdS single crystals, photoelectric polarization and photo-magnetoelectric effects 4=26038
 CdS, single crystals, precipitation of impurities 4=13479
 CdS single crystals, surface props. 4=22707
 CdS, space-charge-limited current, expt. 3=861
 CdS, space charge limited current, noise 3=8520
 CdS, space-charge-limited currents 3=25362
 CdS, space-charge limited currents, effect of glow discharge and γ -irradi. 0=18038
 CdS, space-charge-limited currents, modulation 3=862
 CdS, space-charge limited injection currents 3=2907
 CdS, space charge oscillations 0=6086
 CdS, surface conduction 3=17900
 CdS, surface states model 2=21190
 CdS, thermally-excited currents, heat treatment effects 1=14463
 CdS, thermally-stimulated conduction 0=11674
 CdS, thermally stimulated conductivity, rel. to trapping levels 4=1595
 CdS, thermally stimulated elec. cond., elec. field effect 2=23376
 CdS, thermally stimulated elec. cond., elec. field effect 3=6592
 CdS, thermally-stimulated elec. cond. rel. to prelim. illumination 4=1596
 CdS, trap density meas. 2=23154
 CdS, trapped space charge, thermal release 3=4949
 CdS, trapping cross-sections, from photocond. growth 1=3785
 CdS, trapping level meas., electrical 3=20326
 CdS, true photoconductivity 3=17955
 CdS-type, elec. cond. contact-less study 4=26039
 CdS-type, excitons, review 1=14222
 CdS, u.s. amplification, rel. to electron-lattice interaction 3=10730
 CdS, u.s., free carrier trapping effect 4=21236
 CdS, u.s. wave amplification by d.c. field 2=18784
 CdS, unactivated, energy levels 2=10485
 CdS, under high elec. load, high-temp. layers formation 2=4100
 CdS, X-ray spectrum, short wave limit 3=4919
 CdS-CdTe 0=621
 CdS:Cu, hole conduction 0=4356
 CdS:Ga:Cu, hole ionization energy of imperfections, rel. to impurity conc. 0=1663
 CdS, O impurity position in lattice, rel. to semi-insulation props. 0=18041
 CdSb, Ag-doped, elec. props. meas. 4=20356
 CdSb, Au doping effects, temp. var. 4=28555
 CdSb, band structure 3=10811
 CdSb, conductivity, Hall effect, temp. var., carrier mobility 3=25358
 CdSb, conductivity, type 3=25357
 CdSb, cyclotron res. 2=23133
 CdSb, elec. and optical props. 2=23415
 CdSb, elec. props. at low temp. 2=641, 8355
 CdSb, elec. and thermal props. 2=20949
 CdSb, elec. and thermoelec. props. 3=17971
 CdSb, electron states, extremal points, dispersion 3=17684
 CdSb, energy gap, carrier props. and conductivity 2=8356

Semiconducting materials—contd

- CdSb, Hall anisotropy, 77-340°K, and mobilities 4=4143
 CdSb, hole mobility anisotropy from elec. props. 4=6948
 CdSb, impurity effects on elec., thermoelec. props. 3=20325
 CdSb monocrystals, Hall const. 0=15946
 CdSb, p-type, elec. and optical props. 2=23373
 CdSb preparation and properties 1=14462
 CdSb, props. 1=2416
 CdSb, temp. depend. 0=1660
 CdSb thin films, elec. conductivity 2=6460
 CdSb, 2-4-4.2°K 3=25356
 CsSb and Cs₃Sb, elec., optical and photoelec. props. 0=11709
 CdSb, In, temp. depend. 0=1660
 CdSb, two forms, elec. and opt. props. 2=4033
 CdSb and ZnSb, symmetry of energy zones 4=4142
 Cd₃Sb₃, elec. and thermoelec. props. 2=16719, 18699
 CdSe, conduct. induced by electron irradi. 3=17873
 CdSe, conduction mechanism by Se vacancies 1=12444
 CdSe crystals, photoconductive mixing 4=4230
 CdSe, elec. conductivity and contact materials 1=17722
 CdSe, elec. field effects, temp. depend. 0=1661
 CdSe, elec. pulse generation at low temp. 2=18737, 23451
 CdSe, electrical properties 4=4144
 CdSe, exciton lines and lattice defects 3=6652
 CdSe exciton states and band structure 1=17475
 CdSe, exciton structure in external magnetic fields and Zeeman effects 1=17474
 CdSe, exciton structure, spectral data 2=10359
 CdSe, excitons, valence band 3=20441
 CdSe films, electron irradi., electrical cond. 0=605
 CdSe, frequency mixing of ruby laser axial modes 3=9970
 CdSe, gamma conductivity 2=3968, 8260
 CdSe, γ-ray induced conductivity 3=2908
 CdSe, growth at Cd-Se contact 0=602
 CdSe layers, conductivity due to electron irradi. 3=2910
 CdSe layers, photovoltaic effect meas. 2=21192
 CdSe, photo induced oscills. for localized illum. 4=10125
 CdSe, resist. and relative photosensitivity 4=22797
 CdSe single crystals, current oscillations, undamped, light beam present, expt. 4=28641
 CdSe, surface interact. with O₂, meas. 3=11326
 CdSe + Ag single crystals, minority carrier lifetime 0=7958
 CdSe-In₂Se₃ ordered solid solutions 0=18036
 CdSnAs₂, conduction band, calc. 3=17871
 CdSnAs₂, elec. cond. and Hall coeff. 1=8952
 CdSnAs₂, as electronic analogue of InAs 2=14548
 CdSnAs₂, n-type, prep. and props. 1=17723
 CdSnAs₂, n-type, semicond. props. 3=4920
 CdSnAs₂, thermoelec. power, resist., Hall const. 3=8518
 xCdSnAs₂-y(2InAs), cond., Hall coeff. 2=10486
 CdTe, acceptor states, shallow and deep 4=4145
 CdTe, band structure 3=25472
 CdTe, capture levels, from photocond. meas. 3=15628
 CdTe, Cr acceptor level 3=20646
 CdTe, doped with In and I, carrier conc., 25° to 250°C 2=23084
 CdTe, double acceptor centre, props. 4=17420
 CdTe, double acceptor defect 3=17874
 CdTe, effective electron mass eval. 3=10812
 CdTe, elec. resistance rel. to pressure up to 200 000 kg/cm² 4=1616
 CdTe, etch pits and polarity 2=19044
 CdTe, etched, surface layers, elec. props. 4=12889
 CdTe, excess carrier decay times, X-ray pulse study 0=13589
 CdTe, excitons and band splitting by uniaxial stress 1=17724
 CdTe, excitons, valence band 3=20441
 CdTe films, conductivity and photoelec. props. 0=15986
 CdTe films, rel. to deposition temp. 3=23508
 CdTe, impurity photoconductivity, kinetics 1=19904
 CdTe, impurity photoconductivity, kinetics 2=4063
 CdTe, kinetic behaviour of Au atoms 2=21062
 CdTe, n-type, elec. transport meas. 3=8519
 CdTe, n-type, Fermi level position meas. 3=2758
 CdTe, n-type, with In or Ga, elec. and opt. props. 2=16720
 CdTe, optical constants 1=19943
 CdTe, p-type, electrical and optical properties 1=12445

Semiconducting materials—contd

- CdTe, permittivity near band edge 2=14602
 Cd-Te, phase equilibria meas. 2=19089
 CdTe, phase equilibria and semiconducting properties 0=2893
 CdTe, phase transition due to pressure 2=16705
 CdTe, prep. and props. 4=1622
 CdTe, valence band, l.c.b.o. method 3=779
 CdTe, X-ray spectrum short wave limit 3=4919
 CdTe-CdSe alloys, elec. and thermal props. 4=22706
 CdTe-HgTe system, electrical properties 1=14464
 CdTe-In₂Te₃ peritectics, energy gap values from elec. cond. and Hall effect meas. 4=6950
 Cd₃₋₂Zn_xAs₂, 100°-700°K, rel. to composn. 4=26042
 Ce sulphides, resistivity, 4-1300°K 2=8451
 CeS, elec. props. and forbidden band width 4=6952
 Ce-S, polaron band model 1=17479
 Ce₂S₃, conductivity, thermoelectricity, 20-1000°C 4=4161
 Ce₂S₃, elec. props. and forbidden band width 4=6952
 Ce₂S₃, elec. props. and forbidden band width 4=6952
 Ce_{3-x}S₄, conduction band structure 3=10628
 Ce_{3-x}S₄, x > 0.3, electron transport rel. to temp. 4=10048
 Ce_{3-x}S₄, x = 0-0.3, semimetallic props. analysis 4=10047
 Co complex oxides, valence states, X-ray analysis 4=6691
 CoAl₂O₄, electron and ionic cond. 3=15589
 CoAsS, cond. elec., temp. var., paramagnetism 3=6601
 CoAsSe, magnetism and electrical conductivity 0=7934
 CoCrO₄, electron and ionic cond. 3=15589
 Co_{1-x}Fe_xSi, semimetal props. meas. 4=17486
 Co_{1-x}Li_xV₂O₄, temp. var. 4=12891
 CoO-NiO-O₂ elec. props. 0=15950
 CoP₃, CoAs₃, CoSb₃, band gaps, reasons for props. 2=8358
 CoPS, magnetism and electrical conductivity 0=7934
 CoSb₃, doping effects 0=607
 CoSb₃, elec. and thermoelec. props. 0=10006
 CoSb₃-type cpds, semiconductivity 3=20329
 CoSbS, magnetism and electrical conductivity 0=7934
 CoV₂O₄-Co₂VO₄, elec. cond., temp. depend. 0=4366
 Cr carbides, temp. depend. of props. 2=23378
 Cr disilicide 1=3716
 Cr nitrides, elec., thermoelec. props. 3=865
 CrN, carrier activation energy meas. 4=12906
 Cr₂O₃, conductivity, rel. to nuclear radiation 3=2909
 Cr₂O₃, neutron irradi. effect on elec. conductivity in p-type 4=10049
 CrS(1.7-1.11) p-type 1=11250
 CrS_x (x = 0.95-1.20), elec. cond. and thermoelec. power 1=14465
 CrSb, criterion of semiconductivity 0=1625
 CrSi₂, n and p-type, semicond. props. 4=20357
 CsAu, band structure 2=5373
 CsAu, electronic band structure 2=14405
 CsAu, resistivity, Hall const., Seebeck coeff. 3=20328
 Cs₃Bi(Ag), pair-prod. by low-energy electrons 2=8357
 [Cs]₂Na₂K₂Sb, pair-prod. by low-energy electrons 2=8357
 Cs₃Sb, properties rel. to crystal structure 1=15081
 Cs₃Sb, photoelectric emission, anomaly 4=572
 Cu phthalocyanine, elec. props. and charge carriers 4=6994
 Cu phthalocyanine, Hall effect and carrier mobility 3=2911
 Cu[A^{IV}B^{VI}]₂ type, crystal structure 3=13513
 CuFeS₂ 3=1027
 CuFeS₂, magnetic, electrical props. 1=19872
 CuGeAsSe 4=1586
 Cu₂GeSe₃, synthesized by fusion 1=1443
 Cu₂GeTe₃, synthesized by fusion 1=1443
 CuI films, oxygen-controlled conduction 3=13071
 CuI films on polycarbonate, 1/f noise 4=26050
 CuI layers on transparent polymers 2=23379
 CuInSe₂, prep. and props. 3=864
 CuInTe₂, prep. and props. 3=864
 CuO, effect of sintering on elec. props. 2=6465
 CuO, work function, effect of oxide additions 0=11710
 Cu₂O, Ag diffusion, new acceptor energy level 1=19876
 Cu₂O, band structure, calc. 1=17884
 Cu₂O, conductivity depend. on O₂ press. 0=1668
 Cu₂O, elec. cond. of single crystal 1=17727
 Cu₂O, elec. cond. of single crystal, 500-1100°C, in O₂ 1=7646
 Cu₂O, electrical cond. rel. to air and water adsorption 4=1770
 Cu₂O, electron transitions, rel. to optical props. 1=19966
 Cu₂O, exo-electron emission 0=1142

Semiconducting materials—contd

- Cu₂O, films, absorption spectrum 0=20982
 Cu₂O, Hall effect, rel. to defect structure 3=22735
 Cu₂O, inversion layer at surface 2=23380
 Cu₂O, large area single crystals, growth 0=10284
 Cu₂O layers, field effect and variation with oxygen press. and temp. 0=7939
 Cu₂O, luminescence and elec. cond., elec. field effect 3=22942
 Cu₂O, negative photoconductivity 1=6179
 Cu₂O, photocond. rel. to semicond. props. 0=6138
 Cu₂O, photoelectromag. effect, rel. to band structure 2=10541
 Cu₂O, polaron mass 0=7940
 Cu₂O, polaron-produced absorption spectrum 0=644
 Cu₂O single crystal, effect of oxygen 1=17726
 Cu₂O, surface mobility of Cu⁺ ion vacancies 1=3765
 Cu₂O, visible light absorption, temp. depend. 0=643
 Cu₂O, Cu⁺ mobility, from electroluminescence 0=1766
 CuO—CoO system, cond., thermoelec. 4=12890
 Cu₂O—Nb₂O₅, structure and elec. props. 2=8359
 Cu₂O—V₂O₅, structure and elec. props. 2=8359
 Cu₂PbS₃, synthesized by fusion 1=12443
 Cu₂PbSe₃, synthesized by fusion 1=12443
 Cu₂PbTe₃, synthesized by fusion 1=12443
 Cu₂SnS₃, synthesized by fusion 1=12443
 Cu₂SnSe₃, synthesized by fusion 1=12443
 Cu₂SnTe₃, synthesized by fusion 1=12443
 Eu₂O₃, conductivity, var. with sintering temp. 4=4147
 Fe oxides, rel. to Fe/O ratio, electron transfer model 2=10490
 FeAs₂, cond. elec., temp. var., paramagnetism 3=6601
 FeAs₂, magnetism and electrical conductivity 0=7934
 FeAsS, cond. elec., temp. var., paramagnetism 3=6601
 FeAsS, magnetism and electrical conductivity 0=7934
 FeAsSc, magnetism and electrical conductivity 0=7934
 Fe₂O₃, α -phase, elec. props., impurity effects 4=1599
 Fe₂O₃, α -phase, pure, carrier processes 4=1600
 Fe₂O₄, structure, electron diffraction study 0=18344
 FeP₂, magnetism and electrical conductivity 0=7934
 FePS, magnetism and electrical conductivity 0=7934
 FeS_x ($x = 1.00-1.14$), conduction anomalies 1=14760
 FeSb₂, elec. cond. and thermoelec. power 1=3769
 FeSb₂, magnetism and electrical conductivity 0=7934
 FeSe₂, elec. cond. and thermoelec. power 1=3769
 FeSe₂, magnetism and electrical conductivity 0=7934
 FeSi₂, n and p-type meas. 4=12998
 FeTe₂, elec. cond. and thermoelec. power 1=3769
 Fe₂Te₃, Hall coeff., elec. cond. 4=28565
 Ga arsenoselenides, 500-1000°K 1=3766
 Ga, purification and analysis 0=2065
 GaAs, acceptor behaviour of Mn 2=14553
 GaAs, α -Ga₂O₃ crystallite impurities 2=12428
 GaAs, amphoteric behaviour of Ge in 2=16721
 GaAs, band structure and electron transport 1=1073
 GaAs band structure from pressure expts. 1=17706
 GaAs band structure and transport props. 1=17742
 GaAs, band structure and transport props. 2=23106
 GaAs, behaviour of Li, rel. to Zn and Te doping 3=10818
 GaAs, carrier concentration meas. 3=17878
 GaAs, carrier lifetime, by PEM and PC voltages 2=23389
 GaAs, cond. and Hall const., 2-600°K 1=14467
 GaAs, conduction pulses by γ -ray bombard. 0=17287
 GaAs, contamination during growth 2=10801
 GaAs, crystal growth, reduction of Si contamination 3=13416
 GaAs, crystal growth, sources of contamination 4=29052
 GaAs, crystal growth from vapour phase 2=10793
 GaAs, crystal-pulling furnace 1=14994
 GaAs, current carrier scattering and spectrum energy 1=17730
 GaAs, current and Hall coeff. rel. to elec. fld, 4°-30°K 3=10813
 GaAs, current instabilities in applied elec. field in n-type 4=26044
 GaAs, current saturation at 77°K, optical phonon effect 4=17392
 GaAs, defects prod. by Li 3=8423
 GaAs, degenerate p-type, i.r. absorption edge 2=8528

Semiconducting materials—contd

- GaAs, Dember and photoelectromag. effects, 140° to 300°K 2=4075
 GaAs, diamag. susceptibility rel. to electron conc. 2=8600
 GaAs, diffusion and solubility of Cu 4=12791
 GaAs, donor-doped, acceptors, rel. to Li diffusion 3=17877
 GaAs doped with Se, Te, Zn and Cd, elec. props. and lattice parameters 4=26045
 GaAs, doping behaviour of Se, model 3=12942
 GaAs, effect of As pressure on Ge doping 0=20915
 GaAs, effect of Mg impurity on elec. props. 1=14466
 GaAs, effective electron mass, from Faraday effect, i.r. 3=17986
 GaAs, effects of Cu precipitation 0=18039
 GaAs, elec. cond., rel. to high defect concn. 3=791
 GaAs, elec. props. of Li 2=18598
 GaAs, elec. props. 1.8°-300°K 3=10814
 GaAs, electrical activity of Cu in, 600-1000°C 4=15536
 GaAs, electrochemical behaviour 2=16754
 GaAs, electroluminescence, i.r., effect of Cu impurities 4=7184
 GaAs, electron concentration rel. to Si addition 2=23386
 GaAs, electron density distribution 1=12638
 GaAs, electron effective mass, depend. on density 3=17885
 GaAs, electron effective mass, Fermi energy, from absorpt., light 3=23070
 GaAs, electron effective mass, rel. to temp. and doping 1=2414
 GaAs, electron and hole scattering 3=17884
 GaAs electron-mass, effective, temperature-dependence, 117°-600°K 4=6943
 GaAs, electronic band structure 1=19735
 GaAs, energy-band structure 1=14455
 GaAs, energy-band structure 1=17705
 GaAs, energy-level model 2=2163
 GaAs, Esaki diodes, excess noise rel. to bias and allowed states 1=17767
 GaAs evap. layers, prep., props. 2=18702
 GaAs, Faraday effect, determ. of effective electron mass. 0=7872
 GaAs, Faraday rotation at photon frequencies below energy gap 1=17740
 GaAs, field effect, large signal, meas. 2=11574
 GaAs films, cond. and Hall effect 1=20668
 GaAs films, elec. props. 2=4377
 GaAs films, preparation 3=17875
 GaAs, forbidden band, discrete defect energy levels 1=17766
 GaAs, GaSb, dielectric const., bandgap and occupancy 4=28557
 GaAs, galvano- and thermomagnetic effects, on n-type 3=10817
 GaAs, galvanomagnetic effects rel. to structure 1=17672
 GaAs growth from Ga, zone-melting technique 3=23410
 GaAs, Hall effect meas. before and after Cu removal, rel. to vacancies 4=12726
 GaAs, heat treatment 0=13611
 GaAs, under high elec. fields 3=17876
 GaAs, high-purity, growth from melt 2=19048
 GaAs, high-resist., prep. and characterization 2=23392
 GaAs, high resistivity, electrical transients 4=12894
 GaAs, high resistivity inhomogeneities and dislocations 4=6955
 GaAs, high temp. Hall coeff. 0=9973
 GaAs, i.r. absorption rel. to energy bands 2=8495
 GaAs, impurity diffusion, effect of As pressure 2=10414
 GaAs, interband transitions, reflectance 2=18673
 GaAs, laser-type, optical absorption meas. 4=13035
 GaAs lattice absorption i.r. bands, shell model applic. 3=10927
 GaAs, lattice absorption, 10-40 μ , 20°-292°K 1=17898
 GaAs, Li diffusion, elec. behaviour 2=18599
 GaAs, magnetoresistance and Hall effect, anomalous behaviour 0=18046
 GaAs, magnetoresistance, negative, 4.2°K 4=28556
 GaAs, maser action by exciton transition, possibility 2=18671
 GaAs, Me ionization energy 3=4922
 GaAs, minority-carrier diffusion length 2=2131
 GaAs, n- and p-type, charge-carrier scatt. and impurity zone cond. 2=23390

Semiconducting materials—contd

- GaAs, n and p-type, surface meas. 4=12893
 GaAs, n-type, with diffused Ge, rel. to resistivity and energy levels 2=23384
 GaAs, n-type, elec. and optical props. rel. to irradi. and annealing 2=23387
 GaAs, n-type, electron-irrad., annealing behaviour 2=21005
 GaAs, n-type, impurity band conduction 2=18704, 23391
 GaAs, n-type, magnetoresistance 0=6121
 GaAs, n-type, Nernst effect 2=16722
 GaAs, n-type, Nernst-Ettingshausen effect 0=608
 GaAs, n-type, radiant heat treatment effects 2=8361
 GaAs, n-type, thermal conversion to p-type 0=18040
 GaAs, Nernst effect with electrons in 2 superposed bands 1=14387
 GaAs, Nernst-Ettingshausen effect. 200°-800°K 1=11266
 GaAs, new scatt. mechanism 2=23385
 GaAs, O impurity position in lattice, rel. to semi-insulator props. 0=18041
 GaAs optical, absorption edge rel. to electric field 1=17729
 GaAs, optical absorption edge rel. to electron states 1=19970
 GaAs, optical study with view to laser prod. 4=28688
 GaAs, optical transitions involving impurities 4=6776
 GaAs, oscills. due to deep levels 3=15583
 GaAs, p-type, holes from Sn, photovoltaic effect 2=16723
 GaAs, p-type, impurity levels and mobility 2=23388
 GaAs, p-type, props., prep. by Cu diffusion 0=11711
 GaAs, phase transition due to pressure 2=16704
 GaAs, photoelectric properties, 78°-295°K 4=10127
 GaAs, photoelectron analysis 0=6139
 GaAs, photo-Hall effect in high resistivity crystals, temp. depend. 3=6632-3
 GaAs, piezoresistance coeffs. 2=23394
 GaAs, polar scatt. of carriers, calc. 1=3768
 GaAs, properties 0=20923
 GaAs, rapid Zn diffusion mechanism 2=21066
 GaAs, reactor irradi., annealing props. 4=6899
 GaAs, recomb. radiation spectrum 2=21160
 GaAs, recombination radiation 3=10853
 GaAs, recombination radiation obs. 3=4921
 GaAs, recombination spectrum, effect of doping 3=20476
 GaAs, reflection spectra rel. to band struct. 3=925
 GaAs reflectivity; dispersion relations 1=17865
 GaAs, reflectivity, fundamental, at low-temp. 2=21226
 GaAs, resistivity and Hall coeff. of n-type, 2-300°K 2=18705
 GaAs, S, Se and Te diffusion, n-p junction formation 4=17441
 GaAs, self-diffusion and diffusion of Cd, Zn, S, Se 1=4991
 GaAs, semi-insulating props. 1=17731
 GaAs, Sn impurity diffusion 1=12401
 GaAs, space-charge currents, unfilled traps conc. 1=5022
 GaAs, spectrum, recomb. radiation, 77-300°K, diode 3=17990
 GaAs, staining for delineation of junctions 4=6954
 GaAs, strongly degenerate, elec. cond. and Hall effect, carrier scatt. 0=13612
 GaAs, surface barrier height, ambient sensitivity from photo, field effects 4=1602
 GaAs, {111} surface damaged layers, rel. to cold working 2=23764
 GaAs, surface energy 0=13467
 GaAs, surface masking during Zn and Cd diffusion 3=25289
 GaAs, temp., mag. field, var. 3=25364
 GaAs, thermal oxidation of wafers 3=2943
 GaAs, thermodynamic data and vapour pressure 1=14177
 GaAs thin films, Ohm's law temp. validity determ. 4=30621
 GaAs, tunnel diode characteristics 1=7648
 GaAs, tunnel diode, secondary tunnelling and impurity bands 1=17774
 GaAs, uniaxial deformation, effect on energy spectrum 2=21152
 GaAs, valence band, l.c.b.o. method 3=779
 GaAs:Cu crystals, properties 1=12446
 GaAs, Zn-doped, carrier density 3=16122
 GaAs-Ga₂Se₃ solid solutions 1=19877

Semiconducting materials—contd

- GaAs-Ga₂Se₃ system, elec. cond. and carrier parameters 0=11712
 GaAs-Ge tunnel heterojunctions, phonon and polaron interaction 3=6609
 Ga(As_{1-x}P_x), n-type, pressure effect up to 15000 atm. 4=17487
 GaAs:Se, electron conc., 650-1100°K 3=22945
 GaAs:Se, thermoelec. power, 25-150°K 0=18075
 GaAs:Te, electron conc., 650-1100°K 3=22945
 GaN, recombination and fluorescence 0=1751
 GaP, absorption spectrum, fine structure 2=10600
 GaP band structure from pressure expts. 1=17706
 GaP band structure and transport props. 1=17742
 GaP, carbon impurity from graphite boat 1=17734
 GaP, carrier density and hole mobility 0=11713
 GaP, carriers, ionization rate and lifetime 2=12527
 GaP crystals, structural defects, elec. and optical effects 4=22573
 GaP, Cu doped, elec. and photoelec. props. 2=14554
 GaP, elec. cond. and Hall effect, 78°-100°K 3=17879
 GaP electroluminescence at p-n junctions 1=11407
 GaP, epitaxial crystal growth 4=15770
 GaP, free carrier absorption due to polar modes 0=18010
 GaP, i.r. Faraday effect meas. 3=10816
 GaP, indirect tunneling, evidence lack 1=17689
 GaP, interband transitions, reflectance 2=18673
 GaP, microplasma pulses 1=10048
 GaP, n-type, band structure by pressure expts. 1=17735
 GaP, n-type, 1-4μ absorption band 0=16055
 GaP, n-type, thermocompression bonding of contacts 3=23722
 GaP, p-type, elec. props. mechanisms 2=12528
 GaP, p-type, energy level system 3=15632
 GaP, properties 0=20923
 GaP, radiative transitions near band edge 3=10949
 GaP, two-carrier space-charge-lim. current 4=22741
 GaP, zone structure 4=25900
 GaP-GaAs solid solutions, prep. and structure 2=10921
 GaS layer cpd., band structure 3=20330
 GaS, optical absorption and photoconductivity, 4° to 300°K 3=10950
 GaSb band structure parameters rel. to tunneling expts. 1=17689
 GaSb, band structure, from press. depend. of absorption edge 1=8986
 GaSb band structure and transport props. 1=17742
 GaSb, conducting band structure, optical det. 1=19878
 GaSb, conduction band study 0=2894
 GaSb, current carriers, effective mass, and var. elec. props., 200-400°K 0=6119
 GaSb, direct interband energy gap 3=8586
 GaSb, distribution coeffs. of impurities 1=7647
 GaSb, electron cond. near melting point 2=4014, 6448
 GaSb, energy band structure 1=17733
 GaSb, energy gap width, formula and expt. 2=6431
 GaSb, exciton and impurity absorption and emission 3=10948
 GaSb, Faraday rotation at photon frequencies below energy gap 1=17740
 GaSb films, undoped, sputtered on glass, structure and elec. props. 3=3357
 GaSb, with In, Sb, Se, Te diffusion impurities, effects -120° to +680°K 0=4359
 GaSb, at m.p. and liquid state, thermoelec. props. 0=624
 GaSb, metallic transformation at high pr. 3=11211
 GaSb, n-type, band structure by pressure expts. 1=17735
 GaSb, n-type, doped with Se or Te, elec. cond. and Hall coeff. 1=3767
 GaSb, n-type, transport props. 3=10819
 GaSb, Nernst effect with electrons in 2 superposed bands 1=14387
 GaSb, -190 to +600°K 0=623
 GaSb, p-type, magnetoresistance 3=2912
 GaSb, p-type, mobility and mass of holes 2=18703
 GaSb, p-type, piezoresist. 77°-350°K 4=12892
 GaSb, phase transition due to pressure 2=16704
 GaSb, piezoresistance, pressure depend., n-type 0=9977
 GaSb, polar scatt. of carriers, calc. 1=3768
 GaSb, properties 0=20923
 GaSe, props., rel. to photocond. 0=1681
 GaSb, reduction of high acceptor conc. 4=23339

Semiconducting materials—contd

- GaSb, reflection spectra rel. to band struct. 3=925
 GaSb, Se-doped, donor level above principal conduction band edge 2=2162
 GaSb, Shubnikov-de Haas effect, calc. 4=25881
 GaSb, surface energy 0=13467
 GaSb, surface structure and props. 1=4078
 GaSb, thermomag. properties, 150-950°K 0=15954
 GaSb-InSb alloys, elec. and optical props. 2=23383
 GaSb-InSb alloys, energy gap from i.r. transmission 0=6120
 GaSb-InSb alloys, n-type, thermomag. effects 2=8360, 10487
 GaSb-InSb alloys, props. 1=17732
 GaSe, elec. cond. and Hall effect 3=2913
 GaSe layer cpd., band structure 3=20330
 GaSe, optical absorption and photoconductivity, 4° to 300°K 3=10950
 GaSe, photoconductivity kinetics 2=18745, 23462
 Ga₂Se₃, thermal cond. temp. depend. 0=545
 GaTe, elec. cond. and Hall effect 3=2913
 Ga₂Te₃, elec. and thermal props. 1=17744
 GaTe, optical absorption and photoconductivity, 4° to 300°K 3=10950
 Ga₂Te₃, properties at solidus boundary 3=10815
 Ga₂Te₃-ZnTe solid solutions, energy gap 1=7878
 Ge, breakdown, electric-thermal generalization 2=6434
 Ge selenides 1=1043
 Ge tellurides 1=1043
 GeO₂, vitreous, absorpt. band 2=4020
 GeSe, electrical properties, (100°-800°K) 1=8953
 GeSe₂, energy gap and Hall mobility 2=2174
 Ge-Si alloy, isotropic piezoresistance 2=14540
 Ge-Si alloys, electron and hole mobilities, intrinsic carrier conc. 0=18022
 Ge-Si alloys, phonon spectrum 2=2153
 Ge-Si alloys, reflection spectra rel. to band structure 2=2215
 Ge-Si alloys, thermal conductivity at high temps. 3=10616
 Ge-Si crystals, impurity activated, as i. r. detectors 2=7454
 Ge-Si, thermodynamic props. 0=4685
 GeTe, carrier compensation for various solutes 3=25365
 GeTe, nature of carriers 4=6975
 Hg cpds, thermoelectric cutting 4=10996
 Hg[Cd]Te-In₂[Ga₂]Te₃ solid solutions, structure and properties 3=11301
 HgIn₂Se₄, prep. and props. 3=864
 HgIn₂Te₄, energy gap, properties 0=565
 HgIn₂Te₄, prep. and props. 3=864
 HgSe, conduction band structure 1=17754
 HgSe, dispersion mechanism and effective mass 3=870
 HgSe, electrical and optical properties 1=17752
 HgSe, galvano-thermomagnetic effects, transport integrals approach 4=30623
 HgSe, magnetoreflexion expts. rel. to electronic band structure 1=17871
 HgSe, nonparabolic conduction band 2=8368
 HgSe, prep. and elec. props. mechanism 2=16728
 HgSe, Righi-Leduc effect 1=17630
 HgSe-HgTe, conduction band structure 1=17754
 HgSe-HgTe solid solution 1=17753
 HgSe-HgTe system, carrier mobility 1=17813
 HgSe_{0.5}Te_{0.5}, nonparabolic conduction band 2=8368
 HgTe, dispersion mechanism and effective mass 3=870
 HgTe, electrical and optical properties 3=10835
 HgTe films, electron mobility and conc. 4=23580
 HgTe, intrinsic elec. props, interpretation 4=4163
 HgTe, magnetoelectric, Hall, thermoelectric effects 4=7087
 HgTe, prep. and props. 2=8367
 HgTe, resistivity change rel. to pressure 1=14473
 HgTe-CdTe, electrical properties rel. to composition 3=17890
 HgTe-In₂Te₃ alloy, props. 4=22719
 HgTe-MnTe alloys, elec. props. 3=20335
 I, resistivity rel. to pressure up to 3×10^5 kgm cm⁻² 3=2902
 I, resistivity var. with temp. and press. 3=8524
 In, adhesion to Ge 2=10775
 In alloys, spectrographic and spectrophotometric anal. methods 4=15539
 In arseno-selenide, elec. props. 2=10489

Semiconducting materials—contd

- In cpds., X-ray L_{III} absorpt. fine struct. 4=20460
 In, preparation, high-purity, by distillation 3=20331
 In, purification and analysis 0=2065
 InAs, band structure, from press. depend. of absorption edge 1=8986
 InAs band structure and transport props. 1=17742
 InAs, carrier lifetimes, rel. to temperature 4=1519
 InAs, charge-carrier scatt. mechanism 2=23390
 InAs, charge and heat transport at low temps. 2=23398
 InAs, charge and heat transport at low temps. 3=6596
 InAs, Corbino effect 2=636
 InAs, current carrier scattering and spectrum energy 1=17730
 InAs, cyclotron res., i. r., absorption 2=23129
 InAs, diamag. suscept. rel. to electron content 2=8600
 InAs, effective electron mass 2=2165, 8362
 InAs, effective electron mass, from optical rotation, i. r., 293-603°K 3=20333
 InAs, electric properties, high-pressure effects 3=17886
 InAs, electron density distrib. 1=7865
 InAs, electron effective mass, depend. on density 3=17885
 InAs, electron effective mass, rel. to temp. and doping 1=2414
 InAs, electron-hole scatt. and electron drift vel. 3=25222
 InAs, electron and hole scattering 3=17884
 InAs, electron irradiation effects on carrier conc. 0=1671
 InAs electron-mass, effective, temperature-dependence 117°-600°K 4=6943
 InAs, electron mobility, in mag. fields up to 180 kOe 1=1077
 InAs, electron mobility at 77°K 2=4037
 InAs, energy gap width, formula and expt. 2=6431
 InAs, evap. layers, electron mobility 1=19882
 InAs films, electron mobility and conc. 4=23580
 InAs, Frenkel defects, healing process 2=6319
 InAs, galvanomagnetic effects rel. to structure 1=17672
 In As, Hall effect for mag. field meas. up to 34 kG 4=24784
 InAs, Hall-effect probes for mag. field meas. 0=6123
 InAs, heat treatment effects 0=13613
 InAs, i. r. absorption mechanism 2=23573
 InAs, i. r. Faraday rotation, rel. to carrier mass 0=20919
 InAs, interband transitions, reflectance 2=18673
 InAs, light transmission, at liquid H temp. 3=6339
 InAs, mag. properties calc. 3=23139
 InAs, mag. suscept., 60°-1200°K 3=11027
 InAs, mag. susceptibility of electrons 0=4469
 InAs, magnetoelec. effects, quantum oscillations 2=16683, 23246
 InAs, magnetoreflexion expts. rel. to electronic band structure 1=17871
 InAs, magnetoresistance, geometrical effects 4=6936
 InAs, magnetoresistance, 2.2° to 600°K 4=10057
 InAs, magnetoresistance, up to 400 kOe 4=1612
 InAs, magnetoresistance, var. with field, up to ~300 kOe 3=17887
 InAs, metallic transformation at high pr. 3=11211
 InAs, n-type, electronic effective meas. 1=17736
 InAs, n-type, i. r. absorpt. rel. to scatt. mech. 4=20461
 InAs, n-type, i. r. cyclotron resonance 1=11187
 InAs, n-type, quantum galvanomag. effects, 20°-360°K 2=4038
 InAs, n-type, quantum galvanomag. effects, 20°-360°K 3=4925
 InAs, n-type, quantum Nernst-Ettingshausen effect 2=8364, 14557
 InAs, Nernst effect with electrons in 2 superposed bands 1=14387
 InAs, new scatt. mechanism 2=23385
 InAs optical absorption rel. to band struct. parameters 2=23560
 InAs, optical study with view to laser prod. 4=28688
 InAs, oscillatory magnetoresistance at microwave frequencies 1=19836
 InAs, p-type, Hall effect 0=4336
 InAs, p-type, magnetoelec. and magnetothermal props. 2=16724, 18707
 InAs, phase transition due to pressure 2=16704
 InAs, plasma pinch, sound-wave generation, at sufficiently high currents 3=6597
 InAs, polar calc. of carriers, calc. 1=3768
 InAs, properties 0=20923
 InAs, reflection spectra rel. to band struct. 3=925

Semiconducting materials—contd

- InAs reflectivity; dispersion relations 1=17865
 InAs, reflectivity meas. 3=10910
 InAs, surface energy 0=13467
 InAs, thermal cond. at high temps. 0=20757
 InAs, thermal cond., meas. at high temps. 2=1289
 InAs, thermodynamic data and vapour pressure 1=14177
 InAs, thermomag. Nernst-Ettingshausen effects 0=6124
 InAs, Voigt effect on free carriers in n-type 1=12481
 InAs_{1-x}, forbidden energy gap width rel. to comp. 4=4017
 InAs—CdSnAs₂ alloys, elec. props. 3=2915
 InAs—CdTe alloys, n-type, up to 400°C 4=22717
 InAs—In₂Se₃, Hall effect and elec. cond. 1=19881
 (InAs)_{1-x}(In₂Te₃)_x system, phase diagram and elec. props. 3=10828
 InAs—In₂Te₃ alloys, reflectivity meas. 3=10910
 InAs—In₂Te₃, electrical and optical props. 1=19880
 InAs_yP_{1-y}, electron mobility 0=11716
 In(As_{0.8}P_{0.2}), electron mobility in mag. fields up to 180 kOe 1=1077
 In(As_yP_{1-y}), optical and semicond. props. 0=1717
 InAsSb_{1-y} films, optical props. 1-6 μ analysis 4=15592
 In—As—Te system, critical scatt. effects 3=2870
 (In, Ga)As 0=2897
 In₂O₃, elec. cond. and thermoelec. power, 180°-460°C 3=2918
 In₂O₃, elec. props. 2=21153
 In₂O₃ films on gelatin, l/i noise 4=26050
 In₂O₃, films, pure and impure, i. r. reflectivity 2=2219
 InP, band structure, from press. depend. of absorption edge 1=8986
 InP, cond. and Hall coeff., 90°-700°K 4=30622
 InP, current instabilities in applied elec. field in n-type 4=26044
 InP, cyclotron reson., i. r., absorption 2=23129
 InP, electron effective mass, in n-type, by i. r. Faraday effect 0=18049
 InP, free carrier absorption due to polar modes 0=18010
 InP, galvanomagnetic effects rel. to structure 1=17672
 InP, i. r. Faraday rotation, rel. to carrier mass 0=20919
 InP, InAs, InSb, dielectric const., bandgap and occupancy 4=28557
 InP, metallic transformation at high pr. 3=11211
 InP, n-type, band structure by pressure expts. 1=17735
 InP, n-type, i. r. cyclotron resonance 1=11187
 InP, n-type, piezoresistance at 77 and 300°K 0=4362
 InP, new scatt. mechanism 2=23385
 InP, p-type, elec. props. 0=7942
 InP, phase transition due to pressure 2=16704
 InP, photomagnetoec. effect and photocond. 2=16757, 23465
 InP, polar scatt. of carriers, calc. 1=3768
 InP, properties 0=20923
 InP, self-diffusion 1=4991
 InP, thermodynamic data and vapour pressure 1=14177
 InP, tunnel diode characteristics 1=7648
 In₂S₃, photocond., cond., and thermoelec. props. 4=20374
 In₂S₃, photoconductivity 0=7961
 In₂S₃, prep. and elec. conductivity 0=2898
 InSb, electron cond. near melting point 2=4014, 6448
 InSb, optical study with view to laser prod. 4=28688
 InSb—AlSb system, solid solutions, elec. props. 80-1000°K 0=15943
 InSb—GaSb, electron mobility 0=730
 InSb—GaSb, energy gap, i. r. absorption 0=1726
 InSb—GaSb, energy gap width, theory and expt. 2=6431
 InSb—GaSb, equimolecular, elec. props., temp. depend. 0=15959
 InSb—GaSb, magnetic susceptibility 1=20049
 InSb—GaSb, optical and elec. props., temp. depend 0=611
 InSb—GaSb, thermodynamic props. 0=4685
 InSb—NiSb, electrical anisotropy 4=10060
 In₄SbTe₃, structure and other props. 0=9978
 InSe, Hall effect, elec. cond., 300°-600°K 3=13073
 In₂Te₃ 1=2415
 In₂Te₃, effect of pressure on conductivity and thermoelec. power 0=13615
 In₂Te₃, elec. and thermal props. 1=17744
 In₂Te₃, elec. and thermal props. 2=23399
 In₂Te₃, reflectivity meas. 3=10910
 In₂Te₃, spectra of α - and β - modifications 1=11386
 IrP₃—As₃—Sb₃, band gaps, reasons for props. 2=8358

Semiconducting materials—contd

- KI, trapped charge 0=2957
 K₃Sb, pair-prod. by low energy electrons 2=8357
 K₃Sb, properties rel. to crystal structure 1=15081
 LaB₆, from reflectivity and absorpt., 15.5 μ 3=20437
 LaCoO₃, rel. to "small polaron" model 2=23400
 La₂S₃, conductivity, thermoelectricity, 20-1000°C 4=4161
 LaTe_{1.7-2.0}, n-type prod. by heat treatment 4=4240
 Li₂Ni_{1-x}O, props., calc. of energy levels 1=17751
 Li₃Sb, forbidden zone width and bond ionic character 4=1589
 Mg—Gp IV cpds., preparation 1=14429
 Mg₂Ge, n-type, i. r. absorpt. spectra 2=4152
 MgO, induced by electron bomb. at 1.3 MeV, 100-600°K 1=7627
 MgO, n-type cond. and thermoelec. power 4=22705
 MgO, neutron bombardment effects 0=7944
 Mg₂Pb, p-type 3=10834
 Mg₂Sb₂ thin films, elec. conductivity 2=6460
 Mg₂Si, cubic and hexagonal phases 4=30804
 Mg₂Si, mobilities and effective mass determ. 2=16761
 Mg₂Si, n- and p-type, Seebeck coeffs., 7° to 1000°K 2=23404
 Mg₂Si, n-type, i. r. absorpt. spectra 2=4152
 Mg₂Sn, band structure and effective masses 4=10179
 Mg₂Sn, elec. props. 3=2922
 Mg₂Sn, p-type, impurity conduction, phenomenology 1=19769
 Mg₂Sn_{1-x}Pb_{1-x}, energy-gap variation rel. to composition 3=869
 MgV₂O₄—Mg₂VO₄, elec. cond., temp. depend. 0=4366
 Mn complex oxides, valence states, X-ray analysis 4=6691
 Mn ferrite, carrier mobility and density 0=7935
 Mn ferrite monocrystals, conductivity and Hall e.m.f. 3=20334
 Mn ferrites, Verwey hopping mechanism 4=12905
 Mn phosphides, magnetoec. props. 0=1674
 Mn silicides, elec. props., Seebeck coeffs. 3=871
 MnO—CuO—CoO—O₂, elec. props. and structure, composition depend. 0=2900
 MnO₂ 0=18092
 β -MnO₂, with additives, variation of behaviour with frequency 0=4364
 MnP and MnP₂, conduction type 0=10008
 MnSe₂, magnetism and electrical conductivity relationship 0=7934
 MnTe, Cr-doped, p-type donor compensation 2=18700
 MnTe₂, elec. cond. and thermoelec. power 1=5769
 MnTe₂, magnetism and electrical conductivity 0=7934
 MoS₂, thermal cond., dielec. const. 3=8376
 MoSe₂—WSe₂ polycryst. system, elec. props. 4=22720
 Na₃[B₃O₃(OH)₄].8H₂O, proton cond. 3=2904
 NaSb forbidden zone width and bond ionic character 4=1589
 NaSb, polycrystalline, prep., thermal activation and microhardness 0=7947
 NaSb, properties rel. to crystal structure 1=15081
 Na₃Sb forbidden zone width and bond ionic character 4=1589
 Nb pentoxide, solid and liquid 2=14564
 α -Nb₂O₅ 1=6163
 Nb₂O₅, α -phase, vacuum reduction technique 2=10493
 α -Nb₂O₅, elec. cond. 900°-1400°C 3=8527
 Nb₂O₅, rel. to O₂ pressure at 600°-1200°C 3=2923
 α -Nb₂O₅, reduced, nonstoichiometric, single crystal, sintered, elec. cond. 2=18709
 α -Nb₂O₅, thermoelec. power 3=23026
 Nb₂O₅, W-doped, props. 2=16729
 Nb₃Sn, conductivity, temp. var. anomalies 4=30624
 Nd ditelluride, Hall effect 3=20340
 Ni ferrites with Mn impurity, elec. props. 2=6471
 NiAs₂, magnetism and electrical conductivity 0=7934
 Ni_{0.2}Cu_{0.8}Fe_{1.8}Mn_{0.2}O₄, activation energy 4=26055
 Ni_(1-x)Li_xO, resistance, room temp. to 700°C 4=12907
 Ni_{1-x}Mn_{2+x}O₄, rel. to composition 3=13078
 NiO, carrier mobilities, var. with Li impurity 3=20357
 NiO, conductivity electrical, var. with Li impurity 3=20337
 NiO, conductivity and thermodynamic equilibrium 1=14474
 NiO, Hall effect and conductivity, electrical 3=20338
 NiO, Hall effect, var. with Li impurity 3=20337
 NiO, Li-doped, internal friction 2=21415
 NiO, p-conducting, effect of added oxides 2=4039
 NiO powder, elec. cond., freq. depend. 4=30625

Semiconducting materials — contd

- NiO, thermoelectric and conduction measurements 1=17755
 NiO, thermoelectricity, var. with Li impurity 3=20337
 NiO-type, carrier mobility, low, polaron theory 3=8526
 Ni_{1-x}O, powdered, electrical resistivity rel. to temp. and Ni content 3=13077
 NiO, work function, effect of oxide additions 0=11710
 NiO-CuO-Li₂O system, effect of sintering 2=6465
 NiO(Fe₂O₃)_{0.5}, conductivity type rel. to oxygen sintering press. 1=1082
 Ni₂O₃, H₂O, conductivity and Seebeck effect 4=4333
 NiS₂, magnetism and electrical conductivity 0=7934
 NiZn, ferrite, carrier mobility and density 0=7935
 Os compounds, resistivity and diamagnetic measurements 4=1618
 Os-As or Sb-S, Se or Te 4=26056
 P, black, crystalline, elec. props. 3=17891
 P, resistivity rel. to pressure up to 3×10^5 kgm cm⁻² 3=2902
 Pb films, Hall constant and carrier props. 2=6470
 Pb films, semicond. props. and thermal coeff. 2=6469
 Pb oxide layer, dark semicond. 2=6501
 Pb telluride, Knight shift rel. to hole-nucleus reaction 2=12833
 PbBiSe₂ 2=21155
 PbCl₂, TlCl or BiCl₃ doped, electrolytic cond. 3=17926
 PbI₂, elec. cond. rel. to photodecomposition 3=2921
 PbO, with cation impurities, conductivity, disorder phenomena and colour 3=13075-6
 PbO, colouring by illumination and elec. fields 1=12462
 PbO₂, sputtered films 3=2919
 PbS, band structure and free-carrier effective mass, magneto-optical studies 3=10822
 PbS band structure from pressure expts. 1=17706
 PbS, carrier parameters, from photoelec. meas. 3=2977
 PbS, carrier recombination, capture and lifetime 2=23402
 PbS, carrier recombination capture and lifetime 3=6598
 PbS, composition stability limits on anion rich side, quenching effects 4=13468
 PbS, conductivity, thermoelectricity, pressure depend., up to 9000 kg cm⁻², n.p. 3=22948
 PbS, effect of Cu on elec. and carrier props. 3=15593
 PbS, elec. conductivity, rel. to pressure 3=10833
 PbS, elec. resistance up to 200 000 kg cm⁻² 4=10061
 PbS, electrical props. rel. to elastic strain 3=10832
 PbS, electron effective mass from Faraday effect 2=10492
 PbS films, elec. structure 1=1080
 PbS, galvanomagnetic effects and band structure 3=868
 PbS, i. r. recombination radiation, correl. with photocond. 2=8440
 PbS, illumination recombination of holes and electrons 1=14472
 PbS, illumination recombination of holes and electrons 1=17746
 PbS, interband recombination collisions 2=8314
 PbS magnetoplasma reflection studies with polarized light 3=10822
 PbS, n- and p-type, carrier mobility, thermoelec. power and thermal cond., 4-100°K 0=18080
 PbS, n-type, de Haas-van Alphen effect 1=17930
 PbS, photocond. at 10¹⁰ c/s, temp. depend. 2=6500, 10533
 PbS photo-e.m.f. effect of absorbed oxygen 1=10065
 PbS, photoelectricity, conductivity, ion beam effect 4=4162
 PbS, piezoresistance effect anisotropy 2=23403
 PbS, piezoresistance effect anisotropy 3=6599
 PbS, preparation in porous plug reactor 4=22723
 PbS surface, carrier lifetime 1=7673
 PbS, surface photoeffects, majority carrier model 2=6499
 PbSe, band structure, rel. to piezoresistance 3=15594
 PbSe band structure from pressure expts. 1=17706
 PbSe, carrier lifetime and recomb. velocity 2=8447
 PbSe, carrier mobility, thermoelec. power and thermal cond., 4-100°K 0=18080
 PbSe, composition stability limits 2=2168
 PbSe, controlled deviation from stoichiometry 3=22736
 PbSe, current carriers, scatt. and effective mass 2=23401
 PbSe, donor imperfections rel. to hybrid Frenkel-type disorders 3=2788
 PbSe, effective carrier mass, thermoelec. data 0=20947

Semiconducting materials — contd

- PbSe, effective electron mass 3=10904
 PbSe, effective mass and mobility, press. depend. 2=2167
 PbSe, elec. conductivity, rel. to pressure 3=10833
 PbSe, elec. resistance, up to 200 000 kg cm⁻² 4=10061
 PbSe, electrical props. rel. to elastic strain 3=10832
 PbSe, electron effective mass from Faraday effect 2=10492
 PbSe, electron energy band structure, rel. to piezoresistance 3=15592
 PbSe, films, with Ag doping, properties 1=8956
 PbSe films, as for single crystals 4=10062
 PbSe, galvanomagnetic effects and band structure 3=868
 PbSe, illumination recombination of holes and electrons 1=14472
 PbSe, illumination recombination of holes and electrons 1=17746
 PbSe, interband recombination collisions 2=8314
 PbSe, low carrier concn. in vapour-grown crystals 1=6497
 PbSe, p-type, forbidden-band width, press. depend. 3=17889
 PbSe, prep. by sintering, elec. props. 1=1078
 PbSe, thermoelectric power and thermal conductivity 0=20946
 PbSe, vapour-grown, Hall coeff. and elec. cond. 1=3771
 PbTe, band structure, rel. to piezoresistance 3=15594
 PbTe band structure from pressure expts. 1=17706
 PbTe, band structure and transport properties 3=10830
 PbTe, carrier conc. and mobility 4=6783
 PbTe, carrier mobility and scattering 0=6089
 PbTe, carrier mobility, thermoelec. power and thermal cond., 4-100°K 0=18080
 PbTe, composition limits of stability and carrier conc. 0=13617
 PbTe, composition stability and elec. props. 2=6468
 PbTe, composition stability limits on anion rich side, quenching effects 4=13468
 PbTe, conductivity, thermoelectricity, pressure depend., up to 9000 kg cm⁻², n.p. 3=22948
 PbTe, donor imperfections rel. to hybrid Frenkel-type disorders 3=2788
 PbTe, effective electron mass 3=10904
 PbTe, elec. conductivity, rel. to pressure 3=10833
 PbTe, elec. props., effect of high pressure 4=12904
 PbTe, elec. resistance rel. to pressure up to 200 000 kg/cm² 4=1616
 PbTe, elec. resistance, up to 200 000 kg cm⁻² 4=10061
 PbTe, electrical props. rel. to elastic strain 3=10832
 PbTe, electron effective mass from Faraday effect 2=10492
 PbTe, electron energy band structure, rel. to piezoresistance 3=15592
 PbTe, electron scatt., on impurity ions, carrier relax. time 1=1081
 PbTe, electron scattering on impurity ions 1=6161
 PbTe, electronic props. rel. to defect equilibria 1=17750
 PbTe, free-carrier absorption 2=16839
 PbTe, galvanomagnetic effects and band structure 3=868
 PbTe, helicon oscillation, 4.2°K 3=2920
 PbTe, i. r. transmission and reflection, 28°-296°K rel. to carrier concentration 3=10907
 PbTe, illumination recombination of holes and electrons 1=14472
 PbTe, illumination recombination of holes and electrons 1=17746
 PbTe, interband recombination collisions 2=8314
 PbTe, Landau level studies; Azbel-Kaner cyclotron resonance 3=10831
 PbTe, magnetoresistance p-type, 4.2°K, oscills, with increasing mag. field 3=15595
 PbTe, magnetotunnelling 1=19893
 PbTe, mobility, low temps., model 4=20375
 PbTe, mobility meas., 4.2° to 295°K 3=10829
 PbTe, n-type, electrical props. 1=17747
 PbTe, n-type, Seebeck coeff. and elec. resist., 20°-550°C 4=22813
 PbTe, near-stoichiometric, vacancy behaviour 2=10491
 PbTe, oscillations, plasma, helicon 3=13079
 PbTe, oscillatory magnetoresistance rel. to conduction band 1=17748

Semiconducting materials — contd

- PbTe, p-type, Azbel'—Kaner cyclotron resonance 3=784
 PbTe, p-type, band structure by pressure expts. 1=17735
 PbTe, p-type, de Haas—van Alphen effect 1=12516
 PbTe, p-type, de Haas—van Alphen effect 1=17930
 PbTe, p-type, galvanomagnetic effects at 90°K 0=20920
 PbTe, p-type, impurity levels, elec. cond. and Hall effect 4=15540
 PbTe, p-type, piezoresistive effect 0=7943
 PbTe, p-type, thermomag. and galvanomag. props. 2=6467
 PbTe, PbS, PbSe, n. m. r. of Pb²⁰⁷ 2=8686
 PbTe, PbSe, piezoresistance effect 2=18783, 21225
 PbTe, piezoresistance, 4.2-300°K, p-type 4=6981
 PbTe, piezoresistive effect and applications 0=6097
 PbTe, resistivity and Hall coeff. 3=867
 PbTe, scattering of charge carriers 1=19916
 PbTe, scattering of charge carriers 2=4082
 PbTe, single crystal films, prepn. by cathodic sputtering 4=4665
 PbTe, thermoelec. and elec. props. 2=14592
 PbTe, valence bands rel. to magnetoresistance and Hall effect 1=17749
 PbTe—Sn—Te 0=2890
 PbTe—PbSe, carrier scattering 0=2890
 Pd cobaltite- and pyrite-type compounds 3=21663
 Pt cobaltite- and pyrite-type compounds 3=21663
 PuO₂ 4=12908
 Rb₃Bi, crystal structure 1=4044
 Rb₃Sb, pair-prod. by low-energy electrons 2=8357
 Rb₃Sb, properties rel. to crystal structure 1=15081
 Re disilicide 1=3716
 ReSi₃, new semiconductor prepn., props. 3=872
 RhP₃—As₃—Sb₃, band gaps, reasons for props. 2=8358
 Ru compounds, resistivity and diamagnetic measurements 4=1618
 Ru—As or Sb—S, Se or Te 4=26056
 S, intrinsic and extrinsic, polycrystalline 3=10839
 [SN]₂, polymer, semiconductivity and spectra 4=15545
 Sb based phases, Li₃Sb, Na₃Sb, NaSb 4=1589
 Sb, carriers, from i.r. absorpt. data 3=4970
 Sb chalcogenide, fused, elec. props. 2=21917
 Sb, donor ground-state energies 2=14542
 Sb, ellipsoidal carriers, by de Haas—Shubnikov effect 4=6945
 Sb, magnetoelec. effects and band structure 3=8513
 Sb, magnetoresistance at 4.2°K 2=12524
 Sb, nonohmic magnetoresistance, thermal origin 3=8512
 Sb—Bi, scattering time at low-temp. 3=10809
 Sb₂Bi₂—Te₃—Se, system 1=19867
 SbI₃, conductivity electrical, temp. var., and band gap 4=1624
 Sb₂S₃, adhesion levels study by thermostimulation 0=6135
 Sb₂S₃, band structure, group theory calc. 4=1434
 Sb₂S₃, conductivity induced by electron bombardment 2=639
 Sb₂S₃, elec. props. rel. to stoichiometry 4=1590
 Sb₂S₃, elec. props., temp. depend. 2=8351
 Sb₂S₃, energy width of forbidden zone 2=18786
 Sb₂S₃, photoconductivity kinetics at room temp. 2=23450
 Sb₂S₃, photoconductivity kinetics at room temp. 3=6627
 Sb₂S₃, photoelectronic analysis 0=6139
 Sb₂S₃, solid and liquid, noise, temp. depend. 0=600
 Sb₂S₃, sp. ht., structural prop. correl. 0=13490
 Sb₂S₃, temp. depend. 2=8350
 Sb₂S₃, type, energy band symmetry 1=4976
 Sb₂S₃—Bi₂S₃ films 0=601
 Sb₂S₃—Sb₂Te₃, composition depend. 2=8352
 Sb₂S₃—Sb₂Te₃, elec. and optical props. 3=15585
 Sb₂Se₃, dark and photocond. temp. depend. 0=599
 Sb₂Se₃, electric and photoelectric props. 2=6461
 SbSI, electro-optical and electromechanical effects 2=14653
 Sb₂Te₃, elec. props., temp. depend. 2=8351
 Sb₂Te₃, films, elec. and thermoelec. props. 3=8514
 Sb₂Te₃ system, differential thermal analysis 0=12081
 Sb₂Te₃—Bi₂Te₃ solid solns., elec. and thermoelec. props. 2=4079, 8449
 Sb₂Te₃—Bi₂Te₃, thermoelec. power and elec. cond., composition depend. 0=16001
 Sb₂Te₃:Bi₂Te₃, thermoelectric props., temp. variation 1=17810

Semiconducting materials — contd

- SbTeI, conductivity electrical, temp. var., and band gap 4=1624
 Se, acceptor levels, origin in oxygen 2=10494, 14561
 Se, amorphous, photocarrier mobility meas. 2=10537
 Se, amorphous, poly- and monocrystalline, dielectric const., and resistivity 4=26057
 Se, carrier diffusion lengths 2=23406
 Se, carrier mobilities and trapping centres 3=873
 Se, conductivity, effect of grain size, various dopants 3=22951
 Se, crystallization, dark-resistance variations, temp. depend. 0=10282
 Se, dielec. props., freq. and temp. dependence 0=627
 Se, dielectric relaxation 2=6516
 Se, effective mass rel. to Faraday effect 2=4122
 Se, elec. cond. 0=11717
 Se, elec. cond. and halogen impurities 2=8373
 Se, elec. cond., press. depend., up to 30 000 atm. 0=613
 Se, electrical conductivity, field effect 4=6985
 Se, electrical props. rel. to Br and Tl doping 3=17892
 Se, electron and photovoltaic effects 2=638
 Se, electronic structure, composite valence and cond. bands 0=6126
 Se films, amorphous, drift mobilities, space-charge-limited currents 2=6472
 Se films, space-charge-lim. photocurrents 4=20432
 Se, grain boundaries, elec. behaviour 2=23407
 Se, halogen-doped, cond. Tl impurity effect 2=16731
 Se, hole effective masses 2=23631
 Se, hole mobility 1=1083
 Se, investigation of Se/H₂SO₄ phase boundary 0=2901
 Se, liquid, elec. cond., field and temp. depend. 1=4355
 Se(monoclinic), carrier mobility and charge transport 2=2170
 Se, optical props., 0.4-23 μ , band model 1=2439
 Se, oxygen free, elec. cond., press. depend. 0=614
 Se, photo-excitation and carrier-trapping meas. 4=22804
 Se, polycryst., elec. cond., effect of O₂ 2=8278
 Se, polycrystalline, conductivity rel. to oxidation 3=17893
 Se resistivity rel. to pressure up to 3×10^5 kgm cm⁻² 3=2902
 Se, space-charge, lim. currents and photocond. 4=1619
 Se, space-charge-limited currents and trapping 1=11309
 Se, states density in forbidden gap 3=13081
 Se, temp. coeff. of resistance, high pressure 2=21156
 Se, temp. and voltage depend., rel. to plastic deform. 4=28567
 Se, theory 0=6127
 Se, vitreous, n-type cond., mobilities 4=22805
 Se: Au, elec. cond. 0=11717
 Se: Bi, temp. depend. 4=4164
 Se: Br, dielec. props., 500 c/s-1 Mc/s, -40° to +160°C 0=10012
 Se, Br-doped, dielectric relaxation 1=10073
 Se, with Br, Cl, I impurities, elec. props., temp. depend. 0=1675
 Se: Sn, temp. depend. 4=4164
 Se—Te solid solutions, Hall effect, conductivity, temp. var. 3=22952
 Si, cond. elec., meas., 4 probe, for slices 4=10064
 SiC, α , absorpt. by free carriers, mechanism 2=2240
 SiC, α -phase, electronic cond, 300°=1500°K 3=6603
 SiC, conference 0=20715
 SiC, dirty contacts and resistivity meas. 2=14529
 SiC, e.s.r. of B and N impurities 1=20233
 SiC, electroluminescent, current-voltage characteristics 0=18053
 β -SiC, energy gap, from optical absorption 0=16062
 SiC, hexagonal, hole and electron mobility 3=10838
 SiC, minority carrier lifetime, measurement 1=11308
 SiC, n and p-type, carrier lifetimes 3=15634
 α -SiC, n-type, Hall effect and optical absorpt. 4=26220
 SiC, n-type, impurity conduction, phenomenology 1=19769
 SiC, n-type, transient recomb. meas. 3=10840
 SiC, p-type, acceptor levels and donor concentrations 1=17716
 SiC, photoconductivity kinetics 3=8571
 SiC, photovoltaic effect in p-n-p structures, sign reversal 4=10119

Semiconducting materials — contd

- SiC, props. (conference) 0=4365
 SiC (6H), multiple donor and acceptor levels, rel. to exciton recomb. and phonon spectrum 2=23123-4
 SiC, space-charge-limited currents 2=23408
 SiC, traps in grains, meas. from elec. cond. 2=14563
 Si-Co system, elec. cond. and thermoelec. power 0=13604
 Si-Mn, temp. depend. 0=2884
 SiO films with Ag and Au, optical reflection, rel. to surf. conductivity 4=22888
 SiO₂ + C, electron field emission 3=21851
 SmS, elec. cond. and Sm struct., 80°-1700°K 4=30626
 Sn, grey, band structure classification 2=8345
 Sn, grey, magnetic props. calc., from X-ray meas. of electron density 4=7216
 Sn, grey, oscillatory magnetoresist. in n-type 4=20379
 Sn, Hall mobilities, n-type, grey, grown in Sn-Hg 3=17896
 Sn selenide-Ge telluride 1=1043
 Sn selenides 1=1043
 Sn telluride-Ge selenide 1=1043
 Sn tellurides 1=1043
 SnO₂, elec. props. analysis 3=2924
 SnO₂ films, optical props. in near i.r. 4=1755
 SnO₂ film, porous surface, moisture detector 2=19182
 SnO₂ films, temp. depend. of props., scatt. index 1=10051
 SnO₂, impurity-free, elec. props. 3=17897
 SnO₂, n-type, films, refl. coeff., effect of free carriers 3=6642
 SnO₂, prep., opt. and elec. props. 0=15965
 SnS, composition stability limits on anion rich side, quenching effects 4=13468
 SnS investigation 1=17759
 SnS, p-type, reflection spectrum analysis 2=2217
 SnS, props. 1=17760
 SnS-type, energy-band structure 2=18710
 SnS_(1-x)Se_x, mixed crystals 2=14940
 SnSe, composition stability limits on anion rich side, quenching effects 4=13468
 SnSe₂, energy gap and Hall mobility 2=2174
 SnSe₃, elec. and thermoelec. props. 1=14475
 SnSe, n-type Sb-doped, Hall effect and elec. resistivity 1=17761
 SnSe type, energy band symmetry 1=4976
 SnTe band structure, exptl. investig. 3=10841
 SnTe, elec. props. rel. to stoichiometry 3=6604
 SnTe, mobility meas., 4.2° to 295°K 3=10829
 SnTe, overlapping of valence and cond. bands 3=25233
 SnTe, prep. and props. 4=1622
 SnTe, from thermoelectricity 4=15577
 SrB₆ 3=8330
 Sr₂FeO₄F, p-type, prep. and props. 4=1623
 SrTiO₃, supercond. 4=18602
 Te, band structure, from optical meas. 3=13151
 Te, carrier recombination and trapping 0=6143
 Te, charge-carrier scatt., containing dislocations 4=17397
 Te, effect of annealing on carrier mobility and elec. resistivity 1=3773
 Te, electrical noise from thermal or optical excitation 4=12915
 Te, electron lifetime and surface recombination 3=877
 Te, electronic wave functions, n.m.r. data 2=6694
 Te, electronic structure, composite valence and cond. bands 0=6126
 Te, energy spectrum allowing spin-orbit interaction 2=18711
 Te, films, conductivity and Hall effect in modulating electric field 4=28575
 Te, generation-recombination noise 2=8431
 Te, Hall effect and resistivity 1=8958
 Te, Hall effect, sign inversions 4=12916
 Te, hole effective masses 2=23631
 Te, hot holes, scattering mechanism 1=1085
 Te, liquid, elec. cond. and Hall effect, up to 850°C 3=9474
 Te, liquid, thermoelec. props. 3=3813
 Te, photoconductivity, in radiation detectors 2=7460
 Te, pure and p-type, resistivity and Hall constant 1=20050
 Te, purified, elec. props. analysis 3=17898
 Te, recombination processes 2=23409
 Te, resistivity rel. to pressure up to 3×10^5 kgm cm⁻² 3=2902

Semiconducting materials—contd

- Te, semicond. props. review 2=16732
 Te, theory 0=6127
 Te, thin films 1=19885
 TeI, conductivity electrical, temp. var. and band gap 4=1624
 Te-S, energy gap and carrier mobility, S depend. 1=1086
 Te-Se, elec. cond. and Hall effect, Se depend. 2=2173
 Te-Se, energy gap and carrier mobility, Se depend. 1=1086
 Te-Se, hole effective masses 2=23631
 Te-Se, liquid solns., thermoelec. props. 3=3813
 ThSe, p-type, single crystals, properties 0=18054
 Ti oxide films, p-n junction photovoltaic effect 4=4237
 Ti oxides (lower), conduction band structure 2=23412
 TiN, carrier activation energy meas. 4=12906
 TiO₂, band structure 1=17758
 TiO₂, ESR, at liq. He temp. 1=20229
 TiO₂, elec. conduct., 2°-80°K 3=17895
 TiO₂, electron energy levels, rel. to lattice defects 3=22955
 TiO₂, piezoresistive effect and applications 0=6097
 TiO₂, point-contact diodes 3=10854
 TiO₂ (rutile), conduction mechanism model 2=23413
 TiO₂ (rutile), conductivity change during ageing 4=6984
 TiO₂ (rutile), low temp. & activation energies 4=22724
 TiO₂, rutile, nonstoichiometric, anisotropic conductivity 0=15966
 TiO₂, rutile, partly reduced, carrier drift mobility anisotropy 4=4176
 TII, effect of light on contact potential 0=1626
 Tl₂S, collision recomb. in decay of photo-conductivity 1=12463
 Tl₂S, impact recombination 1=6164
 Tl₂S, p-type, collision (Auger) recombination 2=23411
 TlSe, elec. cond. and Hall coeff., temp. depend. 2=644
 TlSe, elec. and thermoelec. props. 2=18712, 23410
 TlSe-type crystals, energy band symmetry 3=15460
 TlSe-type, D_{4h} symmetry, energy band structure 1=3622
 Tl₂Se, As₂(Se, Te)₂ system, vitreous, Hall effect 0=15964
 Tl₂Te-As₂Te₃, Tl₂Se-As₂Te₃, conductivity fluctuation 0=615
 Tl₂Te₃-Bi₂Tl₃, properties 3=18343
 U₂O₈, α-phase, elec. conductivity 4=1625
 V oxides, energy spectrum, current carriers 3=6605
 V oxides (lower) conduction band structure 2=23412
 V pentoxide, solid and liquid 2=14564
 V phosphate glass 2=8306
 VN, rel. to n.m.r. of V⁵⁺ 4=23076
 (VO_{2.5}-PO_{2.5}-VO_x) glasses, preparation and properties 1=10047
 VO₂, resistance through semiconductor-to-metal transition, rel. to press. 4=28576
 V₂O₃, conduction mechanism 2=10496
 V₂O₃ crystals, resistivity meas. 3=2927
 V₂O₃, phase transform. to metal formula 4=25993
 V₂O₅, props. 2=4041
 on W porous L-cathode 0=1146
 WO₃, rel. to W bronzes 3=13083
 Yb 3=13038
 Yb, 20-40 kbars pressure, elec. props. 3=17899
 Zn antimonide, elec. transport props. 2=4042
 Zn-blende materials, absorption spectra near fund. edge 3=10954
 Zn-blende-type materials, optical absorption 2=14679
 Zn-blende-type struct., binary cpds., tetrahedral phases 2=23414
 Zn-blende type structure, fundamental reflectivity spectrum 1=17762
 ZnAs₂, preparation and properties 1=14462
 ZnAs₂, props. 1=2416
 Zn₃As₂, props. 1=2416
 Zn₃Cd_{1-x}Sb 4=12918
 Zn₃Cd_{1-x}Sb, effects of Te, Sn, Cu doping 0=2903-4
 Zn₃Cd_{1-x}Sb, elec. and optical props. 2=23415
 ZnGeAs₂, thermoelec. power, resist., Hall const. 3=8518
 ZnIn₂Se₄, prep. and props. 3=864
 ZnIn₂Se₄, resistivity and thermal e.m.f. rel. to temp. 3=25350
 ZnIn₂Te₄, prep. and props. 3=864
 ZnO, conductivity rel. to donor conc. 1=19886
 ZnO, donors and acceptors, e.s.r. 3=13309

Semiconducting materials—contd

- ZnO, donors, paramagnetic resonance 1=20240
 ZnO, effect of light on contact potential 0=1626
 ZnO, elec.-cond., pressure depend. 0=6085
 ZnO, electrical dark conductivity and green luminescence 1=11311
 ZnO, electrodes, charge and potential distributions 0=13618
 ZnO, electrophotographic props. 3=9629
 ZnO, excitons and absorption edge 1=17477
 ZnO, field effect mobility, effect of O₂ and N₂ 2=16733
 ZnO, luminescence and cond. elec., effect of absorbed O 3=6679
 ZnO, n-type, model applied to O₂ chemisorption study 0=8303
 ZnO, n-type semiconducting props. 2=6517
 ZnO phonon drag rel. to piezoelectric scattering 1=17857
 ZnO, photoconductivity decay, chemisorpt. model 2=2193
 ZnO, photoconductivity and photodielectric effect 1=11327
 ZnO, reactions of Li as a donor and acceptor 1=17764
 ZnO, surface cond., variation by absorption, transverse fields and irradiation 1=3738
 ZnO, work function, effect of oxide additions 0=11710
 ZnO-Al₂O₃, properties 2=23416
 ZnO-CuO, conductivity 1=3774
 ZnO : Na, Li, Cu, cond., dielec. props., optical absorpt., and crvstal struct. 4=22725
 ZnS, a. c. electroluminescence, mechanism 2=6647
 ZnS, bombardment conductivity 0=18055
 ZnS, carrier distrib. due to inhomog. excitation 3=2928
 ZnS, electroluminescence excitation processes 2=8593
 ZnS, electroluminescence theory, electron tunnelling and recomb. 0=4463
 ZnS, γ -ray induced conductivity 3=2908
 ZnS, hexagonal, band struct. theoretical investigation 2=23265
 ZnS lattice absorption, 8° to 420°K 3=10967
 ZnS lattice absorption i.r. bands, shell model applic. 3=10927
 ZnS, luminescence centres 3=13208
 ZnS, ohmic contacts and carrier density 3=8530
 ZnS, persistent internal polarization, theory 2=4089
 ZnS powders, htd. in Zn atmosphere, carrier conc. 3=13084
 ZnS, pressure induced phase transition 2=16705
 ZnS, recomb. probability rel. to drift velocity 2=12402
 ZnS, surface conduction 3=17900
 ZnS, trapping levels, double activation by Ag and Sm 3=3057
 ZnS, trapping levels, thermoluminesc. data 3=11019
 ZnS-CdS phosphors, energy levels from luminesc. data 2=10626
 ZnS-CdS, structure and photocond., composition depend. 1=1111
 ZnS : Cu 3=20345
 ZnS:Cu, luminescence rel. to preparation 2=6622
 ZnS, Se; Cu, Cl, recomb. and trapping levels 3=6674
 ZnS-ZnSe phosphors, separation of Se band 2=10621
 ZnSb, cyclotron reson. 2=23133
 ZnSb, elec. cond. and Hall coeff., 4.2-300°K 2=657
 ZnSb, electrical properties, rel. to temp. 3=25373
 ZnSb, electrical props., hole mobility and energy gap 0=15967
 ZnSb, electron states, extremal points, dispersion 3=17684
 ZnSb, K _{α} X-ray lines, rel. to binding 1=11387
 ZnSb, p-type, optical and elec. props. meas. 4=12919
 ZnSb preparation and properties 1=14462
 ZnSb, props. 1=2416
 ZnSb, props., rel. to crystal structure 1=15076
 ϵ -Zn₃-Sb₂, conductivity electrical and thermoelectricity, 20-470°K 3=20346
 ϵ -Zn₃Sb₂, K _{α} X-ray lines, rel. to binding 1=11387
 β -Zn₃Sb₃, conductivity, thermoelectricity 3=22956
 Zn₄Sb₃, elec. props. 3=15597
 Zn₄Sb₃, K _{α} X-ray lines, rel. to binding 1=11387
 ZnSb-CdSb films, conductivity, var. with conc., temp. 4=12917
 ZnSe, carrier mobility and shallow impurity states 3=10843
 ZnSe, edge emission, by i.r. irradiation rel. to temp. 1=17912
 ZnSe, electrical and optical props. 1=17763

Semiconducting materials—contd

- ZnSe, electron effective mass 4=22726
 ZnSe, γ -ray induced conductivity 3=2908
 ZnSe, phase transition due to pressure 2=16705
 (ZnSe)_x-(CdSe)_y, forbidden band, diffuse reflection spectra 1=12363
 ZnSe-CdSe, photocond., spectral response 0=15996
 p-ZnSnAs₂, elec. props., 80°-600°K 4=30629
 ZnSnAs₂, structure, elec., thermal props. 2=23417
 ZnSnAs₂, thermoelec. power, resist., Hall const. 3=8518
 ZnTe, bound excitons 3=10630
 ZnTe, carrier mobility and shallow impurity states 3=10843
 ZnTe films, conductivity and photoelec. props. 0=15986
 ZnTe, γ -ray induced conductivity 3=2908
 ZnTe, optical transitions, direct and phonon-assisted 3=10968
 ZnTe, p-type, acceptor centre rel. to i.r. spectra 2=21251
 ZnTe, phase transition due to pressure 2=16705
 ZnTe: Al, Zn²⁺, crystal vacancy trapped hole, e. s. r. obs. 4=30556
 ZnTe in Zn vapour, high-temp. cond. 4=17496
 ZnN, carrier activation energy meas. 4=12906
 ZnO₂:Sn, Bi films 1=1088
- germanium**
 a. c. field effect, internal field effect on surface 3=21854
 a. c. field effect, unreal accumulation effect 4=6956
 absorption spectrum near fund. edge 3=10954
 acceptor binding energy, strain dependence 2=23343
 acceptor levels of γ -ray produced defects 0=4339
 acceptor states, shallow, theory 2=14541
 acceptor states, shallow, wave-functions and energies 4=25901
 acceptors, activation energy meas. 2=4018
 acoustoelectric effect, transport eqn. investigation 4=10050
 acoustoelectric effects in n-type, calc. 2=16707
 adhesion to In 2=10775
 adsorption of amines, effect 4=20399
 adsorption of ether mols., effect on recomb. centres parameters 4=20361
 adsorption oxygen and surface conductivity 1=8943
 alloyed with Ga, hole mobility, conc. and temp. depend. 3=22923
 alloyed with La, Pr and Nd, various props. 3=20308
 anodic dissolution, mechanism, minority, carriers role 0=20895
 anodic oxidation, striations 1=10043
 Auger electron ejection by inert-gas ions 0=13600
 Auger electron ejection by positive ions 1=320
 Auger neutralization of incident ions at surface, band structure 1=7632
 avalanche breakdown, negative resistance effects, 4°K (bistable cryosar) 3=13060
 avalanche breakdown, relative electron loss to optical and acoustic modes 4=28560
 band gap and carrier recombination in degenerate Ge 1=17699
 band structure calc., under high pressure 3=22682
 band structure by Hartree-Fock-Slater approx. and orthogonal plane waves 2=23265
 band structure, from optical and cyclotron resonance data 2=8345
 band structure parameters rel. to tunneling expts. 1=17689
 band structure from pressure expts. 1=17706
 band structure, relativistic corrections 4=9899
 band structure simplified tight-binding approx. 3=22622
 β -conductivity, bombarding electrons 1.5 to 30 keV 3=2885
 bicrystals, boundary layer galvanomagnetic effects 3=22927
 birefringence by free carriers 2=4023
 birefringence, by free carriers 3=10912
 breakdown, electrical, low-temp. 1=17691
 breakdown induced by illum. of compensated material 2=23339
 breakdown, induced by illum. of compensated material 3=6583
 breakdown, low-field, in n-type, time delay 3=857
 breakdown, low-temp., highly-compensated p-type 3=20310
 breakdown, low temp., thermal oscillations 0=2877
 breakdown processes, low-temp., rel. to noise 3=853
 breakdown, var. compression stress, 5.2°K 4=20365
 bulk Peltier voltage, resistivity depend. 0=11733

Semiconducting materials—contd**germanium—contd**

capture cross-section of Ni 1=8942
 capture levels, from photocond. meas. 3=15628
 carrier capture cross-sections, in Cu-doped material 3=17859
 carrier concentration gradient, anomalous resistivity, high photovoltages 1=1042
 carrier density, mobility, diffusion const. and cond., temp. depend., tables 1=1061
 carrier diffusion length and electrode potential in electrolytes 1=17677
 carrier diffusion length, meas. by photocond. modulation 3=20313
 carrier energy relax. time from zero current harmonic 4=22714
 carrier lifetime, effect of Cu extraction and introduction, by molten Pb 0=15928
 carrier lifetime, in intrinsic region, temp. depend. 1=6148
 carrier lifetime, meas. of variation with depth 1=5014
 carrier lifetime, rel. to other props. 1=17704
 carrier lifetime and resistivity, rel. to dislocation density 0=13536
 carrier mass, from cyclotron resonance 2=2151
 carrier mobility and disloc. scatt. in boundary layer 3=22928
 carrier mobility, effect of impurity core 1=19851
 carrier mobility, field depend. 0=4346
 carrier mobility, Hall meas. at microwave freqs. 1=11492
 carrier mobility in heavily doped n-material 2=12512
 carrier mobility temp. variation 0=4335
 carrier multiplication, at 9.4 Gc/s 3=15571
 carrier negative effective mass distrib. 1=6132
 carrier processes at grain boundaries 1=12432
 carrier recomb. at dislocations, theory in n-type 4=28395
 carrier recombination in Au-doped material 1=17685
 carrier recombination, after high excitation 0=4337
 carrier recombination, at large trap concentration 0=574
 carrier recombination, radiative, at dislocations 3=17860
 carrier recombination, surface, continuous level spectrum 2=18662, 23290
 carrier recombination, surface effect of absorbed molecules 2=8329, 10466
 carrier recombination, surface, effect of water adsorption 2=18676, 23337
 carrier recombination, surface, at high injection levels 2=10465
 carrier recombination and trapping after irradiation 2=12514
 carrier recombination and trapping, temp. dependence 4=22711
 carrier recombination at twin structures 1=5017
 carrier recombination, volume, Ca-doped crystals 3=6582
 carrier recombination, volume, Cu-doped crystals 2=21137
 carrier scattering and density, Hall-effect study 2=23335
 carrier, scattering and drift mobility 0=20906
 carrier scattering, on lattice, elec. field enhancement 3=853
 carrier scattering mechanism, from hole mobility data 0=18019
 carrier steady-state distribution function 0=17905
 carrier transport reversal 1=1056
 carriers, hot, and nonlinear deviations from thermal equil. for high impulse currents 4=6941
 carriers, role in the displacement process 4=9945
 carriers, warm, mobility, temp. depend. from 150°K-room temp., for n- and p-type, expt. rel. to theory 4=6967
 as catalysts 2=8918
 catalytic activity 1=5112
 cathode in aq. solns., reduction, rel. to free carriers 2=23966
 charge carrier inertia effects meas. 4=28541
 charge carrier recomb. on lattice defects 3=20305
 charge carriers, nonequilib., lifetime meas. 1=5019
 chemical purification 0=20908
 cleaved surface; gas evolution, conductivity, and V—I characteristics 3=10782
 cleaved surfaces, electrical props. 1=1447

Semiconducting materials—contd**germanium—contd**

combined resonance, excited by e.m. wave elec. fld., rel. to deformation 4=1605
 compensated, impurity impact ionization 2=23315
 condenser photo e.m.f., field effect 2=6498
 condenser photoeffect, effect of organic dyes 2=8437
 conduction anisotropy of warm and hot electrons 4=10068
 conduction at very low temp. in pre-avalanche region 2=10472
 conductivity anisotropy of hot holes 3=2888
 conductivity changes under tension and illum. 4=4150
 conductivity, due to excess carriers, in magnetic field 3=20299
 conductivity, effect of electron bombardment 0=11687
 conductivity effective mass in n-type 4=17390
 conductivity, elec., hot, carrier injection, high field mobility 4=4158
 conductivity electrical, minority lifetime, dendrite strips 3=18281
 conductivity and electron temp. in strong elec. fields 0=6111
 conductivity, Hall effect and magnetoresist. at low temps. 0=6108
 conductivity, rel. to K-ion bombardment 3=17851
 conductivity about melting pt. 3=21614
 conductivity variations, cross-sectional, rel. to crystal growth 2=8342
 constricted, negative resistance 3=25334
 contact potential differences meas. over surface 3=2896-7
 contact potential and elec. cond., effect of light and elec. fields 0=1637
 Corbino effect 2=636
 cross-sections for photon and electron capture 3=15630
 crystal defects and energy states 2=14515
 crystal growing, doping meas., nomograph technique 2=10477
 crystal growth, facet formation 3=6823
 crystals growth, for known impurity concs. 2=10791
 crystal growth, transition detection, by auto-decoration 4=2041
 crystal, hole lifetime, temp. var., trapping effects after γ irradiation, n-type 4=6781
 crystal surface states, cathode in 2 mol HCl electrolyte 3=17689
 crystallization, interaction of In and Ga dopants 3=20793
 crystals growth 0=21166
 current carrier energy spectrum calc., rel. to spin-orbit coupling 2=4010
 current carrier energy spectrum calc., rel. to spin-orbit coupling 3=2877
 current carrier recombination, rel. to Ag and Au impurities 2=23321
 current density versus elec. field characteristic, high pressure effects, n-type 0=11689
 current flow across grain boundaries in n-type, theory and expt. 1=8939-40
 current noise at 20°K after Cu doping 3=10790
 current oscillations, contact controlled 3=15576
 cyclotron reson. of heavy-hole Landau levels 2=23132
 cyclotron reson., hot-electron effect 2=16639
 cyclotron reson. of hot electrons 2=16638
 cyclotron reson. and magneto-optical effects 4=25916
 cyclotron reson. of negative-mass holes, theory 2=4022
 cyclotron reson., quantum effects in valence band 2=4021
 cyclotron reson., 2°K, light intensity var. 4=22553
 cyclotron resonance of degenerate band holes, quantum effects 3=10771
 cyclotron resonance, emissive negative mass 3=10773
 cyclotron resonance of holes, selection rules 3=6506
 cyclotron resonance of hot electrons 3=10776
 cyclotron resonance of hot electrons in n-type 3=10639
 cyclotron resonance, line-broadening, due to lattice and neutral impurity scattering 4=12714
 cyclotron resonance and negative carrier masses 1=3755
 cyclotron resonance "quantum effects" spectrum, at low temp. 3=10761
 cyclotron resonance, saturation, in degenerate zone, effect on nuclear reson. 4=28430
 cyclotron resonance shifts, power-induced, in valence band 0=17917

Semiconducting materials—contd

germanium—contd

- Debye temperature, effect of donor conc. 2=14384
 de Haas—Van Alphen magnetoresistance oscs.,
 4.2°K 4=28561
 defect electrons, mag. susceptibility 0=2979
 defects, energy spectrum, γ -irrad. 1=14259
 defects, rel. to fast electron and neutron irrad. 3=22725
 defects produced by γ -rays 4=1538
 deformation potential consts., ratio, from
 cyclotron resonance on strained crystals 1=6097
 degeneracy, optical absorption study 0=13683
 degenerate, As-doped, i. r. absorpt. rel. to energy
 gap 2=12587
 degenerate band, cyclotron resonance, quantum
 theory 3=20150
 degenerate, band gap and carrier recombination 1=17699
 delayed electron emission 0=1144
 dendritic growth, from supercooled melts 0=18321
 diamagnetic susceptibility, Fe- and Ge-doped 0=6211
 diamagnetic susceptibility, rel. to free carrier generation
 with light 3=3082
 dielec. const. at microwave frequencies 0=7976
 dielec. props., freq. and temp. dependence 0=627
 dielectric props. at microwave frequencies 1=1122
 dielectric suscept., microscopic, shell model 4=20366
 diffused junction depletion layer calculations 0=11696
 diffused layers, surface concn. and average
 conductivity 1=7636
 diffusion depth meas., electroplating method 2=16703
 diffusion of In 2=2098, 8243
 diffusion in liquid and solid, rel. to distribution coefficient
 and impurities 4=15488
 diffusion and solubility of Cu 4=12791
 diffusion and solubility of Te 2=21063
 diffusion and solubility of Te 3=2825
 dipole scattering, rel. to Li compensating
 impurity 3=10734
 dislocation acceptor levels 0=4340
 dislocations, elec. props., theory and expt. 3=25335
 dislocations, in torsional deformation, by electron
 microscopy 3=6514
 dislocations, velocity, as a function of
 stress 3=6519
 displacement threshold meas., review 4=30594
 donor concentration, at n-type surface on
 p-Ge, evaluation 1=6149
 donor formation in O-doped Ge 2=14534
 donor ground state energies 2=14542
 donor spin-lattice relaxation and g-factor 0=11612-13
 donor spins, relaxation effects 3=10792
 donor wave-functions, stress effects 2=8340
 doped with Ni, Mn, Au, generation-recombination
 noise 2=8431
 doped with Zn, Cu, far i. r. photoelec. recomb.
 processes 2=8406
 doping levels and inhomogeneities, i. r. meas.
 techniques 2=8312
 doping and radiation damage centres, by ion bombard.,
 target temp. effect 4=28558
 doping for use in low-temp. thermometry 2=2918
 drift mobility of electrons and holes at low temp. 1=17696
 drift mobility, p-type independence of electric field
 at 77°K 3=20301
 e. m. wave propag., TE_{01} , calc. for exp. decaying carrier
 density 4=28689
 e. m. f. volume gradient in presence of a current 1=14439
 effect of abrasion on {111} surface 2=8759
 elastic constants, effect of holes, calc. 3=20689
 elastic wave attenuation, rel. to internal photo-
 effect 4=1391
 elec. breakdown, neg. resistance, after n- and
 γ -irrad. 1=17852
 elec. cond. rel. to electron density distrib., X-ray
 study 0=586
 elec. cond. at liq. He temp. 1=17701
 elec. cond., Sb, Bi and Zn doped, 2-10°K 0=9964
 elec. conductivity, field dependence 1=17681
 elec. conductivity in high fields, anisotropy 3=15575
 elec. resistance, temp. coeff. of high-pressure
 phase 3=853
 electrical breakdown, critical field anisotropy, in
 uncompensated n-type 4=10055

Semiconducting materials—contd

germanium—contd

- electrical cond. in high fields at microwave
 freq. 2=4024
 electrical conductivity, effect of X-rays, quantum
 yield 1=19849
 electrical conductivity, effect of X-rays, quantum
 yield 2=4064
 electrical conductivity and Hall effect in Zn-
 doped, 5°-250°K 4=6957
 electrical conductivity at liquid-helium
 temperatures 1=14432
 electrical conductivity, theory 1=7641
 electrical field round dislocations; electron mirror
 obs. 3=10783
 electrical oscillations at liq. H₂ temp. 4=10051
 electrical properties of n-type, heavily doped 1=14445
 electrical props., in mag. field, pressure depend.,
 3.7-4.2°K 2=634
 electrical resistivity on n- and p- types,
 As-doped 1=10042
 electrical resistivity on n- and p-types, As-
 doped 1=17688
 electrode in aqueous electrolytic soln., charge
 distrib. 2=6888
 electrode-electrolyte interface, impedance, frequ.
 depend. 3=18445
 electrode, p-type, effect of surface states 3=21001
 electrode processes in H₂SO₄ solns. 0=8310
 electrodes, photo- and electrochemical processes in
 cathodic polarization range 0=21281
 electrolyte-electrode interface, impedance 3=18444
 electrolytic polishing, optimum conditions 0=21177
 electromagnetic wave absorption, 9 Gc/s 2=18684
 electron anisotropic scattering on ionized impurities and
 acoustic phonons 4=1424
 electron bombardment, induced cond. 2=14531
 electron capture cross-section effective, of Fe⁻
 ions 4=6960
 electron capture and trapping by positive Te
 atoms 4=1604
 electron conc. effect on mobility ratio 1=19851
 electron cond. near melting point 2=6448
 electron density distribution 1=5016
 electron distribution, inverse type 2=6435, 10455
 electron effective mass, As-doped 3=22930
 electron effective mass, As-doped from reflectivity var.
 with wavelength 3=22930
 electron-electron scatt., effect on transport
 phenomena 2=8316
 electron exchange kinetics 0=589
 electron excitation into cond. band by electrons and by
 K ions 3=858
 electron excitation into cond. band by electrons and by K
 ions 3=6588
 electron and hole capture cross-section ratios for
 Cu atoms 0=15922
 electron-hole junctions 1=6141
 electron-hole mobility at 9 kMc/s 2=23347
 electron-hole pairs, energy of generation by
 γ -rays 1=14443
 electron-hole pairs, recombination processes, neutron
 effects 3=2884
 electron-hole recomb., neutron irrad. effects 0=4338
 electron-hole scatt. at high injection levels 2=16700
 electron-ionized donor recomb., far i. r. emission 0=7930
 electron irrad., n-type, annealing 0=4343
 electron irrad. at 2 MeV, recombination centres 1=17680
 electron irradiation, annealing effects on elec.
 cond. 2=10463
 electron irradiation, discrete energy losses,
 mechanism 1=17494
 electron-mass, effective, temperature-dependence,
 117°-600°K 4=6943
 electron mobility, field depend., in n-type theory 0=20901
 electron mobility, Hall, in heavily doped
 material 2=8330, 10468
 electron mobility, temp. var. up to 1000°K, Sb-
 doped 3=20303
 electron-phonon interaction, Nordheim pot. calc. 2=23064
 electron plasma frequ., rel. to optical consts. 3=2987
 electron recombination, Cd influence 4=6962
 electron removal rate for n-type, by fission
 neutrons 1=8941

Semiconducting materials—contd

germanium—contd

- electron scatt. at low temps., rel. to negative resist. 2=8341
- electron scattering, anisotropic, by ionized impurities 1=17703
- electron scattering, anisotropic, by ionized impurities 1=19858
- electron scattering on neutral and ionized impurities 3=17858
- electron scattering, on phonons 2=6440, 10454
- electron secondary emission by ion bombardment 1=11966
- electron states, clean (100) and (111) surfaces 3=13554
- electron states on screw dislocations 2=14538
- electron surface states, energy distrib., in high vacuum 1=7637
- electron temp. and drift velocity in n-type, calc. 1=1059
- electron transitions, from donor to acceptor state 2=8315, 10456
- electron-voltaic effect, atomic battery 0=7065
- electronic band structure, perturbation calc. 1=19735
- energy band parameters, from tunnel diode reverse characteristics 4=4148
- energy-band structure 1=14455
- energy-band structure 1=17705
- energy band structure, review 2=12502
- energy bands and u.v. reflectivity line-shape 3=17865
- energy barrier betw. surface states and bulk of crystal 0=6113
- energy levels induced by neutron bombard. 2=2149
- epitaxial films 4=20359
- epitaxial films, on CaF_2 , carrier mobility and hole conc. 3=23416
- ϵ , anomaly in n- and p-type, calc. 1=11281
- Esaki diodes, excess noise rel. to bias and allowed states 1=17767
- Esaki junctions, phonon assisted tunnelling 2=4050
- etching, by Ar-ion bombard. 0=1898
- etching with $\text{HF}-\text{H}_2\text{O}_2-\text{H}_2\text{O}$ 2=8778
- etching, in $\text{HF}-\text{NH}_4\text{OH}-\text{H}_2\text{O}$ 2=10787
- etching in prod. of dice 2=10475
- Ettingshausen effect, calc. 0=18012
- excess carrier decay times, X-ray pulse study 0=13589
- excess-carrier lifetime, depend. on majority density 3=17848
- excess-carrier lifetime, depend. on majority density, highly doped 3=17848
- excess-carrier lifetime, temp. depend. plateaux, p-type, Ni-doped 3=17847
- excess carrier lifetimes, rel. to carrier speed 3=2891
- excess carrier recomb., meas. using photocond. 2=21144
- exciton contribution to photoconductivity 0=6112
- exciton and impurity level, magneto-absorption and Zeeman effects 2=23128
- exciton and magneto-optical effect, rel. to strain, at 77°K 0=18119
- excitons, [111] direct transition exciton, predicted observation by magneto-reflection 0=13527
- exo-electron emission, effect of N 1=16358
- extrinsic and intrinsic, noise spectra 3=4913
- extrinsic range of semiconductivity, recombination noise 1=8944
- Faraday effect, anisotropic, in n-type 3=10778
- Faraday effect for direct transitions 1=8980
- Faraday effect, of first 2 magneto-absorption lines 2=23531
- Faraday effect, i.r., and Hall effect 2=6549
- Faraday effect, microwave, theory and expt. 1=1063
- Faraday effect in n-type 3=4964
- fast surface states 2=18653
- fast surface states, effect of chem. etches 0=13601
- fast surface states, effect of dry air adsorption 1=14436
- fast surface states, effect of wet and dry ambients 1=11295
- fast surface states at low temps. 1=1051
- fast surface states, topography, by pulsed-field method 0=1639
- field dependence, interelectron collision, hot electron temp. 0=6092
- field desorption and surface migration 1=18908
- field effect, illumination effects 1=14450
- field effect, large signal, meas. 2=11574

Semiconducting materials—contd

germanium—contd

- field-effect modulation of light 3=15572
- field effect, photocond., 170-305°K 1=14434
- field effect and photocond., temp. depend., other surface states 0=18021
- field effects, a.c. and d.c., on cleaned surfaces 1=7639
- field emission 0=7928
- field emission of electrons 1=516
- filaments, conductivity, in high d.c. fields 0=13598
- filaments, gaseous ambient effect on 1/f noise 2=16695
- filaments, research 0=20905
- films, acceptor conc. reduction by cleanliness improvement 4=6965
- films, contamination and conversion effects during evaporation 4=20368
- films, elec. cond., effect of neutron irradi. 4=15538
- films, elec. props. 0=588
- films, elec. props. rel. to evaporation parameters 3=20926
- films, electronic interaction with CO 3=25346
- films, epitaxial 4=20359
- films, evap.—condensation method 3=23511
- films, evap., electronic interact. with O_2 3=13062
- films on fluorite, effect of formation temp. 2=16696
- films, growth from gas phase 2=10792
- films, Hall effect and cond., carrier density 1=3748
- films, on metals, prep. and props. 3=11317
- films, optical props. and photoelectron emission 1=17872
- films, polycrystalline, elec. cond. and noise 0=15921
- films, polycrystalline, flicker effect 3=15540
- films, polycrystalline, structure and electrical properties 3=8507
- films, on single-crystal substrates, formation, structure, elec. props. 4=20806
- films, vapour-grown on GaAs 0=18026
- forbidden band, discrete defect energy levels 1=17766
- forbidden bandwidth, carrier density depend., from diode recombination radiation shift 3=20539
- forward-biased long p-i-n structures, current-voltage relation 1=1037
- free carrier absorption, optical extinction by metal precipitates 4=15578
- free carrier polarizability, temp. depend., 2-20 μ reflectivity data 0=18028
- free-electron i.r. absorption, 77° to 373°K 3=10925
- galvano- and thermomagnetic effects, calc. by scattering theory 3=17855
- galvanomag. anisotropy, warm electrons, calc. 4=28540
- galvanomagnetic effects in n-type in impurity conduction range 1=7640
- galvanomagnetic effects in n-type, theory 4=17488
- γ -irrad., Sb-doped, annealing meas., two stages 4=28508
- γ -ray damage annealing and elec. cond. 1=7609
- γ -ray irradi., generation energy of non-equilibrium pairs 1=14443
- gas adsorption by monocrystals, mass-spectrometrical investigation 0=4750
- generation-recombination noise, in p-type containing Zn 4=1608
- grain boundaries in bicrystals, hole distrib. 3=8508
- grain boundaries, low-temp. magnetoelec. props. 2=18677
- grain boundary breakdown surface field effect 4=4155
- grain boundary conductivity 2=10470
- grain boundary states, n- and p-type bicrystals 3=13064
- growth 4=13533
- growth of 5 kg single crystals 0=4593
- growth, striations in contact with metals 0=16260
- Hall coeff. and elec. cond., temp. dependence 2=15864
- Hall coeff. meas. rel. to neutron-irrad. 2=23325
- Hall coefficients, anisotropic, n-type 1=12436
- Hall constant and magnetoresistance, concentration effect, pulsed mag. field depend. 1=1046
- Hall effect anisotropy in p-type, 77°-300°K 3=10777
- Hall effect calc. for high elec. field 3=22916
- Hall effect carrier concentration discrepancy, rel. to impurity content 3=17861
- Hall effect depend. on mag. field strength 2=635
- Hall effect, longitudinal, for n-type, theory and exp. 0=4333
- Hall effect and magnetoresistance 0=9960

Semiconducting materials—contd

germanium—contd

- Hall effect and magnetoresistance rel. to surface state 1=17686
 Hall effect, n- and p-type, 24 Gc/s 1=19852
 Hall effect over change from n- to p-type, microwave meas. 1=14449
 Hall effect, in p-type, mag. field depend. 2=14533, 18674
 Hall effect, path length effects 4=17489
 Hall effect, use in impurity analysis 4=28571
 Hall effect, use for mag. field meas. 4=16613
 Hall factor in p-type, conc. depend. 4=12901
 Hall mobility, hot electron, theory in n-type 4=6970
 Hall mobility at microwave frequency 1=17702
 Hall voltage meas. with quadrant electrometer 4=10054
 hardness and current carriers conc. 2=8757, 14910
 heat capacity, vibrational frequency spectra 0=15812
 heavily compensated, impact ioniz. of impurities 3=2890
 heavily doped, elec. cond. rel. to temp. in doping region 3=10730
 heavily doped, electron and hole lifetimes 3=10785
 heavily-doped, intrinsic absorption edge 4=26192
 heavy and light holes, relative conc. 0=1628
 high Au-doping by iodide vapour process 1=1060
 high electron field effects 0=20893
 high pressure effects on hot electron phenomena, at 297°K in n-type 0=11689
 highly compensated, breakdown, low-temp. 2=16699
 hole capture by Au-ions, p-type, from noise, generation-recombination 3=17852
 hole conduction in crystals and films 2=14539
 hole effective masses, calc. 3=17864
 hole energy spectrum, effect of deformation 0=11694
 hole injection during ferricyanide reduction 2=4017
 hole-level spin structure in degenerate band 3=17850
 hole mobility, rel. to Al and In dopants 4=4151
 hole mobility, dependence on conc. and temp. 2=2144, 8327
 hole mobility, temp. depend., discrepancy 3=17863
 holes, acoustic-mode scattering by phonons 1=11275
 holes, mag. susceptibility, theory 1=20044
 holes, scattering by lattice defects formed by neutron bombard. 4=12839
 holes, scattering, matrix elements 1=1030
 hot-carrier distribution function, from i.r. anisotropic absorption 4=4157
 hot carrier, energy and momentum relaxation time detm. 3=2883
 hot carrier mobility 3=10793
 hot carrier mobility, temp. depend. 1=6150
 hot-carrier recomb. 2=8404-5
 hot carrier recomb. in high elec. fields in n-type 4=22713
 hot carrier recombination 3=10784
 hot carriers, scattering, theory 1=17693
 hot current carriers, rel. to thermoelec. force and hot electron emission 3=10791
 "hot" electron anisotropy, under high elec. fields, temp. depend. 0=20904
 hot-electron capture by Au centres in n-type 3=25343
 hot-electron effects in n-type in high elec. fields, calc. 1=1059
 "hot" electron emission 0=9066
 hot electron mobility, iterative quadrature calc. 3=22926
 hot electron noise 3=10770
 hot electron nonequilibrium carrier distribution 1=14444
 hot electrons, effect of phonon distrib. 3=10759
 hot electrons, electron-electron interaction 1=11283
 hot electrons, noise temp. and energy distrib. 2=12516
 hot holes, energy distrib. function, exptl. detm. 93°-297°K 3=10767
 hot holes, energy distribution function anisotropy 3=25342
 impact ionization, filamentary, at 4.2°K 2=8334
 impact ionization of impurities, in p-type at low temp. 2=2142
 impact ionization, low-temp., theory 2=18679
 impact ionization threshold and quantum yield 4=6942
 impurities 0=20930
 impurities, diffusion in melt 2=6477
 impurities, subeutectic solubilities 3=20315
 impurity band theory 0=6095

Semiconducting materials—contd

germanium—contd

- impurity breakdown, induced, rel. to current oscillations 3=10769
 impurity centre recombination 2=23348
 impurity concentration, meas. using scatt. data 0=9963
 impurity cond., piezoresistance, magneto-resistance 3=13058
 impurity-conduction band cond. transition, rel. to illum. 2=16706
 impurity conduction after Cu doping 3=10789
 impurity conduction, intermediate, in n-type, magnetic field effects below 4.2°K 4=6968
 impurity conduction and magnetoresistance, n-type, at 2.5°K 0=15934
 impurity conduction in n-type, effect of tensile stress 2=23341
 impurity cond. in n-type, effect of uniaxial compression 2=8339
 impurity conduction, n-type, at 1.9°K, effect of sheer strain 0=15935
 impurity conduction in neutron-irrad. transmutation-doped p-type, 1.2-300°K 0=13595
 impurity conduction, one-phonon transition rate 2=8318
 impurity conduction, resistivity temp. dependence 3=25344
 impurity conduction of surfaces at low temps. 1=1048
 impurity conduction, two-phonon transitions, calc. 2=4007
 impurity doping in vapour growth 4=7555
 impurity energy levels, Au, pressure effects 2=23355
 impurity layers, diffused 1=1096
 impurity mobilities, electron scattering cross-sections 0=6090
 impurity photocond. in compensated material 2=10523
 impurity scatt. in i.r. absorption, n-type, calc. 1=3826
 "inborn" dislocations and recombination 3=20179
 influence of degeneracy on recombination radiation 0=2879
 infrared absorption 1=19994
 i.r. absorption, due to minority carriers 0=1733
 i.r. absorption, effect of high doping 3=15679
 i.r. emittance rel. to absorption processes, 323° to 473°K 3=10961
 infrared absorption spectrum, effect of Fe impurity 2=18848
 infrared absorption, temp. depend. 2=10607
 infrared detectors, comparison with others 2=7457
 infrared modulation, by free carrier absorption 4=15589
 infrared photon detector, after impurity activation 2=7454
 injected carrier lifetime, Fe- Co- and Ni-doped samples, and with thermoacceptors 1=11299
 injected-carrier lifetime, meas. using impurity photocond. 3=20307
 injected carriers, lifetime, pure and Sb- and Ga-doped specimens 1=11298
 injected plasma oscillations 3=25257
 injection efficiency of point contact in drift field 1=1089
 interaction of holes with phonons 0=2873
 interaction of O₂ and Al during growth, rel. to dopants 4=1606
 interband Faraday effect, analysis 3=8586
 interband Faraday rot., Voigt effect 2=21230
 interband scatt. in n-type, press. depend. of elec. cond. 1=14448
 interband transitions, reflectance 2=18673
 interface with NaOH soln., potential distrib. 2=10474
 interface with polymer, surface conductivity 3=20300
 "intermediate" conduction region, band conduction 3=10735
 internal friction and semicond. props. 1=1303-4
 intervalley noise 0=11676
 intervalley scattering by donor ions, in n-type 4=28400
 intra- and intervalley scattering and conduction band tailing 3=10765
 intraband trans., influence on absorbt., refr., refl. 4=30617
 ionized-impurity scatt. in n-type 4=6780
 ionizing radiation effects on elec. props. and defects 4=10040
 irradiation and annealing damage 3=22859
 junction diodes, reverse characteristics 1=14478
 junction, p-n, plastically deformed, negative resistance and double injection 3=8534

Semiconducting materials—contd

germanium—contd

- junction, p⁺-n, slow decay and noise meas. 1=17776
- junctions, photomag. effect 2=6503
- Landau levels, cyclotron resonance of holes 3=8505
- lattice absorption i.r. bands, shell model applic. 3=10927
- lattice constant, effect of excess carrier pairs (photostriction) 2=2214
- lattice scattering mobility, transition of temp. depend. 0=9957
- layers, coarse-grained, elec. props. 1=14435
- layers, Hall effect and conductivity rel. to thickness 2=21140
- light-induced plasticity, carrier lifetime reduction 1=3974
- long-wave irradi., 2-4°K, anomalous props. 0=20898
- mag. susceptibility of electrons 0=4469
- mag. susceptibility, p-type, rel. to extrinsic carrier density, 1.3-300°K 0=18168
- magnetic props. calc., from X-ray meas. of electron density 4=7216
- magnetic props., var. with doping, antiferromag. transformation 3=23135
- magnetism of interacting donors, calc. 0=6215
- magnetoelec. effects at high pressures 1=14372
- magnetoelec. props. at low temps. 0=6108
- magnetoelectric effects in heavily-doped p-type 4=10056
- magnetoelectric and thermomagnetoelectric effects, theory 1=8932
- magneto-optical effects, 77°K, rel. to strain 2=23528
- magneto-oscillatory plasma, helical instability 2=16698
- magnetoplasma resonance, microwave 3=2893
- magnetoresistance, anomalous, low temp. 4=6972
- magnetoresistance, degenerate n-type, calc. 3=20314
- magnetoresistance, heat treatment effects 2=12519
- magnetoresistance in heavily doped n and p-type 4=4154
- magnetoresistance, heavily doped, 1.6-4.2°K 3=22929
- magnetoresistance in impurity cond. of n-type 3=4915
- magnetoresistance, impurity conduction 4=6966
- magnetoresistance in impurity conduction range 3=2892
- magnetoresistance, longitudinal, in n-type, expt. and theory 1=11293-4
- magnetoresistance, low-fld. in hopping region impurity conduction 3=10775
- magnetoresistance rel. to mag. induction, highly doped samples 0=13599
- magnetoresistance, rel. to magnetoconcentration effect 1=11263
- magnetoresistance, negative, 4.2°K 4=28556
- magnetoresistance, negative, above 14°K 3=10774
- magnetoresistance, oscills. at 20°K 0=2881
- magnetoresistance, p-type, stress effects 4=10053
- magnetoresistance in strong fields 2=21136
- magnetoresistance in strong fields 3=6581
- magnetoresistance, transverse, in quantum limit, for n-type 1=17698
- magnetoresistivity 0=20907
- majority-carrier mobility on surface 3=15574
- maser action by exciton transitions, prevention 2=18671
- microhardness, rel. to elec. conductivity 2=16971, 19023
- microplasma breakdown 3=25383
- microwave harmonic generation with hot electrons 3=21969
- minority carrier lifetime 0=18018
- minority carrier lifetime in filaments, by noise and Haynes-Shockley method, agreement 1=7638
- minority carrier lifetime, external elec. field effects 0=15924
- minority carrier lifetime, from noise meas. 0=9962
- minority carrier mobility, electron-hole scattering 1=19853
- minority carrier parameters of Sb-doped material 2=2148
- minority carrier recombination low-freq. fluctuations 2=23322
- minority carriers, free, lifetime, pressure depend. 1=1041
- minority charge carriers extraction, local cond. 3=2886
- mixed oxides, Seebeck coeff. 0=2914
- mobility anisotropy in n-type at 35 Gc/s 3=17854
- mobility anisotropy and relax. of hot electrons 3=6587
- mobility of electrons for heavy As doping 2=23336
- mobility of hot carriers at 300°K 3=13061
- mobility of hot electrons, iteration calc. 2=2140
- mobility of irradiation defects in p-n junction in elec. field 1=8902

Semiconducting materials—contd

germanium—contd

- mobility of "warm" electrons 1=14411
- monocrystals, growing method using Peltier effect 2=810
- monocrystals, interface shape determination, photoelectric 1=15055
- monocrystals, surface elec. cond. 0=15929
- monoenergetic neutron irradiation, effect of 0=6109
- Mossbauer effect, of Fe⁵⁷, diff. between n and p type, and electron config. 4=15404
- Mott exciton, binding and decay 0=20778
- muonium formation in 1=2074
- n-p-n structures, double diffusion production 0=13622
- n- and p-type, excess current carrier drift in magnetic field 2=4012, 6432
- n- and p-type, photon emission, elec. field induced 3=855
- n and p-type, Te-doped, recomb. and trapping of charge carriers 4=1609
- n and p-type, thermal cond., 80-440°K 0=15930
- n-type, action of light on surface potential 1=3788
- n-type alloyed with Cu or Ni, carrier lifetime 0=20896
- n-type, anisotropy of galvanomagnetic effect 0=13816
- n-type, Au-doped, carrier lifetimes 2=8420
- n-type bicrystal, elec. cond. grain boundary 3=8506
- n-type, carrier cyclotron resonance absorption 2=14422
- n-type, controlled diffusion process for In 0=15933
- n-type, disordered regions by fast neutron-irrad. 2=6453
- n-type, drift vel. of hot electrons 2=21130
- n-type, elec. cond. 4°-25°K, analysis 3=2894
- n-type elec. cond., high-freq., and dielec. const. rel. to elec. field intensity 2=23314
- n-type, elec. cond. variation in strong pulsating mag. flds. 3=2887
- n-type, elec. conductivity, neutron effect appl. 2=8044
- n-type, elec. props. rel. to uniaxial plastic deformation 2=8331, 14532
- n-type, electron irradi. effects, 25 MeV, at 80°K 2=23349
- n-type, energy spectrum of Cu, Au impurities 2=21145
- n-type Faraday effect, i. r., rel. to effective-mass determ. 2=23529
- n-type, Faraday effect, r. f. 4=13036
- n-type, fast-states structure at surface 3=6584
- n-type, Hall coeffs., anisotropic 2=23318
- n-type, Hall effect rel. to iso-energy surfaces 4=30545
- n-type, heavily doped, elec. and mechanical props. 1=14441
- n-type, heavily doped, magnetoresistance 2=16697
- n-type, highly doped, thermal e. m. f., 100°-330°K 4=30669
- n-type, hole capture cross-section by γ -ray produced defects 0=15875
- n-type, hole and electron concs. 2=18678
- n-type, hot electron effects in d.c. elec. fields, 9.392 Gc/s 4=22712
- n-type, hot electrons, drift vel. and anisotropy 2=14536
- n-type, i. r. absorption spectrum, rel. to heavy doping 2=8534
- n-type, injected carrier mobility rel. to pressure 2=16702
- n-type junctions, saturation currents, in chemical solutions 1=10055
- n-type, low-field breakdown, avalanche model 1=19855
- n-type, magnetoelec. effects below 4.2°K, in up to 28 000 G fields 2=23317
- n-type, magneto-thermal and electric phenomena, anisotropy 1=1044
- n-type, magnetoresist., longitudinal, in strong mag. field, 20°-300°K 2=23316
- n-type, majority carrier recomb. 2=23323
- n-type, nearly-pure, electron cond., rel. to elec. field 2=23311
- n-type, negative magnetoresist. effect, rel. to impurities and temp. 2=23395
- n-type, neutron irradi., drift mobility 0=18017
- n-type, non-ohmic current, temp. dependence 0=11688
- n-type and p-type channel, surface channel Hall effect rel. to free-carrier scatt. 2=23334
- n-type, recombination centres due to fast neutrons, props. 1=14442
- n-type, recombination props. of Au 2=18675, 21131
- n-type, Sb-doped, elec. cond. and magneto-resistance 1=17700
- n-type, Sb doped, press. depend. of Hall effect 0=584

Semiconducting materials—contd

germanium—contd

- n-type, Sb doped, warm electrons behaviour 3=8499
 n-type, σ and μ , rel. to neutron-irrad. 2=23326
 n-type, surface barrier heights meas. 2=23345
 n-type, surface carriers, effective mobility 2=23342
 n-type, tilt and twist grain boundaries, elec. cond. 3=854
 n-type, transitory elec. props. after neutron pulse 0=13597
 negative masses, cyclotron res. and Landau levels 2=23131
 negative resistance, rel. to capture rate in elec. field 2=828
 negative resistance, due to tunnel effect 3=20298
 negative resistance effect, hot-electron, in n-type 4=6905
 Nernst effect, methods of measuring 0=4328
 Nernst effect, phonon part, mag. field depend. 0=15823
 Nernst-Ettingshausen effect, 100° to 300°K 4=6961
 neutron bombarded, in-pile Hall coeff. meas. 0=18016
 neutron irrad. effects, electron removal rate in n-type by fission neutrons 1=8941
 neutron irrad., 14.2 MeV, conductivity 2=6452
 neutron-irradiated, defect creation, effect on recombination 0=15925
 neutron irradiated, at 77°K, electron mobility 2=4013
 noise generation during impact ionization avalanches 1=8945
 noise, generation—recombination, in Au-doped p-type 1=10045
 noise level, 1/f, heavily surface-doped filaments 2=8333
 noise measurement, near collision ionization 5-10°K 0=11684
 1/f noise, rel. to crystal imperfections 0=1595
 noise, review 1=6135
 nuclear quadrupole relaxation 2=8696
 nuclear spin-lattice relax., meas. 2=12826
 Ohm's law, deviation at high electric fields 2=2154
 optical absorpt. due to surface states 3=25251
 optical absorption edge broadening 3=10951
 optical absorption due to interband transitions, effect of elec. field 1=14580
 optical absorption spectrum, phonon effects 2=14689
 optical charge exchange in Cu-doped, photo e. m. f. kinetics and spectrum 4=1683
 optical constants 1=19943
 optical Faraday effect 1=5045
 optical radiation from breakdown avalanches 1=17694-5
 oscillations with applied pulsed electric field 0=18027
 oscillations in magnetic field, liquid He temp. 4=12897
 oscillations, relaxation, high resistivity rod 4=4156
 oxidation of heat treated (111) surfaces 0=3189
 oxygen content, elec. and optical props. 2=23352
 oxygen donors, ionization behaviour 2=2146
 oxygen doped, kinetics of donor reactions 1=19854
 p-n junction, V-A characteristics 0=20899
 p-n junctions, photoemission, field induced and hot-electron emission 0=17030
 p-n junctions, recomb., and generation phenomena 0=7924
 p-n junction, quantum efficiency of absorbed X-rays 1=17679
 p-n junctions, dislocation density effect 1=19857
 p-n and l-h junction location 0=7919
 p-type, Au-doped, generation—recombination noise 2=8338
 p-type, Au-doped, multilevel system statistical weight factors 2=23324
 p-type, carrier-scattering mechanism 2=23312
 p-type, conductivity and Hall effect, external elec. field and temp. depend. 1=14451
 p-type, deformation pot. theory 2=23271
 p-type, deformed, energy spectrum and elect. props., theory 0=587
 p-type degenerate, forbidden energy gap width 2=12518
 p-type degenerate, forbidden zone width 2=18682
 p-type degenerate single crystals, growth and elec. props. 4=6971
 p-type, elec. cond. in high-field, low-temp. 2=23313
 p-type, elec. props., influence of deformation 0=13596
 p-type, energy spectrum of holes 0=15952
 p-type, forward biased point contact diodes 3=10855
 p-type, Ga impurity concentration 2=6450
 p-type, gold-doped, photoconductive time constants 1=2425
 p-type, Hall coeff. rel. to mag. field, temp. 1=19850
 p-type Hall coeff. rel. to mag. field, temp. 2=8328
 p-type, Hall effect and elec. cond., press. depend. 0=585

Semiconducting materials—contd

germanium—contd

- p-type, hole-hole scatt. rel. to mobility 2=18681
 p-type, hole-mobility variation in strong electric field 0=15932
 p-type, hole scattering, matrix elements 1=6142
 p-type, lattice and ionized impurity scatt. analysis 2=18680
 p-type, lattice scatt., mech. 2=23065
 p-type, mag. susceptibility, 300° to 1.3°K, rel. to extrinsic carrier density 2=23637
 p-type, magnetothermal effect in phonon-drag region 2=23319
 p-type, oscillations, coherent 2=10471
 p-type, piezoresistance in impurity conduction region 4=28559
 p-type, stress depend. of low-temp. breakdown characts. 4=22710
 p-type, surface electron states, energy distrib. 0=15926
 p-type surface film formation and removal 2=23203
 p-type surface recombination rel. to excess carrier conc. and surface pot. 2=23332
 p-type, thermal cond. and elec. props. for 0.2°-4°K 2=10464
 p-type, transport phenomena theory 2=4015, 8326
 p-type, two-level, carrier density fluctuations 2=10473
 paramagnetic and cyclotron resonance 4=23042
 paramagnetic reson. on shallow impurities 2=23705
 permittivity near band edge 2=14602
 phase transition due to pressure, to cond. state 2=16704
 phonon distrib., hot-electron distrib., in n-type 4=25835
 phonon interactions, high-energy, in Sb-doped n-type 1=1058
 phosphorus-doped, elec. cond. 2=21133, 23338
 photocond. max. spectral response, minority carrier diffusion length 3=909
 photoconductive decay of spreading resist. meas. 4=1610
 photoconductive investigation of properties 1=11325
 photoconductive investigation of properties 1=17801
 photoconductivity, rel. to Au impurity 2=21194
 photoconductivity, carrier generation and recomb. 3=13132
 photoconductivity, rel. to Cu impurity 2=21193
 photoconductivity, rel. to Cu impurity 3=2968
 photoconductivity, extrinsic, with phonon emission 3=13133
 photoconductivity, impurity, rel. to fast electron irrad. 4=10128
 photoconductivity, impurity kinetics 3=20410
 photoconductivity, negative effect in mag. field 1=5026
 photoconductivity, negative effect in mag. field 1=10063
 photoconductivity, negative, at low temp. 2=16755
 photoconductivity and photomagnetic effect, universal time constant 1=12460
 photoconductivity, two-carrier 4=4221
 photocurrent—voltage characteristics in Au-doped photodiode effect 4=7068
 photodiodes, low inertia 1=6166
 photo-e.m.f. in impurity excitation region 2=18742
 photoelectric emission, surface working, influence 1=16379
 photoelectromagnetic effect, anisotropy 1=5029
 photoelectromagnetic effect, long-term variation 4=10129
 photoelectromagnetic effects, rel. to photoconductivity 4=26150
 photoelectromagnetic elements prep. by optical polishing 3=4956
 photo-emission, with Ba oxide layer, V-I characteristics 0=11724
 photo-emission, crystalline and amorphous states, with Ba oxide film 0=11725
 photogalvanomagnetic effects, fields to 200kOe 4=30663
 photoionization 3=15578
 photomagnetic e.m.f., time and thickness depend. 3=17966
 photomagnetic effect, anisotropic 0=7926
 photomagnetic effects, odd and even, in n-type 4=10130
 photomagnetism anomaly, origin 0=7929
 photomagnetolectric effect 0=20889
 photomagnetolectric even effect 1=5030
 photomagneto thermal effect, detection 2=14523
 photoresponse, temp. and bias effects in bicrystals 4=28645-6

Semiconducting materials—contd

germanium—contd

- photovoltaic bulk effect meas., applications 2=23464
 photovoltaic effect, liq. N₂ temp. 1=6181
 photovoltaic effect, rel. to mobility anisotropy 2=14520
 photovoltaic effect in p-n-p structures, sign reversal 4=10119
 physical effects of radiations, review 4=20345
 piezoresistance 4=6958
 piezoresistance of diffused layers 3=10753
 piezoresistance, rel. to impurities, 77° to 600°K 4=6963
 piezoresistance, n-type, degenerate valley splitting 3=10787
 piezoresistance, n-type, impurity conduction 4=12896
 piezoresistance of n- and p-type, review 4=26046-7
 piezoresistance, pressure depend., p-type 0=9977
 piezoresistance in Sb-doped Ge 2=12513
 piezothermal conductivity, liq. He temp., rel. to dopants 3=10786
 plasma, growing helical density waves 4=17406
 plasma resonance absorpt. in n-type 4=25915
 plasmas, injected, instabilities in n-type in transverse mag. field 4=4153
 plastic deformation and dislocations 2=10959
 plastic deformation, linear dislocation effects 0=18020
 plastic yielding delay time 0=2876
 plastically deformed, minority carrier trapping centres 4=12673
 plastically deformed, p-n junction, current-voltage characteristics 2=2184
 point contact junction effective area 0=2883
 point defects in p-type, due to deformation, quenching and electron irradi. 2=6449
 polarization conductivity at 1.2°-4.2°K in p-type 4=1607
 polishing with CP4 2=8780
 polycrystalline layers, photo-e. m. f. 4=30662
 population inversion states with impurities 4=12672
 potential distribution across low-index crystal planes, in contact with aqueous solution 3=10788
 powdered films, elec. cond., sign 1=14452
 pressure depend. of elec. cond. in n-type, interband scatt. 1=14448
 proton-neutron damage equivalence meas. 4=17494
 purification and analysis 0=2065
 quantum transport in n-type, magneto-Seebeck study 3=4914
 quasi-intrinsic, interelectron scatt. meas. 3=20312
 radiation damage from radiative recomb. 3=22862
 radiation defects and their energy levels 2=18578
 radiation defects, prod. by 28 MeV electrons 4=1539
 radiation-induced recombination and trapping centres 2=2150
 radiative recombination 1=3746
 radiative recombination, electron irradi., i.r. emission 0=20984
 radiative surface effect 0=1642
 radiative transitions, indirect, and intervalley scatt., selection rules 1=14217
 reaction with I, surface kinetics 1=11612
 recomb., at Ni, 80-250°K 3=6580
 recombination centres, formation, effect of quenching 1=2408
 recombination centres, formation, effect of quenching 1=6151
 recombination centres, inhomogeneous distrib. meas. 2=23344
 recombination centres, prod. by neutron irradi. 0=6110
 recombination centres produced by 2 MeV electron irradi. 1=17680
 recombination constants from photoconducting spectrum 0=13634
 recombination at Cu and Ni centres in p-type material 1=14447
 recombination, at edge dislocation, effects of Cu atoms 1=6147
 recombination at edge dislocations 2=21134
 recombination at edge dislocations 3=2898
 recombination, at edge dislocations, effect of Cu atmos. 1=2407
 recombination of electrons and donors in n-type, calc. 1=19856
 recombination of electrons and donors, in n-type Ge 2=16701

Semiconducting materials—contd

germanium—contd

- recombination of electrons and donors in n-type at low temp. 1=1055
 recombination of excess carriers 0=591
 recombination, Fe-, Co- and Ni-doped samples, and with thermoacceptors 1=11299
 recombination luminescence excitation, by maser 3=20538
 recombination, in n-type samples with multicharged impurities 3=20307
 recombination, at Ni, absolute capture cross-section 0=11691
 recombination noise in impurity cond. region 1=1054
 recombination processes in neutron irradiation n-type 1=12437
 recombination radiation, effects of mag. field and i. r. light 4=6782
 recombination, radiative and cond. band min. 3=2900
 recombination relaxation effects in surfaces 0=4345
 recombination at 3rd Cu-level in n-type 3=13057
 recombination and trapping centres due to γ -rays, annealing 2=12515
 recombination—trapping effects in neutron irradi. n-type 4=12900
 recombined level in n-type electron-irradi. material 3=15570
 reduction yields of Ge iodides by H 4=13708
 refractive index, temp. dependence 1=17867
 relation between etch time and orientation accuracy 0=3186
 relaxation characteristics of photo-elements 0=6133
 relaxation processes in a transverse field 0=6094
 resistivity homogeneity, photovoltaic evaluation 1=14514
 resistivity of n-type, pres. and temp. depend. 3=20306
 resistivity rel. to pressure up to 3×10^5 kgm cm⁻² 3=2902
 resistivity variations, small, in crystals 3=15573
 resistor and capacitor elements 2=8388
 review of props. and technical advances 4=26028
 saturated with GaSb 1=3752
 scatt., electron and hole, n-type, from absorption and vel., u.s. 3=13063
 scattering of hot carriers, theory 1=17693
 secondary and induced photoemission 1=18924
 secondary multiplication coefficient 4=7004
 Seebeck coeff., effects of strain 0=1643, 11735
 Seebeck effect meas. in plastically bent Ge 1=17692
 shallow donors, ground state energies 3=22681
 single crystal, vapour deposited 0=11693
 single crystals, examination with i.r. polariscope 0=180
 single crystals, low temp. 1/f noise 3=4912
 slow traps distrib., in relaxation time, electron irradi. effects 0=7931
 solar battery use 0=5265
 solid solns., excess entropy 0=1641
 solid solubilities of Sb, As or Bi, saturation diffusion expt. 3=3342
 solubility of Al and Ga 0=12080
 spin-orbit coupling effects on electron structure 2=12520
 spin-orbit splitting for interband transitions 2=14537
 "split" p-type, low-temp. transport props. 1=3754
 statistics of multi-level impurities 1=7631
 strain effects on cond. and Hall mobility in p-type at 7°K 1=3754
 substrates, for epitaxial devices 3=6880
 surface-barrier counters 0=12725
 surface barrier detectors, prep., props. 2=5528
 surface breakdown anisotropy, in high elec. fields 0=15931
 surface charge, amine adsorpt. effect 4=20364
 surface charge density 1=1457
 surface-charge variations, due to heating in vacuum 2=2141
 surface chemistry, i.r. study 1=4102
 surface cond., effect of etchant impurities 0=9959
 surface cond., p-type, and field-induced surface cond., of cleaned surface 0=2878
 surface cond. relax., slow, temp., press., H₂O vapour var. 4=20358
 surface cond., variation by adsorption, transverse fields and irradiation 1=3738
 surface conductance, effects of mag. field 3=13059
 surface conductance relaxation, effect of water 4=4149
 surface conductivity 1=14454
 surface conductivity in Au-doped, rel. to fracture, liq. N₂ temp. 4=10052

Semiconducting materials—contd

germanium—contd

- surface conductivity and carrier lifetime of highly pure samples 4=1603
- surface conductivity, cleavage method 4=4167
- surface conductivity, influence of humidity 1=14431
- surface conductivity, meas. 1=11296
- surface conductivity, relaxation, time changes 1=17682
- surface conductivity, slow non-exponential changes 1=14430
- surface-dependent 1/f noise 0=11683
- surface elec. properties, external elec. field effects 0=15923-4
- surface elec. props., clean and oxidized 4=6969
- surface elec. props., effect of corona discharge in air 2=2152
- surface elec. props., effect of etching in H_2O_2 2=21135
- surface elec. props., effect of etching in H_2O_2 3=2899
- surface elec. props. rel. to humidity 2=23331
- surface electron energy distrib., on clean surfaces and with O_2 adsorbed 1=1045
- surface electron states, field effect 2=23351
- surface energy 0=13467
- surface energy levels after surface treatment 2=21138
- surface fields and noise at grain boundaries 2=2145
- surface free charge carrier lifetime, adsorbed O influence 1=17684
- surface homogeneity, study from photovoltaic effect 2=12510
- surface, hysteresis in large-signal field effect 2=18667
- surface investigation by magnetoconcentration effect 0=2861
- surface levels 2=6455
- surface levels, energy distrib., effect of O_2 2=8343
- surface levels, rel. to photoconductivity 1=17496
- surface mobility measurements at low temps. 1=1050
- surface physical properties in nitric acid of various concentrations 4=6959
- surface physics, present status 2=23328
- surface point contacts, anomalous characteristics 3=17862
- surface potential distribution investigation with electron mirror 1=546
- surface potential, effect of electron bomb. 1=17690
- surface props., chemical treatment effects 4=20794
- surface props., cleaned surfaces 0=4344
- surface props., effects of chem. treatment 3=15577
- surface props., effect of polar mol. adsorpt. 4=20793
- surface props., O_2 and water vapour effects 4=20795
- surface props., oxidation phenomena 1=5102
- surface props., from slow relax. of cond. and work function in gases 4=22715
- surface recomb. centres 0=2874
- surface recomb. centres, capture cross-sections and energy levels 0=1638
- surface recomb. at electrolyte soln. boundary 2=19153
- surface recomb. rate meas. 0=18003
- surface recomb. rate meas., using photomagnetoec. effect 0=1627
- surface recomb. rate, potential depend. 3=20304
- surface recomb. for various injection levels 3=10786
- surface recomb. vel., effect of electrochem. treatment in gases 4=20362
- surface recomb. velo., var. e.s. pot., in vacuo 4=20363
- surface recomb. velo., var. majority carrier density 4=22716
- surface recomb. velocity, effective 2=10476
- surface recomb. velocity, from photoec. meas. 2=12511
- surface recombination, air/vacuum cycling at high temps. 4=6974
- surface recombination centres, trapped charges 1=14437
- surface recombination rate, 250-328°K, before and after 150°C heating 1=14438
- surface recombination vel., by γ -irrad. 0=4342
- surface recombination velo. validity criteria 4=22695
- surface recombination velocity, effect of wet and dry ambients 1=11295
- surface relax., slow non-exponential, model 3=2895
- surface relaxation effects at low temps. 1=1052
- surface slow relaxation effects in a.c. field effect 1=17683
- surface stabilization by ethylation 2=8335-7
- surface state, electrodes during anodic dissolution 3=16177
- surface states, apparatus for study 2=21143
- surface states, cleaned and oxidized 3=17856-7
- surface states on cleaved surfaces in p-type 3=6497

Semiconducting materials—contd

germanium—contd

- surface states, energy distrib., temp. depend. 1=12438
- surface states, energy spectrum and effective cross-sections 3=10779
- surface states of etched Ge, effect of Cu 2=10469
- surface states, fast, due to Cu contamination 3=6585
- surface states, fast, effect of constant elec. field 1=5018
- surface states, fast and slow, field effect and recomb. 2=6454
- surface states, fast, temp. depend. 3=6586
- surface states and γ -ray or electron irrad. 2=6395
- surface states, after ion bombardment and annealing 2=3894
- surface states, 170-305°K 1=14433-4
- surface states, slow, meas. by d.c. field effect tunnelling 4=20360
- surface states, spectrum and conc. changes rel. to heat 2=23330
- surface structure and carrier recombination, 100° to 700°C 4=7700
- surface studies, low-temp. 2=23329
- surface transport phenomena, measurements 1=3753
- surface transverse magnetoresistance effects on n-type Ge 1=1049
- surface trapping of minority carriers 3=15569
- surface traps, excess noise, field-effect freq. depend. 0=11685
- surface treatments, evaluation 1=1053
- surfaces, cleaned, anomalous cond. at low-temp. 2=23333
- surfaces, conference 1=1028
- surfaces, elec. long-time changes 2=21132
- surfaces, energy level diagrams 1=1062
- temp. dependence of l.f. conductivity fluctuations 0=7925
- temp. transition from n- to p-type, Hall effect meas. 1=17678
- thermal acceptors, steady-state concentration after heat treatment 1=12433
- thermal acceptors with high energy levels 1=12434
- thermal cond., 40-425°C, electron and phonon contrib. 0=20756
- thermal cond., meas. at high temps. 2=1289
- thermal conductivity, p- and n-type 2=20950
- thermal conductivity, p- and n-type 3=2741
- thermal conductivity, phonon scatt. by bound electrons 1=12429
- thermal conversion and its removal 2=4019
- thermal e.m.f. carrier density depend. 2=2197
- thermal expansion, rel. to impurities, 77° to 340°K 4=9862
- thermal stability, growth, structure, melt study 0=13465
- thermoelectric Kelvin relations 1=1117
- thermoelectric power, effect of fast neutrons 3=10898
- thermoelectric power of hot carriers in n- and p-type 4=12999
- thermoelectricity, temp. and carrier density var. 3=20426
- thermoelectricity, volume gradient Thomson effect 0=11732
- thin film preparation by polishing and etching 1=4079
- thin films breakdown, low-temp., rel. to thickness 3=20311
- transient recombination from high injection levels, meas. using p-L-n structures 4=15529
- transistor with base of dispersed colloidal phase Sn 0=9979
- transistor, distrib. coeff. of In emitter material 1=3781
- transistor, impurity concn. in base region, meas. 1=17780
- transistors and photodiodes as radiation detectors 0=17156
- transmitted phonon drag at v. low temp. 4=20238
- transmutation-doped, impurity cond. 2=23320
- transmutation-doped p-type, by neutron-irrad., impurity conduction 0=13595
- transmutation doping and recoil effects, exposed to thermal neutrons 4=30595
- transport props., effect of fast neutrons 4=10012
- transport props. at low temp., strain effects 1=3754
- transport quantities calc. 2=14543
- trapping, at Cu ions 1=3750
- trapping of injected carriers at surface 3=22925
- trapping level effects, due to γ -irrad. 1=7670

Semiconducting materials—contd**germanium—contd**

- tunnel diodes, temp. depend. of max. current 1=11315
 tunnel diodes, theory and expt. 4=22750
 tunnel heterojunctions with GaAs, phonon and polaron interaction 3=6609
 tunnelling, direct and indirect, different temps. 3=22924
 tunnelling probability in p-n junction 1=10044
 tunnelling, when Sb-doped, strain effects 3=13095
 two-photon indirect transitions and lattice scatt. 2=23350
 u.s. absorption rel. to electron-phonon relax. peaks 2=23054
 vacancies, quenched-in 3=22750
 vacancy aggregates 2=6313
 valence band, cyclotron reson. study, quantum effects 2=12517
 valence band deformation potentials, exptl. detm. 3=10764
 valence band in external mag. field, calc. 2=8346
 valence band, l.c.b.o. method 3=779
 valence band parameters, by mag. res. absorption spectra, 136 kMc/s 3=25577
 valence band, split-off, to conduction band, direct optical transitions 2=16810
 valence band structure in external mag. field, theory 0=9883
 valence band structure, magnetoelec. meas., in p-type 4=1431
 vapour-grown, incorporation of As 0=17967
 vapour-grown, incorporation of I, radioactive tracer study 0=17966
 Voigt effect, free carrier, anisotropic, in n-type 4=26194
 voltage breakdown, low-temp., rel. to thickness 3=10768
 volume-gradient e.m.f., in presence of current 0=11690
 volume-gradient effects, 2nd. thermoelec. relation, impurity region 1=17812
 volume gradient phenomena, V-I characteristic 1=17644
 warm electrons, variational treatment 0=18009
 water, adsorbed, as acceptor 2=2143, 8325
 water molecule absorption on etching 0=7927
 wetting and alloying with In and In alloys 0=14066
 wetting by In, and Ge surface energies, var. planes 4=13672
 work function, photoemission, surface cond., energy band model 3=4174
 X-ray spectrum short wave limit 3=4919
 zone-levelled in oxygen atmosphere, props. 0=11692
 Ag and Au impurity levels 0=6107
 Ag doped, recombination of charge carriers 2=18683
 As-doped, dislocation loops obs. 2=23192
 As-doped, heavily, optical and elec. props. 2=23561
 As and P donors, fine structure 2=23327
 As and Sb diffusion, p-n junction study 0=2829
 Au-doped, carrier lifetime 0=6140
 Au-doped, hole-capture in deep acceptor levels 2=8419
 Au-doped, recombination of charge carriers 2=18683
 Au, Ni and Mn-doped, surface and bulk state capture cross-section, by pulsed field effect 2=23285
 Au- and Sb-doped, photoconductivity 3=20411
 Be-doped, doubly ionized acceptor, recomb. props. 0=15927
 with Be²⁺ acceptor, recomb. props., Hall mobility 1=14453
 Cu acceptor levels, i.r. absorption studies 1=1057
 Cu-doped, electron trapping coeff. temp. dependence 0=6106
 Cu, doped, nonequilib. cond., relaxation and trapping levels 2=8344
 Cu-doped, photocond. and electrical phenomena 2=8407
 Cu-doped, recombination centre capture cross-section determ. 2=23286
 Cu-doped, recombination cross-sections 0=4330
 Cu levels, 2nd and 3rd, activation energies rel. to temp. 3=17849
 Cu mobility in, 500-680°C 0=2872
 Cu production of recombination centres, determination of physical parameters 0=13592
 with Cu and O impurities, kinetics, equilibria 2=4016
 with Fe, Ni, Co, annealing effects on equilib. and non-equilib. carriers 0=15863
 Ga-doped, alloying to As-doped Si 0=4347

Semiconducting materials — contd**germanium — contd**

- Ge, breakdown, electric-thermal generalization 1=19843
 Ge-electrolyte interface, fast surface states, formation by cupric ions 4=6973
 Ge-electrolyte interface, surface states 3=10780
 Ge, fast states, effect of water mols. 3=20138
 Ge filaments, 1/f noise, effect of gaseous ambients 1=14440
 n-Ge, interaction of conduction electrons with acoustic waves 1=11276
 n-Ge, magnetoresistance in pulsed fields 1=10041
 Ge-mica capacitors, photo-e.m.f. and surface cond. in elec. fields 1=12439
 Ge, p-type, Hall effect, sign reversal at 5°K 1=14384
 Ge, Sb diffusion, rel. to local electric fields, 750°-900°C 4=6871
 Ge-type, excitons, review 1=14222
 n-Ge type, longitudinal magnetoresistance 1=17616
 n-Ge type, longitudinal magnetoresistance 1=12416
 Ge-Al₂O₃ interface, elec. relax., slow 4=25994
 Ge-Au surface barriers, contacts, prod. 2=5286
 in Ge-GaAs n-n junctions, transverse conductance rel. to junction bias 4=12926
 Ge:Li, cond., Hall const., magnetoresist., low temp. depend. 1=3751
 Ge-NaOH solution interface, surface conductance 3=10781
 Ge-O system, donor equilibria 1=14446
 Ge-Si alloys, i.r. lattice absorption 2=23571
 Ge-Si alloys, monocrystal growth, by vertical recryst. zone method 4=10472
 Ge-Si alloys, negative elec. resistance 1=14414
 Ge-Si(0-34%) alloys, reflection spectra 3=925
 Ge-Si alloys, valence band structure 3=12946
 Ge and Si diffused layers, thickness meas. 2=12941
 Ge-Si system, heterodiffusion, electron-diffraction study 3=22808
 Ge-Si, thermoelectricity, in power generator 4=8607
 Hg-doped prep. and props. 2=23340
 In diffusion in surface 2=8244
 In-doped, current density and Hall effect, field depend. 1=3749
 In doped, impurity conduction 0=20902
 Mn ions, recombination properties 3=17853
 Ni-doped, generation-recombination noise (350°-100°K) 1=8942
 Ni-doped, nonequilib. cond. relaxation and trapping levels 2=8344
 Ni removal 0=12231
 O-doped, donor equilibria 1=17697
 Sb distrib. determ. using Sb¹²⁴ 2=21139
 Sb-doped, as i.r. detector 0=18015
 Sb-doped valley orbit splitting, elec. cond. change under tension and compression 0=20903
 Sb impurity, Lyman series, chemical splitting 3=939
 Sb- and As-doped, conductivity, rel. to strain 3=22931
 Sb and As doped, electron mobilities 2=21114
 Tl ions, effective charge and mobility 3=25345
 Zn doped, impact ionization, low temp. 2=14535
 Zn-doped, occurrence of traps 2=6456, 10467

silicon

- absorption-edge displacement rel. to strong elec. field 2=23554
 absorption of light by impurities, variational calc. 0=13685
 absorption spectrum of free carriers 1=19989
 acceptor and donor impurity redistribution during thermal oxidation 4=28572
 acceptor levels in upper half of forbidden gap 4=4101
 acceptor states, collective strain splitting 4=20239
 acceptor states, shallow, theory 2=14541
 acceptors, paramag. resonance absorption in p-type 1=1266
 acoustoelectric effect, transport eqn. investigation 4=10050
 acoustoelectric effects in n-type, calc. 2=16707
 alloying with and penetration of Ag 2=12539
 α-trapping centres in n-type, max. after annealing 1=14457
 annealing of radiation damage 1=14458
 Auger effect in the deep traps 0=13591
 Auger electron ejection by inert-gas ions 0=13600
 Auger neutralization of incident ions at surface, band structure 1=7632

Semiconducting materials—contd

silicon—contd

- band structure, from optical and cyclotron resonance data 2=8345
- band structure, photoemission investg. 3=20318
- band structure from pressure expts. 1=17706
- band structure, relativistic corrections 4=9899
- band structure simplified tight-binding approx. 3=22622
- birefringence, by free-carriers 3=10912
- bombarding Cs* on p-type, formation of p-n junction 4=10077
- Brillouin zone energies, repulsive potential method 0=2777
- capture centres, heat treatment depend. 4=17495
- carrier density, mobility, diffusion const. and cond., temp. depend., tables 1=1061
- carrier diffusion length, meas. by photocond. modulation 3=20313
- carrier drift and "hot" electron mobility 2=18026-7
- carrier lifetime, effect of Cu and dislocation 2=18686
- carrier lifetime, effect of neutron irradiation 1=17714
- carrier lifetime, 85-300°K, n-type 3=20320
- carrier lifetime, rel. to irradiation and annealing 3=22933
- carrier lifetime meas. 0=1645
- carrier lifetime, rel. to other props. 1=17704
- carrier lifetime and resistivity meas., by r.f. carrier and capacitive coupling 1=5020
- carrier lifetime temp. dependence 0=593
- carrier lifetimes, effect of oxygen 2=18690, 23364
- carrier lifetimes, γ -ray effects 3=15581
- carrier mobility, effect of heavy group III and V doping 1=14459
- carrier mobility, field depend. 0=4346
- carrier mobility temp. variation 0=4335
- carrier radiative capture by impurity atoms 4=30540
- carrier recomb. in γ -ray irradiation, n-type material 1=17708
- carrier recombination after high excitation 0=4337
- carrier recombination velocity, effect of Ga, In and Sb 1=17709
- carrier recombination in Zn-doped, 90°-200°K 4=6986
- carrier recombination on Zn impurity atoms 4=4170
- carrier removal rate, rel. to neutron irradiation 3=17517
- carrier trapping, rel. to heat treatment, 800°-1300°C 4=10065
- carriers, low-level lifetime and conductivity mobility 0=2885
- carriers, warm, mobility, temp. depend. from 150°K-room temp., discrepancy between expt. and theory 4=6967
- as catalysts 2=8918
- charge-carrier diffusion length 0=9965
- charge carrier inertia effects meas. 4=28541
- charge carriers, minority, investigation methods 2=17004
- collision ionization, field-dependence of conductivity 0=18033
- compensation det. by spin resonance of donor electrons 1=20231
- condenser photo e.m.f. field effect 2=6498
- conduction anisotropy of warm and hot electrons 4=10068
- conduction changes on bombard. with 50-100 keV electrons 2=10483
- conductivity anisotropy, hot electron temp. 4=15544
- conduction electrons, scattering by lattice vibrations, theory 1=1069
- contact resistance, two crystals 3=10796
- crystal defects and energy states 2=14515
- crystal growing, doping meas., nomograph technique 2=10477
- crystal growth, doped, rel. to distrib. coeff. 2=10382
- crystal potential and energy bands, self-consistent calc. 0=9970
- crystals dislocations, carrier recomb., weakened by Cu, precip., O 3=20319
- current carriers lifetime drift mobility meas. 2=18685
- current oscillations at high pulse voltages 1=19859
- current oscillations at high pulse voltages 2=4026
- cyclotron reson. and magneto-optical effects 4=25916
- cyclotron resonance of holes, selection rules 3=6506
- cyclotron resonance, line-broadening, due to lattice and neutral impurity scattering 4=12714
- cyclotron resonance and negative carrier masses 1=3755
- defect electrons, mag. susceptibility 0=2979

Semiconducting materials—contd

silicon—contd

- defects, due to electron bombard., depth distrib. 3=22858
- defects by fast electron-irradiation, rel. to Li doping 3=22704
- deformation potential, calculation 3=13067
- deformation potential consts., ratio, from cyclotron resonance on strained crystals 1=6097
- dielec. props., freq. and temp. depend. 0=627
- diffused films, concentration profile determ. from conductivities 2=2155
- diffused junction depletion layer calculations 0=11696
- diffused layers, impurity-induced pipes 2=18603
- diffused layers on Si, cond. and Hall effect 2=10481
- diffusion of B 1=14315
- diffusion of B and P by box method 1=14318
- diffusion of Ga, internal elec. field effects due to Sb 4=28484
- diffusion in liquid and solid, rel. to distribution coefficient and impurities 4=15488
- diffusion of minority carriers 1=8947
- diffusion of P 2=18600-1
- diffusion pipes, cross-sections, ohmic resistance 2=18604
- diffusion, rel. to proton irradiation 3=22825
- diffusion and solubility of Cu 4=12791
- diffusion, vacancy mechanism, irradiation effect 2=12458
- dirty contacts and resistivity meas. 2=14529
- displacement threshold meas., review 4=30594
- distribution coeff. of Sb 1=14456
- donor e.s.r., excited states from uniaxial stress effects 1=20232
- donor electron spin—lattice relaxation 3=23244
- donor exchange integral by ENDOR meas. of P impurities 4=17683
- donor ground state energies 2=14542
- donor spin—lattice relaxation and g-factor 0=11612-13
- donor spins, relaxation effects 3=10792
- donor states, shallow relativistic corrections 4=9898
- donors and acceptors, resonant spin—spin interaction 1=1273
- donors, shallow, valley—orbital splitting 2=8348
- doped, light transmission, 40 to 100 μ m 4=10194
- doped, low-temp. Hall coeff., conductivity 0=11697
- doping, high local conc. effect in single crystals 4=28574
- doping and radiation damage centres, by ion bombard., target temp. effect 4=28558
- e. m. wave propag., TE_{01} , calc. for exp. decaying carrier density 4=28689
- e.s.r. in Fe-doped material 1=20216
- e.s.r. in n-type, P-doped, rel. to electron conc. 4=28883
- effect of γ -irradiation of n-type oxygen-doped material 0=11701
- elastic constants, electronic effect 3=18162
- elec. resistance, temp. coeff. of high-pressure phase 3=859
- elec. resistivity, effect of thermal-neutron bomb. 3=6589
- electric resist. and minority carrier lifetime, thermal variations 4=12909
- electrical characterization of epitaxial films using three-point probe method 4=28569
- electrical cond. in high fields at microwave freq. 2=4024
- electrical cond. theory, at intermediate field strength 2=21147
- electrical conductivity changes in quenched p-type Si 2=12521
- electrical conductivity, four-probe meas., accuracy 2=10479
- electrical conductivity at microwave frequencies 0=2852
- electrical conductivity, theory 1=7641
- electrical photoconductivity rel. to Hg, W, Mo, Pt impurities 4=10067
- electrical properties, effect of heat treatment 0=20910
- electrical props. of porous graphite contact 2=14544
- electrical transport of Au, in d.c. field, temp. depend. 1=3756
- electrochem. electrodes, cathodic processes 1=20746
- electrochemical props. of Si solutions in HF 0=10353
- electrode, n-type, effect of surface states 3=21001
- electrode potential in solution 1=20744
- electrolyte—electrode interface, impedance 3=18444
- electrolytic etching and polishing 2=2348, 6457

Semiconducting materials—contd

silicon—contd

- electromagnetic wave absorption, 9 Gc/s 2=18684
 electron anisotropic scattering on ionized impurities and acoustic phonons 4=1424
 electron bombardment, conductivity depend. 0=18030
 electron capture by a lattice vacancy 0=4350
 electron capture, radiative, by In 2=6458
 electron distribution, inverse type 2=6435, 10455
 electron on donor centre, phonon interact. 4=17393
 electron emission, hot, from p-n junctions 3=883
 electron energy loss, 17 eV, ang. distrib. 2=2074
 electron-hole junctions 1=6141
 electron-hole pair prod. by α -particles 3=17677
 electron irradiation, defect spectrum 2=18689, 23363
 electron-mass, effective, temperature-dependence, 117°-600°K 4=6943
 electron mobility, Hall, for heavy doping 3=25347
 electron mobility, ionized-impurity scattering, 30-100°K 0=1653-4
 electron mobility, tunnelling currents 1=3757
 electron- and photovoltaic effects 2=638
 electron scatt. mobility by ionized impurities 3=10800
 electron scattering, anisotropic, by ionized impurities 1=17703
 electron scattering, anisotropic, by ionized impurities 1=19858
 electron scattering, on phonons 2=6440, 10454
 electron states, clean (100) and (111) surfaces 3=13554
 electron states, optical absorpt., crystal structure band bonding, review 4=28413
 electron transitions, from donor to acceptor state 2=8315, 10456
 electron-voltaic effect 2=23359
 electron-voltaic effect, atomic battery 0=7065
 electronic band structure, perturbation calc. 1=19735
 electrons relaxation time, cyclotron resonance meas. 3=15580
 energy-band structure 1=14455
 energy-band structure 1=17705
 energy band structure, reflectance and photo-emission 3=4960
 energy band structure, review 2=12502
 energy bands and u.v. reflectivity line-shape 3=17865
 energy barrier betw. surface states and bulk of crystal 0=6113
 energy levels of defects after proton damage 4=15458
 energy levels of radiation defects 2=18688, 23362
 epitaxial films, doping profiles meas. 3=10650
 epitaxial growth 0=18326-7
 Esaki junctions, excess tunnel current, expt. and theory 1=3779
 Esaki junctions, phonon-assisted tunneling 2=4050
 etching with HF-HNO₃ 2=8779
 Ettingshausen effect, calc. 0=18012
 exciton contribution to photoconductivity 0=6112
 Faraday effect, i.r. 3=17985
 Faraday effect, microwave, theory and expt. 1=1063
 fast surface states 1=6155
 Fermi level position, n and p-type, by electron spectr. 3=2758
 field desorption and surface migration 1=18908
 field effect, long-term variations due to H₂O vapour 0=15939
 field-effect meas. for cleaved surfaces of n-type single crystals 4=28573
 field effect, rel. to oxidized and etched surfaces study 2=16712
 field electron emission, rel. to V-I characteristics 0=1145
 field emission, band gap obs. 3=8509
 field emission characteristics 1=8341
 field emission, current density-field relation 2=11688
 field emission into SiO₂ film, conductance meas. 4=20393
 film epitaxial growth by vacuum sublimation 4=15822
 films, epitaxial, cond. meas. methods 4=6989
 films p-type evaporation, n-type after heat treatment 2=16709
 fluctuations, electrical, var. with freq., temp. field 4=4166
 forbidden band, discrete defect energy levels 1=17766
 free carrier absorption, optical extinction by metal precipitates 4=15578

Semiconducting materials—contd

silicon—contd

- free carrier i.r. absorption, 1.5-30 μ , 80°-550°K 2=23574
 free carrier polarizability, temp. depend., 2-20 μ reflectivity data 0=18028
 free electron effective mass detm. 3=10897
 fundamental absorption edge, effect of h.f. elec. field 1=19972
 fundamental absorption edge, effect of h.f. elec. field 2=4139
 galvanomagnetic effects in n-type 0=9969
 γ -ray effects on band structure 4=6788
 gas adsorption by monocrystals, mass-spectrometrical investigation 0=4750
 grain boundary props. 1=17711
 grain boundary states, n- and p-type bicrystals 3=13064
 Group II-VI, displacement threshold meas., review 4=30594
 Group III-V, displacement threshold meas., review 4=30594
 growth 4=13533
 growth, epitaxial, from SiCl₄ 3=20797
 Hall coeff. rel. to γ -irrad. and temp. 3=20316
 Hall effect calc. for high elec. field 3=22916
 Hall effect carrier concentration discrepancy, rel. to impurity content 3=17861
 Hall effect and conductivity meas., in pure state 0=11698
 Hall effect, use in impurity analysis 4=28571
 Hall effect, mag. field depend. 0=1647
 Hall mobility and μ_B/μ_D , temp. depend. 4=15542
 Hall voltage meas. with quadrant electrometer 4=10054
 heat capacity, vibrational frequency spectra 0=15812
 heat treatment centres, minority carrier lifetime 1=19861
 heat treatment centres, > 900°C 1=12440
 heat treatment, resistivity changes and other effects survey 3=15579
 heavily doped, energy depend. of absorpt. spectrum 4=26198
 heavily doped, temp. depend. of elec. props. 4=4171
 heavy holes, (110) swelling const. energy surface 3=25236
 high electron field effects 0=20893
 high purity, electrical properties 0=4349
 hole effective masses, calc. 3=17864
 hole energy spectrum, effect of deformation 0=11694
 hole excitation in B-doped material 2=23556
 hole injection, space-charge-lim., and trap effects in p-type 4=6988
 hole mobility, temp. depend., discrepancy 3=17863
 holes and electrons, ionization rates meas. 4=17395
 hot carrier mobility 3=10793
 hot current carriers, rel. to thermoelec. force and hot electron emission 3=10791
 hot electron emission, n-type specimens 4=15543
 "hot" electrons and carrier multiplication at low temps. 0=592
 hot electrons and holes in high elec. fields, energy distrib., from recombination radiation 1=2410
 impact ionization of impurities at low temps. 0=4348
 impact ionization threshold and quantum yield 4=6942
 imperfections, X-ray microscope exam. 2=10370
 impurities, diffusion in melt 2=6477
 impurities ionized by impact 1=19862
 impurities, subeutectic solubilities 3=20315
 impurity centre-recombination 2=23348
 impurity centres, explanation by e.s.r. 2=10461
 impurity cond. at microwave freqn. in p-type 4=4172
 impurity-conduction band cond. transit, rel. to illumination 2=16706
 impurity conduction at low temp. in p- and n-type 1=3759
 impurity conduction, n-type doped with P and B, at low temp. 0=9968
 impurity conduction, one-phonon transition rate 2=8318
 impurity conduction, two-phonon transitions, calc. 2=4007
 impurity electron states, e.p.r. study 3=4911
 impurity energy levels, As, In, Al, pressure effects 2=23353
 impurity energy levels, Au, pressure effects 2=23354

Semiconducting materials—contd

silicon—contd

impurity levels in B-doped 4=4275
 impurity levels, phonon broadening 4=4276
 impurity mobilities, electron scattering cross-sections 0=6090
 infrared absorption 1=19994
 infrared absorption bands, rel. to irradiation 2=23570
 i.r. absorption, by free charge carriers 0=16071
 infrared absorption, temp. depend. 2=10607
 i.r. absorption, 2-7 μ , anomalous absorpt. coeff. 1=1152
 i.r. birefringence studies, plastic deformation and work damage 0=1723
 i.r. emittance rel. to absorption processes, 323° to 473°K 3=10961
 internal friction and semicond. props. 1=1303-4
 internal impurity levels, theory 2=23128
 intervalley lattice scatt. by phonons, theory 1=1069
 inversion layers at boundary with electrolyte 2=16713
 ionized-impurity scatt. in n-type 4=6780
 ionized pair energy loss in a. c. field 4=28549
 ionizing radiation effects on elec. props. and defects 4=10040
 irradiation and annealing damage 3=22859
 irradiation effects, use as γ -ray spectrometer 1=3154
 junction delineation, reproducible 2=10507
 junction diodes 0=20912
 junctions, Au-doped, electronic processes and excess current 1=12454
 junctions, heavily diffused, props. 2=4046
 junctions, microplasma density, voltage depend. 2=2183
 junctions, p- π -n, forward characteristics and activation energies 1=17773
 1/f noise, origin rel. to slow surface states 2=16708
 lattice absorption i.r. bands, shell model applic. 3=10927
 lattice thermal conductivity, rel. to impurities 3=10610
 levels of defects prod. by electron bombardment 2=23365
 levels of defects prod. by electron bombardment 3=6590
 lifetime and dislocation density, rel. to zone growing technique 2=23368
 lifetime meas., photocurrent modulation method 0=2888
 lifetime in zone-grown and metal-doped crystals 2=23369
 local centres with deep levels, irradiated with fast electrons 4=10135
 low-freq. conductivity due to hopping processes in n-type 1=10046
 lux-ampere characteristics, rel. to trapping levels 4=10134
 mm wave relaxation times, low-temp. 3=10640
 mag. susceptibility of electrons 0=4469
 magnetic field, local, at impurity Fe⁵⁷ nuclei, using Mössbauer effect 0=11826
 magnetic props. calc., from X-ray meas. of electron density 4=7216
 magnetism of interacting donors, calc. 0=6215
 magnetoelectric and thermomagnetoelectric effects, theory 1=8932
 magnetoresistance, anomalous, low temp. 4=6972
 magnetoresistance, degenerate n-type, calc. 3=20314
 magnetoresistance effect, low field, on plastically deformed n-type 1=8950
 magnetoresistance, longitudinal in d.c. mag. fld. to 90 kG 3=10795
 magnetoresistance of p-type in hopping region 3=8511
 magnetoresistance, saturation, and impurity scatt. anisotropy 4=26058
 magnetoresistivity 0=20907
 mean ionization energy for α and β particles 1=8946
 microplasma instability, theory 1=11300
 microplasma interactions in p-n junctions 4=22738
 microwave absorption meas. at low temps. 4=12910
 midgap surface state cross-sections 1=1067
 minority carrier lifetime, after diffusion in BCl₃ and N₂ 0=11700
 minority-carrier lifetime, effect of heat treatment 1=1064
 minority-carrier lifetime, effect of heat treatment 1=6153
 minority-carrier lifetime, effect of quenching 1=6154

Semiconducting materials—contd

silicon—contd

minority-carrier lifetime in p-type, from photocond. 1=3758
 minority-carrier lifetime, quenching effects 1=1065
 minority carrier lifetimes, chronograph meas. 4=6933
 mobilities of electrons and holes, with doping by Ga, As and Sb, calc. 1=17713
 mobilities and valence band of strained p-type material 1=17710
 mobility of electrons in p inversion layer, surface scatt. effect 4=20401
 mobility, impurity effects, temp. depend. 0=1652
 monocrystals, dendritic structure, rel. to growing conditions 2=803
 Mossbauer effect, of Fe⁵⁷, diff. between n and p type, and electron config. 4=15404
 muonium formation in 1=2074
 n-p-n type, transistor production 1=3782
 n and p-type, energy spectrum of Au impurities 2=21145
 n- and p-type, i.r. absorption rel. to neutron-irrad. 3=3018
 n- and p-type with various NaOH concentrations, current-voltage characteristics 0=6115
 n and p-types, meas. with four point probe 2=19830
 n-type, conductivity in various crystallographic directions 4=22721
 n-type, with electron-irrad. defects, volume recomb. of carriers 1=2409
 n-type, with electron irrad. defects, volume recomb. of carriers 1=6152
 n-type, electron-irrad., 25 MeV, 300°K 2=23349
 n-type electron transfer rates, donors to acceptors, liq. He temps. 2=23361
 n-type, forward biased point contact diodes 3=10855
 n-type, i.r. absorption, by electron scattering 0=18129
 n-type, impurity conduction 2=23356
 n-type junctions, saturation currents, in chemical solutions 1=10055
 n-type, magnetoresistance rel. to γ -irrad. 83°-290°K 2=23357
 n-type, shallow-impurity-doped, trapping lifetimes and extrinsic photocond. 2=8421
 n-type, surface energy levels 0=15938
 n-type, surface recomb. and capacitor photo e.m.f. 0=594
 n-type, uniform resistivity, production by neutron irrad. 1=6156
 negative elec. resistance 1=14414
 Nernst and Ettingshausen effects 0=7969
 neutron-irradiated, n-type, energy levels 0=1656
 non-ohmic behaviour in high pulsed fields 2=16710
 nuclear resonance signals, increase due to dynamic polarization 0=16183-4
 ohmic contacts, produced by "dry friction" method 0=1646
 Ohm's law, deviation at high electric field 2=2154
 1/f noise, rel. to crystal imperfections 0=1595
 optical absorption, 1-5 μ , 90° and 290°K 4=10193
 optical absorption spectrum, phonon effects 2=14689
 oscillation, coherent, on forward-biased point contact 2=10482
 oscills. due to deep levels 3=15583
 oxidation, impurity redistrib. and junction formation 0=15936
 oxidation and reduction at 600-1000°C 2=15141
 oxygen site in doped crystal 1=7578
 P-diffused layers in p-type, concn. profiles 1=7643
 p-n junction, light emission and microplasma phenomena 1=8949
 p-n junction problems 3=878
 p-n junction, thermally oxidized, γ -irrad. effects 3=4930
 p-n junction, vacuum cleaned, properties 1=7659
 p-n and 1-h junction location 0=7919
 p-type, acceptors binding energy, eigenfunctions and Zeeman effect 4=28706
 p-type, deformed, energy spectrum and elect. props. theory 0=587
 p-type, elec. props., effect of heat treatment 0=13603
 p-type, elec. props., influence of deformation 0=13596
 p-type, energy spectrum of holes 0=15952
 p-type, field emission, theory 1=17650
 p-type, growth, zone levelling 0=6330
 p-type, high-resist., field effect meas. 2=23366
 p-type, internal impurity levels 0=7933

Semiconducting materials—contd

silicon—contd

- p-type, neutron irradi., i.r. absorption 0=651
 p-type, neutron irradi., photoconductivity kinetics 2=401, 10536
 p-type, nonlinear photo-effects 3=2979
 p-type, I-V characteristics into breakdown region 2=21148
 p-type, photoconductivity after neutron irradi. 2=651
 p-type, recombination levels due to heat treatment 2=637
 p-type, resistivity min. for oxidation conversion to n-type 4=12911
 p-type surface film formation and removal 2=23203
 p-type, surface prop. changes rel. to Li ion irradi. 2=21146
 p-type, volume recombination, heat treatment, at high temp. 0=7932
 paramagnetic and cyclotron resonance 4=23042
 particle detector, n and p-type, pulse rise time 2=5529
 particle detectors appl. in particle spectrometry 2=1630
 phase transition due to pressure to cond. state 2=16704
 phonon-drag meas. transmitted at 77°K 2=23053
 phonon scattering by small angle grain boundary 3=10794
 photocond. of n-type monocrystals 0=6141
 photoconductive decay of spreading resist. meas. 4=1610
 photoconductivity, rel. to fast-electron irradi. 4=1687
 photoconductivity, nonlinear, rel. to surface states 2=10538
 photoconductivity, oscillatory decay, on increasing sweeping current 4=4234
 photoconductivity, stationary and recombination velocity 1=14518
 photoconductivity, stationary, and recombination velocity 1=17804
 photoconverters, influence of crystalline orientation 1=1109
 photo-e.m.f. in impurity excitation region 2=18742
 photoeffect, p-n, amplification and quenching 4=26151
 photoelectric emission 2=17871
 photoelectric emission, rel. to band bending 3=9834
 photoelectric emission, effect of band bending 2=23367
 photoelectric emission, volume and surface effects, rel. to doping 3=9833
 photoelectric emission, work function and surface states 2=17872
 photo-emission, crystalline and amorphous states, with Ba oxide film 0=11725
 photoemission, effect of conduction type 1=13113
 photo-Hall effect 2=8408
 photo induced negative resistance, high resistivity n-type 4=4235
 photoionization 3=15578
 photo-ionization, quantum efficiency, spectral and temp. depend. 0=13638
 photo-ionization, quantum yield, wavelength and temp. depend. 0=15993
 photomagnetolectric effect 0=20889
 photovoltaic effect, liq. N₂ temp. 1=6181
 physical effects of radiations, review 4=20345
 piezoresistance 4=1621
 piezoresistance meas. in heavily doped n-type 4=12912
 piezoresistance, meas. method, 20° to 150°C 4=12914
 piezoresistance and piezo Hall effect 3=15582
 piezoresistive props., n- and p-type diffused layers 3=10798
 polycrystalline, evaluation by Hall measurement 1=7642
 population inversion states with impurities 4=12672
 proton damage rel. to energy, 1.35 to 130 MeV 4=28447
 proton-neutron damage equivalence meas. 4=17494
 purification and analysis 0=2065
 quantum efficiency, impact ionization 3=20416
 quantum efficiency meas. in vac. u.v. 4=12992
 quasi-intrinsic, interelectron scatt. meas. 3=20312
 radiation defects, annealing, rel. to P impurity 3=22934
 radiative electron capture by Ga and In impurity atoms 4=4169
 radiative electron capture by indium impurity 2=2157
 radiative recombination 1=3746
 radiative transitions, indirect, and intervalley scatt., selection rules 1=14217

Semiconducting materials—contd

silicon—contd

- reactions of Group III acceptors with oxygen in Si crystals 0=15941
 recombination centre prod., by quenching, 960-1200°C 3=22932
 recombination centres, formation, effect of quenching 1=2408
 recombination centres, formation, effect of quenching 1=6151
 recombination constants from photoconductivity spectrum 0=13634
 recombination, effect of Cu and quenching from 800°C 1=17707
 recombination luminescence excitation, by maser 3=20538
 recombination processes, rel. to Ga, In, Sb doping 2=8397
 recombination radiation, decay, meas. 3=20540
 recombination radiation rel. to excitons 2=23358
 recombination radiation from hot electrons 0=2887
 recombination, radiative mechanism 3=2900
 recombination and trapping, effect of electrons 3=8510
 reflectivity of heavily doped p and n-types meas. 4=7156
 remnant impurity photoconductivity, in n- and p-type samples 3=23022
 resistivity control in pulled crystals 0=4594
 resistivity and Hall coeff. when Ni doped 4=4173
 resistivity and lifetime meas. of small slices, appl. of Siemens method 4=28568
 resistivity meas. up to $5 \times 10^5 \Omega \text{cm}$ and for currents of 0.3-300 Mc/s 4=10069
 resistivity meas., probe. 2=21128
 resistivity, 0.002-10,000 ohm cm., four-probe method 2=7530
 resistivity rel. to pressure up to $3 \times 10^6 \text{ kgm cm}^{-2}$ 3=2902
 review 0=20911
 review of props. and technical advances 4=26028
 scatt., electron and hole, p-type, from absorpt. and vel., u.s. 3=13063
 scattering anisotropies in n-type, from magneto-resistance 0=18034
 secondary and induced photoemission 1=18924
 secondary multiplication coefficient 4=7004
 semiconducting, oscills. due to deep levels 3=15583
 semiconducting recomb. centre prod., by quenching, 960-1200°C 3=22932
 semiconductor carrier recomb. at dislocations, weakened by Cu precip., O 3=20319
 shallow donors, ground state energies 3=22681
 shallow impurity traps and electron transfer dynamics at low temp. 0=18035
 silicon-oxygen bonds 1=17712
 single crystals, examination with i.r. polariscope 0=180
 single injection meas. in compensated Si at low temps. 4=20377
 slow traps distrib., in relaxation time, electron irradi. effects 0=7931
 solar battery use 0=5265
 solar cells, forward characteristics, efficiency 2=9522
 solid solns., excess entropy 0=1641
 spin-lattice relaxation of shallow donors 3=25221
 spin-orbit coupling effects on electron structure 2=12520
 spin-orbit splitting and conduction g tensor 1=12441
 spin resonance of electrons on donors in p-type 1=20231
 spontaneous fluctuations and lifepath 3=20317
 surface barrier detectors, prep., props. 2=5528
 surface chemistry, i.r. study 1=4102
 surface cond. at various temps. 4=12913
 surface conductivity 1=14454
 surface conductivity, cleavage method 4=4167
 surface conductivity of cleaved surfaces, interpretation 2=12522
 surface conductivity, effect of dried O₂ 2=6459
 surface electron states, field effect 2=23351
 surface energy 0=13467
 surface field effect, var. freq., amp. 4=20378
 surface improvement by low melting glasses 0=6105
 surface and impurity states by oxide layer tunnelling 3=4916
 surface layer, p-type, due to boron 2=16711
 surface levels, recomb., heating effect 4=12702

Semiconducting materials—contd**silicon—contd**

- surface magnetoconductivity and Hall coeff. 2=2156
 surface, minority carrier trapping 3=20415
 surface oxidation, Al-dopant redistribution 3=17866
 surface photovoltaic effect and minority carrier lifetime 1=19860
 surface point contacts, anomalous characteristics 3=17862
 surface potential 1=11303
 surface props., adsorption effects of O₂ and atomic H 1=8948
 surface props., O₂ and water vapour effects 4=20795
 surface props., vacuum cleaned samples 1=1066
 surface, real, electrical properties, 190°-620°K 4=10066
 surface recomb. velocity, effective 2=10476
 surface recombination 0=2886
 surface recombination, effect of etching, photocond. meas. 4=4174
 surface recombination at Si—electrolyte interface 1=1068
 surface recombination vel. meas. 4=6987
 surface recombination, velocity, direct meas. 2=8347
 surface sputtering with A ions 2=22279
 surface state density and energy by d.c., a.c. and pulsed field effects 2=8349
 surface state levels by pulsed-field effect technique 2=12523
 surface states, a.c. field effects meas. 2=10480
 surface states, capacitance meas. analysis 3=10801
 surface states on cleaved crystals, channel conductance on npn and pnp junctions 1=6157
 surface states, effect of elec. fields 4=1620
 surface states, p-type, charge storage 3=10799
 surface states, time consts., carrier lifetime 3=25348
 surface traps. effect of friction 3=13065
 surfaces, conference 1=1028
 surfaces, energy level diagrams 1=1062
 surfaces potential inhomogeneities; electron mirror obs. 3=10783
 thermal cond., 40-425°C, electron and phonon contrib. 0=20756
 thermal cond., low-temp., rel. to purity 1=19863
 thermal cond., meas. at high temps. 2=1289
 thermal expansion, 22-340°K 0=13494
 thin film preparation by polishing and etching 1=4079
 transient charge-carrier diffusion 1=14460
 transient recombination from high injection levels, meas. using p-L-n structures 4=15529
 transition-metal-doped, impurity interactions by e.s.r. 2=23360
 transistor as high-speed light pulser 1=6957
 transmission of p- and n-type between 40-100 μ m 4=4273
 transmitted phonon drag in n-p-n sandwich 0=13602
 transport quantities calc. 2=14543
 trapping, in n-type samples with high O₂ conc. 3=22935
 trapping, recomb. centres in plastically bent Si 2=18691
 two-phonon indirect transitions and lattice scatt. 2=23350
 u. s. wave propag. in p-type, meas. 4=20200
 vacancies, mono and di, e.s.r. study 2=12417
 vacancy trapping and annihilation by interstitial impurities 0=17959
 vacuum-grown, Czochralsky 1=4028
 vacuum heated, p-layers, increased acceptor density 0=9967
 valence band energy, pressure depend. 3=17646
 valence band in external mag. field, calc. 2=8346
 valence band, l.c.b.o. method 3=779
 valence band parameters 0=20785
 valence band parameters, by mag. res. absorption spectra, 136 kMc/s 3=25577
 X-ray scattering, Compton effect 2=2371
 X-ray spectrum short wave limit 3=4919
 Zeeman effect of impurity levels 0=11765
 zone melting by electron bombardment 0=706
 zone refined, dislocation density rel. to diode performance 4=29060
 zone-refined, p-type, Hall coeff., in pile, and conductivity 3=17867
 Ag-doped, carrier density, specific resistance 1=3688
 As-doped, alloying to Ga-doped Ge 0=4347

Semiconducting materials—contd**silicon—contd**

- As-, P-, and Sb-doped, double resonance technique 0=16174
 Au doped, as ionization detector 1=3091
 Au-doped, surface and volume props. 0=11699
 B-doped, high-field effect, linear current-voltage curve at 77°K and 10⁴V/cm 0=1655
 B-doped surface, optical properties 0=11751
 B-doped, surface slip patterns 1=12597
 B impurity, spectrochem. estimation 1=19864
 Cs doped by energetic ions, in p-type, donor concentration 3=25349
 Cu-doped, carrier lifetimes rel. to heat treatment 2=18687
 Fe-B pairing and resistivity changes 3=13066
 Ge-Si alloys, valence band structure 3=12946
 Li diffusion 0=6103
 Li impurity, interaction with radiation defects 2=18567, 23149
 Li⁺ drift mobility, LiO⁺ dissociation const. 1=11301
 Li-B ion pairs, recombination kinetics, from resistivity time depend. 1=11302
 O content, elec. and optical props. 2=23352
 O₂ diffusion, n-type diffused layers 0=1601
 P-doped, conducting electron resonance, rel. to temp. 2=23706
 P-doped, Hall effect and impurity level structure 0=1653-4
 P-doped single crystal, new imperfection type 4=6818
 P impurities, activation energy rel. to concentration 2=629
 Sb dopant precipitation 3=18361
 Si, doping with AsCl₃ vapour 2=10478
 Si—electrolyte boundaries, surface conductivity and recombination 1=17715
 Si—mica capacitors, photo-e.m.f. and surface cond. in elec. fields 1=12439
 Si, recombination radiation in high elec. fields 1=2410
 Si-type, excitons, review 1=14222
 Si, u.v. reflection, spectra, rel. to strong doping 3=18007
 Si-Ag contact, visible light emission and rectifying props. 0=20909
 Si-Ge alloys, i.r. lattice absorption 2=23571
 Si-Ge alloys, negative elec. resistance 1=14414
 Si(0-34%)—Ge alloys, reflection spectra 3=925
 Si-Ge, thermoelectricity, in power generator 4=8607
- indium antimonide**
 absorption band, lattice 1=1159
 acceptor levels, deep 3=10824
 alloys, cross-substitutional, of InSb 4=12902
 alloys with In₂Se₃, Hall effect and elec. cond. 1=19881
 Auger effect 0=2869
 avalanche, h.f. oscills., effect of mag. field 77°K 3=6595
 band structure and free-carrier effective mass, magneto-optical studies 3=10822
 band structure from pressure expts. 1=17706
 band structure and transport props. 1=17742
 behaviour of surfaces around 400°C 0=2830
 calc. of transport coeffs. 0=7941
 carrier lifetime and Auger recombination 1=1038
 carrier lifetime and diffusion length, temp. var. 2=12529, 14558
 carrier lifetime, 15-200°K, recombination model 1=1075
 carrier lifetime and photoconductivity 0=4370
 carrier mobility and diffusion length in p-type 2=16725, 18708
 carrier mobility, effect of impurity conc. 2=21151
 carrier mobility, effect of impurity conc. 3=2916
 carrier multiplication, microwave induced 2=8365
 chemical potential, temperature dependence 1=12448
 cleavage faces, electron microsc. examination 0=3285
 cleavage faces, electron microsc. study 0=11997
 combined resonance, n-type specimen 2=2304
 conduction across grain boundaries 2=14453
 conductivity, high-field 4=4160
 conductivity about melting pt. 3=21614
 conductivity, mobility, after n, γ irradi. at 78°K, recovery on heating 4=6976
 conductivity, 77-450°K, 25-25kOe 3=25367
 Corbino effect 2=636
 crystal growth from In and Sb seeds 0=3175
 current-voltage relation of n-type in high elec. fields at 77°K 0=20917

Semiconducting materials—contd**indium antimonide—contd**

- cyclotron reson., i.r. absorption 2=23129
- cyclotron resonance, π , 8 mm, temp. var., and hole masses 4=1447
- cyclotron resonance, i.r., at high mag. fields 2=23128
- density of states, effective mass of electrons 1=1074
- diamagnetic susceptibility rel. to electron conc. 2=8600
- diffusion length, non-equilibrium current carriers 1=19879
- diffusion length, non-equilibrium current carriers 2=8363
- dislocations and their energy levels 2=18580, 21030
- donor impurity mol. in high mag. field rel. to cond. band 4=9902
- e.m.f. volume gradient in presence of a current 1=12435
- e.s.r. and cyclotron resonance, n-type 3=18133
- effective electron mass, effect to carrier density 2=2164
- effective electron mass, samples with degenerate electron gas 4=1613
- effective electron mass, 290°-500°K 3=15658
- effective mass by magnetoplasma refl. in n-type 4=28401
- effective mass, temperature dependence: 5°, 77°, 296°K 3=10823
- elec. cond. Hall constant and magnetoresistance at 2-78°K 0=15958
- elec. cond. and Hall effect, mag. field and temp. depend. 0=609, 18044
- elec. and thermal cond., Hall effect, thermo e.m.f. 1=7649
- electric dipole spin transitions 3=3175
- electric properties, high-pressure effects 3=17886
- electrical conductivity, microwave effect at low temp. 4=1614
- electron density distrib. 2=14399
- electron diffusion coefft. rel. to mobility 3=13074
- electron effective mass 2=23397
- electron effective mass calc. from thermoelec. power 2=18757, 21204
- electron effective mass, depend. on density 3=17885
- electron effective mass variation with mag. field in n-type, by i.r. cyclotron resonance 1=7572
- electron-hole current pinching in n-type 1=5023
- electron-hole pair creation, quantum efficiency 2=21195
- electron-hole plasma, mag. constriction, optical study 3=15590
- electron-hole scatt. and electron drift vel. 3=25222
- electron and hole scattering 3=17884
- electron irradiation effects on elec. props., annealing behaviour 0=1670
- electron-mass, effective, temperature-dependence, 117°-600°K 4=6943
- electron mass, energy depend., from i.r. Faraday effect 0=4361
- electron mobility, change in low electric field 1=8954
- electron mobility, in mag. fields up to 180 kOe 1=1077
- electron-radiation damage and recovery 1=11244
- electron spin resonance shift due to hyperfine electron interaction 2=10488
- electrons and holes 1=17738
- energy exchange bet. hot carriers and lattice 3=22946
- energy gap width, formula and expt. 2=6431
- energy level calc. from cyclotron resonance in high mag. fields 1=7570
- evap. layers, electron mobility 1=19882
- evaporated films, optical and semiconducting props. 1=10096
- excitons, bound state formation at positively charged imperfections 1=4263
- Faraday rotation at photon frequencies below energy gap 1=17740
- films, crystallite size and carrier mobilities 4=23581
- films, effect of annealing on elec. props. 2=16726
- films, effect of heat treatment on conductivity 4=1969
- films, electron mobility and conc. 4=23580
- films, evaporation prod. 4=4658
- films, formation techniques and properties 4=20808
- films, magnetoelec. and optical props. meas. 4=22718
- films, single-crystal, prepn. by cathodic sputtering 4=4665
- films, undoped, sputtered on glass, structure and elec. props. 3=3357

Semiconducting materials—contd**indium antimonide—contd**

- free-carrier absorpt. at liquid-He temps., n-type 3=25385
- free carrier cyclotron resonance, Faraday rotation and voigt double refraction 1=17741
- free-carrier i.r. absorpt., deformation-potl. const. 3=23071
- galvanomagnetic effects, influence of magnetoconductivity discontinuities 1=7650
- galvanomagnetic effects rel. to structure 1=17672
- galvanomagnetic props. 1=17621
- γ -irradiation damage in p-type, recovery 4=10059
- generation-recombination noise 2=8431
- grain boundary cond. temp. var. Hall effect 4=17490
- growth 4=13533
- Hall coefft., independent of mag. field, 0.1-22 kOe Se-doped 3=17883
- Hall const., elec. cond., magnetoresistance, 77°-300°K 0=15957
- Hall effect and cond., in high elec. fields 0=610
- Hall effect, electrical cond. and magnetoresistance 4=26048
- Hall effect in fields up to 450 kOe, 20°-300°K 4=6977
- Hall effect and inducible scatt. centres 2=12531
- Hall effect magnetometer for ion beam currents 0=7166
- Hall effect and magnetoresistance of n-type material 0=15956
- Hall effect at room temp. 3=840
- Hall effect, 77-450°K, 25-25kOe 3=25367
- Hall element, thermal time const. meas. circuit 4=6978
- helicon wave propagation, at room temp. 3=10827
- high-purity, preparation 1=7848
- hole effective mass analysis 2=14555
- homogeneity meas. from plasma edge 2=16686
- hot electrons, drift velocity meas. 3=8386
- impurity electron states, e.p.r. study 3=4911
- as i.r. detector 0=18015
- infrared detectors, comparison with others 2=7457
- i.r. Faraday effect and free electron scatt. time 4=15583
- ingots, homogeneous, apparatus for casting 4=17785
- injected plasma, props. 2=2166
- integral effective mass, calc. 1=11274
- interband transitions, reflectance 2=18673
- large-signal photoconductive effect 4=12989
- lattice scattering of electrons, n-type 3=10820
- lifetime of d-band holes 3=8525
- lifetimes, non-equilibrium carriers 1=19879
- lifetimes, non-equilibrium carriers 2=8363
- mag. susceptibility, rel. to extrinsic carrier density, 1.3-300°K 0=1771
- magnetic properties, theory 3=23139
- magneto-absorption; valence band anisotropy, meas. above absorption edge 3=10924
- magnetoelec. effects, quantum oscillations 2=16683, 23246
- magnetoelec. props. in high mag. fields 2=16727
- magnetoelectric props., various dependences 1=14470
- magneto-optical effects and cyclotron reson. 4=25916
- magneto-optical oscillations in n-type 3=10917
- magnetoplasma reflection studies with polarized light 3=10822
- magnetoreflexion expts. rel. to electronic band structure 1=17871
- magnetoresistance, Corbino disc measurements 1=10030
- magnetoresistance, geometrical effects 4=6936
- magnetoresistance meas. at 10 Gc/s 4=12903
- magnetoresistance in quantum limit 1=7621
- magnetoresistance, quantum oscillations in strong pulsed mag. fields 3=17888
- magnetoresistance, transverse, influence of Hall effect 1=14468
- magnetoresistance, var. with field, up to ~300 kOe 3=17887
- metallic transformation at high pr. 3=11211
- Mullard cells, applications to photoconductivity, Hall effect, magnetoresistance 1=7653
- n- and p-type, negative magnetoresistance effects, rel. to impurities and temp. 2=23395
- n-type anomalous magnetoresistance effect 1=2412
- n-type, effects of r.f. radiation 2=14583
- n-type, effects of r.f. radiation 3=6634
- n-type, electron scattering, mobility data 1=2411
- n-type, electron transport calc. 0-100°K 1=14463
- n-type, Faraday rotation ellipticity 2=23530

Semiconducting materials—contd

indium antimonide—contd

- n-type, impurity photocond. 2=8417
 n-type, lattice absorption bands, 15 to 130 μ ,
 4.2° to 90°K 2=23572
 n-type, magnetoresist. oscillations 4=26049
 n-type, magnetophonon resonance 4=28563
 n-type, quantum Nernst-Ettinghausen effect 2=8364, 14557
 n-type, transport carriers, 2° to 100°K 2=23396
 negative resist., rel. to impurity impact ionization in
 n-type 4=10058
 Nernst-Ettinghausen coeffs., temp. depend. 2=18706
 Nernst-Ettinghausen effect in n-type material 1=17629
 noise in mag. field and under illum. 2=4036, 6466
 Ohm's law deviations, quadratic, in n-type 1=1075
 oscillations, electron-hole injection plasma,
 p-type, 77°K 3=15591
 oscillations, high elec. field in mag. field 4=20370
 oscillations, pulse current, in mag. field 4=20372
 oscillatory magnetoabsorption under high
 resolution 1=17900
 oriented single crystals, n-type, magnetoresistance and
 Hall effect 1=6159
 overlap bet. cond. and heavy-hole band 3=22684
 p-n juncns, grown, preparation and properties 1=7651
 p-type deformation pot. theory 2=23271
 p-type, electrical and galvanomagnetic
 properties and low temps. 1=11305
 p-type, electrical and galvanomagnetic properties at
 low temps. 1=17737
 p-type, generation-recombination noise 1=8955
 p-type, magnetoelec. props., analysis 3=22947
 p-type, noise power spectrum 2=8432
 p-type, photomagnetic effect rel. to electron
 density 2=8488
 p-type, photomagnetic effect rel. to electron
 mobility 2=10577
 p-type, props. in pulsed elec. fields 0=9976
 p-type, surface conductance at 77°K 3=2917
 paramagnetic and cyclotron resonance 4=23042
 photoconduction, quantum efficiency, band
 structure 0=2905
 photoconductivity and photomagnetic effect, spectral
 distrib. 0=16039
 photoconductivity of thin layers, 100°-350°K 4=1685
 photocontrolled conductance, surface 4=20371
 photodiodes, noise generation 1=14484
 photoelectromagnetic effect, use as i.r.
 detector, 1-7 μ 0=19499
 photoelectromagnetic effect, stationary, theory 4=22799
 photoelectromagnetic and p-n junction cells for
 i.r. detection 0=8840
 photomagnetic effect, 6° to 77°K 4=7069
 photomagnetoelec. e.m.f. in alternating field at
 room temp. 3=6638
 photomagnetoelec. e.m.f. in alternating field at room
 temp. 2=23480
 photomagnetoelectric effect 0=20889
 photomagnetoelectric effect in p-type at 80°K 2=4074
 photomagnetoelectric phenomena, at room temp. 3=17881
 piezoresistance, pressure depend., intrinsic and
 p-type 0=9977
 "pinch effect" in mag. and strong elec.
 fields 1=11306
 pinch effect, by optical means 4=17394
 plasma density waves in n-type, in transverse mag.
 fields 4=6809
 plasma distrib., self-pinch, microwave probe
 obs. 3=25366
 plasma, drifted, transverse e.m. waves 3=17693
 plasma, electron-hole, helical instability,
 hysteresis 4=4028
 plasma (electron-hole) injected, in longit. mag.
 flds 3=10821
 plasma, electron-hole, nonlinearities in helical
 instability 4=28562
 plasma, electron-hole, thermal pinching 3=25261
 plasma, instability conditions, helical, hysteresis 4=20252
 plasma oscillations, coherent excitation 1=7565
 plasma pinch effects at 77°K 0=1672
 plasma pinch, sound-wave generation at sufficiently high
 currents 3=6597
 plasma-wave instabilities, possible observation 1=19847

Semiconducting materials—contd

indium antimonide—contd

- plasma waveguide, microwave propagation 4=27656
 plastic yielding delay time 0=2876
 plastically deformed, uniaxial compression, temp.
 depend. 0=1858
 polar scatt. of carriers, calc. 1=3768
 preparation and properties 0=6122
 probe for small magnetic field meas. 1=16480
 properties 0=20923
 properties rel. to requirements for tunnel diode 2=2177
 radiative recombination 3=10825
 recombination radiation from avalanche effect 2=643
 recombination radiation from avalanche effect 3=4924
 recombination radiation in strong elec. fields 3=4923
 reflection spectra rel. to band structure 3=925
 reflectivity; dispersion relations 1=17865
 reflectivity meas. 3=10910
 resistance change anisotropy, data for n-type Te-doped
 specimens 1=14471
 resistivity, effect of pressure up to 7 x 10⁴ atm 1=6160
 review of prep., band structure, optical and elec.
 props. 1=6158
 review, prep., props., and applications 2=21154
 review, thermoelec. and thermomagnetic
 effects 0=13614
 Right-Leduc effect, 25°-300°C meas. in n-type 4=6979
 scattering mechanisms and charge carrier mass 1=17743
 surface conductance meas. rel. to field-effect for p-type
 crystal in heptane and heptane-ethanol
 mixtures 4=28564
 {111} surface damaged layers rel. to cold-
 working 2=23764
 surface energy 0=13467
 surface etching and inhibition 1=1367
 surface states, rel. to Zn distrib. between solid and
 melt 2=17050
 surface structure and adsorption characteristics 1=1447
 surface structure and props. 1=4078
 thermal cond. change in mag. field 3=1850
 thermal cond., 40-425°C, electron and phonon
 contrib. 0=20756
 thermal cond., in mag. field, 20-500°K 0=15821
 thermal cond., meas. at high temps. 2=1289
 thermal conductivity (1.2-4.0°K) 3=4830
 thermal expansion coeffs. 1=4970
 thermal props., bonding 3=2914
 thermo e.m.f. and Nernst-Ettinghausen const. 2=14556
 thermoelec. props., at m.p. and liquid state 0=624
 thermoelectric power, in degenerate n-type
 samples 4=1613
 thermoelectric power in mag. field, in n-type 4=1700
 thermoelectric power rel. to press., to 16 000 atm. 4=1699
 thin films, elec. conductivity 2=6460
 thin films, refractive index rel. to temp. 2=23518
 thin layers, electrical properties, 100° to 500°K 4=6980
 thin layers, production and props. 0=9975
 transistors, n-p-n 2=10515
 transport coeffs., calc. on assumption of energy
 independent relax. time 0=7941
 transport phenomena at low temps., effect of high
 elec. fields 4=30538
 transport phenomena, in n-type 3=17882
 tunnel currents, effect of Landau levels, oscillations of
 current with 1/H 1=2413
 tunnel diode, mag. field effects 2=14571
 tunnelling, interband, in mag. field, theory 2=12413
 ultrapure, elec. cond. rel. to elec. field, and charge-
 carrier scatt. 2=23390
 uniaxial deformation, effect on energy spectrum 2=21152
 valence band, l.c.b.o. method 3=779
 valence band structure, from i.r. absorption at low
 temp., n- and p-type 0=13684
 Voigt effect on free carriers in n-type 1=12481
 X-ray spectrum short wave limit 3=4919
 Zener tunnelling, in const. field 0=4332
 zone-refined, prep. and props. 0=1669
 with CdTe up to 3% 4=20373
 In and GaSb alloys, electron mobility 2=12530, 14559
 InSb, p-n, nature of electric currents 1=19889
 InSb, p-type, photocond. with deep acceptor
 impurities 2=8418

Semiconducting materials—contd**indium antimonide—contd**

InSb—GaSb, crystal growing by Czochralski technique 1=20439

InSb—In₂Te₃ alloys, electrical props. 1=7652

InSb—In₂Te₃ alloys, reflectivity meas. 3=10910

Semiconductors

See also Magnetoelectric effects; Photoconductivity; Photovoltaic effects.

A^{III}B^V type, forbidden energy gap calc. 2=18672

absorption, acoustic waves 3=17649

absorption edge in high mag. field, theory 1=19985

absorption edge, theory 2=21234

absorption of i.r. light in elec. field 0=13682

absorption and intraband transitions, 7 subst. 4=30617

absorption, light, by conduction electrodes in strong electric field 3=20459

absorption, light, review 4=22827

absorption of sound in piezoelec. materials 3=17653

absorption of ultrasound, in mag. field 0=11667

abstracts for 1958 (Semiconductor Abstracts, Vol. VI) 1=17643

acceptor binding energy, strain depend. in diamond-type 1=17665

acoustic amplif., resonant, by cond. electrons 3=20093

acoustic amplification 3=8354

acoustic atten. by carriers, theory 4=30515

acoustic space-charge wave propagation 3=22920

acoustic velocity in d.c. elec. fields, theory 4=15412

acoustic wave amplification by conduction

electrons, theory 2=18507

acoustic wave amplification, by electron-phonon interaction 3=20092

acoustoelectric effect in many-valley substances, theory 0=20759

acoustoelectric effects 1=8875

acoustoelectric effects, hypersonic large-ampl. waves 4=28364

acoustoelectric effects, rel. to u.s. absorption 2=14530

activation energy, chemical interpretation 3=2864

activity coeffs. of electrons and holes at high conc. 0=15914

added carriers, transport props., alternative derivation 1=11279

adhesion bonding 2=10775

adhesion forces between n-type and a metal 0=4574

adsorption and catalysis, effect of radiations 2=12948

adsorption, rel. to elec. and other surface props. 1=2549

adsorption of O₂, rel. to eye melanin free radical kinetics 4=20975

alloy systems, critical scatt. of cond. electrons 3=2870

alloys, lattice thermal conductivity, theory 3=25207

alloys, thermal conductivity at high temps. 3=10616

ambipolar diffusion contribution, electron thermal conductivity 4=20225

amorphous, energy bands and impurity levels 3=10747

amorphous, impurity levels, theory 4=12685

amorphous, local fluctuation levels 3=20283

amorphous, review 1=6137

anisotropic, Faraday effect, theory 2=4121

anisotropy of electrical conductivity, four probes method 0=572

anodization, small electrode 4=20833

antiferromagnetic metals, elec. cond., spin ordering 0=4312

antiferromagnetic, small mobility 2=18668

apparatus to meas. temp. depend. of elec. cond. up to 1000°C 3=24159

applications of thermal Green's functions 0=18947

atomic, elementary excitations, variational theory, creation and annihilation Hamiltonians 0=1630

atomic, polar crystal model, Hamiltonian derivation 1=11284

atomic, refractive index near absorption edge, calc. 0=11668

atomic sizes, relative, effect on elec. props. 2=10462

Auger effect, phonon-assisted 1=14412

Auger recombination, overlap functions, one-D 2=23283

avalanche multiplication in non-polar crystals, theory 1=6233

Azbel'—Kaner cyclotron resonance 3=10638

band parameters of semiconductors with zincblende, wurtzite and Ge structure 4=15450

Semiconductors—contd

band structure and exciton states, opt. and magneto-opt. evidence 2=2216

band structure, for high degeneracy, perturbation theory 2=10459

band structure, at high energies, from quantum efficiency 0=2905

band structure, with impurities, perturb.-moment method 3=22683

band structure, by projection operators 2=23269

band structure, review 2=23264

band structure, theoretical investigation 2=23265

band theory, generalization to include self-energy corrections 0=9884

band theory, review of recent progress 3=10746

Bardeen-Shockley formula, new derivation 1=17656

barriers, diffusion of hot and cold electrons 2=14526

basic concepts 2=4000

birefringence, by free-carriers 3=10912

birefringence, rel. to free-carrier parameters 1=19952

binary compounds, composition stability limits 1=19844

binary disordered solid solns., propagation

phenomena 0=18404

binary, self-compensation-limited cond. theory 4=17481

binary solid solutions, random clusters, propag.

phenomena 0=3268

Bloch wave transmission through crystal interfaces 3=10736

bonding, review 1=6139

bonding and semiconductivity relationships 0=15945

bonds, nature 3=2687

book 1=2403

breakdown criterion, electric-thermal

generalization 1=19843

breakdown criterion, electric-thermal

generalization 2=6434

breakdown, electroluminescence, phonon-defect interaction mechanism 4=4288

breakdown in non-polar materials 1=14424

breakdown of nonpolar materials 2=2138, 8321

breakdown, time behaviour, theory 3=15561

Brillouin zone, selection rules, time-reversal 3=10745

bulk lifetime of carriers, under nonsymmetrical boundary conditions 1=14416

"bulk photoelectromag. effect" 2=23478

carrier capture by excited recomb. centres,

theory 2=10457, 14516

carrier-carrier scatt., rel. to mobility 3=2857

carrier conc. disturbances in high electric field 2=630

carrier concentration fluctuations, influencing factors 1=1035

carrier concn. and effective mass, meas. by

Voigt effect 1=12481

carrier-density fluctuations involving space-charge limited transport 3=10750

carrier density fluctuations with one kind of trapping centres 1=7633

carrier density fluctuations, theory 1=3737

carrier diffusion, bipolar, surface boundary conditions 0=15904

carrier diffusion and drift in mag. field 1=14401

carrier diffusion and drift in mag. fields 1=17661

carrier diffusion lengths, minority, meas. 2=2131

carrier diffusivity, lifetime and surface recomb., meas. 1=11489

carrier distrib., anisotropic and emissive, excitation technique 1=14221

carrier distrib. function for many-valley structure 4=6970

carrier distribution function in surface layers 1=12428

carrier effective mass, from Voigt effect 1=3819

carrier energy distrib., in presence of fast electron source 3=17829

carrier energy relax. time from zero current harmonic 4=22714

carrier excess, decay, theory 1=2406

carrier lifetime, calc. using overlap functions 1=1038

carrier lifetime det. in presence of trapping, by photocond. and photoelectromag. effects 0=2865

carrier lifetime, diffusion length and surface recomb. velocity, from photoexcited i.r. absorption 4=22527

carrier lifetime, diffusivity and surface recomb.

velocity, meas. 1=3734

Semiconductors—contd

carrier lifetime for inelastic scattering processes 1=6140
 carrier lifetime meas. by microwave reflection 2=14528
 carrier lifetime, meas., by microwaves, high cond. 3=20296
 carrier lifetime, meas. of variation with depth 1=5014
 carrier lifetime, microwave meas. 0=9954
 carrier lifetime and mobility, u.h.f. meas. 0=4331
 carrier lifetime, n-type with local centres 3=8500
 carrier lifetime \approx 1nsec, meas. 2=21127
 carrier lifetime, rel. to other props. 1=17704
 carrier lifetime, role of trapping processes 1=10038
 carrier lifetime rel. to surf. recombination 3=2868
 carrier lifetimes, meas., effects of waveguide characteristics 4=423
 carrier lifetimes, short, meas. 3=6579
 carrier, minority, diffusion length meas., photoelectric, inhomogeneous material 4=9892
 carrier mobilities, depend. on chemical bonding 1=6139
 carrier mobility, effect of carrier-carrier scatt., theory 1=17664
 carrier mobility in microwave range, meas. 1=11291
 carrier negative effective masses at degenerate band edges, review 1=6132
 carrier recombination, effect of dislocations 2=18663, 23291
 carrier recombination, at large trap concentration 0=574
 carrier recombination at multi-charged centres, possible mechanism 4=6774
 carrier recombination, rel. to recomb. centre conc. 2=632
 carrier recombination, surface, continuous level spectrum 2=18662, 23290
 carrier recombination theory, by multiple levels 2=23284
 carrier recombination, universal surface velocity 1=3740
 carrier-saturated current flow, thermodynamic deviations 4=12873
 carrier scattering, Hall current detm. 3=17845
 carrier scattering, inelastic, lifetime and mechanism 1=1031
 carrier, sign, concn. and mobility, meas. method 3=15559
 carrier steady-state distribution function 0=17905
 carrier transport including space charge, theory 1=11280
 carrier transport and photoconductivity with trapping, theory 0=13586
 carriers, diffusion coeff. meas. 2=21115
 carriers, nonequilibrium retardation times 0=20885
 carriers, surface mobilities, calc. 2=2134-5
 carriers of very low mobility, theory 2=23299
 cascade capture of electrons 0=15917
 as catalysts 2=8918
 cathodes, pulse current, cond. mechanism 4=28545
 cathodoluminescence, trapping mechanism 3=3064
 cavity packing with hard Ga alloys, elec. props. 0=14360
 charge carrier behaviour, in high elec. fields 0=13588
 charge carrier effective mass, review 4=6779
 charge carrier inertia effects meas. 4=28541
 charge carriers scatt. from point imperfections 2=21114
 charges, effective, diff. bet. physical and chemical definitions 4=20346
 chemical formation by oxidation and reduction, effect of equilibrium conditions 3=25824
 chemical and physical structure imperfections, rel. to chemical reactivity 1=3736
 chemisorption isotherms on model surface 2=4543
 chemisorption rate laws 3=1390
 chemisorption, "real" surface, electronic theory 0=1634
 combination resonance at local centres of large radius 4=30549
 combined electron resonance 3=15931
 combined resonance in crossed mag. and elec. fields 2=18657
 combined resonance in strong magnetic fields, theory 1=19842

Semiconductors—contd

combined resonance in strong magnetic fields, theory 2=4003
 with complex band structure, deformation potential theory 1=6142
 complex bands, deformation pot. theory 2=23271
 composition effects 3=25340
 conduction centres, four-point resistivity probe 0=2856
 conduction, dielectric const., i.r. absorpt., diffusion, study by microwave techniques 4=15531
 conduction electrons, chem. potl., degeneracy, in mag. field 1=12427
 conduction electrons, 2-phonon scatt., Weisskopf-Wigner theory 0=528
 conduction, hot carrier, freq. depend. 3=13048
 conduction mechanism in low-mobility semiconductor 2=4004, 6433
 conduction mechanism, thermally stimulated 0=11674
 conduction, metallic impurity, localized-spin theory and negative magnetoresistance 2=16690
 conductivity anisotropy measurement, effect of specimen side-arms 4=28551
 conductivity, average, of diffused layers in semiconductors 4=12869
 conductivity calc., including impurity and phonon scatt. 1=12408
 conductivity, dielectric const., slab in waveguide microwave meas. analysis 4=12880
 conductivity, effect of electric field 1=14419-21
 conductivity, effective mass from i.r. reflectivity 4=17390
 conductivity, elec., meas., loss, by coaxial cell 4=6934
 conductivity, electrical, calc., allowing for impurity ions 3=20288
 conductivity, electrical, impurities, low temperature 3=22910
 conductivity, electrical, impurity, low temp., calc. 3=20292
 conductivity, electrical meas. 4=4137
 conductivity electrons, energy spectrum, in mag. field 4=17398
 conductivity, incremental, due to space-charge layer 4=20347
 conductivity, at low temp. 1=7511
 conductivity, majority carrier magnetosurface effect 1=14405
 conductivity meas., epitaxial and bulk, four-point probe 3=25341
 conductivity, measurement, five probe method, theory 3=21674
 conductivity, nonequilib., decay, two recomb. centres, calc. 3=17833
 conductivity, temp. var., and ratio of carrier masses for given doping 4=4128
 conductivity variation, cross-sectional, meas. 3=17844
 conductivity of warm electrons, cubic crystals, tensor theory 4=12871
 conference, Berlin 1=2382
 conference, Exeter, July 1962 2=23260
 conference, Exeter (1962) 3=6566
 conference, Exeter (1962) 3=6567
 Conference (Garmisch, 1956) 0=4324
 conference, L'vov (1959) 1=3733
 conference (Prague, Aug. 1960) 1=6131
 conference, Prague 1960 2=21113
 conference, Prague 1960, closing speech 3=2861
 conference, Prague 1960, closing speech 3=2862
 conference, Prague 1960, summary talk 3=2860
 conference, Varenna (1961) 4=20339
 contacts with metals, nature of current flow 0=582
 Corbino expt. using cylindrical mag. field, galvanomagnetic and thermomagnetic effects 3=1925
 correlation energy of electrons, theory 0=2867
 covalent bonds 3=10566
 covalent, "cascade" recomb. of carriers 2=18656
 covalent, impurity centres, ionization energy, temp. depend. 0=15864
 crucible material, use of vitreous C 3=21181
 crystal defects and energy states 2=14515
 crystal excitons, drag by charge carriers, calc. 3=17691
 crystal growth, Czochralski, distrib. of additions 3=25670
 crystal growth, Czochralski, impurities, two-crucible control 3=25671
 crystal imperfections 1=3652
 crystal potential and energy bands, calc. 0=4354

Semiconductors—contd

- crystal potential and energy bands, exchange and correlation effects 3=6578
 crystal potl. and energy bands, self-consistent calc. 0=1629
 crystals electron band struct., review 4=28406
 crystals, exciton absorption rel. to fine structure of luminescence and photocond. 2=8400
 crystals, and grain boundaries 4=30570
 crystals, magnetoelectric and thermomagnetolectric effect, calc. 3=6565
 cubic lattice, simple, band struct. rel. to pot. and lattice struct. 2=23104
 current carrier energy spectrum calc. 2=633, 23302
 current carrier energy spectrum calc., rel. to spin-orbit coupling 2=4010
 current carrier energy spectrum calc., rel. to spin-orbit coupling 3=2877
 current carrier scattering on impurity centres 0=6088
 current density rel. to electric field strength, homopolar semiconductors 4=26018
 current fluctuations, near non-equilibrium stationary state 3=15558
 current instability, self-excitation 3=20284
 current instability, theory 4=10036
 current oscillations, appearance 3=17830
 current-voltage relations in forward-biased p-i-n structures 1=1037
 current waves interaction with polarization 4=1572
 currents, space charge limited, with blocking contacts 3=8501
 cyclotron and combinational resonance 2=16688
 cyclotron and paramag. resonance on strained crystals, rel. to band structure 1=6097
 cyclotron resonance 0=537, 6093
 cyclotron resonance, Azbel'-Kaner and Voigt-type, theory 3=785
 cyclotron resonance, in crossed elec. and mag. fields 0=11596
 cyclotron resonance in extreme anomalous relaxation region 4=12717
 cyclotron resonance, use for microwave generation amplifcn. 0=2437
 cyclotron reson. of non-equilib. carrier distribns. 2=23130
 cyclotron resonance, quantum effects 2=23137
 cyclotron resonance, quantum transport eqn., eqn. treatment 3=15560
 cyclotron resonance in varying magnetic field 2=3882
 cyclotron resonance in varying magnetic field 3=2776
 daltonides, anomalously composed, theory 3=10762
 decay of excess carriers, theory 1=2406
 deformation potential theory, for complex energy-band structure 1=1030
 degenerate bands, thermomagnetic effects, theory 3=17832
 degenerate, disordered, theory, 1930 → present 3=13045
 degenerate, energy levels and optical props. 3=20454
 degenerate, h. f. resist., due to electron-phonon (optical) interact. 4=10038
 degenerate, Hall mobility of carriers, rel. to impurity content, theory 1=11287
 degenerate, theory 3=10739
 degenerate, thermo-e.m.f. and Nernst effect, rel. to mutual electron and phonon drag 3=20290
 depletion-layer photoeffects 0=1682
 diamagnetic resonance 2=20981
 diamagnetic susceptibility, theory, temp. depend. 0=18157
 diamond-structure, dielec. const. rel. to energy gap 4=12867
 diamond-type crystals, hole band, many electron theory 0=2858
 diamond-type, energy spectrum of holes 0=11597
 diamond-type, free dangling orbitals on clean (111) surfaces 3=10748
 diamond-type, strain depend. of acceptor binding energy 1=17665
 diamond-type structure, surface states, theory 2=23306
 dielec. const. by intrinsic activation energy 3=847
 dielectric constns. meas., waveguide 4=17482-3
 dielectric function, wave-number-dependent, calc. 3=6577
 diffusion attenuation of space charges 0=542-3
 diffusion const. and length of excess charge carriers, meas. 0=2857

Semiconductors—contd

- diffusion and drift of minority carriers, theory 2=6438
 diffusion with interstitial—substitutional equil. 3=20225
 diffusion of ionized impurities, model 1=17566
 diffusion limited field instabilities 0=4325
 diffusion in, review 1=3739
 diffusion, thermal, meas. 1=17568
 diffusivity, thermal, method for meas. 2=8239
 dipole scattering 3=10734
 dislocation acceptors, occupation statistics 0=18005
 dislocation det. on cleavage surfaces by etching 3=4877
 dislocation mobility and kink nucleation theory 3=17730
 dislocations, elec. props., theory and exptl. 3=25335
 dislocations, generation and elec. effects 1=6136
 with dispersed colloidal phase, optical absorption by free carriers 0=7995
 dispersion theory, interband and plasma effects 3=10744
 displacement threshold meas., review 4=30594
 donor-acceptor pair energy levels 0=11602
 donor diffusion in degenerate layers 1=14422
 double-injection in deep-lying impurity types 4=12875
 donor ionization energy, resonance transfer 1=14410
 donor states, deformation round impurity atoms, theory 1=19845
 double diffusion of impurities 1=11219
 double refraction of e.m. waves in transverse mag. field, theory and exptl. verification 1=3819
 drift mobility, lifetime of carriers, simultaneous meas. 2=12504
 drift mobility meas. theory, diffusion and recomb. controls 0=541
 dye-semiconductor interface, photo-effect sensitization, effective mass determination, Fermi liquid theory 0=575
 e.m. wave absorption by electron-phonon system 4=1713
 e.m. wave propag., plasma, appl. 3=6568
 e.m. wave propag., in presence of const. induction 4=11794
 earths mantle as semiconductor 1=21084
 effective mass measurements, review 3=10743
 effective mass for non-quadratic dispersion formula 1=11274
 elastic constants and lattice vibrations, diamond-type materials 3=1214
 elastocaloric effect in many-valley type 3=4832
 elec. breakdown, theory 0=15910
 elec. cond., Boltzmann transport eqn., electron-lattice vibration interaction, piezoresistance 4=15527
 elec. cond. meas., limitations in potentiometric method 1=17644
 elec. conductivity, complex value calc. 1=16306
 elec. conductivity at microwave frequencies 0=2852
 elec. conductivity, statistical theory 0=571
 elec. conductivity and thermionic emission 0=15901
 elec. conductivity, variational calc. 1=17660
 elec. current fluctuations, theory 3=6572
 electric current fluctuations, theory 2=23295
 elec. and galvanomagnetic meas., effect of random inhomogeneities 0=17982
 elec. resistivity and thermoelec. power, below and above melting pt. 0=7909
 electric field effect on electrons in narrow bands 2=10452
 electric field, var. with electron conc., large impulse currents 3=22919
 electric fields effects on elec. props. 2=10451
 electric thermal currents, in terms of collision freq. integrals 2=23277
 electric cond., h.f., of degenerate semicond. 3=25337
 electrical cond. due to self-activation 3=17842
 electrical cond. meas. in microwave field 4=1580
 electrical conduction and photovoltaic effects in materials with position-dependent band gaps 2=14519
 electrical conduction, sign, meas., liquid He temp. 3=16883
 electrical conduction, temp. depend., theory 2=21091, 23229
 electrical conduction, transverse, rel. to electron and phonon mutual dragging 2=3987
 electrical conduction, transverse rel. to electron and phonon mutual dragging 3=4901
 electrical conductivity, Heitler-London approach and d-electron conduction 1=8933
 electrical conductivity in magnetic field, theory 2=4009

Semiconductors—contd

- electrochem. electrodes, cathodic processes 1=20746
 electrode potentials in solution 1=7915
 electrodeless meas. techniques 3=342
 electrodes with two electrolyte contacts 3=18446
 electroluminescence, breakdown, phonon-defect interaction 4=4288
 electroluminescence, energy storage mechanism 4=7175
 electrolytic treatment, masking technique 4=23662
 electro-mechanical effect, resistance to indentation rel. to potential 3=23365
 electron cascade capture by ionized impurities, theory 4=12674
 electron centres, local, paramag. res. and relax. 2=23697
 electron chemical potential, rel. to band theory 3=2873
 electron density growth, rel. to negative differential resistance 4=11092
 electron density of states, highly impure semiconductors 4=12872
 electron distribution, inverse type 2=6435, 10455
 electron-donor recombination 2=8310
 electron effective mass, generalization of Bardeen's formula 1=17466
 electron effective mass, relation to energy gap and spin-orbit splitting 0=18049
 electron-electron scatt., effect on transport phenomena 2=8316
 electron-electron scatt. and transport phenomena in nonpolar materials 1=8936
 electron-electron scattering, theory and expt. 3=10732
 electron emission rel. to BaO adsorption 2=22241
 electron emission in electric field 1=17
 electron emission, field, energy distrib. rel. to effective mass 3=2014
 electron emission, field, energy distrib. theory 2=20016
 electron emission, field, image force relaxation effects 4=19079
 electron emission, secondary, as continuous multiplier 2=17881
 electron emission, secondary, of layers in pick-up tubes 1=521
 electron energy spectrum, effect of carrier density fluctuations 2=4002
 electron energy spectrum, effect of edge dislocations 1=6085
 electron energy spectrum, effect of screw dislocations 1=6086
 electron field emission 4=19080
 electron gas, nondegenerate, deviations from Ohm's law variational approach 0=1624
 electron gas, screening Coulomb potential 2=18655
 electron Hall mobility, effect of electron-electron scatt. 0=13584
 electron and hole fluctuations, nonthermal equil. 4=9887
 electron-hole junctions 1=6141
 electron-hole pair prod., transition probability 2=23273
 electron-hole pairs, energy of formation in Group IV, theory 2=6436
 electron-hole plasma, cylindrical, instability in mag. field 2=2069
 electron-hole plasma, magneto-surface props. 2=23282
 electron-hole scatt., semiconds. with band-gap impact ionization 3=25222
 electron and hole slowing-down times, non-equilibrium 2=23274
 electron and hole statistics in dislocated semiconductors 1=17659
 electron impact ionization 1=14400
 electron irradi. at low temps., cryostats, 4.2°K 4=11440
 electron mobilities in organic semiconductors, calc. from band and hopping models 4=15445
 electron motion in, Green's functions 1=15734
 electron-phonon interaction and energy spectrum, degenerate 3=20129
 electron-phonon interactions 2=23063
 electron-phonon interactions and transport phenomena 0=6013
 electron plasma, in mag. field, oscillations 0=17009
 electron plasmas, theory 0=2860
 electron processes, kinetics 1=6079-82
 electron relax., donor, by spin-orbit interact. 3=25219
 electron scatt. by ionized impurities, Born approx. 4=12874

Semiconductors—contd

- electron scatt. by phonons and impurities, theory 1=8934
 electron scattering on charged dislocations 2=10453
 electron scattering, on impurities and phonons 2=6440, 10454
 electron scattering on impurities, theory 2=21118
 electron scattering on impurities, theory 3=2867
 electron S-states, in hole field, Schrödinger eqn. 0=2804
 electron states, band and localized, theory, rel. to chemical binding 2=23263
 electron states and phonon spectra from i.r. spectra 3=15667
 electron systems, collective excitations, rel. to external fields 2=23267
 electron temp., elec. cond. and thermionic emission 2=18660, 23289
 electron temp. fluctuations and noise, high fields 3=17835
 electron temperature decrease by elec. fields 4=17388
 electron temperature, effect of electric field 1=14419-21
 electron "temperatures" direct meas. 3=10730
 electron transitions, from donor to acceptor state 2=8315, 10456
 electron transport in high elec. fields, distrib. functions 4=8114
 electron tunnelling in junctions, theory 3=6608
 electron velocity distrib., effect of interelectron collisions 0=10903
 electronic processes, charac. times, review 2=8313
 electronic spectra, low-temp., papers in conference, Kiev, 1961 3=24124
 electronic theory of catalysis on semiconductors, book 2=15143
 electronic transitions 1=19840
 electrons and holes, excited, ranges 4=20235
 electrons, hot, effect of high hydrostatic pressure 1=14409
 electrons, spin-lattice interact. 2=23709
 energy band structure, group-theory calc. 2=21122
 energy band structures, review 2=12502
 energy bands calc., tight-binding method 0=6027-9
 energy bands symmetry, without spin-orbit interaction 0=1543
 energy gap, effect of electron-lattice interact. 4=4014
 energy gaps, correl. with binding energy 2=2161
 energy gaps, depend. on chemical bonding 1=6139
 energy levels of conduction electrons in a mag. field 0=1548
 energy spectrum for low mobility 3=15563
 energy structure of complex semiconductors calc. 3=15568
 energy surfaces, toroidal, in crystals with wurtzite symmetry 1=934
 epitaxial growth of layers, "sandwich" method 4=7572
 etched surfaces, electron diffraction exam. 0=590
 Ettingshausen effect for cooling ~100°K 2=21129
 Ettingshausen effect, theory 0=18012
 excess carrier conductivity, kinetics, at high generation levels 3=22911
 excess carrier transport, review 4=28543
 excess carriers, decay, effect of electric field 0=9956
 excess carriers, lifetime 0=20894
 excess current carriers in magnetic field 2=4012, 6432
 excess minority carriers, decrease 2=18665
 exchange interact., indirect, through current carriers 4=26019
 excitation, by e.m. waves, forming "helicon" particles 3=6568
 exciton dissociation, by phonons 0=532
 exciton gas 2=12406, 14419
 exciton polarization, by low elec. fields, H-like model 0=13629
 exciton spectra 2=16820-1
 exciton states, Green's function approach 1=3747
 exciton states, Hamiltonian formalism 2=23121
 exciton theory 1=17469
 exciton wave, exponential growth conditions 2=18664, 23292
 exciton waves, Green's function, soln. 0=9836
 excitons, bound complexes 2=2068
 excitons, magneto-optical absorption, calc. 2=8062
 excitons, non-radiative ionization of perturbation centres 4=25910
 excitons, review 1=14222
 excitons, spectroscopy, for laser appl. 3=7330

Semiconductors—contd

- Faraday effect 0=7923
 Faraday effect 4=17565
 Faraday effect in anisotropic semiconds. 2=12581
 Faraday effect, general formula review 3=23047
 Faraday effect at i.r. freqs. 0=13677
 Faraday effect in many-valley semiconductors 1=19959
 Faraday effect meas. 2=8490
 Faraday effect, microwave, and guided waves 3=2875
 Faraday effect in non-degenerate semiconductors 1=12431
 Faraday effect, reformulation incl. multiple reflection effects 4=10159
 Faraday ellipticity of free carriers, depend. on scatt. mechanism 1=17666
 Faraday rotation, interband, theory 1=11356
 Faraday, Voigt effects 2=18797
 Fermi level calc. with electronic computer 3=20293
 Fermi level demonstration 1=11272
 Fermi level, position, effect of heavy doping 4=1574
 Fermi level, surface, rel. to band gap, barriers 3=20134
 ferro- and antiferromag., conductivity mechanism 2=23303
 ferro- and antiferromagnetic interactions 3=20565
 ferro- and antiferromagnetics, elec. conductivity 1=5009
 ferromagnetic, carrier recomb., spin-wave absorption 0=577
 ferromagnetic, magnetocaloric effect, meas. 0=2853
 ferromagnetic, spontaneous Hall effect, theory 3=22918
 field effect 0=20890
 field effect at low temps. 1=17658
 field effect meas. in transverse mag. field 0=15920
 field-effect modulation in quasi-intrinsic semiconductor 1=2420
 field effect theory 2=8320
 field emission of electrons, governing laws 1=316
 field emission in mag. field 3=16973
 field emission microscopy, cathode prep. 4=23519
 field emission, review 0=3782
 field emission, spectrometer 3=5691
 field emission, theory 2=3064
 film, local electron centres, near surface 4=1577
 film preparation by sputtering 4=20798
 films, diffused, conc. profile rel. to elec. conductivity 2=8279
 films, elec. cond., thickness and surface field depend. 1=1039
 films, forbidden bandwidth, thickness and temp. depend. 3=17843
 films, Hall effect and elec. cond., meas. apparatus 2=9492
 flaw solubility in heavily doped, theory 0=15916
 fluctuations, elec., appl. of Nyquist theorem 2=17773
 fluctuations, electrical, generation-recombination, Klaassens expression, corrections 3=17834
 fluctuations, electrical, i.f., electron-hole plasma instabilities 3=20281
 fluctuations, electrical, i.f., magnetohydrodynamic carrier motion 3=20280
 fluctuations, Fokker-Planck equation 1=18320
 fluctuations, homophase and heterophase, statistical theory 1=3737
 fluctuations spectra 0=14526
 fluctuations, symposium 0=20876
 fluid interfaces, electroconvection 1=2943
 forbidden band, discrete defect energy levels, and tunnelling 1=17766
 forbidden band width in ZnS-type structure 1=3760
 free-carrier absorption due to ionized impurities 0=18011
 free-carrier absorption, quantum theory 2=2223
 free-carrier lifetimes, from i.r. absorption relaxation times 0=4326
 free carrier light absorption 4=1709
 free carrier Voigt effect, anisotropic 4=15590
 free carriers with arb. energy bands, thermodyn. props. 4=28394
 g-factors and spin-lattice relax. of conduction electrons 4=28868
 galvanomag. anisotropy, warm electrons, calc. 4=28540
 galvanomagnetic effects, influence of conductivity gradients 1=7620
 galvanomag. effects rel. to layer structure inhomogeneities 2=8309
 galvanomagnetic effects, meas. instrument 4=12879

Semiconductors—contd

- galvanomagnetic props., thin films and surface layers 1=3723
 galvanothermomag. effects for nonparabolic bands 2=18666
 generation-recombination noise rel. to diffusion and surface recombination 1=8937
 generation-recombination noise and warm electrons 3=64
 glass-like 0=3263
 glasses, Fermi states, calc. 3=20918
 grain boundary conductivity, homogeneity, direct proof 4=6935
 group IV and III-IV cpds., band structure 3=10625
 Group I-V cpds., covalent bonding 2=6247
 Group III-V cpds., Faraday effect, i.r., rel. to effective mass determ. 2=23529
 Groups III, IV, V, "crystal hybridization" and covalent bond 2=23027
 h.f. magneto-acoustic resonance 0=1566
 Hall coeff. and resistivity meas., Dauphinee-Mooser circuit zero-point detector 4=8593
 Hall coefficient, temp. depend., at const. carrier conc. 1=14417
 Hall effect for high elec. field in many-valley semicond. 3=22916
 Hall effect, high-ohmic, electrode meas. arrangement 4=1583
 Hall effect, hot-electron, optical phonon scatt. effect 4=4129
 Hall effect in impurity conduction 1=19846
 Hall effect for low mobility, theory 3=15566
 Hall-effect reinforcement of h.f. mag. fields 4=12868
 Hall effect, theory, carrier drag effects 3=6575
 Hall effect, theory, for low mobility 4=1568
 Hall field relaxation at high frequency 0=18007
 Hall mobility, anomalous, rel. to impurity distrib. 2=12503
 Hall mobility and magnetoresistance due to hot carriers in strong mag. fields 3=10760
 Hall mobility, minority-carrier, meas. method 4=22694
 Hall mobility in nonpolar materials, interelectronic collision effects 1=14415
 heat conduction, book 2=3852
 heat conduction meas. by velocity method 2=5197
 heating of current carriers, relax. time meas. 4=1579
 heating in vapour, press. and temp. adjustment 4=10995
 heavily-doped, band structure 3=10741
 heavily doped, theory 3=17831
 heavily-doped, theory 4=1576
 "helicon" mode propagation for metre and decametre waves 3=22921
 heterogeneous, energy gap and effective mass, effect of gradients 4=12679
 heterogeneous, magnetoresistance asymmetry 0=9950
 high electron field effects 0=20893
 high-field and space-charge, review 3=13055
 high resistance, resistivity and Hall const. meas. 1=9518
 hole energy distrib. in elec. fields 4=25875
 holes, scattering by acoustic-mode phonons 1=11275
 homogeneity anal. using volume photo-e.m.f. 3=15587
 homogeneity meas. from plasma edge 2=16686
 hot-electron distrib. functions in many-valley semiconductors 1=17667
 hot electron theory, density matrix approach 2=16689
 "hot" electron emission 0=9066
 "hot" electron mobility tensor, integral eqn. 0=11671
 hot electrons, Boltzmann eqn., theory of avalanche multiplication 1=6133
 hot electrons, behaviour in microwave fields, calc. 1=8935
 hot electrons, distrib. functions and ioniz. rates 3=6573
 hot electrons, effect of phonon distrib. 3=10759
 hot electrons, electron-electron interaction 1=11283
 hot electrons, intervalley scatt. 1=10039
 hot electrons, prod. by u.s. waves 4=28393
 hot electrons, spectral shape and attenuation length in presence of finite absorption 4=25880
 hot electrons, symmetry behaviour 3=13054
 "hot" electrons, theory 2=631
 hot electrons, theory 3=17828
 human retina receptor elements 2=1034

Semiconductors—contd

- hyperfine interaction due to electrons with large g-factors 2=2306
- impact ioniz. of centres by electrons 3=8502
- impact ionization, kinetic theory 0=9958
- impact ionization, theory 1=5010
- impact ionization threshold and quantum yield 4=6942
- impact recombination, at deep traps, theory 0=11672
- impact recombination, of minority carriers, in presence of impurity band 4=1567
- imperfections, effect on adsorption and chem. reactions 4=20792
- impure, band structure, Thomas—Fermi approach 3=17678
- impure, energy bands, perturbation meth. calc. 3=10742
- impurities, activation energy, change with concentration 2=629
- impurities, behaviour, concentration and props., review 4=28548
- impurities, conduction, phenomenology 1=19769
- impurities distrib. with adjacent liq. or gas 2=16687
- impurities in growing crystals, mechanism 4=30816
- impurities, ionized, free carrier absorption 0=18011
- impurities, multiply-charged, effects anal. by mass action law 0=18008
- impurity atom position, effect of Jahn—Teller effect 4=12742
- impurity-band conduction, random lattice problem 2=4008
- impurity band formation, many-electron model 2=8322
- impurity band theory 0=6095
- impurity centres, effective cross-sections, measurement theory 1=6173
- impurity centres, explanation by e.s.r. 2=10461
- impurity centres, ionized, electron gas theory 2=10364
- impurity centres and structural defects, activation energies 3=20294
- impurity conduction, hopping process analysis 4=12870
- impurity conduction; localized spins and negative magnetoresistance 3=10737
- impurity conduction at low concn. 0=18013
- impurity conduction, at low temp., mechanism 1=11281
- impurity conduction, one-problem transition rate 2=8318
- impurity conduction, phenomenology 1=19769
- impurity conduction, role of electron—phonon interaction 1=3743
- impurity conduction, spatial and time fluctuation of Coulomb energy 1=3744
- impurity conduction, theory 0=11670
- impurity conduction, theory 1=3737
- impurity conduction, theory 1=17651
- impurity conduction theory 1=17652-3
- impurity conduction, theory 2=23280
- impurity conduction, two-phonon transitions, theory 2=4007
- impurity diffusion, effect of slow-cool 2=10413
- impurity distrib. in crystals, meas. method 4=15530
- impurity electron states, e.p.r. study 3=4911
- impurity energy levels, pressure effects 2=23353-5
- impurity hopping conduction, a. c., approx. at low temps. 4=10037
- impurity ion transport in mag. field 2=23293
- impurity ion transport in mag. field 3=6570
- impurity ionization, chemical thermodynamical study 1=12430
- impurity ionization, theory 1=6133
- impurity levels theory, rel. to polariz. effect of medium 3=2869
- impurity, photoconductivity and local-level parameters 1=12456
- impurity states, electron—phonon coupling 3=10733
- impurity states, non-Coulomb interactions of carriers 1=5011
- impurity type, conduction—impurity transition, statistical theory 0=11673
- impurity-type, generation—recomb. noise 3=22914
- with incomplete d shells, conduction by Heitler—London approach 1=17662
- indirect transitions and negative temperature (negative absorption) 1=5013
- i.r. absorption, effective mass of current carriers 0=18014
- infrared absorpt, spectra, review 2=23569

Semiconductors—contd

- infrared absorption by free carriers 2=21235, 23542
- infrared absorption by free carriers, effect of carrier-lattice scatt. 1=11282
- i.r. Faraday and Voigt effects, meas. method 4=15583
- inhomogeneities, rel. to fast neutron irradiat. 3=22909
- inhomogeneous, bulk photo effects 0=18059
- inhomogeneous, charge, energy transport for hot, cold carriers 3=10756
- inhomogeneous degenerate systems, Green's functions, variational principle 4=1420
- injected carrier diffusion, mag. field depend. 2=6442
- injected carrier lifetime, photoelec. meas. method 4=22692
- injection, double, two-dim. theory 3=17838
- inorganic cpds., atomic radii, electronegativities and activation energies 1=17675
- instability caused by heavily injected minority carriers 2=23296
- interaction of electrons and holes with acoustic waves 1=14413
- interaction with inert gases on surface 1=20686
- interband optical absorption, long-wavelength edge 2=10593
- inter-band optical transitions to low-mobility band 4=28396
- interband transitions, density of states, corners 2=21117
- interband transitions, direct, theory 4=20234
- interband transitions rel. to maser action 2=18671
- interface with metals, Fermi level position 4=17403
- internal electrostatic potential curves 1=5015
- internal field emission, review 1=6134
- International Conference (1958) 0=570
- international conference, Prague (1960) 1=1027
- introductory lectures 4=30615
- ion drift in electric fields 3=13052
- ion movement in, theory 0=11677
- ion neutralization, Auger-type, at surfaces, theory 1=7632
- ion pairing, classical many-body theory, coupling 2=11295
- ion pairs, dipole scatt. calc. 2=18654
- ion transport, under Hall field 1=19801
- ion transport, under Hall field 2=3930
- ionic, conductivity, in strong crossed elec. and mag. fields 3=25339
- ionic-covalent bonds in crystals 1=893
- ionic, ferro- and antiferromag., many-electron model, kinetic coeff. anomalies 0=20761
- ionicities, effective charges and mobilities in inorganic cpds. 2=6437
- ionization, use of electron Van de Graaff accelerator 0=19832
- ionization energy resonance transfer, theory 1=14408
- ionization of local levels by elec. fields 3=15453
- ionized impurity scatt., partial-wave theory 2=12507
- ionized impurity scatt., partial-wave method 3=25338
- ionized impurity scatt. in III—V cpds. 4=25881
- ionized impurity scattering theory 2=23297
- ionized pair energy loss in a. c. field 4=28549
- Kerr effect, magnetomicrowave, meas. device 4=4248
- laboratory technique for props. meas. 4=12878
- Landau levels, collision broadening 1=12365
- Landau levels, negative-mass, inverted nature 1=19736
- laser action 2=10589
- laser conditions, mechanism 2=2137
- laser, model with parabolic bands 4=27692
- lasers, amplifiers 4=24910
- lattice absorption i.r. bands, shell model applic. 3=10927
- lattice dynamics, simple adiabatic and harmonic approx. 4=25832
- lattice mag. susceptibility, theory 3=11022
- lattice vibration spectra 4=25834
- lattice vibrations, quantization into phonons, freq. spectrum determ. 4=15526
- lattice vibrations, review 3=10576
- layers, epitaxially grown, analysis 3=8813
- lifetime meas., waveguide, theory 4=16656
- lifetime measurements, pulse generator circuit 3=12050
- lifetime of minority carriers, by noise and Haynes—Shockley method, agreement 1=7638
- lifetimes of free electrons and holes 0=20892
- light emission by avalanche multiplication, theory 1=6133

Semiconductors—contd

- liquid, electrokinetic effects 0=6096
- liquid, many-electron model 2=7198
- liquid, many-electron theory 2=19540
- liquid, review 1=6137
- liquid, thermoelectric props., use in electricity direct conversion 4=27466
- liquid, transfer processes theory 2=19541
- liquids, with hydrogen bonds, excipiton concept 4=21142
- local-centre parameter meas., photoelectric 3=20295
- local electron centres, near surface, wave-function and ground-state energy 4=1578
- localized centres, effective cross-sections, pulsed light effects 1=1100
- local levels, photoelec. study 2=21125
- local levels, photoelec. study 3=2878
- loop of extrema, properties 2=23268
- with low-carrier mobility, conduction, 2 mechanisms 4=1569
- low-lying levels, 2-band approx. 4=4125
- low-mobility, general transport theory 2=21123
- low mobility kinetic theory 3=15557
- low mobility transport phenomena, review 3=10738
- low temperature phenomena, conference, Sverdlovsk (1959) 1=2916
- low temperatures, review 3=2
- luminescence and conductivity induced by field ionization of traps 0=1740
- luminescence, group electron transition theory 2=2245
- mag. fields, high, effects on energy levels 4=1426
- mag. susceptibility, cyclotron and recombinational resonance 1=14402-3
- mag. susceptibility of interacting donors, calc. 0=6215
- mag. susceptibility, of unionized impurities, disordered Ising lattice 0=6217
- magnetic, atomic inner shell exchange interactions 4=7208
- magnetic field effects, use of resist. network 3=13050
- magnetic moments, long-range interactions 1=6252
- magnetic props., group IV elements, calc. from X-ray meas. of electron density 4=7216
- magnetic props. with nonparabolic bands 3=23139
- magnetic susceptibility 4=26260
- magnetoacoustic attenuation in nondegenerate semiconds. 2=8317
- magnetoacoustic effects in tilted mag. fields 2=6651
- magneto-concentration effect, longitudinal, and hole concentration 0=1628
- magnetoec. effects, apparatus for meas. in high-resistivity materials 1=11290
- magnetoec. and thermomagnetoec. effects 1=17645
- magnetolectric coefficients, and elec. cond., in strong elec. fields 4=1571
- magnetolectric effect, non-linear theory 4=20343
- magnetolectric effects 2=12506, 14518
- magnetolectric effects, D_{sh} group 4=4134
- magnetolectric effects in degenerate materials, theory 2=18661, 23245
- magnetolectric effects rel. to impurity gradients 2=23278
- magnetolectric effects in intense elec. field at low temps. 4=20342
- magnetolectric effects, in strong fields, kinetic coeff. 1=7616
- magnetolectric effects theory 2=14527
- magnetolectric effects theory 3=6576
- magnetolectric and magnetothermal effects, model 4=22692
- magnetolectric and magnetothermal effects with nonspherical and nonparabolic energy bands 4=20344
- magnetolectric phenomena, surface effects, theory 2=8319
- magnetolectric and thermomag. effects two-band theory 2=6416
- magnetolectric and thermomagnetolectric effects, theory 1=8932
- magneto-optical absorption, interband, theory of line-shapes 1=3823
- magneto-optical absorption, interband line-shapes, calc. 1=1148
- magneto-optical absorption, line-shape, theory 1=11359
- magneto-optical absorption spectra, close trajectory case 1=19955

Semiconductors—contd

- magneto-optical absorption spectra, close trajectory case 2=4119
- magneto-optical effects, interband, semiclass. dispersion theory 3=4963
- magneto-optical effects, with polarized i.r. 3=14377
- magneto-optical effects theory 2=23532
- magneto-optical Faraday effect, multiple reflection 4=30674
- magneto-optical phenomena, review 1=6203
- magnetoplasma effects 1=7564
- magneto-plasma resonance, theory 1=14406-7
- magnetoresistance, due to carrier density change 3=20278
- magnetoresistance, in crossed weak fields, polar model 1=11286
- magnetoresistance, in extrinsic nondegenerate materials 2=627
- magnetoresistance and Hall effect 2=18659, 21120
- magnetoresistance, high-field, for stratified medium 4=12866
- magnetoresistance multiplier for power meas. 4=11493
- magnetoresistance, negative at high impurity conc. 2=12508
- magnetoresistance of Ni ferrites 0=11664
- magnetoresistance oscillations in strong mag. field 2=2119
- magnetoresistance oscillations in strong mag. field 3=6569
- magnetoresistance, weak-field, for hopping cond. 3=15564
- magneto-spectroscopy 2=23128
- magnetothermal coefficients, calc. 4=6938
- magnetothermal effects, in arbitrary mag. fields 2=6443
- magnetothermal effects, eight, theory 2=10460
- magnetothermal effects, longitudinal, in strong fields 2=21124
- magnetothermal effects, longitudinal, in strong fields 3=2866
- magnetothermal effects, standard and Kane band models 3=20289
- magnetothermal effects in strong mag. field 2=6445
- magnetothermal magnetolectric effects, D_{sh} group 4=4134
- magneto and thermoelectric effects at high frequency 1=17646
- majority carrier sign determ., by hot-point probe 3=8498
- many-electron theory, problems 2=23266
- many-valley band struct., excess carrier diffusion 2=21121
- many-valley, elec. breakdown rel. to oriented mag. field 2=23276
- many-valley, electron-phonon self-energies 2=23298
- "many-valley", Hall effect 2=4005
- many valley, hot electron carrier distribution 1=14444
- many-valley, hot-electron effects in high elec. fields, theory 1=1059
- many-valley, hot-electron distrib. functions 1=17667
- maser action of impurity centres 1=20246
- maser action of impurity centres 2=8665
- measurement of conc. distrib. by diffusion 4=20351
- measurement of diffusion length of minority carriers 4=22700
- measurement by microwave interaction with semicond. post 4=22696
- melting point formula, rel. to electronic processes 3=10609
- metal-oxide-semiconductor, model for space-charge capacitance 4=26089
- with metallic end caps, uniformity of current flow 1=4551
- microwave analogues of Faraday, Cotton-Mouton and Kerr effects 4=10157
- microwave conductivity in high steady elec. field 4=6940
- microwave power absorption in waveguide 4=740
- microwave reflection, theory and expt. 3=23043
- minority carrier cond., current density and Hall coeff. rel. to radiation damage 2=23287
- minority carrier current in linearly graded drift field 0=1632
- minority carrier, decay law, surface recombination effects 1=17655
- minority carrier diffusion, dipole mode, about spherical emitter 0=1633
- minority carrier diffusion and drift, theory 2=6438
- minority carriers, diffusion lengths, meas. 2=2131
- minority carrier diffusion, in mag. field 0=15905

Semiconductors—contd

minority carrier lifetime rel. to elec. effects and dislocations, review 2=16951
 minority carrier lifetime meas., photocond. method 4=1582
 minority carrier parameters, from photocond. and photomagnetic effect 1=14426
 minority carrier parameters, from photocond. and photomagnetic effect 1=17669
 minority carriers, diffusion length, theory 4=30654
 minority carriers, excess, rel. to time 1=17654
 minority carriers, internal injection by current, volume-gradient e.m.f. 1=3741
 minority carriers, lifetime meas., surface and geometric corrections 2=8347
 minority carriers lifetime, photocond. and P.E.M. effect, adhesion levels 0=1680
 minority carriers, meas. of diffusion path 4=6778
 mixed conductors, l.f. characteristics 3=2874
 mixed valency, electronic transport props., model 1=17673
 mobility change through temp.-dependent mass 3=848
 mobility, field dependence 1=11278
 mobility of hot electrons in many-valley semicond., iteration calc. 2=2140
 mobility ratio, det. from Hall effect meas. only 1=17663
 mobility, surface corrections for near flat bands 2=2136
 mobility of "warm" electrons 1=14411
 modes of conduction with low mobility 0=4334
 molecular crystals, Hall effect and carrier mobility 3=2911
 Mott exciton, binding and decay 0=20778
 movement of free charges, two mechanisms 0=9952
 multi-valley, donor level splitting in external field 4=4127
 multi-valley, mobility in medium fields, theory 3=845
 n-p junction, ion drift 0=6103
 n-type, impurity cond. at low temp. 2=23281
 n-type, nondegenerate impure, drift and Hall mobilities of electrons 0=20884
 n-type, space charge due to photoexcitation 2=6441
 n-type, space charge injection, differential eqn. 4=6939
 narrow forbidden bands, carrier recombination 4=9884
 with narrow impurity band, conductivity 4=26021
 nearly intrinsic, minority carrier injection and extraction phenomena 0=2870
 negative absorpt., indirect recomb. of excitons 2=18658
 negative elec. resistance 1=14414
 negative resist. effect, hot-electron, theory 4=6905
 negative resistance 3=8535
 negative resistance, rel. to capture rate in elec. field 2=828
 negative resistance and high elec. field capture rates 2=8332
 negative resistance and hot electrons, analysis 1=11277
 negative resistance processes 2=23288
 negative temp. states, production method 3=2863
 negative temperature states, radiation absorption mechanism 1=19848
 negative temps., statistics 3=17839
 Nernst-Ettingshausen effect 2=6444
 Nernst figure of merit, optimization criteria 3=20257
 neutron irradiation, effect on elec. props., review 3=25336
 new semiconducting compounds, derivation by structural analogy, systematic method 4=26026
 nodal elementary excitations, quasi-particles and excitons 4=15461
 noise, from carrier diffusion and surface recomb. 4=22691
 noise as a queuing phenomenon 3=20282
 noise, recomb.-generation, at equil., theory 2=12509
 noise, review 1=6135
 noise, transitions between valleys 0=11676
 nondegenerate, non-equilib. distrib. function 1=7533
 non-degenerate non-polar, carrier heating, with ion and lattice scatt. 0=579
 non-degenerate, surface potential distribution calc. 4=10039
 nonequilibrium carrier density, effect of recombination 2=23294
 nonequilibrium carrier density, effect of recombination 3=8571
 non-equilibrium carrier lifetime, recomb. on multicharged centres, temp. depend. 1=5012
 non-equilibrium distributions 3=10749

Semiconductors—contd

non-homogeneous, bulk photoelectromagnetic effect 1=14519
 nonlinear optical processes 3=927
 nonlocal transport and cuspidal surface mobility 3=20285
 non-ohmic behaviour, acoustoelec. current 3=2876
 nonpolar, elec. dipole scatt., Born approx. calc. 3=2872
 nonpolar, electron-electron scatt. effects on transport phenomena 1=8936
 non-polar, electron-lattice interaction 0=9957
 nonpolar, Hall mobility, interelectronic collision effects 1=14415
 non-polar, internal breakdown 0=15912
 nonspherical and nonquadratic energy bands, transport 3=17840
 non-steady state cond., rel. to band and hopping processes 3=10735
 nonstoichiometric, elec. props. 2=4011
 nuclear polarization by hot electrons 4=30498
 Ohm's law deviations for weak fields, variational treatment 0=18009
 one-electron problem, many-particle approach 0=1546
 optical absorption by carriers at low temps. 2=18803
 optical absorption, elec. field effects 3=13160
 optical absorption, free-carrier, mag. field depend. 4=1712
 optical absorption by impurities 2=18807
 optical absorption, indirect, energy dependence, calc. 2=18804
 optical absorption instrumentation 1=2867
 optical absorption and recombination radiation theory 1=7635
 optical absorption in uniform field 3=15664
 optical constants, complete set, theoretical determination 0=10025
 optical dispersion near absorption bands 2=23520
 optical extinction by metal precipitates 4=15578
 optical i.r. effects with and without mag. field 2=23525
 optical lattice absorption reflection 4=22842
 optical and magneto-optical effects as examination tools 3=2994
 optical and nonradiative transitions, theory 3=23032
 optical properties, in i.r. region, free-electron theory 0=6163
 optical properties, review 3=10906
 optical reflectance, plasma oscill. theory 3=8584
 optical transitions, theory 2=14403, 18545
 organic, charge injection, effect of electrodes 2=14579
 organic, conduction and hole injection theory 2=14521
 organic, conference, Chicago (1961) 4=22727
 organic, epitaxial growth on mica 4=13555
 organic, photoelectric emission 4=574
 oscillating electron-hole plasma, rel. to a.c. origin 3=850
 oscillation mode of longitudinal mag. resistance 4=28553
 oscillations, elec. rel. to electron-hole instabilities 3=10730
 oscillations in longitudinal mag. field 1=11288
 oscillator phenomena 3=2879
 oscillator effect, mechanism and possible applications 3=10758
 Overhauser effects 1=14154
 Overhauser effect, review 1=3944
 oxidation of CO on oxide semiconductors 0=10345
 p-n junction in thermal gradient 0=15899
 p-n junctions, electron emission 1=7089
 p-n transitions, effect of adhesion levels, theory 3=2865
 p-type field emission, theory 1=17649
 parallel photoelectromagnetic effect 0=1683
 paramagnetic resonance, forbidden transitions, energy levels and probabilities 0=18214
 paramagnetism, $A^{117}B^V$, calc. from X-ray meas. of electron density 4=7215
 paramagnetism, calc., from electron density distrib. 4=4328
 parameters, instrument for simultaneous measurement 4=15532
 parameters meas., contactless method 3=15566
 particle detectors, time resolution 3=19510
 phase transformation to metal formula for crystal distortion 4=25993
 phonon distrib. disturb. by hot electrons 4=25835
 phonon drag on charge carriers, theory 3=25248

Semiconductors—contd

phonon-drag thermoelec. power, longitudinal case 3=25424
 phonon frequency regularities in zincblende type 4=3981
 phonon scattering by bound electrons 1=12429
 phosphorescence and photocond. mechanism, recomb. of defect sites 1=3867
 photoadsorption 4=20816
 photoadsorptive effect, theory 2=4496
 photoconduction, impurity type 2=18729
 photoconduction through reverse-biased p-n junction, theory 0=1682
 photoconductivity, use in determ. of other props. 1=14425
 photoconductivity, effect of surface recomb. 0=617
 photoconductivity, impurity, rel. to capture levels 3=15628
 photoconductivity kinetics, impurity and intrinsic 2=21193
 photoconductivity kinetics, impurity and intrinsic 3=2968
 photoconductivity mechanism for photocurrent noise study 2=18730
 photoconductivity, minority carrier lifetime, effect of trapping levels 0=18060
 photoconductivity and photo-Hall effect 2=18728
 photoconductivity, quasi-monopolar type 2=10525
 photoconductivity rel. to small forbidden-energy gap 2=23447
 photoconductivity spectrum for additive absorpt. 4=26139
 photodiffusion, e.m.f. and anomalous Dember effect 4=1675
 photoeffect, inner, sensitization by organic dyes 2=6488
 photoelec. effect, analysis of spectral sensitivity 0=6130
 photoelec. emission, spectral yield rel. to accelerating field, theory 1=18922
 photoelectric emission, review 3=19312
 photoelectric emission, theory 2=17870-1
 photoelectric internal effects 2=23445
 photoelectric internal effects 3=2967
 photoelectricity, effect of external elec. field 2=21185
 photoelectromagnetic effect meas., apparatus 3=7411
 photoelectromagnetic effect, stationary, theory 4=22799
 photoelectromagnetic effect, theory 2=23479
 photoelectromagnetic effect, theory 3=6637
 photoemission, effect of conduction type 1=13113
 photo-emission, law 3=7633
 photoemission from space-charge region, theory 2=2132
 photomagnetic e.m.f., edge effect removal 0=6132
 photomagnetic effect 0=15981
 photomagnetic effect, for complex energy bands 1=1101
 photomagnetic effect, monopolar, non-stationary 1=19912
 photomagnetic effect, monopolar, non-stationary 2=4073
 photomagnetic susceptibility meas. 2=9674
 photomagnetoelectric effect with gap gradient 3=17951
 photomagnetoelectric effect and photoconductivity 1=3794
 photomagnetothermal effect, theory 2=14523
 photothermal effect, theory 1=7634
 photovoltage at surface 0=18064
 photovoltaic oscillations 2=21187
 physical effects of radiations, review 4=20345
 piezoelectric, acoustic waves coupled to drifting carriers 4=20207
 piezoelectric, acoustoelectric effects 4=4133
 piezoelectric, acoustoelectric effects, rel. to frequency 3=10755
 piezoelectric, collective elastic wave propagn., freq. and temp. var., calc. 4=30516
 piezoelectric, current saturation, nonlinear theory 4=28542
 piezoelectric, elastic wave propag. 2=1220
 piezoelectric strain gauges and transducers 4=7058
 piezoelectric, ultrasonic amplification conditions, review 4=3988
 piezoelectric, V-I char., drift velo. carrier current saturation 4=26020
 piezoelectric, use in u.s. amplifiers 4=22488
 piezoresistance of diffused layers 3=10753
 piezoresistive effect and applications 0=6097
 piezosemiconductors, ultrasonic amplification, rel. to carrier drift 4=9848
 plasma, drifted, transverse e.m. wave propag. 3=17693
 plasma, electron-hole, collective behaviour, theory 1=19847
 plasma of gas discharge, comparison 2=1421

Semiconductors—contd

plasma, growing helical density waves 4=17406
 plasma, hole—electron, mag. moment, meas. and theory 4=4027
 plasma injection, volume-controlled two-carrier currents, theory 1=1036
 plasma instabilities, observation conditions 2=20977
 plasma model, recombination processes 0=2859
 plasma oscill., electron-hole, l.f. 3=15476
 plasma oscillations, coherent excitation 1=7565
 plasma oscillations and short range interactions 1=14420
 plasma phenomena 4=15464
 plasma, pinched, moving, Doppler effect, e.m. waves 3=17827
 plasmas, growing helical density waves 3=8504
 plasmas, helical instabilities, calc. 3=13051
 plasmas, helical instabilities, theory 3=8410
 plastic deform., review 2=16951
 polar, carrier plasma oscill., coupling with lattice vibr. 2=10319
 polar crystals, elementary excitations with spin-open background 2=10293
 polar crystal model, in crossed elec. and mag. fields, excitation Hamiltonian 1=892
 polar, elec. cond. and Hall effect, with carrier scatt. 0=580
 polar, elec. conductivity and thermoelec. power 2=6439
 polar, h.f. conductivity, freq. depend. 1=1029
 polar, lattice screening in 0=2868
 polar, many-valley, mobility and thermoelec. power 3=2871
 polar, optical phonon shock excitation by charge carriers 4=22525
 polar, Seebeck coeff., polaron model 1=14523
 polar semiconductors, electron mobility, conc. and temp. depend. 3=22912
 polyacrylonitrile, conducting mechanism 3=20341
 polymers, inorganic, Fermi states, calc. 3=20913
 potential distrib. meas., analogue method 3=17907
 potential distrib. in rectangular bar, for four-point probe meas. 4=22698
 powdered, photoconductivity using photodielectric effect 0=20924
 pressure effects on props., review 1=7630
 progress, book of review articles 0=20877-9
 progress, review articles 2=14513, 18670
 proton-neutron damage correl. 3=25308
 proton-neutron damage correl. 4=4090
 quantized system, in weakly dissipative medium 0=3459
 quantum mechanical model, recombination probability 0=1741
 radiation effects 0=20850
 radiation effects 2=21126
 radiation effects, review 4=30591
 radiation-induced defects 4=1535
 radiationless transitions, 2 harmonic oscillator wave-func., overlap integral 0=522
 radiative recombination, review 1=3746
 Raman effect, first-order lattice vibration, theory 3=25448
 rate of diffusion-limited annihilation of excess vacancies 0=2864
 recombination, capture cross-sections 0=4330
 recombination centres, capture cross-section, determ. method 2=23286
 recombination centres, characteristic parameters 1=17657
 recombination centres, inhomog. distrib. meas. 2=23344
 recombination centres, nonuniform distrib., photodiffusion effect 4=1674
 recombination coefficients, in Coulomb repulsion field, temp. depend. 0=15907
 recombination at defects, thermodynamics 1=19841
 recombination-generation noise, unified statistical approach 2=8311
 recombination, at impurity centres, capture coeff. 1=14404
 recombination, interband collisions 2=8314
 recombination through excited states, transient lifetime 3=20287
 recombination mechanism 3=22917
 recombination mechanism, exciton capture by impurity centres 4=9913
 recombination for photo-excitation from impurities 3=849

Semiconductors — contd

- recombination processes, by Auger effect, negligible influence 0=13590-1
- recombination processes, effect of excited multielectron centres 3=4910
- recombination processes through multielectron centres 3=10752
- recombination radiation, spontaneous and stimulated 4=6777
- recombination statist. for Auger effects 3=13090
- recombining carrier motion rel. to surface space-charge layer 2=23261
- refractive index dispersion near absorption edge 4=13002
- refractive index of films, effects of illumination 2=18793, 21227
- refractive index meas., polarization-photometric method 4=17545
- refractive index, oscill. in mag. field, in intrinsic absorption edge region 2=2220
- relation with giant molecules 2=6430
- relationship between, energetic, electrophysical and mechanical properties 0=573
- relaxation times meas. near 10^{-8} sec. 3=16885
- resistance meas. at high frequencies 4=17485
- resistivity and Hall const., meas. cit. analysis 0=19587
- resistivity meas., four-point probe 3=24160
- resistivity meas., four-probe, geom. factor calc. 4=1584
- resistivity meas., probe 2=21128
- resistivity meas., review of methods 2=14514
- resistivity meter, contactless 1=13049
- resistivity meter, non-contact 4=22701
- resistivity tensor, two-band, components 4=20341
- resonance tunnelling 4=4033
- Resource Letter, Scr-1 4=20340
- review of progress (book) 1=5007-8
- rhombohedral, electron excitation by phonons 2=21202
- screening, with many-valley electron spectrum 2=2133
- screw dislocations, elec. field and charge distrib. for thermal equil. 4=6846
- secondary-emission props. rel. to periodic system 2=5376, 7657
- Seebeck effect 0=20943
- Seebeck effect, anomalous, mechanism 2=16760
- Seebeck effect theory in plastically deformed materials 1=17807
- semiconductivity prediction rules for crystal lattices 0=11682
- semiconductor catalysts, theory 0=21267
- semiconductor-electrolyte space charge capacity meas. 2=18653
- semiconductor-metal contact effects, Johnson-Rahbek 4=12877
- semiconductor-non-aqueous electrolyte interface, electronic exchange 1=1483
- semimetals, magnetoresist. oscill. due to optical phonon scatt. 2=18639
- semimetals, u.s. amplification by e.m. fields 2=15683
- shallow impurity states and ioniz. energy 4=1573
- sheet resist. nonuniformities, four-point probe 4=22697
- sheet resistivity meas., using square four-point probe 0=15898
- Shubnikov-de Haas oscillations, rel. to spin 3=844
- slices, radial resist. gradient, correction factors 4=20350
- small injections, graphical data analysis 3=20279
- solids, photo-process fluctuations 2=8430
- space charge distrib. 4=22689
- space charge, field and potential distrib. 3=10757
- space-charge-lim. currents, rel. to saturated photo-currents 4=28637
- space charge limited currents with trapping 2=14524
- space-charge-limited currents, with traps 3=8503
- space charge region, equilibrium, rel. to low free carrier conc., theory 4=28550
- space charge regions 4=28547
- space-charge zones near surface, carrier motion 3=2859
- specific heat 4=12638
- specific resistance by h.f. method 0=2855
- spectra, i.r., and electron states and phonon spectra 3=15667
- spectra, intraband transitions absorpt. 4=22831
- stability of non-stoichiometric compounds 0=13516
- statistics of multi-level impurities 1=7631

Semiconductors—contd

- steady-state electronic processes, characteristic times 0=576
- steady-state injections in p-type, theory 3=10751
- strongly-doped, theory, interband transitions 4=6937
- structures, current-voltage relations 3=2880
- study of damping capacity 1=10206
- super-cell structure 1=1386
- superconducting, possibilities 4=18568
- superconductive transformation, necessary conditions 2=11552, 13502
- superconductivity in many-valley case 4=14513
- superconductor, semiconductor model, tunnelling effect 3=1894
- supersonic carrier drift, rel. to plasma sound wave generation theory 3=22915
- surface charge density at contact due to acceptor-donor bonds 4=7694
- surface charge, plots of functions for calc. 2=23300
- surface charge, potl. profiles in space-charge region 3=22913
- surface charge rel. to surface potential 3=13049
- surface cond., variation by adsorption, transverse elec. fields and irradiation 1=3738
- surface conductivity, potential, meas. 2=21116
- surface conductivity theory, boundary conditions 2=16691
- surface conductivity theory, relax. time energy depend. 2=16692
- surface effects on signals in waveguides 3=19454
- surface elastic waves 1=4400
- surface elec. props., mapping by electron "mirror" 1=17668
- surface electric field 1=5015
- surface energy, calc. for diamond and zinc blende structures 0=13467
- surface Fermi level, rel. to band gap, barriers 3=20134
- surface free carrier concentration 1=5015
- surface free-radical recomb., rel. to luminesc. 4=20476
- surface injection phenomena, graphical anal. 4=12876
- surface investigation, etching method 2=23910
- surface ionization, review 1=4567
- surface ionization, temp. depend., theory 4=26023
- surface layers, transverse impedance rel. to freqn. 3=13053
- surface local electron centres, optical props. 4=12741
- surface mobilities of minority and majority carriers, calc. 2=2134-5
- surface neutralization of incident ions, Auger-type, theory 1=7632
- surface phenomena, study by field effect 1=8931
- surface photovoltage rel. to optical absorption, minority carrier diffusion 2=2131
- surface potential, non-selective action of light 1=3788
- surface potential under metal contact, det. 1=8938
- surface properties, conference, Moscow (1961) 4=15528
- surface props., recomb. velocity rel. to transistor gain 2=4052
- surface props., review 1=6138
- surface props., review 2=10449, 12505
- surface recomb. at higher injection levels 4=26022
- surface recomb. rate, under nonsymmetrical boundary conditions 1=14416
- surface recombination centres, position of energy level 1=14399
- surface recombination change caused by sorption of water molecules 1=14398
- surface recombination in electron-bombard. induced conductivity 1=20028
- surface recombination at higher injection levels 4=30616
- surface recombination rate, stationary photocond., surface potl. depend. 1=1032
- surface recombination theory, rel. to internal transitions 2=10458, 14517
- surface recombination velo. validity criteria 4=22695
- surface recombination velocity, validity rel. to diffusion velocity 1=6143
- surface space-charge calc. 0=18006
- surface space charge curves 1=5015
- surface space-charge layers, current paths 1=3745
- surface state-majority carrier exchange kinetics 4=20348

Semiconductors—contd

- surface states, i.r. absorption from frustrated total internal reflections 2=6575
- surface states in one-dimensional crystals 1=7521-3
- surface states relax. 2=10450
- surface states, "slow", relaxation theory 2=10447
- surface states, theory 0=2878
- surface transport properties of filaments, theory 1=17647
- surface transport properties of filaments, theory 2=4001
- surface transport, in space-charge layers, theory 0=9955
- surface transport theory, review 1=3742
- surface transport and thermoelectric power 3=2858
- surfaces, conference 1=1028
- surfaces, gas adsorption 1=15181
- surfaces, prep. and props. 4=4136
- surfaces, purification methods 4=29173
- survey of outstanding problems 3=843
- synthesis, oxygen reactions, chem. potential series 3=3391
- thermal cond. meas. in mag. field 3=1850
- thermal cond., Onsager's theory 1=6077
- thermal conductivity, below λ -pt. of He, meas. and cal. 4=30531
- thermal conductivity considered from kinetic theory 0=8561
- thermal conductivity and heat capacity, meas. 1=4490
- thermal conductivity meas., Ångström method 2=22074
- thermal diffusivity meas. 0=11669
- thermal expansion, effect of impurities 3=17664
- thermal and thermoelec. props. non-stationary meas. method 2=16693
- thermally activated linear response functions 4=16062
- thermally stimulated current theory 0=15896
- thermionic electron emission from narrow energy band 4=27563
- thermionic emission, effect of electric field 1=14419-21
- thermionic emission, electrons and positive ions, laser induced 3=24333
- thermionic emission, time dependence 1=16370
- thermocathodes, work function 1=4632
- thermodynamic activity, and intrinsic ionization equilibrium 3=17836
- thermo-e.m.f. due to hot carriers, meas. 4=1696
- thermoelectric applications, review 2=5296
- thermoelectric efficiency, determination 1=14524
- thermoelectric emission in strong fields 2=21203
- thermoelectric emission in strong fields 3=2982
- thermoelectric figure of merit, variations 2=12549
- thermoelectric power, integrals evaluation 0=1690
- thermoelectric power, longitudinal, rel. to phonon drag 4=10138
- thermoelectric power, in mag. field, phonon relaxation 0=1692
- thermoelectric power, in quantizing magnetic field 2=4078, 6505
- thermoelectric props., meas. 0=1688
- thermoelectric refrigeration and generation 4=12996
- thermoelectric Seebeck coefficient, rapid meas. method 2=2139
- thermoelectric and thermomagnetic effects 4=22812
- thermoelectricity, figure of merit, impurity scatt. effect 0=1689
- thermoelectricity, for low mobility 3=25425
- thermoelectricity, two-band model, inner elec. field 0=20942
- thermoelement efficiency, effective masses and mobilities 0=3732
- thermoelements, carrier concn. optimization 4=10139
- thermogalvanomagnetic effects, quantum theory 4=28517
- thermomagnetic calculations and future devices 4=4135
- thermomagnetic figure of merit of two-band multivalley semicond. 4=22690
- thin films, absolute absorption coeff., thickness depend. 0=9951
- thin layers, Hall mobility and resistivity meas. 4=28552
- III-V, current instabilities in applied elec. field 4=26044
- III-V, current oscillations, microwave 4=4132
- III-V group, model using chemical bonds 4=4126
- toroidal isoenergetic surfaces, conditions 4=12690
- transient recombination from high injection levels, meas. using p-L-n structures 4=15529
- transition processes meas. by microwave techniques 4=1581

Semiconductors—contd

- transport, experimental, recent developments, review 3=10730
- transport in material with anisotropic mobilities 2=14520
- transport phenom. with non-equil. concns. 3=17841
- transport phenomena for low mobility 3=15562
- transport phenomena, low-temp., low mobility 4=1570
- transport phenomena in slightly ionized gases, theory and applications 0=8989
- transport phenomena, theory 1=17648
- transport phenomena theory 2=4015, 8326
- transport props. of added carriers, alternative derivation 1=11279
- transport props. of cubic semicond. with nonparabolic energy bands 4=28544
- transport props. of mixed valence semiconductors 4=22693
- transport theory, review 3=10731
- transport theory, survey of new techniques and ideas 2=23270
- transport theory, warped energy surfaces 3=20286
- transverse conductivity, in strong mag. field, considering inelastic electron scatt. 1=14418
- transverse mag. effects calc., weak-field approx. invalid 3=10754
- transverse magnetoelec. effect, in weak scatt. limit, quantum theory 0=2842
- transverse photomagnetic effect 1=11328
- trap energy distrib. from glow curves, theory 3=846
- trapped electrons, re-emission, role in photocond. rise theory 2=2189
- trapping level parameters in CdS-type, meas. 3=25231
- trapping and recombination, at many-electron centres, kinetics 1=1033
- tunnel effect, analogy with optical incomplete reflection 3=17837
- tunnel effect with impurity scattering 3=20291
- tunnelling, direct and phonon-assisted, theory 1=2404
- tunnelling, independent-particle viewpoint 1=10639
- tunnelling, interband, theory and effect of longit. mag. field 2=12413
- tunnelling between localized centres, rel. to internal field emission, theory 1=6134
- tunnelling, metal-insulator, effect of traps 4=6910
- tunnelling, multiphonon processes 2=23279
- tunnelling, theory 1=5010
- two-band, thermoelectric figure of merit, theoret. bound 3=17967
- two-carrier, concn. and mobility of charge carriers 0=15900
- two-carrier currents, volume-controlled 2=23228
- two-carrier currents, volume-controlled; injected plasma case, theory 1=1036
- two-carrier space-charge-limited current flow 0=2863
- II-IV and III-V cpds, Cu impurities, excited states 3=10810
- type and doping determination, i.r. techniques 2=8312
- u.s. amplification in crossed fields 3=12921
- u.s. attenuation in mag. field, calc. 0=13504
- u.s. attenuation in mag. field, Fermi velocity det. by high-field tilt effect, theory 0=20767
- U.S. Bureau of Standards work, review 2=18505
- u.s. excited, in mag. field, effect on charge carriers 0=9851
- u.s. propag. rel. to piezoelectricity and deform. potential 4=12626
- ultrapurification, conference, Boston (1961) 4=23319
- ultrasonic amplification in piezoelectrics by d.c. field 2=18784
- ultrasound amplification 4=22483
- ultraviolet reflection and critical points 2=21117
- uniaxial, birefringence, theory 0=2931
- vacuum boundary, image forces 0=17077
- valence band for holes, anisotropy in mag. field 4=6785
- valence, elec. cond., in strong elec. field, at low-temp. 2=23272
- valence type, conduction at low temp., in high fields 0=15913
- very degenerate, band structure, theory 3=10740
- Voigt effect, due to free carriers 3=6643
- Voigt effect for free carriers, theory 2=6548
- Voigt effect, theory and exptal. verification 1=3819
- volume-gradient effect 2=23262
- volume-gradient phenomena 1=17644
- volume recombination lifetime, meas. 1=14427

Semiconductors—contd

- "warm" electron effect in polar materials 2=14522
- warm electrons distrib. function, effect of $e-e$ interact. 3=8499
- warm electrons, variational treatment 0=18009
- wires, space-charge and pot. distrib. 2=6446
- work function, rel. to gas adsorption 2=22240
- work function and sec. electron emission 0=2374
- Zener breakdown and residual resistance 1=1021
- Zener breakdown, rel. to residual resistance 2=23275
- Zener tunnelling, in const. field 0=4332
- with zero energy barrier, equilb. props. 3=25333
- zone refining, automatic apparatus 0=16271
- O₂ chemisorption kinetics 4=20832

Series

- asymptotic expansions, from generalized series 3=9321
- Bessel functions, formulae 4=18025
- Bessel functions, large order, expansions of integrals 4=16014
- celestial mechanics, coordinates of unperturbed motion, convergence 3=23658
- Chandrasekhar's method for diffuse scattering problem, convergence 0=19003
- Fourier, associated with duty cycles 0=7063
- Fourier, hollow tube charge density integral solving technique 1=10659
- Fourier, summation by analogue computer 1=17984
- Fourier, von Eller optical synthesis machine, testing 1=16066
- generalized asymptotic series 3=3704
- interpolation, "ideal" concept for data coherence 2=9145
- Laplace, generalization to arb. powers and functions of distance 4=11022
- in multi-beam interference, anomalous divergence 0=2245
- related to hypergeom. functions F_1 and F_2 3=18688
- spherical harmonics, arb. functions, three-dim. addition theorem 4=11023
- summation, divergent, in time meas. 3=11668
- Taylor's, in zero-point energies calc. 3=12794
- two-centre expansion for powers of distance between two points 4=11024

Spherics

See Atmospheric

Shock tubes

(Heading introduced in 1963)

- rel. to attenuation of repeated shock waves 4=21226
- boundary layer flow, tracer study 3=7285
- boundary-layer separation and shock bifurcation detection 3=18903
- bursting-diaphragm, general-purpose 3=18902
- coupled to time-of-flight mass spectrometer 4=4691
- coaxial electromagnetic, acceleration mechanism 4=18334
- contact surface, origin of luminosity, gas mixing 4=29702
- with current crowbar, snowplough plough model 4=29700
- diaphragm disk scriber 4=18336
- discontinuity, gas behind, impurity ionization meas. 4=11291
- e.m., accel. and decel. of plasma 4=507
- e.m. driven, plasma cloud structure 4=18826
- e.m. driven, plasma luminosity 4=18827
- e.m., plasma prod. by shock, small amount 4=5289
- e.m., wave attenuation by radiative losses 3=1758
- 8 × 2 in., instrumentation 3=1763
- electric arc-driven 3=16702
- electric, precursor arc use 4=27251
- for electricity direct conversion, m.h.d. 4=18665
- electromagnetic, luminous front thickness 4=18842
- electromagnetic, origin of driving force 3=11859
- electron density fronts, obs. by n sec pulse technique 4=8313
- end-plate effects, at Mach 13 4=29701
- evacuation, wide aperture valve 4=27235
- explosion driven 3=7280
- flow nonuniformities, wall boundary layer effects, small perturbation effects 4=29697
- hot-flow length and testing time, viscosity effect 4=14263
- hydrodynamic tube, with liquid driven by gas 3=11858
- hydrogen, eqn. of state verification 4=18795
- hydromagnetic, mag. fld. investigation 4=8312
- ionization, chemical, study, with mass spectrometer 4=13713

Shock tubes—contd

- ionization probes use, design 3=1762
- Langmuir-type probes, for stagnation point meas. 4=29699
- m.h.d., "switch-on" shocks 4=14262
- magnetic, H, parasitic elec. discharges, contact/shock fronts coincidence, plasma luminescence 4=24305
- magnetic, with variable driving field, theory 3=202
- in microphone calibration, at high noise levels 4=14305
- plasma, discharge between coaxial cylinders, velo. meas. 3=14252
- plasma front velocity 4=18832
- plasma, non-equilib., electron-ion reaction rates 4=19058
- precursor photoionization 3=9550
- precursor waves 4=270
- pressure bar gauge, piezoelectric 4=29703
- propagation of shock waves in conical tube 4=18321
- quantitative spectroscopic studies 4=8410
- recombination rates of atoms, meas. 3=18905
- shock reflection obs., 0.1 μ sec risetime pressure gauge 4=16006
- spectroscopy, review and recent results 4=18335
- temperature meas., electron, double-probe meas. 4=2773
- temperature measurements in the OH⁺ π band system calc. 3=7281
- thermal decomp. study of tert-butyl cpds 4=15839
- transition from laminar to turbulent boundary layers 3=7283-4
- valve modification 4=18337
- velocity of gas flow behind discontinuity, var. 4=11290
- for wind tunnel, mixing chamber for combustion gases 4=21169
- CO₂ transmission meas., 1500°-3500°K, 4.25 μ 4=22373
- H₂O driven, pressure varn., deviation from theory 4=8311
- H₂O vapour condensation on walls 4=18496
- Ne I transition probab. meas. in e.m. T-type tube 4=19961
- T, luminous and shock front obs. 4=271
- T-shaped, plasma formation in side arm 4=5288
- Xe ionization, elec. cond. 4=14581

Shock waves

- See also Detonation; Explosions; Supersonic flow
- accelerated flames and detonations 0=8746
- acceleration, e.m., in constant-area duct 2=11402
- acceleration in plasma 3=18897
- acetylene-oxygen reaction, X-ray study 2=4531
- in acoustic wave propag. in non-linear medium 4=27261
- in acoustic wave propag. in viscous and heat cond., and relax. media 4=27259
- aerodynamic flow round obstacles, approx. calc. 4=14197
- aerodynamic two-dim. problems, finite difference system 4=14255
- aeroplanes, supersonic level flight prod. 0=992
- air, detonations 0=12457
- air, directed, meas. in sparks up to 60 kA 4=8660
- air, ionization and dissociation 1=2783
- air, ionization relaxation time meas. 4=448
- air, light emission 4=16172
- air, microwave attenuation 4=18333
- air, pressure distrib. in sand-packed tube 0=10686
- air, propagation of successive waves 2=9304
- in air, rarefied, formation, propag. 3=14251
- air, u.v. absorption behind wave 0=19211
- air, weak, reflection at acoustic absorbers 4=268
- applications, in gas mixture explosion studies 0=14110
- approximation of point detonation by spherical radiator 3=14248
- for arc, C, temp. meas. 3=19225
- Armco iron, elastic-plastic props. 3=9540
- in Armco iron, radiographic study 3=9549
- atmosphere, due to nuclear explosions 0=4770
- atmosphere, upper, weak m. h. d. propag. and mag. storms 4=7944-6
- atmospheres, gravitational, variations 4=17978
- atmospheric, due to nuclear explosions 4=20849
- atmospheric gases, relaxation theory 2=2756
- atmospheric, infrasonic, rel. to mag. storms 2=13078
- attached to a cone, analytical soln. 2=3142
- attenuation, in solids 0=8742
- axisymmetric, Newtonian flow approx. 2=15629
- bibliographical review 0=10631

Shock waves—contd

blast, calc. of rear temp. and radiation 4=24297
 blast pressure gauges with ferroelectric ceramic elements 4=21009
 blast scaling 1=1765
 blast-wave density gauge 4=2777
 blast waves, in conical tubes 0=10725
 blast waves in spherical, cylindrical and plane shocks 1=12911
 body of revolution, nose, pressures and temps. 3=197
 Boltzmann eqn. soln. using Burnett approach 3=14244
 Boltzmann eqn., using distrib. function formula 3=21478
 boundary-layer effects in shock tube 1=11779
 boundary layer interaction problems, upstream disturbance velocity 1=15935
 breakdown wave propagation, theory 3=1956
 brittle medium, on explosion, front 3=23970
 Burgers' equation, applications 1=6887
 in cavitation, origin, Rayleigh's theory, air content depend. 0=6860
 in cavitation, oscillatory 0=14598
 in chemical kinetics, use of reflected waves 3=13594
 chemical reaction effects, two Mach numbers for h.f., l.f. 4=16138
 in collision-free plasmas 3=12216
 collisionless, in plasma 1=18841
 comet atmospheres, interaction with solar corpuscular stream 4=10885
 comets, excited by solar particles, theory 3=9181
 compression, spherically symmetrical convergent 1=15937
 compression wave intensification, on interaction with flame front 0=14895
 conductivity discontinuity in originally non-conducting gas 1=19011
 conference, Gif-sur-Yvette (Autumn 1961) 2=15132
 conference, Paris (1963) 4=11507
 conical shock tubes, design and performance 1=4372
 conical supersonic flow, higher-order approx. 3=159
 constant strength, propagation, homentropic motion 0=6861
 as continuous wave-function, existence theorems 0=991
 continuum radiation from ionized inert gases 2=21931
 current sheet in plasma gun 2=7630
 curvature of shock fronts in shock tubes 3=18904
 curved, in conducting gas flows, in mag. field 4=29691
 converging spherical wave, stability 1=2779
 critical viscous sub-layer in boundary layer interaction 1=10533
 curvature and extent in argon shock tube 1=10536
 curvilinear, flows behind wave front 3=16697
 cyanogen, dissociation energy by X-ray densitometry 1=11131
 cylindrical, exact analytic soln. 3=3851
 cylindrical, magnetically driven 1=12914
 cylindrical, in mono- and diatomic gases, homology solution, numerical calc. 4=14254
 cylindrical, precursor electrons ahead 3=1759
 cylindrical shock-mag. field interaction, similarity soln. 2=7241
 cylindrical, spherical, in monatomic cond. fluids 3=21965
 damping, mag. fld. effect 4=11773
 decay, effect of inhomogeneity, theory 4=2768
 deflagration-to-detonation transition 0=6999
 demonstration 3=9546
 density measurement, interferometric, effect of high gradients 4=214
 density profile measuring instrument 1=8152
 detection by glow discharge probe 4=8314
 detection, pressure sensing probes 0=3583
 detonation, in dilute sprays 1=18458
 detonation front, in exploding O_2 - CO_2 mixtures 0=994
 detonation, gaseous, laminar, generation structure 3=18895
 detonation generated plasmas 1=12915
 detonation Mach, high velo. and press. 4=16176
 detonation pressure, by crusher rod compression 0=10351
 detonation process 0=103
 detonation, regular motion condition generalities 4=16175
 detonation vel., condensed explosives 3=20992
 detonation vel. rel. to front shape 2=17500
 detonation velocity rel. to front shape 3=3849

Shock waves—contd

detonation-wave propagation, "self-induction" 4=2775
 detonation wave, spinning and stability 1=18457
 detonation waves from conc. high explosives, parameter calc. 3=11853
 detonation waves in gaseous HN_3 , calc. of characteristics 3=3850
 detonation waves, Mach reflection 1=10538
 detonation waves, missile technique of study 2=9305
 detonation waves near hot boundary 3=18896
 detonation waves, oscillations, optical study 1=18456
 detonations, large rate parameters 3=21487
 diatomic gas behind, dissociation, impurity effect 4=30482
 differential equation reduced form system, continuous solns. 4=11292
 diffraction of oblique wave 3=21482
 diffraction of plane wave 3=21481
 diffraction of plane weak waves by contours of arbitrary shape 4=14257
 diffraction round contours of arb. shape 3=23972
 diffusion of ionized gas behind wave front 1=16275
 discharge pin, for transient event meas. 4=14258
 in discharges, in air and hydrogen, at 300 kc/s 1=4589
 as discontinuities in 1-dimens. gas flow 1=6882
 discontinuity conditions across fronts 4=21071
 discontinuity decay, in continuous medium 1=7057
 discontinuity propagation in sound waves 1=10537
 in dissipative fluid in unsteady flow 1=8149
 dissociation, behind wave front, change in gas parameters 1=2777
 dissociation of diatomic molecules behind shock front 0=14111
 through ducts of variable cross-section 0=10726
 e.m. driven, attenuation, radiative losses 3=1758
 e.m. field interaction 3=16945
 e.m., in gyromag. media 3=24466
 e.m. produced, luminous phenomenon, refl. study 3=23971
 e.m., in transmission line with unsaturated ferrite 4=21224
 e.m. wave refl. and refr., Fresnel formulae 4=3143
 elastic and electromagetic, combined 2=19645
 elastic precursor waves, decay 4=5278
 in elasto-plastic medium, plane propagation 4=21223
 electric discharge shock tube diagnostics of plasmas 1=5475
 electrically driven, microwave studies 3=21488
 electrically excited, velocity 0=7210
 electrically produced, interaction with mag. field 2=1190
 electrodynamic excitation procedure 3=1757
 electromagnetically driven, luminosity behind, origin 3=7282
 electron distrib. in shock tubes 1=18817
 electron-driven, theory 1=10540
 electrostatic, in zero-temp. plasma 0=12620-1
 emission of Na_2 bands behind shock fronts 0=5946
 entropy and velocity 0=2203
 equation of state adiabatic discontinuity sign at melting 4=18491
 examination, by streak interferometry 0=3642
 excited atom distrib., radiation meas. 3=14243
 exosphere, hydromagnetic, propagation 4=23776
 exosphere, outer, hyperwaves 2=13053
 in exploding gas, study using multibeam cathode-ray tube 1=324
 exploding wire, streak interf. obs., two wavelength, temps., electron conc. 3=18900
 from exploding wires, review. 3=199
 explosion, elec. cond. in wave-front 0=7061
 explosion-generated, finite difference net 4=16169
 explosion of ionized air channel 3=4124
 explosions, confinement by gas boundary 2=4542
 in explosions under water 1=1790
 Fermi-Dirac gas 0=8693
 in fissionable gas, by neutron irradiation 4=18332
 flame propagation, in rough tubes prior to detonation 0=10809
 flow behind, rel. to Rayleigh problem 2=20126
 flow behind, supersonic, 2-dimensional steady 1=18453
 flow duration in l.p. shock tubes 1=165
 flow of gas around blunt body, delayed vibration excitation 4=18227

Shock waves—contd

flow, hot, 1 in. diam. tube, duration 2=19600
 flow, in magnetic annular shock tube 0=1195
 flow meas. in shock tubes using fine unheated wires 1=2786
 flow mechanism, shock tube study 1=8150
 flow round point-fronted bodies, numerical calc. 4=14256
 in fluid, prod. by explosion 1=18380
 in fluids, 4 theorems for possible flows 4=2978
 fluids, perfect, shock equations, correction terms 0=10730
 formation in expanding gas jets 2=11404
 formation, and 1st and 2nd order discontinuity propagation 3=21483-4
 formation from self-excited oscillations in closed pipe 4=5281
 formation in Laval nozzles 4=8309
 formatn., weak disturb. reflectn. from sonic line. 3=196
 formatn. weak disturb. reflectn. from sonic line 3=5489
 in 446 cm electrically driven tube 4=24304
 four shock configuration 2=11399
 free radicals, flash absorption spectroscopy 0=17760
 gas, conducting, in crossed elec. and mag fields 2=3146
 gas density, meas. rel. to Mach number, by electron beam method 4=14259
 gas dynamic—mol. flow transition, review 4=11296
 gas flow behind, oscillatory equilb. attainment 2=19599
 gas flow next to wave, boundary-layer theory 2=17499
 gas flow temp. 2=9309
 in gas, interaction of plane waves 4=18346
 gas, internal relaxation or zero energy reactions, shock wave 3=23921
 gas ionization, in e.m. field, piston problem 0=3842
 gas, monatomic, smoothing-out, asymptotic law 2=13359
 gas monoatomic, smoothing-out asymptotic law 3=5488
 gas, non-monotonic changes behind front 4=18343
 gas, polytropic, flow, straight-line characteristics 2=21932
 gas, radiation, cooling after shock heating 4=18482
 gas-shock luminosity against transparent surfaces, extinction 4=11295
 gas, ultrarelativistic, attenuation, interact. with rarefaction wave 2=21942
 gas, ultrarelativistic; attenuation, interact. with rarefaction wave 3=7236
 gas of variable density, reflection 2=19595
 gases, attenuation of guided waves 4=21226
 gases, detonation wave velocity meas. 3=198
 gases, electron-driven, theory 2=5044-5
 gases, ideal, finite diff. calc. far from explosion 4=18345
 in gases, plane, homology soln. numerical calc. 4=18342
 gases, real, ideal analogy 0=12454
 in gases, 700-kbar, Mach reflection 2=5046
 gases, with variable sp. ht., parameters behind shock front 0=8740
 gases, viscous and heat-conducting, hyper-sonic flow. 3=160
 gasomagnetic waves, density jumps, velocity, collision pressures 1=13167
 generation by flame in explosive gas 4=5294
 glass, meas. with resist. transducer, 100-200 kbar 4=21225
 gradients, behind shock, in 3-dimens. gas flow 4=29692
 granite, meas. with resist. transducer, 100-200 kbar 4=21225
 in gravitational fields 0=10590
 gravitational waves, general propag. law 1=1683
 heat exchange and gas dynamics, conference 4=8230
 heat gauge records, interpretation 1=11781
 in heterogeneous atmosphere, energy density and temp. behind front 4=8315
 hexogene crystals, velocities and effects 0=16776
 high-intensity stress pulses, meas. 0=5086
 high-speed, in magnetic annular shock tube 0=1194
 homology parameter calc. for high Mach number 3=9544
 hydrocarbon—air mixtures, self-ignition 1=12916
 hydrodynamic eqns., relativistic, unsteady, in Minkowski space 2=15470, 19415
 in hydrogen plasma, elec. cond. meas. 2=19934
 hydromagnetic, "collision-free" rel. to turbulence 3=7540
 hydromagnetic, growth, effect of transverse mag. field 1=13169
 hydromagnetic, in linear pinch discharge 1=16336

Shock waves—contd

hydromagnetic shock propagation in inhomogeneous gases 1=10774
 hydromagnetic, with transverse field and viscous dissipation, structure 3=11855
 hydromagnetic, Varenna lectures 1=5438
 hydroxyl radicals, kinetics 0=6408
 hypersonic, electron and particle densities behind 0=16775
 hypersonic flow past slender cone 4=18228
 in hypersonic gun tunnel 0=4976
 hypersonic shock layer, m.h.d. support 3=18901
 hypersonic waves, density meas. using β -rays 2=64
 hypersonic wind tunnel, spectral meas. of stagnation temp. 1=13015
 hypervelocity wave phenomena, in condensed explosives 0=16378
 ideal gases, absence of temperature gradient 3=16696
 impact, metal, hypervelocity 3=21486
 impact point of falling body det. 0=912
 in inert gas, alkali smoke seed effects 4=29679
 in inhomogeneous gravitating gases, propagation, Chisnell's method 1=2780
 initiation of PETN explosive by plane wave 1=11621
 instability, anisotropic, collisionless wave in rarefied plasma in mag. field 3=16930
 interaction with e.m. field 0=19911
 interaction with flame fronts 0=12105
 interaction with gas flows carrying small particles 4=18338
 interaction in gases, Ar—air obs. 4=21227
 interactions, triple, Mach effect, theory 3=3847
 interferometer profile determ., e.m. waves, Fabry—Perot 3=21479
 interferometer studies, modified double-slit apparatus 1=2781
 interplanetary space, rel. to SC mag. storms 2=15282
 in interstellar gas, from ionization fronts 1=2586
 in interstellar gas, from ionization fronts 1=2587
 interstellar space, cumulative 4=29417
 ionization equilibrium behind front in atomic gas 4=18330
 ionization behind, kinetics 3=19169
 ionization, precursor, calc. 4=269
 ionization, rear, ionizing rad. effects 4=18329
 ionized fluid, compressible, hydromagnetic wave propagation 0=11030
 in ionized gases, attached, stationary 1=5569
 in ionized gases, magnetically driven 3=7278
 ionizing cylind. shock in transverse mag. field 4=8918
 ionizing, slow, internal struct., computer calc. 4=18325
 ionizing, structure in mag. field 2=13357
 ionosphere, vertically travelling, due to nuclear explosions 0=16773
 in iron and steel, rarefaction 2=2758
 in iron and steel, rarefaction 3=3852
 isentropic fluid, development from finite-ampl. waves 4=14253
 jets, supersonic, gas mixture separation 0=16726
 jump conditions, effect of ionization 4=16174
 laminar—turbulence change in boundary 4=24298
 laminar and turbulence theories in mag. field 3=21844
 large-amplitude waves in tubes, schlieren study 1=8153
 layers, detached, radiation—convection coupling 2=9300
 leading edge of shock-induced boundary layer 3=1753
 light emission from compressed gas layers 4=18324
 light emission, under cosmic condition 2=62
 liquids, e. m. produced, front thickness meas. from acoustic freq. spectrum 4=24300
 liquids, photography of, with compressed A flash source 0=19127
 in liquids, shock-front thickness from acoustic spectrum 4=5290
 longitudinal in plasma columns 3=7530
 longitudinal, quasi-transverse, in elastoplastic medium 3=1749
 low-pressure, test time reduction 3=21492
 luminosity behind waves in Xe 1=15938-9
 luminous, by electrical discharges at low pressures 1=6888
 luminous phenomena, in e.m. shock tubes, interpretation 3=16701

Shock waves—contd

- luminous radiation, recording with coaxial photocells 2=1935
- luminous and shock front obs., in T-tube 4=271
- Mach reflection of detonation waves in solid V.V. 1=15942
- Mach reflection, 3-shock config. 4=29689
- Mach stems, equilib. props 4=24306
- mag. field moving in shock tube, attenuation 1=3050
- magnetic annular shock tube, deviation from one-dimensional model 3=2100
- magnetic field, transverse, effects on gas spectra 4=24307
- magnetic, in plasma 3=7529
- magnetic storms, first phase, theory 1=6655
- magnetically driven, collisions 4=18829
- magnetoacoustic, generated by moving piston, in cond. fluid 0=1190
- magneto-fluid dynamical, review 4=11778
- magneto-gas-dynamic in variable-conductivity gas, eqns. 2=16006
- magneto-gas dynamics 1=5571
- magnetogasdynamics 3=12305
- magnetohydrodynamic 1=10779
- magnetohydrodynamic 1=16531
- magnetohydrodynamic, appl. of Zemplen's theorem 2=22314
- magnetohydrodynamic, collision-free struct. 3=2107
- magnetohydrodynamic, in conducting medium 4=30038
- magnetohydrodynamic, cylindrical, flow analysis 1=7139
- magnetohydrodynamic, cylindrically converging, influence of external short-circuit rings 4=16171
- magnetohydrodynamic, evolutionary conditions 3=7691
- magnetohydrodynamic, from expansion of piston 3=21776
- m.h.d., Fermi acceleration of particles 3=9910
- m. h. d. flow similarity parameters 4=27630
- magnetohydrodynamic flow of weakly dissipative fluids, finite conductivity 3=18893
- magnetohydrodynamic, in gas with anisotropic conductivity 2=19598
- m.h.d. in gas with anisotropic conductivity, structure 4=11293
- magnetohydrodynamic, gas ionization, e.m. frontal waves 0=1197
- magnetohydrodynamic, gas-ionizing 1=5570
- Magnetohydrodynamic, in gas mixtures, non-relativistic propag. 1=1971
- magnetohydrodynamic, inclined, structure 2=16003
- magnetohydrodynamic, inclined wave-front wave, velocity nomograph 0=11033
- magnetohydrodynamic interaction 4=24808
- magnetohydrodynamic, interaction with e.m. field 1=5542
- magnetohydrodynamic, isothermal 0=15132
- magnetohydrodynamic, with Joule dissipation, permanent structure 1=560-1
- magnetohydrodynamic, low-intensity, structure 1=4712
- magnetohydrodynamic medium, ionizing waves, theory 2=1576
- magnetohydrodynamic, non-evolutional, disintegration 2=11776, 22317
- magnetohydrodynamic, non-progressive, disruption 2=11777, 13666
- magnetohydrodynamic, 1-dimensional relativistic 0=11028
- magnetohydrodynamic, in partially ionized plasma, structure 0=11034
- magnetohydrodynamic, in a plasma 1=5453
- m. h. d. pre-heated inverse pinch, obs. 4=14261
- magnetohydrodynamic, rel. to plasma prodn. 3=7684
- magnetohydrodynamic, point explosion, in inf. cond. gas 0=2432
- magnetohydrodynamic, preionization effects 4=29695
- magnetohydrodynamic, proofs of four basic props. 0=15133
- magnetohydrodynamic propagation in non-uniform ducts 4=5769
- magnetohydrodynamic, propagation theory 2=9704
- magnetohydrodynamic rarefaction waves, impossibility of existence 1=12013
- magnetohydrodynamic, reflection and refraction, experimental data 2=1577
- m. h. d., relativistic 4=18322
- magnetohydrodynamic, review of theory 1=9680
- magnetohydrodynamic shock front, width, effect of electron inertia 4=16642
- m.h.d. shock structure, in partially ionized gas 4=18323

Shock waves—contd

- magnetohydrodynamic, stationary, in neighbourhood of Alfvén velocity 4=16641
- magnetohydrodynamic, steady 1-dimens. flow, fast and slow shocks 3=17041
- magnetohydrodynamic structure, steady-state 3=2106
- magnetohydrodynamic, theory 4=18834
- magnetohydrodynamic transonic flow 2=20123
- magnetohydrodynamic, unstable, multi-wave disintegration 0=9177
- magnetohydrodynamic, viscous flow 2=22313
- in magnetohydrodynamics 1=5568
- in magnetohydrodynamics, anisotropic relativistic case 3=24453
- in magnetosphere, rel. to ring current establishment 2=13076
- marble, transmitted from aluminium 0=3585
- mass spectrometry study of reacting gas 1=11617
- mass spectrometry study of reacting gas 1=11618
- mean-free-path definition in Mott-Smith solution 1=10534
- measurement of conditions on both sides by stationary probe 4=24209
- measurement, use of microwaves and probe sampling 4=27250
- measurement of thickness, by electron beam transmission 4=24301
- measurements, effect of test-generator distance 3=7273
- metal film thermometers study, amplifier 2=5259
- metal, heated by high-density current pulses 2=5205
- metals, thermodynamic description 3=9547
- metals, wave and material velocities 0=6010
- mixture, two-component, entropy of relaxation 2=9301
- molecular bands, intensity meas. at high temps. 4=3871
- molecular rotations excitation 2=21933
- molecules, stable monatomic, structure 2=2752
- in monatomic gas, structure, kinetic theory 1=18452
- motion along a mag. field 1=19012
- Mott-Smith distribution function extension 4=11297
- nitromethane, velocities and effects 0=16776
- non-Hugoniot, weak, structure 3=16694
- nonequilibrium phenomena, survey 3=16695
- in non-ideal gas, shock front discontinuity 1=1764
- non-ionizing, microwave study in gaseous plasmas 1=15932
- nonlinear oscillations, thermally driven in a pipe 4=5280
- non-stationary, plane, time varying total energy 2=11400
- nonuniform propagation 3=18898
- nonuniform gas, due to short plane explosion at low density 4=11284
- normal, rel. to blunt-body flow 3=5457
- nose cone travelling in mod. rarefied atmosphere, shock layer flow 4=11288
- in nozzles, during super- to subsonic transitions 1=18444
- in nozzles, during super- to subsonic transitions 2=21928
- nuclear explosion, rel. to γ -ray dosage 1=16727
- oblique in hydromagnetics 1=5561
- one-dimensional detonations, anal. 0=14109
- optical analogue 4=18311
- origin at "weak" interfaces between media 0=5084
- passage through magnetic field 1=5549
- perfect fluids with infinite conductivity 4=8310
- perfect gas, 1-dimens. propagation 1=15912
- perfect gas, structure, refl. and refr. 2=13358
- in perfect gas with Sutherland viscosity law, hypersonic approx. 3=11854
- perfectly conducting gas, allowable configurations 2=3144
- periodic, in resonating gas columns 0=14730
- PETN and TNT detonation initiation 2=10978
- photography, ultrahigh-speed camera 3=3904
- physical equivalents of spectral notions 0=5102
- pinch instability in plasma 1=18886
- pinch instability in plasma 2=22223
- in piston-driven gas 1=8148
- piston movement in ideal heat-conducting gas 4=16139
- piston moving in ideal gas, in mag. field, fast and slow waves 1=556
- on pistons, energy transfer 1=4371
- from plane pressure pulses in liquids 2=21930
- plane shock layer, structure, kinetic model 3=1754

Shock waves—contd

plane, step, stability calc. by normal-modes
method 4=27252
in plasma, in absence of particle collisions 1=11934
plasma acceleration between coaxial electrodes 2=1457
plasma, acceleration in presence of spark
discharge 2=9587
in plasma, bimodal distrib. 3=21489
plasma, Chew-Goldberger-Low approx. 0=9163
plasma, collisionless, in mag. field 4=5609
plasma, collisionless, in weak mag. field 3=12132
plasma collisions 0=12605
plasma columns, unpinch geometries 3=1991
in plasma, compressed by azimuthal currents 3=7564
in plasma, converging, theory 3=12218
plasma, converging cylindrical, front struct. 4=18841
plasma, cylindrical, from explosion 4=27524
plasma, diffusion effects 0=10905
plasma, diffusion effects 2=3033
in plasma, discontinuous flow 4=14649
plasma dynamic pinch, shock model 1=9585
in plasma, electron temp. 2=198
plasma, electron velocity distrib., kinetic
theory 4=8761
in plasma generation in collapsing cylindrical
shell 3=12219
plasma generator, jet, structure 3=9809
in plasma guns 1=11777
plasma, high-temp., dense 2=7601
plasma, high-temp., dense 3=5661
in plasma, low density, inclined to mag.
field 4=11607
plasma, mag. props. behind 2=9586
plasma, microwave refl. coeff. rel. to electron density,
collision freq. and cyclotron freq. 4=14663
in plasma, nonisothermal 1=18853
in plasma pinch, linear, collisionless 3=14586
in plasma pinch, linear, unstabilized, preceding
snowplough 4=18836
in plasma, producing particle acceleration 2=186
plasma, radio emission 0=10480
in plasma, rarefied, moving across mag. field, stability
of structure 4=8697
plasma, rarefied, wave-front fine-structure 2=15917
in plasma, from streaming instability 1=5442
in plasma, strong waves, similarity solution 3=7542
in plasma, strong waves in transverse mag. field 3=7541
plasma, struct. in mag. field 4=18838-9
plasma, struct., numerical integration 4=18840
in plasma, structure, for collisional dissipation and
electron beam instability 4=18837
plasma shock structure in longitudinal mag.
field 1=9567
in plasma, transient pinched 3=19263
in plasma, two-fluid model 3=1973
plasma wave phenomenon, fast dynamical 3=1955
in plasmas, weak shock structure, theory 2=5344
plasma, weak waves, structure 3=1980
plasma without collisions, laminar theory 4=18833
plasmas, collisionless, shock-wave
model 1=8328
plastic, in infinite isotropic medium 2=4319
plastic media 0=993, 12452
plastic medium, rate-sensitive, stress-wave
propag. 4=8299
from point-explosion, in compressible medium, self-
similar solutions 1=1474
in point explosion, in gravitating continuous-
medium 2=939
in porous materials, velo. formula 4=21222
pressure changes meas. using piezo cell 2=19502
pressure meas., BaTiO₃ gauges, design and character-
istics 0=16065
pressure meas. using high-press. transducer 4=2515
pressure shocks in viscous conducting gases 1=10535
produced by pulse microwave discharges 4=477
production by exploding Cu wires 1=10693
production by plasma accel. in discharges 1=18840
production by projectiles from helium gun 1=9090
production, in spark gaps 4=266
propag. of strong discontinuities in multi-component
medium 1=15940

Shock waves—contd

propagation, basic concepts and relations, elementary
discussion 1=15933
propagation, calc. method 0=19278
propagation in detonated compressible matter 1=15934
propagation in detonated compressible matter 1=11776
propagation, developments, conference 3=11675
propagation, due to point detonation 0=6863
propagation, into earth 0=19280
propagation, to earth from falling body 0=57
propagation in elec. and mag. fields rel. to e.m.
wave excitation 2=17954
propagation in a heat-conducting gas 3=18899
propagation in homogeneous media, second-order
approx. 2=1181
propagation in hydrodynamic conical shock
tube 4=18321
propagation in inhomogeneous gases: hydromagnetic
shocks 1=10774
propagation in inhomogeneous gases, spherical
waves 1=18455
propagation in inhomogeneous medium 3=3848
propagation inside stars 3=23692
propagation of intense shock waves into the earth 1=6584
propagation at moderate strength, theory 3=14249
propagation in moving medium 1=15941
propagation in perfect conductors in mag. field 2=5047
propagation, qualitative differences from linear
waves. 3=200
propagation in side arm of T-shaped shock
tube 4=5288
propagation, simult. difference eqns. 1=5292
propagation in solids and compactible
media 3=11856
propagation, in solids, theory 0=12453
propagation in stellar envelopes 1=15508
propagation in strong spark discharges, theory 1=18785
propagation in switching tubes by microwave
pulses 3=3846
propagation in transverse magnetic field 4=19184
propagation velocity, spatial variation 2=16005
radiation in air at high altitudes 2=1180
radiation heat transfer meas. at supersatellite
speeds 4=14260
radiation intensity, before shock-wave emergence 3=21480
radiation-magneto-gas dynamics 1=16543
with radiation, structure 4=29688
radiation-resisted shocks, analytic soln. 3=1761
radiation-resisted, structure predictions 3=18894
radiative processes 0=10728
radio emission from plasma shock waves 2=20137
rarefied gas, hypersonic flow, compressible viscous
layer 2=2743
in rarefied gases, thickness, by two-fluid model 2=2751
in real gas dynamics, theory 4=2767
rear gas state calc. 4=16170
re-entering rocket, shock layer, electron density 2=2755
reflected, density measurements 1=8151
reflected, end-wall heat-transfer effects, on
trajectory 4=29696
reflected-shock technique for fast chem. reactions 0=16377
reflection, at Mach 13, end-plate
effect 4=29701
reflection, oblique, calc. 4=2765
reflection in perfectly conducting gas 1=19010
reflection and refraction 0=986, 6872
reflection, of strong point-source blast waves 4=29690
reflection, at 2-media interface, oblique incidence 0=8743
refraction, at gas interface 0=12456
use in refractive index meas. 1=16065
use in refractive index meas. 1=18577
in relativistic fluid 4=5279
in relativistic magnetohydrodynamics 1=19013
relativistic, strong, density compression ratio 0=16771
relativistic theory 0=19277
relaxation phenomena in gases, shock tube method 2=15649
in relaxing gas, unsteady propagation 1=18454
in relaxing media, propag. 2=21943
resonator on shock platform 3=14247
review 0=2202
review of importance in magnetohydrodynamics 4=2766
review, theory 3=18892

Shock waves—contd

rocket explosion, study of upper atmosphere 1=20879
 in rubber beams 1=1780
 sand, impact cratering with bullets, model 1=18335
 seawater, spherical explosion, implosive phase 2=9306
 self-similar motion of ultrarelativistic gas 1=6875
 self-similar motion of ultra-relativistic gas 1=10528
 semi-infinite elastic solid, stress field produced by
 bomb blast at surface 0=19279
 shape and parameters, by explosion, in non-uniform
 medium 3=21485
 shock front discontinuities, theory 2=19594
 shock front formation in materials 1=168
 shock front structure and reflectivity in 9 gases 1=167
 shock front thickness meas. 0=16774
 shock surface rel. to streamlines 1=15936
 shock tube, AERE, 8 x 2 in., design, instrumentation
 and performance 2=19602
 shock-tube boundary layers, turbulence
 transition 2=9302
 shock-tube bursting, rel. to impulses, erosion, tube
 material, pressure 2=23782
 shock tube, e.m., for low attenuation 2=17498
 shock tube, electronically-driven, magnetically-
 insulated 1=6890
 shock-tube end-plate heat gauge records 2=21934
 shock-tube flows, testing time and contact-zone
 phenomena 2=1187
 shock tube with integrated-schlieren instrumentation,
 A, He and CO₂ 2=7244
 shock tube, ionization causing resistance-gauge
 shorting 0=2274
 shock tube, mag. annular, current distrib. 2=13362
 shock-tube, magnetically driven, electron and ion
 temps. 2=9308
 shock tube, 17 in. diameter, for rarefied gas
 dynamics 2=15632
 shock tube spectroscopy, hydrodynamic aspects 1=170
 shock tube technique for det. O₂ dissociation
 rates 1=4926
 shock tube technique for det. O₂ vibration
 relaxation 1=4925
 shock tubes, applications 2=19603
 shock tubes, book 1=18459
 shock tubes, design and operation, review 2=19604
 shock tubes, with diaphragm near divergent nozzle,
 wave diagrams 2=2760
 shock tubes, effect of boundary-layer growth of
 reflection 2=1188
 shock tubes, electrical, time for ion heating, calc. 1=10540
 shock tubes, gas cond. and boundary layer thickness
 meas. freq. modulation circuit 2=13521
 shock tubes, gas dynamic processes, investigation 2=9309
 shock tubes, heat transfer, thermometer meas. 2=5049
 shock tubes, ionization, origin 1=18460
 shock tubes, microwave technique appl. to
 ionization 3=1934
 shock-tunnel driver, equil.-interface technique 2=15631
 small-intensity, existence, in ordinary and m.h.d.
 systems 4=267
 smoothing by radiative transfer, mag. field
 effect 4=5285
 solar chromospheric, rel. to energy balance 2=979
 solar corona and chromosphere propagation 2=2537
 solar corona, rel. to temperature 2=13131
 in solar flares, rel. to cosmic ray generation 1=18089
 in solid bodies, oblique collision, irregular
 conditions 2=2759
 in solid bodies, oblique collision, irregular
 conditions 3=1756
 solid, opaque, shock front position meas. 4=27253
 solids, anelastic, review 3=21477
 solids, initiated by high explosives or impacts 0=14729
 in solids, interatomic, focusing 2=6400
 in solids and liquids, compressibility data from X-ray
 study 2=12847
 solids, mechanical response to extreme e.m.
 radiation 2=11398
 sonic-boom ground-pressure signatures 4=4778
 spark channel decay after current passage 3=9748
 from spark-channel expansion 0=5285
 spark channel heating 3=21740
 from spark channels, in liquids 0=15002

Shock waves—contd

spark discharges, strong, velocity theory 1=18787
 in spark discharges in T shaped tubes 1=18786
 spectra, effect of shock-machine loading 3=201
 spectroscopic investigation of gas behind wave 0=19212-3
 spectroscopic temp. meas., in shock tube 0=12455
 spectroscopy, temp., relax., line shape, transition 4=2831
 speed meas. by streak camera 4=24303
 speed of propagation, luminous fronts in shock
 tubes 2=7245
 sphere in hypersonic flow, shock layer about stagnation
 region, viscous flow 0=14671
 spherical BaTiO₃ pressure transducer, for meas. in
 air 0=130
 spherical blast, in free space, similarity soln. 0=2204
 from spherical cavities in materials strained
 beyond the elastic limit 3=7279
 spherically symmetrical, in general relativity 4=5042
 stability, hydrodynamic, of detonation waves 2=11403
 stability of ripples in plane front 4=5292-3
 stability of step shocks 3=1760
 stable and transient, in solid cast explosives 0=3584
 star interview, due to explosion, energy
 transfer 4=13895
 in stars, front-to-back ratios 3=23690
 stars, loss of mass 2=2539
 stars, red giant type 1=18451
 stationary detonation zones, in toroidal tubes 0=6398
 in stationary magnetogas flows, 1-dimens. and quasi-
 1 dimens. 0=19913
 stationary strong waves, new approach 1=11772
 stellar atmosphere, inhomogeneous 3=3602
 stellar atmosphere, mechanical decay 2=9093
 in stellar atmosphere, radiative cooling 2=4813
 in stellar atmospheres 2=2544, 11097
 stellar atmospheres, dissipation theory 3=9235
 Stellar atmospheres, shock wave decay 1=1654
 stellar atmospheres, stationary wave propag. 3=5263
 stellar chromosphere heating 0=18858
 in stellar envelopes 0=18856
 stellar explosions, rel. to interior 2=17288
 in stellar interior, calc. method 2=21722
 stellar interiors, propag., computer eval. 2=15369
 in stellar interiors, spherical wave propagation 1=18455
 stiffening and freezing-in, for elec. discharge in
 liquid 4=5287
 striations, as plasma-acoustic waves 3=19211
 strong pressure wave amplitude meas., piezophotographic
 method 4=24302
 structure, bimodal model 0=10729
 structure, Boltzmann equation 0=16770
 structure, kinetic theory solutions 4=27248
 structure, low-intensity waves, in relativistic
 hydrodynamics 0=10732
 structure, plane, steady in H plasma 0=17021
 structure in relaxing diatomic gas 2=2754
 structure, in simple discrete velocity gas 4=29693
 subsonic flow, with normal shock wave at near-critical
 Mach number 0=19185
 successive waves 1=12913
 sun, corona, heating theory, mag. field effect 4=13936
 in supernovae, cosmic-ray production 0=17437
 from supersonic flight, noise prodn. 3=14245
 supersonic flow past delta wing 3=162
 supersonic turbulence, theory, review 4=8308
 T-tube, flow behind shockfront 4=18831
 TNT explosion, air vel. in blast waves 4=24308
 tail, in supersonic flight 4=29659
 temp. meas. in the reflected wave region using
 OH²Σ → ²Π band 4=2770
 temp. meas., by spectrum-line reversal 0=8744-14732
 temp. meas., behind wave, using Na D-lines 0=10727
 temp. behind wave 0=973
 temperature behind front, third-order eqn. 4=11289
 temperature of boundary, with thin metal films 2=7242
 for temperature meas., arcs, C 3=19225
 temperature meas. by spectrum-line reversal 1=15943
 temperature meas. by spectral-line reversal 3=14246
 temperature meas., OH rot. 4=2771
 temperature of plasma, X-band meas. 2=7243
 temperature variation behind attenuating waves, theory
 and expt. 4=18344

Shock waves—contd

termination of supersonic zone in transonic flow 1=6886
 in thunder, force calc., on hydrodynamic model 1=20866
 transfer equation, collision integral 4=2764
 transverse mag.-field effects 2=7180
 triggering of combustion in liquids 1=4500
 triple interaction calc. for White's exptl. composition 4=24306
 trotyl, cast, velocities and effects 0=16776
 tube diaphragm, bursting by blades 2=1186
 tube discontinuity, gas behind, impurity ionization meas. 4=11791
 tube experiments involving phase changes 2=15633
 tube narrowing and grid effects, 1-dimens., theory 0=5085
 tubes, effect of orifice plates, theory 2=11407
 tubes, with electron driver gas 1=2785
 tubes, low-density, in chemical kinetics 1=2783
 tubes, wave diagrams, for diaphragm near divergent nozzle 2=2760
 two-dimensional flow, numerical method 2=11401
 two-fluid model 1=11775
 two-fluid model, Boltzmann eqns., solution 2=9303
 two-wave shock structures in polycrystalline ferroelectrics 1=11778
 two-wave structure in ferroelectric ceramics 2=14641
 u.v. radiation analysis 3=7274
 from underwater exploded charges, energy per unit-area spectrum 4=23720
 from underwater explosion, refraction by velocity gradient 1=6889
 underwater, reflection from overlying ice layer 4=15864
 unsteady, flows behind, existence and uniqueness 2=11405
 in upper atmosphere, vertical, by nuclear explosions 2=6933
 velo. meas., plasma discharge between coaxial cylinders 3=14252
 velocity in elec. arc 3=16920
 velocity, meas. by multiple flash gas 3=7275
 velocity, meas. by photoelec. method 4=29698
 velocity meas. with photomultipliers 4=2772
 vibrational relax., calc. 3=23969
 visible precursor radiation in e.m. tubes 1=12917
 water, detonation pressure and eqn. of state 3=1751
 in water, electric-spark induced 1=5430
 waveform, derivation from hydrodynamics eqns. 2=9248
 wavefronts in He shock tube 2=5048
 wave-fronts in mag. field, effect of elec. cond. anisotropy 0=9178
 weak waves, nonlinear reflection 1=8155
 at wedge, detachment, Hugoniot curve 1=5293
 at wedge, shock-front attachment conditions 0=9179
 A, due to exploding Cu wire, mechanisms 2=19596
 A, electromagnetically driven 2=19601
 A, electron diffusion 0=14731
 A, flow rel. to radiation absorption 2=9307
 A, H β line profile behind wave 0=15659
 A, liquid, shock Hugoniot 0=8653
 A, propagation of successive waves 2=9304
 A, shock front thickness 0=16774
 A, in shock tube (M = 8-23), mag. field effects 1=1970
 A, thickness of front at high temp. 2=2753
 A-He mixtures, structure of weak shock fronts, diffusion effects 1=8154
 A-N mixtures containing Cr(CO) $_6$, Cr emission 1=13933
 in Al, nonhydrodynamic attenuation 3=21490
 Al, pressure meas. using high-press. transducer 4=2515
 Al, propagation 3=11856
 Ar, bimodal model, rel. to intermol. forces 3=1755
 in Ar, cylindrical propagation 4=14264
 Ar, normal and oblique, equilb. ionization calcs. 3=23973
 Ar-H $_2$, meas. of H atom polarizability 4=9628
 in Ar plasma pinch 4=11649
 Ar plasma, thermal transport studies 4=16466
 Ar, pressure driven, precursors ahead 4=18340
 Ar, structure meas. by microwave techniques 3=9545
 Ar, structure, Navier-Stokes calc. 4=5283
 Ar, structure of fronts, optical refl. meas. 4=5282
 Ar, temp. calc. 4=18327
 in Ar, temperatures, photomultiplier meas. 4=18326
 Ar, thermodynamic state, spectral meas. 4=27527

Shock waves—contd

Bi, compression by projectiles from helium gun 1=9090
 C $_2$ H $_2$ and O $_2$ explosions, microwave obs. 4=27522
 in CO, transition Reynolds numbers 1=11781
 CO $_2$, Mach 2.5-5.5, vibr. relaxation freqs. 4=5291
 CO $_2$ vibr. modes var. with Mach number 4=18339
 in CO + N $_2$ mixture, for CN violet band obs. 4=15330
 Cu, explosive loaded profiles, mech. prop. meas. 4=28939
 D, ionization fronts, R-type 3=7277
 D, with longit. mag. field 1=6890
 D, moving magnetic field behind shock front 0=1196
 D, l precursor effect, microwave study 4=18347
 D $_2$, in conical shock tubes 1=4372
 D $_2$, spherically symmetrical convergent compression 1=15937
 Fe, compression by projectiles from helium gun 1=9090
 H, atomic, structure of shock front 3=21491
 H-driven, pressure var., deviation from theory 4=8311
 H, propagation of successive waves 2=9304
 H $_2$ detonation, density behind shock 4=2776
 in H $_2$, from spark discharge 4=266
 H $_2$, magnetically driven, dissociation behind 4=18348
 H $_2$, thermal dissociation rate meas. 1=19671
 H $_2$ -O $_2$ reaction, OH chemiluminescence 4=13705
 H, bimodal model, rel. to intermol. forces 3=1755
 He, e.m. driven, electron density and temp. 3=1752
 He, e.m. driven, of Mach number 10-100 3=7276
 He, equil., specific heats behind front 3=16699
 He, equilibrium state behind 3=16698
 He jump conditions, effect of ionization 4=16174
 He, magnetically driven, cylindrical, current density meas. 4=18828
 He plasma 1=291
 He plasma, temp. and density relations 4=5611
 He, pressure discontinuity in front of luminous front 4=5286
 He, self-ionizing, 50 μ Hg, structure 4=18830
 in He, structure, He I and II spectra 1=2782
 N $_2$ and air, Kramer's and line radiation 4=19943
 N $_2$ and air, temperature behind front 0=102
 N $_2$, attenuating shock waves, temp. variation, theory and expt. 4=18344
 N $_2$ (1+) band system excitation mechanism, shock-heated 4=25656
 in N $_2$, props. behind incident and reflected waves 3=21493
 N $_2$, temp. 0=14732
 N $_2$, structure of fronts, optical refl. meas. 4=5282
 N $_2$ H $_4$, thermal decomposition 4=23650
 NH $_3$, thermal decomposition 4=23651
 NO, shock tube study of vibrational relaxation 1=5997
 N $_2$ O decomposition in reflected waves 2=4529
 NO $_2$ Cl thermal decomposition in A and O $_2$ 2=15133
 NaCl 0=20730
 O $_2$, attenuating shock waves, temp. variation, theory and expt. 4=18344
 in O $_2$, props. behind incident and reflected waves 3=21493
 O $_2$, shock front structure at high Mach numbers 4=18341
 O $_2$, temp. 0=14732
 O $_2$ -H $_2$ mixtures, optical refractivity of OH, interferometric meas. 1=2788
 W, parameters rel. to initial densities 2=13360
 W, parameters rel. to initial densities 3=5487
 Xe flashtubes, rel. to tube deterioration 4=8662
 Xe, shock-heating 1=169

effects
 acetone, double refraction 3=7205
 acetylene-oxygen reactions, vac. u.v. emission 2=12963
 for acoustic transducer transient response meas., by analysis of response 4=5328
 acoustic wave energy in moving media 4=280
 aerosol coagulation, oil mist, periodic waves 3=23555
 air, breakdown, Paschen curves 4=2960
 air, dissociation, calc. of reaction profiles 0=1957
 air, electrical conductivity 0=5055
 air, equilibrium flow, plasma composition data 2=3032
 air, Hall e.m.f. meas. 2=7563
 air, ionization 3=7431
 air, ionization, elec. cond. 1=16276
 air, ionization rate, theory 3=12074
 air, ionization reactions rel. to electron density 2=3004

Shock waves—contd

effects—contd

- air, ionization in shock tube for elec. cond.
meas. 2=13542
air mols. (binary mixture of N_2 and O_2), relax. of vibr.
energy 4=30438
air, NO band emission near 1μ 3=3836
air, non-equil. region, radiation 2=2757
air plasma production 1=11935
air, reflection, e.m. waves, in waveguide 4=30048
alkali halides, compressibility, high-press. 3=18179
anthracene, excitation of CN, C_2 and CH spectra 1=2310
argon, ionization and diffusion 1=11780
benzene, solid, excitation of CN, C_2 and CH spectra 1=2310
booms from aircraft in manoeuvres 3=16693
breakup of liq. drops 2=2693
butene-2, cis-trans isomerization in shock tube 3=16160
charged particle accel., energy spectra 3=21087
chemical reactions in magnetohydrodynamic
shocks 1=16521
collision-free plasma, thermalized plasma 2=9578
compressibility meas. 4=7388
continuum i. r. radiation from air and N_2 4=2732
determination of dissociation rates 1=10295
detonation initiation of homog. explosives 3=11348
detonation of $2H_2 + O_2 + 2CO$ 1=7908
detonation in water, luminosity 3=21379
diamond formation in graphite 2=4360
diatomic gases, transl.-vibr. energy transfer 0=6832
discharge, impulsive, shock-controlled
spread 4=21478
dissociation behind waves, rates for deuterium 2=12345
drops, breakup by air blasts 3=23859
dust dispersion, initial stages 3=9543
elec. cond. dielectrics 0=6073
elec. current generation in cond. gases 1=166
electrical breakdown in plasma discharge tube 2=9555
expansion shock interaction in gases 4=27249
exploding wires, hollow, X-ray emissions meas. 4=16177
ferrites, phase transformation 2=15057
flow of polyatomic gas 3=21424
gas, contact/shock fronts coincidence, plasma
luminescence 4=24305
gas dissociation, heat transfer 1=6878
gas ionization, measurement 1=9524
gas mixture, nonequil. dissociation 2=14336
gas relaxation meas. by recompression near
obstacle 4=14212
gaseous plasma, visible light emission 3=21488
gases, di- and polyatomic, relaxation time det. 1=6905
gases, physical study, review 0=3564
glass breakage by sonic booms 3=16692
glass and certain plastics, rendered opaque, obs. 1=20388
granular pressings, interstitial Ar, methane, temp.,
calc. 4=2774
heating and melting, of solid walls 0=6864
heating, use in possible controlled fusion devices 0=9724
hydrazine, thermal decomp. in shock tube 4=4692
hydrazoic acid, luminescence 3=12876
ignition of combustible mixtures 1=16155
infrared radiation 1=15944
interaction with bubble 2=13361
interaction with turbulent boundary layers 2=15630
interactions, two waves in same direction 3=14250
ionization, dissociation and internal energy
relax. 2=13358
ionization equations, oblique fields 4=2769
ionization, meas. by microwave method 4=24663
ionization in oxidation of acetylene 2=23959
ionization profiles of precursor (erratum) 4=5284
ionization, thermal coeff., meas. in shock tube 2=1382
ionizing fronts, hydromag., characteristics 4=449
ionizing mechanism, in transverse mag. field 4=29694
krypton, state behind shock wave, spectroscopic
study 2=63
laminar boundary layer behind strong shock 2=1182
in liquid explosives, initiation of explosion 1=7910
luminous phenomena in magnetically driven shock
tubes 1=10539
magnetically driven shock tube, optical
study 1=2784
melting 3=24108
methane, in granular pressings, temp., calc. 4=2774
methane-oxygen reactions, vac. u.v. emission 2=12963

Shock waves—contd

effects—contd

- methanol, double refraction 3=7205
molecular dissociation and recombination behind shock
wave 3=11857
molecular dissociation behind shocks 3=22604
molecules, shock tube precursor i. r. excitation 4=28160
n-heptane, double refraction 3=7205
naphthalene, excitation of CN, C_2 and CH
spectra 1=2310
nuclear fusion temps. generation by impact of small
solid particles 4=18328
plasma, crossing mag. field, charge separation
effects 4=19026
plasma dynamics, in l.p. discharges in H and air 0=16978
in plasma, elec. impedance of immersed
electrodes 3=21760
plasma, moving, nonlinear mag. interact. 3=9773
plasma prodn. with high electron density 3=12181
plasma, Kr, coupling of microwaves 3=16943-4
plasma, low density, compress. and heating,
models 4=27523
plasma, mag. flux transport 4=29918
plasma, neutral, blast wave of electron gas 4=27526
plasma pinch, hard-core, compression 4=18949
plasma prod., by e.m., non-reproducible 4=16476
plasma, struct. without mag. field, ion and electron
gas model 4=27525
plasma, vel. radial var. in cylindrical geometry 4=24647
plastic flow in metals on explosive loading 3=1224
powdered solids, thermal excit., spectroscopy 3=24018
precursor elec. effects, elec. diffusion mechanism 2=15628
quartz, compression, crystals and fused 2=6727
relaxing medium, front discontinuities 4=14281
rockets, hypersonic, ionization 2=4878
satellite, re-entry, ionized layer, r.f. interference 2=4883
shell, elastic, cylindrical, transient response 3=7260
shock tube determ. of dissociation rates of H_2 2=1183
shock tube meas. of $OH^+ \Sigma \rightarrow {}^2\Pi$ transitions 2=3754
shock tube, single pulse 3=16160
shock tube study of O atom recombination 3=13595
shock tube study of O_2 -A rates of dissociation and
vibrational relaxation 2=23005
silica, vitreous, crystallization 0=3259
slicks on Lake Huron 3=7187
in solid explosives, initiation of explosion 1=7911
spalling of iron and steel 2=12865, 14904
spectra excitation, review 3=11912
steel, plastic deform. and $\alpha \rightarrow \gamma$ phase
transformation 2=2322
steel plates, cratering at high impact speeds 0=8741
stellar atmospheres, cooling behind wave-front 0=18978
Supersonic flow, stationary, non-perfect gases, due to
shock waves, calc. 4=18229
surface deformation propagation, in shock-excited
body 0=19258
suspension prep. for electron microscopy 2=21597
triggering of combustion in liquids 1=10621
2, 2, 4 trimethylpentane, double refraction 3=7205
underground cavities 3=16194
vibrations of elastic cylindrical shell 3=18881
water, double refraction 3=7205
A, insulating-boundary thickness behind
shocks 3=24456
A, plasma, spectroscopic study 2=11640
Al, attenuation and thickness of surface scale
produced 4=4456
Al and AlO spectrum, $B^2\Pi-A^2\Sigma$ band 4=22346
Al, equations of state measurement by shock wave
compression 1=11167
Ar, in granular pressings, temp., calc. 4=2774
in Ar, liquid, phase transitions 4=15388
Ar, spectrum, continuous, visible 4=29678
BaO powder, absorption studies, new band system 2=696
CN formation and reaction kinetics 2=6879
 C_2N_2 dissociation 2=12349
CO, gas, radiation spectrum 3=11835
CO, vibrational relaxation meas. 3=7243
CO, vibrational relaxation in shock tube 1=4375
CO₂, dissociation rate in shock tube 3=15389
CO₂ gas, radiation spectrum 3=11835
CO₂, vibrational relaxation and dissociation 0=5893
CO₂, vibrational relaxation meas. 2=19622

Shock waves—contd**effects—contd**

- CO₂, vibrations and dissociation at 2000° to 4000° K 4=12529
 CS₂, decomp. kinetics, shock-tube study 4=22428
 Cl₂ dissociation 2=10974
 Cl₂, dissociation 3=25147
 Cl₂, thermal dissoc. rate det. in shock tube 4=4691
 Cr I, excitation in Ne-Cr(CO)_n 0=484
 Cs vapour, ionization processes study 3=1930
 Cs in Ar, ionization behind wave, relax. 4=21228
 Cu, disintegration, determ. of ultimate yield strength 2=6746
 Cu, residual temps. 3=21597
 Cu₃Au, on resistivity, energy, micro-hardness and struct. 4=26508
 Fe, Armco, spall production 1=7830
 Fe, hardening and phase transform. at 130 kbar 2=23846
 Fe, phase transformations, temp. depend. 2=6821
 α-Fe, screw dislocations 3=4872
 H, plasma prod. in SUPPER II 4=27521
 H plasma, temp. and density 0=19689
 H₂, excitation of dark discharges 1=16278
 H and D dissociation rate meas. 2=14333
 He, 5876 Å emission, anomalous precursor 0=483
 He, high ion density and temperature production 1=18764
 He, plasma, spectroscopic study 2=11640
 He plasma, temp. and density 0=19689
 HN₃, dissociation 1=6057
 I₂, diatomic bond destruction 0=15767
 Kr, plasma, coupling of microwaves 3=16943-4
 Kr, spectrum, continuous, visible 4=29678
 Li, 4603 Å line, Stark broadening by A ions 2=1960
 N⁻ spectrum 4=21455
 N₂⁺, first negative band intensity behind shock waves rel. to pres. 3=4756
 N₂ gas, radiation spectrum 3=11835
 N₂, non-equilibrium radiation, recombination rate 2=7566
 N₂, non-equilibrium region, radiation 2=2757
 N₂ + H₂ systems, refl. wave study by NH radical spectrum 4=17320
 NO₂, with Ar, thermal emission of mol. 3=726
 NO₂, decomposition 4=29216
 NO₂, emission and dissociation 4=3919
 N₂O, thermal decomposition, 1500-2500°K 4=15834
 N₂, O₂, dissociation and rate of vibrational relaxation 2=19597
 NaCl, luminescence, due to heating 4=22923
 Nd—glass laser, pumping 4=8970
 O₂, in air, excitation and dissociation 1=2778
 O₂, dissociation and excitation of oscillations 2=12350, 14334
 O₂, dissociation, heat transfer 1=6878
 O₂, and intramol. oscill. relax., temp. var., and intermol. repulsion 3=12881
 O₂ gas, radiation spectrum 3=11835
 O₂, non-equilib. region, radiation 2=2757
 O₂, propag., and intramol. oscill. relax., temp. var., and intermol. repulsion 3=12881
 O₂, shock-heated, temp. meas. by spectral method 2=2917
 O₂-C₂H₂, O₂-C₂N₂, detonation, C₂, CN radical temps. 4=7757
 S, transition to metallic state by fusion 0=15806
 Se, grey, rel. to elec. cond. 3=830
 SO₂ in Ar, thermochemical radiation 4=26747
 TiCl₄-Ar mixtures, neutral Ti emission behind waves 3=11836
 Xe, early ionization processes 4=5554
 Xe, spectrum, continuous, visible 4=29678
 Xe₂, u.v. and visible emission 0=15728-9
 Zn compounds, powdered, luminosity studies, emission band 2=696

Shot noise

See Fluctuations, electrical

Showers

See Cosmic rays, showers and bursts

Silicon

See also Semiconducting devices; Semiconducting materials, silicon
 abraded surfaces, electron microscope study 3=3353
 abrasion, surface damage 3=16010
 absorption band temperature variation, rel. to O impurity 3=23077

Silicon—contd

- absorption, e. m. waves, O°K, by hopping, calc. 4=30690
 absorption edge, intrinsic, heavy doping effect 3=15688
 absorption of light, effect of strong elec. field 1=1153
 absorption spectrum, i.r., of free carriers 1=19989
 absorption spectrum, line widths of B-doped material 2=23556
 absorption spectrum, phonon effects 2=14689
 absorption spectra, 50-2500 μ 0=10035
 adsorption of H, i.r. internal reflection study 3=18397
 adsorption of O, I, H, P, electron diffraction study 4=20824
 adsorption on, O₂ 0=12116
 adsorption of O₂, e.s.r. obs. 4=26723
 adsorption of O₂, sticking probab., regeneration of clean surface 1=11597
 adsorption of vapour on etched crystal 4=26722
 α-particle range, 4.5 MeV 0=9446
 anisotropic solution, light figures study 3=13410
 anodic dissolution 2=857
 anodization, prep. of P-doped anodic oxide films for device fabrication 4=26713
 antireflection coatings on 2=98
 anti-Schottky defects 3=12963
 atoms, electron scatt., Thomas-Fermi approx. 1=19605
 atom, p² config., electronic g factor meas. 4=15278
 atom, Si I spectrum in Pbs region 4=28136
 atomic spectra Si X, transition probab., permitted and forbidden lines 2=14205
 atoms, spectral, isotope shift 2=6097
 atomic weight and density meas. 4=27595
 band structure, electron, by photoelectric emission 3=6491
 band-structure, tight-binding approx. 2=3868
 bicrystals growth, Dash pedestal method 3=11235
 bremsstrahlung enhancement by single crystal on passing 575 MeV electrons 0=11137
 bremsstrahlung prod. in, interference effect 2=7846
 bremsstrahlung prod. at 1 GeV, orientation effect 0=12899
 bremsstrahlung spectrum, isochromat structure 3=8611
 Brillouin zone, selection rules connecting different points 1=14217
 capacitance and barrier layer, in contact with electrolyte 0=13649
 carbon-doped, optical absorption 1=2440
 cleaved surfaces, structural props. 3=23383
 compacted, ionization expansion in radiation 4=6889
 compressibility, quantum defect model, exchange correl. 4=28966
 compressibility, rel. to temp. 3=18178
 conductivity, elec., meas., 4 probe, for slices 4=10064
 contact prod. by sparking 4=12951
 contact resistance, two crystals 3=10796
 crow track formation by mechanical force on crystal wafer 4=28978
 crystals, anomalous transmission of X-rays 3=13185
 crystal boundary study, between etched and ground 1=14959
 crystal defects, X-ray study, oscillating film method 4=1451
 crystals, characteristic oscillation frequencies 2=18517, 20919
 crystals, containing Al, precipitation 0=20826
 crystal dislocations, effect of zone refining technique 4=29060
 crystal dislocations, electron microscope exam. 3=22784
 crystals, dislocation-free, X-ray fringe systems rel. to theory 4=23378
 crystal dislocation loops, on bending, screw with super jogs 4=12761
 crystal dislocation networks due to diffusion 4=17433
 crystal dislocations, prod. and obs. 4=30564
 crystal electron band gap, temp. var., as for Au-Si surface barrier height 4=15550
 crystal electrons, cond., density, at nucleus, from Overhauser effect and spin relax. 4=20244
 crystal, electron diffraction pattern, unknown streak 3=1287
 crystal etching and growth bands, non-uniform impurities, n-type 3=20782
 crystals, etching, thermal 3=16030
 crystal faults rel. to 750 keV proton exposure at 850°-900°C 2=23147
 crystal faults, by X-ray method, diagram evaluation 2=14426

Silicon—contd

- crystals by floating zone technique, using arc image furnace 1=2529
 crystal growth 0=12006
 crystal growth, without crucible 1=7849
 crystal growth by Czochralski method 2=2352
 crystal growth, epitaxial 3=18046
 crystal growth, epitaxial 4=17796
 crystal growth, epitaxy 2=14965
 crystal growth, epitaxial, from vapour, effect of elec. field 4=10488
 crystal growth, facet formation 3=6823
 crystal growth, floating zone 3=18276
 crystal growth, floating zone, induction vacuum apparatus without quartz 3=25677
 crystal growth front distortions due to impurity 2=4379
 crystal growth from gaseous phase, using 2nd component 4=10471
 crystal growth, in H_2 , A and vacuo, Czochralsky method 1=4028
 crystal growth, high purity, floating-zone method 0=16268
 crystal growth, irregular, due to supercooling 4=4547
 crystal growth, P-doped, Czochralski method, solute striations 4=4530
 crystal growth, by $SiHCl_3$ reduction 3=18275
 crystal growth, separated from gas phase, atomic significance 3=18268
 crystal growth, single, dislocation free, by $SiCl_4$ dislocs. by H 4=4560
 crystal growth, temp. distrib. calc. 2=14955
 crystals, Hall effect meas. of radiation damage and annealing 4=15508
 crystal lattice optical and acoustic oscill. frequs. 293°K 3=15419
 crystal lattice—spin relax., acceptors, calc. 4=12617
 crystals, liquid—solid interface shape 0=6326
 crystals, neutron diffraction spin—orbit interaction 3=18294
 crystal perfection, studies by X-ray intensities 4=22593
 crystalline perfection, X-ray investig. 4=4056
 crystal phase transformations, rel. to pressure 3=18228
 crystal potential and energy bands, self-consistent calc. 0=9970
 crystals, quasi-particle dispersion laws 2=18508, 23025
 crystal, solution forms 2=2343
 crystal stacking fault dislocation loop origin in epitaxial growth 4=6859
 crystal stacking fault dislocation loop origin in epitaxial growth 4=6860
 crystals, stacking faults, X-ray topographic obs. 4=12773
 crystal stacking faults, extrinsic and intrinsic, epitaxial (110) 4=1500
 crystal stacking fault obs., by interference contrast microscopy, epitaxial 4=20287
 crystals, stressed, X-ray diffr. intensities 2=21503
 crystal structure, dense forms, high pressure treatment 4=23471
 crystal zone melting, by electron beam 4=4554
 crystals, zone-melting by electron bombardment 4=15762
 cyclotron resonance 0=6037, 7875
 cyclotron resonance over wide temp. range 1=14238
 cyclotron resonance under uniaxial strain 3=8414-15
 Debye—Waller factor interpretation 4=3982
 defects, produced by neutron irradi., size of damaged regions 0=2835
 density, effect of interstitial Li 1=19767
 detector, nuclear particles, reactions for 14 MeV neutrons 1=19495
 dichroism, mag. field effect, in n-type 4=1712
 diffused layer depth meas. 2=8384
 diffusion, accel., of impurities, on high-temp. 300—1000 keV proton irradi. 4=9995
 diffusion of As, 1100°-1350°C meas. 3=10689
 diffusion of Au, interstitial—substitutional equil. meas. 4=6878
 diffusion of B 1=14315
 diffusion of B, distrib. 3=22822
 diffusion of B and P, conc. -depend., calc. 4=9993
 diffusion of B, surface film removal 4=20384
 diffusion of B through oxide layer 3=10690
 diffusion of B through SiO_2 layer, anomalous 3=17789
 diffusion of B, 950-1375°C 0=6058

Silicon—contd

- diffusion of B, 1100° to 1300°C 4=20303
 diffusion coeff. of B 1=14301
 diffusion of C^{14} , 1070°-1400°C 2=3939
 diffusion of Ga and B, surface conc. 4=4077
 diffusion of Ga, internal elec. field effects due to Sb 4=28484
 diffusion of He 4=28490
 diffusion of interstitials, mechanism 2=12452
 diffusion of Li 0=4302
 diffusion of Li, at high temp., Li isotope effect 0=13560
 diffusion of Li, 25-125°C, by ion drift in n-p junction 0=13561
 diffusion of O in, calc. from internal friction 1=17560
 diffusion and configuration of O 4=28485
 diffusion of O_2 , donor production 0=1601
 diffusion of P along grain boundaries 1=11228
 diffusion of P, fast mechanism 3=2832
 diffused P distribution 2=18600, 21072
 diffused P distribution 3=2833
 diffusion of P_2O_5 from azeotrope with water 2=18602
 diffusion of P, P_3N_5 as diffusion source 4=22625
 diffusion in liquid Cu, rel. to rate of soln., expt. 4=8194
 diffusion, in liquid cast Fe, by electrolysis 3=5431
 diffusion, rel. to proton irradi. 3=22825
 diffusion to thin layers, conc. profiles 2=23208
 diffusion of Zn, in elec. fields 3=17790
 diode, heat liberation in p^+ region in forward p^+-n-n^+ 4=20392
 dislocations, curved and festoon formation 0=13537
 dislocation density, and microhardness 2=21028
 dislocations, diffusion-induced 2=10397
 dislocations, direct obs. with white X-rays 4=25945
 dislocations, discrete stress field 2=23177
 dislocations, discrete stress field 3=6518
 dislocations, formed by vacancy disk collapse 0=20814
 dislocation generation and distribution due to solutes 1=14270
 dislocations, gold-induced climb 1=2390
 dislocation induction by boron doping 2=18583
 dislocations, interaction with vacancies 2=21032
 dislocations, interaction with vacancies 3=6517
 dislocation kink motion, rel. to internal friction 3=10663
 dislocation line observation by X-ray diffraction 1=15049
 dislocation loops, large, generation 4=1481
 dislocation obs. by heat treatment in different vapours 3=20180
 dislocations, prismatic, electron micrographs 2=6347
 dislocations prod. by diffusion of P 4=22590
 dislocations, props. and configuration by X-rays 4=22597
 dislocations, sessile 2=12431, 14441
 dislocations in single crystals 3=797
 dislocations in single crystals, behaviour under pulling, rotation and thermal shock 1=11207
 dislocations, study by etching 0=1580
 dislocations, surface, X-ray diffrn. study 1=17537
 dislocation velocity and density 2=21033
 dislocations in webs 4=12749
 dislocations, X-ray diffract. topography 0=1587
 dislocations, X-ray invest. 2=21574
 divacancy, nature and direct electron-beam production 2=3905
 doped, light transmission, 40 to 100 μm 4=10194
 doping, high local conc. effect in single crystals 4=28574
 double refraction and photoelastic const. 2=8483
 E-centre after electron irradi., e.p.r. and ENDOR 4=20309
 e. m. wave propag., TE_{01} , calc. for exp. decaying carrier density 4=28689
 e.s.r. of centres due to neutron irradi. 3=2849
 e.s.r. of Cr^0 and Mn^+ , rel. to electric dipole induction 4=1863
 e.s.r. of embedded V^{2+} and Fe^0 atom 3=20639
 e.s.r. in Fe-doped material 1=20216
 e.s.r. surface centres due to heat treatment 3=5045
 edge dislocations, climb induced by Au 3=17715
 effects of 100 kV H^+ and He ion bomb. 3=10708
 elastic constants, electronic effect 3=18162
 elastic constants and internal energy, irradiated by fast neutrons 1=9082
 elastic moduli rel. to hydrostatic press., 25.0° and -195.8°C 4=23202

Silicon—contd

- electrical characterization of epitaxial films using three-point probe method 4=28569
 electrochem. props. Si solutions in HF 0=10353
 electrode potential in solution 1=20744
 electrodes, saturation currents 1=20745
 electron absorption and range, 8-20 keV 0=15082
 electron beam penetration 0=19765-7
 electron beam penetration 1=6098
 electron beam, 2.8 MeV, energy loss, theory and expt. 1=18935
 electron cond. and valence levels, general strain effects 4=4020
 electron density, anisotropy, X-ray study 0=16309
 electron diffr., energy analysis of pattern 3=16058
 electron emission, effect of treatment in Cs vapour 0=19716
 electron emission, field, direct energy meas. 3=4176
 electron emission, field, energy distrib., strong p-type 3=12232
 electron emission, field, rel. to Fermi level 4=3021
 electron emission, field, tips 3=12231
 electron energy losses in very thin films 3=20154
 electron extinction distance meas. 4=7644
 electron irradi., absorpt. curve 2=8258
 electron irradi., lattice damage, directional distrib. 0=1608
 electron-nuclear double resonance of Fe⁵⁷ and Au¹⁹⁷ in, mag. moments det. 0=7458-9
 electron pair prod. in, by 1 GeV γ -rays, orientation depend. 0=7340
 electron scatt. at cleavage surfaces 3=4857
 electron scattering, on cleavage planes, Kikuchi lines and Bragg reflection 1=6094
 electron spin-lattice relaxation, in P-doped Si 0=4512
 electron states, optical absorpt., crystal structure band bonding, review 4=28413
 electronic complex 0=9890
 electropolishing technique 3=23501
 energy band structure, reflectance and photo-emission 3=4960
 energy bands, detailed calc., pseudopotential method 4=20247
 energy barrier, betw. surface states and bulk of crystal 0=6113
 enthalpy, meas., 1200-1900°K 2=6277
 epitaxial deposition on quartz, orient. depend. 4=4563
 epitaxial deposition, selective 2=21494
 epitaxial deposition technique 2=14966
 epitaxial films 2=19061
 epitaxial films, growth by H reduction of SiCl₄ 1=15013
 epitaxial films., partial dislocations 2=10396
 epitaxial films, thickness meas. by i.r. interference 3=1650
 epitaxial layer, Si-C contaminated, bonding props. 4=30883
 epitaxial layers, deposition conditions, depend. of dopant conc. 4=23356
 epitaxial layers, growth rate, effect on stacking-fault density 4=12771
 epitaxial, stacking faults 2=10404
 epitaxial, stacking faults structure, origin 3=10680
 epitaxy by vacuum evap. 2=21493
 etching, by A ion bombard. 0=1898
 etching, chemically, mechanism 0=18330
 etching, damage by ion bombardment 0=21172
 etching with HF-HNO₃ 2=8779
 etching, with HF-HNO₃-NC₂H₃O₂ 0=4600
 etching, jet method 0=6340
 evaporation, r.f. levitation technique 2=23914
 evaporation, in vacuo and film fabrication 3=20927
 exciton energy levels 0=11607
 Faraday rot. near band edge 2=23534
 field-effect meas. for cleaved surfaces of n-type single crystals 4=28573
 field emission 1=18908
 field emission 3=24332
 field-emitted electrons, energy distrib. 4=19081
 films, characteristic energy loss of 50 keV electrons 3=14661
 films, epitaxial, cond. elec., meas. methods 4=6989
 films, epitaxial, growth and defects 3=5091
 films, epitaxial, vacuum evap. 3=13424
 films, evap., optical props., 5000-8000 Å meas. 4=13056
 films, evap., prepn. 3=8926

Silicon—contd

- films, evaporation deposited, by electron beam heating 0=8284
 film growth free from stacking faults, by initial fast deposition 4=4659
 films, high photovoltage 4=22803
 films, with high photovoltage 4=22802
 films on Si substrates, stacking fault nucleation 4=20288
 films, single-crystal, electron diffr. streak patterns 2=23939
 film thickness meas. 2=17402
 films, thin single-crystal, prep. by cathode bombardment 2=841
 films, in vacuo, evaporation fabrication 3=20927
 fluctuations, electrical, var. with freq., temp. field 4=4166
 foils, electron scatt., energy diagram study 2=821
 fracture, single crystals, mechanism 3=23360
 fundamental absorption edge, effect of h.f. elec. field 1=19972
 fundamental absorption edge, effect of h.f. elec. field 2=4139
 fusion curve at high pressures 3=14417
 (γ , n) in solid, displacement radiation effect of recoils 4=10016
 γ -ray and neutron damage, annealing 2=23223
 γ -ray and neutron damage and annealing 4=15509
 gamma-rays, effects, temp., illum. depend., mechanism 3=25312
 gels, Si-base, high-temp. stability 3=21010
 growth of dislocation-free crystals 1=9115
 growth, epitaxial, from SiCl₄ 3=20797
 growth, epitaxial, stacking faults 3=805
 growth, "faceting" effect 4=2042
 growth, polycrystalline rods, without crucible 2=8790
 growth of single crystals on sapphire substrate 4=17795
 Grüneisen γ , temp. depend. calc. 3=10607
 Grüneisen's gamma, low temp. limit 2=8177
 hardness, micro, -200 to 1000°C, linear to exp. transition 4=13404
 heat capacity, meas., 1200-1900°K 2=6277
 heat treatment, resistivity, changes and other effects survey 3=15579
 heavily doped, reflectivity, heat treatment effect 4=7155
 high-purity, prep. from silane 2=7091
 i.r. absorption bands (1.8, 9-14 μ) rel. to neutron or electron irradi. 2=23570
 i.r. absorpt. lines when B-doped 4=4275
 i.r. absorption rel. to crushing and alkyl bonding 2=18843
 i.r. absorption edge, fine structure 1=6210
 i.r. absorption, effect of O on fine structure 0=20986
 i.r. absorption spectra of n and p crystals 3=935
 i.r. absorption spectrum, temp. depend. 2=10607
 i.r. birefringence, plastic deformation and work damage 0=1723
 i.r. emittance rel. to absorption processes, 323° to 473°K 3=10961
 i.r. filters 1=10580
 i.r. spectra, interpretation 1=1160
 imperfections, X-ray microscope exam 2=10370
 impurities, interaction with dislocations, theory 4=12738
 impurities, solid solubility max. rel. to distrib. 2=17054
 impurity diffusion 3=22824
 impurity distrib. meas. of diffused layers 4=26448
 impurity spin relaxation, via conduction electrons 0=10241
 interaction with vacancies in Al-10wt% Zn alloys, rel. to clustering 4=28994
 internal friction, semicond. and other props. 1=1303-4
 internal stress around dislocations, obs. 2=6725
 interstitial Fe⁰ and Fe⁺, paramagnetic resonance 1=20214-15
 interstitial impurities, solubility, theory 1=17506
 ion beam from h.f. source 3=24380
 ion bombarded, in glow discharge, P and B diffusion 3=22823
 ion bombardment doping, Mo masking 4=26059
 ions, Si⁺, lowest config., Hartree-Fock calc. 4=12377
 ions, Si³⁺, atomic orbitals and transition integrals calc. 2=10210
 irradiation effects, A-centre lattice vacancies, e.s.r. and i.r. absorption 1=3656-7

Silicon—contd

- irradiat., optical effects, defects and paramag. res. 4=28507
 isotope separation, $\text{Si}^{28,29,30}$, by thermal diffusion of SiH_4 , in column 3=25072
 isotopic analysis, by solid-source mass-spectrometry 0=17679
 Kapitza resistance meas. 3=12017
 Kikuchi pattern from Si wedge 4=23470
 lattice absorption bands from spectral emissivity 2=10582
 lattice absorption i.r. bands, shell model applic. 3=10927
 lattice absorption of light 3=928
 lattice const. and density, precision 1=1677-8
 lattice const. rel. to press., electronic band structure, elec., optical and defect props. 4=12895
 lattice defects induced by reactor irradiation 1=14347
 lattice defects induced by reactor irradiation 1=17593
 lattice defects, prod. by γ -rays from reactor shields 2=20992
 lattice defects, transmission electron microscopy 2=21043
 lattice displacements, proton induced 3=13023
 lattice distortions, "frozen" and "reversible" 2=16650
 lattice distortions, frozen and reversible?, in thin plates 3=10653
 lattice frequencies and specific heats 1=17399
 lattice parameter measurements, comparisons 1=15068
 lattice parameters, X-ray study, absorption correction 0=1919
 lattice perfection, by lattice-constant and density method 1=10258
 lattice scattering mobility, transition of temp. depend. 0=9957
 lattice thermal conductivity, analysis 4=6756
 lattice thermal conductivity, rel. to impurities 3=10610
 lattice vacancy, e.s.r. study 3=22734
 lattice vibrations 1=4964
 lattice vibration frequency, 293° and 580°K 3=25181
 lattice vibrations, group theory study 0=20737
 lattice vibrations, normal modes, θ -series calc. 3=4809
 layer structure in dislocation-free crystals, X-ray transmission study 1=11197
 layers, on Ti bases, secondary electron emission 1=4637
 layers, on Ti bases, secondary electron emission 1=10734
 layers, vapour grown, etch figures 3=804
 length changes at low temp. on electron irradi. 2=3967
 light absorption, by impurities, theory 0=6175, 13685
 light figures and crystal faces revealed by etching 1=20412
 lines in solar u.v. spectrum 3=8200
 liquid, density rel. to temp. and m. pt. 3=3793
 liquidus curves 0=19119
 luminescence of Si anode in electrolyte 2=4192
 magnetic props. calc., from X-ray meas. of electron density 4=7216
 mag. susceptibility of electrons and donors in n-types 3-300°K 0=10099
 magnetoresistance, anomalous, low temp. 4=6972
 mechanical props. and dislocations, -196 to 1380°K 3=5064
 melt, diffusion of impurities 3=18803
 melt, diffusion of impurities 3=18804-5
 melting, acquisition of metallic props. 0=11552
 mesic atom, μ^- -meson lifetime 1=17300
 microhardness anisotropy 4=10401
 microhardness anisotropy 4=30778
 microhardness, and dislocation density 2=21028
 microhardness, rel. to internal photoeffect 4=4463
 microstrains at B impurities, in dislocation-free crystals 3=15486
 misorientation during Czochralski growth method 4=2034
 monocrystals, dendritic structure, rel. to growing conditions 2=803
 monocrystals, dislocations and microhardness 1=3675
 monocrystalline layer growth on Si 1=15014
 monocrystalline, range of Xe^{135} ions, 5-80 keV 4=22652
 Mössbauer effect, of Fe^{57} , diff. between n and p type, and electron config. 4=15404
 Mössbauer effect, Fe^{57} , isomer shift 2=20907
 neutron bombardment tracks, obs. by electron microscopy 3=15524
 neutron irradi., single phonon absorpt. band 4=9836

Silicon—contd

- non-crystalline excrescences, after air-heating, 1100°-1200°C, 8 weeks 2=23907
 nuclear orientation of Sb^{123} in, electron and nuclear relaxation 1=12173
 nuclear reactions due to neutrons, identification 2=18339
 (111) face epitaxial layers, dislocations 4=2039
 optical absorpt. after heat treatment 2=8539
 optical absorption by defect vibrations 3=10581
 optical consts. in extreme u.v. 2=18787
 optical consts. at less than crit. wavelength 4=22844
 optical consts., 1-10 eV 0=18116
 optical, elastic and piezoelectric props. 1=899
 optical films, structure and reflecting power 0=19423, 20975
 as optical material, for i.r. 0=14809
 optical reflectance for 1.5-25 eV photons 3=8584
 orientation, rapid diffractometer determ. 2=19036
 overgrowths, topography and growth mechanism 4=23357
 oxidation, effect of electric field 2=19143
 oxidation rates by boiling water 2=21583
 oxidation and reduction at 600-1000°C 2=15141
 oxidation, thermal 2=21584
 oxidized surface layers, n-type conversion 2=21164
 oxygen site in doped crystal 1=7578
 p-n junctions, avalanche breakdown, microplasma phenomena 2=21159
 paramagnetic centre due to electron irradi. 3=6750
 paramagnetic and cyclotron resonance 4=23042
 paramagnetic relaxation in small particles 4=26374
 paramag. resonance absorption from acceptors in stressed p-type 1=1266
 paramagnetic resonance, electric field effects 4=26369
 paramagnetic reson., ground state splitting rel. to deformation, mag. and elec. fields 4=15674-5
 paramagnetic reson. of Pt- and Pd-, expt. and theory 2=10705
 phonon absorption bands, rel. to neutron irradiation 3=23044
 phonon broadening of impurity lines 0=11756
 phonon energies meas. after neutron irradi. 2=16598
 phonon mean free path, 77°-250°K 4=12616
 phonon spectrum, critical point analysis 4=28355
 phonon spectrum and polarization 1=14166
 photocell surfaces, reduction of reflectivity by SiO_2 layer 0=10031
 photoconductivity, decay, In-doped 3=17833
 photoconductivity and i.r. absorption rel. to neutron irradi. 2=8396
 photoconductivity, negative effect 2=652, 23474
 photoconductivity, oscillatory decay, on increasing sweeping current 4=4234
 photoelasticity coeff. 0=7996
 photoelectret effect in Au-doped Si 4=26134
 photoelectric emission 2=17871
 photoelectric emission, amorphous and crystalline states 1=13115
 photoelectric emission, momentum conservation, polarization evidence 4=14748
 photoelectric emission, quantum yield 1=10730
 photoelectric emission, quantum yield 1=4634
 photoelectric emission of various surfaces, comparison 4=14747
 photoelectric emission and work function 2=17872
 photoelements, energy diagrams 0=9997
 photoemission, from p-n junction, induced by internal elec. field 0=12627
 photo-induced negative resistance, high resistivity n-type 4=4235
 photon and electron pair production 3=10101
 piezoreflectance effect not detected 2=18799
 piezoresistance, P-doped, meas. meth., 20° to 150°C 4=12914
 piezoresistance, rel. to pressure to 200 kp cm^{-2} 3=2965
 piezoresistive pressure transducers 3=887
 piezoresistive props., n- and p-type diffused layers 3=10798
 plasma oscillations in heavily doped n-type 4=22550
 plastic deformation, effect of dislocations and O precipitation 2=16956
 plastic deformation, review 2=16951
 plate, X-ray transmitted diffraction intensity, rel. to applied stress direction 3=23525
 polishing and surface props. 0=8139

Silicon—contd

- polishing, transmission electron microscope specimen 2=21577
 positive ions, 5-25 keV, sputtering of Cu 1=8363
 positron annihilation in, ang. distrib. of γ -rays 1=19755
 positron annihil. quanta, ang. distrib. meas. 4=12718
 precipitate particles in single crystals, identification by reflection electron diffraction 1=4087
 precipitation of Ni 3=6537
 precipitation, from Si-Al solid solution 0=16350
 prep., impurity segregation and distrib. 0=13944
 prep. of pure Si from silane 0=819
 proton damage, energy depend. calc. 3=8474
 proton, damage rel. to energy, 1.35 to 130 MeV 4=28447
 proton irradi., damage 4=1544
 pulverized, retention of crystal structure 1=6513
 quantum effects in cyclotron resonance 2=23137
 radiation damage by 0.15-0.7 MeV electrons 1=3696
 radiation damaged, annealing effects 2=19096
 radiation defects, annealing, rel. to P impurity 3=22934
 radiation defect introduction rates in n and p-type 3=6551
 radiation defects, in Li-doped samples, level spectrum of localized centres 3=22849
 radiation effect on minority carrier lifetime 4=28513
 radiation field interaction with lattice vibr. at critical points of Brillouin zone 4=22895
 ranges of charged particles 3=17113
 recombination radiation, decay, meas. 3=20540
 recovery and annealing of neutron-irradiated damage, by thermal conductivity, meas. 4=4005
 redistribution of B due to oxidation 2=21071
 reflection of noble-gas ions 1=10744
 reflection peaks shift by stress 4=20471
 reflectivity spectra, visible and u.v., fine structure and temperature dep. 3=10909
 refractive index, near absorption edge, calc. 0=11668
 refractive index meas. in i.r. 3=20433
 refractive index, 109-750°K, 1.1-1.8 μ 0=16032
 refractive index, from reflectivity at two angles, using graphs, extreme u.v. 3=11926
 refractive index, rel. to temp. 1=11353
 residual gases in vacuum, adsorption and desorption 2=12951
 resistivity and lifetime meas. of small slices, appl. of Siemen's method 4=28568
 resistivity meas. of epitaxial films by i.r. reflectivity technique 4=28570
 resistivity, microwave, of doped spheres 0=5243
 retention of bombarding Kr⁸⁶ ions 2=18627
 ribbons, prep. conditions 2=806-7
 rod and platelet lattice defects 3=22783
 scattering processes in, group theory 1=17392
 screw dislocation 1=19775
 secondary electron emission, and inelastic electron scatt. 2=1492
 secondary emission, by K ions 3=16978
 single crystal wafers, X-ray diff. rel. to imperfection detect. 4=15478
 single crystals, mosaic structure 0=21183
 single crystals, structural defects, after electron irradi., photocond. study 3=22764
 single crystals, texture, by parallel X-ray beam method 0=4628
 solar abundance 4=29441
 solar cells 2=10544
 solar cells, effect of proton irradi. 100, 500 keV 3=14508
 solar cells, radiation resistance 2=4077
 solubility of impurities, maximum, and m.p. distrib. coeff. 3=20910
 spectra, far-i.r., 7.5°K meas. 4=26197
 spectra, i.r. absorption of defects, rel. to irradiation 3=23076
 spectrum i.r., broadening, due to B doping, mechanisms 3=23080
 spectrum and term system of Si IV 0=15564
 spectrochemical anal. 2=19177
 spin-lattice relaxation of conduction electrons 4=23056
 spin-lattice relaxation of donor electrons, theory 1=11489
 spin-lattice relax., Raman, for shallow donors 3=11119
 spin-1 centres after neutron irradi, e.s.r. 4=1543

Silicon—contd

- spin resonance of transition metals in 0=4514
 spin-spin coupling with protons 3=719
 sputtering by A²⁺ ions, yield rel. to A⁺ 1=1930
 sputtering, with argon and CO₂ ions 1=8361
 sputtering, ejected atom distrib. 2=13608
 sputtering, using 1-5 keV Ar⁺ ions 3=9877
 sputtering, strong focusing without channelling 4=25980
 stacking faults, electron micr. study 2=3923
 stacking fault energy 3=17764
 stacking faults, extrinsic and intrinsic, energies 2=23199
 stacking faults and lattice defects near twin boundary 2=16662
 stacking-fault structures when epitaxially grown 3=25286
 stacking faults after vapour growth 3=22794
 structure changes at high press. 3=11210
 structure of clean (100) and (111) surfaces 3=13554
 sublimation rate, 10⁻⁸ mm Hg 4=5476
 surface-barrier counters, response to N ions and α -rays 1=5616
 surface barrier detectors, oxide stabilized 2=3217
 surface damage annealing and Cu precipitation 4=7705
 surface damage due to abrasion 3=18219
 surface elastic waves 1=4400
 surface energy, cleavage meas. 3=25177
 surface examination by C-replica method 4=26706
 surfaces, gas evolution 4=20796
 surface growth and cleavage, electron microscope exam. by replica 4=13646
 surface, (100), bonding model 2=23911
 surface sputtering with A ions 2=22279
 surface states of cleaved specimen, electron microscopy 4=7676
 surface structures 2=19106
 thermal conductivity 1=920
 thermal cond., effect of fast neutrons 4=4003
 thermal cond., effects of Sn impurities, theory 4=9829
 thermal cond., lattice, at low temps. 2=10341
 thermal cond. var. on neutron irradi., 80°-300°K 4=4004
 thermal conductivity, 3°K to melting point, meas. and theory 4=17383
 thermal cond., 5° to 300°K rel. to O, P, B doping 2=23083
 thermal cond., 30-425°C 1=19731
 thermal cond., 300°K 1=16133
 thermal conductivity, 300°-1200°K 3=10611
 thermal conductivity, 300°-1400°K 3=15449
 thermal conductivity, 680-1000°K 3=22671
 thermal expansion 0=2799, 13494
 thermal expansion 2=14386
 thermal expansion anomalous negative low-temp. values 3=10603
 thermal expansion, single crystals, -195° to +100°C 0=11587
 thermal expansion, 23°-530°K, X-ray meas. 3=4824
 thermal expansion up to 900°K, X-ray meas. 2=18535
 thermal oxidation 3=13600
 thermoelastic residual stresses in bonded wafers 1=5085
 thin film, absorption and reflectivity, u.v. 3=2995
 thin films, oxidation 2=23957
 thin layers, electron diffraction study 0=12039
 trace impurities in Si, spectrochem. determ. 2=23984
 transistor-grade, analysis of trace oxygen by α -activation 1=6581
 transition metal impurity ions in, electronic structure 0=17960
 twin boundaries 3=11215
 twin structures, etching and fracturing techniques 0=13965
 twinning and dislocations 1=7837
 twins, 90°, formation and structure 4=30811
 two-phonon indirect transitions and lattice scattering 0=9871
 u.v. absorption and reflectivity 0=8004
 ultrasonic absorption, rel. to thermal parameters 4=6724
 uniaxial strain effects on J = $\frac{1}{2}$ valence-band edge 3=4797
 use in i.r. spectra meas. of fused salts 4=27181
 vacancy diffusion during quenching calc. 2=21076
 vacancy formation, electron bombard., range-energy rel. for displaced atoms 1=14343
 vacancy-interstitial annealing of radiation damage 2=8266, 14483

Silicon—contd

- valence electrons, approx. wave-functions 0=469
 vaporization in Te vapours 1=11859
 vapour pressure 1=4514
 vibr., localized, rel. to B and Li impurities 4=17346
 vibrational amplitudes and Debye temp., from X-ray reflection 2=18522
 wafers, thickness meas. 0=6722
 wave propag., u.s. 4=20201
 wedge, effect on transmittance meas., 2-15 μ 4=20443
 whiskers, cleavage type, formation 0=13964
 whiskers, formation on sublimating surface 4=4558
 whiskers growth 4=10481
 whiskers, growth from Zn-reduced SiCl_4 0=3184
 whiskers, mechanical strength 1=20371
 whiskers and needle-shaped crystals, prep. and props. 4=10480
 whiskers, polished sections, etch figures 0=18322
 work function, local changes due to dislocations 4=21553
 X-ray Bragg reflection, effect of thermal vibrations 2=18521
 X-ray diffr. micrographs, loop-shaped images 2=15113
 X-ray diffraction modifications due to substitutional impurities 4=2091
 X-ray diffr. patterns, single-crystal 3=5097
 X-ray diffr. props. of atomic planes 2=23845
 X-ray diffraction theory with plane infinite incident wave 1=15048
 X-ray diffraction topography 1=7888
 X-ray emission spectra, K β -bands 0=20639
 X-ray emission spectrum 2=8939
 X-ray interference, dynamical effects 2=15015
 X-ray reflection intensity decrease from powder, prob. due to oxidation 4=20751
 X-ray scattering by, Compton effect at $\sin \theta/\lambda = 0.34$ 4=26671
 X-ray scatt., small-angle, thermal and incoherent 4=17581
 X-ray (soft) emission spectra, with photon-counting spectrometer 1=7439
 X-ray spectrum short wave limit 3=4919
 X-ray transmission, impurity effects 3=23098
 zone melting, shape of melt-crystal interface 2=8793
 zone refining, horizontal, in non-reactive crucibles 4=29059
 Ag diffusion and solubility, 1100-1390°C 1=3688
 As and P impurity absorption spectra 2=23557
 B-doped, neutron-irrad., He detection on cleavage 4=22570
 B impurity, spectrochem. estimation 1=19864
 B redistribution due to oxidation calc. 4=25967
 Cd condensation on, effect of surface pre-treatment 4=29810
 Cu diffusion and precipitation 1=10274
 Cu precipitation in, decoration of dislocations, 900-1300°C 1=4987
 Li⁺ drift in, effect of Li-B ion pairing 0=15940
 in Ne elec. discharge, cathode fall 0=19633
 Ni interstitials, distrib. rel. to elec. cond. var. 4=28453
 O impurity, vibration 2=3914
 O-doped, precipitates, X-ray study 4=23287
 O₂ in, diffusion, solubility, light absorpt. and other effects 3=15579
 P diffusion, dislocation distrib. near jn., meas. 4=28471
 P diffusion in, distrib. 1=3687
 P-doped, nuclear dynamic polarization suppression by r.f. radiation 4=28904
 S-doped, i.r. absorpt. spectrum 2=18846
 Si, etching is not necessary for low defects in growth 4=17844
 Si, lattice defects, by X-ray diffraction microscopy and double-crystal spectrometer 3=22707
 Si, single crystal, and MgO foils, electron double diffr. 1=16420
 Si, u.v. reflection spectra, rel. to strong doping 3=18007
 SiII, oscillator strengths meas. 4=25510
 Si I, II, absolute transition probabilities 0=5887
 Si III, 400-10 000 Å spectrum and term systems 1=13949
 Si III, IV in plasma, spectral line width and location 4=18845
 Si III and IV Stark broadening in fully ionized plasma 4=18853
 Si IV spectrum, doublets, fine structure 3=10446

Silicon—contd

- Si XIII, impurity in deuterium plasma, X-ray spectra 3=7581
 Si—O bonds 1=17712
 Si, O impurities round dislocations 3=22761
 Si₂, Si₃ and Si₄ trapped in neon and argon matrices at 4° and 20° K, i. r., visible, and near u. v. spectra 4=25681
 Si²⁹, in silicon, dynamic polarization at low temp. 0=21081
 Si—Al flames, spectrum, energy distrib., colour and brightness temp. 0=8854
 Si²⁺ and Ca²⁺, in $\text{CaAl}_2\text{Si}_2\text{O}_{12} \cdot 6\text{H}_2\text{O}$, differential and self-diffusion coeffs., calc. 4=30572
 Si²⁺ + H, charge exchange cross-section matrix calc. 4=29871
 Zn condensation on, effect of surface pre-treatment 4=29810
- Silicon compounds**
 See also Quartz
 amphiboles, crystal chemistry 0=8147
 amphiboles, i.r. spectra rel. to molec. struct. 2=16837
 carbides trapped in neon and argon matrices at 4° and 20° K, i. r., visible, and near u. v. spectra 4=25681
 carborundum, electroluminescence, voltage depend. 1=3870
 celsian (barium feldspar), crystal structure 0=8225
 chabazites, self and exchange-diffusion of ions 3=6534
 coesite, opt. absorption, 5-22 μ 2=4130
 cronstedtite, X-ray diffr. streaking and stacking faults 4=20289
 crystals and glasses, spectra interpretation 0=1499
 cyclo-silicates, i.r. spectrum band, calc. 3=13171
 disilane, n.m.r. spectrum rel. to parameters 4=16129
 epistilbite, crystal struct., atomic, mordenite chain modification 4=23440
 glass, borosilicate, granular structure, by electron microscopy 3=13545
 halides, mol. vibr. calc., XY₄ tetrahedral 4=9734
 hot electron emission from pn-junctions 1=17756
 iron group ions in tetrahedral sites, g-factors and field splittings, rel. to elec. fld. 3=23199
 orthosilicates, subst. of Si by Ge, Cr, S, P, As 0=1905
 oxide films, optical props. and growth 4=4277
 prochlorite (natural silicate), use in X-ray spectrometers and monochromators 3=4230
 quartz-cristobalite transform., Kr⁸⁵ diffusion 2=4361
 quartz, photoelectric emission induced by high intensity laser beam 4=14749
 silanes, α - and β -functional, rel. to chemical props. 4=12491
 silane, i.r. intensities 2=22982
 silanes, liquid, X-ray investig., electron density distrib. 4=21097
 silane, purification 0=20908
 silane, rotational distortion consts. 2=6143
 silica, absorption spectra, 50-2500 μ 0=10035
 silica, adsorption of acetylene 1=11601
 silica-alumina cracking catalyst, surface energy distrib. 4=23550
 silica-alumina, i.r. study of surface 3=11313
 silica, clear fused, thermal cond., 300-2100°K 0=1577
 silica, defect structure, nature of bonding 0=13530
 silica, fused, colour centre prod. by X-ray and electron irrad. at 77°K 0=2834
 silica, fused, compliance, audio-frequency 4=15418
 silica, fused, cone cracks 0=11986
 silica, fused and crystalline, structural defects 0=7877
 silica, fused, diffusion of protons in elec. fields 2=10410
 silica, fused, E₁' centres produced by irradiation 4=26431
 silica, fused, effect of γ -irrad. on absorption bands 2=16832
 silica, fused, H—D exchange, i.r. study 1=1475
 silica, fused, irradiated, optical absorption 0=16060
 silica, fused, irradiation effects and short-range order 0=15876
 silica, fused, luminescence 0=1759
 silica, fused, photoelectric emission due to u. v. irrad. 4=8806
 silica, fused, radiation-induced coloration 0=16073
 silica, fused, Young's and rigidity moduli rel. to large tensile strain 4=28979
 silica gel-charcoal adsorbent systems 2=15102
 silica gel, colour centres prod. by γ or X-rays 0=4299
 silica gel, crystal growth in 0=13946

Silicon compounds—contd

- silica gel disks, transparent, crack-free, preps.
method 2=19705
- silica gel, effect of γ -rays on adsorption props. 0=4745
- silica gel, films adsorption and catalysis, rel. to
irrad. 3=6896
- silica gel, H atoms formed when γ -irrad. 3=3419
- silica gel, interaction with free radicals, e.s.r.
study 4=1321
- Silica gel, luminescence and afterglow at -163°C 1=10117
- silica gels, microwave and dipolar spectra 3=22984
- Silica gels, n.m.r. study of water contained 4=4720
- silica gel, paramagnetic studies of radiation
damage 0=21078
- silica gel, particle size determ., X-ray method 2=10931
- silica gel, particle size determination 0=8330
- silica gel and sand, desorption rates of Ar, He, CO_2 4=7729
- silica gels, structure, calcination 2=19172
- silica gel, use in leak detector 4=16161
- silica glass, diffusion of water 2=6378
- silica heat shields for nose cones, thermal
parameters 4=15437
- silica, irradiated, u.v. absorption study 1=7708
- silica, molten, viscosity and density, temp. depend. 0=18383
- silica, optical component testing 2=7330
- silico-organic cpds., atomic susceptibility
measurements 2=15980
- silica replica films, structure examin. 3=3375
- silica, shock behaviour 1=11172
- silica and silicates, structural effects in chemical
reactivity 0=16376
- silica, sol mixtures, X-ray scattering 0=12053
- silica, surface hydroxyl groups 1=20691
- silica, thermal expansion from 2° - 30°K 4=12656
- silica, vitreous, annealing fast-neutron induced density
changes, frequency factors 1=7606
- silica, vitreous, Brillouin spectra and lattice
props. 0=11580-1
- silica, vitreous and crystalline, radiation changes, gross
defects 0=15877
- silica, vitreous, crystallization, effect of H_2O and
 O_2 4=23348
- silica, vitreous, diffusion of Li, isotopic
separation 1=13972
- silica, vitreous, Hugoniot curve, shock crystal-
lization 0=3259
- silica, vitreous, irradiation effects, by positive ions, surface
refractive index changes 0=13569
- silica, vitreous, order study 2=9257
- silica, vitreous, scattering of light, effect of
elastic strains 3=921
- silica, vitreous, in suspension, electrokinetic
mobilities 0=4744
- silica, vitreous, thermal expansion and Grüneisen
factor 0=12532
- silica walls in flash tubes, u.v. radiation from
Si-vapour 4=8409
- silica, Young's modulus, -195° to $+540^{\circ}\text{C}$ 0=13900
- silica, ZnS film adhesion, effect of oil vapour
contamination 0=14087
- silicate cathodoluminescent films, prod. 1=14654
- silicates in chondrites 3=9186
- silicates, dielectric props. 0=13645
- silicates, fused, viscosity and free vol. 4=2663
- silicate glass, i.r. spectra 4.2° to 773°K 3=3019
- silicate glasses, colour centres, thermal stability 4=20308
- silicates, heat of crystallization, from structure
analogy 3=18269
- silicates, hydrated, n.m.r. study of structure of water in
interlayers 4=10347
- silicates, i.r. absorption spectra 1=14610
- silicates, interatomic distances, nature of Si-O
bond 1=20565
- silicates, layered, reported departures from ideal
structures, criticism 0=6362
- silicates, luminescence efficiency, thin layers 0=2963
- silicate materials, hole formation, near atomic
dimensions 3=16468
- silicate phosphors, Pb + Mn activated 1=6226
- silicate pyroxenes, high-pressure phase trans-
formations 4=4509
- silicates, Si-O-Si bond angles 2=10897
- silicates, Si-O, tetrahedral distance 3=25715

Silicon compounds—contd

- silicates, vibrational spectra of plane Si-O
rings 1=3828
- silicide layers on Mo, imperfections, influence of
stresses 4=7704
- silicone, droplet diffusion in elec. field 1=15949
- silicone fluid, acoustic impedance in circular tubes 1=11758
- silicone liquid scintillant 0=5032
- silicone oils, refractive index 0=2230
- silicone polymers, fracture under shear 4=27151
- silicones, viscosity, pressure depend. 1=106
- silyl halides, potential constants and thermodynamic
props. 3=8280
- spodumene, crystallization, from Raman spectra 3=5086
- stishovite (SiO_2), crystal structure 3=5108
- stishovite, crystal habit rel. to crystallization
temp. 4=26565
- synthetic quartz, optical properties 1=8979
- topaz, micro-disk patterns on crystal faces 2=8774
- tourmaline, crystal structure 2=15032
- transition-metal silicides, elec. cond., thermoelec.
power and Hall effect 1=5004
- tridymite (SiO_2), crystal structure 1=15090
- trisilane, n.m.r. spectrum rel. to parameters 4=16129
- vitreous silica, stress relaxation, by He or proton
irrad. 4=15507
- vitreous silicates, structure, similarity to high temp.
crystals of same composition 4=2136
- Ag alloys, stacking-fault probabilities 4=4063
- Ag halides, h.p. microscopy rel. to phase props. 4=15743
- Ag halides, thermal expansion up to melting points 4=3999
- Ag-SiO-Ag diode, S-type negative recryst. 4=28596
- Fe-Si (4%), domain wall velo., effect of plastic deformation
and irradiation 3=11068
- Si alloys, ternary Laves phase, reduced atomic
radius 4=7645
- Si carbide polytype 105R, crystal structure 4=7639
- Si carbide polytype 36H, anomalous crystal
structure 4=7640
- Si carbides, optically active lattice vibrations 4=12605
- Si halides, spectrochemical analysis of
impurities 4=7792
- Si hydrides and derivatives, coupling consts. 2=14330
- Si hydrides, formation, in Mg hot extraction, mass
spectrometric study 1=20784
- Si iron, electrolyte etching, dislocation study 1=2522
- Si nitride, dielectric films on Mo 0=4376
- Si oxide films, optical props., 0.2 - 1.6μ , rel. to
appl. 4=22893
- Si oxide films, thermally oxidized, absorpt. 9μ , decrease
on γ -irradiation 3=13189
- Si, solubility of impurities, maximum, and m.p. distrib.
coeff. 3=20910
- Si-Au alloy, eutectic composition 2=4450
- SiBr₄, potential consts. calc. 3=17588
- α -SiC, absorpt. by free carriers 2=2240
- α -SiC, crystals, dendritic growth, mechanism 0=1891
- α -SiC, luminescence, 5450-6700 Å 3=25485
- α -SiC, n-type, Hall effect and optical absorpt. 4=26220
- α -SiC, photoelectric props. of alloy p-n junctions 0=20939
- SiC, α -modification, photocond. 2=8441, 14585
- SiC, α -phase, electronic cond. 300° - 1500°K 3=6603
- SiC, β , crystal growth form and impurity
distrib. 4=13546
- β -SiC, optical absorption and semicond. energy gap 0=16062
- SiC, bond character rel. to A^{III} B^V cpds. and ZnS 3=2688
- SiC, coding matrix 0=6644
- SiC, crystal bonds 2=20899
- SiC, crystal bonds 3=6451
- SiC, crystal growth, by decomposition of SiCl_4 by tol ol,
on C 4=13545
- SiC, crystal growth, polymorphism 4=10477
- SiC, crystal growth and semicond. props.
(conference) 0=4365
- SiC, crystal growth from volatile compounds hot
W wire 2=21487
- SiC, crystal layer stacking 1=15074
- SiC, crystal structure of 174-layer modification 1=7866
- SiC, crystal structure, atomic, new modification 4=4621
- SiC diode "laser" 4=14956
- SiC, dislocations 0=13538
- SiC, dislocations, etching and electron microscope
studies 4=4062

Silicon compounds—contd

- SiC, dissociation pressure 1=4514
 SiC, donor and acceptor levels 2=23124
 SiC, e.s.r. of B and N impurities 1=20233
 SiC, elastic constants 3=18160
 SiC, elec. cond., temp. depend 2=8354
 SiC, electroluminescence, current-voltage characteristics 0=18053
 SiC, electroluminescence in n-type region 3=6684
 SiC, epitaxial growth 4=30827
 SiC, 15R, optical props. and exciton processes 4=7157
 SiC films, high photovoltage 4=22803
 SiC, fluorescence spectra 1=10109
 SiC, 417R and 453R, crystal structure, atomic 4=26672
 SiC, grown p-n junctions 0=15960
 SiC, growth, high spiral steps, breakdown 3=20798
 SiC, growth of single crystals by sublimation in Ar 3=5085
 SiC heated to 1000°C, spectral emittance 4=14443
 SiC, hexagonal, hole and electron mobility 3=10838
 SiC, insulated crystals, electroluminescence 0=8024
 SiC, international conference 0=20714
 SiC, lattice absorption bands 1=11372
 SiC, long period structure and growth from imperfections, X-ray investig. 4=23472
 SiC, luminescence, on impact by alkali halides 4=1765
 SiC, luminescence of N-exciton complexes and interband absorption 4=10218
 SiC, minority carrier lifetime, measurement 1=11308
 SiC mixtures, i.r. emissivity 2=7453
 SiC, n-type, ENDOR meas. 4=1888
 SiC, n-type, transient recomb. meas. 3=10840
 SiC, new polytype, growth and crystal structure 2=10865
 SiC, 174 layers, structure analysis 0=10314
 SiC, optical consts., 2.5-1.6 μ 0=6164
 SiC, optical, elastic and piezoelectric props. 1=899
 SiC, p-n junctions, electron emission 1=16360
 SiC p-n junction, hot electron emission 2=2182
 SiC, p-n junctions, hot electron emission 3=883
 SiC p-n junction laser 4=9000
 SiC, p-n junction photo-e.m.f. 2=4069
 SiC, p-type, acceptor levels and donor concentrations 1=17716
 SiC, parallel growth and X-ray analysis 2=14943
 SiC, phase transformations 4=2089
 SiC, photoconductivity kinetics 3=8571
 SiC, photocond. and p-n photoeffect 3=13136
 SiC, photocond. relax. and carrier lifetimes 3=15634
 SiC, photo-e.m.f. due to impurity and intrinsic excitation 2=10539
 SiC, polarized edge emission 0=8012-13
 SiC, polymorphism 4=4521
 SiC, polytypes, anomalies 3=11212
 SiC, polytypes, rel. to dislocations 4=2009
 SiC, prodn. and props., bibliography 4=5000
 SiC, as reactor irradiations conditions indicator 2=18389
 SiC, recomb. radiation of p-n junction 2=4044, 6476
 SiC, reflection anomalies due to phase relations between crystal domains 1=15189
 SiC, resistors, dynamic V-I characteristics 0=15886
 SiC, semicond., p-i-n junction, V-I characs., photovoltaic effect, p-n luminescence 3=13082
 SiC single crystal platelets, crossbending strength 3=20708
 SiC (6H), exciton recombination radn. and phonon spectrum rel. to multiple donor and acceptor levels 2=23123
 SiC, 6H and 4H polytypes, exciton and interband absorption 2=23562
 SiC, 6H, luminesc. of nitrogen-exciton complexes 3=18034
 SiC, space-charge-limited currents 2=23408
 SiC, spectra, luminescence 3=20485
 SiC, sputtering by positive ions 3=4214
 SiC, surface steps on crystals 1=1462
 SiC, thermal conductivity 2=10343
 α -SiC, thermoelec. power, effect of phonon drag 2=16764, 18758
 SiC, thermometer, resistance, 4-10°K 3=9666
 SiC, traps in grains, meas. from elec. props. 2=14563
 SiC, u.v. absorpt. spectrum, var. with temp. 3=10990
 SiC, whisker growth by sublimation 4=20739
 SiC, whiskers, growth, twist and polytype 0=1886
 SiC, X-ray emission spectra, K β -bands 0=20639
 SiC₂, mean ampl. of vibr. and thermodyn. props. 4=15348

Silicon compounds—contd

- SiC-B₄C system, phase equilibria 4=20698
 Si(CH₃)₄, potential consts. calc. 3=17588
 Si-C, contamination effect on Si epitaxial layer bonding props. 4=30883
 SiCl, vibr. analysis of B-X bands 3=10522
 SiCl₄, binary systems with SnCl₄, CCl₄, TiCl₄, dielec. props. 2=19578
 SiCl₄, molec. force consts. 2=22957
 SiCl₄, potential consts. calc. 3=17588
 SiCl₄, Raman line intensity, temp. var. 1=15879
 SiCl₄, valence force fields calc. 3=17551
 SiCl₄ vapour, u.s. absorpt., dispersion 2=2772
 SiCl₄, X-ray investig., electron density distrib. 4=21097
 Si-Co, molten, density rel. to composition 2=19543
 Si-Co, semicond. and thermoelec. props. 0=13604
 Si-Cu alloy, dislocation density after cold working 2=3916
 SiD, vibr.-rotational energy transfer 3=6414
 SiDCl₃, valence force fields calc. 3=17551
 SiD₃NCS, molecular consts. 3=22573
 SiF₄, crystal structure 1=12348
 SiF₄, γ -irradiation at low temp. 3=12874
 SiF₄, isothermal PV curves, to 20 000 kg/cm² 0=14042
 SiF₄, n. m. r. of F¹⁹, isotope effects of Si²⁹ 4=3911
 SiF₄, potential consts. calc. 3=17588
 SiF₄, Raman intensities for $\nu_1(a_1)$ modes 3=22559
 SiF₄, $\Sigma^- \rightarrow \Pi$ transition meas. 2=12332
 SiF₄, thermodynamic props. 3=21636
 SiF₂, u.v. emission spectrum 2=6182
 SiF₃H and SiF₃D, anharmonicity, pot. consts. and thermodynam. props. 2=10239
 Si-Fe alloy, magnetostriction curves rel. to crystal structure state 4=20551
 Si-Fe alloy, textured, recrystallization structure 2=12701
 Si-Fe, domain boundary movements, low frequency losses 2=14777
 Si-Fe, crystal orientation growth requirements, cube-on-edge 4=13655
 Si-Fe crystals, deformation bands, by electron microscopy 3=8912
 Si-Fe crystals, rolled and annealed, microstructure study by electron transmission microscopy 4=23171
 Si-Fe crystals, surface magnetization 1=11434
 Si-Fe crystals, temp. hysteresis of domain structure 1=3902
 Si-Fe crystals, Weiss domains 1=11436
 Si-Fe, cubic growth by atmosphere control 0=12007
 Si-Fe, deformed, substructures and recrystallization 3=23468
 Si-Fe, demagnetization losses, effect of impurities 1=6284
 Si (3.5%) -Fe, domain structure, 0-600°C, from longitudinal Kerr effect 3=11071
 Si-Fe, domain tube structure 0=16135
 Si-Fe, domain wall thickness 0=3039
 3% Si-Fe, domain-wall widths 3=13252
 Si-Fe, effect of stress on mag. domain walls 1=14710
 Si-Fe, elec. resistivity anisotropy 1=14362
 Si-Fe films, by cathode sputtering, micromag. structure 2=15094
 Si-Fe films, ferromag. domain structure 3=11076
 Si-Fe, grain boundary and surface energies, re-view 4=13622
 4% SiFe, growth of single-crystal rods 2=14954
 Si-Fe, hot-worked, recrystallization 4=23343
 Si-Fe, magnetic domain structure 1=6295-6
 Si-Fe, first magnetocrystalline anisotropy constants 1=7747
 Si-Fe, mag. losses at low frequencies and high flux densities 1=6290
 SiFe, mag. props. and eddy-current losses 1=6339
 Si-Fe, mag. props. rel. to crystal growth rate 1=20096
 Si-Fe, magnetization of single crystals 1=14701
 Si-Fe, magnetostriction curves rel. to domain structure 4=17659
 Si-Fe, magnetostriction, temp. depend. 3=1151
 Si-Fe, magnetothermal effects 1=1220
 Si-Fe, mobility of edge dislocations 0=6042
 Si-Fe, neutron irradiation, effect on mag. props. 0=13777

Silicon compounds—contd

- Si-Fe, 90° Bloch walls, energy and orientation dependence on stress 1=14713
 Si-Fe, plastic microstrain 2=6734
 Si-Fe, recrystallization texture 0=18291
 Si-Fe, sheet, mag. domain patterns 1=1222
 Si-Fe single crystal, surface magnetization, Kerr hysteresis 1=11433
 Si-Fe single crystals, effective field of Hall effect 1=3721
 Si-Fe single crystals, extraordinary Hall effect 1=3720-1
 Si-Fe, slip band structure, dislocation multiplication 2=8226
 Si-Fe, stress effect on mag. domain struct. 4=22994
 Si-Fe tapes, mag. props. of wound cores 2=12707
 Si-Fe, thermal etching 0=18329
 Si-Fe, thermomagnetic props. and domain nuclei 0=11846
 Si-Fe, time decrease of permeability 1=2481
 Si-Ge alloy films, prod. and examin. 2=10807
 Si-Ge alloys, paramag. susceptibility rel. to temp. 2=23636
 Si-Ge crystals, vapour growth, epitaxial 3=3281
 Si-Ge mixtures, isotopic phonon-phonon scatt. 2=23090
 SiH derivs., proton and F¹⁹ chem. shifts 3=22603
 SiH₃ group, deform. freqs., symmetrical 4=3853
 SiH₄, compression and solid state phase transitions 2=4357
 SiH₄, indirect p-Si spin coupling meas. 4=15382
 SiH₄, potential const. calc. 3=17588
 SiH₄, prep. and thermal decomposition 2=7091
 SiH₄, prepn. for ionization chamber 3=2508
 SiH₄, vibr.-rotational energy transfer 3=6414
 SiH₄, SCF MO one-centre basis set 4=20046
 Si₂H₆, i.r. spectrum analysis 2=16529
 SiHBr₃, mol., thermodyn. props. 3=12798
 SiHCl₃, mol., thermodyn. props. 3=12798
 SiHCl₃, valence force fields calc. 3=17551
 (SiH₃)₃N, mols., planar structure, from zero value of electric dipole moment 4=6605
 SiH₃NCS, molecular const. 3=22573
 SiH₃PH₂' and SiH₃AsH₂', proton resonance 3=12863
 SiH₄, potential const. calc. 3=17588
 Si-KOH boundary, photoelectrochemistry 3=6923
 SiMgBaO₄, crystal struct. atomic, density, mag. susceptibility 4=23473
 SiN, B²Σ⁺-X²Σ⁺ spectrum 3=8269
 Si-Ni, molten, density rel. to composition 2=19543
 Si₂N₂O, crystal struct., atomic 4=23475
 Si₃N₄, elec. cond., effect of C and Ti additives 2=8303
 Si₃N₄, thin films, dielectric constant 3=8555
 Si-Ni solid solution, Ni solubility, 900° to 1350°C 3=3338
 Si-Ni solid solutions, prep. 2=23890
 SiO and CeO₂, evaporated, as optical film, protective, for mirrors 3=11927
 SiO and CeO₂, evaporated, for optical films, anti-reflection 3=11928
 SiO evap. films, stress in effect of exposure to air 3=1365
 SiO films, abrasion resist. meas. 4=23112
 SiO films with Ag and Au, optical reflection, rel. to surf. conductivity 4=27888
 SiO films on Al mirrors, annealing 0=8783
 SiO films, annealing of residual stresses 2=838
 SiO films, dielec. props. and d.c. cond. 4=22766
 SiO films, dielectric props. meas. 4=1655
 SiO films, evap. rel. to constit., density, dielec. const., and insulation 2=17521
 SiO films, optical const. and thickness meas. 2=21864
 SiO films, optical props. rel. to evap. rate 3=20486
 SiO films, prod. rate and thickness meas. 2=21583
 SiO films, stress anisotropy rel. to prep. 3=11144
 SiO films, thickness meas. 2=21863
 SiO gettering action in v.h. vacuum 2=9321
 SiO, intensity distrib. in forbidden ¹Σ⁺-³Π_g transition 3=10523
 SiO molecule, Franck-Condon factors, calc. 2=16521
 SiO oxidized films on Al, reflectance 1=10095
 SiO on Pt and Inconel, heated to 1000°C, spectral emittance 4=14443
 SiO, ¹Σ⁺-³Π_g, spectrum 1=9932
 SiO, sublimated films, residual stresses 3=11146
 SiO, thin films, dielectric constant 3=8555
 SiO, undercoating of NiFe mag. memory devices 2=14784

Silicon compounds—contd

- SiO₂, absorption, acoustic, u.s., OH ion effects low temp. var. 4=22486
 SiO₂, adsorption of benzene 3=1382
 SiO₂, adsorption of hydroxyl groups, spectrum and heat vars. 3=8922
 SiO₂, "Aerosil" silica, adsorption and diffusion of CO₂ 3=18399
 SiO₂, bending, acoustic compliance 4=10399
 SiO₂, coatings on Si, prep. 2=15141
 SiO₂ colloid, light scatt., effect of NaCl 2=23977
 SiO₂, colloidal, adsorpt. on Al₂O₃ 4=23684
 SiO₂, conductivity, elec., fused, solid and liquid, 1000-2480°C 4=12962
 SiO₂, cristobalite, neutron irradi., α-β inversion temp., structure 0=15878
 SiO₂ crystals, thermal expansion 1=918
 SiO₂, doped, colour centres prod. by X-ray irradi., optical and thermal bleaching 4=15499
 SiO₂, effect on Bi₂O₃ polymorphism 4=23253
 SiO₂, evaporation, nuclear target prep. 1=7400
 SiO₂ fibres, periodic structure 3=18370
 SiO₂ fibres, tensile strength 4=13444
 SiO₂, field emission 1=13099
 SiO₂ films for capacitors, vacuum deposition 1=6562
 SiO₂, film deposition, low-temp. technique 2=10936
 SiO₂ films, diffusion of P 0=11642
 SiO₂ films on GaAs, Zn diffusion 4=22616
 SiO₂, film growth on Si, in O₂, at 1250°C, mechanism 3=23516
 SiO₂ films, imperfections and gas permeation 2=10943
 SiO₂, films, low temp. deposition method, gas discharge 4=2118
 SiO₂ films, passivation of p-n junction particle detectors 3=7749
 SiO₂ films, phases during evap. of SiO 2=8884
 SiO₂ films on Si, refr. index and thickness 3=13149
 SiO₂ film on Si, struct. props. 4=23588
 SiO₂, films, 350-5000 Å, insulation 3=21388
 SiO₂, fused, defect prod. by irradiation 2=12478
 SiO₂, fused, fast-neutron-irradi., dielectric props. at room temp. 4=28620
 SiO₂, fused, Raman band intensities in Stokes region, temp. depend. 1=5052
 SiO₂ fused, u.s. wave interaction 3=25191
 SiO₂ gel, adsorption of gases, data correl., low press., supercrit. temps. 4=29192
 SiO₂ gel, surface effects of gamma-rays 2=12482
 SiO₂ glass, densification, heat treatment 4=13409
 SiO₂ glass, densification in rigid state up to 80 kbar 4=13408
 SiO₂ glass, elastic moduli and u.s. attenuation, effect of fast-neutron irradi. 3=13330
 SiO₂ glass, neutron-irradiated, defect study by u.s. absorption 1=20634
 SiO₂ glass, 96%, "small pore", spectrum, near i.r. 4=22889
 SiO₂ glass, specific heat, low-temp. excess 3=767
 SiO₂ glass, thermal expansion and thermal history 2=14389
 SiO₂ glass, Young's modulus rel. to refr. index, ht. effect 4=27864
 SiO₂, high-press. polymorphs, coord. rel. to spectra 4=744
 SiO₂, i.r. absorption, 50-350 μ 0=6927
 SiO₂, infrared reflection spectra 1=11379
 SiO₂, lattice const. and density, precision 1=1677-8
 SiO₂ layers, thickness meas. by u.v.-visible interf. 4=30882
 SiO₂, melting 0=10321
 SiO₂, molecular vibr. and rot., calc. 4=28233
 SiO₂, molten, viscosity up to 2200°C 4=16096
 SiO₂, n irradi., crystalline α-quartz prod. 4=4552
 SiO₂, neutron spectrometer crystal 0=5572
 SiO₂, OH-free, u.s. relaxation loss 4=17352
 SiO₂, optical absorptions, radiation induced 1=12406
 SiO₂, optical constants and diel. props. in metal-SiO₂-Si system 2=8458
 SiO₂, p-i-p junctions, rectification and e.m.f. 3=10849
 SiO₂ particles, in Cu-SiO₂ alloy, coarsening 4=30868
 SiO₂, photoelec. emission, polarized light effect 2=7648
 SiO₂, protective film for resistance temp. gauge 0=2274
 SiO₂, (quartz and silica) effect of neutrons 1=17592

Silicon compounds—contd

- SiO₂ (quartz, vitreous silica, cristobalite), heat capacity at low temps. 4=6749
 SiO₂, Sb diffusion 3=25294
 SiO₂ in Si, elec. and optical props. 2=23352
 SiO₂ (silica), neutron irradi., light scattering asymmetry 1=19946
 SiO₂ silica with < 1% Al, thermoluminescence and coloration rel. to heat treatment 4=4306
 SiO₂, surface conductivity, due to adsorbed molecules 3=25318
 SiO₂, thin films, dielectric constant 3=8555
 SiO₂, thin films on Si, diffusion of P 4=28483
 SiO₂, thin films, thickness meas. 4=29187
 SiO₂, transducer thickness effects on meas. of u.s. vel. 4=27266
 SiO₂, use in interference light-filters 0=3639-40
 SiO₂, vibrational spectra 4=1282
 SiO₂, viscosity, effect of temp. and composition 2=832
 SiO₂, vitreous and crystalline, defect sites, appl. to thermal conduction 4=28387
 SiO₂, vitreous, dilatations due to irradi. 3=4899
 SiO₂, vitreous, X-ray scatt., surface effects 2=8899
 SiO₂ windows, construction technique 0=10335
 Si₂O, SiO, Si₂O₃, X-ray emission 0=1970
 SiO₄ solution, N.M.R. 1=11768
 SiO₄ in Si, elec. and optical props. 2=23352
 SiO₂-Al₂O₃, molten, viscosity up to 2200°C 4=16096
 SiO₂-Al₂O₃-Li₂O glasses, selective cryst. 2=6783
 SiO₂ + C, electron field emission 3=21851
 SiOC₂H₅ = Si₂O. (C₂H₅)₂O, X-ray emission 0=1970
 SiO₂-3CaO, polymorphism 3=3301
 SiO₂-Cr₂O₃ catalysts, mag. props. 0=11805
 SiO₂-MoO₃, MoO₃, whisker growth on 1=9119
 (66.7%)SiO₂-Na₂O, ordered rel. to disordered phases 3=11303
 SiO₂-UO₂ system phase diagram 4=5446
 (Si₃O₇)⁴⁻ anion, i.r. vibration spectra 1=2327
 (Si₃O₇KAl)₄, orthoclase, i.r. reflection spectrum, 10 to 30 μ 3=18014
 SiR₃H₃X₃ where R is alkyl and X halogen, mag. props. and bond interactions 4=30467
 SiS, rotat. analysis of E-X band system 2=6145
 Si-SiO₂-metal system, optical and diel. props. 2=8458
 SiZnBaO₄, crystal struct., atomic, density, mag. susceptibility 4=23473

Silver

- abrasion on emery paper 2=8758
 abrasion, theory 0=3164
 abrasion wear and friction 1=1353
 acoustic dissipation coeff., increase by grinding of metal 4=6723
 adsorption of H 4=23605
 arc stability 1=1899
 atom, Ag^{113, 115}, h.f.s. separations in ground state 4=12116
 atoms, e.s.r. in paraffins at 77°K 3=15948
 atomic electron affinity, surface ionization meas. 4=18678
 atom, K⁺ absorption, electron emission meas. 4=12416
 atoms, in KCl, on X irradi., electron nuclear double reson., and h.f.s. 4=1889
 atoms, optical transition probabilities 0=7732
 atom recoils from (γ,n) reaction, range 1=4858
 atomic spectra, Ag I and II isotope shift 2=10211
 atoms, spectral line collision broadening 4=25511
 atoms, trapped in H₂O and C₂H₅OH, e.s.r. at 77°K 3=25575
 atoms trapped in undecane media, liq. N₂ temp., e.s.r. 4=13317
 bicrystal prod. 2=6730
 bombarded by 10-100 keV, secondary electron emission 2=1494
 Bordoni peaks, rel. to deformation and annealing 3=23298
 bremsstrahlung circular polariz., in magnetized Ag 0=7325
 Brillouin zone energy calc. 2=18553
 chemisorption of H₂ and CO, work function, bond 0=18452
 chemisorption of S on (111), (110) and (100) faces 4=26724
 cohesive energy 0=20722
 cold work damage, X-ray study 3=18202
 cold-worked, annealing spectrum 2=4335
 cold-worked and annealed, thermoelec. power at low temp. 0=18081

Silver—contd

- cold-worked, dislocation distribution flow stress, and stored energy 0=20813
 cold-worked, stored energy release on annealing 3=11173
 colloidal, bleaching inside AgCl crystals 0=9913
 compressibility and volume, temp. variation 4=1401
 compression tests on single crystals 4=30764
 cond., elec., crystal whiskers, low temp. min. 4=174/8
 condensation energy on glass, NaCl and KBr 0=4696
 condensation in vacuum, microheterogeneous 2=1308, 7468
 contact to CdS single crystals, electrical props. 4=12853
 counter-tube cathode, spectral yield curve 0=9229
 creep props. rel. to O content 3=13363
 cross-slip and stacking-fault energy 3=1230
 crystals, alloy formation by nuclear transmutations 4=15227
 crystal defects on quenching after heating in air 4=6823
 crystal dislocation relaxation peaks after deformation at 4.2°K 4=7429
 crystal divacancies, binding energy and quenching 4=22562
 crystal growth condensation on NaCl, in air and vacuo 4=13547
 crystal growth, in H₂S, reaction rate and product growth 0=16257
 crystal growth, simple method 0=3174
 crystal growth, from vapour, condensation coeff. 0=12003
 crystals, hillocks, etch pits, unstable faces, formation conditions 3=17714
 crystal stacking fault energy calc. 4=22603
 crystal struct., atomic, lattice var. with grain size 4=20764
 crystal structure, effect of AgS surface growths on electron diffr. 4=2090
 crystallites on W, coalescence, rel. to substrate topography, 650°-1000°K 4=10614
 crystallization, electron diffraction study 2=14968
 Debye temperature 1=17425
 defect clusters, rel. to fission fragment irradi. 3=17803
 defects distrib., under deformation, thermo-e.m.f. study 1=14247-8
 defects, role in nucleation of sulphide patches 2=6846
 deformation, 1.7-473°K 0=1851
 deformed, vacancies and dislocations, thermo e.m.f. study 1=14254
 de Haas-van Alphen effect 0=16121
 de Haas-van Alphen effect and Fermi surface, at low field 4=28772
 dendrites, twinning 1=5088
 dendritic electrodeposits, orientated growth 2=6765
 density in liquid state 2=2701
 deposition, on C replica of rocksalt, preferential orientation 0=21171
 deposition and dissolution kinetics 0=4713
 desorption energy from Mo and Ni 3=23521
 deuterium ion introd. into metal 2=12606
 deuteron scatt., elastic, 11.8 MeV 3=17490
 diffusion at Ag-AgCd interface, tracer study 0=1606
 diffusion in AgBr, press. and temp. depend. 1=989
 diffusion in Ag liquid 4=24196
 diffusion, in Ag, Ni, Au, surface 3=20232
 diffusion in Al, volume and boundary rates, temp. depend. 1=14299
 diffusion in Au, surface effects 4=10603
 diffusion in BiTe 2=18607
 diffusion in Bi₂Te₃-Bi₂Se₃, and escape, effect of atmosphere 3=20219
 diffusion in Cu bicrystals, grain boundary 3=6533
 diffusion in Cu, effect of Be impurities 0=4303
 diffusion in Cu, in elec. fields 4=20307
 diffusion in Cu and Cu-Ag alloy 1=986
 diffusion, in Cu, plastically deformed 1=3689
 diffusion in Cu₂O 0=11639
 diffusion in Cu₂O, new acceptor energy level 1=19876
 diffusion in Ge 2=12453
 diffusion in Ge, in elec. field 0=15870
 diffusion in Ge, radiotracer techniques 1=19802
 diffusion in glass, self 4=30575
 diffusion, in liquid Bi, 300-700°C 3=21331
 diffusion in Mg, ion mobility, d.c., and scatt. 3=22831

Silver—contd

- diffusion in Ni 2=18608, 23209
 diffusion in ordered and disordered CuZn 1=10009
 diffusion in quartz in elec. fields 1=12404
 diffusion, into rutile and perovskite ceramics 1=17564
 diffusion, self, grain boundaries, and charge carrier type 4=9991
 diffusion, self, meas., temp. var., by radioactive tracer 4=12802
 diffusion, self, surface 3=22821
 diffusion, in Si, 1100-1350°C 1=3688
 diffusion and solubility in Bi₂Te₃ 2=18606
 diffusion and solubility in Bi₂Te₃ 3=12998
 diffusion and solubility in GaAs 4=1512
 diffusion and solubility in Ge 2=12454, 14458
 diffusion, surface, coeffs. meas. 3=17792
 diffusion of Ag¹¹⁰ in Zn, anisotropy 2=2101
 diffusion, anomalous, of Ce, Nd and Pm 3=13005
 diffusion of Fe, Co, Ni, discrepancies 4=20305
 diffusion of impurities in Ag 1=14316
 diffusion of Fe, Co, Ni, poss. surface effects 4=12800-1
 diffusion of Fe, Co, Ni, rel. to solubilities 3=13006
 diffusion of Fe^{55,59} in, comp. with theory 1=4993
 diffusion, of Ni 2=3942
 diffusion of Ni and Co 3=22814
 diffusion of Pd, meas. and analysis 4=6870
 diffusion, thermal, of substitutional impurities 4=17440
 dislocation density, after deformation 1=11206
 dislocation density, in strain, from microhardness data 1=11209
 dislocations, edge, fast moving 2=12433
 dislocations, elec. cond. rel. to stacking faults 2=6338
 dislocations, etch pits in single crystals 3=806
 dislocations, interaction with Rh film 1=965
 dislocation relaxation 1=17533
 dislocation structure, cold-worked polycrystalline specimens, annealing processes 0=20822
 disorientation of single crystals by ion bombard. 1=17591
 dissolution in emulsion by fixing solutions 0=194
 effect of neutron irradi. on crystal cell size 1=3703
 elastic constants, -183° to 300°C 3=20688
 elastic modulus, torsional, dynamic meas. 2=8698
 elec. cond., change due to torsional deform., law 3=8490
 electrical cond., effect of plastic deformation, +20° to -196°C 2=23235
 electrical conductivity, plastic deformation effect, 77-293°K 4=22682
 electric cond. for vacancy scatt., pseudopotential method 4=6771
 electrical contacts, metal migration 3=9690
 elec. resistance at low temp. 1=7615
 elec. resistivity, effect of plastic strains 3=13036
 electrical transfer, in AgZn 2=8247
 electrical transfer in Al, effective charge 2=10416
 electrodiffusion 2=6374
 electrodiffusion in Bi, d.c. -induced, analysis 4=12785
 electrolytic deposition, luminous emission near cathode 2=856
 electrolytic deposition for targets and radioactive sources 3=24532
 electron beams, energy rel. to atomic displacements 2=12476
 electron beams, energy dissipation, fair agreement for medium penetration 4=6817
 electron bombarded, characteristic energy loss 2=10365
 electron diffraction intensities and structure amplitudes rel., and its appl. in structure analysis 4=10521
 electron emission, secondary, 20°-450°C 3=427
 electron energy loss, ang. depend., rel. to theory 2=8198
 electron energy loss by bremsstrahlung at 1MeV 3=17699
 electron energy losses 2=2073
 electron energy losses due to surface plasma oscill. 4=9937
 electron irradi. effects at 10°K, elec. cond. study 0=6066
 electron pair formation in, cross-section by photon absorption 0=5534
 electron range in, 40-160 keV 0=2399
 electron range, kilovolt, range interpretation 2=12409
 electron scatt. by films, background intensity 3=4202
 electron scattering, at small angles, 500 keV 1=329
 electron scattering in thin foils 1=9999

Silver—contd

- electron scatt., unsymm. ang. distrib. for charact. surface losses 4=28429
 electron secondary emission 2=3077
 electron states from i.r. optical consts. and elec. cond. 2=6538
 electron transitions, interminimum, and scattering 4=25887
 electrotransport mobility of Sn impurities 3=8433
 energy-band structure 1=17460
 epitaxial film, similarity with Au, Cu 3=23506
 epitaxial growth on NaCl cleaved in vac. 4=29070
 epitaxial thin-film growth, in-situ meas. 4=29071
 epitaxy on 2 differently oriented LiF crystals 4=10484
 equation of state from interatomic potential 3=4828
 equations of state, at high pressure 0=11549
 etching by ion bombardment, electron micr. study 3=18241
 etching, thermal 2=14934-5
 etching, thermal, in various atmospheres 2=21470
 evaporated films, 30-2500A thick, stress 1=11440-1
 evaporated layers, particle track visualization using electron microscope 2=22374
 evaporation and thermal etching 1=4013
 evaporation from W boat, directional props., film thicknesses 2=23915
 fatigue, slip processes correl. with hardening 3=20748
 fault arrays, produced by AgBr exposure to light 3=20199
 Fermi surface, from de Haas-van Alphen effect 1=17455
 Fermi surface, dimensions 2=8190
 Fermi surface, dimensions 3=6495
 Fermi surface, effect of pressure 3=8398
 Fermi surface from magnetoacoustic effect 1=19739
 Fermi surface from magnetoacoustic effect 1=19741
 Fermi surfaces, from u.s. attenuation in mag. field 0=13502
 field emission, effect of crystal defects 2=22246, 20015
 filament growth from AgI crystals 3=1268
 films, absorption, light, anomalies due to granular struct 4=1775
 films, absorption, 2000-4000 Å, Walter, Rasigni relations 4=1749
 film on Ag, Pd, Ni, structure 3=1371
 films, ageing 4=10608
 films, amorphous, obs. of rapid crystallization 2=2440
 films on amorphous support, microstructure examination 2=10951
 films, cond., elec., thickness var., and electron in f.p. 4=22683
 films, contact potential and work function 2=8268
 films, deposited on water surface 3=25774
 films, defects produced on evaporation 3=1374
 films, dispersed, photo-emission 2=11698
 films, effect of O₂ on elec. resist. 4=26014
 films, effect of rate of deposition on elec. cond. 2=14498
 films, effect of structure on optical resonance 2=19111
 films, effect on supercond. transition of Sn films 2=22122
 films, elastic deform., electron diff. exam. 4=1928
 films, elec. cond., effect of gas adsorption meas. 4=7713
 films, elect. cond., effect of Sb diffusion, 70-105°C 1=979
 films, elec. cond. and structure 2=8283
 films, elec. cond. rel. to thickness 2=18636
 films, elec. props., flicker effect 2=8280
 films, elec. resist. rel. to thickness non-uniformity 2=12491
 films, elec. resistance and thermoelec. power 2=14495
 films, electrical resistance variations, causes at -130°C 1=17614
 film, electron beam energy losses 3=20152
 film, electron diffraction spot pattern intensity meas. 3=1283
 films, electron scatt. at < 10 keV, transmission, ang. distrib. and energy spectrum 1=1922
 films, epitaxial growth on Ge and Si surfaces 4=29188
 films, evap., defects, electron microscope study 0=17927
 films, evaporated, bridging phenomenon 4=20743
 films evaporated on glass, electrical resistivity rel. to temp. 1=11258
 film, evaporated on pyrex, influence of vac. on struct. 4=23587
 films, f.c.c. metals deposited, structure of layer 1=20671
 films, on glass and quartz, resistance, temp. depend., structure 1=2548

Silver—contd

films, granular, electrical properties and flicker effect 3=15540
 films, granular, light scattering 1=18618
 films, growth defects 2=6352
 films, heat treated, optical absorpt. 2=21246
 films, Im $1/\epsilon$ absorpt. spectrum 3=10963
 films, light, absorption, refractive index, 4000-14 000 Å 4=7093
 films, low lying energy loss 3=10633
 film on monocryst. Cu layers, dislocation struct. and lattice const. assimilation 4=23589
 films, in multilayer dielec. films, interference effects 2=5178
 films for multiple-beam interferometry 3=21560
 films, neutron irradiat. effects 3=22869
 films, non-cryst., elec. props. at liq. N temp. 2=6423
 films, non-crystalline, electron diffr. invest. 2=837
 films, optical absorpt. spectrum rel. to structure 4=22891
 films, optical const. rel. to wavelength 3=10902
 films, optical density meas. 3=20934
 films, optical and electrical props. 1=10097
 films, optical props., calc. 0=8801
 films, optical properties, effect of lattice defects 0=4391
 films, optical props., resonance phenom. 2=16800
 films, optical props., visible and near i.r. 2=18798
 films, optical resonance phenomena 2=8476-7
 films, optical scatt. 2=13455
 film orientation on Cu substrate, orientation 1=10282
 films, oxidation by heating or irradiat. 2=12959
 films, oxidation by ionizing γ -radiation 2=8931
 films, photoemission rel. to photon energy 2=22251
 films, plasma oscillations, light radiation 1=7568
 films, plasma resonance absorpt. 3=10634
 films, recrystallization time, tensile strength, thickness var. 4=23571
 films, reflection and transmission spectra, rel. to heating 4=1748
 films on rocksalt, epitaxial growth 2=16996
 films on rocksalt, formation conditions 1=10243
 films, with SiO₂, LiF, Cu₂O, Fe admixtures, disorder, structure and resistance 0=3283
 films, on silver-coated mica, double-positioning structure 3=1376
 films, single-crystal, prep. method 3=1367
 films, sputtering inside electron microscope 3=451
 films, sticking coeff., optical transmission, and oxidation 4=20801
 films, structure and elec. resistance 4=13674
 films, structure rel. to speed of formation 3=20923
 films, substructure analysis 2=23937
 films, superposed on Sn films, superconductivity transition temp. depression 4=24514
 film, temperature rise, rel. to electron irradiat. 3=17807
 films, thickness meas. 0=4979
 films, transparency increase by blooming 2=7378
 films, transverse electric field effects 3=15541
 film, vacuum deposition, helium flush technique 1=7883
 films, vacuum evap. from TiC 2=6850
 films, very thin, absorpt. 0.2-0.7 μ 4=22867
 films, work function 2=9612
 films, 35-50 μ , strength, tensile, 100-300°C 3=6783
 films <100 Å, elec. props. 2=14496
 films, 400 Å thick, electron energy losses 2=12411
 fluorescent yield of L-shell 4=3774
 foils condensed on LiF and mica, epitaxy and twinning 1=15011
 foils, optical emission due to charged particles 2=14751
 foils, polycrystalline, electron diffraction obs. 4=7677
 foils prep., as isotope targets 2=17978
 foils, rare gas loading and evolution 1=17551
 foil, secondary electron emission, energy distrib. 0=5342
 foil, speed of evap. in vacuum furnace 4=5472
 in friction with Ag, Ni and Cu, effect of chemical affinity on adhesion 4=10369
 friction in reciprocating sliding, low values 0=3165
 γ -ray ang. correl. of In¹¹¹ impurities, effects of cold work and irradiat. 4=22463
 glide, thermally activated, and strain hardening 0=21114
 grain boundary and vol. diffusion in sintering 4=28482
 grain boundary width 1=15115

Silver—contd

grain growth in Sn, effect of small Ag impurity 1=15152
 granular layers, light scatt. 4=22892
 growth defects, in f.c.c. evap. films 0=20796
 growth, evap. on MoS₂ 1=20429
 Grüneisen constant, calc. 1=17429
 Grüneisen γ , temp. depend. calc. 3=10607
 halides, thermal expansion at low temps., expt. 4=17369
 Hall effect, < 15° K 1=7622
 impurity ions in Ag, scattering cross-sections and charges 3=17813
 infrared absorptivity 2=14662
 inner potential calc. after ionic etching 1=9966
 internal friction, cold-worked metal 2=21407
 internal friction, recovery, after load removal 1=7815
 interstitial configurations, rel. to deuteron-irradiat. 3=22755
 ion mobility in Mg, d.c., scatt. 3=22831
 ions, Ag⁺, second-order quadrupole effect 2=18396
 ions, desorption by elec. fields 1=5105
 ions, elec. transport in α -quartz 3=10692
 ions in metal, mobility, effect charges 2=18609
 ions (Z = 2 to 13), range 2=7674
 isotope composition in iron meteorites, Ag¹⁰⁷ formation from extinct Pd¹⁰⁷ 1=2608
 L-absorption spectrum, fine structure, theory 3=6661
 L-shell fluorescent yield 0=15652
 latent energy of plastic deformation 1=9091
 latent hardening and secondary slip 4=30766
 lattice constant, energy, sublim. energy and compressibility, theory 0=17874
 lattice energy, dislocation annealing 3=22779
 lattice expansions, and Debye temps. 0=1909
 lattice vacancies, energy of formation in pure metal, resistivity effect 0=13549
 lattice vacancies, equilib. conc. near m. pt., from thermal expansion 0=13548
 lattice vacancies, mobility 1=14253
 layer growth in electron microscope 3=18381
 layers on glass, microstructure, interferometric obs. 4=10598
 lifetime, under load 0=16223
 liquid, atomic distribution, structure 0=19123
 liquid, optical const., i.r. meas. 0=19154
 liquid, Sn and Ag diffusion 4=24196
 liquid and solid, thermal expan. 0=9893
 liquid, solubility of Kr in 0=19120
 liquid, structure, by X-ray scatt. 3=9438
 liquid, surface tension, O effect, oxide layers 4=11190
 Lorenz number at low temp. 4=6919
 luminescence activation, in ZnCdS 2=6614
 mag. susceptibility, temp. dependence, 295-975° K 1=1194
 magnetoacoustic data at 230 Mc/s and 4.2° K 2=3834
 magnetoacoustic effect to 350 Mc/s, Fermi surface dimensions 3=2759
 magneto-optical polarized light reflection rotation 4=28667
 magnetoplasma resonance, l.f., meas. 3=8409
 magnetoresistance, anisotropy, Fermi surface 0=9939
 magnetoresistance, effect of plastic deformation 2=2122
 magnetoresistance, rel. to Fermi surface 0=15893
 magnetoresistance and Fermi surface neck diameters 4=10033
 mass stopping power, to α -rays 0=19039
 mechanical strength, tensile, time var., low temp., anomalous 3=20729
 membranes, fine-pored, use for isotope separation 0=18385
 mesic atoms, μ^- decay 2=14232
 microscopy, u.v. transmission 3=23523
 migration of Ag, in Ag, in d.c. field 1=14319
 migration of Ag on surface of ceramic dielectrics 1=6187
 molten, scatt. diagrams evaluation 2=17439
 molten, structure analysis 1=12863
 multiple glide and orientation changes meas. 3=5068
 n. m. r. at 1.5° K and room temp. 4=13351
 neutron irradiat. at 4.5° K, effect of initial defect conc. on annealing 4=12829
 nucleation on AgCl 3=16842
 nuclei growth, in silver halide micro-crystals 0=3663
 optical const., calc. 0=4389
 optical constants and electron theory 3=2986
 optical const., polarimetric method 3=11943

Silver—contd

optical consts., from reflectance at 2-10 eV 1=3815
 optical constants and surface elec. resistance 1=6201
 optical constants, temperature dependence 1=10088
 optical props., dielectric const., and band struct.,
 review 4=13047
 optical props., effect of vacuum annealing, Ar-ion
 bombard. 3=20435
 optical refl., phase shift dispersion meas. 4=28709
 optical refl. from surface with dielec. films, phase
 changes 4=2843
 orientation on NaCl substrate 1=10280
 permeability to oxygen 3=13549
 photocathodes, effect of surface treatment on
 emission 1=16377
 photoelectric emission, from thin layers, by γ -rays,
 ang. distrib. 3=8204
 photoelectric emission, X-rays, 0.7-30 keV 3=14638
 photoelectric emission, by X-rays, 0.28-9 keV, on films,
 effective depth 3=21864
 photoelectric yield for soft X-rays 2=208
 photoelectric yield and work function 2=17867
 photographic deposit grains, absorpt., light 3=21576
 plasma resonance absorption of light by films 4=4246
 plastic deformation, slip, crystal dislocations 4=26527
 plastic deformation temperature dependence 1=1020
 plastic deform., vacancy supersaturation 3=13356
 plastically deformed, dislocation densities 2=6817
 plasticity at high temp. 4=28921
 platelets growth, electron-transparent 3=3273
 point defects after cold rolling and quenching 2=18570
 point defects, elec. resistance study, review 1=14249
 point defects in irradiated metal, review 3=8420
 point defects, quenching and annealing effects 2=23152
 point defect study, expansion meas. and X-ray diffr.
 techniques 4=30551
 polishing, chemical, using Cr_2O_3 in HCl 4=20797
 polycrystalline, scattering of u.s. stress pulses 4=1387
 polycrystals, Cottrell-Stokes flow stress law
 validity 4=23203
 porosity at fracture surface of single crystals 1=20386
 precipitates, in AgCl single crystals 0=6343
 precipitation from Ge 2=19099
 proton irradi., 10 MeV, stage III recovery 4=10011
 quenching of Cu^{59} nuclear quadrupole resonance 2=14858
 refl. coeff. rel. to refr. index and absorpt. coeff.,
 23.6-113 Å 4=22846
 residual elect. resist. due to impurity charges 2=6402
 rigidity, after plastic deformation at -190°C 1=1235
 rolling texture temperature dependence 1=7873
 secondary electron emission 0=5341
 self-diffusion 0=11638
 self-diffusion, in AgZn, temp. depend. 2=8247
 self-diffusion coeff., finite sum method 0=1600
 self-diffusion during plastic deformation in torsion 1=7598
 self-diffusion during torsional deformation 4=9989
 self-diffusion, effect of plastic compressive deform. 0=2828
 self-diffusion, effect of plastic torsional
 deformation 1=14321
 self-diffusion, effect of stress and deformation 1=10012
 self-diffusion, grain-boundary, in elec. field 4=9992
 self-diffusion, solute effects 0=20840
 self-diffusivity in twist boundaries 3=22820
 single crystals, surface prep. by evap. 0=16271
 single crystals, surface structure, after A-ion
 bombard. 0=4311
 skin effect, i.r. data 0=6078
 slip, effect of surface films of C, Pt, Fe, Cr 0=21113
 slip lines across Ag-steel interface 2=16653
 solid solubility of Ho 4=13459
 solid, vapour, electron energy losses 2=23143
 solubility, in Ge:Sb, P 0=16351
 solubility, in Si, 1200-1390°C 1=3688
 in solution, photoelectric effect rel. to temp. 2=8923
 solution rate in Hg 4=5156
 sound velocity, effect of high mag. field 3=8356
 specific heat 0=2791-4, 7850
 specific heat determ. from vibration spectrum data 4=9825
 specific heat, electronic, meas. 2=18532
 specific heats at high purity 2=8171
 spectra, vibrational structure 0=5925
 spectrum, L-absorption 2=1959, 21257

Silver—contd

sputtering by Ar^+ ions, 10-200 keV 3=7655
 sputtering, by Ar^+ ions, 30-170 keV 4=22644
 sputtering, cathodic, single and polycrystalline 0=3815
 sputtering by 45 keV ions, collection formula 2=3096
 sputtering by inert-gas ions 1=13136
 sputtering by ions of inert gases 4=4105
 sputtering, Kr^+ , Ar^+ , Ne^+ yields meas. 2=11724
 sputtering, by light ions 0=10989
 sputtering yields for 1-10 keV Ar^+ ions 4=4103
 stacking fault energy, from plastic deform. 3=15501
 stacking fault widths in filings, obs. 1=17546
 stearic acid monolayers on, orientation 0=10372
 strain energy of dislocations 1=11190
 strain, u. s.-produced, 4.2°K, calorimetric meas. 4=10356
 strength, impurity, temp. and time depend. 1=12599
 stress-strain meas., at various temps. 0=3144
 striation formation, on crystals heated in air 0=18328
 surface energy rel. to crystallographic orientation 4=15816
 surface free energy, anisotropy, effect of metallic
 impurities and temp. 4=17373
 surface free energy, orientation dependence 0=17865
 surface mobility on MoS_2 and graphite, mechanism 4=10602
 surface self-diffusion and faceting 3=25292
 surface tension in solid state 4=10601
 tarnishing, nucleation of sulphide patches 2=6846
 texture transition rel. to stacking fault
 frequency 1=10279
 thermal conductivity 1=920
 thermal conductivity, phonon and electron components
 separation methods 3=12930
 thermal diffusivity, capacity and conductivity, meas. by
 flash method 1=13006
 thermal expansion, effect of annealing 2=20938
 thermal expansion, lattice const. changes, from Bradburn-
 Fürth eqn. of state 4=20219
 thermal expansion, 20°-1200°K 3=17663
 thermal lattice defects, and energy content 0=6038
 thermal vacancies, formation energy, specific
 resist. 1=11192
 thermoelectric power at low temp., effect of
 dissolved Fe 1=17815
 thin evaporated films, conductivity anomalies after
 tempering 1=6561
 thin film, scatt. factor meas. 4=22837
 thin films, energy loss of 25 keV electrons 2=22267
 thin films, influence of formation rate on optical
 properties 1=7701
 thin films, optical constants, rel. to heat treatment 3=13146
 thin films, optical consts. theory 4=22868
 thin films, optical properties and structure 1=7700
 thin films, reflection and transmission coefficients
 at oblique incidence 1=10089
 thin films, structure and optical props. 1=19939
 thin foils, electron scatt. intensities 3=1302
 thin foils, transition radiation from 40 keV electron
 beam 4=22552
 thin layers, characteristic electron beam energy
 losses 1=10000
 thin layers, photoelectron emission velocity distrib. 3=9835
 transition radiation from foils, temp. and thickness
 depend. 4=22551
 transport properties, Fermi surfaces 1=8893
 twinning diagram interpretation, of layers on NaCl 1=11529
 twinning films (400 Å) evaporated 1=11530
 u.s. pulse propagation, 62 Mc/s 3=10592
 u.v. radiation, on H ion impact 4=20487
 u.v. reflection, effect of angle of incidence 0=4394-5
 vacancies, formation energy 2=6316, 20999
 vacancies, formation energy and conc. 1=7575
 vacancies, migration energy and activ. volume,
 model 4=12730
 vacancies, properties 3=22738
 vacancies, quenched-in, interaction with O
 impurity 3=22747
 vacancies, quenching and annealing 2=10646
 vacancies, quenching, elec. cond. increases 0=17954
 vacancy quenching by elec. sparks 2=8204, 10378
 vacancies, quenching and movement, thermo-e.m.f.
 study 0=17955
 vacancies, and vacancy aggregates, annealing in quenched
 specimens 4=12734
 vapour, ionization by electron impact 0=14967

Silver—contd

- vapour press., at high temp., using recording micro-balance 4=24454
 vapour pressure, determ. from evap. rate 2=11537
 vapour pressure, effect of oxygen 4=5471
 vapour pressure, 1268 to 1462°K, calc. 4=27384
 vibration spectrum and heat capacities, model 2=23051
 void growth kinetics, strained Ag 2=20997
 whiskers, elec. resistance, rel. to temperature 4=4124
 whiskers, growth from AgCl liquid 0=18320
 whiskers growth, influence of elec. field 1=20447
 wire, optical props. down to 2000 Å diam. 3=13159
 wires, internal friction peaks, at low temps. 3=18166
 work function, effect of adsorption of H, air, and dipole moment 4=11683
 work function, effect of air and H₂ 4=14741
 work hardening meas. by torsion to large strains 4=7389
 Young's modulus, change and recovery at low temp. 2=10744
 Young's modulus, decrease after deformation and recovery 4=15703
 X-ray continuous spectrum, Ohlin structure meas. 4=4242
 X-ray diffrn. examin. of unit cell contraction 3=16062
 X-ray diffraction intensities, effect of temp. 1=4042
 X-ray emission spectrum, N_{II,III} intensity distrib. 1=3514
 X-ray line broadening from polished surface, Fourier analysis 1=11557
 X-ray spectrum, L satellites, confirmation of theory 4=28708
 zeta potential 2=1381
 Ag, absorption, 2000-4000 Å, Walter, Rasigni relations 4=1749
 Ag films, crystal structure, atomic, by electron diffr., variable filter technique 4=2060
 p-Ag, influence on nuclear emulsion grain dia. 2=5551
 Ag⁺ ion conduction in quartz 1=11268
 Ag and Cu double layers on rock salt, prep. 2=19109
 Ag I, $\lambda\lambda$ 3281, 3383, absolute oscillator strength 4=22302
 Ag I resonance doublets, absolute oscillator strengths 4=6485
 in β -AgMg, self-diffusion 4=15494
 α -Ag₂Te_{1-x}S_{1-x}, i.r. absorption 1=10107
 in Cds, as impurity, and crystal imperfections 4=6821
 Co diffusion, rel. to temp. 1=14317
 in Ge, impurity levels 0=6107
 O₂ in, energy of solution, pulse calorimetric study 2=12928
 O₂ in, heat of solution 2=20999
 Xe diffusion, 500-800°C 0=15868

Silver compounds

- alloys, dilute, electric field gradients, rel. to valence and size effects 3=22718
 alloys, lattice thermal cond., low temps. 2=23085
 alloys, plastically deformed, stacking faults 2=8230
 alloys, superconductivity 3=16873
 binary alloys with rare-earth metals, structure 3=18336
 halide crystals, thermal expansion 1=918
 halides, spectra, absorption of photochemically coloured 1=8985
 halides, zone refining 1=4029
 Hunsler, Ag-based, magnetic properties 0=21053
 microscopy, u.v. transmission, Ag alloys 3=23523
 oxide surfaces, catalytic efficiency 1=7913
 solid solns., Knight shifts, charge density at Ag nuclei 2=4286
 Ag alloys, dilute, elec. field gradients, ang. correl. meas. 4=22458
 Ag antimony telluride, prep., and elec. props. 4=22722
 Ag azide, elec. conduction 4=17493
 Ag-base alloys, stacking faults rel. to solute 3=2811
 Ag-base solid solutions, internal friction 2=21398
 Ag-base solid solutions, stacking faults 2=14449
 Ag-based, comp., rel. to energy-band structure 1=17460
 Ag binary terminal solid solns., elec. props. 4=22685
 Ag complex cyanides, Raman spectra in solns., CN stretching bands 0=1670
 Ag(II) compounds, paramagnetic resonance 2=1166
 Ag cyanamide, slow surface decomposition 2=19144
 Ag cyanide anions, Raman spectra 1=14036
 Ag dilute alloys, elec. field gradients, by Cd¹¹¹ γ -ray ang. correl. 1=3588
 Ag, dilute, anisotropic relaxation and Hall coeff. 0=20726
 Ag, dilute, Hall effect, anisotropic relaxation times 0=15895

Silver compounds—contd

- Ag, dilute, lattice thermal conductivity 0=20754
 Ag, dilute, thermoelectric power 1=1116
 Ag, dislocation density, after deformation 1=12386
 Ag electrolytes, heats of transfer of Ag ions 1=11624
 Ag fulminate, crystal structure 0=3238
 Ag germanide, metastable phases, X-ray diffr. exam., supercond. props. meas. 4=29833
 Ag halide, absorpt. spectrum, fine struct. meas. 4=22890
 Ag halide crystals, defect electron distrib. with environmental halogen 2=16644
 Ag halide dispersions, particle size change. 3=25839
 Ag halide films, rapid prep. 0=14081
 Ag halide grains, crystal imperfect., X-ray diffr. exam. 4=12721
 Ag halide phosphors, luminescence rel. to i.r. irradiation 2=16850, 18865
 Ag halide photographic materials, photocond. meas. 10¹⁰ c/s 4=21324
 Ag halides, absorption edges rel. to press., temp. 2=2229
 Ag halides, absorption spectra analysis, exciton structure 1=945
 Ag halides, adsorption of water vapour 3=1381
 Ag halides, with Ag sulphide, selenide, telluride, e.s.r. 0=11949
 Ag halides, anion diffusion at low temp., impurity effects 1=2391
 Ag halides containing bivalent anions, e.s.r. 1=8057
 Ag halides, correl. btwn extinction bands and plasma resonance 0=7876
 Ag halides, defect electrons, absorption bands, spectral location 1=2397
 Ag halides, doped, dipole relaxation 0=1704
 Ag halides, elastic moduli, calc. from lattice vibration theory 1=2370
 Ag halides, electron conductivity 0=20871
 Ag halides, F and F' centres 2=13466
 Ag halides, Frenkel defects diffusion 2=16645
 Ag halides, Frenkel pairs, recomb. 1=3658
 Ag halides, heat of fusion determination 0=14901
 Ag halides with impurities, dielectric loss 2=14598
 Ag halides, impurity anions, absorption band positions 0=16049
 Ag halides, increase of content in nuclear emulsions 0=12734
 Ag halides, ionic motion, interstitial mechanism 2=3931
 Ag halides, ionic transport processes 3=13007
 Ag halides, irradiation, Ag nuclei growth 0=3663
 Ag halides, latent image formation by light and electrons 0=12506
 Ag halides, mixed, exciton spectra 2=18839
 Ag halides, mixed ternary crystals, phase equil. 2=10895
 Ag halides, mobile defects, reaction time 1=3681
 Ag halides, Ni²⁺ absorption spectra 3=6654
 Ag halides, photochemistry interchangeability derivations, electronic mechanism 4=23670
 Ag halides, photographic developability 0=4292
 Ag halides, photographic image formation, trapping of positive holes 1=9490
 Ag halides, polaron study, electron mobility 1=949
 Ag halides, precipitation reactions in crystals 1=2556
 Ag halides, spontaneous formation of Ag nuclei under light 2=22068
 Ag halides, sulphide doped, ionic cond. 2=10495
 Ag halides, thermoelectric power 1=6185
 Ag iodide, Debye temp., X-ray determ. 4=28373
 Ag, Knight shift 0=16186
 Ag oxide, i.r. absorption 2=701
 Ag⁺, quadrupole antishielding factor 3=12772
 Ag-rich, thermal conductivity 1=920
 Ag sulphide group semicond., theory of mixed cond. 2=2171
 Ag selenide powders, thermoelectric figure of merit 4=7088
 Ag telluride, metastable phases, X-ray diffr. exam., supercond. props. meas. 4=29833
 Ag-Al, ageing, effect of small additions of Cu, Mg, Zn 1=15148
 Ag-Al alloys, phonon scattering on Pt atoms 2=23048
 Ag-Al, faulting, effects on thermal-mechanical treatment 2=8232

Silver compounds—contd

- Ag—Al, films, precipitation during ageing 0=21238
 Ag—Al, γ' phase platelets, thickness distrib. by X-ray scatt. 1=15121
 Ag—Al, Guinier—Preston zones, structure 0=18392
 Ag—Al, lattice spacings and stability 0=16314
 Ag—Al, liquid, X-ray structure study 1=12861
 Ag—Al, ordering in hexagonal ζ -phase 3=6862-3
 Ag—Al, single crystals, plastic deformation, temp. depend. 0=21133
 Ag—Al, stacking faults 1=19797
 Ag—Al, strength and hardening mechanism 0=4554
 Ag—Al, strength, impurity, temp. and time depend. 1=12599
 Ag—Al, strength of zone-hardened alloys 0=21139
 Ag₂—Al, slip, prismatic, mechanism 4=30783
 Ag—As, lattice spacing and electronic structure 1=20571
 Ag—As—S, photoelectric effect 1=5025
 AgAsS₂, crystal structure, atomic, Patterson synthesis 4=15792
 Ag—Au, absolute reflectivity, for 1.8–5.0 eV 4=7158
 Ag—10% Au alloy, compression tests 4=30764
 Ag—Au, Bordoni effect 1=6448
 Ag—Au, cold worked, stored energy, work softening 0=16349
 AgAu, colour change on plastic deformation 3=10962
 Ag—Au, Hall effect, < 15° K 1=7622
 Ag—Au solid solutions, self-diffusion meas. 3=6538
 Ag—Au solid solutions, Zener relaxation, rel. to concentration 3=23299
 Ag—Au, thermal vacancies, formation energy, specific resist. 1=11192
 Ag + Bi alloys, liquid, vapour pressure 3=14422
 Ag—Bi alloys, thermodynamic props. meas. 4=10437
 AgBr, abrasion on emery paper 2=800
 AgBr, absorption const. rel. to impurity doping 2=2228
 AgBr, absorption edge rel. to compression 2=10591
 AgBr, absorption edge fine structure 2=8519
 AgBr, absorption spectrum, effect of ion impurities 2=2226
 AgBr, absorption spectra rel. to Se, Te, S impurity ions 1=19968
 AgBr, Ag diffusion, press. and temp. depend. 1=989
 AgBr, α -particle evaporation by 1 and 2 GeV protons 4=25401
 AgBr, anti-colour centre, e.s.r. absorption 3=6542
 AgBr, Bi-doped, photographic process meas. 4=18440
 AgBr, Br^{79,81} n.m.r., effect of lattice defects 1=3947
 AgBr, Br vacancy, activation energy 1=3681
 AgBr, brominated hydrosols as nuclear emulsions 1=7179
 AgBr, Cd- and S-doped, fluorescence 2=6605
 AgBr, CdS-doped, optical props. 3=18006
 AgBr, charged dislocations, motion 2=14442
 AgBr, crystal size from diffraction profiles 2=4503
 AgBr, crystallization, effect on habit of soln. conditions 4=10479
 AgBr crystals, displacement of photoelectrons and positive holes 2=20961
 AgBr crystals, substructures 1=15073
 AgBr crystals, u.s. field effect on elec. cond. 4=22767
 AgBr, cyanine dye-sensitized, absorption signal, photo-induced 2=21374
 AgBr, cyclotron resonance 2=23140
 AgBr, defect electron transport number 3=6487
 AgBr, defect equilib. theory 2=3952
 AgBr, dielec. const. at 24 kMc/s, 30–400°C, Debye—Hückel clouds 1=12469
 AgBr, diffusion of Cd 0=9916
 AgBr, dislocations, with (100) Burgers vectors 0=20816
 AgBr, dislocations, interaction 1=3670
 AgBr, with divalent impurities, absorption spectra 1=1166
 AgBr, e.s.r. of Ni²⁺, rel. to incorporation 4=4412
 AgBr, e.s.r., rel. to photographic process 2=16933
 AgBr, effect of light on paramagnetic resonance 0=6415
 AgBr, elec. cond. and photocond. effect of Br₂ and Cl₂ gases 1=3727
 AgBr—electrolyte systems, photovoltaic effects 2=16758
 AgBr, electron Hall mobility down to 4° K 2=23472
 AgBr, electron mobility and scatt. processes at low-temp. 0=15994
 AgBr emulsions, sensitization to radiations 2=17659
 AgBr emulsions, tabular grains, lattice rotations 2=602
 AgBr, exciton dissociation and latent-image formation 0=14861

Silver compounds—contd

- AgBr emulsions, gelatinous, crystallization, tabular, var. pH 4=10478
 AgBr emulsions, sulphur sensitization, high-intensity reciprocity failure 4=14414
 AgBr, F-centres, continuum model 4=9999
 AgBr, fund. absorption of light 2=12585, 14660
 AgBr, generation of surface dislocation loop 0=20807
 AgBr, grain size in photogr. emulsions 0=12737
 AgBr, grains, dark conductivity 0=1616
 AgBr, grains, from emulsions, photoelectronic carriers 0=1617
 AgBr, Hall mobility of holes 0=6955
 AgBr, Hall mobility of holes 3=13080
 AgBr, heat of solution, solubility, in NaNO₃, KNO₃ or mixtures, e.m.f. meas. 4=14136
 AgBr, hole mobility, and photographic process 4=4010
 AgBr, holes, photoexcited decay 4=30542
 AgBr, luminescence, i.r. and Hg line influence 2=14731
 AgBr, magnetoconductivity theory 3=15464
 AgBr, magnetoresist. and cond. band structure 3=8529
 AgBr microcrystals in nuclear emulsion, ion adsorption 2=5555
 AgBr microcrystals, surface struct. and epitaxy 4=23313
 AgBr micro crystals, twinning and growth 4=13519
 AgBr monodisperse sols, light scattering 4=15852
 AgBr, n.q.r., spin—lattice relax. time 1=3948
 AgBr, Ni-doped, dielectric loss-factor meas. 20°–200° K 3=8554
 AgBr, Ni²⁺ paramag. reson. and relax., liquid H temps. 3=13307
 AgBr in nuclear emulsions influence on μ^+ meson decay 1=16836
 AgBr particles, scattering, light, ang. var. 4=2855
 AgBr, photochemical behaviour, with divalent ion impurities 2=2227
 AgBr, photoconductivity 2=23471
 AgBr, photoconductivity 3=6636
 AgBr, photoconductivity, electron mobility and lifetime 2=4070
 AgBr, photoconductivity rel. to illumination, 77° K 2=23470
 AgBr, photoconductivity and photo-e.m.f. 2=21198
 AgBr, photoconductivity and photo-e.m.f. 3=2969
 AgBr, photographic emulsion, radiation response, ionizing 3=14390
 AgBr, polaron mass, polaron theory of electron mobility rel. to expt. 3=2768
 AgBr, precipitate ageing, theory 2=8934
 AgBr precipitates, adsorption of H⁺ and OH⁻ ions 3=5165
 AgBr, print-out effect, defect electron behaviour 3=3406
 AgBr, reaction with Br₂, study using defect electron cond. 3=6912
 AgBr, replicas for electron microscopy 0=14092
 AgBr, S doped, n.m.r. 2=16940
 AgBr, solid, ion and electron conduction 0=4322
 AgBr sols, Tyndall spectra, higher order 3=13629
 AgBr, surface potential, temp. depend. 0=20961
 AgBr suspensions, monodisperse, turbidity 2=17103
 AgBr, texture after plastic deformation 2=14927
 AgBr, thin sheets, prep. by capillarity 4=15763
 AgBr, transition-metal-doped, dielec. loss factor 4=12963
 AgBr, twinning 2=16981
 AgBr, twinning, electron micrograph study 1=2519
 AgBr, u.v. irradiated, e.s.r. detection of colloidal particles 4=26408
 AgBr, vacancy motion, heat of transport calc. 0=13497
 AgBr, zeta potential 2=1381
 AgBr—AgCl mixed crystals, absorption tail 3=3020
 AgBr:Ag₂S, luminescence, pressure depend. 0=4449
 AgBr—KCl fused solution, electrical conductivity and cryometry 1=15899
 AgBr—LiCl fused solution, electrical conductivity and cryometry 1=15899
 AgBr—NaCl fused solution, electrical conductivity and cryometry 1=15899
 AgBr:Ni, bleaching processes 3=13187
 AgBr, S doped, X-irradiated, optical absorption bands 1=19969
 Ag₃Ca₅, crystal structure 2=10883
 AgCd, accelerated ordering and hardening by thermal cycling 4=23289
 AgCd alloy, crystal structure 3=13501

Silver compounds—contd

- Ag-Cd alloys, α -phase, Zener relaxation 4=28981
 Ag-Cd alloys, annealing spectrum of cold-worked specimens 4=23290
 Ag-Cd alloys, α -solid soln. range, void formation 4=29170
 α -Ag-Cd alloys, diffusion, anelastic meas. 2=3945
 α -Ag-Cd alloys, lattice expansion and Debye temp. 2=12389
 AgCd, β' , b.c.c. \rightarrow h.c.p. transformation 0=18373
 Ag-Cd, diffusion couple with Ag, tracer diffusion study 0=1606
 Ag-Cd, dislocation damping, heat treatment 2=15062
 Ag-Cd, ϵ and η phases, lattice spacings 3=6856
 Ag-Cd films, electron diffr. study 2=10910
 Ag-Cd, four phases, thermodyn. props. 3=13522
 Ag-Cd, hardness rel. to composition 1=14923
 Ag-Cd, lattice spacing and electronic structure 1=20571
 Ag-Cd, lattice spacings 3=3313
 Ag-Cd, n. m. r. shifts and line widths 0=21084
 AgCd, order-disorder transformations 3=3328
 Ag-Cd, phase boundaries and transformations, X-ray study 1=15118-
 β -AgCd, spectral reflectivity rel. to temp. 2=18789
 Ag-Cd, thermal vacancies, formation energy, specific resist. 1=11192
 Ag-Cd, thin films, structure transformation 0=12045
 AgCd-AuCd β -system, phase transforms. 2=17040
 AgCl, A^+ bombard., catalytic activity 0=4709
 AgCl, abrasion on emery paper 2=800
 AgCl, absolute specular reflectance meas. at low temps. 4=11339
 AgCl, absorption edge fine structure 2=8519
 AgCl, AgBr, grown from melt, impurity distrib. 2=12426
 AgCl, bleaching of contained colloidal Ag 0=9913
 AgCl, charged dislocations, motion 2=14442
 AgCl, Co^{2+} and Ni^{2+} impurities, props. 3=15487-8
 AgCl, cold work and ductile-brittle transition 4=23204
 AgCl, colloidal Ag, investig. by photoelectric properties 4=1688
 AgCl, containing Cu chlorides, props. 0=15847
 AgCl core aerosol, preparation and scattering of light 1=11637
 AgCl crystal lattice const., effect of strong u. v. illumination 4=4622
 AgCl, crystal structure 4=20765
 AgCl crystals, effect of recrystallization on temp. dependence of photocurrent 1=3792
 AgCl crystals, luminescent decay 1=14634
 AgCl crystals, for particle track visualization 3=5906
 AgCl crystals, particle tracks inside 3=7754
 AgCl crystals, u. v. absorpt. 3=929
 AgCl, with CuCl traces, photographic processes 0=19465
 AgCl, Cu-doped, rate of volume photolysis 3=11358
 AgCl, Cu^+ doped, trapping of photoproduced holes 4=25888
 AgCl, cyclotron resonance, irradiation effects 0=1547
 AgCl, Dember effect (crystalline photoeffect) 0=20941
 AgCl, Dember effect in u. v., rel. to temp. 3=2948
 AgCl, diffusion of Cl^{35} , temp. var. 4=9996
 AgCl, dislocation decoration in large crystals at room temp. 1=3679
 AgCl dislocation densities rel. to pressure 1=17532
 AgCl, dislocation distribution, plastically bent samples 4=22601
 AgCl, dislocation-impurity interactions and strain aging 3=17718
 AgCl, dislocations, X-ray diffract. topography 0=1587
 AgCl, with divalent impurities, absorption and photochem. response 1=5046
 AgCl, ductile-brittle transitions 0=21145
 AgCl, effect of i. r. illumination on luminescence 2=713
 AgCl, elec. cond., effect of Cl_2 gas 1=3727
 AgCl electrode, photo-impedance 1=14521
 AgCl, electron drift mobility, 70-350°K 3=6486
 AgCl, electron Hall mobility down to 4°K 2=23472
 AgCl, electron mobility in high elec. fields 3=8387
 AgCl, electron trapping centres, nature 3=20521
 AgCl, etch pit formation, rel. to face orientation 4=9966
 AgCl, Fe^{3+} e. s. r. 4=13324
 AgCl, Frenkel defects and thermal expansion 3=10604
 AgCl, fund. absorption of light 2=12585, 14660
 AgCl, heat of solution in molten KNO_3 3=14153
 AgCl, high-press. X-ray diffr. study 2=8811
 AgCl, hole migration, after air and O_2 annealing 1=1110

Silver compounds—contd

- AgCl, in i. r. optics 1=1814
 AgCl, impurity Cu ions in solid soln., optical props. 2=4136
 AgCl, internal friction 0=13908
 AgCl, internal friction, effect of u. v. radiation 2=18984, 23737
 AgCl, internal friction, plastic deform., temp. depend. 0=1848
 AgCl, ionic cond., point defect content 2=3982
 AgCl, kink bonds, internal stresses 2=23762
 AgCl, lattice distortion, rel. to u. v. irradi., 25°C 4=9953
 AgCl, luminescence activation 2=23600
 AgCl, luminescence, blue-green band, Stark effect 3=18031
 AgCl, luminescence, colour change at liquid air temp. 4=7187
 AgCl, luminescence, rel. to d. c. pulses, at liq. N temps. 2=23599
 AgCl, luminescence decay modes, kinetics 1=3864
 AgCl, luminescence, rel. to divalent anion and cation dopants 3=23106
 AgCl, luminescence flash, damping kinetics meas. 4=13083
 AgCl, luminescence growth kinetics meas. 3=18033
 AgCl, luminescence, i. r. and Hg line influence 2=14731
 AgCl, luminescence, intensity, excitation intensity depend. 2=18866
 AgCl, luminescence at low temp. 1=20010
 AgCl, luminescence when pure and doped 3=25486
 AgCl, luminescence, X and β induced 3=6671
 AgCl₂, luminescence, doped with CdCl₂ and FeCl₃ 1=14635
 AgCl, magnetoconductivity theory 3=15464
 AgCl : Mn, luminescence of red Mn bands 3=20522
 AgCl, molten, electrochem. polariz. voltage 2=12971
 AgCl, molten, luminescence 4=11204
 AgCl in $NaNO_3$ - KNO_3 eutectic mixture, heat of precipitation at 320°C 4=16282
 AgCl, Ni^{2+} paramag. reson. and relax., liquid H temps. 3=13307
 AgCl, normal and deformed monocrystals, luminescence, -180°C 0=13703
 AgCl with 0.5 mole % TiCl₃, luminescence 1=20008
 AgCl, phonon dispersion calc. on shell model 2=12378
 AgCl phosphors, localization levels, de-excitation 2=18864
 AgCl, photoconductivity and photo-e. m. f. 2=21198
 AgCl, photoconductivity and photo-e. m. f. 3=2969
 AgCl, photoconductivity under pulsed X-ray irradi., 80-280°K 1=3793
 AgCl, photoconductivity and trapping at low temp. in doped crystals 1=7676
 AgCl, photocurrent, effect of impurities 2=23473
 AgCl, photoelectret state and energy levels 2=21224
 AgCl, photoelectret state and energy levels 3=2964
 AgCl, photoelectret state formation 3=15623
 AgCl, point defects 3=12966
 AgCl, polaron mass, polaron theory of electron mobility rel. to expt. 3=2768
 AgCl, polycryst., wet with aq. soln., fracture charact. 4=28980
 AgCl, polygonization 3=15502
 AgCl, precipitation kinetics meas. 3=18270
 AgCl, reaction with Cl_2 , study using defect electron cond. 3=6912
 AgCl, reflectivity (λ 150-3750Å) 1=3814
 AgCl, reverse bending 0=21110
 AgCl, rolled plates, etching, dislocations 1=4016
 AgCl seal use in Cs vapour devices 4=27236
 AgCl, sensitized crystals at -253°C, photochemical phenomena 0=10356
 AgCl, single crystals, diffusion of Ag^+ , Cl^- and Cd^{2+} 0=20842
 AgCl, single crystals, with internal print-out, annealing 0=6343
 AgCl, single crystals, Mn^{2+} paramag. resonance 2=10704
 AgCl single crystals, trapping origin for luminescence 1=20009
 AgCl, strength, effect of impurities 0=21097
 AgCl, strength, temp.-time dependence 0=21135
 AgCl, stress release in plastic deformation, by annealing 1=11505
 AgCl, surface potential rel. to temp. 1=17827
 AgCl, tensile strength dependence on load duration 1=12600

Silver compounds—contd

- AgCl, thermal expansion up to 878°C, X-ray meas. 4=20223
 AgCl, thermoelec. power, doped with CuCl, calc. 1=1113
 AgCl, thermoelectric power 0=20949
 AgCl, thin sheets, prep. by capillarity 4=15763
 AgCl, transition-metal-doped, dielec. loss factor 4=12963
 AgCl, trapping level spectrum, thermal effects 3=8397
 AgCl, u.v. refl. spectrum at 20°K 3=4959
 AgCl, vacuum outgassing props. 3=18870
 AgCl, vibration damping, due to u.v. irradiation 1=20316
 AgCl and AgCl: Cd, X-ray luminescence 2=6604
 AgCl-Ag₂S molten mixtures, elec. cond., thermodynamic and structural props. 4=24235-6
 AgCl:I, i.r.-stimulated luminescence flash 2=10620
 AgCl-KBr fused solution, electrical conductivity and cryometry 1=15899
 AgCl-LiBr fused solution, electrical conductivity and cryometry 1=15899
 AgCl-NaBr fused solution, electrical conductivity and cryometry 1=15899
 AgClO₄-benzene complex, mol. motion, n.m.r. 4=1901
 AgClO₃, liq., i.r. refl. spectrum 2=14275
 AgCl:Ti, luminescence temp. depend. 3=18032
 Ag₂CN₂, thermal and fission-fragment decomposition 2=854
 Ag₂C₂N₂O₈, crystal structure 3=13478
 Ag₂C₂O₄, permittivity and dielec. losses, at low frequencies, 15°C 4=1854
 Ag-Cs photocathodes, fatigue effects 1=17805
 Ag-Cu, diffusion of Ag 1=986
 Ag-Cu system, phase diagram 2=15055
 Ag-Cu, thermal vacancies, formation energy, specific resist. 1=11192
 AgD, near u.v. emission spectrum 2=6175
 AgF, n.m.r. of Ag¹⁰⁹ 0=4528
 AgF, spectrum, near u.v. 3=12832
 AgFeO₂, atomic crystal structure 4=15793
 AgFeTe₂, existence of two separate phases 1=10049
 AgFeTe₂, semiconducting compound 4=10071
 AgFeTe₂, "semiconducting compound", constitution 2=14562
 AgFeTe₂, structure, semicond. props. 0=15961
 Ag-Ga, lattice spacing and electronic structure 1=20571
 Ag-Ge, lattice parameters 2=2400
 AgGeSbSe, ternary and quaternary systems as semiconductors 1=10040
 AgH, electronic-band spectra, by exploding wire method 4=25635
 AgH, electronic spectrum and vibr.-rot. interact. 2=20820
 Ag-Hg, lattice spacing and electronic structure 1=20571
 Ag_{0.438}Hg_{0.562}, superconductive Hume-Rothery phase 4=18601
 Ag₂HgI₄, elec. conductivity, press. depend. 4=26105
 AgI, activation energies for diffusion 1=12398
 AgI, adsorption of water vapour 4=23606
 AgI aerosol, dispersed state 2=23976
 AgI, aerosols, phase changes 3=1402
 AgI, anomalous absorption at critical thickness 2=689
 AgI, approach to metallic state 3=17812
 AgI aqueous solns., ice nucleation 2=21490
 AgI, band gap, rel. to temp. and α - β transition 2=23544
 AgI, cation mobility and thermal contraction 1=12357
 AgI, cold-worked, strain investigation by X-ray diffr. 4=30784
 AgI, crystal struct., atomic, hexagonal 4=17817
 AgI, diffusion of Ag at high pressure 2=18605
 AgI, exciton, absorpt. and refl. spectra 3=4975
 AgI films, prep. and optical props. 1=17892
 AgI, heat of solution, solubility, in NaNO₃, KNO₃ or mixtures, e.m.f. meas. 4=14136
 AgI, hexagonal, crystal structure 3=5102
 AgI, hexagonal, structure 3=18310
 AgI, high press. X-ray crystallography 2=23834
 AgI, ice growth on 0=6335
 AgI, low-cubic to hexagonal phase transformation 4=23292
 AgI, photoconductivity and photo-e.m.f. 2=21198
 AgI, photoconductivity and photo-e.m.f. 3=2969
 AgI, photoelectric emission 0=15055
 AgI, use in rain stimulation, I¹³¹ study 1=4109
 AgI soln. system, electrical double layer, ionic charge compenents, calc. 3=18454

Silver compounds—contd

- AgI, thermal expansion, 4. 2°-300°K, meas. and model 4=6751
 γ -AgI thin films, in refr. index 4=28710
 β -AgI, unit cell, least squares calc., refl. weighing 4=10447
 AgI-KI-H₂O, water adsorption 3=23522
 Ag-In, anelastic piezoresistance, stress-induced ordering 4=12847
 Ag-In, dilute, thermal cond. at low temp. 0=6021
 Ag-In films, γ , ϵ and ϕ phases, by electron diffr. 4=2002
 Ag-In, lattice spacing and electronic structure 1=20571
 Ag-In, thermal vacancies, formation energy, specific resist. 1=11192
 Ag-In-Cd control rod in pressurized water reactors 3=6336
 Ag-In-Ga system invest. 2=4438
 AgInSe₂, semiconductor, prep. and props. 3=864
 AgIn₃Te₅, semiconducting, cond., elec. and thermal, Hall effect, Seebeck coeff. 4=26060
 AgInTe₂ semiconductor, prep. and props. 3=864
 AgInTe₂, solid solns. with HgTe and CdTe, elec. props. 3=876
 AgLa ferrite, prep., crystal structure, mag. props. 4=1844
 Ag₃La_{0.8}Er_{0.2}, magnetic cooling by adiabatic demagnetization 4=16305
 Ag-Li, stacking faults 3=15499
 β -AgMg, jog theory of work hardening 4=7456
 β -AgMg, low-temp. tensile behaviour 4=23205
 AgMg, melting point depression due to Si 4=8502
 Ag-Mg oxide, cold worked, structure 2=6817
 β -AgMg, self-diffusion of Ag 4=15494
 AgMg, slip, low temp., rate-controlling mechanism 4=30785
 Ag-Mg-Sn, theory of order-disorder transformations 0=16336
 Ag-Mn alloys, electron scattering, anomalous, and analogy with Ramsauer effect 4=17396
 Ag-Mn alloys, lattice thermal cond. at low temp. 2=14396
 Ag-Mn alloys, Lorenz number in mag. field 2=14395
 Ag-Mn alloys, Lorenz number and thermal cond. 2=6294
 Ag-Mn alloys, paramag. susceptibility 3=8643
 Ag-Mn, dilute, thermal cond. at low temp. 0=6021
 Ag-Mn, exchange anisotropy 0=10121
 Ag-Mn, exo-electron emission 0=2383
 Ag-Mn, ferromag.-antiferromag. model 3=20585
 Ag-Mn, ferromag.-antiferromag. props. 2=2275
 Ag-Mn, Hall effect, < 15°K 1=7622
 Ag-Mn, inelastic scattering of electrons 1=14243
 Ag-Mn, low temperature anomalous conductivity and Lorenz parameter 1=11257
 Ag-Mn, mag. susceptibility 0=10100
 Ag-Mn, 1.4-20°K heat capacity 0=9859
 Ag-Mn, 1.3-20°K specific ht. in mag. fields 0=18408
 Ag-Mn-Sn, ζ -phase, lattice spacings and effective valancies 2=12935
 AgN₃, unit cell dimensions 3=11265
 AgNO₃-alkali nitrate, fused, heat of mixing 1=12869
 AgNO₃, aq. soln., u.s. velocity anomaly 1=15871
 AgNO₃, crystal structure, re-determ. 2=10893
 AgNO₃, effect on u.v. absorption 0=10038
 AgNO₃, fused, thermoelectric power 3=9477
 AgNO₃, liquid, i.r. reflection spectrum 2=7214
 AgNO₃, m.p. and volume of fusion, press. depend. up to 10⁶ atm 3=24110
 AgNO₃, molten, Raman spectra giving nitrate ion structure 4=15355
 AgNO₃, molten, u.s. absorption and vel. 0=16696
 AgNO₃-polyacrylonitrile complex, i.r. spectra 4=12509
 AgNO₃ soln. u.s. velocity 1=18407
 AgNO₃, specific heat, 300-438°K, 433°K transition 4=15430
 AgNO₃, structure change, kinetics of phase growth 3=13401
 AgNO₃, thermoelectric liquid cell, e.m.f. temp. var. 4=15846
 AgNO₃, transition I \rightleftharpoons II, energy meas. 2=16975
 AgNO₃-AgBr fused solution, electrical conductivity and cryometry 1=15899
 AgNO₃-Ba(NO₃)₂-Ca(NO₃)₂-Mg(NO₃)₂, density and electrical conductivity 0=64
 AgNO₃-LiNO₃ melt, thermal diffusion 2=21902
 AgNO₃-NaBr-NaNO₃ system, association constants 2=17093

Silver compounds—contd

- AgNO₃—NaNO₃ molten mixtures, interionic diffusion 4=29617
 AgNO₃—NaNO₃ quadrupole n.m.r., satellites intensity 0=21091
 Ag—Ni alloys, Fick's first diffusion eqn. 3=15503
 Ag₂O, crystal structure, neutron diffn. results 1=20537
 Ag₂O, ads. of cations, anions, in dilute solns. 3=13608
 Ag₂O binding properties 1=12347
 Ag₂O, new modification with layered structure 4=10551
 Ag₂O, photoconductivity rel. to prep. method 4=22806
 Ag₂O, 2°–80°K, specific heat and entropy 3=769
 Ag₂O, specific heat of large crystals 3=768
 Ag—Pb, liquid, thermodynamic properties 1=8111
 Ag—Pb, surface free energy, anisotropy, effect of metallic impurities and temp. 4=17373
 Ag—Pd, adsorption, of H from soln., Ag conc. effects 4=30893
 Ag—Pd alloy cold worked, electrical resistivity recovery 2=23231
 Ag—Pd alloy, lattice parameter, effect of temp. 4=15794
 Ag—Pd alloys, electrical props., effect of annealing 4=22684
 Ag—Pd alloys, lattice parameters, temp. depend. 4=26673
 Ag—Pd alloys, Pd self-diffusion coeff. at 850° and 896°C 4=9994
 Ag—Pd, depth-dependent conc. grad., X-ray study 2=21504
 Ag—Pd, effective charge of Ag and Pd ions 1=20576
 Ag—Pd, effective charge of Ag and Pd ions 2=8838
 Ag—Pd, elec. res. and magnetoresistance 0=9942
 Ag—Pd, heat of formation 2=21540
 Ag—Pd, hydrogen absorption 0=12117
 Ag—Pd, quenched-in vacancies 1=19762
 Ag—Pd, residual elec. resistance 1=5002
 Ag—Pd, sputtering with A, He and Xe 0=12645
 Ag₂Pd₃S, elec. cond. 0=18001
 Ag—Pt alloys, phonon scattering on Pt atoms 2=23048
 Ag—Re alloy, elec. resist. at low temps. 4=22681
 Ag—Re, elec. resistance, pressure and temp. coefficients 1=19831
 AgS, contact potential photovoltaic effect in films 4=28650
 AgS photocells, FESSU, characteristics 4=17539
 AgS surface growths on Ag, effect on crystal structure, by electron diffn. 4=2090
 AgS, thermal self-diffusion in S vapour 4=9990
 Ag₂S, Brillouin zone, chemical bonds and conduction mechanism 0=13605
 Ag₂S, crystal structure and electronic props. 0=7946
 Ag₂S layers, photovoltaic effect, positive and negative 4=28647
 Ag₂S patches on Ag, nucleation, role of defects 2=6846
 Ag₂S, thermoelectric power 1=12466
 Ag₂S, whiskers, growth 0=16275
 Ag₂S, zeta potential 2=1381
 Ag—Sb films, structure, electron diffract. study, Sb depend. 1=4081
 Ag—Sb, lattice heat conduction at low temps. 0=11591
 Ag—Sb, lattice spacing and electronic structure 1=20571
 AgSbS₂, miargyrite, crystal structure redeterm. 4=23474
 Ag₃SbS₃, optical and elec. props. 4=26152
 Ag—Sb—Te, AgSbTe₂ phase formation 3=18345
 AgSbTe₂, anomalous Hall effect 0=20921
 AgSbTe₂, Hall effect, anomalous 3=836
 AgSbTe₂, resistivity and thermoelectric power, 80° to 300°K 3=13144
 AgSbTe₂, semicond. props. 0=11680
 AgSbTe₂, solid solns. with PbTe and SnTe, elec. props. 3=876
 AgSbTe₂, structural study 0=21202
 AgSbTe₂, thermal cond. 4=25868
 AgSbTe₂, thermal conductivity 0=7860
 AgSbTe₂—AgBiTe₃, —PbTe, and —SnTe, thermoelec. props. 3=10900
 AgSbTe₂—GeTe, for thermoelectric power generation 1=8967
 AgSbTe₂—PbTe, for thermoelectric power generation 1=8967
 AgSbTe₂—PbTe, thermoelec. props. rel. to constituent proportions 2=18759
 AgSbTe₂—Se, thermal, elec. props. 3=875
 AgSbTe₂—SnTe, lattice thermal cond. 2=18538

Silver compounds—contd

- AgSbTe₂—SnTe, for thermoelectric power generation 1=8967
 Ag—Se, elec. resist., temp. depend. 0=10282
 Ag—Se films, structure 3=13563
 Ag—Se layers, resistivity and thermoelec. power 0=7968
 AgSe, molecular spectrum, absorption 3=10524
 Ag₂Se, Brillouin zone, chemical bonds and conduction mechanism 0=13605
 Ag₂Se, crystal structure and electronic props. 0=7946
 Ag₂Se, crystal structure and semiconducting props. 4=1622
 Ag₂Se, electrical, thermoelectric and thermal props., beta-ray effects, 2 MeV 4=10070
 β-Ag₂Se, ionic conduction, composition depend. 0=20872
 Ag₂Se, phase transform., α-β, in films 4=23291
 Ag₂Se, polycryst., diffusion of Cu 2=12459
 Ag₂Se, thermal conductivity and phase transition 2=573
 Ag₂Se, thermal and elec. props. 3=2926
 Ag₂Se, thermoelec. and crystallographic props., effect of doping 1=6186
 Ag₂Se, thermoelectric power 1=12466
 Ag₂Se_xS_{1-x}, electrical props. 1=12410
 Ag—Si contact, with light emission and rectifying props. 0=20909
 Ag—Si system phase diagram, solid-liquid 4=5445
 Ag₂VI's, pseudo-binary systems, electrical properties 1=12410
 Ag—Sn alloy, elastic consts., effect of Pb addition 4=28964
 ε Ag—Sn alloys, cold worked, lattice deformation and recovery 4=23206
 Ag—10% Sn, f.c.c., filings, heavy deform. faulting, by X-ray diffn. 3=8418
 Ag—Sn films, supercond., edge effect suppression 4=27433
 Ag—Sn, lattice spacing and electronic structure 1=20571
 AgSn, molecular dissociation energy 2=8127
 Ag—Sn, thermal vacancies, formation energy, specific resist. 1=11192
 Ag—Sn—Cd h.c.p. alloys, lattice spacings 4=15795
 Ag—Sn—Mn alloys, paramag. susceptibility 3=8643
 Ag—Sn—Mn, paramag. props., 300–700°K 4=15626
 Ag—Sn—Mn solid solns., lattice spacings 2=21537
 Ag₂SO₄·4NH₃, growth and crystal props. 0=13921
 AgTcO₄, crystal structure 2=23854
 Ag(30–40%)—Te, alloy, cubic struct., metastable 2=10903
 Ag 47—Te 52, L-absorption spectrum rel. to electronic structure 1=20000
 Ag—Te films, electron diffraction study 3=18383
 Ag₂Te, degeneracy study, for Hall coeff., resistivity and Seebeck coeff., 55–300°K 1=3772
 Ag₂Te films, elec. conduction by dendrites 1=8957
 Ag₂Te, Hall effect and resistivity 1=17757
 AgTe, magnetothermal effects at high-temp. 2=23066
 Ag₂Te, magnetothermal effects at high temp. 2=23066
 AgTe, molecular spectrum, absorption 3=10524
 Ag₂Te, crystal structure and semiconducting props. 4=1622
 β-Ag₂Te, elec. & thermal props. 3=837
 Ag₂Te films, elec. props., structure 3=833
 Ag₂Te films, structure transformation 3=18384
 α-Ag₂Te, galvano- and thermomagnetic effects 0=20922
 Ag₂Te semicond. films, props. and structure 4=23580
 Ag₂Te, semiconducting properties, +20° to –190°C 3=20343
 Ag₂Te, thermoelectric power 1=12466
 Ag₂Te, thermoelectric properties 1=3798
 Ag₂Te_xS_{1-x}, electrical props. 1=12410
 Ag₂Te—Sb₂Te₃ phase diagram 3=836
 Ag₂Te—Sb₂Te₃, phase diagrams 1=20584
 Ag₂Te_xSe_{1-x}, electrical props. 1=12410
 Ag—Ti, cpd. formation 1=15162
 AgTiTe, semiconductor, prep. and props. 3=874
 AgZn, accelerated ordering and hardening by thermal cycling 4=23289
 Ag—Zn, Ag and Zn self-diffusion, temp. depend. 2=2847
 Ag—Zn alloy, packing defects, 600°–650°K 3=20160
 Ag—30% Zn alloy, Zener relaxation 2=21399–400
 Ag—Zn alloys, α-solid soln. range, void formation 4=29170
 Ag—Zn alloys, shear stress values, critical resolved, rel. to temp. and comp. 4=28982
 Ag—Zn alloys, transport numbers, various phases 3=11354

Silver compounds—contd

- Ag-Zn alloys, transport of Ag, Zn, under elec. field 3=20235
 Ag-Zn, anelastic piezoresistance, stress-induced ordering 4=12847
 Ag-Zn, β , β' , ζ phases 2=21542
 Ag-Zn, deformation in tension and shear 3=15986
 AgZn, diffusion, non-equil., deformation-enhanced 2=10408
 Ag-Zn, ϵ and η phases, lattice spacings 3=6856
 AgZn, Hall effect 3=838
 Ag-Zn, quenched, thermal vacancies formation and decay 4=6828
 α Ag-Zn solid soln., activation energies for diffusion and Zener relaxation 4=23235
 Ag-Zn solid solutions, yield point and strain ageing 2=14888
 β -AgZn, spectral reflectivity rel. to temp. 2=18789
 Ag-Zn, stacking fault probability meas. 1=7586
 Ag-Zn, stacking faults 1=19797
 Ag-Zn, thermal vacancies, formation energy, specific resist. 1=11192
 AgZn, three structural phases, thermodynamics 3=1352
 Ag-Zn, $\zeta \rightarrow \beta$ transformations 1=1411
 Ag-Zn, ζ -phase stability 3=8396
 Ag-Zn-Mg, ϵ -phase, lattice spacings, Mn valency 4=23476

Sintering

- alkaline earth borates and fluoroborates, rel. to Ce activator content 2=6595
 alumina, diffusion sintering, obs. of powder compact shrinkage 4=13663
 alumina, test of diffusion model of sintering 1=7881
 aluminium, mechanical props., no grain size effect 4=30767
 binary alloys, conc. distribution functions 1=15169
 carbides, grain size study, magnetic method 1=6555
 ceramics for capacitors, review 1=7687
 ceramics, rel. to plastic deformation 4=7380
 diffusion activation energy meas. from elec. cond. var. 4=13665
 diffusion models, intermediate and final state 1=7880
 diffusion sintering, models, application to powder compact shrinkage 4=13662
 diffusion theory 0=3167-8
 ferrite rings, for single crystal preparation 4=4545
 ferrites, cooling equilibrium atmospheres 1=6549
 ferrites, surface structure, effect on mag. props. 1=3914
 ferroelectric ceramics preparation 2=14617
 glass ceramics, review 4=26731
 grain boundaries rel. to sintering rate 2=8872
 ice 0=19508
 ice, evaporation—condensation theory, data for -3° to -20°C 4=13661
 ice, mechanism 2=2360
 last stage, grain boundary motion 1=9157
 Lifshits—Slezov process, kinetics 1=6556
 metallic multicomponent systems, volume changes 4=7688
 metallic powder compacts, elastic moduli 0=1841
 metals, rel. to plastic deformation 4=7380
 metals, rel. to surface tension 4=10361
 and plastic deformation, metals, ceramics, polymers 4=7380
 polymers, rel. to plastic deformation 4=7380
 from precipitation kinetics of supersaturated solid solutions 1=20619
 quartz powder, phase transformations 1=20399
 S.A.P., activation energy and volume 4=20643
 sound velocity, compressibility, in sintered materials 2=2828
 steels, Cr-Ni, sinterability 2=831
 theory inadequacies 4=20787
 thermoelectric materials, powder metallurgy 3=3346
 two-particle model, size sensitivity 2=17058
 Ag, grain boundary and vol. diffusion 4=28482
 Al powder, creep props. 2=16961
 Al, rel. to pressure, time, temp. 3=6876
 Al_2O_3 , density increase by adding MgO 4=20788
 Bi^{10} powder, under n-irradiation 1=14351
 Ba ferrite, rel. to coercivity 3=11094
 Ba-Bi ferrite magnet 1=20113

Sintering—contd

- BaTiO_3 , doped, thermal analysis study 2=16990
 BaTiO_3 , in gradient furnace 2=14617
 BaTiO_3 , non-ferroelec. hexagonal modification 2=14633
 BaTiO_3 , rel. to its props. 2=14636
 BeO 3=18368
 Bi_2Te_3 , cold compacting 3=3346
 Bi_2Te_3 , variation of thermoelec. power with sintering temp. 0=7972
 CaO powder, thermoelec. power and elec. cond. 4=22705
 Cb-W-Mo-Zr, sintered, homogenization kinetics 4=15810
 CdS film preparation 1=11323
 CdS films, rel. to photocond. sensitivity 3=904
 CdS, pellet prod., in photocells and resistors 4=30658
 Cr-Mo powder mixtures, diffusion and growth 0=12070
 Cu alloys, segregation during sintering 0=18395
 Cu, appl. of two-particle model 2=17058
 Cu, rel. to recrystn. and effect of cold pressing 2=6785
 Cu, rel. to diffuse and double Bragg X-ray reflection 4=15804
 Cu, gravity effects on radial shrinking 4=7689
 Cu, thermodynam. and defect mechanism 2=23898
 Cu, void shrinkage and densification 3=13537
 Cu-Cr alloys, rel. to props. 2=15052
 Cu-Ni, conc. distribution functions 1=15169
 Cu-Ni (80,60,40%Cu), rel. to electrical conductivity 1=10028
 Cu-Ni powder mixtures, diffusion and growth 0=12070
 CuO, effect on semicond. props. 2=6465
 Fe, effect on elasticity modulus and damping 2=16945
 Fe powder, rel. to grain boundary sliding 3=11293
 Fe, rel. to self-diffusion 2=6368
 Fe, tensile strength for various sintering conditions 4=10388
 MgO powder, thermoelec. power and elec. cond. 4=22705
 MgO, water vapour effect 4=23546
 Mn ferrites, defect formation 0=11889
 Mn ferrites, rel. to structure 2=23935
 Mn-Zn ferrites, rel. to pressed density 1=20648
 Mo, grain size reduction on adding Si 3=20921
 NaCl, evaporated films, mechanism 3=25777
 NaCl, plastic flow effects 4=17834
 NaCl, in presence of inert gas 0=8463
 Nb_3Sn , rel. to superconductivity 1=18720-1
 Nb_3Sn , temperature, rel. to supercond. props. 2=9486
 Ni, effect of H_2 and Xe adsorption 2=10946
 Ni ferrites, effect on elec. props. 2=6471
 Ni-Cu mixtures, homogenization rel. to grain surfaces 4=10593
 NiO-CuO- Li_2O system, effect on elec. props. 2=6465
 Ni-W powder mixtures, diffusion and growth 0=12070
 NiZnCo ferrite, rel. to magnetic dispersion 3=18100
 PbSe 1=1078
 PbTiO_3 - SrTiO_3 - $\text{Bi}_{2/3}\text{TiO}_3$ solid solutions, prep. 2=14632
 Pt- Al_2O_3 catalyst, 300° to 1300°C 3=18367
 Th, effect of O_2 , C and N_2 on properties 0=10462
 TiC, study by elec. resist. change 2=6842
 TiO_2 4=23545
 U, β , α phases, contraction at var. temp., activation energies 4=13664
 U oxides 1=1446
 U oxides, impurity effects 2=834
 U, and phase transform., $\alpha \rightarrow \beta$, $\beta \rightarrow \gamma$ 4=17772
 UC, conditions 3=7079
 UC, diffusion activation energy meas. from elec. cond. var. 4=13665
 UO_2 , in CO_2 atmosphere 4=4654
 UO_2 , fractographic studies 1=20647
 UO_2 , in H_2 , pore distrib. 3=11311
 UO_2 , in H_2 at 1350°C, prep. of fine-grained product 0=8464
 UO_2 , high-density bodies 1=20646
 UO_2 , microfractographic obs. 3=3240
 UO_2 , optical, electron microscopy 2=4518
 UO_2 , over-sintered, grain-boundary precipitates in 4=7680
 UO_2 , review 0=14056
 UO_2 , sintered, high-temp. torsion 3=6777
 $\text{UO}_2/\text{U}_3\text{O}_8$ mixtures, activation energy 4=20790
 W, arc plasma-sprayed, effects on props. 4=15719
 W, effect of H_2 and Xe adsorption 2=10946
 W, kinetics, diffusion process meas. 4=7687
 W rods, in H_2 atmosphere 3=13541
 WO bronzes, temperature 3=25390

Sintering—contd

- YFe garnets, with Ne 0=21057
 Zn oxide spheres, in air, O₂, H₂, He 0=1958
 ZnFe₂O₄, grain growth study 2=4479

Skin effect

- a.c., current density rel. to conductivity 2=9514
 anomalous effect on nuclear magnetic resonance 1=14820
 anomalous, in normal metals, theory 1=3724
 anomalous, rel. to electronic structure of metals 1=2383
 anomalous, rel. to surface impedance of superconductors, calc. 0=10841
 anomalous, rel. to u.s. absorption in metals 1=12355
 anomalous skin effect and n.m.r. in metals 3=20673
 anomalous, theory of 3=19253
 anomalous, in thin metal films, mag. field present, theory 4=6913
 cold cathode arcs movement 2=13551
 current propagation on surfaces generated by revolution 1=9523
 cylinder, arbitrary section, resistance, self-inductance sine current 4=440
 cylindrical bar, of any section, low frequency 4=5540
 in discharges, in air and hydrogen, at 300 kc/s 1=4589
 electrical explosion of skin-layer 4=15516
 electron surface collisions, Fermi liq. theory 3=25245
 exploding wire circuits, transient effects 3=3981
 ferromagnetic films, standing spin-wave excitation 0=21035
 ferromagnetic resonance, role in 3=23207
 ferromagnetic sheets, domain wall theory 4=7235
 ferromagnetic strips, rel. to permeability meas. 2=13650
 general formulation, two-dim. 2=7551
 m.h.d. travelling-wave devices 3=21967
 metal films, anomalous, effect on optics in i.r. 4=22834
 metals, anomalous effect, rel. to Fermi surface 1=17595
 metals, anomalous, magnetoplasma oscill. 3=8411
 metals, electron momentum meas. 2=18554
 metals, electron momentum meas. 3=6496
 metals, h.f. impedance, effect of narrow bands 2=20985
 metals, optical properties rel. to dielectric const. 4=13000
 metals, polyvalent, anomalous effect, rel. to electronic structure 0=9888
 metals, surface impedance in i.r. region 3=20434
 normal, in mag. fld. at low temp. 3=2778
 plasma, in l.p. discharges, in H and air 0=16978
 plasma, relativistic 0=19678
 plasma, 3-component, magneto-acoustic waves 0=19694
 plates, thin, static skin effect 4=441
 in pulsed high-current discharges 1=7044
 ring discharge, h.f., 0.9-5.6 Mc/s meas. 4=18717
 semi-infinite metallic medium, transition region 0=13576
 size effect, 1-5 Mc/s 3=842
 size effect, 1-5 Mc/s 3=8493
 sphere in field of current loop, quasistationary case 4=19168
 static skin effect, in strong mag. field 3=25223
 superconductors, surface impedance in a mag. field 0=8926
 wires, static skin effect 4=441
 Ag, from i.r. data 0=6078
 Al, anomalous, rel. to band structure 0=9887-8
 Al, anomalous, rel. to Fermi surface 1=17596
 Au, from i.r. data 0=6078
 Be, anomalous, rel. to free current carriers theory 2=10569
 Bi, anomalous, rel. to effective hole mass 2=4031
 Bi, anomalous skin effect 4=12882
 Bi, anomalous, at 2°K and 23.5 kMc/s 0=1658
 Bi, change, anomalous to classical 2=2071
 Cd, anomalous, rel. to Fermi surface 1=17596
 Cd, static, 4.2° to 78°K 4=10023
 Cr, polycryst., meas. rel. to Fermi surface area 3=2757
 Cu, from i.r. data 0=6078
 Mg, anomalous, rel. to Fermi surface 1=17596
 Mo, polycryst., meas. rel. to Fermi surface area 3=2757
 Ni, from i.r. data 0=6078
 Sn, films, superconducting penetration depth 0=8931
 W, polycryst., meas. rel. to Fermi surface area 3=2757
 Zn, anomalous, rel. to Fermi surface 1=17596

Sky brightness

- See also Airglow; Twilight
 actinometer readings, effect on 2=2485
 albedo, rel. to atmospheric turbidity 3=6961
 altitude depend. and absolute brightness 3=23626

Sky brightness—contd

- calculation, aerosol and multiple scatt. effects 4=29292
 daylight, spectral energy distrib. 3=11406
 daytime radiance, up to 80 000 ft. 2=15195
 diffused skylight, apparatus for meas. by rocket 2=24020
 during eclipse (20 July 1963) 4=26956
 energy distrib. of daylight, from overcast sky 0=14297
 height dependence, rel. to aerosol layer thickness 2=15208
 high altitude meas. 4=29293
 intensity distrib., photographic meas., using wide-angle objectives 4=10722
 infrared background 1=20841
 i.r. radiance, distrib. over clear sky 0=2024
 i.r. radiation distrib., prediction 3=3465
 i.r. spectral radiance 1=1512
 long-wave radiation from clear skies 4=2197
 meas. at 3.8 Mc/s, aerial appl. theory 2=9111
 night, interferometric study 0=16470
 at night, 0.9-1.8μ 2=24021
 night, separation of extra-terrestrial and atmospheric components 3=16279
 night sky, component separation 2=4660
 night sky at 8640 Å up to 200 km 3=23627
 photometry, integrating sphere 4=29295
 polarization, calc., different model atmospheres 3=1445
 polarization during twilight 0=4804
 polarization meas. of skylight 3=19028
 polarization rel. to wavelength in sunlight 2=21636
 pyranometer, Bellari 2=11024
 scattered, 1-3.5 μ, up to 17 km 3=18510
 spectral distrib. rel. to correlated colour temp. 4=29294
 spectral energy distrib., meas. 2=4599
 spectral radiance, 1-20μ 2=4590
 spectral radiance, 1-20 μ, instrumentation 1=1511
 starlight, integrated over sky 1=2575
 sunlight, scatt. by atmosphere, rocket meas. 2=11023
 total radiation meas. during IGY 3=9042
 twilight, effect of lunar atmosph. tide 3=6988
 twilight, polarization at zenith, spectral meas. 4=23781
 use in meas. of transparency of atmosphere 1=6589
 u.v. radiation from zenith sky 4=4772
 in u.v. and visual spectral regions, meas. 4=26793
 upper atmosphere radiation not rel. to sun 4=13825
 He extreme u.v. radiation 2=4726

Sliderules

- calculator for conversion of optical densities into composition 1=6582
 dB addition, circular 3=11672
 for complex numbers 3=5323
 for interferometric length meas. 0=6943
 ionospheric absorption loss and max. usable frequ. 3=24483
 nomographic type, direct-reading, for spectral blackbody radiation 0=14879
 Pythagoras' formula in 3-dim., hypotenuse evaluation 1=17983
 for Xe, absorbed radioactivity calc., after power reactor shutdown 0=9723

Slip

- adiabatic instability 4=26478
 alkali halides, slip bands from dislocation multiplication 4=1482
 anisotropically cohesive medium, line eqns. 2=10762
 band formation from dislocation lines 1=7581
 band formation from dislocation lines 1=10002
 bands, energy release during fracture 3=1242
 α-brass, individual slip lines 0=16219
 α-brass, polygonization 0=17950
 brass, subject to alternating torsion 4=1939
 brittle fracture, origin of 2=23781
 and climb forces 3=17726
 compressible, liquids, boundary layer calc. 4=16076
 compression textures, materials of rocksalt type 1=20700
 cross slip and cross climb of dislocations induced by a locked dislocation 1=8907
 cross slip, dislocation barriers, long jogs 0=17933
 cross-slip in fatigue crack formation 1=4000
 crystal aggregates, plasticity theory, associated flow rule 1=1321
 crystals, independent systems, number 3=16000

Slip—contd

crystals, rel. to work hardening 1=12598
 diamonds, planes, rel. to plastic deformation 4=15707
 dislocation crossing, rel. to point defect creation 2=3896
 dislocation cross-slip, stress-aided 1=1331
 dislocation mobility 2=14446
 dislocation multiplication during glider-band formation, theory 2=8220
 edge dislocations, stress fields 1=3664
 elastic domain development 3=13367
 elliptical glide zone, dislocation distrib. 4=4049
 f. c. c. crystals, in compression testing 4=30764
 f. c. c. crystals, primary systems, dislocs. 3=12975
 f. c. c. metal crystals, slip line pattern 1=2511
 fatigue crack nucleation, cross-slip models 3=20749
 fatigue damage accumulation at high temp. 3=20745
 formation, dislocation theory 2=10388
 friction acting on moving dislocation 3=17728
 frictional, Bauschinger's effect 0=21111
 glide, secondary, shear stress formula 3=5069
 grain-boundary sliding 2=14895
 graphite, slip planes, electron diffr. study 0=10343
 h. c. p. crystals, subsidiary glide systems, stress distrib. 4=1919
 hexagonal crystals, indep. slip systems rel. to ductility 4=15694
 ice, glide bands, non-basal, on plastic deformation 3=17763
 ice single crystals, basal slip as deformation mechanism 4=10381
 interaction between fixed and mobile dislocations, in slip plane 0=17937
 ionic crystals, glide band formation and broadening 4=4446
 α -iron, thin foils, slip, cross-slip planes 1=19785
 α -iron, thin foils, slip, cross-slip planes 2=8227
 metal fatigue model at low temps. 4=7387
 metal work hardening, electron mic. obs. 4=26481
 metals, around indentation 1=20389
 metals, b. c. c., rel. to plastic deformation, geometry 4=13377
 metals, close-packed structure, review 4=28923
 metals, cross-slip, initiation at jogs 2=6337
 metals, discontinuous slip, low-temp., apparatus 3=9667
 metals, f. c. c. 4=23160
 metals, f. c. c. and b. c. c., effect on rolled surface texture 4=30753
 metals, f. c. c. and b. c. c., rel. to rolling textures 4=13637
 metals, f. c. c., cross-slip and fatigue 2=6756
 metals, fatigue, microstructural damage 3=20735
 metals, hexagonal and cubic 4=13387
 metals, microscope obs. of bands 4=6853
 metals, microslip, rel. to electrocapillary effect on elastic modulus 4=4438
 metals, polycryst., in plastic deform. theory 2=6733
 metals, within grains in "flow areas" 0=6305
 multiple glide and orientation changes meas. 3=5068
 muscovite mica, rotational slip and pseudo-structure 1=10006
 nylon 66 and 610, obs. and interpretation 2=19002
 oblique, in rock-salt struct. crystals, rel. to strain hardening 4=23105
 plasma, macroscopic electron-ion energy exchange 4=14637
 plastic deformation via glide, theory 2=16953
 polycrystalline metals, plastic deformation 2=12853, 14881
 polyslip in single crystals 1=1328
 random, as fatigue model, rel. to Coffin's law 1=1540
 rocksalt, plasticity 0=21127
 ruby, prismatic and basal 4=20283
 sapphire, prismatic and basal 4=20283
 slip element determination from asterisms of Laue spots 1=11516
 slip planes in fatigue crack formation 1=6476
 solid surfaces, initial contact, nature 4=10368
 steel, low-C, intragranular slip in yield-stress range 4=17744
 steel, mild, initial, along 45° direction 4=4472
 strain estimation during creep 4=26476
 stress field at free surface 4=1918
 surface replicas, calc. of work hardening rate 3=20720
 system with highest stress, theoretical det. 4=20636
 theory reviewed 1=3978

Slip—contd

rel. to twin intersections, and Cahn's continuity conditions 4=23305
 vector differential equations for tension, soln. 4=18126
 Ag, and crystal dislocations 4=26527
 Ag, during abrasion with emery cloth 2=8758
 Ag, fatigued, correl. with work hardening 3=20748
 Ag, secondary slip 4=30766
 Ag, single crystals, effect of surface films of C, Pt, Fe, Cr 0=21113
 Ag, rel. to stacking-fault energy 3=1230
 Ag-steel interface, continuous slip traces 2=16653
 Ag, thermally activated glide 0=21114
 AgCl, kink bands 2=23762
 Ag₂-Al, (1100) [1120] prismatic slip, strain rate and temp. effect on critical resolved shear stress 4=30783
 AgMg, (321) [111] slip, strain rate and temp. effect on critical resolved shear stress 4=30785
 Ag-(Zn, Cd) alloys, stacking-fault probabilities 4=4063
 Al alloys, fatigued, microstruct. changes 3=20741
 Al, change of structure in second slip system 2=12858
 Al, cold worked 1=10007
 Al, dislocation tangles in easy glide range 2=12436
 Al, fatigued, autoradiography of slip lines 2=19015
 Al mono- and polycrystals, comparison 1=3975
 Al + 1.7% Cu alloy 1=20602
 Al, polycryst., rel. to crystal orientation 2=6741
 Al, quenched single-crystal plates, patterns 0=3152
 Al, 350-400°C, electron microscopy obs. 3=22793
 Al, rel. to fission fragment bombardment 3=17706
 Al, secondary glide near grain boundaries 3=5069
 Al, secondary slip 4=30766
 Al, single crystals, slip patterns 0=3149
 Al, slip line behaviour under stress reversal 3=8441
 Al, rel. to stacking-fault energy 3=1230
 Al, surface slipband transitions in plastic deform. 4=7386
 Al, thermally activated glide 0=21114
 Al, u.s. study 2=21436
 Al-Ag, in age hardened fracture process 4=28932
 Al, and Al-Si alloys, pattern structure 1=10219
 Al-Cu, in age hardened fracture process 4=28932
 Al₂O₃, prismatic slip, kink energies 2=8217
 Al-Zn, in age hardened fracture process 4=28932
 Al-Zn-Mg, torsion fatigue prod. 4=23127
 Au, cross slip in work hardening 1=1333
 BaTiO₃, preferred mode, by etch pit pattern in plastic deformed region 4=30565
 Be, hexagonal metals, glide elements from Lane asterisms 2=4317
 Be, inclusions, behaviour under pressure 2=16969
 Be, prismatic, critical shear stress meas. 4=20647
 Be single crystals in tension, orientational dependence 1=12602
 Bi, giving defects, interaction with twinning dislocations 4=10454
 Bi, polycryst., under pressures to 20,000 atm. 3=16017
 CaF₂ (fluorite), cross-slip mode of dislocation multiplication 1=8910
 Cd crystals, basal slip twinning, in tensile testing 2=10766
 Cd dislocation-free crystals, nonbasal glide 1=12535-6
 Cr, plastic deformation 2=8717
 Cr-Ni alloy, rel. to temp. dependence of damping decrement 1=20308
 CsCl type crystals, independent slip systems 4=1934
 Cu, associated with fatigue 4=26504
 Cu bicrystals, grain-boundary sliding 1=20361
 Cu, cold rolling relative slip and deformation 2=10763
 Cu, creep at 1050°C, slip bands formation 1=20358
 Cu, creep at 1050°C, slip bands formation 2=21435
 Cu, cross-slip and crack formation 1=14900
 Cu, evidence for dislocation reactions 0=7883
 Cu, fatigue induced, electron microscope exam. 4=23139
 Cu, fatigued, persistence of voids 4=15705
 Cu foil crystals, slip lines config. during deformation 4=1936-7
 Cu, rel. to irradiation-produced prismatic dislocations 3=17760
 Cu, latent hardening of cross-slip system 4=26503
 Cu, meas. after deformation in tension 4=9971
 Cu, neutron-irrad., in plastic deform. 4=10395
 Cu, neutron-irrad., thermal activation meas. 4=10377
 Cu, persistent slip bands near grain, twin boundaries 3=2809

Slip—contd

- Cu polycrystals, surface obs., after deform. 3=18199
 Cu, slip band formation, in fatigue tests 4=28941
 Cu, rel. to stacking-fault energy 3=1230
 Cu, rel. to strain rate 2=6735
 Cu, subject to alternating torsion 4=1939
 Cu, thermally activated glide 0=21114
 Cu, torsional fatigue cycling 3=20747
 Cu whiskers, slip line observations 1=1329
 α -Cu—Al alloy, primary and cross-slip lines 3=15999
 Cu—Al (6%), cross slip in easy glide under tension 4=7423
 Cu—14% at Al single crystals, cross, during easy glide, no temp. var. 3=23337
 α Cu—Al single crystals, microstraining 3=20706
 Cu—Au alloys, rel. to ordering 3=20685
 Cu—Au, shear deform., differences between ordered and disordered alloy 4=7417
 Cu₃Au, initiation mechanism, rel. to order 2=10761
 Cu—Be, single crystals in γ phase 4=7486
 Cu—Ge alloy 4=7422
 Cu—Pd, shear deform., differences between ordered and disordered alloy 4=7417
 Cu—Zn alloys, rel. to stacking-fault energy 3=1230
 Cu—(Zn, Cd) alloys, stacking-fault probabilities 4=4063
 Fe, α -phase, dislocation initiation 2=8214
 Fe, Armco and pure 4=23160
 Fe, fatigue induced, electron microscope exam. 4=23139
 Fe, at 4.2-77°K 0=8118
 Fe intercrystalline, on weak plastic deform. and annealing 4=13432
 Fe, α -phase, slip bands after neutron irradiat. 3=809
 Fe crystals in tension 3=20198
 α -Fe, deform. twins, indented surface markings 3=13403
 Fe, polycrystalline, rel. to grain size 4=15709
 Fe single crystal plates 1=14868
 Fe single crystal plates, in early stages of tensile deformation 4=7432
 Fe, slip bonds in single crystals 1=14902
 Fe, at twin boundaries, and its effects 1=2512
 Fe, zone-melted, unusual 3=10678
 Fe—Al, iron-rich, slip system 4=6854
 FeO, on compression at 650°C 4=1950
 Fe—Si alloy, influence of Si content on crystallography of slip 4=7431
 Fe—Si alloy, propagation over grain boundaries 4=20663
 Fe—Si alloys, ball-indented 1=20363
 Fe—3%Si, dislocations distrib. in slip bands 2=14436
 Fe—Si, initiation 1=3984
 Fe—Si (3%), deformation rate effects 4=26516
 Fe—Si(3.5%) intercrystalline, on weak plastic deform. and annealing 4=13432
 Fe—3.25% Si, {112} as active slip planes 2=18581
 Fe—3% Si, planes, at 78°K 4=4471
 Fe—3%Si, plastic deformation 3=20176
 GaP, slip plane elec. and optical effects 4=22573
 Ge, microhardness meas., indentation microstructure 1=20362
 Ge, microhardness meas., indentation microstructure 2=8737
 Ge, single without cracks, etching obs. 3=22792
 Hg, crystalline, slip plane 4=6855
 KCl crystals, cross-slip on bending 2=14894
 KCl—KBr, temp. effects 4=4484
 KCl, screw-dislocations, etch obs. 2=2084
 LiF, growth of slip bands, calc. 1=8907
 LiF, and plastic flow, 400°C 4=17739
 Mg, basal and pyramidal slip from diamond indenters 4=1955
 Mg, fatigue induced, microscope obs., and Fe 4=23175
 Mg monocrystals, at low temps. 1=1314
 Mg, subsidiary glide systems 4=1919
 Mg—Al(0.8%), at grain boundaries 4=20666
 Mg—Al, solid solution, slip lines rel. to Mg composition 1=11515
 MgO, bicrystals, interaction with grain boundary 2=6754
 MgO, electric charge along slip planes 1=7827
 MgO, fatigue deformation, slip band behaviour 4=4475
 MgO, rel. to fracture 3=6802
 MgO, lattice rotation at slip bands 2=2089
 MgO monocrystals, effect on fracture 1=3996
 MgO, motion of dislocations 3=5071
 MgO, prismatic slip, kink energies 2=8217
 Mo single crystals, conjugate slip analysis 4=1956

Slip—contd

- NaCl 4=30786
 NaCl, dislocations in glide bands, birefringence obs. 1=14261
 NaCl, elementary steps, electron micr. study 2=12859
 NaCl, lattice structure in slip band, effect of annealing 1=1330
 NaCl, tracks 2=21579
 NaCl, usual and transverse, rel. to load 3=17758
 NaCl whiskers 1=14901
 NaCl whiskers 1=20448
 Nb, polycrystalline, slip lines in microstrain region of annealed specimens 4=23192
 Nb single crystals, glide systems 1400°-2300°C 4=4483
 Nb, work hardened 4=7443
 Ni alloys, deformed by bending, rel. to twinning 0=6302
 Ni crystals, plastic deformation 4=4478
 Ni, intercrystalline, on weak plastic deform. and annealing 4=13432
 Ni rel. to magnetic domain structure 2=4309
 Ni, part of creep not revealed structurally 3=18194
 Ni rel. to magnetic domain structure 1=20304
 Ni—Co alloy single crystals 2=16958
 Ni—Cr(13%) intercrystalline, on weak plastic deform. and annealing 4=13432
 Ni₃Mn 0=21112
 Pb, and crystal stacking fault energy 4=9975
 Pb films, repeated temp. cycling 4=4669
 Pb monocrystals, easy glide 1=20359
 Pb, polycrystalline, under simple shear 3=6793
 PbS and impact figure formation 4=26517
 PbS, slip-line and etch-pit analysis of glide 3=25266
 Pt₃Co 0=21112
 α -Pu, and cross slip 4=28973
 Sb, giving defects, interaction with twinning dislocations 4=10454
 Si-iron, plastic microstrain 2=6724
 Si iron, slip system crit. shear stress 4=23169
 Si, prod. by P diffusion 4=22590
 Si surfaces, B-doped, slip patterns 1=12597
 Sn films 3=17736
 Sn impure crystals under impact 1=3985
 Sn single crystal films, evaporated 4=9962
 Sn, white, slip bonds 1=14903
 β -Sn, slip- and twin dislocations 3=25658
 Te single crystals 1=20365
 Ti—Mn alloys 4=4490
 TiO₂, plastic deformation 3=23328
 α -U, deformed, mechanism 3=13370
 U, effect of orientation and temp. 2=4322
 β -U, extended dislocation model 4=20688
 α -U, {110} slip, temp. dependence 2=6325
 U, polycrystals, due to thermal cycling 0=16254
 α -U, single crystal extended to fracture 4=23222
 U₃O₈, slip and cleavage 2=12883
 UO₂ 3=17733
 W, on {112} planes, at 1250°K 3=13368
 W single crystals, zone-melted, {112} {111} and {110} {111} slip for ~10% plastic deform. 4=30790
 Zn, basal and pyramidal slip from diamond indenters 4=1955
 Zn, crit. resolved shear stress, rel. to impurities 2=2318
 Zn, crystal dislocations, etching obs. 4=9968
 Zn, fatigued, correl. with work hardening 3=20748
 Zn, fatigued by direct stress 4=7466
 Zn, giving defects, interaction with twinning dislocations 4=10454
 Zn, intergranular in bi-crystals, by interferometry 3=6528
 Zn monocrystals 1=14904
 Zn monocrystals, in work hardening 1=6464
 Zn, multiple slip, active basal and pyramidal systems 0=13547
 Zn, pyramid, dislocation reactions 3=2797
 Zn, pyramidal 4=4493
 Zn, second order pyramidal slip 2=3917
 Zn single crystals, deformed, slip lines 4=28991
 Zn, subsidiary glide systems 4=1919
 Zr, polycryst., basal slip kink bands 4=22574
 Zr sheet, rel. to deformation anisotropy 2=10746
 Zr, thermally cycled 2=23883

Smokes

See Aerosols

Snow

charge, current, carried vertically 0=802
 cloud formation, freezing of droplets, review 3=1439
 clouds, cirrus, crystals 3=18504
 crystal form and riming rel. to fall density 4=23750
 crystal growth, review 2=14946
 crystal symmetry 4=4516
 crystals, twelve branched 3=16024
 density, cover on ice flows 4=4746
 density and crystal form relation, newly fallen 2=1300-4
 depth hoar, formation rate 2=19194
 elastic wave velo. meas., long and transverse 4=4746
 electrical conductivity d.c., -50 to -8°C 3=6612
 electrical props. of blowing snow 4=30934
 electrical props., 20 c/s-200 kc/s 0=12131
 electrification 1=20828
 electrification accompanying melting 4=2203
 electrification, under storm conditions 4=29278
 fallout, altitude distrib. 3=9053
 fallout, T, antarctica 4=4776
 growth of crystals at low supersaturations 1=20831
 ice crystals, small, aggregation 1=11541
 heat transfer by vapour diffusion 3=11979
 melting, and electrification, CO₂ prevention 4=23767
 plane crystals, coalescence 0=14324
 radiation reflection, angular dependence 3=11383
 radioactivity, artificial (Sept. 1960-Dec. 1961) 2=4612
 radioactivity, from nuclear weapon tests 0=5679
 snow-ice cylinders, plastic deformation 2=23757
 storms, electrification due to temp. gradient 4=10726
 transmission of visible radiation 3=13650
 ventilated, thermal conduct. 2=1300-3
 viscosity, meas. 3=3440
 wind meas. using radar Doppler shift 3=1433

Sodium

absorption by glasses 0=4683
 absorption, 2400-1000A, atomic 4=28137
 abundance and distrib. in upper atmosphere 1=21024
 adsorption at ionized interface 2=2431
 allotropic phase transf., due to plastic deformation 0=3170
 annealing 5°K 3=8445
 arc jet, direct current, 4982.8 A line
 broadening 3=9757
 use for artificial electron cloud formation by thermal
 ionization 1=6612
 in atmosphere, resonance scattering 0=16472
 atmosphere, upper, use in electron cloud
 generation 2=4688
 in atmosphere, vertical distrib. and height 0=4802-3
 atom, collision with diatomic mol., electronic-vibr.
 energy transfer 3=6433
 atom, electron scatt., distorted wave approx. 1=19603
 atom, first excited state, oscill. strength from
 lifetime 4=6469
 atom, optical excitation function meas. 3=10469
 atom, oscillator strengths calc. 4=22307
 atom, slow elastic electron scatt. calc. rel. to polarization
 potential 4=25573
 atom, spectral line blackening in hollow cathode 3=19936
 atom, 3²P_{3/2} state, mean lifetime meas. 3=15287
 atomic forbidden lines in d. c. arc flame 4=29899
 atomic spectra, sharp and diffuse series, excitation
 cross-sections 2=14206
 atoms, e.s.r., optically polarized, spin relaxation 4=6486
 atoms, elastic electron scattering 1=7444
 atoms, electron scatt., slow, calc. 4=22320
 atoms, electron scatt., 1-10 eV, total cross-
 section 3=2582
 atoms, exchange polarization effects in h.f.s. 1=12238
 atoms, excitation, calc. near threshold, in N, Ar,
 from luminescence extinction 4=12384
 atoms, excitation functions 2=18424
 atoms, excitation of isoelectronic series reson. transitions
 by electrons, calc. 4=6489
 atoms, excitation of 3s-3p transition by nuclei 2=18408
 atoms, h.f.s. of 3²P_{3/2} state 0=7701
 atoms, ionized on collision with H₂, D₂, N₂ and O₂ 0=19611
 atoms, optical orientation, effect of spin-exchange
 collisions 2=1964
 atoms, solar D₁ line 1=15446
 band structure, composite wave variational
 method 3=25237

Sodium—contd

boiling, mechanism, for surface heating and natural
 convection 4=29809
 cations, determination in atmosphere 3=1408
 chemical reaction, with halomethanes, activation energy
 and number of CH and CF bonds 3=18440
 cloud expansion in interplanetary space 1=18018
 colloidal, in Na azide, due to u.v. irradiat. 0=16063
 colloidal, in Na azide, e.s.r. 0=8083
 compressibility calc. 0=15824
 Compton incoherent scatt. functions for Na and Na⁺ 0=8196
 condensation coefficient calc. 4=21359
 conduction electron paramag. susceptibility 3=1053
 conductivity, press. effect 4=20332
 corresponding states behaviour 4=24460
 coupling parameter, semi-empirical determ. 4=1380
 crystal lattice mechanics, calc., ion screened Coulomb
 model 4=22480
 crystal point defects, effect on compressibility and
 thermal expansion 4=9939
 cyclotron resonance, Azbel'-Kaner meas. 4=6816
 cyclotron reson., helicon waves, Doppler-shifted, and
 Fermi surface rad., 4=22554
 D₂ line, broadening and shift by perturbing gases
 under flame conditions 4=12376
 deformation, elec. cond., 4.2-195°K 0=1850
 deformation, at low temp., tensile and resistivity
 expts. 0=16215
 de Haas-van Alphen effect, in steady mag. fields 4=26263
 desorption kinetics of ions from Re 4=2129
 diamagnetism, p-s-p band model 3=8638
 diffusion, in aluminosilicate glasses 4=1645
 diffusion and desorption in Pt, thermionic emission
 study 0=6061
 diffusion, in LiF, along dislocation pipes 3=10687
 Einstein model, band structure, temp. variation 2=557
 elastic constants, central force contributions 2=4310
 elastic consts. press. depend. 0=13904
 elec. cond. 0=15826
 elec. resist, effect of pressure at low temps. 3=828
 elec. resistance, pressure depend. over 500 kbar 4=1559
 electrical resist. due to twinning, theory 4=22686
 elec. resistivity, of two low-temp. phases, 15-50°K 0=7914
 electrokinetic effects, in liquid state 0=5268
 electrolytic cell, conc., with K 4=26756
 electrolytic cell, NaCl-KCl with collodion or paraffin
 membranes 4=26757
 electron beam loss spectrum, plasma osc.
 peaks 4=28514
 electron beam, 2-8 MeV, energy loss, theory and
 expt. 1=18935
 electron density ratio in metallic and free atoms 3=15947
 electron energy density, from Fermi gas model 0=11564
 electron energy loss spectra 2=3888
 electron gas modified calc. 1=14232
 electron mass shift calc. 3=10588
 electron wave-functions 1=11173
 energy spectra and wavefunctions, calc. by effective
 pot. method 4=30383
 equation of state, expt. 1=19728
 as etchant of sheet glass, surface cracking study 0=21217
 exchange energy of electron gas 3=15474
 Fermi surface anisotropy, from positron
 annihilation 1=12367
 ferromagnetic state, nuclear, at low temps. 4=7234
 films, condensed on glass 0=21252
 films, effect on Mo work function 0=9062
 films, electrical conductivity, rel. to temp. and
 thickness 3=15550
 films, on Ta, secondary electron emission, A ion
 bombard. 0=19728
 flame resonance lines, optical cross-sections 1=8815
 fusion curves, to 5 kb 2=17688
 gas, density, interferometric meas., by amplitude,
 Fabry-Perot etalon 3=21564
 Hall effect, high-field, at 4.2°K 3=840
 helicon-phonon interaction 4=12707
 hyperfine and Zeeman resonances 0=17694
 ionization, on incandescent W, mass spectrometer
 study 0=10878
 ionization, photo, > 160A, calc. 4=27493
 ionization, single and double, electron impact 2=1392

Sodium—contd

ions, energy loss processes in rare gases 3=19186
 ions, Na⁺, atomic scatt. factor and change distrib.
 radius 2=10857
 ions, Na⁺, diffusion in glass, 400-500°C 3=22936
 ions, Na⁺, double charge exchange in gases 1=18780
 ions, Na⁺, Hartree-Fock SCF wave-functions 2=515
 ions, Na²⁴, range in Al 3=12608
 ions, Na⁺, scattering of Mott excitons 0=6035
 ions, range in Al 0=19804
 ions, range in solids and gases 2=7674
 ions, reflection and electron ejection from Mo, comparison
 with inert gas ions and atoms 4=5719
 Kohn effect, indirect observ. 4=28402
 lattice dynamics 4=6715
 lattice dynamics, dispersion curves at 90°K 3=2709
 lattice dynamics model 4=3976
 lattice vibr. spectrum and specific heat 2=14371
 lattice vibr., frequency distrib. 3=15422
 lines in seeded Cu arc, integral radiation 4=16457
 liquid, dynamics, vibrational modes, by neutron
 scatt. 3=1675
 liquid, effect of adsorpt. on deform. of EI-4378
 alloy 4=23185
 liquid, elec. props., theory 1=18428
 liquid, electrical resistivity 1=5283
 liquid, electron mean free path, by positron annihil. 4=199
 liquid, f-sum rule, violation, by slow neutron
 scattering 3=5429
 liquid, flow facility 2=3141
 liquid, free-electron model of elec. cond. 3=23903
 liquid, friction between clean metals in 3=1249
 liquid, heat transport properties 0=3526
 liquid, ions, long-range osc. interactions 3=9439
 liquid, magnetically induced sound absorption 4=14283
 liquid, meltdown of EBR fuel elements 4=17227
 liquid, in metallic tubes, heat transfer 3=3909
 liquid, natural convection heat transfer 1=18658
 liquid, slow neutron inelastic scatt. data 4=18176
 liquid and solid, hydromagnetic equilibrium
 experiments 1=5547
 liquid, use in heat pipe 4=27349
 liquid, X-ray structure investigation 0=16692
 luminescent cloud, ejected from space rockets,
 props. 0=18889
 magnetoelec. oscillations at 4°K 1=19837
 magnetoplasma resonance damping, l.f. 4=1448
 magnetoplasma resonance, satellites 3=25259
 magneto-plasma resonances, low-freq., Hall
 coeff. 2=18559
 martensitic transformation, volume change 0=21188, 21243
 in maser, submillimetre range 0=5395
 mechanical props., low-temp. polymorphism 3=3224
 melting point, up to 3×10^4 kg/cm² 2=23080
 modification effects on Al-Si eutectic 4=13476
 molecules, Na₂, electronic excited states 0=17765
 molecules, spectrum, u.v., and electronic
 structure 3=22549
 molten, elec. resist. and Hall effect 3=9475
 molten, heat transfer in staggered tube bank cross-
 flow 3=16816
 molten, thermal props. 2=17445
 moving edge dislocations 3=10654
 n.m.r., electronic structure 0=4530
 n.m.r. linewidth, temp., freq. var., solid and liquid 4=1907
 n.m.r. in rochelle salt, quadrupole shifts, second
 order 3=25594
 nightglow emission, correlation with OH 3=3511
 normal vibrations, dispersion meas. 2=10320
 nuclear acoustic resonance absorption 3=20088
 nuclear spin-lattice relaxation time, 1.1-4.2°K 0=3140
 optical constants, direct meas. in u.v. 0=16034
 optical effective mass and interband transitions 4=1750
 optical props., in far u.v. 0=18117
 optical pumping to produce spin polariz.,
 techniques 2=14226
 optical pumping, rate eqns., D-doublet 2=1962
 orthogonalized plane wave form factors 3=25229
 oscillator strengths by first excited level lifetime
 meas. 1=17272
 Overhauser effect meas. at 1.5°K 4=4427
 paramagnetic suscept. by e.s.r. saturation 4=4331

Sodium—contd

paramagnetic susceptibility meas. 3=11031
 paramagnetic susceptibility rel. to temp., theory 1=12520
 partition function, calc. for neutral Na 0=20551
 phonon spectrum and thermal energy by Toya's method
 with modified interference factor 4=6716
 plasma, production 3=392
 positive ions, 5-25 keV, sputtering of Cu 1=8363
 positron lifetime in 2=6306
 positron mean life in 0=9342
 reaction of vapour with active hydrogen 2=15137
 re-emitted resonance radiation, influence of interatomic
 resonance 0=17713
 resistivity, elec., effect of capillary constraints 3=7410
 resonance charge exchange of Na⁺ 1=17291
 resonance lines, broadening, by various perturbing gases
 under flame conditions 4=12375
 self-diffusion, pressure depend. to 7000 atm. 2=10415
 self-pinch instabilities 3=16950
 single crystals, preferred orientation analysis 2=10782
 solar photosphere, Na I equil. rel. to abundance 2=9074
 solution in NH₃, dilute, photoconductivity 2=2731
 specific heat, anharmonic contribution 4=30506
 specific heat calc. 3=6476
 specific heat calc., from elastic constants 2=8166
 specific heat calc. by Toya's method 3=10599
 specific heat, electronic, correlation effects and
 effect of martensitic transformation 1=913
 specific heat, 0.4-1.5°K, variation of unknown
 cause 1=14180
 specific heat, 0.15-2°K 0=9857-8
 specific heat, 20-300°K, martensitic transformation 0=7851
 specific ht., below 30°K 4=6745
 spectra, D line separation 0=16871
 spectrum of D-lines in twilight glow 3=9099
 spin-lattice relax. time of cond. electrons 4=20600
 spin exchange cross-section, and electron spin g-factor
 ratio 0=16162
 in stars, Am, Ap 4=29381
 stress/strain at 1.4-77°K 1=12594
 thermoelec. power, rel. to martensitic transform. 2=12551
 Thomas-Fermi-Dirac eqn., generalized for exchange
 interaction 0=13462
 transport, in arcs, electric, compared with Cu 3=24256
 twilight abundance, from scattering data 0=2029
 twilight glow excitation 0=21382
 u.s. attenuation in liquid 4=2676
 u.s., low temp., use of isopentane adhesive to PZT
 transducer 4=27272
 u.s. vel., Rao's const. 2=15589
 in upper atmosphere, observations (1958-59) 2=908
 upper atmosphere, sunlight absorpt. rel. to atmosph.
 obs. 2=4625
 upper atmospheric rel. abundance 2=24028
 upper atmospheric content, origin 2=13018
 vacancies, net atomic fraction at m.p., and energy of
 formation 4=20269
 vacuum deposition 3=11844
 vapour, absorption measurements 4=238
 vapour, dimerization and thermodyn. props. 2=19620
 vapour, etching study of glass surface cracks 0=10274-5
 vapour, ionization, absolute cross-section 4=14573
 vapour, light beam modulation in, by magneto-optical
 effect 4=14324
 vapour, mixed with Hg, stimulated emission 1=798
 vapour, optically oriented, spin relax. on diffusion 4=22314
 vapour, optically oriented, spin relax. and exchange 4=1230
 vapour, optically pumped, electron scatt. 3=12771
 vapour pressure, correlation 3=14423
 vapour, thermodynamic props., calc., criticism 3=21444
 vapour trails, diffusion coeffs. 2=7046
 X-ray emission spectra, plasmon satellites 3=8607
 X-ray emission spectrum, valence band 3=8606
 X-ray (soft) emission spectra, with photon-counting
 spectrometer 1=7439
 in KCl, F- and K-colour centres var. 4=30585
 NH₃ soln., e.s.r., effect of adding NaI 3=11811
 in NH₃ soln. magnetoresistance 4=27197
 Na airglow, origin 1=15299
 Na borate glasses, Raman spectra, rel. to B coordination
 transitions, rel. to Na₂O content 4=20449
 Na²², diffusion in molten KCl, rel. to temp. 4=8193

Sodium — contd

- Na²², diffusion in molten NaI, rel. to temp. 4=8193
 Na²², diffusion in molten NaI-KCl, rel. to temp. 4=8193
 Na²³, dynamic polarization of nucl. spins by Overhauser effect at liq. He temp. 4=15679
 Na²³ mag. dipole transitions, g_J factors from e.s.r. 1=9914
 Na²⁴ ion range in amorphous Al₂O₃, WO₃, meas., comp. to theory 4=27580
 Na²⁴ ions, range in Al, at keV energy 1=7106
 Na²⁴ nuclear recoils in Al, range 4=6355
 Na⁺, lowest config., Hartree-Fock calc. 4=12377
 Na⁺, resonance charge exchange, 900-2400 eV 4=18692
 Na⁺, atomic polarizability and London force consts. 4=3790
 Na⁺, backscattering from W, Ta, Mo, Ti and Ni targets rel. to temp. 4=8854
 Na⁺ bombard. NaCl, secondary electron emission, depth of emergence 4=8821
 Na⁺, ground-state wave-functions 1=13930
 Na⁺, hydration energy 1=15196
 Na D-lines, differential filter for optical pumping 1=11075
 Na-H (active) flame, chemiluminescence, self absorption 4=23654
 Na-Mg vapour mixture, fluorescence 3=705
 Na-NH₃ solns., proton resonance 3=7222
 Na/Sn liquid-metal cell 3=1926
 Na X, impurity in deuterium plasma, X-ray spectra 3=7581
 in Sn, effect on structure and microhardness 3=3334
 in Sn recrystallized surface, effect on microhardness and structure 3=20760

Sodium compounds

- alloys, superconductivity 3=16873
 analcite, Na²² self-diffusion by ion exchange 2=8248
 benzo-acetate, luminescence, temp. var. and dosimetry 3=17117
 borate glass, structure of solid and liquid 3=1361
 borate, glass, u.v. absorpt., composition and temp effects 3=13173
 borates, i.r. spectra 3=13174
 borax, proton mag. reson. and proton cond. 2=14855
 brine, inclusions in ice, migrations under temp. gradients 3=8789
 effect of cpd. on Na line intensities of flame spectra 0=4174
 cryolite (AlF₃·3NaF), films, structure from optical consts., adsorption formation theory 3=13560
 cryolite films, effect of evap. substrate temp. 2=8883
 cryolite films, optical props. rel. to deposition conditions 2=21566
 F-centres, scattering of non-localized excitons 1=11234
 F-centres, scattering of non-localized excitons 1=10015
 feldspars, Na²³ and Al²⁷ n.m.r. 3=23263
 fluoride, liquid, adiabatic compressibility, from u.s. vel. 3=5440
 halides, prismatic dislocations during photolysis 3=2798
 hydrosodalite, unit cell and space group 3=23461
 natrolite, H₂O vibr. l.f., from neutron scatt. spectra 4=4565
 Rochelle salt, dielec. const. at 10 Gc/s rel. to temp. 4=26127
 Rochelle salt, electrostriction 3=13121
 Rochelle salt, ferroelec. crystal structure, radiation effects 4=7050
 Rochelle scatt, ferroelec., electrocaloric effect 3=25403
 rocksalt 1=917
 rock salt, annealed, neutron irradi., mech. props. 0=18242
 rocksalt, bleaching by α-particles and X-rays 1=1001
 rock salt, Compton effect, at 4°K 4=29137
 rock salt, defect self-healing at high temp., mechanism and kinetics 4=12744
 rock salt, dielec. breakdown temp. 3=25408
 rock salt, dislocation damping effects 0=11973
 rocksalt, dislocations, light and electron microscope examination 4=6851
 rock salt, effect of colour centres on dielec. strength 0=1710
 rocksalt, effect of X-rays on hardness 2=799
 rock salt, effects of mech. and thermal working 0=8213
 rocksalt, elec. strength anisotropy 2=23506
 rocksalt, elec. strength anisotropy 3=6621

Sodium compounds—contd

- rocksalt, electric charge flow during deformation 3=8767
 rock salt, electron irradi., blue ring formation 0=9923
 rocksalt, epitaxial growth of metals on cleaved surfaces 2=16996
 rocksalt, epitaxy of Ag films 1=10243
 rock salt, etch figures and dislocations 0=13534
 rock salt, Faraday effect at 1-9 μ 0=13677
 rock salt, hardening due to X-rays 1=3987
 rocksalt, inhomogeneous plastic deformation, electrical charge flow 1=7629
 rock salt, low temperature creep 0=18255
 rock salt, microscopic surface defects, high temp. healing 0=17924
 rock salt, n.m.r., plastic deformation effects 0=21086
 rock salt, Na and Cl displacement, effect of temp. 0=14018
 rock salt, optical density spectral distrib., rel. to plastic deformation 3=17988
 rock salt, plastic deformation, initial stages 0=11979
 rock salt, plastically deformed, defects 0=13546
 rocksalt, plastically deformed, residual stress distrib. 1=12336
 rock salt, plasticity 0=21127
 rocksalt, plastically deformed, optical density, spectral depend. 2=18810
 rock salt, silver-doped, decoration and etching, by surface gas reactions 0=16280
 rocksalt, spectroscopic behaviour and sp. ht. evaluation 2=6258
 rock salt, thermal breakdown 0=1711
 rock salt, work hardening due to rotating steel rod 1=9094
 rocksalt, (110) worked face, light scatt. 2=8491
 salicylate, luminescence, temp. var. and dosimetry 3=17117
 silicate, glass, u.v. absorpt., composition and temp. effects 3=13173
 sodium tungsten bronze, elec. resistivity 1=11259
 structure change to CsCl-type at 18 000 kg/cm² 2=23804
 structure change to CsCl-type at 18 000 kg/cm² 3=6811
 Victawet as parting agent for electron-microscope replicas 1=7896
 zeolites, synthetic, i.r. spectra of sorbed water 1=1460
 Na acetate, molten, 60-100°C, u.s. velocity 1=15869
 Na-alkali, liq., elec. cond., atomic size effect 2=11386
 Na alloys, magnetic resonance 1=1268
 Na-aromatic complex, e.s.r. hyperfine splitting 3=25138
 Na azide, electron spin resonance of colloidal Na 0=8083
 Na azide, spectra, colour centre formation 0=8008
 Na azide, u.v. irradi., colour centres identified as colloidal Na 0=16063
 Na borosilicate glass, X-ray scattering 0=10320
 Na carboxymethyl cellulose, in water, γ-irradiation effect 0=2170
 Na chlorate crystals, light scattering temp. variation 1=11389
 Na chlorate, quadrupole res., Cl³⁵ spin-lattice relax. 2=8695
 Na cobalt molybdate, crystal structure 4=10547
 Na cyanamide, colour centres prod. by electron or u.v. irradi. 4=17448
 Na dodecyl sulphate, aq., films, elasticity 2=15561
 Na europium tungstate, fluorescence, rel. to rare-earth ion substitution 2=10629
 Na Ferrocyanide, Mossbauer effect 0=9524
 Na fluorenone, e.s.r., dims. 2=23012
 Na fluorescein aq., luminesc., KI quenching 3=3807
 Na formate, acetate and propionate, u.s. props. 3=14162
 Na formate, electronic spectra of trapped CO₂ 2=10603
 Na glutamate, proton mag. resonance 2=12838
 Na halides, lattice vibrations, calc. 0=2782
 Na halides, mag. screening of Na²³ 3=23272
 Na halides, mixed, Na²³ n.m. relax. 3=8738
 Na halides, sp. ht. rel. to spectroscopic behaviour 3=764
 Na hypophosphite, n.m.r. study of conc. soln. 1=12904
 Na, liquid, resistivity and Knight shift 0=16693
 Na metadinitrobenzene, spin distrib. 2=10280
 Na metaphosphate as parting agent for electron-microscope replicas 1=7896
 Na molybdate in NaNO₃, heats of soln. and dil., interaction parameters of liq.-liq. mixtures 4=10631

Sodium compounds—contd

- Na—montmorillonite expanded in NaCl soln., birefr. 4=16091
- Na niobate—Ag niobate, ferroelectricity 1=1139
- Na niobate—vanadate, ferroelectricity 1=1139
- Na oleate, boiling heat transfer at coexistence of nucleate and film regions 4=27379
- Na oleate, foam layers in water 2=17432
- Na paratungstate, crystallization from aqueous solns., dilatometry application 4=26609
- Na perfluorosuccinate, X-irrad., e.s.r. spectra of free radical formed 4=20601
- Na perrhenate in NaNO_3 , heats of soln. and dil., interaction parameters of liq. — liq. mixtures 4=10631
- Na salicylate, fatigue effects on luminescent yield 4=20506
- Na salicylate, fluoresc. quantum efficiency 4=20505
- Na salts of fatty acids, aq., u.s. studies 2=11369
- Na silicate glass, colour centres rel. to γ -irrad. 2=16667
- Na silicates, glassy, structure study 4=29203
- Na silicates, glassy, structure study 4=29203
- Na tetraborate hydrates, n.m.r. study 3=8739
- Na thiosulphate, elastic constants calc. 2=4305
- Na thiosulphate single crystals, n. q. r. 2=2309
- Na thiosulphate, pentahydrate crystals, colour centres 0=6049
- Na uranyl acetate, circular dichroism and optical activity 2=16804
- Na uranyl-8-quinolate, crystal structure 0=4647
- NaAl silicate glasses, elec. cond., Al/Si depend. 0=11659
- NaAlF_4 , i.r. absorption spectrum of vapour 3=22553
- Na_2AlF_6 , films, growth, surface mobility and gas occlusion from optical props. 4=2120
- Na_2AlF_6 , fused, refractive index rel. to temperature 3=11796
- Na_2AlF_6 — Al_2O_3 —NaCl, melts, elec. cond. 4=29643
- $\text{Na}(\text{AlSi}_2\text{O}_6) \cdot \text{H}_2\text{O}$, crystal struct., atomic 4=23477
- $\text{NaAlSi}_3\text{O}_8$, albite melting curves rel. to pressure 3=9657
- $\text{Na}_2\text{Al}_2\text{Si}_2\text{O}_{10} \cdot 2\text{H}_2\text{O}$, crystals, H atom positions 4=10552
- $\text{Na}_2\text{Al}_2\text{Si}_2\text{O}_{10} \cdot 2\text{H}_2\text{O}$ (natrolite), neutron diffraction determ. of H positions 4=13603
- $8\text{NaAlSi}_3\text{O}_{10} \cdot 3\text{H}_2\text{O}$, crystal struct., atomic 4=26674
- NaAuCl_4 , Cl^{35} n. q. r., + 18° to -196°C 4=12520
- NaBF_4 , aq. soln., X-ray analysis 4=21100
- NaBO_3 glass, crystal structure rel. to Na content 2=8870
- NaBO_3 , vaporization, mass-spectrometric study 3=25807
- $\text{NaB}_3\text{O}_8 \cdot 5\text{H}_2\text{O}$, heat capacity meas. from 15° to 345°K , thermodynamic functions calc. 4=30517
- $\text{Na}_2\text{B}_2\text{O}_7 \cdot 10\text{H}_2\text{O}$ and $5\text{H}_2\text{O}$, Na^{23} n.m.r. 3=25591
- $\text{NaB}(\text{OH})_4 \cdot 2\text{H}_2\text{O}$, lattice structure 4=7641
- $\text{Na}_2[\text{B}_4\text{O}_7(\text{OH})_4] \cdot 8\text{H}_2\text{O}$, proton cond. 3=2904
- NaBePO_4 (beryllonite) crystal structure 2=12914, 17021
- NaBePO_4 , beryllonite, crystal structure 3=13472
- $(\text{Na}_{0.8}\text{Bi}_{0.2})\text{TiO}_3$, lattice parameters 3=20851
- NaBr, adsorption of Kr, statist. mech. study 3=3367
- NaBr, colloid centres, props. 0=11634
- NaBr, colour centre, F, struct. magneto, optical study at 1.86°K 4=17449
- NaBr, elec. cond. and colour centre 0=15880
- NaBr, electron energy loss spectra 2=3889
- NaBr, fused, refractive index rel. to temperature 3=11796
- NaBr, n.m.r. of $\text{Br}^{79,81}$, Na^{23} 3=14185
- NaBr photoelectric emission yield for 1.54–13.3 Å X-rays 1=13109
- NaBr. $2\text{H}_2\text{O}$, crystal and proton structure 3=6851–2
- NaBr. $2\text{H}_2\text{O}$, crystal structure 4=23478
- NaBr, thermal expansion 2=10338
- NaBr:Co, NaCl:Co, spectra, and Co coord. 4=26186
- NaBr:In, photoelectron emission and luminescence 4=1786
- NaBrO_3 , absolute configuration and rotatory power 4=23479
- NaBrO_3 , conductivity, elec., temp. var. and positive ion vacancies 4=7034
- NaBrO_3 , crystal growth, supersaturation effects 4=15764
- NaBrO_3 crystals, optical absorption changes on X-ray irrad. 4=13058
- NaBrO_3 , impurity shift of pure quadrupole resonance 1=6438
- NaBrO_3 , n. q. r. of $\text{Br}^{79,81}$, spin—lattice relax. 4=4434
- NaBrO_3 , nuclear double irrad. of Br^{79} 4=10344
- NaBrO_3 , optical const., $n(\lambda)$, $k(\lambda)$, i.r., from reflection spectra 3=20438
- NaBrO_3 , thermal decomposition 3=6910–11
- NaBrO_3 , Br^{81} quadrupole resonance shift by elec. field 1=14836

Sodium compounds—contd

- NaCN, phase transitions, n.m.r. studies 4=23294
- Na_2CO_3 , carrier effect on spectral line intensity of matrices 4=26224
- Na_2CO_3 , crystal structure anomaly 4=23480
- Na_2CO_3 , molten, structure, by X-ray diffr. 2=15565
- Na_2CO_3 , photo- and thermo-electron emission 3=19306
- Na_2CO_3 , thermodyn. props. at high temps. 3=22663
- $\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$, n.m.r. rel. to proton positions 3=8859
- $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$, crystal structure 4=23481
- $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$, $\text{Na}_2\text{CO}_3 \cdot 7\text{H}_2\text{O}$, crystal structure, atomic 3=20854
- Na_2CO_3 in H_2O , conductivity, elec. 4=24237
- $\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$, F^{17} function in structure analysis 4=17799
- NaCd_2 , crystal structure 2=23850
- NaCd_2 , crystal structure 4=23377
- Na_2CdO_4 , crystal struct., atomic 4=17818
- NaCl, abrasive wear 1=4003
- NaCl, absorpt. spectra, effect of Cd impurity 1=17877
- NaCl, absorption 1–3mm, temp. depend. 4=10195
- NaCl, absorption spectra, rel. to optical and thermal bleaching 4=28711
- NaCl, absorption spectra, 250 to 650 μ rel. to pressure up to 600 kg/cm^2 2=4137
- NaCl, activated, luminescence mechanism 2=6594
- NaCl, adsorpt. of HCN, bonding 4=29198
- NaCl aerosol, spherical particles 3=13626
- NaCl aerosols, prodn., props. 3=8983
- NaCl, Ag-activated, exoelectron emission 0=3780
- NaCl and alkali halide, vacancy pairs, dislocation 2=3897
- NaCl, alkalinity of natural and melt-grown crystals 0=13943
- NaCl, α and β absorpt. bands in vacuum u.v. 3=8590
- NaCl, alpha and beta bands 1=993
- NaCl, α and β bands, vac. u.v. absorption 1=3839
- NaCl, α -centres, fluorescence 3=17796
- NaCl, α -irradiated, thermoluminescent kinetics 4=13084
- NaCl, anisotropic surface, under rolling cylinder, resistance 0=13920
- NaCl, anisotropy of elec. strength 2=6528
- NaCl, aq. solns., with CaCO_3 , 350–500°C. 100–1800 atm 1=15863
- NaCl aq. soln., proton relax., rel. to concentration 4=27199
- NaCl, aqueous, conductivity, electrical, 300–383° 3=18449
- NaCl, aqueous soln., dielec. props. 2=9286
- NaCl, in atmosphere, vertical distrib. 2=2468
- NaCl, band structure, orthogonalized wave functions 4=6789
- NaCl, bent crystal, motion of charged dislocations 2=14443
- NaCl, bonds broken at atomically flat surface 2=14932
- NaCl, Born repulsive energy 3=2690
- NaCl, breakdown discharge formation 2=21222
- NaCl, breakdown, electric—thermal generalization 1=19843
- NaCl, breakdown, electric—thermal generalization 2=6434
- NaCl, breakdown energy 0=16026
- NaCl, brittleness, effect of ambient air 0=1872
- NaCl, Ca, Cd, Co doped, F and Z bands 3=13012
- NaCl, Ca impurity—cation vacancy pairs, interaction with dislocations 4=22571
- NaCl, with Ca impurity, dielectric losses 1=1128
- NaCl, with Ca impurity, Z-centres 1=3694
- NaCl, Ca^{2+} doped, surface hardness meas. 4=23208
- NaCl, cation and anion migration barriers 0=4306
- NaCl, cation vacancy migration, activation energy 3=12962
- NaCl, cavity formation on dislocations 0=11622
- NaCl, CdCl_2 -doped, quenching of cation vacancies 1=17513
- NaCl, CdCl_2 -doped, strain ageing 3=16002
- NaCl, charge on dislocations, calc. 2=14444
- NaCl, charge separation due to disloc. motion 4=9960
- NaCl, charged dislocation behaviour 3=8435
- NaCl, charged dislocations 1=14275
- NaCl, charged dislocations 1=19778
- NaCl, charged dislocations, motion in bent crystal 2=14443
- NaCl, charged dislocations rel. to pinning points 4=1484
- NaCl, charged dislocations, sign of 3=25278
- NaCl, charged dislocations, sign of charge 2=18582
- NaCl, charged dislocations, yield stress minimum 3=798
- NaCl, charged dislocs., surface detection 3=22776

Sodium compounds—contd

- NaCl, charging by rubbing with Ta wire 3=2966
 NaCl, Cl interstitial, relax. energy and distortion effects 4=12735
 NaCl cleavage face reflect., Kikuchi line intensity increase 2=8819
 NaCl, cleavage structure, effect of inhomogeneities 2=19042
 NaCl cleavage surf. fracture, rel. to annealing 2=8746
 NaCl, cleavage surface behaviour, etch pits 0=3187-8
 NaCl, cleaved, evaporation decoration by Ni, Permalloy films 3=20931
 NaCl, coalescence of pores 1=4075
 NaCl, coalescence of pores 1=10276
 NaCl, CoCl₂ precipitation, Mössbauer study 3=22630
 NaCl, colloids in additively coloured crystals 0=9911
 NaCl, coloration by exo-electrons 2=12469
 NaCl, colour centre energy levels rel. to absorption spectra 2=23212
 NaCl, colour centre, F, struct. magneto, optical study at 1.86°K 4=17449
 NaCl, colour centre formation by γ -irradiation 0=17962
 NaCl, colour centre, Zeeman effect search 4=30583
 NaCl, colour centres due to electron pulses 3=8460
 NaCl, colour centres and thermal bleaching 2=16668
 NaCl, colour centres, X-ray prod. 3=25297
 NaCl, coloured by Ag⁺ and Ca²⁺, F⁻, Ag colloid- and B-bands 4=22679
 NaCl coloured crystals, thermoluminescence, spectral composition 1=14662
 NaCl, coloured, optical and elec. props. 0=18072
 NaCl, colouring by electron bombardment 1=17570
 NaCl, compressibility, elec. cond. eqn. of state, 50-800 katm 0=20730
 NaCl, compressive strength, effect of Ca²⁺ additions 4=23207
 NaCl, conduction electron wave-function and energy 1=7552-3
 NaCl, conductivity, thermal, with CaCl₂ impurity, temp. var. 3=20120
 NaCl, conductivity, thermal effects of Li⁺, I⁻, Rb⁺, Ag⁺, Br⁻, K⁺ impurities 3=22644
 NaCl containing impurities, defect microscopic investigation by evaporation method 4=28451
 NaCl containing 0.3% AgCl, thermoluminescence and thermally stimulated cond. model 4=10210
 NaCl containing Ca²⁺ and Sr²⁺, Z-centre energy levels 4=28500
 NaCl, corundum powder abrasion and heat treatment 2=4352
 NaCl, creep near m.p. under small loads 4=1961
 NaCl, creep, 500°-750° C, temp. and stress depend. 4=4488
 NaCl, crystal face growth patterns, on heating, impurity effects 4=4553
 NaCl crystal further growth in solution and vapour, rel. to plastic deformation 4=13548
 NaCl, crystal growth, adsorption at crystal-solution boundary 4=20736
 NaCl, crystal growth condensation of Ag, in air and vacuo 4=13547
 NaCl, crystal growth, effect of organic solutes 2=8789
 NaCl, crystal interstitials due to H₂O, thermal and acoustic effects 4=17351
 NaCl, crystal lattice vibr. calc. 4=28361
 NaCl, crystal phonon scatt., with CaCl₂ impurity 3=20120
 NaCl, crystal phonon scatt. by Li⁺, I⁻, Rb⁺, Ag⁺, Br⁻, K⁺ impurities 3=22644
 NaCl, crystal plates, evaporation figures 0=7891
 NaCl, crystal structure, amplitudes, high $(\sin \theta)/\lambda$ 3=13454
 NaCl crystal whiskers, dislocations, by X-ray diffr. 3=17748
 NaCl, crystal X-ray diffr. and transmission, var. with temp. 4=7642
 NaCl, crystallization, holes and mosaic structure 3=1263
 NaCl, crystallization "Morphodrome" from phase diagram 3=16042
 NaCl, crystallization, supersaturation, impurities, and crystal form 4=13514
 NaCl crystals, additively coloured, electron microscopy 2=12955
 NaCl crystals, breakdown in electric field 1=12479
 NaCl crystals, deformation and crack structure caused by impact treatment 4=30787

Sodium compounds—contd

- NaCl crystals, doped with divalent cations, ionic cond. 4=17467
 NaCl crystals, elec. field effect on photostimulated exoelectron emission 4=24721
 NaCl crystals, n.m.r. of Na²³ 1=2497
 NaCl crystals, neutron diffraction spin-orbit interaction 3=18294
 NaCl crystals with Ni, line scattering images 4=15597
 NaCl crystals, strained, elec. cond. 2=8302
 NaCl crystals, u.v. absorpt. 3=929
 NaCl crystals, X-ray, photoconductivity 3=4955
 NaCl, Cu diffusion, effect of dislocations 3=15513
 NaCl, Cu-doped, colour centres 1=14336
 NaCl, cyclic stressing, electrical effects 0=7917
 NaCl, damage by sliding and wear 3=11189
 NaCl, "debris" left by moving dislocations, etch-pit study 1=3678
 NaCl, Debye temp., Houston and Blackman methods of evaluation 4=12651
 NaCl, Debye-Walker factors calc. 4=22481
 NaCl, decomposition by electron irradi. 3=17809
 NaCl, decoration of defects by reduction with Zn 1=3677
 NaCl defect properties rel. to electrical breakdown 1=11215
 NaCl defect properties rel. to electrical breakdown 1=12391
 NaCl, defects study, methods review 2=8225
 NaCl, deformation region after impact treatment 4=4487
 NaCl, deformed, u.s. absorption and velocity, various dependences 1=17406
 NaCl, dielec. loss, effect of OH⁻ content 2=12558
 NaCl, dielec. losses, effect of CO₃²⁻ and OH⁻ groups 3=20375
 NaCl, dielec. losses, effect of hydrolysis 4=20409
 NaCl, dielec. props. and thermolum. after X-irrad. 3=8479
 NaCl, dielect. strength, -130° to 150°C 0=1708
 NaCl, dielectric const., 8 mm, by shorted-line waveguide 3=22973
 NaCl, dielectric relaxation due to impurity-vacancy complexes 1=6189
 NaCl, diffraction of 8-45 Mc/s ultrasound 3=12918
 NaCl, diffusion of Cd, meas. from colloidal coloration 4=28491
 NaCl, diffusion of I⁻ 1=7594-5
 NaCl, discharge path in crystal 0=19632
 NaCl, disk-shaped cleavage surface 1=14917
 NaCl, disloc. distrib. near subgrain boundary 4=17429
 NaCl, dislocation charges, temp. depend. 4=1483
 NaCl, dislocation damping 2=21408
 NaCl, dislocation damping 3=17762
 NaCl, dislocation density and flow stress 1=14287
 NaCl, dislocation density and flow stress 4=28467
 NaCl, dislocation etch pit formation 1=12616
 NaCl, dislocation glide steps 1=19787
 NaCl, dislocation jumps 4=1478
 NaCl, dislocation motion and plastic flow 2=16954-5
 NaCl, dislocation motion study 3=17759
 NaCl, dislocation pinning by visible light 2=21035
 NaCl, dislocation relax. rel. to u. s. absorpt. coeffs. 4=28454
 NaCl, dislocation unpinning by visible light 2=10389
 NaCl, dislocations 3=17757
 NaCl, dislocations, Au decorated replica 0=9899
 NaCl, dislocations, deformed by concentrated load 3=20183
 NaCl, dislocations, distrib. near scratches 4=1476
 NaCl, dislocations, e.s.r. trapped Mn ions 2=4261
 NaCl, dislocations, etching technique 3=1258
 NaCl, dislocations in glide bands, birefringence obs. 1=14261
 NaCl, dislocations, linear cpds. with Cu²⁺ ions 3=25280
 NaCl, dislocations, meas. using u.s. 3=15491
 NaCl, dislocations and, new layer growth on mono-crystals 2=4376
 NaCl, dislocations, X-ray diffr. topography 0=1587
 NaCl, dispersion, 0.3-3.0 mm wavelength 0=628
 NaCl, dissolution in glycerol 2=15581
 NaCl, dissolution spiral structures, etch study 4=2019
 NaCl, doped, ionic conductivity processes 2=12501
 NaCl, doped with NO₂, paramag. res. 2=4248
 NaCl, drop growth in humid air stream 1=11746
 NaCl, ductile-brittle transition 0=21145

Sodium compounds—contd

- NaCl, ductility 0=10262
 NaCl, ductility and strength 0=6306
 NaCl, dynamical effects of X-ray interference 2=6860
 NaCl, e.s.r. of F⁻centres 1=20222
 NaCl, e.s.r. of Mn²⁺-F⁻ pair 1=14801
 NaCl, effect of etching on dislocation sites 4=2020
 NaCl, effect of imperfections on Cl ion diffusion 1=14323
 NaCl, effect of internal friction on Young's modulus 1=20307
 NaCl, effect of irradiation intensity on F-centre production 2=18616
 NaCl, effect of neutron irradiation on dielectric and optical props. 1=12468
 NaCl, effect of Pb impurity on optical absorption 1=4983
 NaCl, effect of pressure on elec. and mech. props. 1=11271
 NaCl, effect of sudden pressure on elec. cond. 0=17993
 NaCl, effect of surface steps on crystal surfaces 1=3995
 NaCl, effective Debye temp., vibration frequency spectra 0=20743
 NaCl, elastic deform., effect on Na²³ n.m.r. 2=786
 NaCl, elastic deformation round dislocations 4=12766
 NaCl, elastic fatigue, damping decrement dependence on no. of cycles 0=21119
 NaCl, elec. cond. and colour centres 0=15880
 NaCl, elec. cond. of deformed crystals 3=890
 NaCl, elec. potential due to plastic deformation 3=900
 NaCl, elec. strength, effect of ionic conduction 1=2435
 NaCl, electric breakdown, characteristics 2=676
 NaCl, electric strength, effect of u.v. irradiation 2=16794, 18779
 NaCl, electrical conductivity, rel. to anion impurities 3=17944
 NaCl, electrical conductivity, effect of air and water vapour 4=1653
 NaCl, electrical conductivity during creep at high temp. 1=10034
 NaCl, electrical effects of cyclic mech. stressing 1=14933
 NaCl, electrical signal due to motion of dislocations 1=5043
 NaCl, electrification by X-irradiation 0=3714
 NaCl, electron density in atoms, fourier integral method 0=18351
 NaCl, electron bombard. electron emission and coloration 2=9623
 NaCl, electron density distrib. in crystals 1=15072
 NaCl, electron emission, electron- and α -excited 1=8344
 NaCl, electron energy loss spectra 2=3889
 NaCl, electron secondary emission by Li and K ion bombardment 1=11965
 NaCl, electron spin resonance of F-centres 0=8087
 NaCl, electron transition rel. to β -band 4=9883
 NaCl, electrostriction coeffs. 0=11750
 NaCl, elementary slip steps, electron micr. study 2=12859
 NaCl, enthalpy 3=25198
 NaCl, eqn. of state, Grüneisen const. 3=25205
 NaCl, eqns. of state, rel. to compression data 3=22670
 NaCl, equation of state 3=15447
 NaCl, equation of state, Grüneisen approx., temp. var., calc. 3=20115
 NaCl, etch pits rel. to purity 1=20414
 NaCl, evaporated films, sintering, mechanism 3=25777
 NaCl, evaporation, complex-ion formation, ion-molecule reactions 0=10876
 NaCl, with excess electron, wave-function and energy 3=22679
 NaCl, exchange of Cl³⁵ with halogen gases 1=4076
 NaCl, exciton scattering on U-centres 1=19812
 NaCl, exciton scattering on U-centres 2=8257
 NaCl, exciton structure, LCAO calc. 0=13524
 NaCl, exo-electron emission 1=16357
 NaCl, exo-electron emission, effect of retrapping 2=22244
 NaCl, exoelectron emission spectrum 3=14618
 NaCl, F-band width, calc. 0=13554
 NaCl, F-centre absorpt. and emission, temp. depend. 4=25970
 NaCl, F-centre absorption due to pressure 2=8254
 NaCl, F-centre conc. and relaxation time 0=16161
 NaCl, F-centre formation by X-rays 1=8923

Sodium compounds—contd

- NaCl, F-centre, prod. efficiencies at liq. He temp. 4=12810
 NaCl, F-centre electrons, spin-lattice relaxation time, 300°K 0=16160
 NaCl, F-centre formation by X-rays 3=13011
 NaCl, F-centre stability 0=9907
 NaCl, F-centres, electron-nuclear double reson. 2=12471
 NaCl, F-centres, electron-nuclear double spin res. 2=6388
 NaCl, F-centres, origin by X-irrad. 3=15518
 NaCl, F-centres after X-irrad., stored energy 3=2839
 NaCl, F colour centres, X-ray formation 3=22844
 NaCl faces, reaction with H₂O, O₂ and N₂ 2=4400
 NaCl, Fe²⁺ vacancy-impurity association 3=22631
 NaCl films, condensed in vacuo, electron diffr. 2=15091
 NaCl films, electron diffraction intensities rel. to tilting and λH 3=1295
 NaCl films, electron microscopy 4=2113
 NaCl, films, electron reflection 0=3793
 NaCl, films, orientation, var. with vapour stream angle, by electron diffr. 3=13561
 NaCl films, rapidly condensed, orientation 3=8799
 NaCl, films, secondary electron emission 0=3792-3, 10940
 NaCl films, X-ray study of second type stresses 1=1451
 NaCl, flexural vibrations of plates 2=13394
 NaCl, fluorescence spectra 1=10109
 NaCl, frequency distrib. and sp. ht. at low temp. 1=2378
 NaCl, frequency distribution and specific heat 3=25188
 NaCl, frozen aq. soln., concentration profiles 0=6048
 NaCl, fused, refractive index rel. to temperature 3=11796
 NaCl, fused, thermoelectric power 3=9477
 NaCl, γ -irrad., internal friction and elastic modulus, rel. to dislocation pinning 2=21404
 NaCl, γ -irradiation, influence of deformation and temperature 1=11247
 NaCl, grain boundaries, low-angle, annealing displacement 4=15481
 NaCl, grain boundary effect on plastic deform. 4=23209
 NaCl, grain boundary motion in bicrystals 2=14452
 NaCl, growth and deformation of whiskers 1=20448
 NaCl, growth mechanism 0=16256
 NaCl, growth in silica gel 0=13946
 NaCl, growth from sublimed vapour 0=711, 4596
 NaCl, and Grüneisen const., temp. var. 4=17374
 NaCl, Grüneisen constant at high pressures 3=4827
 NaCl, Grüneisen parameter 4=28378
 NaCl, Grüneisen vel. at high press., anharmonicities 4=15432
 NaCl, heat of soln. meas. 1=16165
 NaCl, high-press. transf. to cubic CsCl structure 3=16015
 NaCl, high-press. X-ray diffr. study 2=8811
 NaCl, high temp. deformation, recrystallization grains 1=14874
 NaCl, high temp. elec. breakdown 3=13123
 NaCl, hole bands 0=2807
 NaCl ice, tensile strength 2=10768
 NaCl, inclusion of Cu atoms 3=10651
 NaCl, indentation with diamond pyramid 2=16970, 18991
 NaCl, i.r. absorption and dispersion, anharmonic potential effect 4=1751
 NaCl, i.r. optical consts., calculation 1=8977
 NaCl, in i.r. optics 1=1814
 NaCl, i.r. reflection spectrum 0=8007
 NaCl, infrared spectrum 2=13425
 NaCl, internal friction, effects of vibrations 0=21100
 NaCl, internal friction peaks, 20°-220°K 1=14857
 NaCl, interstitial Cl atom, relaxation and activation energy 1=17503
 NaCl, interstitial defects prod. by β -rays 1=11195
 NaCl, interstitial mobility, activation energy calc. 4=6832
 NaCl, ion activated luminescence centres 0=16104
 NaCl, ionic conductivity, γ -irradiation effects 0=6067
 NaCl, ionic conductivity and time-dependent polarization 3=10872
 NaCl, ion mobility along [100] and [111], computer calc. 4=17438
 NaCl, ionic Hall effect, 610-780°C 1=1025
 NaCl, ionic mol., vibr. energy levels calc. 4=3861
 NaCl, irradiated, dissolution in dosimetric liqs. obs. 1=20760

Sodium compounds—contd

NaCl, irradiated, luminescence in fluorescent liqs. 1=18415
 NaCl, irradiated, mag. props. and thermolumin. 2=6653
 NaCl, K-absorpt. spectrum of Cl 3=6660
 NaCl+KBr, reaction in solid state 1=20614
 NaCl, lamellar stages electron microscope examination 2=15118
 NaCl, lattice dispersion freq., from i.r. absorption at 82°K 0=13665
 NaCl, lattice distortion rel. to impurities 3=15484
 NaCl, lattice distortion by K⁺ substitution 2=10377
 NaCl, lattice dynamics and phys. props. 1=19690
 NaCl, lattice dynamics and phys. props. 2=8151
 NaCl, lattice energy calc. 0=11562-3
 NaCl, lattice energy of ionic crystals 4=9805
 NaCl lattice, OH⁻ ion introduction 3=8432
 NaCl, lattice structure in a slip band, effect of annealing 1=1330
 NaCl, lattice vibrational spectrum, calc. 0=20742
 NaCl, lattice vibrations, longitud polarized interactions 1=905
 NaCl layers, positively charged, secondary electron emission 4=29967
 NaCl, light scattering coeff. of Kubelka-Munk theory 4=17556
 NaCl, liquid state structure 0=19114
 NaCl local distortions by impurity ions 3=17713
 NaCl, luminescence 1=17909
 NaCl, luminescence and colour centres 2=711
 NaCl, luminescence due to X-rays, mechanism 2=6606
 NaCl, luminescence, whiskers 3=20518
 NaCl, Madelung constant 0=13475
 NaCl, mechanical Bauschinger effect, photo-elasticity 4=13422
 NaCl, mechanical properties anisotropy investigation, by dislocation distribution obs. 4=1962
 NaCl, melting 0=10321
 NaCl microcrystals, specific heat, theory 2=15080
 NaCl, microhardness, indentation and scratch, surface soln. depend. 1=4001
 NaCl, Mn²⁺ e.s.r., with Ca²⁺, Cd²⁺ admixtures 4=28877
 NaCl, molecular trajectories in electric fields 0=7827
 NaCl, molten, diffusion of unlike ions 4=27167
 NaCl, molten, self-diffusion 2=15573
 NaCl, mosaic block structure during creep 3=20209
 NaCl, mutual polishing procedure 0=21176
 NaCl, N-centres, e.s.r. meas. 4=26416
 NaCl, n.m.r. dipolar line broadening surface effects 1=20266
 NaCl, n.m.r. saturation 1=7801
 NaCl, n.q.r. of rare Na, Cl nuclei at non-cubic sites 4=20606
 NaCl, Na n.m.r., adiabatic demagnetization in a rotating reference system 1=9060
 NaCl, Na²³ n.m.r., rel. to γ -irrad. 4=4432
 NaCl, Na²³ and F¹⁹ n.m. relax., mechanisms 2=8680
 NaCl, Na²² and Na²⁴ diffusion 2=14468
 NaCl, Na nuc. mag. relaxation, rel. to divalent impurity ions 3=23273
 NaCl, Na²³ n.m.r. in r.f. field 3=3188
 NaCl and NaCl. MnCl₂, diffusion of Mn 2=21070
 NaCl, Na₂CO₃ and NaOH doped, i.r. absorpt., reflection 3=20489
 NaCl, natural and synthetic, microstructure 0=16366
 NaCl, with Ni impurity, light scatt. 3=20451
 NaCl, nuclear quadrupole relaxation 0=3142
 NaCl, nuclear spin-lattice relaxation time 1=3942
 NaCl, "OH" absorption rel. to O₂ and water vapour 2=18834
 NaCl, OH ions in, neutralization by HCl gas stream at 730°C 1=12403
 NaCl (100), evaporation rel. to vapour pressure 2=7477
 NaCl, optical absorption and fluorescence of O₂⁻ impurities 1=11363
 NaCl, phonon scatt. in crystals containing O, low-temp. thermal cond. 1=8888
 NaCl, phonon scatt. by impurity ions 2=10324
 NaCl, phonon scatt. by impurity ions 3=6473
 NaCl, phonon scattering, by dislocations 3=22646
 NaCl, phonon scattering by impurities, n.m.r. study 3=10584

Sodium compounds—contd

NaCl, photocond., X-irrad. and heat treated 0=6142
 NaCl, photoconducting, polarization and elec.-field distrib. 3=10869
 NaCl, photoconducting, space charge polarization meas. 4=28651
 NaCl, photoconductivity, heat treatment effects 1=11326
 NaCl, photocurrent due to strong elec. field 1=19897
 NaCl, photocurrent due to strong elec. field 2=8433
 NaCl, photoelastic constants, temp. variation 1=11354
 NaCl, photoelectron yield from soft X-rays 1=2990
 NaCl, pipe diffusion in LiF 3=2827
 NaCl, plastic deformation, elec. charge generation 3=23320
 NaCl, plastic deformation and work hardening 4=30786
 NaCl, plastically deformed, etch spiral patterns 4=12767
 NaCl, point defect generation by cyclic loading 1=6483
 NaCl, polaron energy spectrum 0=15836
 NaCl, polished surfaces, deformation processes, at high temp. 2=4823
 NaCl, polished surfaces, water vapour resistance 0=1901
 NaCl, polyactivated, luminescence 2=23601
 NaCl, polygonization, geometry and kinetics 0=15854
 NaCl, polymorphs, high pressure, lattice energies and parameters 4=15786
 NaCl, pores, neighbouring, approach kinetics 3=25767
 NaCl, powder, colour centres generation 2=12467
 NaCl, precipitated impurities, study by light scattering 4=6834
 NaCl, prep. of whiskers by vapour deposition 4=29065
 NaCl, pressure required for metallic transition, calc. 0=15802
 NaCl, as pressure-transmitting medium 3=5308
 NaCl, pure crystals, preparation 1=12622
 NaCl, quantum-mech. box model 3=4796
 NaCl, quench-hardened, recovery 2=23772
 NaCl, quench hardening 0=15852
 NaCl, r.f. dielec. dispersion at high temps. 4=26106
 NaCl, reactor irrad., internal energy increase 3=13017
 NaCl, recombination luminescence 3=3034
 NaCl, recovery of mech. worked faces 2=12861
 NaCl, reflectivity, reststrahlen bands 2=2218
 NaCl, reflectivity and transmission 2=6541
 NaCl, refractive index inhomogeneities 2=14649
 NaCl, relation of microhardness to load 0=13919
 NaCl, relaxation due to impurity-vacancy complexes 4=28983
 NaCl, re-orientation rel. to abrasion 2=19033
 NaCl, repulsive energy, calc. 2=2039
 NaCl (rocksalt), healing of surface scratches 2=4484
 NaCl, rotational states, h.f.s. 2=10245
 NaCl, scattering of light 2=12584
 NaCl, secondary electron emission 0=9077, 17033
 NaCl, secondary electron emission region, thickness and efficiency 3=19323
 NaCl, secondary electron energy spectrum, fine structure 0=10941
 NaCl, secondary emission, by K ions 3=16978
 NaCl, secondary ion emission after Li bombardment 1=13129
 NaCl, selective etching 3=13408
 NaCl, selective etching, kinetics meas. 3=13409
 NaCl, self-diffusion of Cl³⁵, in pure Ca-doped crystals, 520-740°C 0=17974
 NaCl, self-diffusion, conductivity, and crystal fine structure 0=20845
 NaCl, shape of F band absorption 1=10017
 NaCl, shear and dislocation structure 3=17758
 NaCl, shocked pressing, light emission 2=17501
 NaCl, single crystal, propagation of discharge 1=5427
 NaCl single crystal thin layers, elec. cond. 2=6428, 8304
 NaCl, single crystals, Bragg reflection of neutrons 2=19069
 NaCl single crystals, c₁₁₁, elastic const., u.s.-optical determ. 4=26528
 NaCl single crystals, ductility, effect of atmospheric reaction 3=13355

Sodium compounds—contd

NaCl single crystals, microhardness rel. to applied load 4=17743
 NaCl, single crystals, pure elastic modes, attenuation 3=17656
 NaCl single crystals, surface structure 1=10278
 NaCl, sintering, plastic flow effects 4=17834
 NaCl, sintering, in presence of inert gas 0=8463
 NaCl, soln., electrolysis, induced e.m.f. 0=12107
 NaCl, soln., observation of crystal nucleation 0=10279
 NaCl, soln.-precipitation deformation under applied stress 0=10261
 NaCl solns., breakdown, elec. 4=21155
 NaCl solns., surface tension, effect of electrostatic fields 2=11347
 NaCl, specific heat, new calc. 1=6076
 NaCl, spectrum, absorption, u.v., β -band maxima calc. and F' centres 3=20487
 NaCl, spin-lattice and spin-spin relax. of Na^{23} and Cl^{35} 4=10345
 NaCl, use as standard for thermal cond. meas. 2=22077
 NaCl, stationary dislocations rel. to elec. conduct. 2=12438
 NaCl, stressed lamellae, electron diffr. study of progressive lattice distortion 0=10306
 NaCl, structure amplitude, powder method 0=18350
 NaCl, sublimation into A, 726-770°C, rate of vaporization 0=16921
 NaCl, sublimation technique for preparation of high reactivity specimens 4=7761
 NaCl, substitutional K^+ point defects, theory 1=17521
 NaCl, surface cond., rel. to water vapour pressure 3=22985
 NaCl, surface defects by elec. discharge 3=13558
 NaCl, surface defects, high temp. processes 3=20214
 NaCl, surface features, Czochralski growth method 3=11218
 NaCl, surface indentations, healing, kinetics 2=2420
 NaCl, surface struct., and lattice defects 2=21579
 NaCl, surface tension of solns., meas. 0=2160
 NaCl, surface treatment, disloc. processes 3=8785
 NaCl synthetic crystals, refractive index rel. to temp. up to 200°C 2=6543
 NaCl, tensile strength of whiskers, meas. 3=25640
 NaCl, theory of impurity centres 1=3663
 NaCl, thermal cond. and acoustic relaxation 2=2059
 NaCl, thermal cond., effect of dissolved MnCl_2 1=14190
 NaCl, thermal conductivity, rel. to plastic deformation 4=1411
 NaCl, thermal etching 3=23387
 NaCl, thermal expansion calc. by perturbation theory 2=3844
 NaCl, thermal expansion, high-temp. 2=3850
 NaCl, thermal expansion meas., analysis 4=20222
 NaCl, thermal expansion theory, eqn. of state 0=4270
 NaCl, thermal expansion, X-ray enhancement 2=3849
 NaCl, thermal resistance, fall nr. Debye temp. 3=17670
 NaCl, thermionic emission 0=5335
 NaCl, thermoelasticity rel. to polycryst. state 2=12841
 NaCl, thermoelec. power 3=13143
 NaCl, thermoelec. power, doped with CdCl_2 and Cl_2 gas electrodes, calc. 1=1112-13
 NaCl, thermoluminescence 1=14663
 NaCl, thermoluminescence 1=17925
 NaCl, thermoluminescence, activation energy 0=4466
 NaCl, thermoluminescence, effect of illumination 4=7176
 NaCl, thermoluminescence after γ -irrad. 3=11017
 NaCl, thermoluminescence, effect of illumination at liq. N temp. 0=18155
 NaCl, thermoluminescence, shock wave prod. 4=22923
 NaCl thermoluminescence, rel. to surf. area and gas press. 3=18052
 NaCl thin films, growth on mica cleavage surfaces 2=8786
 NaCl, thin monocrystals, delayed discharge 0=18107
 NaCl, transient luminescence from plastic deform. 3=4983
 NaCl-type crystals, elastic constants, third order, temp. depend., calc. 3=18164
 NaCl, u.s. attenuation 0=2206
 Na^{23}Cl , u.s. absorpt. effect on n.m.r. 4=12623
 NaCl, u.s. internal conical refraction 3=21500
 NaCl, u.s. velocity and absorption, rel. to dislocations 1=901
 NaCl, U_s -centre, e.s.r. and photochem. 3=10696

Sodium compounds—contd

NaCl, U-centres, transition energies, calc. 1=4999
 NaCl, under Na^+ bombard., secondary electron emission, depth of emergence 4=8821
 NaCl, use in fusion cut-out for manipulation of Cl in vacuo 0=14703
 NaCl, use as standard for thermal cond. meas. 3=5548
 NaCl, vacancies created by high-energy irradi., optical detection 0=1594
 NaCl, vacancies, due to fast neutrons 3=8427
 NaCl, vacancy formation energy, quenching meas. 4=4039
 NaCl, vacancy-pair motion 1=19765
 NaCl, wave function and energy for excess band electron 4=1429
 NaCl, whisker dust, electrification 2=14645
 NaCl whiskers 1=10242
 NaCl, whiskers, formation, strength and dislocations 0=1586
 NaCl whiskers, growth and mechanical properties 3=20804
 NaCl, whiskers, mechanical props. 1=14901
 NaCl, whiskers, mechanical strength 1=20371
 NaCl, whiskers, shape 2=14961
 NaCl, whiskers, strength rel. to growth conditions 2=2368
 NaCl, whiskers, twist det. by electron diffr. 3=3275
 NaCl, whiskers, twisted growth 1=6504
 NaCl, X-irrad.-induced point defects interaction with edge dislocations 4=28462
 NaCl, X-irradiated, ionic conductivity 0=1622
 NaCl, X-irrad., volume expansion and colour centres 4=15510
 NaCl, X- and n-irrad., dissolution and contact melting 1=19819
 NaCl, X-ray coloured, luminescence, u.v. absorpt. 3=813
 NaCl, X-ray coloured, thermoluminescence 0=2971
 NaCl, X-ray expansion and coloration of undoped and doped crystals 0=2824
 NaCl, X-ray induced dislocation generation 4=12768
 NaCl, X-ray induced surface hardening, annealing 1=2398
 NaCl, X-ray irradi., α and β absorption bands 0=16064
 NaCl, X-ray irradi., F-centre prodn. 2=8256
 NaCl, X-ray irradi., photoconductivity, impurity effects 2=18752
 NaCl, X-ray irradi., vol. expansion and coloration 4=17464
 NaCl, X-ray line broadening, and strain 3=8934
 NaCl, X-ray luminescence 1=20012
 NaCl, X-ray luminescence, Fe, Co, Ni additions 2=18863
 NaCl, X-ray luminescence at low temps. 4=28733
 NaCl, X-ray spectrum, absorpt., K 4=1753
 NaCl, X-ray study, in rotation, at 4000 kg/cm² 1=5094
 NaCl, X-ray temp. diffuse scatt. 2=17009
 NaCl, Z-centre formation 1=17584
 NaCl, Z_2 centres, absorption peaks rel. to Ca, Sr, Ba doping 4=28501
 NaCl, Z-centres and exoelectron emission 2=6390
 NaCl, Zn diffusion, temp. and conc. depend. 4=12803
 NaCl:Ag, absorption, spectrum, fine structure 3=23078
 NaCl:Ag, F-bands, X-ray coloured 2=10422
 NaCl:Ag, luminescence decay time, ion excitation 0=1756
 NaCl:Ag, luminescence theory 0=16086
 NaCl:Ag, NaCl:Cu, thermoluminescence 1=20033
 NaCl—Ag phosphor, recombination luminescence mechanism 4=7188
 NaCl:Ag phosphors, atomic centres 2=14728
 NaCl:Ag structural defects as electron traps 2=10384
 NaCl—AgCl solid solutions, formation 2=14925
 NaCl—BaCl system, disloc. loops 3=17720
 NaCl:Ca, dielec. losses 4=12961
 NaCl:Ca, luminescence, electron emission 2=8563
 NaCl:Ca, n.m.r., temp. depend. 1=20267
 NaCl:Ca, thermally-stimulated electron emission 4=12961
 NaCl:Ca, thermoluminescence 4=12961
 NaCl:Ca, X-irradiated, thermal props. 0=2833
 NaCl:Ca, X-ray irradi., dielec. loss changes 2=660
 NaCl— CaCl_2 crystals, diffusion of Ca^{2+} ions 2=604
 NaCl— CaCl_2 crystals, diffusion of Ca^{2+} ions 2=3938
 NaCl— CaCl_2 , mixed crystals, Ca ion diffusion 0=6062
 NaCl— CaCl_2 solid soln., pptn. from 3=20840
 NaCl: Cd, absorption and dispersion, 1-6 eV, quenching effects 2=23564
 NaCl :Cd, various electronic processes 1=4998
 NaCl— CdCl_2 , F-centres, by X-ray irradi., formation rel. to impurity content 4=10001

Sodium compounds—contd

- NaCl—CdCl₂, metastable centres, precipitation 1=12624
 NaCl—CdCl₂ solid soln., hyperstructure regions 2=21521
 NaCl: Co and Cd, luminescence 3=4985
 NaCl: Co, X-ray and thermoluminescence 2=6607
 NaCl: Cu, luminescence and electron emission 2=4167
 NaCl: Cu, optical props. and electron emission 3=18008
 NaCl: Fe, X-ray luminescence 1=20011
 NaCl + HCl soln. mixing entropy 4=14157
 NaCl: I single crystals, u.v. absorption bands 1=10104
 NaCl—KCl mix crystals, dislocations, on decomposition, obs. by etching 3=12985
 NaCl—KCl mixed-crystals, F-bands 2=3965
 NaCl—KCl, mixed crystals, X-irradiated, F-band position 0=557
 NaCl—MnCl₂, e.s.r. rel. to substructure 2=10402
 NaCl—MnCl₂, F-centres, by X-ray irradiation, formation rel. to impurity content 4=10001
 NaCl—NaBr alloys, ductility and microhardness 3=15993
 NaCl—NaBr, dilute solid solns. structure, theory 2=21456
 NaCl—NaBr, mixed crystals, effect of annealing on props. 0=12075
 NaCl and NaCl+MnCl₂, diffusion of Mn 3=6535
 NaCl—NaNO₃, thermodynamic calcs. 4=16282
 NaCl(c) in NaNO₃(liq.) at 350°C, heat of soln. 4=16282
 NaCl: Ni, absorption and dispersion, 1-6 eV, quenching effects 2=23564
 NaCl: Ni, Ca, luminescence, rel. to dislocations 3=20517
 NaCl: Ni, de-exciting action of X-rays 0=1750
 NaCl: Ni, luminescence 2=714
 NaCl: Ni, optical flash decay mechanism 2=14709
 NaCl: Ni, X-ray luminescence 2=2251
 NaClO₃, absolute configuration and rotatory power 4=23479
 NaClO₃, Cl spin-lattice relaxation 0=4532
 NaClO₃, Cl³⁵ nuclear quadrupole coupling, Stark effects 4=23080
 NaClO₃, Cl³⁵ quadrupole resonance, linear effect of applied elec. field 1=14837
 NaClO₃, colour centre bands, on X irradiation 4=4083
 NaClO₃, crystal growth, speed 3=1262
 NaClO₃, impurity shift of pure quadrupole resonance 1=6438
 NaClO₃, irradiation effects 0=6282
 NaClO₃, liq., i.r. refl. spectrum 2=14275
 NaClO₃ and NaBrO₃, i.r. reflectivities 2=14648
 NaClO₃, n.m.r. of Cl³⁵ 4=7344
 NaClO₃, n.q.r. of Cl³⁵, temp. var. extrapolation to 0°K 4=4435
 NaClO₃, n.q.r. of Cl³⁵, temp. var., for temp. meas. 4=21340
 NaClO₃, Na²³ n.m.r., quadrupole splitting correction 4=20623
 NaClO₃, nuclear quadrupole spin-lattice relaxation 2=788
 NaClO₃, optical const., n(λ), k(λ), i.r., from reflection spectra 3=20438
 NaClO₃, optical rotatory dispersion 1=16122
 NaClO₃, Raman spectrum, polarization 0=13689
 NaClO₃ single crystal, shear vibr. due to h.f. mag. field 4=22784
 NaClO₃, scattering light, 100°-170° C 3=10921
 NaClO₃, X-ray K-absorpt. spectra of Cl 3=23090
 NaClO₃.5H₂O, crystal structure 3=3300
 NaClO₄.H₂O, X-ray K-absorpt. spectra of Cl 3=20498
 Na²³ClO₃, n.m.r. electrically induced population inversion 4=23077
 Na²³ClO₃, n.m.r. quadrupole splitting, second order corr. meas. 4=23078
 NaCl: Pb, absorption spectra and elec. cond., effect of 600°C annealing 0=20990
 NaCl: Pb, activator absorpt. spectrum 3=940
 NaCl: Pb, crystalloluminesc. and nature of critical nucleus 4=7197
 NaCl—PbCl₂, F-centres, by X-ray irradiation, formation rel. to impurity content 4=10001
 NaCl: Sm³⁺, luminescence, orange-red region 4=28736
 NaCl: Sr, Z-bands dichroism 1=8918
 NaCl: SrCl₂, line scattering image 4=15598
 NaCl, Tl Cl-activated, luminescence afterglow, rel. to method of preparation 0=8019
 NaCl: Tl and NaCl: Pb phosphors, emission and absorpt. spectra, rel. to press. 4=28699

Sodium compounds—contd

- NaCl: Tl and NaCl: Ag, luminescence rel. to impurities 3=18022
 NaCN, molecular association in vapour 1=10551
 Na₂CrO₄ in NaNO₃, heats of soln. and dil., interaction parameters of liq.—liq. mixtures 4=10631
 Na₂Cr₂O₇, electronic absorpt. spectrum 3=15671
 Na₂Cr₂O₇, neutron irradiation, chemical effects 2=21592
 Na₂Cr₂O₇ solution, magnetic susceptibility 3=146
 Na—Cs, heat of formation 0=21229
 NaCuF₃, crystal struct. and magnetic props. 2=23853
 Na₂CuF₄, crystal struct. and magnetic props. 2=23853
 NaF, α and β absorpt. bands in vacuum u.v. 3=8590
 NaF, colour centres, X-ray irradiation, temp. var. 4=28495
 NaF, cryometry of dissolved alkali salts of oxygenated anions 0=19507
 NaF, distrib. of OH⁻ ions, meas. 3=18223
 NaF, elastic constants, rel. to temperature 3=18163
 NaF, elastic const., by diffuse X-ray reflection 4=1963
 NaF, electron diffraction rings, intensities rel. to wavelength 2=2378
 NaF, electron emission and luminescence 2=20013
 NaF, electron energy loss spectra 2=3889
 NaF, eqn. of state, Verma-Dayal theory 4=25851
 NaF, F-centre structure 3=20241
 NaF, f.p. depression by alkaline earth fluorides 2=5221
 NaF films, electron diffraction study 3=25680
 NaF, freezing point depression, effect of transition metal difluorides and CdF₂ 4=5454
 NaF, freezing pt. depressions, effects of trivalent fluorides 4=8505
 NaF, fundamental absorption spectra 1=14585
 NaF, fused, refractive index rel. to temperature 3=11796
 NaF with impurity valence changes, e.s.r. 3=1180
 NaF, i.r. spectra, by matrix isolation 3=22544
 NaF, isoelectronic alkali halides, u.v. resonance frequencies 2=8521
 NaF—KF—ZrF₄, molten, i.r. spectrum 4=2689
 NaF, lattice thermal conductivity at low temps. 2=10341
 NaF, M-centre, paramagnetism question 3=819
 NaF, mol. moment, elec. dipole, correction 4=22367
 NaF, molten, structure, high temp. X-ray diffraction 0=6778
 NaF, Na²³ and F¹⁹ n.m. relax., mechanisms 2=8680
 NaF, NaCl, compression textures at 75 tons/in² 1=20700
 NaF: Ni, radiation effects, e.s.r. of Ni⁺ and complexes 4=28885
 NaF, OH absorption, F- and M-bands 1=14594
 NaF, OH⁻ doped, vac. u.v. absorption 4=7159
 NaF, photoelectron yield from soft X-rays 1=2990
 NaF, reflectivity, reststrahlen bands 2=2218
 NaF, re-orientation rel. to abrasion 2=19033
 NaF, secondary emission, by K ions 3=16978
 NaF, spin-lattice relax., temp. depend. 3=11118
 NaF, thermal cond. at low temp. 0=9867
 NaF, thermal expansion 2=10338
 NaF, U-activated, luminescence, -196°C 2=14732
 NaF—U, luminescence, combined magneto-electric dipole transitions 3=20516
 NaF: U, luminescence, line spectrum, 77°K 1=2455
 NaF: U⁶⁺ luminesc., elec. and mag. series 4=28731
 NaF₂, U-activated, luminescence; "relaxation spectra" 3=3035
 NaF, X-ray irradiation, α and β absorption bands 0=16064
 Na₃F₆Al—PbF₂ coatings, ageing and use in u.v. 4=24376
 NaFe fluoride, ferrimag. props. 3=25547
 Na₃Fe₅O₉, crystal structure 2=23852
 β-NaFeO₂, weak ferromagnetism 1=14691
 NaH, e.s.r. 1.2°K, 9200 Mc/s, and electron density 3=15947
 NaH, F-centres, e.s.r. absorption, resolved isotropic h.f.s. 1=11239
 NaH, F-centres, electron-nuclear double reson. 2=12471
 NaH, F-centres, mag., thermal and optical props. 2=3962
 NaH, positron annihilation in, electron density distrib. 1=7569
 Na₂HAsO₄.7H₂O, X-irradiation, e.s.r. meas. 4=10316
 Na₂HAsO₄.7H₂O, As⁷⁵ nucl. quadrupole resonance 2=8690
 NaHF₂ and NaDF₂, FHF ion geometry 4=4623
 NaHF₂, NaDF₂, H-bonds, neutron diffraction, meas. 4=28308
 NaH₂F₃, low-frequency molecular motions, rel. to molec. structure 4=6568

Sodium compounds — contd

- Na₇H₄[Mn(IO₃)₃].17H₂O, crystal structure 2=23856
 Na₇H₄[Mn^{IV}(IO₃)₃].17H₂O, crystal structure, atomic 3=23460
 [Na₂H(PO₃)₃]_x, crystal structure 3=1337
 [Na₂H(PO₃)₃]_x, crystal structure 4=13605
 Na₂H₂P₄O₁₂, crystal structure, disordered state 4=23482
 Na₂H₂P₄O₁₂, 2D disorder struct. 4=30855
 Na₂HPO₄.2H₂O, crystal structure 2=15036
 Na₂H₂P₂O₃_{3n+1}, B form., crystal structure 4=13605
 NaH₂PO₄.2H₂O, Raman and i.r. spectra, structure, H-band 1=2444
 NaH₃(SeO₃)₂, absorption spectrum, 55 to 170 cm⁻¹ 4=28668
 NaH₃(SeO₃)₂, ferroelec. transitions, p.m.r. study 1=19924
 NaH₃(SeO₃)₂ specific heat anomalies, rel. to ferroelec. phase transition points 4=22497
 NaH₃(SeO₃)₂, vibrational spectra by Raman scattering method 4=1717
 NaHgCl₃.2H₂O crystal structure 0=21197
 NaI, adsorpt. of HCN, bonding 4=29198
 NaI, aerosols, phase changes 3=1402
 NaI crystal counter, efficiency calibration 2=3214
 NaI crystals, Raman spectrum 4=22883
 NaI, efficiency and total absorption fractions 0=2511
 NaI, electron energy loss spectra 2=3889
 NaI, fluorescence and reflection spectra of 22 samples, 20° to -190°C 0=21006
 NaI, γ-ray crystal counter, efficiency 2=3213
 NaI, γ-ray detection efficiency, ang. depend., calc. 1=12036
 NaI, γ-ray scintillation counters, attenuation factors 1=10811
 NaI, lattice dynamics, dispersion curves 3=20074
 NaI, lattice dynamics, Green's function calc. 4=9824
 NaI, lattice dynamics, theory and neutron spectrometer study 0=13479
 NaI, lattice vibration spectrum 1=14161
 NaI, molten, I¹³¹ diffusion, rel. to temp. 4=8193
 NaI, molten, Na²² diffusion, rel. to temp. 4=8193
 NaI, molten, self-diffusion 2=15573
 NaI, n. q. r. times of Na²³ and I¹²⁷, rel. to temps., calc. 4=17702
 NaI, pure crystal as γ-ray detector 1=9704
 NaI, Raman spectra, theory 4=26169
 NaI, Raman spectrum, 2537A meas. 3=25465
 NaI, as scintillator for γ-rays to 11 MeV 2=7795
 NaI, scintillator in low flux detector 2=3206
 NaI, solid solubility of TlI 0=16356
 NaI soln. in C₂H₅OH, elec. cond. near critical temp. 2=17481
 NaI, solutions, nuclear quadrupole relax. of I¹²⁷ 0=12427
 NaI, specific heat and elastic consts., at low temp. 0=17895
 NaI, spectrum in PbS region 2=1991
 NaI, spin-lattice relax., temp. depend. 3=11118
 NaI, thermal exp. 4=17374
 NaI, thermal resistance, rise nr. Debye temp. 3=17670
 NaI thin scintillating crystals, cutting and mounting 2=5614
 NaI, well crystals, γ-ray absorption 0=11133
 NaI.2H₂O, I¹²⁹ Mössbauer effect 3=2367
 NaI-KCl, molten, Na²² diffusion, rel. to temp. 4=8193
 NaI:Sn²⁺ and :Pb²⁺, luminesc. and excitons 2=14710
 Na₃-SrI₂, electron exchange between adjacent oxidation states 4=8220
 NaI : Tl, absorption spectra, Tl conc. and temp. depend. 3=20490
 NaI:Tl crystal, large, response to β-rays, 55-83 MeV 3=14965
 NaI:Tl crystals, γ-ray attenuation coeffs. 3=14823
 NaI:Tl, emission and absorption spectra 0=20997
 NaI:Tl, energy resolution rel. to dislocation density 2=18001
 NaI:Tl, γ-ray absorption mechanism 0=9326
 NaI : Tl, γ-ray photofractions, intrinsic efficiencies 3=19605
 NaI:Tl, γ-ray response spectra 0=16102
 NaI:Tl, γ-spectral props., temp. depend. 2=8579
 NaI:Tl, γ-ray spectrometer 2=5522
 NaI : Tl, grown by Kiriopoulos' method, impurities 4=2035
 NaI:Tl, growth, 2-heater method, for large crystals 1=4025
 NaI:Tl, i.r. absorption, γ-irrad. effects 3=25449

Sodium compounds — contd

- NaI:Tl, luminescence decay 1=9010
 NaI:Tl, luminescence, decay time meas. 3=10005
 NaI:Tl, luminescence 0-270°C 0=13712
 NaI:Tl, luminescence spectra 2=4171
 NaI:Tl, luminescence, Tl conc. and temp. depend. 4=15616
 NaI:Tl luminescence, Tl dimer role 4=20488
 NaI : Tl, luminescence, X-ray excitation 3=20519
 NaI:Tl, luminescence, X-ray excitation, temp. and Tl conc. depend. 3=23107
 NaI(Tl), luminescent decay 1=9009
 NaI:Tl, luminescent response to energetic heavy ions 0=11788
 NaI:Tl, melt grown, Tl distrib. 1=11542
 NaI(Tl) narrow well for iodine K X-ray escape 1=10110
 NaI:Tl, optical dispersion, Tl conc. depend. 4=1752
 NaI(Tl) phosphor, activator distrib. 1=17522
 NaI: Tl phosphors, emission and absorpt. spectra, rel. to press. 4=28699
 NaI : Tl, photoluminescence excitation spectra 3=20520
 NaI:Tl, scintillation phenomena 0=18147
 NaI:Tl, scintillation props., temp. depend. 2=7789
 NaI:Tl, scintillation response to monoergic neutrons 0=17355
 NaI:Tl, scintillation response to X- and γ-rays 2=18000
 NaI:Tl, scintillation response to X-rays 2=22480
 NaI : Tl, in scintillation spectrometer, iterative response correction 1=7173
 NaI(Tl), scintillation spectrometer, pulse pile-up 1=16624
 NaI:Tl, scintillator energy resolution, activator distrib. depend. 2=8588
 NaI:Tl scintillator, response function to γ-rays 3=3045
 NaI:Tl scintillators, distortions in γ-ray meas. 2=3211
 NaI:Tl, technique for making holes in crystals 0=16255
 NaI(Tl) well crystals, efficiencies and photo-fractions 1=13221
 NaI:Tl, Tl distrib., effect of growth conditions 1=14976
 NaI:Tl, X-ray and γ-ray fluorescence 3=13215
 Na₂IrCl₆.6H₂O, crystalline, Szilard-Chalmers reaction, Ir¹⁹² recoil species 0=12109
 Na₂IrCl₆.6H₂O, thermal annealing of chem. radiation damage 4=12822
 Na-K alloys, liquid, thermoelectric power 3=145
 Na-K, eutectic, heat transfer in turbulent flow 0=12409
 Na-K liq. alloys, compressibility 2=17446
 Na-K liquid alloys, u. s. absorpt. 4=27173
 Na-K, liquid, and solid, n.m.r. 0=14665
 Na-K, liquid state, X-ray structure investigation 0=16692
 NaK tartrate, aq. soln. and melt, u. s. velocity 2=5011
 Na-K-Cl-Br ternary system, phase diagram 1=20614
 Na-K tartrate, molten, 60-100°C, u. s. velocity 1=15869
 Na-K-Sb, phases of photoelectric system 1=7677
 Na₂KSb, photoemission and related props. 1=1907
 (Na₂K)Sb, (Na₂K)CsSb, film, photoelectric emission, effect of n-irradiation 3=14632
 Na₂KSb, pair-production by low-energy electrons 2=8357
 Na_{0.975}K_{0.025}NbO₃, crystal structure 2=4427
 (Na₂K)NbO₃ ceramics, spontaneous polarization 3=892
 Na-Mg vapour mixture, sensitized fluorescence 2=66
 NaMgAl(C₂O₄)₃.9H₂O, polarized visible spectra 1=19976
 NaMgF₃, paramagnetic resonance 1=11480
 NaMnF₃, mag. structure, neutron diffn. meas. 4=28859
 Na₂MoO₄ and Na₂MoO₄.2H₂O crystals, i. r. and Raman spectra 4=26213
 Na₂MoO₄, i. r. absorpt., anion structure 3=4974
 NaN₃, colour centres produced by u.v. irradiation 1=17579
 NaN₃, crystal structure change at 19°C 4=26566
 NaN₃, crystals, thermal decomposition 3=13593
 NaN₃, deformed, stacking faults 3=8443
 NaN₃, F-centre spin resonance 1=1265
 NaN₃, F-centres, formation and bleaching 4=20316
 NaN₃, irradiated, structural defects and decomposition 1=19796
 NaN₃, photolysis 1=20758
 NaN₃ single crystals, vibrational spectrum 4=22894
 NaN₃ solns. with mercuric salts, photolysis 4=2166
 NaN₃, trapped N atoms produced by X-irradiation 1=8921
 NaN₃, Mn²⁺ paramag. res. rel. to crystal orientation 4=23051
 NaN₃, N¹⁴ n.m.r. chemical shifts 4=7355
 NaN₃, X-irrad., e.s.r. of N atoms 3=25574
 Na-NH₃, e.s.r. absorpt. spectrum 4=18216

Sodium compounds — contd

Na-NH₃ soln., n.m.r. Overhauser effect, p spin lattice relax. time 4=14187
 Na-NH₃ solns., conc., conductivity elec., liquid metal model 4=14183
 Na-NH₃ solns., reflection spectra 2=1151
 Na-NH₃ solns., salt effect 2=1142
 Na-NH₃ solns., X-ray scattering in terms of cavity and cluster models 4=18178
 NaNH₂SO₄·2H₂O, Raman spectrum 2=6585
 NaNO₂, absorption spectrum, 20°K 4=7154
 NaNO₂, critical scatt. of X-rays, meas. 4=20716
 NaNO₂, crystal structure calc. 2=15008
 NaNO₂, dielec. const., spontaneous polarization 2=2207
 NaNO₂, dielec. consts. and loss tangents at 3.3 kMc/s 2=16768
 NaNO₂, dielectric anomalies above Curie temp. 4=17521
 NaNO₂, dielectric, piezoelectric, electrostrictive constants near Curie point 4=28630
 NaNO₂, disordered crystal structure at 185°C 2=10894
 NaNO₂, domain structure 1=14552
 NaNO₂, elec. cond., solid and molten, and viscosity, melting study 0=13466
 NaNO₂, elec. resistivity 2=12489
 NaNO₂, electric field gradient, 20°-200°C 4=1663
 NaNO₂, ferroelec., lattice consts., anomalous temp. depend. 1=20560
 NaNO₂, ferroelec. phase transition 4=7512
 NaNO₂, ferroelec. phase transition, X-ray study 3=25405
 NaNO₂, ferroelec. props. 2=16776
 NaNO₂, ferroelec. props., theory and expt. 2=4091
 NaNO₂, ferroelec., twin structure 3=25657
 NaNO₂, ferroelectric phase transitions 1=14557
 NaNO₂, ferroelectric polarization switching time, slow 4=1664
 NaNO₂, ferroelectric switching currents, var. with applied voltage rate 4=10114
 NaNO₂, fund. absorption edge 2=16824, 18828
 NaNO₂, fused, transport numbers 3=16172
 NaNO₂, γ-irradiated, e. s. r. 4=13329
 NaNO₂, γ-irradiated, paramagnetic species 1=12561
 NaNO₂ in H₂O, Raman spectrum, absorption and line intensity 1=12291
 NaNO₂, i.r. absorption spectra 0=6926
 NaNO₂, microstructure in paraelec. phase 1=14953
 NaNO₂, Na²³ n.m.r., quadrupole splitting 0=13895
 NaNO₂, Na²³ nuclear quad. coupling consts. 3=2696
 NaNO₂, paraelec., X-ray analysis of ferroelec. domains 4=26128
 NaNO₂, phase transform., to antiferroelec., from specific heat temp. var. 4=17769
 NaNO₂, phase transformation, X-ray and neutron study 3=1336
 NaNO₂, phase transition study, 163°C, by polarized i. r. absorpt. 2=2238
 NaNO₂, phase transition, X-ray study 3=13397
 NaNO₂, single crystals, dielectric properties 3=23002
 NaNO₂, single crystals, γ-irrad. effect on dielec. props. 4=22777
 NaNO₂ single crystals, piezoelec. props. 3=10885
 NaNO₂ single-domain state prod. 4=28631
 NaNO₂ solns. with mercuric salts, photolysis 4=2165
 NaNO₂ solns. with mercuric salts, radiation decomposn. 4=2164
 NaNO₂, specific heat and thermal expansion coefficients 1=14181
 NaNO₂, spectrum, i. r., γ-ray effects, var. polarization directions 4=15599
 NaNO₂, thermal cond., temp. behaviour 2=3858
 NaNO₂:Ti, polarization of low temp. luminescence 2=715
 NaNO₂, anion rotational disorder above T_c, X-ray scatt. meas. 4=29019
 NaNO₂, aq., radiolysis 2=4560
 NaNO₂, aqueous soln. compressibility 0=14640
 NaNO₂, atomic scattering amplitudes 0=12025
 NaNO₂, conductivity, elec., temp. var. 4=4204
 NaNO₂, cryst. and molten, u. v. absorption changes 2=16822
 NaNO₂, crystal dislocations, on irrad., due to O release 4=17431
 NaNO₂, crystal structure analysis 2=23851
 NaNO₂, crystal structure, atomic, scale error effects 4=7581
 NaNO₂, dichroism, in u. v. and i. r. 4=13057

Sodium compounds — contd

NaNO₂, film on Al₂O₃, damping of piezoelec. oscils. 2=678
 NaNO₂, force consts. 4=28354
 NaNO₂, fused, diffusion coeff. meas., high pressure 4=21120
 NaNO₂, fused, refractive index rel. to temperature 3=11796
 NaNO₂, fused splitting of Raman frequencies 3=4761
 NaNO₂, fused, structure analysis 1=1443
 NaNO₂, fused, transport numbers 3=16172
 NaNO₂, heat of fusion 4=16282
 NaNO₂, heat of fusion, entropy 3=21617
 NaNO₂, high-press. X-ray diffr. study 2=8811
 NaNO₂, i. r. investigation of phase transform. 4=20717
 NaNO₂, i. r. polarized spectra and sp. ht. 2=8535
 NaNO₂, irrad., e. s. r. of NO₂ 4=10329
 NaNO₂, lattice frequencies, rotational barriers 2=16835
 NaNO₂, liquid, i. r. reflection spectrum 2=7214
 NaNO₂, melting, effect on u. v. absorption 0=10038
 NaNO₂, molten, with ionic admixture, Raman spectra 4=16115
 NaNO₂, molten, migration of ions 0=4718
 NaNO₂, n.m.r., 2nd order quadrupole effects 0=21092
 NaNO₂, Na²³ n.m.r. rel. to phase transition model 2=10724
 NaNO₂, nucleation rel. to mechanical agitation 2=21489
 NaNO₂, oscillations of NO₂ ions 0=524
 NaNO₂, plastic deformation, twin interactions 2=4334
 NaNO₂, quadrupole coupling constant of Na²³ 1=14838
 NaNO₂, solubility in NH₃ 2=15576
 NaNO₂, structure factors calc. 2=17012
 NaNO₂, thermal expansion, X-ray meas. 0=15814
 NaNO₂, trigonal system, structure and atomic scattering factors 1=1402
 NaNO₂-AgNO₃, quadrupole n.m.r., satellites intensity, AgNO₃ depend. 0=21091
 NaNO₂-KNO₃, fused salts, volume change on mixing 1=15860
 NaNO₂ and NaNO₃-KNO₃, molten, u. s. absorption and vel. 0=16696
 NaNO₂-Sr(NO₃)₂-H₂O, u. s. vel. and adiabatic compress. 2=17459
 Na-NaBr liquid system, mag. susceptibility 2=19580
 Na-NaCl liquid system, mag. susceptibility 2=19580
 NaNbO₂, crystal structure 2=4427
 NaNbO₂, crystal chemistry 1=15018
 NaNbO₂, ferroelectric, metastable, props. 4=20421
 NaNbO₂, field-induced ferroelec. phase, crystal structure 3=8853
 NaNbO₂(1-x).KTaO₃x, phase diagram 2=14919
 NaNbO₂, phase transformations, 360°-635°C 4=10438
 NaNbO₂, phase transitions, 20-700°C, X-ray study 2=2341
 NaNbO₂, spiral growth layers 1=4020
 NaNbO₂-KNbO₃, crystal structure 3=8853
 NaNbO₂-NaSbO₃, dielectric props. and lattice parameters 4=7035
 Na(Nb_{1-x}Ta_x)O₃, phase relations 3=13394
 Na(Nb_{1-x}V_x)O₃, "ferrielec." and antiferroelec. structure 2=12571
 NaNiF₃, weak ferromagnetism 1=14702
 Na₂O, effect on elec. cond. of glasses containing Fe 3=22936
 Na₂O, high temperature heat content 1=2380
 Na₂O-Al₂O₃-SiO₂ glass, electrodes cation sensitivity and durability meas. 3=3401
 Na₂O-B₂O₃ glass, density, refract. index rel. to composition, meths. of prep. and cooling rates 2=10573
 Na₂O-B₂O₃ glass, diamond pyramid hardness rel. to comp. and heat treatment 2=10773
 Na₂O-B₂O₃-SiO₂ glass, electrodes cation sensitivity and durability meas. 3=3401
 Na₂O-B₂O₃-SiO₂, ionizing radiation effects 3=17795
 Na₂O-BaO glass, elec. resist. rel. to composition 2=21110
 Na₂O-CaO glass, elec. resist. rel. to composition 2=21110
 NaOD solution in heavy water, i. r. spectrum 4=24218
 Na₂O-GeO₂, viscosity, 1000-1550°C 0=8255
 Na₂O-GeO₂-SiO₂, molten system, structure 4=24164
 NaOH, aq. soln. flowing along solid surf., CO₂ absorption 2=9267
 NaOH aq., solubility rel. to freezing point 3=7387
 NaOH in H₂O, conductivity, elec. 4=24237
 NaOH.4H₂O crystal structure 4=29131

Sodium compounds—contd

- NaOH, i.r. spectrum above and below melting point 1=11381
 NaOH, molten, i.r. reflection spectrum 2=1150
 NaOH and monohydrate, thermodyn. props. 3=7388
 NaOH in NaCl crystals, neutralization by HCl gas stream at 730°C 1=12403
 NaOH, NaOD, near i.r. absorption spectra 0=1736
 NaOH, Raman and i.r. spectra 1=1171
 NaOH, reaction with Al, Zn, Sn or Pb, electron emission 1=16376
 NaOH soln., frozen, γ -irrad. 2=19151
 NaOH soln., interface with Ge, potential distrib. 2=10474
 NaOH solution, interface with Ge; conductance 3=10781
 NaOH, u.s. velocity 0=5012
 NaOH, velocity analysis of molecular beams 1=2358
 Na₂O—K₂O—GeO₂ glasses, electrical conductivity, rel. to comp. 4=10094
 Na₂O—MgO glass, elec. resist. rel. to composition 2=21110
 Na₂O. MgO. 3SiO₂, Na₂O. CuO. 3SiO₂ and Na₂O. PbO. 3SiO₂, fibres, structure 0=6372
 Na₂O—SiO₂ glasses, elec. cond., effect of BeO, MgO, CaO, SrO, BaO, ZnO, PbO 0=15882
 NaPO₃ glass fibres, oriented, structure 4=7732
 (NaPO₃)_x, Maddrell's salt crystal structure 3=16079
 Na₃PO₄, crystallization, effect of u.s. 4=15759
 Na₂P₂O₇, phases I and II, crystal structure 0=8222-3
 Na₄P₂O₇.10H₂O, crystal structure 3=23483
 Na₄P₄O₁₂.4H₂O, crystal struct., atomic 4=29139
 Na₂P₂O₇, crystal structure 4=23485
 NaPO₃NH₃, crystal structure 4=23484
 Na₁₅Pb₄, Pb²⁰⁷ and Na²³ n.m.r. 3=20676
 Na—Pb, hardness rel. to composition 1=14923
 NaPb silicate glasses, elec. cond. 2=18648
 Na—Rb, liquid and solid, n.m.r. 0=14665
 NaSCN, spectrum, 250, 400°C 4=8209
 NaSH, phase transformations, n. m. r. study 4=7511
 Na₂S₂O₃, aq. soln. and melt, u.s. velocity 2=5011
 Na₂SO₄, fused, refractive index rel. to temperature 3=11796
 Na₂S₂O₅, i.r. absorption and Raman spectra study 0=11526
 Na₂SO₄.5H₂O, i.r. absorption bands due to SO₄ 4=4255
 Na₂S₂O₃.5H₂O, dehydration and co-electron emission 0=15050
 Na₂SO₃.5H₂O, γ -irradiated, e.s.r. 4=7337
 Na₂SO₄—H₂SO₄—H₂O, isothermal diffusion 3=1680
 Na₂SO₃.10H₂O, Na₂SO₃.7H₂O, crystal structure, atomic 3=20854
 Na₂SO₄.10H₂O, dehydration and co-electron emission 0=15050
 Na₂S₂O₆.2H₂O, arrangement of H atoms, p. m. r. meas. 4=7643
 Na₂S₂O₆.2H₂O, crystal structure 3=8848
 Na₂SO₄, molten, structure by X-ray diff. 2=15565
 Na₂SO₄, polymorphism 4=4520
 Na₂SO₄, Na₂MoO₄, Na₂WO₄, liquid, compressibility, 950-1350°K 4=14145
 Na₂SO₄ in NaNO₃, heats of soln. and dil., interaction parameters of liq.—liq. mixtures 4=10631
 Na₂S₂O₃, γ -irrad., e.s.r., dehydration effect 3=23236
 Na₂S₂O₃, Na₂S₂O₃.5H₂O, e.s.r., γ irradi., liquid N₂ temp. 4=1867
 Na₂SO₄—SO₃, isotopic exchange 0=14112
 Na salicylate layers, as luminescent converters in u.v. 1=20013
 NaSb, crystal structure and electrical props. 1=15081
 NaSb, semicond. props. 0=7947
 NaSb, photoemission and related props. 1=1907
 NaSb, semiconducting, forbidden zone width and bond ionic character 4=1589
 NaSbO₃, crystal structure, pyrochlor and ilmenite forms 4=13501
 Na₂SeO₃, i.r. absorption and Raman spectra study 0=11526
 Na₂SiO₃, luminescence of powders in elec. fields 2=14737
 NaSn₂F₆, crystal struct., atomic 4=29138
 NaTaO₃, internal electric fields 3=12903
 NaTaO₃, phase transformations, 22°-680°C 3=23377
 NaTeO₄, crystal structure 2=23854
 NaTeO₄, high-temp. heat content 3=770
 Na₂Ti₂O₇, crystal structure 1=20557
 NaTi, n.m.r., rel. to crystal structure 3=11122
 Na₄V₂O₇, i.r. absorpt., anion structure 3=4974
 Na₄WO₃, bronzes, neutron diff. study 0=6361

Sodium compounds—contd

- Na₂WO₃, conduction electrons, zero Na²³ Knight shift explained 0=13518
 Na₂.₈₇₅WO₃, heat capacity, 15-300°K 4=15431
 Na₂WO₃, elec. props. 2=2116
 Na₂WO₃, mag. susceptibility 2=4207
 Na₂WO₃ (metal tungsten bronze), n. m. r. 2=4207
 Na₂WO₃, W¹⁸³ n. m. r., conduction-band states 2=18968
 Na₂WO₄, fused, refractive index rel. to temperature 3=11796
 Na₂W₂O₇, i.r. absorpt., anion structure 3=4974
 Na₂WO₄ and Na₂WO₄.2H₂O crystals, i. r. and Raman spectra 4=26213
 NaYF₄, crystal structure, atomic, and transformation, 670°C 3=23455
 Na₂Zn₂O₃, crystal struct., atomic 4=17818
 Na₂Zn(SO₄)₂.4K₂O, structure from proton resonance data 4=10550
 Na₄Zr₂F₁₃, crystal structure 3=18315
 Na₄Zr₂[Si₂O₂₂], vlasovite, crystal structure 3=13474

Soil

- acoustic properties of submerged soil 1=10301
 capillary flow in, transient 2-phase 1=6848
 containing γ -Fe₂O₃, magnetic susceptibility measurements 1=14725
 deformation by beam resting on it 3=5144
 elastic props., meas. under dynamic loading 1=3956
 fission product retention humus 2=6074
 flow of water, Darcy's law teaching apparatus 4=24002
 frozen, r.f. elec. props. 0=16009
 gaseous diffusion 0=14692
 heat transfer mechanism, moisture effects 2=12939
 magnetic props., effect of fire 1=1205
 mud, acoustic absorption, 4-50 kc/s meas. 4=21244
 neutron transmission, 0.5-14 MeV, var. thicknesses, calc. 4=6070
 particle size, mechanical analysis short cut charts 4=10590
 penetration by conical solid 1=5081
 penetration by conical solid 1=7824
 Rand pressure cell 0=8590
 settlement under load by consolidation 2=19482
 thermal conductivity meas., cylindrical probe method 0=5203
 water content gauge, n. scatt., optimization 4=29243
 wet ground, freezing, classical Stefan problem, numerical integration 3=24111
 H₂O meas. by neutron probe, calibration curve and configuration 4=7807
 Sr⁹⁰ content (U.K. 1956) 0=7502

Solar system

- See also Planets, etc.
 age calc. rel. to the Galaxy 2=2520
 age of elements, by inert gas study in meteorites, review 2=15304
 angular momentum transfer out from sun 4=7973
 asteroids, rapidly rotating, origin 1=18043
 astronaut chart 0=12264
 centre of gravity, position and velo., 1961-9, tables 4=13913
 charged-sun theory, for magnetic and cosmic ray phenomena 0=18473
 chronology, from meteoritic Xe isotope composition 1=15417
 constants 4=13912
 deuteron and light nuclei history during early synthesis 1=10373
 deuterium, relative abundance 1=6696
 early history, rel. to meteorites 4=7969
 early history, nuclear clues 2=11106
 early history, rel. to rare-earth isotope abundances in meteorites 3=13875
 earth-moon, Lagrangian triangular point, instability of motion 2=15306
 effects of var. gravitation G 4=13910
 equinox motion, correction 0=11263
 evolution, and expansion of universe 4=20882
 formation by capture of cosmic matter 2=2524
 formation chronology 3=9165-6
 formation, rel. to early history of sun 3=13880
 formation, Hoyle's theory, H, He escape from solar nebula 4=7966
 formation from interstellar cloud condensation 2=941

Solar system—contd

- formation of light elements on Hoyle's theory by spallation 4=7967
- formation of solar nebula due to rotational instability in contraction stage 4=7968
- formation of various nuclides in early history 2=11107
- Galileo's work 4=15928
- H II region and galactic radio cut off near 1 Mc/s 4=29422
- interplanetary debris 2=6979
- interplanetary electron density determination, by earth-to-satellite transmissions 0=14271
- interplanetary ionized gas and electrons, rocket study 0=14381
- interplanetary mag. field, effect on auroral zones 1=6635
- interplanetary mag. field, Pioneer V data 1=9252
- interplanetary mag. field, rel to net elec. charge of sun 1=5147-8
- interplanetary mag. fields, as cause of cosmic-ray intensity variations 0=17452
- interplanetary mag. fields, Pioneer V magnetometer experiment 0=21317
- interplanetary space, effect of solar corona 0=8484
- loss of long-period comets 4=20910
- magnetic field 0=3410
- magnetic field, interplanetary, rel. to solar part. propag. 2=16276
- mass distribution 3=3543
- mass and energy balance 4=2389
- meteoric dust distrib., radar study 0=18711
- motion through interstellar space rel. to periodic physico-chemical effects 3=5338
- orbits, elliptical, resisting medium effect 2=9049
- origin 0=14393, 18689
- origin, abundance of Li 0=16537
- origin, accretion hypothesis 1=15416
- origin and Bode's law 1=5130
- origin, conference, New York (1962) 3=23668
- origin, conference, New York (1962) 4=7961
- origin, Dirac's cosmology 0=14392
- origin, dynamical calculations 1=12739
- origin, from heavy oscillating magnetic star and nearby approach 3=18596
- origin, historical review of theories 4=7962
- origin, McCrea's theory 1=14
- origin of satellites and planets 3=3544
- origin theory, and plasma energy balance 1=5459
- origin, through condensation processes 4=20907
- particle production, high energy, acceleration mechanisms and Alfvén's magnetic pumping theory 4=26940
- ϕ waves, possible effects 4=13911
- planets, formation during spectral transition gF to dF 1=15418
- planets, origin, chondrules 2=15317
- plasma and magnetic fields in 0=10487
- Poynting-Robertson effect 0=14404
- prehistory, rel. to Toluca meteorite radioactivity 2=6998
- problems, review of work in USSR 2=21706
- Roche ellipsoids, equilibrium and stability 4=10782
- satellite, lunar-solar disturbing functions, develop. 2=17312
- satellites, dissipative interaction through tidal friction 1=10381
- satellites, survey 0=12267
- satellites, tidal friction effects on orbits 1=10376
- scale, by solar parallax measurement 1=10374
- secular perturbations, first-order, in terms of orbit elements 1=18024
- size and distance uncertainty improvement, review 2=17239
- small bodies, elasticity imperfections 0=18688
- solar parallax determination by radar echoes from Venus 1=10394
- space exploration symposium (1959) 0=8521
- space research 0=8523-4
- space research discussion (1958) 0=8520, 18873
- spheroid attracted by a sphere, translational-rotational motion 2=935
- stray bodies, survival 2=4729
- time of formation 2=15303
- Trojan orbits, three-body problem, det. and survey 1=18023
- H₁ neutral, in solar neighbourhood 4=29480
- H₂ escape in outer planet region 4=7973

Solid solutions

- See also Alloys; and under compounds of the individual elements. Solid solutions such as Au-Cu, Au-Cu-Zn are indexed under compounds of the first named element, i.e., Gold compounds in these examples.
- absorbed, nucleation, thermodyn.-kinetics 2=16997
- activation energies for diffusion and Zener relaxation 4=23235
- alkali halides, contact fusion 0=3265
- alkali halides, dielec. losses rel. to structure type 1=14537
- alkali halides, heat of formation, NaCl type 3=13390
- alkali halides, mixed crystals, effect of annealing on props. 0=12075
- aluminium bronzes, electrical resistance anomalies 1=6125
- anthracene-polystyrene and 9,10-diphenylanthracene-polystyrene, fluorescence 0=20998
- aryl derivatives of oxadiazole in polystyrene, absorption and luminescence spectra 0=10073
- austenite ternary solutions, thermodynamics 2=6840
- austenite, thermal decomp., ferrite centre growth 2=23897
- B8 type cpds. in transition elements-Sn systems 2=10638
- binary, acoustic absorption, with many relaxing parameters 2=23059
- binary, directional solidification 0=14062
- binary, disordered, propagation phenomena 0=18404
- binary, disordered, random clusters propag. phenom. 0=3268
- binary, electron transfer and diffusion mobility, ionic charge 2=23097
- binary metal solns., free surface energy, statistical electron theory 3=23485
- binary, metallic, excess energy 0=21237
- binary, short-range order 1=20615
- binary, under strain, relaxation phenomena, thermodynamic theory 1=11575
- α -brass, creep 0=21105
- brasses, electrical resistance anomalies 1=6125
- breakup, Hall effect changes 0=6069
- with cavities, acoustic dispersion and elastic-wave attenuation 3=2727
- cellular precipitation, Turnbull theory, temp. depend. 4=10415
- coalescence theory 0=4687
- complex oxides, dielectric props. 0=7974
- composition distrib., from X-ray diffraction 1=20618
- component redistribution before disintegration 4=23234
- concentration imperfections, theory for non-ideal 1-phase soln. 2=23891
- conference, Orsay (1962) 3=6873
- configurational entropy in lattice statistics 2=2412
- configurational free energy 1=6547
- configurational partition function 0=4689
- constituent migration, interstitial, in electric field 1=14352
- Cottrell atmospheres in dilute solns., theory 1=15155-6
- Cottrell atmospheres, theory 2=12427, 14435
- creep in f.c.c. 0=21105
- cyclohexane with naphthalene and methyl derivatives, fluorescence 0=11777
- Debye thermal factor, scattering amplitude 4=2046
- dielec. losses rel. to solution type 1=14537
- diffuse X-ray scattering, general theory 1=20574
- diffuse X-ray scattering, rel. to concn. and order 1=20616
- diffusion-controlled particle growth surface-energy effect 1=11582
- diffusion, in heated strained layer, with external mass exchange 2=23896
- diffusion processes of crystalline phases in binary metallic systems 4=23236
- dilute, formation of atomic aggregates around impurity 1=406J
- diphenylene in naphthalene, absorption spectrum 0=18131
- disordered, impurity bands, energy spectrum structure 3=25242
- disordered multicomponent, X-ray and thermal neutron scatt., lattice distortion effects 1=15054
- disordered, short- and long-range order parameters 1=1417
- dissociated, structure study, X-ray satellites 1=15122

Solid solutions—contd

- dynamic and static distortion 3=10574
 electronic specific heat and partition function 4=17359
 excess free energy of Kr-CH_4 mixtures 2=574
 f.c.c. lattices, static distortions, X-ray and neutron
 diffract. intensity weakening 1=6524
 f.c.c. non-ideal, mag-induced directional order,
 concentration dependence 2=8858
 f.c.c., stacking faults, segregation of solute atoms 3=8442
 ferrites, ferromagnetic crystalline anisotropy 1=14696
 with ferroelectric properties, thermodynamics 2=16785
 ferromag. cubic, ΔE effect weak field behaviour 2=12786
 ferromag.—non-mag., miscibility gaps and Curie point,
 calc. 4=13466
 fluorescein-tripalflavin phosphorescence, temp.
 extinction 2=18875
 γ -ray absorpt., emission, by impurity nuclei 3=8337
 β -graphite, formed by diffusion 0=20841
 Group III—V semiconductor, with Group IV substituents
 defect equilibria 3=22758
 Guinier—Preston zones, spatial distrib. 3=8878
 hardening of α -thorium by Zr 2=4439
 hardening, by interactions between dislocations and
 impurity atoms 0=15851
 hardening mechanism, of ordered solid solns. 4=26536
 hardening, Suzuki atmosphere contrib. 4=20638
 ilmenite—haematite, mag. props. 1=20070
 ilmenite—haematite system, low temp.,
 superparamagnetism 3=8655
 impurity diffusion, thermodynamic theory 3=22803
 inorganic compounds with deviation from stoichiometry,
 statistical model 4=15440
 internal friction and relaxation time 1=9086
 interstitial, with b.c.c. lattice, thermodynamics 2=23893
 interstitial b.c.c., solute conc., rel. to other
 props. 1=20613
 interstitial, binary, single-phase, dislocation
 theory 3=20177
 interstitial, statistical model 4=15440
 interstitial, thermodynamic equil., appl. of Green's
 functions 3=18362
 interstitial, thermodynamics of ht. of transport 2=3932
 interstitials, equil. distrib., crystal symm. 3=25271
 Ising model, Monte Carlo computations 1=6536
 lattice parameter—composition curves 4=10490
 luminescence, energy transfer and decay law 2=23586
 martensite, precipitation of ϵ -carbide, formulae 4=10412
 mechanical strength due to short-range order 4=13379
 metallic, local order, mean vibr. state of atoms 3=8347
 metallic welding bond formation 4=23245
 metals, b.c.c., interstitial solutions 4=4495
 metals, diffusion, crystal vacancy and interstitials,
 calc. 3=22801
 metaniobates, of di- and trivalent metals, ferroelec.
 props. 0=16020
 methylcyclohexane and benzene, low-temp. spectra 2=14674
 model for inhomogeneous systems 1=20612
 Mössbauer effect, impurity nuclei, temp. Green
 functions 3=25173
 Mössbauer line intensity, effect of thermal
 oscillations 3=3339
 Mössbauer lines, width and shape 1=19696
 Mössbauer lines, width and shape 2=23046
 multi-component, degree of short range order 1=9148
 multicomponent, non-stoichiometric, order theory 1=12647
 multicomponent, order—disorder phenom.
 theory 2=10919
 multi-component, short- and long-range order, no.
 of independent parameters 1=15154
 multicomponent, short-range order, independent
 parameters 0=14073
 multicomponent systems, solubility and distribution
 coeff. 4=26537
 naphthalene, in durene, e.s.r. triplet state h.f.s. 1=14799
 naphthalene, with methylnaphthalenes and naphthols,
 luminescence and absorption spectra 0=21003
 neutron reflection intensity effect of thermal
 oscillations 3=3339
 neutron scattering, inelastic 1-phonon scatt. 1=20501
 noble metal solvents, calc. heats of soln., agreement with
 expt. for dil. solns. 4=7469
 noble metals, structure, review 2=8837
 of normal metals, conc., phase boundaries 3=8915

Solid solutions—contd

- nucleation, transform. centres, ageing 0=1929
 ordering, X-ray scatt. study 2=10918
 organic compounds, in paraffins, quasilinear spectra at low
 temps. 3=18012
 organic, solubility, structure 1=14934
 p-dichlorobenzene, with various organic cpds.,
 n.q.r. spectra 1=20281
 phase diagram technique for thermodynamic
 interactions 1=20583
 phase transformations, activation energy 0=1935
 phase transformations, order—disorder, f.c.c. lattice,
 appl. of nonlinear integral equations 3=18347
 phonon damping, wave vector and temp. depend. 4=30507
 phenanthrene, in heptane, hexane and alcohol,
 phosphorescence spectra 2=18876
 pigments in Perspex, luminescence 2=4164
 plastic flow, discontinuous, upper crit. temp.,
 theory 4=23102
 polymer, configuration and free energy of molecule
 with solvent interaction 1=7504
 polymers, dielectric props., review 1=7681
 polymers, relaxation phenomena, molecular theory 1=7505
 post-transition metal tellurides 2=23858
 powder mixtures, interdiffusion, conc. distrib. 2=23894
 precipitate growth kinetics 0=16357, 21230
 precipitation, by nucleation and diffusion-controlled
 growth 2=6782
 precipitation in supersaturated solns., X-ray
 obs. 4=10567
 primary and secondary, supercond. behaviour 2=8864
 quenching defects, effect on pptn. 3=8909
 radiationless transitions, semiclassical model 2=14663
 rare earth pseudo-binary systems, Laves
 phases 2=17042
 rare earths, in super-conductor, disordered Ising lattice,
 ferromag. props. 0=6217
 redistribution of components on decomposition and internal
 boundary adsorption 4=26543
 regular, with molecules occupying several sites, partition
 functions 0=12082
 relaxing, elastic wave propagation 1=14297
 second configuration sphere, correlation para-
 meters 1=6548
 semiconducting, two two-component compounds 4=1586
 semiconductors, flaw solubility 0=15916
 semiconductors, thermal conductivity 0=15819
 short-range order, in n-component system, temp.
 and conc. depend. 4=1981
 short-range order and X-ray scattering 1=20490
 single-phase n-components, general thermodynamic
 relations 2=8857
 solubility diagrams, P_2O_5 , Ti_2O_3 , $2\text{H}_2\text{O}$; $2\text{P}_2\text{O}_5$, Ti_2O_3 , $3\text{H}_2\text{O}$ and
 P_2O_5 , $2\text{Ti}_2\text{O}_3$, H_2O 4=15725
 with solute particles, acoustic dispersion and elastic-
 wave attenuation 3=2727
 Soret diffusion, thermodynamics 1=8913
 spinel-type, slow-neutron scattering, rel. to composition
 and degree of inversion 3=20830
 stability, spinodal decomposition 2=6839
 stacking-fault energy and dislocation arrangement,
 rel. to short-range order 4=6857
 strain ageing, solute atom segreg. 3=5139-40
 strained binary solns., diffusion process 1=14297
 structure of intermetallic phases 4=10417
 structure and properties, review 2=8865
 structure, wave-functions round dissolved atom 3=8914
 substitutional cubic, elastic constants and phonon
 spectrum meas. 2=21389
 substitutional cubic, elastic constants and phonon spectrum
 meas. 3=5054
 substitutional solution hardening 3=11186
 superconducting critical temp., theory and expt. 2=7494
 superconducting incomplete d-shell transition
 metals 2=7522
 supersat., concept of ideal pre-pptn. 3=8910
 super-saturated, decomposition kinetics, theory 3=20907
 supersaturated, kinetics of precipitation 1=20619
 system with n components, intrinsic coeff. determ. 4=4070
 ternary semiconducting systems, mag. susceptibility
 formulae 0=16128
 theory, functional methods 2=19101, 23895

Solid solutions—contd

- thermal capacity theory, low temps. 2=23070
 thermal conductivity, rel. to prep. and comp. 0=15820
 thermal oscillations, effect on X-ray and neutron reflections, and Mössbauer lines 3=3339
 thermal vibrations, charac. temp., concentration and treatment dependence 0=6008
 thermodynamics of metallic solns. 3=8885
 thermodynamics, various results 0=731
 transition metals, apparent metallic valencies 1=20624
 transition metals in first long period 1=20623
 two-phase, elastic wave damping, phase equilib. disturb. 1=11806
 unordered multicomponent, short-range order parameters 2=23892
 urania-thoria, thermodynamic props. 0=6382
 urania-zirconia, thermodynamic props. 1=14193
 vacancy concentration, large, mechanism 3=8916
 vacancy defects, anomalously high concentrations, evidence 4=1461
 work hardening, rel. to dislocations and plastic deformation 4=4448
 X-ray diffuse scattering, by distorted lattice 1=4038
 X-ray powder method for end member ratios 2=12908
 X-ray reflection intensity, effect of thermal oscillations 3=3339
 X-ray scatt. in distorted heterogeneous solns., theory 1=15153
 X-ray scatt., by thermal vibrations, theory 3=11250
 X-ray scattering, critical opalescence, theory 4=8526
 X-ray temp. factor and lattice vibrations 2=2379, 6801
 yttria-urania, plasticity at 940°C 2=4476
 zones, planar and spherical 3=8875
 A³⁰—A⁴⁰, vapour pressure, 72°K to triple pt 2=9465
 AB₃-type superlattice, mag. induced directional order 2=8850
 ABO₃-type (A = Ca, Sr, Bi; B = Sn, Zr, Al, Cr), crystal chemistry, dielec. props. 1=15018
 Ag-based, crystal structure and energy-band structure 1=4061
 Ag—Al, supersaturated, decomposition, primary X-ray extinction 0=3266
 Ag—As mag. susceptibility 0=13731
 Ag, in Bi₂Te₃, solubility 3=12998
 Ag—Cd, mag. susceptibility 0=13731
 Ag—Cu, continuous series of metastable solid solutions 0=14077
 Ag—Cu, mag. susceptibility 0=13731
 Ag—Ga, mag. susceptibility 0=13731
 Ag—Ge, mag. susceptibility 0=13731
 Ag—Ge, metastable electron compound 0=14078
 Ag—Ge, with Sb and P 0=16351
 Ag—In, mag. susceptibility 0=13731
 Ag—Mg, lattice spacings in ordered and random conditions 1=15161
 Ag—Mn, magnetic susceptibility 1=17933
 Ag—Pd, size effect obs. for 0-100% Ag 4=10490
 Ag—Sb, mag. susceptibility 0=13731
 AgSbTe₂—PbTe, structure and elec. props. 0=2902
 Ag—Sn, mag. susceptibility 0=13731
 Ag—Sn, resistance minimum 0=20862
 Ag—Zn, kinetics of vacancy precipitation 0=18387
 Ag—Zn, mag. susceptibility 0=13731
 Al, dil., recrystallization characteristics 1=15157
 Al—Ag, equilibrium, lattice spacings 2=6838
 Al—Mg, fine structure investigation 0=6380
 Al₂O₃—Cr₂O₃, ligand field for Cr³⁺ ions 2=10298
 Al—Pu 1=17561
 AlSb—GaSb, thermoelec. props., 120-900°K 2=2196
 AlSb—GaSb, hardness, X-ray lattice data 0=6381
 AlSb—GaSb, prep., elec. cond. and Hall effect 0=11706
 AlSb—InSb, elec. props. 0=15943
 AlSb—InSb, prep. 0=10328
 Al—1.2%Si, phenomena accompanying return to equilibrium on tempering 1=4069
 Al—Zn, supersaturation, metastable miscibility gap 1=20572
 Au-based, crystal structure and energy-band structure 1=4061
 Au in BiTe₃ 3=17781
 Au—Ge, using Hall effect data 2=8859
 Au with Ni, Cu and Sn, resistance minimum 0=20862

Solid solutions—contd

- Ba, Sr and Pb metaniobates, in Na niobate, dielec. and piezoelec. props. 0=630
 BaNb₂O₆—CaNb₂O₆, structure 1=4053
 BaNb₂O₆—SrNb₂O₆, structure 1=4053
 BaO in Ba(OH)₂, solubility, 600-1000°C 0=710
 (Ba, Pb)TiO₃, crystal chemistry, dielec. props. 1=15018
 (Ba, Pb)(Ti, Sn)O₃, phase diagram, dielec. and piezoelec. props. 0=21236
 (Ba, Sr)(Ta, Nb)₂O₆, dielec. polarization 0=631
 BaTiO₃, ferroelectrics, ageing process 0=13656
 BaTiO₃, various solutions, ferroelec. props. 0=1698
 BaTiO₃—BaSnO₃, elec. props. and structure, phase diagram 0=16017
 BaTiO₃—BaSnO₃, ferroelec. props., temp. depend. 0=16018
 BaTiO₃—BaSnO₃, high-temp. phase transition 0=12076
 BaTiO₃—BaZrO₃, ferroelec. props., temp. depend. 0=16018
 BaTiO₃—Mn₂Nb₂O₇, thermal conductivity 1=17431
 BaTiO₃—SnO₂, ferroelec. props., temp. depend. 0=16018
 BaTiO₃—SrTiO₃, ferroelectrics, with low temp. coeff. of permittivity 0=13655
 BaTiO₃—ZrO₂, ferroelec. props., temp. depend. 0=16018
 BaTiO₃—ZrO₂, structure, rel. to ZrO₂ content 0=1928
 Ba(Ti, Zr, Sn)O₃, prep., ferroelec. props. 0=16019
 Be, impurity solubility 3=25272
 Bi perovskites 2=6522
 Bi—Sb at film interface 1=14302
 Bi—Te, rel. to composition 3=3343
 Bi—Te, semicond. props. and thermoelec. power 0=4352
 Bi₂Te₂—Bi₂Se₃, elec. cond. and thermo-e.m.f., ageing effect 0=2889
 Bi₂Te₃—Bi₂Se₃, lattice consts. 1=20573
 Bi₂Te₃—Sb₂Te₃, thermoelec. props. 0=16002
 Bi₂Te₃:Sb₂Te₃, thermoelectric props., temp. variation 1=17810
 Bi₂Te₃—Sb₂Te₃, as thermoelements, elec. cond. depend. 0=2917
 Bi₂Te₃—Sb₂Te₃—Te, thermal cond. 2=22074
 Bi₄Ti₃O₁₂, multiple ion substitutions, rel. to ferroelectric props. 1=7692
 C in α-Fe, solubility limit at various temp. 0=13819
 C in Fe, solubility from mag. aftereffect 0=3270
 Ca₃Fe₂Sn₃O₁₂—Y₃Fe₂Fe₃O₁₂ 0=6359
 Cd—Cu, mag. susceptibility 0=13731
 CdS—CdSe, photocond., i.r. quenching, temp. and composition depend. 1=6177
 CdS—CdSe, prep. and photoconductivity studies 0=7957
 CdS—ZnS, photocond., composition depend., structure 1=1111
 CdSb—ZnSb 0=18401
 CdSe—In₂Se₃, ordered, limits of formation 0=18036
 CdTe—HgTe 0=12083
 CdTe—HgTe, structure and elec. props. 1=3708
 CdTe—ZnTe 0=12083
 Co containing W, C, WC; X-ray diffraction line intensity 1=1396
 Co—Cu, metastable, f. c. c., mag. moments 2=12740
 Co—Fe, effect of Fe on Co⁵⁹ n.m.r. 1=7800
 Co—Ni, effect of Ni on Co⁵⁹ n.m.r. 1=7800
 Co—Pd, dilute, ferromagnetism down to 0.1 at.% Co 1=9022
 Cr—Ni system, equil. diagram 3=11289
 Cr₂O₃ in In₂O₃, rel. to absorpt. bands 2=21248
 Cr—Te—Se, elec. and mag. props. 1=17619
 CsCl type, heat of formation 3=18230
 Cu-base, local atomic displacements meas. 3=3341
 Cu-based, crystal structure and energy-band structure 1=4061
 Cu, deformation and X-ray diffr. pattern broadening 0=1910
 Cu, dilute, n.m.r. at low temps. 0=18225
 Cu ions in AgCl, optical props. 2=4136
 Cu—Al, ordering 2=23882
 Cu—Al, segregation of Al to stacking faults 0=21241
 Cu—Al stacking faults, solute atoms effect 2=600
 CuAu, short-range order and X-ray scattering 1=20490
 Cu₃Au-type, short-range order 2=10920
 Cu—Be(Au, Ag), annealing stage I, rel. to concentration 3=8468
 α Cu—Cd, dissolution of a β precipitate 1=1427
 Cu in Ge, decomp., X-ray study 0=21192
 Cu—Ge, supersaturated, decomposition, elec. props. and X-ray diffr. study 1=15159

Solid solutions—contd

- Cu-In, mag. susceptibility 0=13731
 Cu-Mg, resistance minimum 0=20862
 Cu-Mn, magnetic susceptibility 1=17933
 Cu-Ni, composition distrib., X-ray diffraction study 1=20618
 Cu-Ni stacking faults, solute atoms effect 2=600
 Cu-O after annealing 2=12962
 Cu_{0.6}Pd_{0.4}, enthalpy of formation 2=21540
 Cu-Sb, intercrystalline internal adsorption, X-ray scatt. study 2=23934
 Cu-Sb, mag. susceptibility 0=13731
 Cu-Sn, intercrystalline internal adsorption, X-ray scatt. study 2=23934
 Cu-Sn, mag. susceptibility 0=13731
 Cu-Sn, plasticity drop, theory 1=10215
 Cu-Zn stacking faults, solute atoms effect 2=600
 Cu-Zn-Mn, lattice parameters 1=15158
 Cu-Zn-Ni, thermodynamic props. 2=6837
 FeAl, in diffusion formed Fe-Al alloys 2=17051
 Fe-Al, mechanical strength 3=6798
 FeAl₂O₄, mag. props. 0=11829
 Fe, Ce distrib. on sub-boundary zones 3=20229
 Fe, effect of deformation on internal friction 0=1845
 Fe-Ge, with Sb and P 0=16351
 Fe-Ni, single crystals, slow deformation at high temp. 1=10212
 Fe-Ni-C system, thermodynamics 3=5117
 FeO in MgO, mag. susceptibility measurements 1=1214
 Fe₃O₄ in NiZn ferrites 1=6487
 Fe₃O₄, mag. props. 0=11829
 FeO-FeVO₃, antiferromagnetism 0=11914
 Fe-P, lattice parameters, solubility 0=18348
 FeTiO₃-α-Fe₂O₃ system, ferrimag. props., rel. to crystal structure 1=11455
 FeTiO₃-Fe₂O₃, heat treated, mag. props., order-disorder transform. 0=670
 0.6 FeTiO₃-0.4 Fe₂O₃, reverse thermoremanent magnetization 0=8041
 α-Fe-W, various props., W-conc. depend. 1=4060
 Ga in superconductor, mag. susceptibility and Curie point calc. 0=18160
 GaAs-Ga₂Se₃, structure and elec. props. 1=19877
 Ga in In, supercond., critical temp. 2=7494
 GaSb-Ge, pseudo-binary system 0=18402
 GaSb-InSb, extent of solid soln. from crystal-pulling expts. 2=19102
 GaSb-InSb, prep., equilibrium and elec. props. 0=730
 GaSe-GaS, photoconductivity 0=15989
 Ga₂Te₃ with A^{II}B^{VI} tellurides, formation and props. 1=7878
 GdRu₂-CeRu₂, superconduction, mag. props. 0=11844
 Ge, impurity solubility max-rel. to distrib. 2=17054
 Ge, solubilities, of Al and Ca 0=12080
 Ge-Fe, Ni, Co, annealing effects 0=15863
 Ge in α-Fe, X-ray, metallographic, microhardness, and magnetic meas. 3=3340
 Ge-Ga, X-ray emission spectrum 1=17904
 Ge-Sb, X-ray emission spectrum 1=17904
 Ge-Si, positive excess entropy 0=1641
 Ge-Si, thermodynamic props. 0=4685
 H in metals, embrittlement 2=8744
 H, ortho and para, free energy 2=18541, 23095
 H-D, mutual solubility at 4.2°K 0=12099
 H-D systems, solid-liquid phase diagrams 3=21612
 Hf-H, thermodyn. props. and phase relns. 2=23808
 Hg[Cd]Te-In₂[Ga₂]Te₃, structure and semicond. properties 3=11301
 HgSe-HgTe, semiconducting properties 1=17753
 HgTe-MnTe, zinc blende type, phase diagram 3=13543
 HgTe-ZnTe 0=12083
 In basis, semicond., complex, structures, props. 2=17053
 InAs-based quaternary systems 0=10327
 InAs-GaAs structure 1=11594
 InAs-In₂Se₃, optical absorption edge 0=16057
 InAs-In₂Te₃, optical absorption edge 0=16057
 InSb-AlSb, Nernst-Ettingshausen effect 1=11267
 InSb-based quaternary systems 0=10327
 InSb-GaSb, magnetic susceptibility 1=20049
 InSb-GaSb structure 1=11594
 InSb-GaSb, thermodynamic props. 0=4685

Solid solutions—contd

- In₂Te₃ with A^{II}B^{VI} tellurides, lattice parameters and ordering 1=20621
 In₂Te₃ in Bi₂Te₃, mechanism 1=20620
 In₂Te₃ in Sb₂Te₃, mechanism 1=20620
 KBr-KCl, formed by powder compression, kinetics 2=23799
 K(Cl, Br), dispersion coeff. 2=17052
 KCl-KBr, configurational free energy 0=12071
 KCl-KBr, diffuse X-ray scattering 0=16323
 KCl-KBr, phonon scatt. by point defects at liquid He temp., from thermal cond. 0=13506
 KCl-KBr system, domains of separation 2=12897
 K (Mn, Co, Ni) F₃, superexchange interaction 3=25553
 (K,Na)Cl solns., formation and liquidation of heterogeneous regions 1=1357
 Li in GaAs, elec. and chem. study 2=18599
 M₃²⁺Fe₂Sn₃O₁₂-Y₃Fe₂Fe₃O₁₂, M = Cd, Zn, Mn, Ni, Mg. 0=6359
 Mg, lattice spacings 0=21195
 Mg-Al, α-type, slip lines, rel. to Mg composition 1=11515
 Mg-Fe eutectic meas. 3=11299
 Mg₂Si, ageing 2=2331
 Mn ferrites, effects of oxidation 2=4232
 Mn_{1-x}Fe_{2-x}O₄, hysteresis loop 1=17955
 Mn-Zn fluoride, antiferromagnetic susceptibilities 1=20168
 NaCl-AgCl, formation 2=14925
 NaCl-CdCl₂, hyperstructure regions 2=21521
 NaCl-NaBr, structure, theory 2=21456
 Na-K-Cl-Br ternary system, phase diagram 1=20614
 NaI, with up to 2.6 mol. % TlI 0=16356
 NaNbO₃-PbZrO₃, prep., antiferro- and ferroelec. props. 0=11746
 Nb-N, terminal, metal-gas equil. 3=11298
 Nb-O interstitial, superconducting, H_{c3}/H_{c2} ratio, Saint-James-de Gennes calc. 4=29839
 Ni ferrite, Ni solubility 2=2415
 Ni-rich α-solutions, interdiffusion of Cr and Mo 1=985
 Ni-Cr, elec. resistance and thermolec. power 1=5034
 Ni-Cu, fine structure investigation 0=6380
 Ni-Fe-O system, phase equilibria in ferrite region 2=2404
 NiFeO₄-Fe₂O₃, lattice dimension and α-Fe₂O₃ precipitation 1=12641
 NiO-MgO and MnO, activity of NiO 2=2414
 Ni-Sn, unstable, creep and fracture observations 2=4328
 Ni-Ti, elec. resistance and thermolec. power 1=5034
 Ni-Ti, supersaturated, decomposition 1=15133
 Ni-Ti-Cr, supersaturated, decomposition 1=15133
 Ni-V, elec. resistance and thermolec. power 1=5034
 NiZn ferrites, with ferric oxide 0=21232
 Pb, ageing mechanism 1=15151
 Pb-Ba metaniobate, piezoelectricity 2=14635
 Pb and Bi tellurides, carrier scattering 0=2890
 Pb-Mg, lattice parameters and zone overlap 0=16315
 with Pb₂MgWO₆, antiferroelec. and ferroelec. props. 0=7978
 PbMg_{1/2}W_{1/2}O₃, antiferroelectric properties 1=12478
 PbNb₂O₆-BaNb₂O₆-SrNb₂O₆, ferroelectric props. 0=6154
 Pb₂NiNb₂O₉-Pb₃MgNb₂O₉, crystal structure 1=11572
 Pb₃NiNb₂O₉-Pb₃MgNb₂O₉, polarization mechanism 0=629
 PbSe-Bi₂Se₃ system, rel. to composition 3=25742
 PbTiO₃ in BaTiO₃, ferroelectric meas. 1=17843
 PbTiO₃-SrSnO₃, crystal structure and diel. props. 1=20575
 PbTiO₃-SrTiO₃-Bi₂TiO₃, ferroelec. polarization 2=12568
 Pb-Tl, self-diffusion of Pb, Tl and Bi 2=3941
 Pd-W, Pd-Mo, K-state formation 2=21093
 Pt-Ag, solution formation due to spark discharges 0=16352
 δ Pu-Al, elec. and thermal props. rel. to order-disorder change 1=20622
 Sb₂Bi_{2-x}Te_{3-x}Se₂ system 1=19867
 Sb₂S₃-Sb₂Te₃, elec. props., composition depend. 2=8352
 Sb-Sn, solubility curves 1=15160
 Sb₂Te₃-Bi₂Te₃, elec. and thermolec. props. 2=4079, 8449
 Sb₂Te₃-Bi₂Te₃, thermolec. props., effect of impurities 0=18079
 SbZn-SbCd, thermolec. props. 0=16002
 Se-Te, X-ray study 0=12077
 Si, doped, solubility in crystal growth 2=10382

Solid solutions--contd

- in Si, excess entropy 0=1641
 Si, impurity solubility max. rel. to distrib. 2=17054
 Si-Ni, Ni solubility, 900° to 1350°C 3=3338
 Sn, grain boundary segreg. of Ti 3=16118
 Sn-Ag alloys, solute distrib. after solidification 3=16119
 (Sr, Pb)(Ti, Zr)O₃, phase diagram., dielec. and piezoelec. props. 0=21236
 Sr₃(PO₄)₂ systems 2=4177
 SrTiO₃ in BaTiO₃, ferroelectric meas. 1=17843
 SrTiO₃-Bi₂O₃.nTiO₂, relaxation polarization and phase composition 1=14538
 Ta-H, dilute, phase instability 2=2413
 Ta-H, thermodynamics 300°-700°C 2=19026
 Te-S, energy gap and carrier mobility, S depend. 1=1086
 Te-Se, energy gap and carrier mobility, Se depend. 1=1086
 ThO₂-CaO dielec. and mechanical relaxation 3=20700
 Ti, with ferromag. solutes, superconducting transition temp. 0=1079
 TiC-TiN, X-ray absorption spectra 2=707, 8541
 Ti-Cr alloys, β -type 3=22898
 Ti-Cu, decomposition 0=16353
 Ti-Mo, short-range order and size effect 1=20617
 Tl, with In, Bi or Pb, superconductivity 1=10642
 U-Cd, U-Zn, Ce-Zn systems, phase diagrams 2=6822
 UO₂, with foreign elements, in U₂O₈ \rightarrow UO₂ trans-form. 3=25765
 V-Cr, mag. susceptibility 1=1195
 VO₂-TiO₂, mag. susceptibility, 25-90°C, composition depend. 0=18166
 W carbide-Co, Lorenz number, thermal and elec. cond. 1=925
 Xe and Kr 0=8846
 Zn, Cd, γ -Sb, elec. props., single-phase prod. 0=2903-4
 ZnFe₂O₄-NiFe₂O₄ system, superparamagnetism 3=8645
 Zn₃(PO₄)₂-Mg₃(PO₄)₂, phase equilibria and Mn-activated fluorescence 0=2953
 ZnSb-CdSb, ordering, elec. props. 2=18762
 ZnSb-CdSb system 3=1348
 ZnSe-GaAs, existence of continuous series 0=729
 ZnSe and ZnTe, in CdS, solubility 3=4886
 Zr, solubility in α -Th 2=4474-5
 ZrO₂, irradiation-induced phase trans-formations 0=21211
 Zr-ZrO₂ system, solubility of O₂ in α -Zr, Zr in ZrO₂ 2=4459

Solids

- See also Crystals; Films, solid; Metals; Plastics; Powders; Semiconductors; Vitreous state
 A.F. Ioffe's contributions 1=15586
 acoustic loss, macroscopic model 0=16758
 atoms, relaxation, radiation and thermal inter-action 3=20070
 band structure 0=20774
 breakdown delay time, physical nature 2=18780, 23505
 brittle, single fracture, fragment size 3=1239-41
 cavity formation, in local melting, due to irradiation 1=12407
 characteristic electron-energy losses of 10 elements 1=6100
 charged-particles stopping power, from effective cross-section theory 0=10604
 cohesive energies of Eu, Ho and Gd 1=14143
 cold-neutron research, review 0=7840
 composite, flow of heat 0=8820
 compressibility, at high pressures 3=23311
 conductors, optical constants, complete set, theoretical determination 0=10025
 conductors, perfect, Rayleigh wave propag. 2=7279
 conductors, perfect, shock waves in mag. field 2=5047
 conference, Midwest (1960) 1=14141
 conference, Midwest (1961) 2=12359
 conference, Solid State Physics, Bristol, 1964 4=15394
 conferences 0=6002-3, 17864, 20713, 20715
 crack propagation, brittle-ductile transition, temp. depend. 0=11985
 cubic lattices (monatomic, simple), Green's functions, tabulation 1=2368
 deformable, weightlessness 3=16440
 deformation and fracture by high-speed liquid impact 1=20329
 density, direct meas. apparatus 2=7166

Solids--contd

- devices, microwave, review 3=6556
 dielectric props. of disperse systems 0=3722
 dielectrics and metals, sound absorption, theory 4=9841
 elastic and anelastic props., var. with freq. and temp. meas. 4=28911
 elastic constants and thermal expansion, interrelationship 3=11130
 elastic limit, meas., for imperfect solids 3=8760
 elastic strains, light scattering 4=15582
 elastic waves in, exponential and complex near fields 1=194
 elec. breakdown strengths, in non-uniform fields, layer thickness depend. 1=286
 electric field distributions, methods of study 1=3584
 electrical conductivity, pressure effects, review 4=22658
 electrical current, space-charge-limited flow 3=15527
 electron beam penetration 1=6098
 electron nuclear double resonance applications 0=10242
 electron penetration, universal law 0=10971
 electron scattering, inelastic, energy distrib., rel. to atomic number 3=14659
 electron tunnelling, conference report 2=12412
 electron and X-ray scatt. studies 1=20719
 electronic behaviour 0=4272
 field emission, spectrometer, especially semiconductors 3=5691
 fluctuations, conference 1=19840
 fluctuations, conference, Minnesota (1962) 3=6446
 fluorescence spectra, meas. 2=22040
 gyroelectric media, plane-wave propag., optical props. 3=3896
 heat conduction and lattice vibrations 1=7541
 impact, on solids, at > 10 km/sec velocities 0=11991
 with imperfections, thermodynamics and reaction formulation 0=4295
 impurity absorption spectra, effect of acoustic waves 0=2944
 interaction with radiation, rel. to physical properties; review 3=2841
 internal energy exchange, from elastic waves generated by ion and e.m. beam pulses 3=18889
 interphase surface, surface tension 3=11198
 ionization, by heating and exp. in vacuum 0=14958
 irradi., light emission on dissolution in certain liquids 1=1744
 irradiation-displaced atoms, distrib. function 2=21087
 irradiation effects 0=6064, 9922
 isotropic, coherent nucleation and fluctuations 3=1251
 Italian contributions, recent 4=20146
 mass spectrographic analysis 2=4581
 mass spectrometry, review 3=14685
 materials with general texture, reciprocal pole figure calc. 2=23628
 mech. relaxation, effects of elongation and contraction of samples 0=16221
 molecular and atomic motions, by r.f. methods 0=7829
 Mössbauer effect, review 4=28319
 Mössbauer effect, study of local mag. fields 1=6248
 Mössbauer spectra, effect of external perturbation 3=15414
 n.m.r. expts. 3=25583
 n.m.r., review and applications 0=4523
 neutron scattering, conference, Chalk River (1962) 3=8326
 non-destructive testing, physical basis 1=6065
 opaque, shock front position meas. 4=27253
 optical pumping and its application, review 2=8068
 with paramag. impurities, nuclear polarization 0=16717
 planetary, general perturbations, in rectangular coordinates 3=23669
 plasma phenomena 4=15464
 plastic flow of Bingham solids 0=16227
 polymerization, radiation-induced, literature survey 2=23970
 porous, liquid penetration, theory and exper. 0=8336-7
 positron lifetime, variation with pressure 3=10099
 positronium annihilation in dielectrics, effect of elec. field 1=19754
 pressure effects 0=13495
 quantum chemistry and solid state physics conference, Florida and Sanibel (1960-61) 2=4520
 quantum electronics conference, Berkeley (1961) 2=11241
 Raman intensities, absorption effects 0=13687
 random mixtures and percolation processes, cluster size 1=7512

Solids—contd

- range of electron beams, rel. to target atomic no. 1=17495
- range of recoil atoms from (γ ,n) reactions 1=4858
- relaxation, dielectric and dynamic mechanical 2=6511
- shock-wave propagation 3=11856
- size of defects, ultrasonic impulse echo method 0=5109
- slow-neutron resonance line-shapes, usefulness 2=20657
- solid state reactions, rel. to crystal lattice defects 3=12956
- solid-state reactions, kinetic model 1=11613
- spin systems, correl. times, line widths and cross relax. 0=8082
- steady-state temp. distrib., during change of property 0=6961
- strain, ultrasonically produced, calorimetric meas. 0=18243
- stress waves, initiated, by high explosives or impacts 0=14729
- stressed crystals, acoustic dispersion anomalies 4=6726
- stressed, thermodynamics 0=731
- stresses, under hydrostatic pressure and tensile load 0=16228
- structural similarity to Galaxy 3=11509
- surface energy meas., lamellar solids 1=6559
- surface tension, rel. to that of adjacent liq. 4=17835
- textured polycrystalline, thermal stresses 3=2736
- thermal and acoustic oscillations, due to periodic evolution of heat 0=19477
- thermal and mechanical props., relation 0=9854
- thermal measurements, variable-state methods 4=14425
- thermal motion of atoms 2=16587
- thermoluminescence and light emission, exper. study techniques 1=6243
- transition-element ions, charge transfer and exchange interaction 0=21067
- transition-element ions, props. and electronic structures 0=20727-8
- translucent low temp., directional, spectral emissivity 0=14874
- two-phase materials, such as glass-fibre resins, review 3=1209
- US Bureau of Stds., work, review 2=18505
- ultrasonic machining, effect of cavitation 0=3390
- ultrasonic waves in, absolute intensity meas. 4=29715
- ultrasonics, microwave (1-24 Gc/s), generation and propag. in solids, review 3=6470
- ultrasonics, very high energy 0=6890
- viscoelastic, dynamic props., meas. 3=13371
- wetting by liquid H_2 , var. structural materials 4=11170
- work function and sec. electron emission, in semi-conductors and dielectrics 0=2374
- X-ray scattering, small-angle theory 0=718
- X-ray spectra, absorption, fine structure 3=6657
- X-ray spectra, emission and absorption 1=11386
- X-ray spectra, soft, bibliography 2=21256
- Cu_3Au , anti-phase domains 2=17047
- N, trapping sites for excited N atoms 1=5983
- XAl_2 , (X = rare earth metal), conduction electron polarization 1=6431

structure

- See also Crystal structure; Examination of materials; Granular structure
- alkali halide films at low temp. 1=15177
- alloys, dilute, sub. cellular—striation relationship 4=4634
- alloys, equil. order parameters, quantum and class. theory 4=10413
- Alnico, max. Al phase identification 4=26692
- anisotropic media, parameters characterizing geometric properties 3=20765
- aromatic hydrocarbons, capacitive energy and ionization 1=5424
- atomic displacements, thermodyn. averaging 0=11571
- atomic motion in solids, survey 2=14346
- α -brass, intergranular cavities, rel. to grain size 4=30866
- cation—cation interactions, in ionic solids 0=11554
- ceramics heat treatment and bi-phase equilibrium rate, diffusion 4=23524
- ceramics, and hysteresis 4=26293
- ceramics, and mechanical props., review 4=23084
- coals, deduced from He densities 0=14058
- cohesive energies, rel. to virial theorem 2=12362
- correlated cell model, cooperative motion 4=10409

Solids—contd**structure—contd**

- crystals with point defects, change of physical parameters 1=2388
- cyclobutane, molecular motion, p.m.r. meas. 4=20611
- DPF-H in crystalline hydrazine, distortion, e. s. r. studv 4=28336
- dangling bonds in III-V cpds. 1=11140
- diamond, metallic 3=12895
- dielectrics, binding energy rel. to breakdown energy 0=16026
- dimer problem in rectangular lattices 3=6447
- dislocations in arrays 0=15844
- distortions in metallic structures 0=7879
- Einstein, space-correlation function and degree of order 2=557
- electrographite, after repeated rubbing 3=8787
- examination with ultrasonic "matterscope" 0=3590
- Fermi energy and conduction electrons in titanium and vanadium carbides 1=14532
- ferroelectric crystals, H-bonded, proton -lattice . interact. 3=15408
- ferroelectric, exchange model 2=6519
- Fourier transform of system of helices 4=23232
- gas-crystalline state in polymers 0=1916
- glasses containing Al 4=10627
- gradual phase transitions 1=7835
- grain boundaries, atomic configuration, field ion microscope obs. 4=23535
- grain boundaries, high-angle tilt boundary, dislocation cone model 1=6108
- grain boundaries, large-angle, mechanical stability, theory 1=15116
- graphite, effect of bromine absorpt. 3=25309
- gypsum hemihydrate, formation, induction period 3=8790
- $+ \frac{1}{2}$ -shell, even-parity-hole states 4=30310
- ice, surface 3=21307
- impurity flow to edge dislocations 0=7896
- intermetallic compounds, formation, properties, defects, review 4=9804
- intermetallic phases, factors governing structure 4=10417
- interpretation of n.m.r. fine-structure lines 3=8727-8
- investigation by damping capacity 1=10206
- ionic charge, rel. to volume, for isoelectronic ions 0=514
- ionic radii determination 1=889
- Ising lattice, long-range order parameter 3=3249
- laser scatt. exam. of polymer changes 4=20772
- lattice stabilization by sorbed and included molecules 1=9171
- Madelung constant, calc. 1=14147
- Madelung constants of several structures 1=9965
- microanalysis by observations of nuclear reactions 4=20770
- microstructure, effect on mech. strength, 4=28926
- microstructure examination, review 4=23511
- microstructure, geometry 4=23510
- model, effect of orientation on strength 0=16235
- molecular crystals, rel. to compressibility 3=15985
- molecular crystals, phase transformations 2=8764
- molecular solids, nuclear magnetic resonance 2=8678
- Mössbauer effect appl. 1=17394
- mumetal, heated in air, surface layer heterogeneities 0=18394
- n.m.r. studies in diamag. solids 3=25585
- by n.m.r. technique 1=10199
- neutron scattering studies, Chalk River (Sept. 1962) symposium 3=6456
- packing of hard spheres 0=21223
- packing of spheres 2=8867
- packing of spherical particles, effect of material props. 1=6552
- particle size and number meas. 3=23367
- Permalloy films 0=3052
- phase change meas., at high press. 0=1926
- phase-transitions, second-order, det. from shocks 1=14937
- plastic crystals, molecular rotation, conference, Oxford (April 1960) 1=14144
- polymers, crystallizing, periodically acting forces, effects 2=23802
- polymers, X-ray scatt. exam. 4=17746
- porous regions in crystalline body, expansion 2=4354, 12876

Solids—contd

structure—contd

- rare earth hexaborides, data analysis 3=10763
 rare gas matrices, trapping sites for H atoms 0=7889-90
 silica, fused and crystalline 0=7877
 slow neutron spectrometric study of lattice dynamics 1=7525
 solid solns., metallic, conference 4=10407
 space group O^3 , representation 3=16051
 sphalerite structure, dislocation cores, theory 3=2793
 spin config. in crystals, group theory investigation 2=550
 spinels, short and long-range order 3=18224
 stability of non-stoichiometric compounds 0=13516
 statistics of dimers on lattice 2=1072
 superlattices, quantum-mechanical representation 0=1536
 symmetry, geometrical anal. 0=6004
 texture antisymmetry, with infinity-fold axes 0=12057
 transition metal carbide solid solns., C atom charges 4=12573
 transition metal semiconducting cpds, crystal chemistry 0=13932
 Udimet 700 Ni base alloy, solute distrib. near grain boundaries 4=13464
 vacancy coalescence and macro-defect form. on cooling 0=6046
 wüstite, O/Fe ratio rel. to oxygen press. 3=5076
 Al, crystallite orientation distrib. 3=25783
 Al, substructure formation during deformation, high temp. high strain rate 4=26492
 Al—Cd—Sn alloys, solid Sn rich 4=13471
 Al—CuAl₂, thin film, equilib. diag. 2=1072
 Al—14% Mn alloy, intergranular cavities, rel. to grain size 4=30866
 Al—Zn (10-98 wt. %), and heat cycling, effect on internal friction and elongation 4=13389
 Al—Zn—Mg, microstructural damage produced by glide 4=23127
 Au alloys, grain boundary delineation by rapid cooling 4=10581
 Au_{0.95}Fe_{0.05}, magnetic ordering 4=17651
 Au—Pd, short range order, X-ray exam. 4=13645
 BN, donor-acceptor bond 0=4255
 Bi₂Te₃ and CdI₂ types, bonding and semiconducting relationships 0=15945
 C, black, particles, internal, and oxides, by electron microscope 3=25804
 C, new phase above 150 kbar 3=18229
 CdI₂, 3 layer, bonding scheme 0=15945
 CdS, changes 4=13508
 CdTe, changes 4=13508
 Co nuclear alignment, at 0.04°K 0=4285
 Co²⁺ site preference, effect of anion charge compensation 3=18222
 Co and Co-25% Ni, structure indicative of martensitic shearing 0=21207
 Cr—Ni, at high temperatures up to 1260°C 4=26538
 Cu, dislocations and oxide nuclei, correlation 0=17934
 Cu, grain size, effect on fatigue strength 4=28940
 Cu, quadrupole interaction of nuclei 3=13318
 Cu, substructure formation during deformation, high temp. high strain rate 4=26492
 Cu—Al solid soln., short-range order, kinetics of variation 4=17747
 Cu—Al solid solns., short-range order, temp. depend. 4=15723
 Cu, Al, Ni, changes, during deformation at high temp. 2=2320
 Cu₃Au, ordering changes on cold working and annealing 4=7485
 β-CuZn, long-range interactions, rel. to ordering 4=13482
 (Er, Y)₂O₃, equiv. Er ions interact. 3=10565
 Fe—Al, short-range order, by diffuse X-ray scatt. 4=15789
 Fe—C alloys, and freezing nucleation undercooling 4=21352
 Fe—C, prep. by electron bombardment, composition analysis 2=23800
 Fe—Ni, microstructure, after γ-α and γ-α-γ transformations 2=23929
 Fe₂O₃—BaO, phase equilib., 3=6812
 Fe(1.08%Si), rel. to ordinary magnetoresistance 2=8287
 GaP, changes 4=13508
 GaSb, amorphous state 4=30881

Solids—contd

structure—contd

- He³ and He⁴ allotropes, nomenclature 4=13487
 He⁴, γ-phase 3=322
 KCN, interdomain symmetry in reversible transformations 1=7834
 KNiF₃, covalency, LCAO—MO model 3=12893
 KNiF₃, covalent orbitals, n.m.r. study 3=12891
 KNiF₃, covalency rel. to optical spectra 3=12892
 Li, metallography, low-temp. 2=21543
 Li₂(Si,Ge)O₃, mixed crystals, one-dim. model 3=10579
 Mg—Al(32 wt. %), rod like 4=26697
 MgGa₂O₄—MgMn₂O₄, 350-1250°C 4=15740
 Mg—Zr system 4=23243
 Mn ferrites, rel. to sintering 2=23935
 Mn₂N, electron number of N atom 3=12890
 Mn—Zn ferrites, grain growth rel. to power parameters 4=20782
 NaCl type lattice, Madelung constant 1=14146
 NH₄K₂Li₄ ×, rotation of NH₄⁺ meas. 3=15418
 NH₄SO₃F, rotation of NH₄⁺ meas. 3=15418
 (NH₄)₂S₂O₈, rotation of NH₄⁺ meas. 3=15418
 NH₄PF₆, rotation of NH₄⁺ meas. 3=15418
 N₂O, disorder confirm. by neutron diffraction 2=4358
 NaF, distrib. of OH⁻ ions, meas. 3=18223
 NaNO₃, anion rotational disorder above T_c, X-ray scatt. meas. 4=29019
 NaSb, intermetallic semiconductor 0=7947
 Ne, at 0°K, equil. nearest-neighbour distance 4=20150
 Ni, and heat fatigue 4=23179
 Ni—liquid Pb system, dihedral angle, temp. and press. effects 4=15724
 Ni, substructure formation during deformation, high temp. high strain rate 4=26492
 Ni, with Pb, dihedral angle, effect of stress 4=23533
 Ni²⁺ site preference, effect of anion charge compensation 3=18222
 Ni—ThO₂(2%), stability at 2000°F 4=13648
 Pb and Pb—Ag alloys, macromosaic substructures, formation 0=13545
 RbNO₃, transition energies and temps. 2=8762
 S and S cpds., positron annihilation in, similarity of S²⁻ and Cl⁻ ions 0=15336
 Sc 4=1335
 Si, non-crystalline excrescences, after air-heating, 1100°-1200°C, 8 weeks 2=23907
 Sn—Pb or Sb alloys, macromosaic structures 2=23862
 Ta, and dislocation var. with plastic deform. 4=28985
 Ta—C system, phase constituents rel. to composn. 4=13463
 TiN, metallic bonding, and chemical reactions 4=22451-2
 U, microstructure, rel. to thermal cycling 2=21545
 U, texture, neutron diffraction exam. 0=18416
 UO_{2+x}, non-stoichiometry 2=10776
 UO₂, occurrence of free U 2=14926
 W, W—Re, grain boundaries, atomic configuration, field ion microscope obs. 4=23535
 Y 4=1335
 ZnO crystal, polar props. perpendicular to c-axis 4=6680
 ZnS, changes 4=13508
 Zr, stability of dispersed La₂O₃, Y₂O₃ at 1600°F 4=13456
- theory**
 absorption of light, photoexcitation transitions 1=14579
 acoustic wave amplification by conduction electrons 2=18507
 actinide elements, using nonrelativistic potentials 3=8194
 adsorption, internal, at grain boundaries 3=1383
 alkali halide crystals, Cauchy's reln. theory 3=25600
 alkali halides, Cauchy relns. failure 3=8750
 alkali halides, cohesive energy 1=3582
 alkali halides, effective ionic charge in crystals 1=2363
 alkali halides, effective ionic charge in crystals 1=6241
 alkali halides, ion polarizability 3=12909
 alkali halides, stability for three-body ion interactions 4=17745
 alternant molecular orbital method appl. 2=14307
 alternant orbitals in crystals 2=18510
 amorphous, electron energy spectrum, band structure 0=15879
 amorphous, ferromagnetism, quasi-classical theory 0=16130
 anharmonic contrib. to static dielectric const. 1=14534

Solids—contd

theory—contd

- appl. of classical fluid theory 1=15843
 atomic aggregate, extension of Huygens' theory 0=13463
 atomic energy levels in crystals, internal elec. field 1=14148
 atomic force constants, Born—Huang relations 1=7513
 atomic oscillations, localized, Mössbauer-effect studies 0=20789
 band energy spectrum in mag. field 0=9889
 band structure of $A^{IV}B^V$ compounds, equiv. orbital method 0=6030
 band structure of amorphous solids 1=11176
 band structure, perturbation on "empty lattice" 1=19735
 binding energy in body-centred structure of parallel charge doublet chains 1=11139
 Bloch electrons in elec. field, wave-functions and effective Hamiltonian 0=4273
 Bloch functions, dispersion relations 0=17871
 Bloch—Wannier functions, for nondegenerate bands 3=780
 Bloch waves and Wannier functions, analytic props. 0=521
 Boltzmann eqn. in external mag. field 4=28519
 Boltzmann transport eqn. in elec. and mag. fields 3=25226
 Boltzmann transport eqn., relaxation-time approx. 4=6768
 bosons in solid state, quantum theory 0=7304
 Bravais lattice, mag. spirals, mol. field approx. 4=1794
 Bravais lattice, magnetic, spin configuration 3=25499
 Brillouin zone energies, repulsive potential m method 0=2777
 Brownian motion, dynamical study 3=23772
 cascade capture of electrons 0=15917
 cation—cation direct interactions in oxides 0=7832
 charge carriers of negative effective mass, electro-dynamics 0=544
 chemical binding effects on nuclear recoil 0=13131
 chemical equilibrium, activity coeff. of electrons and holes at high conc. 0=15914
 cohesive energy, calc. by SLCO method 0=13476-7
 complex salts, ligand field theory 2=576
 conduction electrons, energy levels in a mag. field 0=1548
 cone polarization effects 1=12238
 configurational free energy of multi-component solid solution 1=6547
 continuum mechanics and irreversible thermodynamics 0=6689
 cooperative phenomena 1=15705
 cooperative phenomena, review 0=18178
 critical percolation probabilities, site problem 1=17385
 crystal-field effects, electron densities and mag. form factors 0=20770
 crystal-field stabilization, and site deformation in crystals and complexes containing transition ions 0=20729
 crystalline materials, theory of growth and interface motion 1=2523
 crystals, quasi-particle dispersion laws 2=18508, 23025
 cubic closed-shell metals, Born—Mayer consts. 0=11556-7
 cubic spinels, Madelung constant calc. 3=2689
 cubic symmetry functions 3=12901
 current carriers, kinetic coeff., damping theory, with and without mag. fields 1=14196
 d-bands in cubic lattices, energy levels 1=4978
 dangling bonds in III—V compounds 1=2366
 Debye characteristic temp. of various solids 1=915
 Debye temp. calc. from elastic consts. 3=20110
 Debye temperatures, calc. for some crystals 1=14184
 Debye Θ calc., extension of Houston's method 1=3608
 density of states, moment singularity expansion 2=23024
 deuterium, ortho—para conversion, effect of dissolved oxygen 1=2355
 diamond, Ising model, statistics 3=12898
 diatomic chain, vib. spectra, functional equations 0=9843
 dielec. screening and self-consistent crystal fields 2=2041
 dielec. slabs, propagation effects on ferromag. resonance 2=6684
 dielectric props. of cubic ionic cpds 3=8546

Solids—contd

theory—contd

- dielectrics, thermal conductivity below Debye temp. 1=14187
 diffusion in binary system 0=13557
 dipolar lattice, statistical mechanics 3=10575
 dipole assembly on vibrating lattice, equil. approach 3=2715
 Dirac electrons, energy band structure 0=15832
 disordered 1-dimensional systems, electronic states 3=22673
 donor-acceptor pair energy levels 0=11602
 double magnetic resonance 2=23715
 double resonance, higher-order transitions, theory 1=1275
 drift mobility of ionic impurities in elec. field 2=3936
 Dyson—Schmidt eqn. for linear chain, soln. of 4=5086
 elasticity, moving dilation in semi-infinite isotropic solid 0=16657
 elec. conduction, Heitler—London approach 1=1248
 electric constitutive reln., nonlinear, at optical freqn. 4=15512
 electric current, space-charge-limited, for one type of carrier 3=10709
 electrical cond., calc., generalized kinetic eqn. 2=616
 electrical conductivity, rel. to current density at optical freqn. 3=8484
 electrical conductivity, surface effects, electron—phonon relax. time 1=3704
 electrical resistance, electron scatt. effects 3=25316
 electron band structure, one-O.P.W. approach 1=17440
 electron collective energy-loss mechanism for incident fast electrons 1=6102
 electron collective oscillations 0=11594
 electron config. f^n , matrix elements of tensor operators 0=6006
 electron distribution, calc. from atomic model 3=19934
 electron excitation energy migration, by virtual-exciton mechanism 0=21011
 electron gas, conductivity in strong mag. fields 0=12570
 electron gas, dielec. props., effect of the lattice 0=10009
 electron gas, long-range spin interaction, Meissner—Ochsenfeld effect 0=11611
 electron gas, nondegenerative, deviations from Ohm's law, variational approach 0=1624
 electron gas, transport in mag. field, quantum theory 0=4284
 electron-hole interaction, potl. energy 0=4280
 electron—lattice systems, strongly coupled, motion 3=10587
 electron in one-dimensional deep trap, energy levels 0=11755
 electron—phonon interact., quasiparticle transport theory 4=17389
 electron—phonon resonance 0=527
 electron—phonon system, kinetic eqns. 3=25249
 electron—phonon systems, Boltzmann eqn. deriv. 4=20236
 electron processes, kinetics 1=6079-82
 electron scatt., in high mag. fields by delta-function impurities 0=13575
 electron scattering, inelastic, in solids 0=7871
 electron scattering at surfaces 3=8404
 electron state, gaps, in disordered structures, possibility 3=20128
 electron system, weak excitation 1=11182
 f-electron terms, ang. momentum degeneracy 3=2749
 electron transport, effective scattering mechanism parameter, det. using thermoelectric power 0=11730
 electron transport at high temp. in presence of impurities, theory 1=12413
 electron transport, Landau's eqn., justification 2=23100
 electronic states, forbidden bandwidths for 1-dimens. periodic fields 0=17914
 electronic structure of disordered systems 1=12364
 electrons coherent propagation through absorber, dynamic theory 1=14242
 electrons in solids, field theory, self-consistent 2=12394
 elementary excitations 4=9803
 elementary excitations, effect of Coulomb interaction 0=530
 energy band calc., orthogonalized plane-wave method 0=2778

Solids—contd

theory—contd

- energy band structure, use of generalized
Koopman's theorem 1=11175
energy bands, in Ni, Co and their alloys 0=4267
energy bands in Se-type chain lattices 1=11178
energy levels, in distorted Coulomb field 0=6031
energy moment method for nucl. quadrupole splitting
of n.m.r. lines 2=16936
energy surfaces, toroidal, in crystals with wurtzite
symmetry 1=934
equation of state coeffs., rel. to u. s. measured
props. 2=16578
equilibrium props. of crystalline A, Kr and
Xe 1=14145
exchange, correlation and spin effects, review 2=14319
excitation energies in "tightly-bound" solids 2=2065
excitation intensity, depend. on luminophor storing level
depth 0=2958
exciton, localized, in photosynthetic system, diffusion
model 2=16633
excitons, Mott-type, scattering on Na 0=6035
Fermi surface, conference 1=11180
Fermi surface, conference 1=17462-3
Fermi surface, conference (New York, 1960) 2=2064
Fermi surface, effect of electron interactions 1=17454
Fermi surface, from magnetothermal oscillations 1=17457
Fermi surface, rel. to magnetoresistance 1=17615
Fermi surface theory 1=17452
ferromagnetic, Hamiltonian, spin wave
formalism 3=1130
focusing collision chains 3=22882
focusing collisions in a linear chain of atoms 1=17588
IV-IV and III-V cpds., many-electron model 3=778
free-carrier absorption, quantum theory 2=2223
free energy, anharmonic, at high temps. 3=25163
functional differential eqn. for statistical equilibrium,
solution 1=3590
 γ -ray resonance absorption 0=18992
graphite, electronic structure 1=3623
graphite, resonance energy from electron energy loss
in transmission 1=3650
group theory methods, appl. to spatial
symmetry 1=8871
group theory treatment 1=2361
group transitions in solid phosphors 1=14651
Grüneisen theory 0=15798
gyromagnetic solid conductor, e.m. wave propag.,
helicon waves 2=20160
H-bonded, tensile strength 0=13918
hard-metals, refractory, bonding 3=10567
hardness of nonmetals on atomic basis 2=4348
harmonic generation, second, rel. to electronic
band structure 3=25430
Heisenberg model, mag. suscept., Padé approx.
method 3=5005
hindered molecular rotation in solids 3=15417
Holstein-Primakoff formalism, mag. ordered
crystal 0=1539
"hot" electrons 2=631
hydrogen, ortho-para conversion, effect of dissolved
oxygen 1=2355
hyperfine interaction due to electrons with large
g-factors 2=2306
ice, effects in covalency of H bond 0=8662
ice, proton conductance in 0=4721-2
impact ioniz. of centres by electrons 3=8502
impact ionization, electron distribution 1=14220
impurity conduction, "dielectric" approach 0=6072
impurity diffusion, correlation effects 0=4307
impurity escape rate 0=555
impurity nucleus in Bravais crystal, Mössbauer
effect 4=12577
impurity solubility, Cottrell atmospheres 1=15155-6
incompletely polar crystals 0=20738
inert gas crystal stability, three-body interaction
model 4=28304
inert gas crystals, atomic multipole interactions 4=22453
inert gas crystals, many-body interactions,
analysis 2=10295
inert gas crystals, surface energy 1=7519-20
inert gas solids, ideal, using Mie-Lennard-Jones
potential 4=6712

Solids—contd

theory—contd

- inert gases, potential, rel. to lattice and thermal
props. 4=22454
inert gases, zero-point energies, eqn. 1=3583
insulating state, many-particle electron localization 4=9897
insulators, double injection in 2=4083
insulators, double injection, volume-controlled two-
carrier currents, theory 1=1036
insulators, e.m. props., theory 1=1118
interaction elastic and e.m. waves in solids 1=906
interaction of normal modes with electron traps 0=2806
intermetallic cpds. tetrahedral, mol. orbital
description 3=776
internal pressure at 0°K, quantum-mech. calc. 0=11551
ion transition probabs., radiative, in
4f configs. 3=25482
ion transport, effect of Hall fields 2=3950, 8252
ionic crystals, Pauling's theory 4=20149
ionic crystals, potential energy, in second approx. 4=1336
ionic crystals, simple, quantum-mech. box model 3=4796
ionic crystals, transition to metallic state 2=6761
ionic, d-electron covalency, Hartree-Fock method 4=12557
ionic, luminescent centres, relation of absorption to
emission probabilities 3=6666
ionic, NaCl type, Born repulsion, generalized Huggins-
Mayer form 4=12556
ionic, NaCl type, Born repulsions, Huggins-Mayer and
Pauling forms 4=12555
ionic, optical absorpt., polaron theory 3=13162
ionic, shielding and crystal fields at rare-earth
ions 3=6453
ionic, specific energy and multipole lattices 3=10568
ionization of local levels by elec. field 3=15453
ions, electronic polarizability 3=12909
irradiation effects, theory of displacement cascades in
cpds. 0=2820
irreversible processes 0=16649
Ising antiferromag. model, use in other problems 0=8066
Ising ferromag. model 0=11814
Ising lattice, long-range order parameter 3=3249
Ising lattice, two-dimensional non-planar, crit.
behaviour 4=22955
Ising lattices, configurations of spins 1=15713
Ising model with arbitrary spin and range of
interaction 2=2037
Ising model of cooperative phenomena, reformu-
lation 4=28782
Ising model, dimer statistics 3=14043
Ising model, free energy, rel. to lattice gas
pressure 3=16548
Ising model, with impurities, spin-pair correl.
function 3=25162
Ising model long-range interact. 3=12899
Ising model, mag. props., Padé approximant
method 1=17946
Ising model, matrix calc. approx. 2=18506
Ising model, partition function, combinatorial
approach 4=1337
Ising model, perpendicular susceptibility 3=8327
Ising model and self-avoiding walks on hypercubical
lattices 4=9806
Ising model series, coeffs., asympt. form 3=16546
Ising model, specific heat, Padé approx. method 3=5005
Ising model, time-depend. statistics 3=14045
Ising model, two-dim., spin correlations 3=13239
Ising model with weak interplane interact., thermo-
dynamics 4=12637
Ising systems with long-range forces, stochastic
fields 3=23779
isotropic lattices, neutron scatt., theory 2=2047
LCAO calc., inversion of cyclic matrices 4=25870
lattice gas, fugacity expansions, convergence 4=83
lattice gas, triangular, supercritical region 4=84
lattice energy current of elastic waves 3=25186
lattice energy of molecular crystal 3=12897
lattice of oscillations, normal modes, with many resonances
and dipolar-coupling 0=9841
lattice statistics, review and exact isotherm 3=12910
lattice sums evaluation, Madelung method 0=7836
lattice thermal cond., effect of point imperfections 0=20795
ligand field theory, spin-orbit coupling 3=25161

Solids—contd

theory—contd

- linked cluster expansion applicable to nonspherical situations 0=14527
- long-range interactions in ionic mixtures 1=7514
- long-wave absorption, 0=6174
- low-temp. props., thermal cond., paramagnetism, and dielec. losses 1=12359
- macroscopic props. and atomic structure, review 0=4260
- magnetic crystals, symmetry props. of wave-functions 2=18884
- magnetic fields at nuclei in metals, alloys 3=8342
- magnetic helical structure, scatt. of polarized neutrons, calc. 3=6718
- magnetoelectric effect 3=17811
- magnetoelectric and thermoelec. props. in tetragonal crystal 3=25317
- mag. shielding of a nucleus by free electrons, calc. 1=11144
- many-body problem in 2=579
- many-electron model, s.c.f. approach 0=516
- many-electron problem, wave-field approach 2=20957
- many-particle theory, periodic ground states 0=12885
- masers, optical, review 3=7728
- mean free path, and conductivity, thermal wire, dia. var. 3=22672
- mechanical damping due to dislocations, theory 2=8707
- mechanical strength 0=10272
- metal atom in solid inert gases, orbital degeneracy removal 4=6460
- metallic—non-metallic transition in atom array 1=4961
- model solids, electron energy level wave-function calc. 2=10348
- modulation of light by microwaves in paramag. crystals 1=1145
- molecular, cohesive energy, electronic correl. dispersion contrib. 4=28300
- molecular crystals, close-packed arrays 3=13391
- molecular crystals, excitation-energy migration, rel. to luminescence polarization 3=11000
- molecular crystals, X-ray diffuse scatt., temp. depend. 2=8160
- molecular, many-body interactions analysis 2=10295
- Mössbauer effect applications 1=13630
- Mössbauer effect, review 2=18512
- Mössbauer effect, semiclassical theory 2=9999
- Mössbauer effect, temp. depend. of γ -ray energy 0=11314
- Mössbauer interference expts., Debye—Waller factor 1=11146
- Mössbauer resonance, second-order Doppler shift, surface effects 2=23047
- μ^+ -meson depolarization in matter 3=15416
- multi-component systems, non-uniform, free energy and distrib. function 0=16630
- multi-phonon thermal ionization 0=11605
- noncrystalline, defect mechanisms 2=2418
- non-cubic crystals, rotational props. of e.s.r. spectra 1=20196
- nonlinear optical effects 2=4108
- nonmetallic, many-electron perturb. theory 3=25239
- nuclear, dynamic polarization by thermal mixing of two spin systems 4=1344
- nuclear magnetic resonance, effect of mol. rotation 2=21385
- nuclear orientation, dynamic, by forbidden transitions in paramag. resonance 0=5654-5
- nuclear polarization, effect of ESR structure 1=1272
- nuclear spin-lattice relaxation 2=18954
- one-dimensional model, statist. mechanical theory 4=3995
- one-electron functions, rel. to relevance of symm. components 2=23102
- one-electron problem in insulators and semiconductors, many-particle approach 0=1546
- I—V cpds., covalent bonding 2=6247
- optical absorption by neighbouring ion pair in co-operation 2=14665
- optical absorption by pair of ions 4=15580
- optical props., spatial dispersion and exciton theory 4=10145

Solids—contd

theory—contd

- optics, data interpretation using dispersion relations 2=6535
- opto-electronics, review 2=14411
- order-disorder model, 1-dimens., which approaches second-order phase transition 1=9149
- order-disorder theory, spin-pair correl. functions 2=12877
- order-disorder transformation in b.c.c. lattice, Monte Carlo calc. 1=20590
- para- and diamagnetism of conduction electrons, separation possibility 1=11410
- n-paraffins, phase transitions 3=18020
- paramagnetic, proton mag. resonance, line shape 1=14826
- particle concepts, quasi-particles, review 1=887
- particle-hole inversion in Fermi surface, collective excitations 2=3872
- "particles" of solid state physics, new unifying concept 4=15395
- percolation probabilities, critical, bond problem 1=12346
- periodic-lattice electron-density, effect of boundary conditions 0=15830
- periodic lattice, Schrödinger eqn. soln. 2=10345
- periodic lattices, energy bands, Green's function method 2=2060
- phase transitions, "linear", theory, rel. to Ehrenfest's eqns. 4=1973
- phase transitions of second kind in Bose—Einstein exciton condensation 4=6804
- phonon field Green's function 1=14175
- phonon interact. with electron—hole field 3=751
- phonon-phonon scatt., resonance 2=3836
- phonon spectrum, dependence on free-carrier conc. 1=2375
- π -band calc., using self-consistent theory 0=4277
- piezoelec. crystal, ultrasonic amplification 4=6735
- piezoelectricity, space-time variations 0=10024
- Pippard's relns. deriv. for cryst. media 3=8357
- plasma acoustic wave amplification, u.s. 3=22633
- plasma, collective excitation and stability 2=20977
- plasma, electron-hole, collective behaviour, theory 1=1847
- plasma, electron-hole, cylindrical, instability in mag. field 2=2069
- plasma, equilibrium of electrons, plasmons and phonons 2=3881
- plasma frequency, formula, from electron collective oscillations 0=11594
- plasma oscillation of electrons, effect of crystal size 0=15831
- plasmons, decay at absolute zero 1=5648
- polar crystals, lattice anharmonicity and optical absorption 2=6556
- polaron mobility 1=14228
- polycrystal mixture, three-dimensional model 4=26683
- positron lifetimes in 2=6306
- positronium decay in molecular substances 0=20115
- precipitation, diffusion-controlled, in presence of sources and sinks 1=20599
- quadrupole interaction crystals 1=9968
- quantum, book 4=9802
- quasi-particle motion, in weakly homog. mag. field 3=2702
- range of atoms, Monte Carlo calc. for Thomas-Fermi potential 4=25977
- range of energetic atoms 3=10571
- rare earth compounds, low-lying states 0=11598
- rare-earth ions, hyperfine fields, spin-orbit coupling and nucl. mag. moments 2=12646
- rare earth metals, 4f shells, indirect interact. 3=3076
- rare earth metals, virtual bound state model 3=2756
- rare-earth salts, spin lattice relaxation 2=778-9
- reaction-kinetics, differential eqns., premission method 1=19732
- recombination processes, diffusion theory 2=2655
- relaxation phenomena near second-order transition pt., theory 2=23805
- relaxation phenomena, stress tensor, thermodynamic calc. 1=7818
- repulsive potential, theory criticism 1=17386
- resistance, electrical, impurity, theory 3=22885
- ruby, lattice sum evaluations of spectral parameters 4=28306

Solids—contd**theory—contd**

- scattering processes in crystals, group theory 1=17392
- Schottky effect, periodic deviations, numerical analysis 3=424
- second harmonic generation from cond. tensor 4=17543
- second harmonic generation of light 3=15641
- second sound, crit. freqn., macroscopic theory 3=25193
- self-consistent field eqns. with correlations 1=1702
- semiconductor surfaces, energy level diagrams 1=1062
- semiconductors, optical and nonradiative transitions 3=23032
- semi-metals, amplif. of ultrasound in elec. and mag. fields 3=15433
- semimetals, Azbel'—Kaner cyclotron resonance 3=785
- semimetals, bipolar electronic thermal cond. 2=23087
- semimetals, conductivity tensors 2=18642
- semimetals, u.s. attenuation in mag. field, calc. 0=13504
- Shockley surface electron states 1=941
- slowing down of high-energy particles 2=14478
- sound amplification by cond. electrons, mag. field depend. 3=25194
- sound waves in ionic crystals, non-linear effects 0=17886
- space group selection rules, diamond and zincblende 2=19065
- space groups, role in theory of solids 1=6508
- specific heat, Thirring's expansion, extension of range of validity 1=17411
- spherical energy surfaces and elec. props. 2=14484
- spin absorption 1=20251
- spin coupling, Heitler-London method 3=6385
- spin diffusion in inhomogeneously broadened systems 2=6695
- spin energy, spatial diffusion, calc. 0=1823
- spin and harmonic oscill. systems, relax. 3=7137
- spin—lattice relaxation in cubic and other crystals 1=12565
- spin—phonon resonance lines, broadening by exchange and mag. dipole interactions 0=13509
- spin polarization effects on electron densities and mag. form factors 0=20770
- spin relaxation, Fokker-Planck eqn. 3=1623
- spin—spin interactions, statistical theory 4=26355
- spin systems, quasiequil. states, thermodynamics 4=7209
- spin waves, dispersion relations 1=1199
- spiral spin configurations, anisotropy effects 1=14668
- statics of crystalline media 0=9837
- statistical mechanics of crystals, Yvon method 2=16579
- statistical model, cohesive energy rel. to exchange correl. 4=6676
- statistical model with exchange correl., eqn. of state 4=6677
- superexchange interaction 0=21085
- superexchange interaction, four-electron model 0=21059
- surface atoms, dynamic behaviour calc. 4=9823
- surface states associated with adsorbed atoms 1=940
- surface states in finite crystal 1=14156
- surface states, Shockley-type 2=8203
- surface tension, rel. to bond energy 4=10595
- tensor non-linear relations, anisotropic 3=22619
- thermal conductivity of diel. crystals at low temp. 1=923
- thermal lattice defects and energy content 0=6038
- thermally stimulated current 0=15896
- thermodynamics, second law, for system with different lattice and spin temperatures 1=11142
- thermoec. figure of merit, rel. to conduction band-width 2=14589
- Thomas—Fermi theory for particle density 3=697
- transitions between metallic and insulating states 0=20775
- transition metal hydrides, nature of interatomic interaction 1=891
- transport phenomena, high-order anharmonicities 4=3954
- III-V compounds, mol. effective charge and atomic polarizabilities 3=17637
- transport coeffs., thermal Green's functions 3=23804
- transport processes, quantum theory 3=12938
- tunnelling through thin films with traps 3=825
- two-spin system, relaxation 3=1624
- u.s. amplification in semi-metals in elec. or mag. fields 2=15684

Solids—contd**theory—contd**

- u. s. attenuation, Weinreich relation 2=3830
- ultrasonic microwave interaction with electron spins 3=8351
- vacancy formation energy, 3-body interact. 3=20163
- vacancy-interstitial annihilation, kinetics 2=3830
- vacancy relaxation 0=11628
- valence electrons, pseudopotential theory 2=15464
- valence states, effect of orthogonalization process 2=10351
- valency, impurities or lattice defects, i.r. absorpt. 3=10928
- Van der Waal's crystals, polarization waves 4=15442
- Van der Waal's forces, general theory 2=6243
- Van der Waals, paramag. impurities, variational theory 3=25274
- van der Waals solids at 0°K, law of corresponding states 0=17868
- vaporization, diffusion limited, rate enhancement 4=24452
- vapour pressure ratio and anharmonic forces for monatomic isotopic solids 4=24451
- variational principle for elec. cond. calc. 1=7019
- vibrational modes in disordered systems 3=10582
- vibrational thermodynamic props., anharmonic contrib. 2=568-9
- Vlasov equation for crystal density variation 3=17639
- Wannier functions, generalized, orbital theory 3=6452
- Wannier's theorem, proof 2=18544
- wavelike excitations scatt. by localized imperfections 4=20148
- weak-coupling rate eqns., initial conditions 3=12935
- zener emission, non-observation of Stark ladders 2=4051
- A¹¹¹B^v semiconductors, ionic effective charge, calc. 4=30495
- Au¹⁹⁷ Mössbauer absorption, chemical shifts, theory 1=17391
- Bi, Fermi surface, rel. to electron-annihilation γ -rays 1=2046
- Bi, Fermi surface, rel. to electron-annihilation γ -rays 1=3151
- Bi, hole part of Fermi surface 0=13519
- Bi-type crystals, electronic structure 0=17910
- C polycyclic compounds and structures, electronic props. 1=3763-4
- Co, 6H₂O²⁺ trigonally distorted complex, mol. orbital theory 4=28307
- CrO₂, anomalous temp. dependence of lattice const. 1=15079
- Cr₂O₃, mag. and optical props., ion pair model 3=25503
- CsCl structures, Grüneisen parameters rel. to temp. 3=4826
- CsI, quantum-mech. box model 3=4796
- Fe alloys, exchange interaction study 4=12602
- Fe-rare earths, mag. props. of Fe, electronic theory 2=10300
- Ge, X-ray scatt. factor, imaginary part 1=11559
- H-bonded solids, double-minimum potentials 2=14351
- H, cooperative transition phenomena 3=6450
- HgO, atomic velocity distrib. at 77°K 0=6794
- KNiF₃, covalency, LCAO—MO model, 3=12893
- LiF, quantum-mech. box model 3=4796
- MgO, F-centres, Γ_1^* and Γ_4^* state wave functions 3=25301
- MnB, covalent 2sp bonding 3=6488
- β -MnS, spin arrangement, Moriya interact. appl. 2=12796
- NaCl, eqn. of state, Grüneisen const. 3=25205
- NaCl, equation of state 3=15447
- NaCl, hole bonds 0=2807
- NaCl, quantum-mech. box model 3=4796
- NaCl-type normalization integral and mean ionic charge, statistical calc. 4=12558
- Ne, at 0°K, quantum variational calc. 4=20150
- o- and p-H mixtures 1=15846
- Si, model, effects of uniaxial strain 3=4797
- Sn, grey and white, interreln. 3=11209
- TiO₂ (rutile), electronic suscept. theory 4=13123
- Zr—O crystal, cohesive energy, Ligand field treatment 4=9807

Sols

- See also Colloids; Sedimentation
- disperse systems, ionization equilibrium 3=21696
 - hydrosols, number concn., particle size analysis 3=3415
 - light scattering by hydrosols 1=16114
 - silica, mixtures, X-ray scattering 0=12053

Sols—contd

- specific heat measurements 0=18443-5
 suspensoid, stable, viscous flow theory and meas. 1=15792
 Ag, AgBr, Ag₂S, zeta potential 2=1381
 AgBr, monodisperse, higher order Tyndall spectra 3=13629
 AgBr monodisperse, light scattering 4=15852
 As₂S₃, stability, var. with particle size, colorimetric study 4=10665
 Au hydrosol in KCl and BaCl₂, slow coagulation, kinetics 4=10661
 Fe₂O₃, hydrous, stability rel. to dielec. const. 4=4719
 V₂O₅, streaming birefringence and optical relaxation 0=3333

Solubility

- See also Phase equilibrium
 A^{III} B^V cpds., solubility of components rel. to lattice parameter 4=28993
 alkali halide-metal systems 2=17449
 alkali halide systems, crystalline solubility 4=20692
 alloys, ferromag.-non-mag., miscibility gaps and Curie point, calc. 4=13466
 aqueous systems, det., high pressure vessel 1=18344
 binary alloys, immiscibility 0=21244
 binary mixtures, liquid and vapour composition calc., from dew and bubble isotherms 4=14454
 calculation, solids in molten reciprocal salts 4=14136
 crystal faces 0=13935
 crystals, radiation effects 3=20188
 cubic crystals, dissolution shape and anisotropy 1=14982-4
 electrolytes in mixed solvents, molar volumes 4=2659
 ferric oxide, in NiZn ferrites 0=21232
 flaws in heavily-doped semiconductors 0=15916
 gas in low-temperature liquid, meas. apparatus, down to 14°K, up to 10 atm. 3=9453
 gaseous mixtures in liquids 0=6782
 gases, immiscibility, He-Xe conditions obs. 4=5215
 gases, in liquids, radioactive tracer meas. 4=8172
 gases in liquids from rate of reaction meas. 2=2713
 gases, in liquids, slightly soluble 4=8171
 gases in non-polar solvents, heat of soln. and partial molar vol. 4=5155
 gases, in polyethylene terephthalate 3=11305
 gases, vapours in liquids, det. by gas chromatography 3=3798
 gelatine, in distilled water, effect of α -rays 3=5170
 impurity in solid, and crystal imperfection structure 4=6820
 inert gas in a metal 3=25314
 inert gases, in sea and fresh water 3=23877
 irradiated polymers, analysis 0=7820
 in liquid metals, kinetics 4=5156
 metals in Hg, value of S, explanation 1=9387
 metals in polar electrolytes, spontaneous dissolution 4=2656
 and mol., intermolecular attraction, different types 4=25763
 naphthalene, in compressed gases 3=304
 naphthalene, in compressed nonpolar gases, rel. to spectral shifts 4=6633
 Noyes-Nernst equation, modification 3=11787
 ozone, liquid, miscibility with liq. F and O 2=21904
 quartz particles 3=16128
 radioactive substances synthetic, determ. 4=8170
 semiconductor-impurity systems 2=9452
 silica glass, "water" solubility, thermal history influence 4=15493
 solids, survey 2=14346
 III-V semiconductors, mutual solid solubility, flash evap. meas. 4=15726
 toluene-Hg diphenyl, solid, mutual 4=10408
 transition elements in liq. Al, soln. rate 3=16614
 Ag, in Bi₂Te₃ 2=18606
 Ag in GaAs 4=1512
 Ag, in Ge 2=12454, 14458
 Ag, in Ge : Sb, P 0=16351
 Ag in Si, 1200-1390°C 1=3688
 AgBr, in NaNO₃, KNO₃ or mixtures, e.m.f. meas. 4=14136
 AgI, in NaNO₃, KNO₃ or mixtures, e.m.f. meas. 4=14136
 Al-Ag alloys, G.P. zone formation and miscibility 2=15067
 Al, Ga, in Ge, solid state 0=12080
 Al₂O₃, in molten PbF₂ 4=29614

Solubility—contd

- α -Al in U, Pu, limits 4=13460
 A, O₂, N₂, in liq. H₂, 20-33°K, 35 atm 0=75
 Ar in distilled water 4=11184
 Ar, in H₂O 4=159
 Au in Ge, 500 to 870°C, by elec. resistance 4=26539
 BaSO₄, effect of radioactive S³⁵ 0=14646
 Be, impurities 3=25272
 C in α -iron, C¹⁴ technique 0=4684
 C, in Co-Ni alloys, at 1000°C rel. to electronic structure 4=7470
 C in Ni and Ni + Fe 3=5117
 CaC₂ in fused salt system 2=1143
 CaF₂, fluoride, solubility in aq. electrolytes 3=23874
 CaH₂ in Ca at 890°C 2=2405
 Cd, in Ge 0=553
 Cd in Bi₂Te₃ 4=2507
 CdTe in PbTe and SnTe, solid solubilities 4=23262
 Co binary solid solutions, with Al, Ga, Si, Ge, Sn 3=16121
 CsCl-RbCl, CsCl-NaCl systems, from Debye-Scherrer photographs 4=28996
 Cu, in Al, from rigidity modulus 2=14872
 Cu, in extrinsic and intrinsic Ge, Si and GaAs 4=12791
 Cu, in GaAs, 600-1000°C 4=15536
 Cu, in InSb, substit. and interstit. 3=17783
 Cu-Si-Zn limits 4=20758
 CuO-Cu₂O, CuO-CuS, CuO-CuBr systems, from Debye-Scherrer photographs 4=28996
 Fe in Al, zone refined, var. with temp. gradient 4=13457
 Fe in Be 2=12455
 in Fe-C, rate, and diffusion, 7 elements 4=18190
 Fe, in Ge 1=11583
 Fe, in Ge : Sb, P 0=16351
 Fe, in Mg, solid, maximum 3=11299
 Fe₂O₃, excess in NiZn ferrites 1=6487
 Ga in Ge, from saturation current in p-n junct., 360°-550°C 4=30793
 GaSb, GaAs and GaP in liq. Ga 3=21333
 Ga₂Te₃ and Ga₂Se₃ in GaSb, solid soln. ranges, determ. by lattice parameter meas. 4=28997
 Ge, of impurities, maximum, and m.p. distrib. coeff. 3=20910
 Ge, interstitial impurities, theory 1=17506
 Ge, in liquid metals 0=19119
 in Ge, solid, of impurity elements 0=18396
 Ge, in ZnGeAs₂, CuGeP₃, X-ray, thermal obs. 4=4496
 GeTe, in PbTe and SnTe 2=17055
 H in alloys of MgCu₂, structure, theory 4=30792
 H halides, var. solvents, temp. 4=24177
 H, in Mo, during H₂ = 2H reaction using Mo catalyst 4=20117
 H, in Pd, phase transformations, isotherms hysteresis 3=25750
 H in Ti-Nb and Ti-Mo, rel. to magnetic susceptibility 1=10130
 H, in W, during H₂ = 2H reaction using W catalyst 4=20117
 H and D, in liquid argon 0=19118
 H-D, mutual, at 4.2°K 0=12099
 H₂ in Cu 3=20220
 H₂, in liquid pure Co, Cr, Cu and Ni 4=5157
 H₂, in steel cavities, equilib. pressure 0=18391
 H₂, in Vycor glass 0=5051
 He in liq. H₂ 4=18182
 He in H, temp. correction 3=24112
 He, in liq. H₂, rel. to temp. and press. 2=17451
 He, in Vycor glass 0=5051
 He-Xe gas system immiscibility conditions obs. 4=5215
 He³-He⁴ liquid mixtures, phase separation near 0°K 1=18689
 HfC-UC at 2000°C, meas. 3=25759
 Hg in compressed A 2=5009
 Ho in solid Cu, Ag and Au 4=13459
 In emitter material in Ge transistor 1=3781
 InAs, InSb and InP, in liq. In 3=21333
 InSb, solubility of impurities 4=4075
 InTe in PbTe and SnTe, solid solubilities 4=23262
 KBr, in NH₃ 2=15576
 KCl-NaCl system, from Debye-Scherrer photographs 4=28996
 Kr in liquid Cd and In 2=52
 Kr, in liquid Pb, Sn, Ag 0=19120

Solubility—contd

- Li, in GaAs, elec. and chem. study 2=18599
 Li in GaAs rel. to Zn and Te doping 3=10818
 Li—Li halide systems 2=15577
 Li in ZnO 1=17764
 LiF, in aqueous solution, poisoning 0=21159
 LiF, dissolution kinetics at dislocation etchpits 0=13968
 LiF—KF molten system, molar mixing enthalpies 3=21338
 N, in polyethylene 0=12066
 N and C, in steel, cold-rolled, transformer 4=26541
 N and O in liq. H at 27°–33°K, meas. 2=11365
 N₂ in distilled water 4=11184
 N₂ in Be, X-ray diffraction study 3=20908
 N₂ in H₂O 4=159
 N₂ in H₂O, isotope effect 3=9450
 N₂ in Vycor glass 0=5051
 NH₃ in water, equil. between vapour and soln. 3=21336
 NaCl, effect on deformation under applied stress 0=10261
 NaNO₃ in NH₃ 2=15576
 NaOH, in water, rel. to freezing point 3=7387
 Ne, in Vycor glass 0=5051
 Ni, in Be, X-ray diffraction study 3=20908
 Ni in liquid Na, determ. by tracer technique 2=5008
 Ni in Ni ferrite 2=2415
 Ni, solubility of H and D 1=6114
 Ni, solubility of H and D 1=11227
 NiFeO₂—Fe₂O₃, rel. to temp. 1=12641
 Ni in Si, meas. 4=4497
 Ni in Si, solid, 900° to 1350°C 3=3338
 Ni in Si, solid-solubility meas. 4=4497
 O₂ in distilled water 4=11184
 O₂ in Be, X-ray diffraction study 3=20908
 O₂ in Ge, meas. by i.r. absorption 1=3662
 O₂ in H₂O 4=159
 O₂ in H₂O, isotope effect 3=9450
 O₂ in Nb alloys, rel. to magnetic susceptibility 1=20040
 O₂ in Si 3=15579
 O₂—CF₄ liquid system 3=21334
 P, in Fe 0=18348
 PbTe, in GeTe and SnTe 2=17055
 Pu, in Al, 600°C 1=17561
 S, in methanol and petroleum, and phase transform., β - γ , -88.5°C 4=23288
 Sb, in solid Sn 1=15160
 in Sc, solid, of impurity elements 0=18396
 Se, in liquid metals 0=19119
 Si, of impurities, maximum, and m.p. distrib. coeff. 3=20910
 Si, anodic dissolution 2=857
 Si, interstitial impurities, theory 1=17506
 Sn in GaP, in growth 4=28999
 Sn, in Ge 1=11583
 SnTe, in GeTe and PbTe 2=17055
 Ta, in Ge, temp. and elec. cond. depend. 0=1599
 Te, in Ge 2=21063
 Te, in Ge 3=2825
 Ti, in Ag metal 1=15162
 Ti, in Be, X-ray diffraction study 3=20908
 Ti, in Ge 2=12460, 14465
 TII, in NaI crystals 0=16356
 WC in Co, rel. to temp. 1=9144
 Y, in Be, X-ray diffraction study 3=20908
 Zn-blende-type binary cpds., mutual, rel. to semicond. props. 2=23414
 Zn, in Cu, at 153–260°C 2=15072
 Zn, in GaAs 3=16122
 Zn, in GaAs and GaP, 700° to 1100°C 4=13458
 Zn, in GaP 3=10686
 Zn, Sn, and Ag, in liquid Hg 4=5156
 Zn, in solid Mg 2=17056
 Zn from vapour in ZnO powder 1=2395
 Zn—Sn—Bi system, miscibility gap, calc. from thermodynamic functions 1=142
 ZnAl₂O₄, in molten PbF₂ 4=29614
 Zn in GaP 4=12790
 Zn in InP, 600°–900°C meas. 4=22619
 Zr, in Be, X-ray diffraction study 3=20908

Solution energy

See Heat of solution

Solutions

See also Heat of solution; Liquids; Solid solutions
 absorption, light, var. with intensity 4=16241
 acetone and isopropanol mixtures, boiling pt. and surface tension 1=15858

Solutions—contd

- acetone, in various solvents, dielec. props., structure 3=21386
 acetone—water, light scatt., Rayleigh, and hypersound dispersion, density and concn. fluctuations 1=4341
 acetonitrile, O₂, u.v. absorption spectra 2=5020
 acids, inorganic, compressibility, formula 1=1736
 acids, strong H₃O⁺ and OH[−] n.m.r. proton shifts 4=5212
 acriflavine, fluorescence lifetimes 4=29636
 activity coeffs., for binary, thermodynamic, consistency, 15 tests 3=11788
 addition copolymers, electric birefringence, meas. 4=5179
 alcohols, aqueous, nuclear magnetic resonance due to proton exchange 1=8144
 aliphatic hydrocarbons, Cl-subst., in benzene and n-heptane, dielec. relax. 1=4353
 aliphatic primary alcohol—CS₂ binary system, miscibility gaps 3=23875
 alkali and alkaline earth halides in methanol, absorption spectra 4=2683
 alkali—halide—metal systems, nature of bonding 2=17449
 alkali halide solns., proton resonance shifts 1=8143
 alkali halides, rel. to crystal structure 2=10399
 alkali halides, supersaturated, latency times 3=21339
 alkali metal in molten alkali halide, conductivity, electrical 3=18829
 alkali metals, in alcohols, property fluctuations, light scatt. study 4=24174
 alkali metals in liquid ammonia, decomposition 2=2447
 alkali nitrate melts, $n \rightarrow \pi^*$ electronic transitions 1=6861
 n-alkane mixtures, volume contraction on mixing 0=3518
 alkylammonium salts, hydrogen bonding 4=22386
 alkyl chlorides, dilute solutions, dielectric relaxation 1=12896
 amides, i.r. and Raman spectra rel. to dimeric manifestations 2=7218
 amine—chloranil complexes, absorption spectra 3=1694
 amino acids, aq., with dissolved O₂, complex formation 2=6881
 ammonium ion, second-order effects in n.m.r. 1=8142
 aniline—cyclohexane, critical opalescence 2=17450
 aniline—cyclohexane mixtures, u.s. propagation 0=19131
 anilines, dilute solutions, dielectric relaxation 1=12895
 of anisotropic rods, luminous intensity 0=19449
 anthracene, dilute, Kramers—Kronig relation 3=16627
 aqueous, acoustic relaxation, meas. principles and methods 0=19124
 aqueous, adsorption on, two-dim. soln. model 2=9270
 aqueous, with D₂O isotope, effect on α - and β -irradiation 2=4557
 aqueous, decomposition by ionizing radiation, activity concept 0=1963
 aqueous, dielec. const. meas. method, dissipation const. up to $\tan \delta = 0.87$ 4=21150
 aqueous, dielectric constants 0=945
 aqueous, dielectric props., review 1=6868
 aqueous, e.s.r. spectrometers, sensitivity 3=17063
 aqueous, elec. cond. of proton, energy of activation 1=15901
 aqueous, enriched in O¹⁸, radiolysis 1=6577
 aqueous, equimolecular, speed of sound 4=8205
 aqueous electrolytes, acoustic velocity 4=29625
 aqueous, hydrated electron, absorption spectrum 3=6926
 aqueous, of hydrocarbons, model for thermodynamic props. 2=17444
 aqueous, n.m.r. of Li⁷, Na²³, Rb⁸⁷ with paramag. ions, chem. shifts 4=16128
 aqueous, n.m.r. study of O¹⁷ relaxation 2=19581
 aqueous, nitrates, compressibility 0=14640
 aqueous, nucl. relax. times, effect of C particles 2=5030
 aqueous, of 1-1 electrolytes, n.m.r. 2=7230
 aqueous, photo- and radiation chem. conversion of solvated electrons into H atoms 3=3405
 aqueous, positron annihilation in 0=9343
 aqueous, pressure effects on charge-transfer and transition metal ion spectra 3=1690
 aqueous, proton hydration enthalpy 3=21337
 aqueous, proton mobility and electron exchange 4=15833
 aqueous, radiation chemistry, pH dependence 2=10988

Solutions—contd

- aqueous salt solns., microdetermination 4=4721
 aqueous, of solutes, diffusion meas. apparatus test 4=27169
 aqueous, sound characteristics 2=19559
 aqueous, supercooling, rel. to structure 4=157
 aqueous, of surface-active agents, surface tension, dynamic props., h.f. standing capillary waves 1=130
 aqueous, X-ray irradi., yield of e and H atoms 3=3410
 aromatic cpds. in nonpolar solvents, electronic spectral shifts, dispersion theory 4=2688
 aromatics, condensed-ring, absorption spectra, effect of high pressure and low temp. 0=15733
 aromatics in solution, fluorescence decay 1=12888
 aromatics in solution, fluorescence decay 1=15889
 asphalt, deuterated, n.m.r., surface proton 4=5213
 asphalt, double resonance and proton relaxation 2=19582
 asphalt, paramag. resonance 2=2734
 asphaltene, electron-proton double resonance 3=7221
 associated ideal solns. 4=29613
 azide, photolysis of aqueous solns. 3=6922
 benzene-CCl₄, refractive index and dispersion 0=10667
 benzene, in CS₂ and CCl₄, proton spin-lattice relaxation 0=14664
 benzene-iso-octane, vapour-liquid equilibrium 0=6781
 benzene-methanol, refractive index and dispersion 0=10668
 benzene, O₂, u.v. absorption spectra 2=5020
 benzene-propyl alcohol, density distrib., near critical point of liquid-vapour system 4=24184
 benzene scintillators, luminescence decay times and energy transfer 0=19159
 benzene substituents, abnormal n.m.r. saturation behaviour 0=19170
 benzenes, monosubstituted, electronically excited, solvent effects 1=12278
 binary, effect of impurity on phase transt. 2=15579
 binary, hole theory 1=5269
 binary liquid mixtures, critical opalescence 2=17450
 binary metal solns., free surface energy, statistical electron theory 3=23485
 and binary mixtures, characteristic sound lines, adiabatically and isothermally measured 4=5177
 binary mixtures, eqns. of state 3=9451
 binary solutions, molec. scatt. power, in Raman scatt. 3=21372
 binary, transport props. 2=21905
 binary, ultrasonic wave propag. 1=18401
 biphenyl negative ion, e.s.r., exchange effects and anisotropy broadening 1=15906
 4,4'-bis (diphenylmethyl) biphenyl, trapping in solution 4=24241
 broadening of scattering line 0=3530
 bromides, aqueous solutions, ion exchange and approach distance 1=18398-9
 t-butanol, organic, n.m.r., p shift, and H bond 4=1251
 butyl alcohol, in water, proton relax., conc. depend. 4=21159
 butyl ether, of ethylene glycol, in water, light scatt. 4=24214
 calcite, in aq. solns. of 4 chlorides, 350-500°C, 100-1800 atm 1=15863
 capillary flow, exptl. re-evaluation 3=16597
 cellulose acetate in acetone, u.s. vels. 3=14161
 chain molecules, theory 1=8106
 chain mols., temp. depend. of excluded volume 4=8175
 chain-polymer, radial distrib. function and osmotic press. calc. 0=14641
 charge transfer and fluorescence quenching 0=19162
 chem. reacts. rel. to dielec. const. of solvent 2=17440, 19550
 chemical analysis X-ray, atomic numbers > 25 4=26771
 chlorides, aq., positron lifetime in 1=18436
 chlorobenzene, in CS₂ and CCl₄, proton spin-lattice relaxation 0=14664
 chloroform-CCl₄, dipole interactions 0=935
 chloroform in cyclohexane, self-association const. 2=2703
 chlorophyll, aggregation state, optical study 1=6863
 classical multicomponent fluids, theory 1=1050J
 collidine, in water, conc. fluctuations, ligh-scatt. study 3=21365
 complex mols., excited, solvent dipole reorientation 4=186

Solutions—contd

- complex organic cpds., viscous, photodichroism 3=23881
 complex mols., oscillator strengths from light dispersion 4=2681
 convective diffusion, of solute, in turbulent flow 0=78
 copolymer, light scattering 0=14851
 copolymer, sequence, study by light scattering 3=18443
 correlations at critical point 2=13326
 corresponding states theorem, appl. to viscosity and diffusion 1=138
 Cotton-Mouton effect 2=123
 critical mixtures, absorption and dispersion of sound 2=13336
 critical mixtures, heat capacity theory 2=13325
 critical opalescence, free energy, and density correlations 0=19093
 critical props. of mixtures 2=21897
 critical props. of mixtures 3=16844
 crystal growth, concentration distribution 0=4586
 cyclohexane binary liq. mixtures, thermodynamic props. 4=18191
 cyclohexane, in CS₂ and CCl₄, proton spin-lattice relaxation 0=14464
 cyclohexane as solvent for polar mols., effect on dielec. relaxation 4=197
 DNA, transition-metal binding 2=11393
 DPPH, proton hyperfine spectra 0=10680
 diamagnetic salts, spin-lattice quadrupole relaxation 0=8669
 dielectric constant, in strong elec. fields 0=19141
 dielectric constants, associated solutions 4=8217
 dielectric loss meas., with e.m. interferometer 0=10664
 dielectric phenomena, review 1=1125
 dielectric properties, behaviour at miscibility point 1=6871
 dielectric relaxation 0=5020-1
 diethyl ether solutions, of organic halides, photoconductivity 0=19151
 diffusion, Einstein's law, effect of solvent viscosity 0=14633
 diffusion kinetics, solute depletion 1=5274
 diffusion, near critical point 4=21113
 diffusion in solvents, with large molar volume 2=7203
 diffusion, thermal cross-coefficients, constancy 4=374
 diffusion in 3-component solns. near critical pt. 4=29618
 diffusion, of 3 ion species 3=21327
 dilute, dimensions of rigid particles 2=19557
 2,5-dimethylpyrazine in hydrocarbon and EPA glasses, solvent effects on n → π* transitions 0=15742
 dinitrobenzene, e.s.r. splitting consts rel. to colls. with solvent molecules 3=4776
 diphenyl cpds., in benzene, CCl₄ and heptane, microwave absorption, relaxation 0=19147
 diphenyloxazole in cyclohexane, fluorescence 2=7223
 diphenyloxazole in xylene soln., energy transfer 0=19161
 diphenyl picoyl hydrazil, in benzene, n.m.r., double, inverse Overhauser effect 4=1904
 diphenylanthracene/o-xylene solns., quenching and energy transfer 3=1702
 dipole moments det., validity of Higasi's method 0=5019
 discharges elec. between acids and Ni cathode a few mm away at 13 mm press. 4=24606
 dissociation of strong acids, n.m.r. meas. 0=3547
 distribution function of dissolved particles and moles. 4=24172
 dye, conc., fluoresc., absorpt. and dispersion of light 4=2682
 electric dipole and rotatory strengths, solvent field corrections 4=27176
 electrical conductivity, cluster expansion for Kubo-type expression 4=14185
 electrical conductivity, cluster theory for ionic solns. 4=14186
 electrolyte, aqueous solution model 1=15862
 electrolyte aqueous solution, molecular refraction 1=11761
 electrolyte, containing colloidal particles, light scatt. 4=14144
 electrolyte mixtures, compressibility, meas. and theory 2=11364
 electrolyte, rotational mechanical moments 1=15864

Solutions—contd

- electrolytes, adiabatic compressibilities, conc. depend. 0=19046
 electrolytes, aqueous, u.s. absorp. rel. to concn. 1=15870
 electrolytes, aq., u.s. velocity anomalies 1=15871
 electrolytes, compressibility, variation with temp. 0=6793
 electrolytes, Debye-Hückel theory, corrections 1=4275
 electrolytes, Debye-Hückel theory, fluctuations and limit of validity 0=938
 electrolytes, heat transport theory 0=5014
 electrolytes, i.r. spectra, ionic interactions with solvent molecules 3=21375
 electrolytes, ionic hydration, hydrodynamic theory 4=21101
 electrolytes in mixed solvents, densities and molar volumes 4=2659
 electrolytes, molal volume 4=167
 electrolytes, Raman spectra rel. to water 2=5022
 electrolytes, solvent dielec. const., effect on viscosity 3=21341
 electrolytes, strong, statistical-mechanical theory 0=14121-2
 electrolytes, surface tension, conc. depend. limiting law 4=16097
 electrolytes, thermal cond. and structure 2=21898
 electrolytes, thermal diffusion in, Soret coeff. for 18 solns. 0=6784
 electrolytes, u.s. absorption 0=10660, 19293
 electrolytes, u.s. propag., dispersion 0=941
 electrolytes, u.s. velocity 1=12877
 electrolytes, velocity of sound, calc. 0=5013
 electrolytic, aq., surface tension, depend. on ions present 1=18384
 electrolytic, compressibility versus cation size 1=12874
 electron binding, continuum model 2=15582
 electron-transfer processes and chem. reactions 0=19171
 electrosedimentation, dynamical theory 1=144
 ethanol, O₂, u.v. absorption spectra 2=5020
 ether, with iodoform, methylene iodide and bromo-aniline, photocond. 2=17482
 ether solutions of K metal and of naphthacene dianion, flash photolysis 3=18180
 ethyl cellulose in methyl alcohol 3=14161
 ethyl ether, of ethylene glycol, in water, light scatt. 4=24214
 ethylene chloride, ratio of gauche to transform 0=2770
 europium benzoylacetate, in ethanol and methanol, fluorescence spectrum 4=30461
 evaporation, thermodynamics, irreversible 4=21357
 ferrous and ceric sulphate, chemical change rel. to α -irradiation 2=4555
 ferrous sulphate, radical and molecular yields, on β -irradiation 2=4556
 films, thermal critical phenomena 1=16179
 flexible chain molecules, compression 1=2753
 flexible linear macromolecules, gradient dependence of viscosity 1=2730
 fluorescein, absorption and luminescence spectra, effect of pH medium 2=19565
 fluorescein absorption spectra, concentration influence 1=15887
 fluorescein, pH value rel. to luminescence props. 2=2724
 fluorescein, solvent effects on fluorescence 4=29637
 fluorescein, spectra, by quantum chemistry 3=2647
 fluorescein, viscous solns., fluorescence 3=1697
 fluorescence, conc. depolarization, self-quenching effects 2=55
 fluorescence depend. on viscosity and temp. 1=6862
 fluorescence, emission anisotropy, meas. with uncalibrated glass plates 0=19394
 fluorescence and energy transfer, temp. and viscosity effects 1=10515
 fluorescence, meas. of polarization 0=14661
 fluorescence, meas. of polarization 1=8128-30
 fluorescence, mixed solns. 0=6807
 fluorescence quenching in rhodamine B solns. 1=4350
 fluorescence, Sepanov's relation criticized 2=1156
 fluorescence spectra, effect of secondary fluorescence 0=10672
 fluorescence time const., theory, for liquid and rigid solns. 0=3536
 fluorescence, Vavilov's law 2=13346

Solutions—contd

- fluorescence, yield rel. to exciting wavelength, theory 3=1695
 fluorescent, intermolecular energy transfer 2=21915
 fluorescent solutes in organic soln., excitation by high elec. fields 2=59
 free energy of nonequilibrium polarization systems 3=16169
 free energy and radial distrib. function, hyper-netted chain approx. 0=14617
 free radical det. by inverted Overhauser effect 4=25733
 free radical e. s. r. and rotational diffusion 4=30470
 free radical, paramag. relaxation 4=9763
 free radicals, e.s.r., and h.f.s. 3=14183
 free radicals, e.s.r. h.f.s., exchange relax. 2=14321
 free radicals, magnetically diluted, e. s. r. nature 4=2710
 free radicals, Overhauser effect, p, e relax, and mol. motion 4=24245
 freezing of electrolytic solution drops 2=22101
 freezing, separation and concentration of solutes 1=18677
 frozen aq. solns. of S cpds., e.s.r. study 3=15392
 fused AgNO₃-alkali nitrate, heat of mixing 1=12869
 fused salts, heats of mixing, theory 2=1137
 fused salts, theories 2=19552
 γ -irradiated, diffusion kinetics 0=6421
 gas-liquid impinger for SO₂ extraction from air 1=20782
 gas solubility in liquids, rel. to cell potentials 2=15568
 gases, partial molal volume 2=15578
 of globular and rod-like particles, X-ray small-angle scatt. 3=15839
 Group Ib and IIb complex cyanides, Raman spectra, CN stretching bands 0=16707
 growth rate of vapour bubbles in superheated liquid mixtures 1=5376
 H-bonding between solvent and solute 0=3535
 haemoglobin in aq. NaCl, X-ray small-ang. scatt. 0=19115
 halide, flash photolysis, electron transfer processes in, mechanism 0=10357
 hardening, and solute atom dislocation interactions 4=26482
 heat of mixing, associated solutions 4=8217
 heavy water, relaxation of deuterium nuclei 0=2179
 hexamethylene amine-water, stratifying system, light scatt. indicatrics 4=24215
 hexamethylenimine, in water, conc. fluctuations, light-scatt. study 3=21365
 n-hexanol, in octane, dielectric losses 1=12893
 high polymer solutions, ultrasonic spectroscopy 1=10512
 hydration of cations, n.m.r. study 0=3546
 hydrocarbons, aromatic polynuclear, in paraffin hydrocarbons, spectral shifts 0=16707
 hydrocarbons, liquid, γ -irradiated, energy transfer 0=18442
 hydroxide, u.s. velocity 0=5012
 infrared solvent shifts and molecular interactions 2=20788
 inks, flow through capillary tubes 0=4998
 inorganic acids, molar sound velocities 0=19133
 intermolecular interactions, effect on spectra 4=29633
 internal field, effect on electronic spectra of solute molecules 3=21373
 iodide, solvated, u.v. absorption spectrum 4=184
 iodides, aqueous solutions, ion exchange and approach distance 1=18398-9
 iodine, u.v. and visible absorption peaks 0=16705
 ion-ion and water-ion interactions, short-range 4=158
 ion pairs in solutions, theory 1=10511
 ion-solvent interaction 3=16612
 ion-solvent interaction rel. to partial molar volume 4=14149
 ion-solvent interaction, solvation approach, model 4=11183
 ionic, aqueous, H-bonding, near i.r. meas. 4=154
 ionic, electron paramagnetic relaxation 2=7231
 ionic hydration meas. for 16 ions 3=5435
 ionic interaction, with acetone molecules, i. r. absorption, formation of complexes 4=26749
 ionic interactions in aq. solns., Raman spectra 4=2687
 ionic interactions in solns. of electrolytes 1=137
 ionic, Mayer's theory, cluster integral sum 1=136
 ionic melts 2=1132
 ionic motion, Stokes' law including dielec. relaxation 1=15894
 ionic salt mixtures, reciprocal, molten, free energy 4=2655

Solutions—contd

- ionic structure 0=19117
- ions, partial molar volumes, rel. to Born model 3=23873
- irrad. solids, light emission in certain solvents 1=1744
- isopropanol in polymers, H-bonding and i.r. spectra 3=12853
- kinetics of dissolving single crystals, effect of u.s. field 4=7538
- of large molecules, capillary and porous flow, solute velocity increase 3=113
- large polarizable particles, inhomogeneous field study 0=3520
- light absorption of cupric ions 1=12881
- light scattering, rel. to diffusion and u.s. absorption 3=21368
- light scattering, theory 3=23882
- linear macromolecules, local steric hindrances 0=2756
- liquid crystalline, n.m.r. theory 4=18179
- liquid, diffusion coeffs. statistical mechanics 0=10653
- liquid drops, in miscible liquid surfaces, mixing zone circulation 0=19086
- liquid-liquid and solid-liquid, law of mixtures 3=21342
- liquid metals-molten salts, mag. susceptibility 2=19580
- liquid metals, partition of solutes 2=19551
- liquid scintillators, energy transfer mechanism 4=185
- liquid solutions in rotating elec. field 1=5253
- liquified gases, thermodynamic properties 3=14145
- lithium halides, aqueous, u.s. velo., adiabatic compressibility 3=18812
- long-chain molecules, aq. soln., torsional oscillations about C-C bonds 4=29610
- luminescence decay, theory 0=6810
- luminescence, excited-unexcited mols. interact. 3=1701
- luminescence, γ and u.v. induced, comparison 0=2176
- luminescence quenching, theory 0=16708
- luminescence quenching rel. to viscosity 3=16632
- luminescent, crit. intermol. distance for energy transfer 5=25774
- luminescent, with 2 luminescent solutes, conc. depend. 1=1745
- macromolecular, coiling, intrinsic viscosity 4=18185
- macromolecular, dimensions of coil in laminar flow 3=21348
- macromolecular, light scattering meas. 2=15746
- macromolecular, electron and X-ray scatt. studies 1=20719
- macromolecular, under flow, apparatus for dielec. prop. meas. 0=12421
- macromolecular, light scattering 2=7212
- macromolecular, Maxwell effect 1=9488
- macromolecular, orientation birefringence in shear flow and elec. field 3=16617
- macromolecular polymers, hydrodynamics 0=12405
- macromolecular, theory of dielec. props. 2=1162
- macromolecules, depolarization of dispersed light, theory 0=940
- macromolecules, double refraction due to flow, shape effect 0=12498-500
- macromolecules, light scattering, presence of optical harmonics 4=29771
- macromolecules, Rayleigh optical scatt., diffusion broadening 4=14142
- macromolecules, rigid, streaming birefringence, theory 0=16703
- macromolecules, scattering, light, composition fluct. effects 4=18197
- macromolecules, size and shape 0=7823
- macromolecules, specific vol., apparent 3=14154
- macromolecules, strain birefringence, theory 3=5441
- macromolecules, viscosity, as function of vel. gradient 3=14157
- magnetic double refraction 4=29627
- mass transfer, turbulent, near boundary 3=3791
- Mayer's ionic theory appl. to electrolytes 0=6783
- metal-ammonia, cation-electron interaction 1=5275
- metal-ammonia, electron spin relaxation 1=5286
- metal-ammonia, NaCl effect 2=1142
- metalammonia electron spin relaxation and diffusion 3=21414
- metallic binary liquid, volume change on mixing 2=2716
- metallic, liquid binary dilute, binding energy pair model 4=8165
- metallic nitrates, u.s. parameters 4=176

Solutions—contd

- metals in dilute soln., theory 0=16690
- metals, heavy, halide salts, luminescence 3=10990
- Metals, in NH_3 , e.s.r., effect of adding electrolyte 3=11811
- metals in solns. of their salts and in acids, motoelec. effects 2=8923
- metals, in their molten halides, electronic cond. 2=21919
- methanol-cyclohexane, critical opalescence 2=17450
- methanol, NO u.v. absorption spectra 2=5020
- methanol, O_2 u.v. absorption spectra 2=5020
- methanol-water, light scatt., Rayleigh, and hypersound dispersion, density and concn. fluctuations 1=4341
- methanol in water, ultrasonic wave velocity, rel. to cavitation 0=19129
- methyl ether, in dil. soln., microwave absorpt. and mobility 2=7229
- methylethylketone, aq., boiling, bubble growth rate 2=5217
- micelles, statistical mechanics 4=7790
- microstructure, rel. to Rayleigh light scatt. 3=21364
- mixing at const. vol., thermodynamic 1=15859
- mixing processes, const. press. and volume 4=24173
- molar sound velocity 1=15868
- molecular diffusion controlled, moving boundary effects 3=5436
- molecular interactions in n.m.r. reference cpds. 0=15763
- molecular spectra, effect of optical props. 2=22940
- molecules, universal interactions rel. to electronic spectra, theory 1=19644
- molten salt mixtures, excess free energies and heat of mixing, calc. 2=17452
- multicomponent fluids, pseudo pair potential 2=13323
- multicomponent, isothermal diffusion 3=11785
- naphthalene, in durene, radiationless triplet-singlet transitions 3=23115
- nitrate electrolytes, aqueous, u.s. meas. 3=11792
- nitriles as proton acceptors in H-bond formation 2=17087
- n-nitroaniline in benzol, Raman spectrum 1=12291
- nitrobenzene-heptane, stratifying system, light scatt. indicatrices 4=24215
- nitrobenzene-hexane, stratifying system, light scatt. indicatrices 4=24215
- nitrobenzene-trimethylpentane, dielec. dispersion near critical soln. temp. 4=5206
- nitrobenzol, in hexane, dielec. props., structure 3=21386
- nitrobenzol in n-heptane, light scatt. and extinction coeff. 3=21367
- nitromethane, in benzene and water, light scatt. 4=24214
- nonelectrolyte, averaged Boltzmann-factor theories 3=16613
- nonisothermal single-ion heat of transport 4=5154
- normal D_2 -ortho D_2 , volume change on mixing 1=8110
- normal H_2 -normal D_2 , volume change on mixing 1=8110
- normal H_2 -para H_2 , volume change on mixing 1=8110
- n.m.r. chemical shift of hydroxyl and hydronium ions 2=1169
- nuclear mag. resonance of O^{17} in various solutions 3=148
- n.m.r. of O^{17} , solvent effects 3=11810
- nuclear mag. resonance of p and d in H_2O and D_2O solns., mag. interactions compared 0=14666
- nuclear magnetic relaxation in colloidal solutions 1=6580
- nuclear quadrupole relaxation 0=12427
- octane-hexane soln., density, temp. depend., near critical pt. 2=7478
- 1,3,4-oxadiazole in polystyrene, photoluminescence and fluorescence 2=1160
- optical activity and intermolecular interaction 0=3542
- optical extinction, measurement 3=21367
- optical rotation, meas. for high-scatt. 3=16807
- optical rotary power, isotropic 2-component system 4=21316
- organic, α/β scintillation ratios 4=2693
- organic, cathodoluminescence, rise-time characteristics 1=2765
- organic, effect of solvent on electronic spectra 0=15739
- organic, effect of solvent on fluorescent maxima 0=10677
- organic, energy transfer, solute-solute 1=9401
- organic, energy transfer, spectral effects 1=9402
- organic, fluorescence depolarization 1=2760

Solutions—contd

organic, intermolecular free lengths 4=18195
 organic liquids—water, dielec. const., temp. and conc. depend. 0=3528
 organic, luminescence and Cherenkov radiation, γ - and X-ray excited 0=19158
 organic, luminescent, for scintillators, non-radiative transfer 3=10001
 organic melts, u.s. velocity 1=6857
 organic molecules, crystalline, luminescence spectra 1=17917
 organic, N-H stretching freq. 2=7219
 organic, phosphorescence duration, at -196°C 1=3866
 organic phosphors, excitation energy transfer solvent—soln. 0=6808-9
 organic, resonance fluorescence 0=53
 organic, scintillation process. 1=2459
 organic scintillators, theory 2=1157
 organic solute molecules, decay of triplet state 4=11198
 organic solvents, transmission in far i.r. 2=5023
 orientation dichroism in viscous solns. 4=29629
 osmosis, theory and expt. 2=11363
 oxadiazole derivatives, in various solvents, scintillation activating props. 4=11707
 oxidizing, positron lifetime in 1=18436
 paraffins, normal, optical anisotropy, from Rayleigh scatt. 3=136
 paramag. ions, p.m.r., spin—lattice, theory 4=204
 paramagnetic complexes, proton mag. reson. 3=14186
 of paramagnetic ions, proton relaxation 1=18430
 paramagnetic, n.m.r. 3=21413
 paramagnetic salts, aqueous, positron annihilation in 0=9343
 partial thermodynamic functions 1=18394
 partially miscible, interface mixing zone, non-stationary effects 0=19085
 perfluoroheptane—i-octane, cluster formation 0=3519
 phenanthrene in alcohol, luminescence 4=190
 phenols, hindered, solvent effects on i.r. spectra 0=8667
 photo-ionization and electron capture processes in solution 3=16180
 photoluminescence, quenching theory 1=11765
 photoluminescence, quenching 1=12886
 β -picoline, in water, conc. fluctuations, light-scatt. study 3=21365
 β -picoline—water, non-stratifying system, anomalous light scatt. 4=24216
 β -picoline—water, non-stratifying system, scatt. indicatrices. 4=24215
 polar liquid mixtures at critical temp., dielec. props. 4=29639
 polar mixtures in nonpolar solvents 4=5207
 polar molecules in non-polar solvents, relaxation times 0=5009
 polar-nonpolar mixture, dielec. dispersion near critical soln. temp. 4=5206
 polar polymers, thermodynamic props. 3=11790
 polar polymers, thermodynamic props. 3=14158
 polyacenaphthene, viscosity and light scattering 0=14657
 polybutylmethacrylate, in chloroform and isopropanol, diffusion 0=14636
 polybutyl methacrylate-isopropanol, critical opalescence 3=21353
 polyelectrolyte aggregation in 2=7049
 polyelectrolyte, diffusion of ions, theory 3=9447
 polyelectrolyte, multicomponent, light scatt. and sedimentation 2=11366
 polyelectrolyte, relax. phenom. 2=11380
 polyelectrolytes, acoustic propagation, u.s. 4=16108
 polyelectrolytes, chain model, potentiometric titration 2=7206
 polyelectrolytes, interaction of neighbouring charged groups, effect on props. 3=21345
 polyelectrolytes, relaxation phenomena 2=2727
 polyelectrolytes, rod-like, interactions 1=8114
 polyelectrolytes, 2nd virial coeff. 2=17456
 polyelectrolytes, 2nd virial coeff. 4=161
 polyelectrolytes, volume effect theory 3=21346
 polyethylene glycols, in benzene 0=14656
 polyethylene, local steric hindrances and conformations 2=20895
 polyethylene single crystals, morphology changes 4=7525
 poly- γ -benzyl-L-glutamate in m-cresol, viscosity 3=135

Solutions—contd

poly-*i*-butylene-benzene, optical props. and viscosity 3=21352
 polymer chain configurations, concentration dependence 1=6856
 polymer chains, configurational props. 3=15404
 polymer, conc. dependence of frictional coeff. 2=13332
 polymer, conc., entanglement effects 3=18809
 polymer-diluent, viscosity and glass transition 4=27161
 polymer, Doppler shifts in light scattering 4=16111
 polymer, hydrodynamic interaction, effect on viscoelasticity 3=18810
 polymer, interpretation of viscosity data 1=4334
 polymer, light scattering 4=14143
 polymer, light scattering photometer 4=14330
 polymer, linear molecule, extension determination by light scattering 1=17382
 polymer, local steric hindrances and conformations 2=20894
 polymer, mol. wt. distrib. det. 2=2036
 polymer molecules, frictional coeff. 4=27157
 polymer molecules, linear, partition functions 4=21103
 polymer, Monte Carlo calc. of dynamics 2=1144
 polymer, Newtonian flow deviation, check 2=9273
 polymer, in poor solvents, intrinsic viscosities 3=21350
 polymer, second osmotic virial coeffs. rel. to mol. weight 3=3802
 polymer, second virial coeff. 4=27159
 polymer, 2nd virial coeff. of branched star molecules 3=1686
 polymer solns., u.s. irradiation, cavitation 2=19558
 polymer, Standing's rule, statist. mech. deriv. 2=11368
 polymer, statistics of configuration and free volume 3=10562
 polymer, streaming birefringence, anisotropy 3=16618
 polymer, swelling of highly filled, and effective crosslinking 1=18400
 polymer, theory 1=12875
 polymer, thermodynamics of aggregation 1=9388
 polymer, u.s. absorption, network diffusion model 4=11196
 polymer, u.s. absorption rel. to frequency 4=5172
 polymer, viscoelasticity, effect of hydrodynamic interaction 4=8174
 polymer, viscosity, Huggins const. calc. 4=2661
 polymer, viscosity of concentrated solutions 4=8179
 polymers, conc. in H_2O , phase separation 4=24179
 polymers, conference report 1=11587
 polymers, diffusion and sedimentation, for 1, 2 and 3 branch points and rings 0=8657
 polymers, dilute, theory, second virial coeff. calc. 0=16694
 polymers, dilute, thermal diffusion 0=19102-3
 polymers, flow birefringence 1=15878
 polymers, intramolecular light scattering 1=8120
 polymers, intrinsic viscosity measurement, velocity grad. effects 0=8599
 polymers, lattice model theory 2=17457
 polymers, light scattering, theory 4=14141
 polymers, long- and short-range interactions, review 1=3578
 polymers, molecular dimensions 2=6242
 polymers, molecular wt. distrib., det. by fractionation, theory 0=20702
 polymers, neighbour interactions and internal rotations, solvent effect 0=15790
 polymers, optical activity, theory 1=9487
 polymers, sedimentation equilib. second virial coeff. det. 0=77
 polymers, sedimentation of microscopic spheres 0=76
 polymers, as semi-permeable membrane for concentration cells 4=26755
 polymers, sheer degradation 0=3522
 polymers, specific vol., apparent 3=14154
 polymers, theory of dilute solutions 0=14620
 polymers, thermodynamics, calc. 4=14138
 polymers, thermodynamic props., osmosis, light scatt. meas. 4=2669
 polymers, u.s. absorpt. spectra, configuration jumping effect 4=2671
 polymers, u.s. cavitation, degradation mechanism 2=9278
 polymers, u.s. vels. 3=14161
 polymers, viscoelastic behaviour, review 1=15783
 polymers, viscoelasticity at high press., u.s. meas. 3=14156

Solutions—contd

- polymers, viscosities near crit. temp. 3=21349
 polymers, viscosity rel. to temperature 3=18811
 polymethyl methacrylate-butyl chloride, critical opalescence 3=21353
 polymethylmethacrylate and copolymer, v viscosity 2=13341
 polymethylmethacrylate in diphenyl, viscosity rel. to shear stress 3=16619
 polymethylmethacrylate, viscosity and light scatt. 3=134
 polypeptides, helical, Cotton effect, origin 3=2681
 polysiloxanes, u.s. vel. and compressibility 1=15872
 polystyrene, birefringence induced by acoustic waves 2=13339
 polystyrene- CCl_4 , segmental motion 0=19166
 polystyrene and copolymer, viscosity 2=13341
 polystyrene, critical opalescence 0=6805
 polystyrene in cyclohexane, crit. opalescence rel. to molec. force range and radius of gyration 2=11373
 polystyrene in cyclohexane, critical opalescence 1=1743
 polystyrene in cyclohexane, critical opalescence 2=5016
 polystyrene-cyclohexane, critical opalescence 3=21353
 polystyrene-cyclohexane, optical props. and viscosity 3=21352
 polystyrene, dilute soln. props. in θ -solvents 3=16616
 polystyrene, dilute solns. in toluene, viscoelastic props. 4=24190
 polystyrene, dynamic mechanical props. 4=27158
 polystyrene, refractive index, temperature increment 0=14658
 polystyrene, second virial coefft. calc. 3=16615
 polystyrene soln., radioluminesc. efficiency rel. to mol. wt. 4=27184
 polyvinyl acetate in benzene, u.s. vels. 3=14161
 polyvinylcarbazole, in benzene, vapour pressure, conc. and temp. depend. 4=29806
 polyvinylpyrrolidone, interaction with water in solutions 1=18410
 polyvinyl sulphonate alkali halides, excluded vol. study 2=11367
 porphyrins, luminescence 3=9467
 pressure shifts of optical absorption spectra 1=8125
 pressure soln. in rocks 0=10280
 Prigogine's theory, appl. to viscosity and diffusion 1=138
 proton relaxation in paramagnetic solns. 1=5285
 proton relaxation for study of ion binding 4=25790
 proton solvation, quantum mech. calc. 1=18397
 pyrazine in hydrocarbon and EPA glasses, solvent effects on $n \rightarrow \pi^*$ transitions 0=15742
 pyrene in ethanol, luminescence, delayed and normal, spectra 3=14174
 quasi-lattice model of molten reciprocal salt systems 1=4325
 quinine sulphate, fluorescence and degree of association, correl. 1=145
 radioactive, paramag. relaxation 0=6814
 radiolysis of aqueous azide soln. containing mercuric salts 3=16181
 Raman spectra, solute band intensity, solvent effects 0=15717
 rare-earth ions in aq. solns., O^{17} n.m.r. shifts 2=5029
 rare-earth salts in D_2O , H_2O , fluorescence yields 4=2695
 rare gases in molten salts 1=4335
 Rayleigh light scattering, and soln. stability 3=21368
 Rayleigh light scattering, in region of critical opalescence, meas. 3=21367
 refractive index gradient meas., Schlieren method 4=8380
 refractive index rel. to conc. 4=16110
 refractive index meas., incremental 3=14323
 relaxation of gas and vapour cavities under u.s. irradiation 2=15587
 relaxation phenomena under u.s. radiation 2=5013
 rhodamine B, decoloration by pH changes 3=23536
 of rigid rodlike molecules, viscosity 3=135
 saline, droplets, charge accumulation and loss 4=5539
 salts in liquid metals, elec. cond. decrease 1=9406
 sapphire dissolution in ceramic systems, kinetics 4=18188
 scintillator solutions, luminescence minimum 1=4349
 secondary and primary fluorescence of solutions 1=8126-7

Solutions—contd

- solid, binary low-conc., light absorpt. and luminescence theory 2=710
 solidification, progressive, grain boundaries 2=22100
 solute dispersion in fluid in laminar flow 2=19547
 solute distrib. under external forces, theory 3=3799
 solute molecule rotation relaxation by polarized photoselection 4=14167
 solute redistribution during phase transformations 4=27370
 solution-solvent mixing 0=10639
 solvation, entropies and electrostatic volumes 3=9452
 solvent effect on optical rotation and dipole moment 2=1147
 solvent effects in i.r. absorpt. spectra 4=29630
 solvent effects on intermolecular forces, absorption band free, shifts and intensities 0=10669-70
 solvent effects in n.m.r. spectra 0=7801
 solvent molecules interaction, with anions and cations, volumetric effects of hydration 4=21102
 solvent relaxation during solute excited lifetime, fluorescence spectral effects 3=9468
 solvent shifts in proton magnetic resonance 1=15909
 solvent-solute interactions, effect on vibrational spectra 2=15598
 sonoluminescence, asymmetrically broadened emission lines 0=16709
 Soret effect, photoelec. recording 0=8664
 specific and universal interactions, distinction, rel. to relative influence on solution spectrum 4=27180
 spectra, i. r., solvent effects, allowance for in analysis 4=7799
 spectral analysis, spraying into glow discharge, rotating electrodes 0=10786
 spectral shifts for aromatic hydrocarbons in paraffin solvents 0=16707
 spin-lattice relaxation times, concentration dependence 1=4359
 strictly regular mixtures, approximations 2=21841
 sugar, light scattering, turbidity meas. 0=6951
 surface phenomena in ternary metal solns., Semenchenko theory 4=8184
 surface tension of binary solns., theory and expt. 2=1125
 surface tension isotherms 4=8183
 surface tension measurement 1=6847
 Taylor instability, effect of diffusion 3=11789
 ternary systems, diffusion coeff. meas. 2=1139
 terphenyl in cyclohexane-benzene, luminescence quenching 1=6867
 tetra-n-hexylammonium iodide in carbon tetrachloride, u.v. absorption spectrum 4=184
 tetrafluoroboric acid, and salts, X-ray analysis 4=21100
 theory based on internal pressure 1=15861
 theory of nonideal solns., appl. to u.s. absorption 1=8119
 thermal conductivity, composition dependence 1=4328
 thermodynamic excess functions for electrolytes 0=10656
 thermodynamics, irreversible, inversion of linear laws 0=14904
 thermoelectric powers, initial, acids, strong 3=14181
 tobacco mosaic virus, electric birefringence theory 1=8121
 tolan, in ethyl alcohol, luminescence 1=14056
 toluene, with various aromatic activators, scintillation efficiency 1=4348
 transition metal ions and complexes in D_2O , spectral shifts 0=3531
 transport theory in dense fluid mixtures 1=4329
 triethylamine, in water, conc. fluctuations, light-scatt. study 3=21365
 tryptaflavine, solvent effects on fluorescence 4=29637
 u.s. absorption, pulse apparatus and data 3=230
 undercooled, e.s.r., line-shape, calc. 2=764
 uranin, fluorescence depolarization by mol. rotation 3=139
 uranyl nitrate, fluorescence depend. on temp. and thermal treatment 0=3539
 uranyl nitrate, rapidly frozen, fluorescence spectra 1=14637
 varnishes, flow through capillary tubes 0=4998
 velocity, acoustic waves, temp. and conc. var., aqueous 4=14158

Solutions—contd

- vinyl silanes, substituted, p-p coupling, solvent var. 4=20109
viscosity of binary solns., statistical mech. 0=19092
viscosity of critical mixtures 2=2681
viscosity of polyelectrolyte dilute solutions 1=108
viscous, photodichroism, reversible, stationary value, calc. 3=16625
water-ethylene glycol mono-isobutyl ether system, critical point 1=2754
water, O_2 u.v. absorption spectra 2=5020
water, supercooling enhancement, filtering effects 4=5456
Wurster's blue perchlorate 0=14663
xanthinol in glycerol, fluorescence spectra rel. to scattering 2=17469
AgBr precipitates, adsorption of H^+ and OH^- ions 3=5165
AgNO₃ and TiNO₃ in alkali nitrates, molten, Van der Waals energy changes in mixing 2=11355
Al ion coordination numbers, from O^{17} n.m.r. 4=207
AlCl₃ in SOCl₂, Raman spectra, 0.11-0.73 mole per mole 3=14170
Al-Cd system, partition of solutes 2=19551
Al-Cu alloys, liquid, 1000°C, Cu activity 3=14152
Ar-CH₄, heat of mixing and volume change 3=1682
AsCl₃ in liquid Cl₂, Raman spectrum, solvent effect 1=18414
Au, optical absorption rel. to part. size, temp., prep. method 4=23681
Be ion coordination numbers, from O^{17} n.m.r. 4=207
BeCl₂, aq., structure from Raman spectra 3=9463
BeF₂, aq., structure from Raman spectra 3=9463
BeSO₄, compressional relaxation 0=5010
Bi in molten BiCl₃, absorption spectra 2=19563
Bi-BiBr₃, molten, mag. susceptibilities 4=24239
Bi-BiI₃, elec. cond. of molten solns. 3=11805
Bi-BiI₃, electronic conduction in melts 3=11806
Bi-BiI₃, molten, mag. susceptibilities 3=11807
C¹⁴, aqueous, liquid scintillation counting 0=5687
CCl₄-methylene chloride, equilibrium and transport props. 0=10655
CD₄ and CH₄ in one another, i.r. spectra 2=14683
C₇F₁₆-i-C₈H₁₈, critical region, X-ray scatt. obs. 2=9269
CH₄, with A and N₂, condensed state, density 1=12873
(CH₃CH₂)₂ TLX aqueous Ti²⁰³-H¹ nuclear spin-spin coupling 4=12521
CH₃NH₃⁺ + OH₂ + NH₂CH₃ in aq. acid, proton transfer study by n.m.r. 0=14118
(CH₃)₂ TLX aqueous Ti²⁰³-H¹ nuclear spin-spin coupling 4=12521
CO₂, aq., optical rotation, effect of circularly polarized light 3=1688
CO-CH₄, heat of mixing and volume change 3=1682
Ca(NO₃)₂, in water, thermodynamic props., at high temp. 4=21126
Cd amalgams, isoviscous solns. 1=11757
Cd amalgams, isoviscous 1=12872
CdCl₂-KCl melts, (CdCl₄)²⁻ ion formation 2=21891
Cl³⁵, n.m.r. contact shifts in CoCl₂ solns. 0=19168
CoCl₂, aq., pink and blue, mag. behaviour of Co²⁺ 2=21903
CoCl₂, in water, thermodynamic props., at high temp. 4=21126
CoSO₄, aqueous, absorp. of acoustic waves, u.s., and dissociation 3=14160
CoSO₄, conc., absorption, u.s., 0.2-2.0 Mc/s 4=5173
Co⁺⁺ paramagnetic ions, light absorption 1=15883
Cr³⁺ paramagnetic solns., light absorption 2=5018
Cr³⁺ salts, e.s.r. 2=5028
Cr³⁺ salts, e.s.r. 3=3818
Cs, in NH₃, e.s.r., effect of adding CsI 3=11811
Cu acetate in H₂O, X-ray study 1=11748
Cu alloys, molten, mag. susceptibility 1=152
Cu salts, nuclear resonance fluorescence of Cu⁶³, slowing down of recoils 1=611
CuSO₄, H₂O cluster about Cu²⁺ 1=11756
DT, in e-D₂, vapour-liquid equilibria, from triple pt. to crit. temp. 3=21626
Eu chelate laser action 4=19281
Fe-group salts, paramag. resonance and relaxation 0=8085
Fe²⁺, Fe³⁺, in water, electron transfer, theory 3=14178
FeCl₃ in HCl, tetrahedral Fe coordination by Cl 1=9377
Gd³⁺ perchlorate, hydration geometry, from n.m.r. 3=18832

Solutions—contd

- H in benzene, thermodynamic props. 2=13327
H-bonding solutes in aq. soln., conductance 4=29612
H, i.r. absorption spectra 2=9280
H isotopic equation of state, including quantum effects 3=21321
HCl, aq. soln., compressibility, from u.s. velocity 1=1736
HCl, p.m.r., var. conc. mechanisms 4=206
HCl-solvent, H-bonded systems, double minimum pot. 2=2723
HCl, in water, D substitution, effect on glass transform. temp. 3=23492
H-D systems, solid-liquid phase diagrams 3=21612
H₂-D₂, density, m.p. to 20.4°K 3=21343
HF, in H₂O, neutron scatt. in, energy distrib. 4=16092
HNO₃, aq. soln., compressibility, from u.s. velocity 1=1736
HNO₃, p.m.r., var. conc. mechanisms 4=206
in H₂O, dielectric const. decimetre meas. 4=24227
H₂O, gamma-ray effects, H₂⁺, H₂O⁺ struct. and stability 4=10651
H₂O + D₂O, thermodynamics of mixing 4=29204
80% H₃PO₄-65% HCl for CdSe crystal etching 2=4372
H₂SO₄, dilute, compressibility meas. 2=9272
H₂SO₄, refractivity and density 1=5278
H₂SeO₄, aq., mol. species, Raman spectra 4=182
HT, in e-H₂, vapour-liquid equilibria, from triple pt. to crit. temp. 3=21626
He isotopic equation of state, including quantum effects 3=21321
He II-He³, diffusion data analysis 3=1881
He³-He II, diffusion coeff. and thermal cond. 0.7-2.1°K 0=19539
He³-He II, first-sound absorption 2=136
He³-He II, first-sound absorption 3=3943
He³-He⁴, change of excess chemical potentials, conc. depend. 0=14919
He³-He⁴ mixtures, properties between 0.4°-2°K 1=8272
He³-He⁴, thermal cond. and diffusion, λ-pt. to 0.06°K 2=134
He³-He⁴, thermal cond. and diffusion, λ-pt to 0.6°K 3=3939
He³ and He⁴, thermodynamic properties 4=11444
He⁴-He³, Boltzmann gas model 0=8863
Hf oxyhalides, aq., complex ion structure 0=14627
Hg in A, discrete sites of Hg 1=15842
Hg, dilute, surface tension, temp. depend. 3=21340
in Hg, Gp.IIB metals 1=2750
HgI₂, aqueous, rotational correl. time of HgI₂²⁻ 4=2142
In sulphate, nitrate and perchlorate, aq., Raman spectra 3=7211
In sulphate, Raman spectra, incomplete dissociation 0=10671
K in ammonia, density 1=4332
K hyaluronate, electromech. effect during flow in solutions 2=858
K in liq. NH₃, decomposition, study 2=10971
K, in NH₃, e.s.r., effect of adding KI 3=11811
K₂(SO₄)₂, aq. solns., electron spin exchange 3=16639
KCl, aq., freezing 3=3927
KCl in ECN-H₂O, conductivity 2=19553
KCl, in water, thermodynamic props., at high temp. 4=21126
K₂CO₃, in water, thermodynamic props., at high temp. 4=21126
KCrO₄, magnetic susceptibility 3=146
K₂CrO₄, in water, thermodynamic props., at high temp. 4=21126
KHF₂-H₂O, F¹⁹, n.m.r. chemical shift 1=6874
KHF₂-H₂O, F¹⁹, n.m.r. chemical shift 1=10523
KHF₂-KF-H₂O, F¹⁹, n.m.r. chemical shift 1=6874
KHF₂-KF-H₂O, F¹⁹, n.m.r. chemical shift 1=10523
KI-dodecylpyridinium iodide solution, scattering of light 1=4477
KI, in glycol, glycerine and ethanol, u.s. vel. and compressibility 1=11759
KI in liquid K, elec. cond. decrease 1=9406
KI, nuclear quadrupole relax. of I¹²⁷ 0=12427
KMnO₄, magnetic susceptibility 3=146
K-NH₃, paramag. relax. times 4=8222
K-NH₃ and K-ND₃, paramagnetic relaxation 1=6873
KNO₃, supersaturated, parent crystal critical dimension 2=4373

Solutions — contd

- KNO₃, in water, thermodynamic props., at high temp. 4=21126
 La chloride, freezing point 0=19506
 LiF, in fatty acid solns., "anomaly" 2=12886
 LiNO₃, aqueous, compressibility, adiabatic, lowering 3=18807
 Mg²⁺ in methanol, solvation number, by n.m.r. 3=1685
 MgSO₄, aqueous, sound absorpt., relax. theory 3=23879
 MgSO₄, p.m.r., dissociation mechanism 4=209
 MgSO₄ in water and methanol, u.s. absorption 2=13337
 Mn ion hydration, proton relax. data 2=15620
 Mn salts, paramag. absorption and relaxation 0=8670
 Mn²⁺ ions in methanol, proton relaxation 1=157
 MnCl₂ aqueous, Overhauser effect, rel. to temp. 4=11219
 MnCl₂, frozen, Mn²⁺ e. s. r. rel. to composition 4=30735
 MnSO₄, u.s. relaxation, dielectric const. influence 1=18404
 N oxides—H₂O system, absorption spectrum at 357mμ 4=14168
 N₃⁻, absorption spectrum 3=21377
 NH₃, liq., molar vols. of salts and metals 2=2714
 NH₄⁺ in aq. acid, proton transfer study by n.m.r. 0=14117
 NH₄Cl drop, crystallization centre formation 2=4387
 (NH₄)₂Cr₂O₇, magnetic susceptibility 3=146
 NO, in various solvents, near u.v. absorption, HONO formation 2=19561
 NO₃⁻, absorption spectra 2=5024
 N₂—O₂, volume contraction on mixing 1=9384
 N₂O₄, aqueous, u.s. absorption study 1=11760
 Na carboxymethyl cellulose, relaxation phenomena 2=2727
 Na hypophosphite, n.m.r., flow study 1=12904
 Na—metal, electrical resistivity 1=5283
 Na, in NH₃, e.s.r., effect of adding NaI 3=11811
 NaCl, in glycerol, dissolution kinetics 2=15581
 NaCl, surface tension effect of electrostatic field 2=11347
 Na₂Cr₂O₇, magnetic susceptibility 3=146
 NaI, in C₂H₅OH, elec. cond. near critical temp. 2=17481
 NaI, nuclear quadrupole relax. of I²⁷ 0=12427
 Na—NH₃, proton resonance 3=7222
 NaNO₂ in H₂O, Raman spectrum 1=12291
 NaNO₃—KNO₃, fused salts, volume change on mixing 1=15860
 NaOH, aqueous, flowing along solid surf., CO₂ absorption 2=9267
 Na₂SO₄—H₂SO₄—H₂O, isothermal diffusion 3=1680
 Nd chloride, in alcohol—water, absorption spectra, temp. depend. 3=21374
 NdCl₃ in alcohol—water solutions, absorption spectra 3=18816
 Ne—nD₂ liquid system, phase separation 3=3801
 Ne—D₂ mixture, phase separation, temp. dependence 4=24178
 O₂—A, at 77°K, excess thermodynamic properties 1=8109
 O₂—A, volume change on mixing 1=8110
 O₂—N₂, at 77°K, excess thermodynamic properties 1=8109
 O₂—N₂, volume change on mixing 1=8110
 (ON(SO₃)₂)⁻ in water and glycerol, thermal motion in electron resonance 1=9407
 O₃—O₂, dielec. const. 0=14655
 Pb, dilute, surface tension, temp. depend. 3=21340
 Pb salt solns., with excess Br⁻ and Cl⁻, luminescence and absorption, temp. depend. 2=7220
 Pb—Cu, dilute, density, 650–800°C 2=7204
 Po chloride, aq., α-emission, surface effects 2=17453
 S²⁻ and HS⁻ ions, u.v. absorpt. spectra 4=16117
 SO₃, in water, D substitution, effect on glass transform. temp. 3=23492
 (SO₃)₂NO²⁻ in aq. soln., Overhauser—Abragam effect 0=6815
 (SO₃)₂NO²⁻, in dilute aqueous solution, double resonance exper. 0=17777
 Sn, dilute, surface tension, temp. depend. 3=21340
 Sn²⁺ halides, absorption and luminescence spectra 2=17468
 Sn—Bi, dynamic viscosity, temp. depend. 1=12871
 T₁ aqueous, liquid scintillation counting 0=5687
 Ta¹⁸¹ ions in conc. H₂SO₄, attenuation of ang. correl. of γ-γ cascade 2=20557
 ThCl₄, aq., solubility product 2=19554
 Ti³⁺ salts in alcohol and glycerine, e.s.r. 1=18433

Solutions—contd

- Ti³⁺ salts, paramagnetic resonance hyperfine structure 1=18434
 Ti³⁺ salts, paramagnetic resonance hyperfine structure 2=21925
 Tl salt solns., with excess Br⁻ and Cl⁻, luminescence and absorption, temp. depend. 2=7220
 Tl salts (thallous), Tl n.m.r., chemical shifts 1=154
 Tl salts (thallous), Tl n.m.r., effects of ferricyanide and citrate ions, ion-pair formation 1=156
 Tl⁺,³⁺ halides, absorption and luminescence spectra 2=17468
 TlBr₃, Tl n.m.r., chemical shifts due to added halides 1=155
 TlCl₃, Tl n.m.r., chemical shifts due to added halides 1=155
 Ti₂SO₄—H₂O system, sedimentation meas. U_{233,235} crit. aqueous, η determ. 2=10155
 VO²⁺, paramagnetic relaxation 0=19167
 VOCl₂, aqueous, e.s.r. line shape rel. to com and temp. 3=150
 VOCl₂, aqueous, e.s.r. line shape rel. to conc. and temp. 2=61
 WCl₆, liquid and supercooled, paramag. reson. 3=21407
 Zn amalgams, isoviscous 1=12872
 Zn amalgams, isoviscous solns. 1=11757
 Zn halides, aq., u.s. velocity rel. to conc. 1=1740
 ZnCl₂, aq., freezing 3=3927
 ZnCl₂, aq., Raman spectra 4=5184
 Zn—Hg, X-ray study, short-range order 1=12860
 Zn—In—Ga liquid system, thermodynamic props. 2=15580
 Zr oxyhalides, aq., complex ion structure 0=14627

Sorption

- See also Adsorption
 air, on Ge, fast surface states 1=14436
 apparatus, gravimetric, for condensable vapours 2=2436
 Bayard—Alpert ionization gauge, desorption dynamics, 10⁻⁶ to 10⁻⁷ torr 4=18288
 balance and extensometer, electronically controlled 4=10617
 balances, prep. of quartz springs 4=4998
 on chabazite, of several gases, rate meas. 4=15830
 chemisorption kinetics 3=23544
 chemisorption, metals and gases 1=5110
 chemisorption, method 3=20995
 chemisorption of N in ionization gauge 2=21957
 chemisorption, nitrogen on tungsten, work function 2=15942
 chemisorption and ordered surface structure 4=30886
 chemisorption, on oxidized Ti 0=6423
 by colloid enclosure, effect on van der Waals interaction 1=7922
 cryosorption, vacuum, pressure response relationship 4=20815
 desorption energy spectra, thermal resolu. 3=13575
 desorption, gas—solid, collisional energy exchange 4=7698
 desorption of H and D, from Pd 0=10373
 desorption-rate of gases, "flash-filament" invest. 3=1391
 desorption rates and heats of desorption, expt. determ. 4=7729
 desorption, Si and Ge 1=18908
 detector, piezoelectric 4=29197
 diamond, chemisorption of gas, rel. to friction in high vacuum 4=23152
 discharge vacuum pumps, theory 0=8720
 with distillation, theory 0=18450
 effect of gases in Bayard—Alpert gauge electrodes 4=2740
 electron tubes, C in cathode, effect on residual gases 4=21203
 field desorption, theory 3=13570
 films, ferromag., effect of O₂ and H₂ on mag. props. 2=12778
 gas absorption, at const. press., meas. by automatic apparatus 4=13701
 gas desorption from Bayard—Alpert ionization gauge at 10⁻⁶ mm Hg 4=5257
 gas desorption from surfaces, meas. by electron bombardment 4=21209
 gas in high vacua, sorption—desorption curves 1=15983
 gaseous desorption from Mo surface, 80°K, 5 × 10⁻¹⁰ torr 4=18276

Sorption—contd

- gases on clean surfaces 1=18493
 gases, on metals, effect on work function, review 1=4631
 gases, in polyethylene terephthalate 3=11305
 gases, residual in vacuum systems, analysis by desorption spectra 4=18306
 gases, during vapour deposition 4=7720
 gases, W impregnated cathodes, poisoning 0=9072
 getter film gas removal by ionizing discharges 4=21202
 getter flashless, low operating temp. 4=21199
 getter gas evolution during evaporation, meas. methods 4=21206
 getter-ion pumps 0=5058
 getters, non-evaporating, with surface adsorption and pore-diffusion 4=21198
 glass of ion pump, gas trapping 4=8262
 glass, O₂ outgassing by electron bombardment 4=21204
 i.r. spectra of adsorbed molecules 1=6011
 inert gas ions on glass surfaces, induced emission by ion beam 4=23593
 inert gas ions on metal surfs. at 0-10 keV, review 2=9646
 inert gas release from surfaces during hydration and dehydration 1=15184
 inert gases in glass, ionically pumped, and thermal recovery 4=21205
 inert gases at quartz surface in electrodeless discharge 4=20821
 intercrystalline, thermodynamics and ion exchange 0=8333-4
 ion beams in presence of sputtering 2=7677
 ion exchange kinetics, revised tables 3=13588
 ion sorption pumping, hot-cathode ionization gauge 0=16746
 ion sorption, re-emission 3=9518
 lattice stabilization by sorbed molecules 1=9171
 low-temp. chemisorption, studies in field emission microscope 2=6885
 measurement in u. h. r. and const. press 4=26718
 metal, desorption of alkali ions in vacuo 4=7724
 metal films, evaporated, conference Liverpool 1963 3=25778
 metal outgassing, volume and surface effects 4=21208
 metals filaments, meas. by controlled flash heating 3=7379
 mobile molecules, behaviour 0=19122
 moisture balance, electromagnetic, automatic recording 0=8588
 mordenites, synthetic, intracrystalline sorption 4=26725
 noble gases, from ion beams, by W surface 1=20690
 oxygen-chemisorption equilib. in oxidation of Ta 2=10970
 p-n junctions, effect on surface properties 0=15915
 partial adsorption, residual gases in ultra-high vac. 2=19121
 Penning vacuum pumps and Ti films 1=18480
 photodesorption, on oxidized Ti 0=6423
 polymer-vapour systems 1=15168
 polypropylene, effect of crystallinity on sorption of gases 1=19800
 porous glass, sorp. of Ar, condensation ht. and pore shape 4=20819
 pre-sorptive effect, in catalytic oxidation of Co on oxide semiconductors 0=10345
 pump oil contamination, on ZnS films 0=14087
 pumping at solid surfaces 3=21454
 quantum isotope effect 4=18116
 on semiconductors, kinetics of O₂ chemisorption 4=20832
 from sorbed water on silica gel, X-ray study of structure 0=18354
 sputter-ion pumps, gas evolution during baking 4=21193
 steel, of H₂, effect on microhardness 4=23216
 surface adsorption of activated particles, meas. 1=15208
 surface damage meas. of neutron irradi. graphitic materials 4=29177
 surface diffusion modes of chemisorbed gases 1=2545
 terylene, effect of crystallinity on sorption of gases 1=19800
 ultra-high vacuum technique, appl 2=9322
 vacuum gauges, Bayard-Alpert, ion, Ar, N 3=23946
 in vacuum systems, effect on evacuation kinetics 2=21950
 in vacuum technology, meas. using electromagnetic microbalance 4=5253
 vapours, reactive condensable, meas. up to 350°C 0=18451

Sorption—contd

- vapours on surfaces, new theory 4=20814
 Vycor glass and chromia gel, sorp. of Ar, differential hts. 4=20818
 water by cellulose, effect on dielec. dispersion 2=6514
 water on ice-forming nuclei, phase transitions 4=13539
 water molecules onto semiconductor surfaces, recombination changes 1=14398
 water on synthetic zeolites, i.r. spectra 1=1460
 water vapour on glass surfaces 2=6853
 Wood's metal, on Zn, activity, internal friction study 2=21569
 on Ag, of H₂ and CO, work function, chemisorption bond 0=18452
 Ag ions, desorption by elec. fields 1=5105
 on Au, of H₂ and CO, work function, chemisorption bond 0=18452
 B, on Si, p-type layer invest. 2=16711
 Ba, adsorption on W 1=12667
 Ba, adsorption, on W 1=15183
 Ba films 2=12947
 by Ba getter in vacuum tubes, problems 2=67
 Ba, on W, electrostatic interaction 1=12668
 BaO, adsorption on W 1=12667
 BaO, adsorption, on W 1=15183
 BaO, on W, electrostatic interaction 1=12668
 Bi, on Zn, activity, internal friction study 2=21569
 CO, flash desorption 1=4101
 CO on Cu, Au films, surface potential diode meas. 3=13602
 CO, on Ni, chemisorption mechanism 2=10980
 CO, on W 2=8895
 CO₂ by Ba films 2=844
 CO₂, on Ni, chemisorption mechanism 2=10980
 Cd, on W 1=20693
 CdS, chemisorp. of O, elec. cond. contact potential obs. 4=29194
 CdS, chemisorption, photoinduced calc., photo conductive gain and response time var. meas. 4=30900
 CdSe—O₂, charge transfer controlled interact. 3=11326
 Cl, gaseous adsorption, by Cu and CuO 0=10369
 on Co, of H₂ and CO, work function, chemisorption bond 0=18452
 Cs, adsorption on W 1=12667
 Cs, on W, electrostatic interaction 1=12668
 Cu alloys, internal, after annealing, rel. to elec. resistance 0=14064
 Cu, chemisorption, rel. to oxidation 3=18435
 on Cu, of H₂ and CO, work function, chemisorption bond 0=18452
 D, on cathodes, in elec. discharge, meas. 2=1413
 on Fe, of H₂ and CO, work function, chemisorption bond 0=18452
 Ga, on Zn, Cd and Sn, crack growth 3=20757
 Ge, effect of absorption of water molecules 0=7927
 Ge, effect on surface photovoltage, wavelength depend. 1=3789
 Ge, residual gas ad- and desorption in vacuum 2=12951
 H chemisorption rel. to previously adsorbed species 2=15103
 H on Co, chemisorption 3=5163
 H on Cu, Au films, surface potential diode meas. 3=13602
 H, electrolytic, on Ni 0=8311
 H, on Pd, grain-size depend. 1=1461
 H, on W and Ni, chemisorption, in sintering studies 2=10946
 H₂, adsorbed, n.m.r., molecular migration 2=18485
 H₂ by Ba films 2=845
 H₂, by Ba getters 2=5086
 H₂, chemisorption on Ni 1=1480
 H₂ and CO chemisorption on ZnO 2=8916
 H₂, on Fe films 1=1482
 H₂, on Ni, effect on ferromag. reson. 1=12551
 H₂, on Ni films, temp. depend. 0=6426
 H₂, by Pd black, temp. depend. 0=4749
 H₂, in Th₂Al₃, equil. pressure isotherms 3=20941
 H₂, by Ti and Zr, at low pressures 0=6427
 He³, adsorbed, n.m.r. atomic migration 2=18485
 He⁴, liquid, on Vycor porous glass 2=9472
 Hg, on Zn, activity, internal friction study 2=21569
 Hg, on Zn, Cd and Sn, crack growth 3=20757

Sorption — contd

- K onto Pt, ad- and de-sorption inhomogeneities 1=20689
 Kr, on Fe films 1=1482
 by Mg, during evaporation 4=14466
 Mg ions, desorption by elec. fields 1=5105
 MgO cathode, residual gas analysis 4=21562
 MgO, chemi-, of O₂, on n, γ irradi., e.s.r. obs. 4=23600
 MgO, neutron irradiated, sorption of O₂, H₂, N₂O 3=13604
 Mo, chemisorp. of N₂, electron microscope study, calc. 4=29195
 Mo, of N₂, $\sim 10^{-10}$ torr 4=26718
 N, flash desorption 1=4100
 N, liquid, on Vycor porous glass 2=9472
 N, speed during electron impact activation 4=18295
 N, on W, kinetics, electron reflection study 1=7099
 N₂ by Ba films 2=846
 N₂, chemisorption on W ribbon 1=1479
 N₂, on Ni film, rel. to saturation mag. 2=14785
 Nb, of N₂, $\sim 10^{-10}$ torr, temp. var. 4=26718
 Ni, chemisorption of H, mag. saturation moment decrease 4=22949
 by Ni films, of O₂ and BaO, effect on elec. resist. 3=20271
 on Ni, of H₂ and CO, work function, chemisorption bond 0=18452
 Ni, loss of sorbed gases, at 800-900°C 0=12120
 Ni oxide, chemisorption of O₂ 3=13573
 NiO, chemisorption of O₂ and H₂ after neutron irradi. 3=3366
 NiO, of H₂ 3=13603
 NiO, neutron irradiated, sorption of O₂, H₂, N₂O 3=13604
 NiO, of O₂, 20-400°C 3=13603
 O, chemisorbed, electron interaction 4=23658
 O photodesorption, from ZnO, temp. depend., photocond. study 0=18074
 O on W, chemisorption, 20° and 300°K 3=3396
 O₂, chemisorbed on Ni, Cu, Fe, Cr, Mo, effect on work function 4=25657
 O₂, chemisorption on Cu, effect on elec. props. 2=14591
 O₂, dried, on Si, surface cond. effect 2=6459
 O₂, on Fe films 1=1482
 O₂, on Ge 0=10368
 O₂, on Ge, effect on surface levels 2=8343
 O₂, on Ge films, at low temp. 1=1481
 O₂, on Ge, surface electron energy distrib. 1=1045
 O, on W, kinetics, electron reflection study 1=7099
 O, on ZnO, changes in elec. props. 1=20741
 Pb, on Zn, activity, internal friction study 2=21569
 PbO, effect on elec. cond. 2=4065, 8439
 PrO_x, of O irregular press. var. 4=23601
 Pt, desorption of Na, K, Ca impurities 0=6061
 Rb ions, desorption by elec. fields 1=5105
 Re, K⁺ desorption kinetics 4=2129
 Re, Na⁺ desorption kinetics 4=2129
 Re, Rb⁺ desorption kinetics 4=2129
 S vapour on Ni to give NiS, diffusion process 3=1387
 Si rectifiers, in moist gases, inversion behaviour 0=9982
 Si rectifiers, in various ambients, surface breakdown 0=11702
 Si, residual gas ad- and desorption in vacuum 2=12951
 Sn, on Zn, activity, internal friction study 2=21569
 Ta films, chemisorption of tritiated water 4=7730
 Th, desorption on W, field-emission microscope study 2=10947
 Th, on Re, thermal desorption 3=21856
 Th and Zr alloy bulk getters, residual N₂, CO and H₂ pressures 4=21197
 Ti droplet getter-ion pump, pumping characteristics 0=16742
 by Ti films, of activated gases 0=10374
 TiCl₄, on Ti, Pt and Ni 2=19120
 TiO₂, photo, of H₂, methane, after adsorption of O₂ 4=23612
 TiO₂, of O₂, temp. var. 4=23612
 W, field desorption of CO 4=7725
 W, self-desorption of residual gases, autoionic projector 2=8887
 Xe in high density graphite, high temp. 2=6855
 by Zn, during evaporation 4=14466
 ZnO, of gases, effect on electroluminescence 0=16116
 Zr-Al alloys rel. to gaseous etching 4=21200

Sound

See Acoustics

Sound ranging

- array, constant beamwidth, for wide-freq. bands 2=5118
 bats, use of u.s. pulse compression 1=9217
 D.I.M.V.S. array, digital phasing and small signal detection 0=14777-8
 deep ocean, long range sound propagation 1=8181
 echo-location, use of low frequencies 1=2830
 four directional receiver correlators, comparison analysis 1=8198
 hydrophone arrays, synthesis 0=5105
 microphone array apparatus 1=12953
 multiplicative arrays 3=9261
 narrow-beam echo-ranger for underwater work 1=4415
 in ocean fog 1=12942
 optimum freq. determination 1=12954
 optimum frequency determ. for given sonar range in sea water 2=75
 projector arrays, erratic velocity distrib. 3=219
 scattering by fish, scale model 2=9341
 sonar eqn., energy content of pulse 3=9551
 sonar eqns., generalized form 3=3854-5
 sonar transducer, pulse calibration system 1=2829
 space-time correl. in noise fields 2=17549
 submarine detection, early 3=14278
 underwater camera positioning, by sonar 0=6900
 underwater explosion localization 2=2841
 underwater, systematic error 0=14779

Sound recording

- "acoustic-musical boundary problems" lab., survey of work 2=17577
 automatic recognition of spoken digits 2=4892
 disk recording, surface and groove noise 0=142-3
 mag. tape, Fe distrib., autoradiographic study 0=12668
 mag. tape, performance from magnetic properties 0=2222, 3592
 sound-modulated light beam, for recording on cine film 0=20973
 spectral analysis of records, autocorrelation method appl. 2=80
 spectrograph, amplitude contour display on teledeltos paper 3=1779
 speech, quantized analyses, automatic recording 2=7059
 visual display system 3=14283

Sound reproduction

- See also Acoustic radiators; Acoustic transducers;
 Sound recording
 earphone, loudness-balance data standardization 0=14752
 frequency-dividing networks 3=23981
 illusions produced by headphone techniques 0=18544
 loudspeaker cones, vibration frequencies 0=12444
 loudspeaker enclosure, bass-reflex, design 2=76
 motion picture industry, history 4=287
 phonograph stylus, ultra lightweight, Be wire 4=4994
 pseudostereophony, using sphere-loudspeaker 0=19320
 public address systems, acoustic feedback, stability improvement by freq. shifting 4=29713
 quadripole transmission fidelity auto-correlation criterion 4=14299
 quasi-stereophony and artificial reverberation 1=11816
 records high-fi, permanent destaticising 4=27453
 review 2=15697
 stereo-ambiophonic, on two channels 2=15703
 stereophonic, energy theory of directional hearing 0=12223
 stereophonic, localization of apparent source 0=1025
 stereophonic loudspeaker 4=5308
 stereophonic and quasi-stereophonic 0=6506
 stereophonic, by reflection 0=10744
 stereophonic sound fields, analysis 4=5309
 stereophonic system, physical effects along symmetry axis 4=286
 studio equipment, transistorized amplifiers 2=15709
 transmissivity of fabric and wood mesh screens 0=1008

Space charge

- accelerator, linear travelling-wave, effect on bunching 2=230
 air, glows, dark space 1=18802
 anthracene detect., for space-charge-limited currents 2=16715
 aperture - type electron lenses 0=19750
 appearance pots., meas. by space-charge compensation 3=14664
 arcs, low-press., positive column sheath 3=4057
 atmosphere, ground fair-weather meas., apparatus 4=17898

Space charge—contd

auxiliary discharge thermionic generation devices, compensation 4=8605
 cathode thermionic converter, Nottingham's approx. theory evaluation 0=10943
 charge-carriers, transport, effect 4=11255 /
 current in crystals 0=7055
 current limitation in high-resistance solids 1=7628
 current limitation in photoconduction 1=17792
 current—voltage reln. at equil. in drift-dominated region 4=8841
 curved beam formation, exact electrodes 0=17034
 cyclotron effect on free oscillation freq. of particles 4=30003
 in cyclotron-wave amplifiers, effects on beam motion and internal orbits 1=8390
 defocalizing effect on electron beams 1=16402
 dielectric film on electrodes for breakdown meas. 4=29641
 in dielectrics, conference report 3=4935
 dielectrics, rel. to nuclear radiation 3=17923
 diffusion attenuation 0=542-3
 in diodes, collisionless, with cathodes emitting electrons and +ve and -ve ions 4=24738
 diodes, gas, h.p., current relation 1=13124
 disturbance propagation in glow discharges 0=7080
 effect, in cold cathode gas discharge 2=1402
 effect on electron-gun trajectories, analogue study 0=5354
 effect on ion beam focusing 0=7168
 effects in cylindrical beams with uniform acceleration 1=5500
 elec. double layer, potl. and elec. field distrib. 3=1392
 electroluminescence, phosphor deterioration 2=729
 electron avalanche, development, eigen space charge effect 4=18741
 electron avalanche retardation 0=1100
 electron beam, gap interaction with e.m. fields, linear theory 3=5696
 electron beam, signal-current-excited, wave decay 3=16982
 in electron beams, ion compensation, electron current multiplication 3=19338
 in electron beams, "mag." wave modes 0=2385
 in electron beams, spreading, mag. lens counter-action 0=10958
 in electron beams, two, rel. to interaction 2=3083
 in electron diodes and plasma converters, instabilities 2=1500
 electron diodes, space-charge instabilities 3=24348
 electron dynamics in presence of space charge 4=3108
 in electron field emission, for spherical geometry 0=3784
 electron fluid, forces on 2=19942
 electron gun, correction, first order 3=21872
 in electron gun, thermal spreading, counteraction with mag. field 0=10951
 electron tubes, space-charge-limited current, calc. 2=11706
 ferroelectric materials, review 2=21212
 in filamentary electron beam, transverse waves 0=1157
 flow, between concentric spherical electrodes 0=9080
 flow equations, in mag. fields 0=9079
 flow, in mag. field, paraxial formulation 0=17045
 flow, two-dimensional, energy mismatch and cutoff waves 2=1589
 in gas break-through, below Paschen minimum 0=9004
 gas diode, space-charge-limited emission 3=21869
 gases, elec. precipitation, dust space charge 3=24202
 glass, rel. to elec. props. 4=28614
 glass, review of phenomena 4=22765
 in h.f. discharge, conc. meas., by probe method 0=1111
 in hot cathode gas discharges, high press. 3=9738
 hydrocarbon gases, limitation of avalanche growth, Townsend and steamer theory 1=1897
 insulators, electron bombard., carrier diffusion effects 2=10444
 ion beams, in electrostatic fields, theory 0=277
 ionization chambers, rel. to ion recomb. 2=3195
 in l.p. arcs, role of ion currents 2=1410
 Langmuir-Blodgett function for spheres 4=8635
 law, for ion beams, verification 2=3087
 layers at semiconductor surfaces, electron and hole transport in, theory 0=9955
 in light amplifiers 0=3795

Space charge—contd

limited, gate-controlled emission processes in charginstors 4=26077
 in liquid dielectrics, Kerr effect study 0=19148
 liquids, distrib., pressure analysis 3=9479
 liquids, solids, dielectric const., freq. var. 4=30905
 in lower atmosphere 1=15234
 magnetic "trap" production, potential well behaviour 0=10955
 in magnetron, cylindrical symmetry, statistical equilibrium 0=12635
 in magnetrons and Penning structures, theory 2=1401
 mass spectrometers, velocity modulation type 3=2055
 meas. in h.f. discharge 0=5298
 in metal oxide films 1=11593
 metal-oxide-semiconductor, model for space-charge capacitance 4=26089
 metals, electron density rel. to elasticity theory 3=5053
 in microtrons, electron packets 2=231
 in microtrons, electron packets 3=4229
 in moving ion streams, growth 0=19781
 neutralization in electron-ion systems 4=29984
 neutralization, thermionic conversion appl. 2=3010
 neutralization, transition from electron to ion emission 1=5499
 in nitrobenzene, under high electric field 0=1106
 organic crystals, limiting electrical conductivity 2=2130
 oscillations, in CdS semiconductors 0=6086
 oscillations, in ion beams 0=10976
 oxide film growth on metals field effect 4=30825
 oxide films, during growth 4=7028-9
 oxide films, growing, space charge, rate effects deduced by averaging technique 4=23563
 in particle accelerators, effect on particle motion 0=2408
 in penetrating ionized gas clouds 1=13079
 in Penning-type tubes, effect on electron kinetics 3=21871
 Pierce gun, space-charge-limited current, calc. 2=11706
 in plasma, collision damping of waves 0=3771
 plasma, d.c. discharge, moving striations 2=1399
 plasma, d.c. discharge, prod. and distrib. 2=19933
 plasma density, direct c.r.t. display 0=19688
 plasma, elec. potential of moving body, space-charge theory 2=9121
 plasma-like effects in dielectrics, electro-optical study 1=17860
 plasma sheath, elec. field and thickness 3=12113
 plasma, waves, collision damping, calc. 3=5666
 plasmoids, r.f., 3-30 Mc/s meas. 4=11648
 in porous cathodes, oxide-coated 4=5693
 positive ion layer, potential distrib. 0=17046
 positive ions, potential distrib. 1=4653
 positive sheath, movement of positive ions, theory 4=8636
 potential well produced by multipacting electrons, theory 2=1400
 potl. distrib., between plane emitting electrodes 0=19732
 quasi-Brillouin electron streams in M-type electron tubes 2=210
 resin films, space-charge-limited currents 1=1023
 sapphire (artificial), elec. cond. at high temp. 1=17639
 semiconducting materials, impurity anal., use of space charge meas. 4=29247
 semiconductor-electrolyte, pulse meas. 2=18653
 semiconductor surface layers, current paths 1=3745
 semiconductor surfaces 1=5015
 in semiconductors 0=4325
 semiconductors of low carrier conc., equilb. pot. distrib. theory 4=28550
 semiconductors and metal oxide films 4=22689
 semiconductors, n-type, due to photoexcitation 2=6441
 semiconductors, photoemission, theory 2=2132
 semiconductors, surface, rel. to carrier recomb. 2=23261
 simulation in electrolytic tank 0=5349
 slow-waves, negative energy propagation 0=19925
 in spark, positive, long, in initial stages, meas. 4=18766
 spherical, cubical and tetrahedral clouds, e.s. energy 0=14947
 storage by dielectrics, due to electron bombardment 1=3809
 surface, semiconductor calcs. 0=18006
 in synthesized plasma, instabilities 1=3007
 in thermionic converters, low-press., neutralization 4=5694

Space charge—contd

- thermionic converters, low-pressure, theory 2=17777
 thermionic emission, electron space charge 3=9867
 thermionic energy converter, reduction 3=9713
 thermionic power converters, contribution of anode emission 0=15064
 thermoelectric energy converter, calc. 3=9718
 in thread glow discharge 4=14590
 three dimensional flow 0=15065
 Townsend discharge, pulsed, eqns. solns. 2=11625
 in Townsend discharge, transient, development and growth of ionization 0=5288
 transaxial electrostatic systems, main properties, theory 3=19341
 transient flow, in parallel plane diode 0=19733
 two-stream, non-linear waves, trapped electrons 3=583
 vacuum diode, electron and ion emission 3=21868
 waves, in cylindrical plasma 0=1132
 waves and e.m. waves in sheath helix 1=16403
 waves, in electron clouds 0=19916
 waves, Landau damping 2=9629
 waves, propagation along drifting multi-velocity beam in mag. field 4=29985
 waves, in relativistic Brillouin beams 3=5697
 and widening of electron beams 1=16401
 wires, semiconducting 2=6446
 BaTiO₃, space charge fields in 0=10020
 in BaTiO₃ surfaces, anti-parallel ferroelec. domains 0=4383
 BaTi_{0.75}Pt_{0.25}O₃ hexagonal crystals, space charge limited currents 4=28624
 in Cs thermionic converter 2=9520
 in CdS, thermal release of trapped charge 3=4949
 H₂, glows, dark space 1=18802
 H₂, prod. of negative current-voltage curves at 400 mm Hg 0=10886
 Hg arc, calc. for current density 0=262
 KBr pre-breakdown conduction mechanism 1=14392
 Li₂SO₄, H₂O, dielectric effects, proton mobilities 4=28480
 PbO, in photoconduct. overshoot 2=18748
 Se films, amorphous, space-charge-limited currents 2=6472
 Si films, trap-induced, rel. to high photovoltage 4=22803
 SiC films, trap-induced, rel. to high photovoltage 4=22803

Space research

- See also Atmosphere
 (Heading introduced in 1961)
 use of α -sources for low-thrust devices 4=13975
 air scooping vehicle for fueling 2=4874
 artificial electron injection as research aid 3=16238
 artificial satellite motion, long-period lunar and solar effects 2=4869
 artificial satellite observations, photographic, Asiago (1959-60) 2=11171
 astrodynamics and celestial mechanics 4=26888
 astronautical sciences conference 4=10931
 astronautics, cosmic radiation problems 1=4813
 astronomical instruments 2=2519
 astronomical observations needed 4=4960
 astronomical observations from space vehicles 4=13973
 astrophysical lab. orbiting, system design 2=13200
 atmosphere, water, total, above desert, Sahara, from Tiros III 3=18493-4
 auroral charged particle distrib., solid-state detector for obs. 4=17930
 azimuthal aiming system for launching 3=18667
 biological specimens in second Soviet spaceship 2=19358
 body moving in ionized medium, in mag. field 1=2668
 body of variable mass, moving in gravitational field, power reduction 4=10935
 British programme 2=13199
 British work, review lecture 3=7053
 camera for faint satellite photography 2=1030
 charged particle flux, influence of a charge 4=8851
 by chemiluminescent vapour cloud 4=7876
 conference, Varenna (1961) 4=20883
 conformal transformations and space travel 2=7040
 cosmic noise meas. at 3.8 Mc/s, by satellite 1961n1 1=18138
 cosmic ray equator, from 3rd Soviet spaceship 2=18211
 cosmic ray meas. >0.5 MeV 2=5756
 cosmic rays, future problems 3=4548

Space research—contd

- cosmic rays in interstellar medium 3=19718
 cryopumping for space simulation, conference papers (1962) 4=8533
 danger from cometary debris, assessment 3=23679
 data processing and information transmission, review 2=16058
 desert, Sahara, soil temperature, and i.r. radiation, Tiros III 3=18493-4
 developments in astronautics, conference, Southampton (1961) 2=4862
 on dielectric breakdown, losses, photo- and X-ray cond. 4=17511
 dielectrics appl., conference, Pittsburgh (1963) 4=15963
 dielectrics, conductivity and photoconductivity, radiation induced 4=17513
 Discoverer 17, nuclear reactions induced by solar protons 3=7951
 dust cloud about earth 1=6643
 dust-particles, micron-size, from Leonid meteor, satellite meas. 2=6986
 earth heat radiation meas. by satellite, data interpretation 4=26775
 Earth-to-moon trajectories, 3-body problem 3=25991
 earth and planets seen from space vehicle perspective 2=2573
 earth satellite orbital predictions, errors 2=1025
 earth's heat field struct. characts., from Tiros II 4=26776
 effects of high vacuum and u.v. radiation 4=20959
 electric field probe, rocket-borne, for meas. in auroral displays 4=10942
 electron density, 1000 km, from top-side ionograms 3=11421
 flight limitations due to cosmic rays 1=5173
 friction, surface, in vacuum environment 2=13188
 future scientific applications 1=18213
 γ -ray astronomy 2=4707
 gas discharge situation from atmosphere to outer space 4=20957
 gegenschein, rel. to earth's dust and gas tails 2=4731
 geomagnetically trapped particles, data from Sputniks II and III and Soviet cosmic rocket 1=7946
 Glenn orbital flight, luminous particles 2=24194
 guidance technique for interplanetary vehicles 2=11204
 Handbook of Astronautics 1=18211
 history, esp. atmospheric, solar and geomag. aspects 2=24186
 horizon scanner, inside-out, performance theory 2=9131
 human aspects, physiological and psychological 3=16433
 hypersonic atmospheric penetration causing optical spectra 4=13974
 instrumentation, review 2=11197
 interplanetary dust meas. by satellite 2=17235
 interplanetary, electromag. conditions from cosmic ray data 1=3346
 interplanetary ionization by solar extreme u.v. 1=2558
 interplanetary mag. field, rel. to net elec. charge of sun 1=5147-8
 interplanetary mag. fld. investig. via cosmic rays 4=25220
 interplanetary navigation, review 2=19354
 interplanetary plasma investigation instrument 1=15582
 interstellar communication by optical masers 2=4863
 ionospheric electron content, satellite obs., comparison of methods 4=2282
 ions, altitude distrib., O-He transition, satellite obs. 4=2288
 liquid surface shape under diminishing gravity 3=9288
 lunar and planetary exploration, programme 1=18225
 Lunik III, motion 2=1026
 mag. field measurements of outer corpuscular region 1=3306
 magnetic field in cosmic space, data review 4=26925
 magnetic field of earth 4=4795
 magnetic field, review 3=25937
 magnetic storms in interplanetary space 2=4730
 man in space, review of possible radiations 3=3633
 Mariner II, preliminary observation 3=7054
 Mars I station study of meteoric matter 4=26928
 mass spectrometers gas comp. study 4=26978
 measurements by third Soviet cosmic rocket 1=4815
 measurements by third Soviet cosmic rocket 1=10939
 Mercury-Atlas-6 space flight, observations 2=24193
 "meteor bumper" space vehicle shield, experiments with Pb 1=1665

Space research—contd

meteorite flux, several μ in size, meas. by satellite 2=11068
 micrometeorite meas. by recoverable sounding rocket 2=17264
 micrometeorites, distrib. near earth, satellite data 1=18062-3
 moon exploration programmes, review 2=15309
 moon and interplanetary trajectories, miss distance meas. 2=11185
 moon landings, guidance and control 2=11205
 moon probes, orbits, prelim. study 2=17311
 moon satellites, artificial, orbits 2=1027
 multi-stage rockets, design and sizing rel. to cost 2=4875
 navigation theory for round trips to Mars and Venus 2=11183
 navigation, trends, review 2=15408
 needle belt brightness 4=20960
 needles, West Ford, forces acting 2=2577
 needles, West Ford, mag. interaction and lifetime 2=7048
 nose cone travelling in mod. rarefied atmosphere, shock layer flow 4=11288
 novae, supernovae spectra < 3000 Å 4=29396
 nuclear rockets 2=4873
 observation of ring currents 22 000 km from earth's centre 1=6651
 optical instruments 1=18585
 orbiting astronomical observatory, optics 2=9117
 orbits, circular co-planar, bi-elliptical transfer 2=11189
 osculating orbits, Hansen's co-ordinates application 2=933
 physical chemistry, conference, Pennsylvania (1959) 2=2442
 planetary atmospheres, vertical thermal structure deduction 2=12993
 plasma acceleration 1=10694
 plasma acceleration 2=1414
 plasma accelerators for space vehicle guidance and propulsion 2=3056
 plasma density meas., unperturbed, by satellite 4=2470
 plasma, e.m. acceleration for space propulsion 2=3054
 plasma physics, role, elementary review 2=5327
 plasma probes on vehicles, rel. to ionospheric meas. 3=7571
 project West Ford 1=6724
 propulsion, electric, electron bombardment ion engines 2=22232
 propulsion, electronic arc as plasma generator 2=11635
 proton cut off for 1.5 MeV extraterrestrials 4=25240
 radiation effects, dosimetry, due to cosmic rays, Van Allen belts and flare particles 4=20958
 radiation hazard below 350 km 3=23638
 radiation hazards for cosmonauts 1=21080
 radiation, high-energy, Mariner II meas., Sept-Oct., 1962 3=22231
 radiation measurements review 2=16256
 radio communication by means of satellites 2=11208
 radio communication in space, propag. problems 2=17316
 radio signal interference round re-entry vehicles 2=11209
 re-entrant motion, in special relativity 4=2534
 re-entry aerodynamics, appl. to tektites, origin from moon 1=1637
 re-entry dynamics and thermodynamics 2=4864
 re-entry from orbit, fundamental considerations 2=4868
 re-entry problems, lab. simulated, gas density distrib. meas. 4=14198
 re-entry problems, review 2=15411
 re-entry, radiation energy transfer 2=9300
 re-entry vehicles hypersonic ballistic ranges 2=4880
 review 3=11608-9
 review, (1963) 4=10932
 review, India's participation 1=15584
 rocket exhaust jet spreading at high altitudes 2=4872
 rockets, visibility improvement, artificial "comet" launching 2=9124
 satellite, Doppler observations, with relativistic considerations 2=5279
 satellite elliptic motion, cosine functs., mean values 2=17313
 satellite, low-cost, preliminary design 2=4876
 satellite motion, lunisolar effect, long-period 1=15577

Space research—contd

satellite orbit, earths magnetic field effects 2=4865
 satellite orbit, 24-hr., nearly circular, rel. to equator ellipticity 2=7042
 satellite, orbiting, surface temp. variations 2=4870
 satellite, orbits, from gravitational earth model 2=11188
 satellite radiometry, i.r. 2=11199
 satellite, rotation about centre of mass 2=11195
 satellite tracking by Millston radar 2=13202
 satellites, artificial, tracking camera 2=7044, 11206
 satellites, meteorological and geodetic, orbital prediction errors 4=2474
 satellites, orbital transfer 2=11186
 by satellites, review 4=23955
 satellites, US and USSR, survey (Oct. 1960-Oct. 1961) 2=13193
 seal, ultra-high vacuum, for space simulation tests 1=10557
 setting sun, effect of refraction, as seen from space 3=23591
 shock prod. plasma, little value for re-entry study 4=16476
 silicone materials, performance in thermal-vacuum environments 4=20414
 solar research from rockets 1=15442
 solar system, early history 2=11106
 solar system size meas., review 2=17239
 space astronomy in GB 2=17310
 space environment as a dielectric, limitations 4=20956
 space-flight conference 1=15571
 space navigation, review 2=15407
 for space simulation chambers, vacuum meas. techniques 4=18294
 space vehicle tracking by Doppler effect 1=18228
 space vehicle tracking, guidance, and communication system. 2=11207
 spectroscopy of celestial objects from satellites 2=13201
 Sputnik III, 20 Mc/s w.w.v. bursts during last periods of 1958 1=18226
 stellar navigator for interplanetary guidance 2=11203
 sun, radiation, protons, interplanetary, long-lived > 3MeV 4=2413
 sun, US expt. programme from space stations 2=13122
 sun, u.v. and X-ray expts. from satellites 2=13128
 symposium on missiles and technology 2=4861
 technology, symposium, Hatfield 1962 3=16433
 telescopes for planets, stars, nebulae 2=13198
 telescopes for satellite tracking, automatic, theory 1=18230
 Tiros, optical instrumentation 2=11200
 trajectories for continuously applied propulsive thrust 2=11187
 trajectory charts, generalized 2=11184
 trapped radiation meas. up to 1000 km by ICBM 2=11088
 u.h.f. communications, using moon as reflector 2=11809
 UK 1 satellite, programme 3=1547
 u.v. irradiation chamber, for space vehicle thermal control coatings 4=18307
 u.v. and X-ray photometry, by rockets and satellite, U.S. Naval Research Laboratory 3=11481
 upper atmosphere, density variations 200-300 km, rel. to solar activity 1958-1960 1=20881
 upper atmosphere model ARDC (1959) 2=11047
 vacuum u.v. radiation physics, conference 3=5515
 vehicle propulsion by ion and plasma engines 2=7045
 Venus, atmospheric spectrum, $\sim 10\mu$, space obs. 4=13922
 visible radn. from earth and atmosphere at high altitudes by balloons 2=8972
 Vostok 3 and 4 space ship flight radiation monitoring 4=26979
 water drop shapes under low gravity 3=18666
 West Ford dipole belt, optical studies 4=7992-3
 West Ford dipole belt, orbital props. 4=30995
 West Ford dipole belt, physical characts. 4=30996
 West Ford dipoles, lifetimes 1=18221
 He⁺ ions at 1630 km, expt. evidence 2=8993
 MoS, sleeve bearings, sintered, space friction evaluation 4=20673
 Na vapour trails, diffusion coeffs. 2=7046

Space vehicles

See also Rockets; Satellites, artificial
 (Heading introduced in 1961)
 acoustic loading, linear response techniques 2=21962
 use for astronomical observations 4=13973

Space vehicles—contd

cryodeposits, optical props. 4=13015
 cryogenic rocket propellants 1=18222
 deep-space tracking, 960 Mc/s maser system 2=22331
 dog-carrying, radiation doses meas. 3=3634
 dosimetric meas. from 2nd Soviet spaceship 2=19356
 electrical propulsion, review 2=15415
 electrostatic field strength near surface in
 ionosphere 4=26815-17
 entry into elliptic lunar orbit, impulse 3=23714
 equations of motion in general relativity 4=11044
 flight between two points in central field 4=15965
 forces on and moments due to solar radiation
 pressure 4=2475
 French, of March 10 and 12, 1961, Na line intensities 1=11690
 fuel, natural sources on moon 2=24094
 hydrostatics in various gravit. fields 2=13306
 ionic and plasma propulsion 2=7045
 ionosphere and interplanet. gas study 2=19213
 ionosphere and interplanetary-gas study, review, radio
 signal reception 1=9303
 limitations to interstellar space travel 2=24187
 lunar and planetary exploration, programme 1=18225
 Lunik II, impact on moon 1=10400
 Lunik III, motion 2=1026
 Mariner 2, Venus microwave radiometer results,
 temp. 4=13954
 materials, review 3=16433
 "meteor bumper" shield, experiments with Pb 1=1665
 meteoroid penetration 4=2469
 motion in central field with slight transversal
 thrusts 4=15964
 motion, n-body problem with time-dependent
 forces 2=24075
 navigation, review 3=16433
 navigation theory, for round trips to Mars and
 Venus 2=11183
 nuclear propulsion 1=15578-81
 optimum trajectories with repeated impulses 4=15966
 orbits, derivation of parameters 4=20964
 Pioneer V, mag. storms obs. 2=4730
 Pioneer V results, mag. field 4=13976
 plasma wave scatt. from vehicle with plasma sheath 3=7703
 plasma effect on communications, axial mag. field
 effect 4=24824
 use of plasma for propulsion 1=16340
 plasma spikes 4=8929
 probes, interplanetary mag. fld. obs., review 4=4882
 projectile re-entry problem of heat transfer 1=2900
 radar cross-section in ionosphere, theory 4=8929
 radioactivity, induced, 15 days meas. 3=21135
 satellite transmissions, irregular fading 1=6754
 shielding against radiations in space 3=21139
 shielding for nuclear power plant 1=15582
 single-stage spaceships, propulsion 3=21138
 solar absorptivity-emissivity ratio, description 2=9445
 solar heating of rotating spherical satellite 3=7056
 Soviet, general data 3=3630
 Sputniks II and III, cosmic rocket; radiation belt data 1=7946
 structure design aspects 3=16433
 tracking by Doppler effect 1=18228
 tracking, radio facilities in S. Africa 2=24191
 velocity measurement, astro Doppler technique 2=15418

instrumentation

actinometric devices, temp. and press. depend. 3=21609
 aerials, breakdown with plasma sheath 2=4884
 amplifier, miniature broadband electromagnetic 4=27442
 for analysis of elements on moon's surface 3=21096
 British satellite research programme 2=13199
 Telescope, reconnaissance satellite, u.v.
 instrumentation 2=11198
 charged-particle traps for outer radiation belt
 observations 2=918
 cosmic γ -ray Cherenkov counter 2=18199
 dosimeters 3=24557
 earth-space radio propag., ionosphere effects 4=15886
 earth spectra, i.r. horizon 3=16435
 fission fragment conversion reactors 4=446
 γ -ray telescope, high-energy 3=21146
 Geiger counter in Injun, efficiency 3=16436
 guidance technique 2=11204
 horizon scanner, inside-out performance
 theory 2=9131

Space vehicles—contd**instrumentation—contd**

horizon sensor, linear output, wide-angle, optical
 system 4=10938
 horizon sensor, i.r., earth radiation model 4=2179
 i.r. 4=8364
 i.r. meas. equipment 4=29496
 infrared detectors 2=11201
 ion traps, two and three electrode 4=2477
 ionosphere, free-electron conc. meas. 2=17153
 isotope-generator, reliability and safety 4=2476
 lunar landings, guidance and control 2=11205
 Luneberg lenses for e.m. waves 2=13695
 magnetic field meas. 3=25937
 magnetometers 4=10769
 magnetometers, motion of frame of reference 3=21140
 Mariner II, Anton 213 GM tube 3=11616
 Mariner II, i.r. radiometer 4=24429
 for meas. primary cosmic-ray flux 2=3424
 micrometeoroid fluxes, new investig. method by
 orbiting metallic wires 4=4893
 multichannel analysers 3=19144
 navigation, trends, review 2=15408
 orbiting astronomical observatory 2=9117
 orbiting solar observatory, instruments 3=9286
 particle spectrometers 2=17981
 photographic emulsions, automatic development 2=19360
 photometer, photoelec., multicolour 3=16726
 and planets, radiation, h.f., l.f., noise 3=16348
 plasma sheath, effects on communication, conference,
 Boston (1959) 2=2576
 power sources, nuclear and non-nuclear 3=21144
 power systems, nuclear, Rankine-cycle fluids, thermal
 data 4=5462
 pressure gauge, to micron region 2=2796
 probe for interplanetary plasma 4=20965
 probes, review 4=21519
 quartz mirror-mount design 4=24360
 radioastronomical aerials, effective area 3=23703
 radio transmissions, ionospheric scattering 1=9304
 range switching, automatic 3=13940
 Ranger 3 and 4, γ -ray spectrometer 3=21145
 re-entry, ionized layer, radio interference 2=4883
 re-entry radio blackout, elimination 3=7059
 re-entry, telemetry through plasma sheath 2=4885
 re-entry vehicles, communication, rel. to e.m. radiation
 from slotted cylinder 4=8942
 Redhead magnetron and Bayard-Alpert vacuum gauges
 for upper atmosphere meas. 4=20859
 review 2=11197
 rocket spectrophotometry far-u.v. apparatus 4=10940
 rotation and course-holding, flywheel system 2=11202
 S16 space station, for US solar research 2=13122
 scintillation counter, for lunar γ -ray meas. 2=19279
 scintillation counters 1=1982
 scintillation, geiger counters on 2nd Soviet
 spaceship 2=19357
 semiconductor detectors for proton spectra 2=18198
 sextant, space, coaxial dual-field optics 4=7994
 skylight, diffuse, meas. apparatus 2=24020
 solar batteries 2=11211
 solar-cell power systems 2=13196
 solar direct conversion power systems 2=13197
 solar spectrometer, Lyman- α , dissecting 4=10939
 spectrographs for bright early-type stars meas. 2=13201
 spectrometer, i.r. Fourier transform interfero-
 meter 4=29494
 spectrometers, grating, solar 3=11615
 spectrophotometer, échelle, for solar u.v. 2=13123
 spectroradiometer 1=1841
 stellar navigator for interplanetary guidance 2=11203
 sum-vector referenced guidance system 3=7058
 for sun, X-ray obs., signal reception 4=29495
 symposium 2=4861
 telemetry techniques for large vehicles 2=24192
 telescopes for planets, stars, nebulae 2=13198
 television recording of moon and planets 3=7014
 telescope using Fresnel zone plate in far u.v. and
 X-ray region 1=4448
 telescopes for satellite tracking, automatic,
 theory 1=18230
 Tiros, optical 2=11200
 Tiros II radiometers for meteorological studies 2=1028-9

Space vehicles—contd**instrumentation—contd**

- tracking, guidance, and communication system 2=11207
- vacuum-system remote-opening device 3=3842
- weight, power limitations, sterilization 3=21143
- X-radiation monitor, rocket-borne 2=9034
- X-ray counters, mica and Be-types, meas. channels 4=5734
- X-ray spectrometer for soft solar spectrum 3=9152
- CO₂ emission meas. at 15 μ , multiple beam interferometry 4=27310
- CsI(Tl)-photomultiplier for low-energy γ -ray astron. meas. 2=18096
- Ru vapour magnetometer, for geomag. meas. 4=27603
- Si p-n photocell, power rel. to radn. belt effect 4=28648
- Si solar cell, proton irradi. damage, 1.35 to 130 MeV 4=28447

Spallation. See Nuclear spallation.

Spark chambers

(Heading introduced in 1963)

- acoustic transducers, cylindrical capacitor 4=27729
- air-gap type, efficiency 3=19526
- automatic scanning system 4=21716
- corona type, fission fragment detect. against α -background 4=9030
- for cosmic-ray lecture demonstrations 3=22221
- data-handling, using television cameras 4=14992
- data processing, computer 3=19519
- digitized, data analysis 4=787
- digitized, using wires carrying mag. cores 3=19527
- digitizing-recorder, automatic 4=24957
- discharge prod. along particle tracks 3=24566
- efficiency for charged-particle shower recording 4=5916
- for emulsion entrance coord. meas. 3=17159
- ferrite core memories to record spark locations 3=10009
- foil, in magnetic fields, pulsed, high 3=19530
- four-gap with acoustic probes, cosmic ray tracks 3=2178
- gas discharge avalanche, delineating 3=19532
- glass-metal, multiple track efficiency 4=3508
- uses, high-energy 3=17148
- inclined discharge channels 3=24564
- integral discharge capacitors 4=3264
- ionization density rel. to track brightness 3=19525
- ionization meas., π^+ at min. and $p \leq 4.5 \times \text{min.}$ 4=19339
- for K meson bubble chamber track labelling 3=17339
- large mag. field, design, construction, performance 3=17145-6
- large in terelectrode spacing, for inclined tracks 3=17151
- magnetic field, 18 kG, 128 gaps 3=17144
- in magnetic field, isotropic props. 4=14991
- in magnetic fields, sensitive time 3=14838
- for magnetic spectrograph, sonic type 4=11864
- measurement of photographs with punched card output 4=9039
- memory time, recovery 3=10008
- for mesons, K⁻-p, 700-1400 MeV/c 3=24790
- microphone for, narrow strip type 4=29718
- modular, construction and use 3=17143
- for momentum meas. of charged particles 3=17150
- multigap triggering arrangements for track, photography 4=16777
- multi-wire, use of ferrite memory cores 4=16775
- neon, efficiency rel. to amount of air contaminating it 4=9029
- neutrino, CERN 3=24690
- optical system, stereo, in mag. field 3=17149
- optical viewing system, for magnet economy 3=17147
- probe, high-voltage pulse, fast rise time 4=16776
- for proton polarization meas., $60 \times 80 \times 60 \text{ cm}^3$ 4=9031
- pulsed mag. field, 20-100kG, effect of 3=7751
- with recording, magnetic, improvement by ion diffusion reduction 4=786
- relative ionization, use, Λ^0 and K^0 decays 3=17140
- review 3=17138
- review 4=14958
- review 4=24935
- scanning, t.v.-film 3=19528
- sensitive time reduction, effect of Ar-O, Ar-N mixtures 3=17139
- shower detection efficiency 3=17141
- shower particles, counting efficiency meas. 4=27730
- simultaneous particles, efficiency for 3=19531

Spark chambers—contd

- sonic 3=17142
- sonic, instrumentation 4=21717
- spaced, thin plate, for track angle meas. π -p scatt. 3=24565
- spark position determ. by current meas. 4=9032
- spectrometer, mag., for π - π interaction 3=17326
- streamer chamber 4=27731
- streamer detection with arrested sparks 4=14993
- streamer discharge, two-electrode variant 4=24956
- track follower 3=19529
- track spark chambers, operation 4=19340
- track-type, three-electrode, neon 4=3263
- track, with particles parallel to electrodes 4=5915
- triggering circuits, electronic 4=9028
- 2-electrode in magnetic field, fast-particle tracks 4=5917
- two-electrode, with large discharge gap, in magnetic field 4=788
- two-electrode, with parallel particles, in mag. field 4=9033
- wire, carrying mag. memory cores 3=19527
- with wire mesh electrodes, improved track localization 4=16774
- 70 \times 50 \times 50 cm³, 8 gaps, 1.4 atm Ne, efficiency 4=3262
- Ar, characteristics investigation 4=785
- Ne-alcohol, characteristics 3=14837

Spark counters

See Counters, spark

Sparks, electric

See also Breakdown, electric; Lightning

- air, electron avalanches, using cloud chamber 0=16974
- air, in enclosed non-irradiated gaps 0=10887
- air, formative time lag meas. 4=8657
- air, I, V, and spectral line intensity, time depend. 1=285
- air, intense light flashes, energy-time relation 3=21742
- in air, light emitted 2=17813
- in air, re-ignition voltage of gaps 2=3012
- air, up to 60 kA, direct shock waves meas. 4=8660
- air spark gaps, spontaneous breakdown 2=7577
- air, spectra with resolution of time and along channel cross-section 1=4456
- air, streamer mechanism and main stroke in filamentary breakdown 1=10678
- air, temp. of discharge channel 0=14996
- air, temp. and electron density distrib., in channel 2=22185
- breakdown, formation stage, point-to-plane gap 4=18756
- brightness of discharges in He, N₂ and A 1=5428
- brightness of discharges in He, N₂ and A 1=10681
- brightness temps., peak, 4500-3000 A 3=4053
- canal growth meas. for circuit with rapidly increasing current 2=22184
- capillary and surface spark, as nsec light sources 3=11905
- channel decay after current passage 3=9748
- channel development in rod-to-plane discharges 1=5429
- channel development in rod-to-plane discharges 1=10682
- channel heating by shock waves 3=21740
- colour centres and ions prod. in solid electrodes 1=14328
- column, temp. and conductivity meas. 3=1948
- condensed, as visible to far u.v. light source 1=16089
- constriction, during impulse breakdown 4=8656
- controlled gaps in air 1=4572
- controlled initiation mechanism 4=8633
- controlled, operation, with parallel connection and in "short" circuit 2=17797
- crossed-cylinder electrodes, for voltage meas., 20-140 kVp 0=5286
- current and voltage gradient, meas. by c.r.o. 0=249
- discharge, initial stages, light emitted 4=14607
- discharge, spectra in nitrogen and air, 5000-10000 A 1=19593
- discharges, formative time lags, correl. with light emitted 4=14608
- effect on structure of Pt-Ag alloys 0=16352
- electrode erosion 2=22183
- electrode spark conditioning 4=18767
- electrode vapour temp. 0=3747
- electroerosion effect with RC type circuit 3=7473
- electron density distrib., in channel 2=22185
- electron and excitation temperatures, measured spectroscopically 0=5287
- emission of source in vacuo, 0.5-2.2 A region 4=29890
- erosion of Cu in kerosene 0=14981

Sparks, electric—contd

erosion of metal monocrystals 0=16985
 expansion, positive ion acceleration 1=18789
 friction sparks, temp. and ignition of gas mixtures 0=7109
 gap recovery, high-current 3=4049
 gap switch, low-pressure, with wide voltage range 3=4048
 gap, zero trigger energy, up to 250kA 4=14611
 gas mixture, effect of gap-length on ignition 4=480
 gas mixture ignition rel. to electrode materials 2=10979
 gas mixtures, ignition, effect of capacity and induction components 3=5639
 with graphite electrodes, r.f., C atom association 2=166
 h.f., ion prod. rel. to electrode analysis 4=20842
 high-pressure gaps, production of μ sec current pulses 0=16967
 high-pressure gaps, for use to 1000 atm. 0=2340
 high-voltage gaps, μ sec triggering 0=7108
 hot-wire triggered, very high voltages 3=4050
 in hydrogen, formative time lag meas. 3=9736
 impulse streamer branching from Lichtenberg figure studies 4=2955
 in inert gases, time-resolved spectra 2=7576
 influence of ionizing radiations on breakdown 0=7106
 intensity increase and duration reduction 3=14547
 ion source, h.f., vacuum, rel. abundance, voltage var. 4=607
 ion source, for mass spectrometer 3=16989
 ion source, pulsed, multicharged 3=2046
 ions, polyat. molecular with diff. element electrodes 2=9533
 light flashes of 10^{-7} - 10^{-8} sec 2=9544, 19698
 as light source, for atomic absorption spectra 3=11923
 in liq. Ar, rel. to metal powder prod. by erosion 4=30999
 in liquids, heavy spark channel expansion 0=7104
 in liquids, obs. in bubble chamber 2=7228, 22182
 in liquids, spark channels, cylindrical shock wave 0=15002
 long, impulse corona and pre-breakdown mechanism 3=24246
 long, mechanism, for various electrode shapes 0=2341
 long spark, theory 4=24621
 long, very early stages, photographic data 2=7575, 11631
 low inductance, sliding, vacuum u.v. light source 3=11921
 low-voltage, for spectrochem. analysis of hard-to-excite elements. 3=25843
 machining, clearance regulation method 4=31000
 magnetically controlled spark gap 3=21741
 in meteor ionization trail 0=6577
 miniature, high power, channel broadening 3=16913
 negative, in air, 1-3 m, photographic study, lightning comparison 3=21738
 negative spark, mechanism 4=14606
 photoelectric recording of time-resolved spectra 0=3631
 plasma, thermal, thermodynamic equil. 2=11645
 positive, long, in initial stages, space charge meas. 4=18766
 pre-breakdown current in compressed gases, temp. depend. 0=3743
 production between positive point electrode and plate 4=8658
 radiation from ionized region 2=5311
 rare-earth ions, time-resolved spectra, apparatus 2=14204
 re-ignition, high current discharges 2=1404
 repeating discharge, dielec. strength recovery 3=21743
 in shadowgraph photography, 450J discharge 0=14994
 shock wave acceleration in plasma 2=9587
 shock-wave generation, channel broadening 4=266
 shock wave velocity and channel development, theory 1=18787
 small, intense, channel expansion 3=9749
 solids, rel. to sample size 3=17657
 spark-channel expansion, in first μ sec 0=5285
 spark channels in air, current density, gas temps. 3=1949
 spark conditioning eqn., plane electrodes in vacuum 3=14545
 spark-gap crowbar, 3 configurations 1=4574
 spark-gap, double electrode, plasma-jet effect 4=18764
 spark-gap, high-voltage triggered 4=5582
 spark-gap with protruding needle, characteristics 2=9543
 spark-gap switch, low inductance, low press. 2=17760
 spark gap trigger system 4=29891
 spark gaps in air, controlled, performance study 1=282
 spark gaps in inhomogeneous fields 1=16296
 spark gaps, low-pressure, triggering mechanism 3=4051
 spark hardening of metals 1=1625

Sparks, electric—contd

spark ion source, graphite, polyatomic molecules, formation and concentration 4=25667
 sparking threshold, rel. to Townsend-like breakdown 4=18750
 spectra, method for wavelength shift of spectra 1=3511
 spectra recording method with resolution of time and along channel cross-section 1=4456
 spectra, var. with self absorption and conc. 4=2171
 spectra, Zn VIII triplet with brass electrode 2=15900
 spectral line broadening and ion concn., time variation 3=2553
 spectral lines, self-absorption and intensities 3=10440
 spectrochem. analysis source unit. 3=25842
 for spectrochemical analysis, Cu, effects of discharge chars. 4=7794
 in spectrochemical analysis, effect of electrode material 2=23982
 spectrochemical analysis, metals, surface phenomena. 3=25844
 spectroscopic source, high precision 0=5169
 steel ball array as 3cm radiator 1=5586
 study by photomultipliers and fast oscilloscopic techniques 1=10678-9
 suppression by pulsed corona 4=27502
 switches, fast triggered, for 2MJ capacitor bank 3=7471
 temperature decay of high-current channels 3=21739
 temperature distrib., in channel 2=22185
 temperature fall from 50000° to 5000° K 4=8659
 trigatron, pressurized, 10-50 kV low jitter operating range 4=18757
 trigatron spark gap, discharge development 3=24248
 triggered gap mechanism 4=27505
 triggering spark gap by exploding wire 4=18763
 as u. v. light source, h. f. 3-electrode system 4=29758
 ultra-short light flashes, after-illumination effect investigation 4=14609
 ultraviolet emission, study with high-speed camera 2=15762
 vacancy quenching in noble metals 2=8204, 10378
 vacuum cup electrodes, effect of graphite adsorpt. 3=13631
 vacuum gap, electron triggering, for rapid switching 2=340, 17796
 "vacuum sliding", prod., as u.v. source 4=481
 vacuum spark gap, properties 0=7107
 vacuum spark, radiation patterns 1=10683
 vacuum, time-resolved line emission 1=17262
 in water, channel broadening and shock waves 1=5430
 in water, glass cracking 1=12603
 X-radiation, electron temp. 0=9010
 for X-ray spectroscopy 4=24781
 A, spark discharges, I, V and spectral line intensity, time depend. 1=283
 A, spectral line broadening and shift 0=17702
 A, streamer mechanism in filamentary breakdown 1=10679
 A, in T-shaped tube, 30 kc/s oscillations 2=1405
 A II and He I, spectral broadening and shift 0=13417
 A, Xe and N₂, high-temperature prod. 0=7105
 Al, dislocation formation 3=12969
 Ar, high current spark gaps, dielectric recovery, temp. decay calc. 4=27503
 Ar, at high press., long spark stabilized by rotating gas 4=14612
 Bi, dislocation formation 3=12969
 Cd I, II spectra, press. effect of foreign Zn 4=25497
 D, channel expansion 1=18790
 Fe-Si alloy, dislocation formation 1=17529
 H, channel expansion 1=18790
 H, high current spark gaps, dielectric recovery, temp. decay calc. 4=27503
 in H, reignition of freely recovering spark channels 3=14544
 H₂, formative time lag meas. 4=8657
 H₂, shock-wave generation 4=266
 H₂, sparking voltage near Paschen minimum 4=479
 He, charged-particle density 1=16281
 He, electron concentration meas. from plasma continuum intensity 2=19986
 He, spark discharges, I, V and spectral line intensity, time depend. 1=283
 He, temp. and electron density distrib., in channel 2=22185
 He, 2.5-12 atm. 0=14998
 Li III excitation in vacuum sliding spark 4=18765
 N, channel expansion 1=18790

Sparks, electric—contd

- N, spark discharges, I, V and spectral line intensity, time depend. 1=283
 N₂, formative time lag meas. 4=8657
 N₂, temp. and electron density distrib., in channel 2=22185
 N₂O and H₂ mixtures, behaviour 0=3746
 O, channel expansion 1=18790
 W, far u.v. continuous emission, spatial distrib., apparatus 3=24249
 Xe, h.f. discharge repetition, spark channel explosions 3=1950
 Zn, dislocation formation 3=12969

Specific heat

- See also Thermodynamic properties
 absorption band widths, optimum conditions for measurement 1=2874
 acetone and acetone-methyl iodide mixtures, liquid 2=11356
 air-C mixtures, 8000°-30 000°K, 1-150 atm 2=5069
 air plasma, 1-30 atm., 1000-30 000°K 1=10700
 alkali halides, calc. 0=2782, 13480
 alkali halides, Debye temp., from X-ray reflection intensity, temp. var. 4=4249
 alkali halides, Debye temps., temp. depend. 3=22667
 alkali halides, rel. to lattice dynamics 2=6250
 alkali halides, lattice vibrations 0=9842
 alkali halides, at low temp., search for anharmonic effects 0=1556
 alkali halides, with NaCl structure 3=8350
 alkali halides, 0.5° to 1.5°K 4=9857
 alkali halides, rel. to spectroscopic behaviour 3=754-65
 alkali metals, liquid, heat capacities 3=23870
 alkali metals, low-temp., theory 3=12947
 alkali pentaborate hydrates, heat capacity meas. from 15° to 370°K 4=30517
 alloys, binary, theory 1=20589
 alloys, dilute, anomalies 2=8171
 alloys, dilute, theory 0=11583
 alloys, dilute, using Thomas-Fermi theory 2=2052
 alloys, f.c.c., of 3d transition elements, low-temp. 4=12639
 alloys, very dilute, resistance minimum phenomena 4=15425
 alloys of transition elements in normal metals, low temp. anomalies 3=8496
 α-alumina, Calorimetry Conference samples 2=22081
 α-alumina, heat capacity 4=2879
 anomalies, rel. to atomic forces 1=11159
 antiferromagnet, specific heat rel. to suscept. 3=3142
 antiferromagnetics, in mag. field 2=12800
 antiferromagnetics, temp. depend. 0=1815
 antiferromagnets, mag. field depend. 3=3143
 azurite, Cu₃(CO₃)₂(OH)₂, at 1.7-3.6°K 0=1559
 b.c.c. elements, lattice calc. from vibr. spectra 2=8166
 benzene adsorbed on graphite, statistical calc. 4=2132
 benzene, effect of deuteration 2=13324
 benzoic acid, heat capacity determ. using isothermal calorimeter 4=21350
 1, 3-bisdiphenylene-2-phenyl allyl, down to 1.3°K 4=4391
 Bose and Fermi gases, two-dim., identity, quantum statistics 4=27108
 boson gas, Hartree-Fock theory 3=18751
 Boyle's-law gas 3=11831
 α- and β-brass, electronic sp. ht., low temp., composition depend. 0=12073
 β-brass, rel. to thermal expansion, Pippard reln. 4=28947
 canted spin arrays, spin-wave contrib. 1=12509
 carbonyl iron, temperature compensated Debye temp. 1=11166
 characteristic temp. meas., from X-ray diffraction spectra 0=17898
 characteristic temps. of II-VI cpds. 4=28372
 clathrates, β-quinol, of N₂, CO, CH₄, 15°-100°K 3=8284
 colloids 0=18443-5
 condensed gases above their b.p. 2=7448
 constantan, heat capacity, 0.15°-4.2°K 3=20107
 corundum, 500-2000°K 3=20103
 critical mixtures, heat capacity, theory 2=13325
 crystal, anharmonic contribs. above Debye temp. 2=12380
 crystal lattice statistics, 7 models 3=12910
 crystal lattices, calc. by Padé approximants 2=12381

Specific heat—contd

- crystals, anharmonic, at low temps. and abs. zero 4=9851
 crystals, anomalies due to heavy atom impurities 4=6740
 crystals, Debye char. temp., Post's method 3=772
 crystals, Debye temperatures 1=14184
 crystals, fallacy of Debye and Born theory 0=2796
 crystals, general theory 0=2790
 crystals, Grüneisen's law rel. to potential energy 2=6289
 crystals, Grüneisen parameter rel. to vibr. instability 4=9865
 crystals, infrared absorption 1=1167
 crystals, mixed organic, and surface films, rotational transitions 2=8765
 crystals, Pippard's relns. deriv. 3=8357
 crystals, thermal X-ray scattering factor relationship 4=1393
 crystals, rel. to thermodyn. props. of monatomic chain 2=10332
 cubic crystals, Debye temps., comparison 2=3842
 cubic crystals, face-centred, at 0°K, calc. by modified Houston method 0=7850
 cubic lattice 0=11585
 at Curie point, const.-coupling, calc. 3=20108
 Debye temp. of Ag, temp. depend. 1=19722
 Debye temp. calc., binary compounds 4=22499
 Debye temp. calc. from elastic consts. 3=20110
 Debye temp. calc., modified Houston method 0=7850
 Debye temp. calc. from X-ray scatt. temp. depend. 2=3843
 Debye temp., from l.f. elastic velocities 3=8369
 Debye temp. meas. methods, review 2=3842
 Debye temp. superconducting In 1=19693
 Debye temp. III-V compounds, from elastic moduli and lattice consts. 3=22666
 Debye temps. in cubic polyatomic lattices, Houston and Blackman methods 4=12651
 Debye Θ calc., extension of Houston's method 1=36J8
 diamond, Ising model, statistics 3=12898
 diamond, 0°-1000°K, calc. from lattice vibr. 2=8506
 diamond, from spectrum, i.r., vibr. freqs. 3=18003
 diamond, 273°-1073°K 2=12382
 diamonds, 0-1000°K 0=2795
 difference for const. and stress const. strain 4=20629
 1, 2-difluorobenzene 3=8291
 Einstein crystal model, anharmonic forces 0=1555
 electron gas, degenerate, calc. 4=24101
 electron gas of intermediate density, calc. 3=753
 electron gas, low-density 1=8899
 electron, transition metals and alloys 2=581
 electronic, effect of electron-phonon interaction 4=22524
 ethyl alcohol, effect of deuteration 2=13324
 ethyl alcohol, ratio meas. 4=8206
 ethylene glycol, effect of deuteration 2=13324
 f.c.c. crystals, anharmonic contrib. 2=569
 f.c.c. and two-dim. square lattices, Grüneisen coeff. 3=25204
 fermion system, interacting, at low temp. 0=14538
 ferrites, 1.8-5°K, mag. field at nucleus 2=6283
 ferromagnet, Heisenberg, from longitudinal correl. function 4=13127
 ferromagnet-Cu, low temps. 4=13126
 ferromagnetic, mag. field var., approx. calc. 4=12646
 ferromagnetics, in mag. field, near Curie point 0=1782
 ferromagnets and antiferromagnets, mag. specific heat 1=20095
 films, solid, thermal vibr. theory 3=12923
 fluorspar 0=20751
 free radicals, Ising model interpretation 4=10295
 gas, C_p/C_v ratio, teaching experiment 1=6987
 gases, condensed, high press. meas. 4=16283
 gases, γ temp. var., student experiment 4=27217
 gases, measurement, at high temp. and press. 1=1768
 gases, mixture, rel. to sound velocity 2=2774
 gases, polyatomic, rel. to thermal cond. and viscosity 4=5240
 gases, twentyfive, temp. var. 4=18245
 GeV sulphides, 65-300°K 0=13491
 glycerine, effect of deuteration 2=13324
 graphite, band model 1=4975
 graphite, force consts. calc. 4=20185
 graphite, low temp. limit 0=17892
 graphite, 1000°K to sublimation temp. 1=17416
 graphites, 0.4°-2.0°K, meas and theory 3=12925

Specific heat—contd

graphites, at very low temps., interpretation 4=25855
 Grüneisen const., free volume theory 3=25203
 Grüneisen vel. theory, anharmonicities 4=15432
 helium, solid, exchange, separate meas. 4=21388
 hydrogen plasma, 1-30 atm., 1000-30 000°K 1=10701
 ice, anomalous props. 0=11579
 ice, Debye temperature 1=7540
 ice at low temp. 1=2379
 inert gas solids, Grüneisen parameters, $\gamma(n)$, calc. for f.c.c. lattice 4=17379
 inert gas solids, ideal, using Mie-Lennard-Jones potential 4=6712
 infrared optical materials, forty-eight 4=2811
 insulating materials, containing moisture and ice, method of meas. 0=8822
 insulators, 80° to 500°K, calc. 4=30533
 inversion of curves, lattice freq. spectrum determ. 2=570
 inversion of sp. ht. function, vibrational spectrum of solids 0=20744
 ionic solids, at const. vol., temp. depend. 0=4270
 Ising model, singularity, Padé approx. method 3=5005
 jumps, in relation to melting point formulae 0=14887
 lac, calorimeter for 0=7008
 liquid mixtures, critical, corrected results for excess heat 4=14162
 liquids, calorimeter, isothermal-adiabatic, automatically controlled 2=7449
 liquids, cell model theory, rel. to intermol. energy 4=151
 liquids, rel. to collective movement theory 3=129
 liquids and dense gases, hole theory 3=18800
 liquids, effect of hydrogen bond 4=21121
 liquids, heat capacities, calc. from rigid sphere eqn. of state 4=18192
 liquids, ratio rel. to viscosity 2=9260
 liquids and solids, by Calvet microcalorimeter 1=18670
 linear chain, anharmonic contrib. 2=568
 low temp., in hyperfine coupling meas. 0=2991, 13756
 low temp., temp.-wave study 0=19580
 low thermal cond. substances, calorimeter 2=15794
 lunar surface, methods, results 2=4733
 magnetic contribution calc. 4=22960
 magnetic domain-wall motion contrib. 4=15635
 magnetic, high temp., Heisenberg ferromagnets, calc. 4=13178
 magnetic linear chains with anisotropic coupling 4=26273
 manganin, heat capacity, 0.2°-4.2°K 3=20107
 meas. at 1000-3000°K 2=2925
 measurement, apparatus for -150° to +100°C 0=2276
 measurement with E. Calvet microcalorimeter 4=27366
 measurement, electrical conductors, by filament flash heating 4=5433
 measurement 50°-650°C, adiabatic calorimeter 3=16831
 measurement, of gases, lecture demonstration 1=2911
 measurement, at high temp. prod. by solar furnaces 0=14896
 measurement at liq. He temps. of small values 4=24464
 measurement, metals, up to 500°C in vacuo 0=5223
 measurement, metals, at high temp. 0=9853
 measurement, solids, molar, calorimeter, 10°K-290°K 3=21607
 measurement, up to 3650°C 0=12531
 metal particles at very low temp., anomaly 2=14383, 16627
 metals and alloys, low temp., use of computers 4=8538
 metals and alloys, meas. by flash method 1=15006
 metals, alloys and various inorganic and organic subst., 1-300°K 1=910
 metals, conduction electrons, effect of electron-phonon interaction 0=11592
 metals, cubic, Debye G and compressibility 1=8884
 metals, Debye temp. rel. to cold neutron scatt. 3=4823
 metals, Debye temp., from temp. dependence of elec. resistance 2=3978
 metals, electron interaction effects, calc. 3=753
 metals, electron-phonon interaction effect errors 4=20211
 metals, electronic, rel. to internal pressure, theory 0=13464
 metals, filaments, meas. by controlled flash heating 3=7379
 metals, Grüneisen constant, rel. to density 2=10747
 metals, low-temp. props 4=12640
 metals in mag. field, electronic contrib. 3=22664
 metals, molten, rel. to conduction, diffusivity, surf. tension 2=17445

Specific heat—contd

metals, 100-900°C, direct meas. apparatus 0=8834
 metals, relationship to thermal cond. 0=17897
 metals, rel. to structure 2=19074
 methyl borate, from spectroscopic data 2=8100
 methyl iodide, cryst., from spectral data 4=28715
 methyl iodide, liquid 2=11356
 methylene chloride, liquid, vibr. spec. heat relaxation 0=6791
 methylphosphonyl dihalides, heat capacity meas. from 15° to 335°K 4=30521
 moisture, evaporation, from capillaries of porous body, thermodynamic calc. 4=11414
 molar heat, temp. function, for 25 gases 1=15956
 nuclear matter 0=11124
 nuclear mag. spec. ht. in ferromag. alloys, internal fields det. 1=8882
 of order-disorder model, 1-dimensional, discontinuity near phase transition 1=9149
 organic compounds, transition to plastic cryst. state 2=10306
 organic liquids, variation with pressure rel. to u.s. propagation 1=15873
 orthorhombic crystals, Debye temp. at 0°K 1=914
 paramagnetic crystal with strong spin-lattice coupling 4=6739
 paramagnetic salts, influence of dipole-dipole coupling 0=11578
 paramagnetic salts, spin-system heat capacity, exper. test of Van Vleck's formula 3=22665
 particle in box 2=1075
 plastics, determination 2=23023
 polyethylene, crystalline, 1.8°-5.3°K 2=14380
 polyethylene, crystallinity dependence 2=23904
 polyethylene, low temp., from force consts. 3=8366
 polymers, linear, at low temp. 0=18384
 polymers, linear, low temp., from force consts. 3=8366
 polypropylene, atactic and isotactic, rel. to structure 3=10597
 polypropylene, rel. to γ -irradiation 3=2728
 polystyrene, in glass-transition interval 4=7736
 polytetrafluoro-ethylene, 80° to 500°K, calc. 4=30533
 propionitrile 2=5222
 propylene oxide, heat capacity from 11° to 300°K 4=22496
 quantum theory, for low temperature variations 0=219
 quartz, crystalline, 2-4°K 0=9852
 quartz sand, rel. to temp. and porosity 2=10328
 rare earth cpds., cubic, calc., from ferromag. spin wave states 4=13219
 rare-earth ethylsulphates 3=25579
 rare earth ethyl sulphates, anomalous, and phonon spectra 4=6714
 rare-earth Fe garnets, at low temp. 0=9855
 rare earth metals 1=3605
 rare earth metals, 0.4-4°K, nuclear term and mag. consts. 4=15429
 relaxing gases, from sound vel. meas. 0=5052
 rock salt, eval. from spectroscopic behaviour 2=6258
 rubber, natural, difference, and compressibility calc. 4=23201
 semiconductors 4=12638
 semiconductors, meas. by Ioffe-Ioffe non-stationary method 1=4490
 silica, vitreous, anomalies 0=11580-81
 simple cubic lattice, calc. 2=18896
 solid air, anomaly 1=7537
 solid solns., dilute, electronic partition function 4=17359
 solid solns., low temp., theory 2=23070
 solids, anharmonic contrib. 2=568-9
 solids, anharmonic correction at high temp. 2=14378
 solids, anisotropic, C_p - C_v reln. demonstration 2=6268
 solids, Debye charact. temp., review 2=10333
 solids, disordered, deriv. from mech. props. 2=14377
 solids, rel. to methyl group internal rotation barriers 3=25197
 solids, molar or atomic, rel. to other props. 0=9854
 solids, theory of surface sp. ht. 3=6475
 solids, Thirring's expansion, extension of range of validity 1=17411
 solids, vibrational, theorem, inflection point, generalization 4=1394
 spinel, many-component, configurational, determ. 2=3838
 splitting of doublet ground state 0=8032

Specific heat—contd

statistical mechanics approach 2=15826
 steam, const. press. on saturation curve 4=11192
 steam; eqns. of state 2=13366
 steel, stainless, type 316, at high temps. 2=4445
 steels, Cr stainless, 30-1000°C, phase transform. 2=23078
 sulphuryl fluoride 0=5016
 superconducting metals 2=7515
 superconductor, rel. to Fermi surface anisotropy 2=1335
 superconductors, anomaly at supercond. transition 3=14445
 superconductors, rel. to electron-phonon interact. 3=3950
 superconductors, ferromag. 1=1863
 superconductors, lattice spec. ht. anomaly, phonon self-energy theory 1=10645
 superconductors, strong coupling 4=27411
 superconductors, temp. dependence 1=6998
 superconductors, type II, mixed state, temp. var. 4=11471
 superparamagnetic particles, temp. dependence calc. 1=14178
 spinel, many-component, configurational, det. 1=19714
 surface sp. ht. of isotropic solid at low temp. 0=20748
 tables, for ideal gases and isotope exchange 1=9418
 tetramethylammonium hydrogen dichloride 2=14303
 theory 4=3990
 thermal capacity, saturated isomerizing vapour 3=11833
 θ (elastic) rel. to θ (calorimetric) near $T = 0^\circ\text{K}$ 4=28343
 thiourea 2=12566
 3d transition element—Al, b.c.c. binary and ternary alloys, low temp. meas. 4=30518
 toluene, solid, liquid and vapour 2=15822
 transition metal alloys, supercond. 4=18616
 transition metals and alloys, rel. to band structure, theory 0=17911
 transition metals, binary phases, superconducting 4=16340
 transition metals, superconducting, meas. 3=7405
 trifluoroacetonitrile 1=11861
 trifluoromethanethiol 0=5017
 trifluorophosphine 2=13484
 true, by microcalorimetry 1=16166
 22 semiconductors 0=1557
 vapour—liquid system near critical point 1=1847
 of vessel with liquid He and paramagnetic salt 1=5387
 water, const. press. on saturation curve 4=11192
 water, Debye temp. 2=1135
 water and steam at high temp. and press. 1=18395
 water vapour, at high temps. 4=16147
 water vapour plasma, 1-30 atm., 1000-30 000°K 1=10701
 water and water vapour in two-phase region 2=13485
 wire, elec. conducting, meas. method 2=23068
 A, from crystal parameters 0=4251
 A, liquid, γ at 90°K at high press. 0=19132
 A, liquid, ratio, press. depend. 1=140
 A, solid, at constant pressure 2=6270
 A, solid and liquid 2=6269
 A, solid, 16-35°K 1=911
 A—Kr mixture, solid, 12°K to m.pt 1=911
 Ag 0=2791-4
 Ag, calc., by modified Houston method 0=7850
 Ag, Debye temperature 1=17425
 Ag, determ. from vibration spectrum data 4=9825
 Ag, electronic, meas. 2=18532
 Ag, Grüneisen constant 1=17429
 Ag, Grüneisen ratio rel. to volume, calc. 3=4828
 Ag, highly pure 2=8171
 Ag iodide, Debye temp., X-ray determ. 4=28373
 Ag, from vibr. spectrum, model 2=23051
 Ag—Mn alloys, 1.4-20°K 0=9859
 Ag—Mn alloys, 1.3-20°K, and in mag. fields 0=18408
 AgNO₃, 300-438°K, 433°K transition 4=15430
 Ag₂O, large crystals 14°-300°K 3=768
 Ag₂O, 2°-80°K, rel. to particle size 3=769
 Ag₂Se, 30°-200°K 3=2826
 Ag—Zn, β , β' and ξ -phases 3=8396
 Al 0=2791-4
 Al alloy, superconducting, down to 1.8°K 2=6281
 Al, calc. by de Launay's method 3=2714
 Al, calc., by modified Houston method 0=7850
 Al, at const. volume, calc. 0=7846
 Al, Debye temp., calc. 2=3843

Specific heat—contd

Al, Debye temp., from electron diff. meas. 3=22656
 Al, Debye temps. calc. from vibr. spectrum 4=6706
 Al, discontinuity, anomalous, at superconducting critical temp. 1=4533
 Al, low temp. 2=6280
 Al, low temp., rel. to band structure 0=9887-8
 Al, near supercond. transition point 3=12029
 Al, superconducting, up to 1 at. % impurities, and forbidden band anisotropy 3=19106
 Al—Fe, superconducting, small amounts of Fe 4=8566
 Al—Mg alloys, low temp. 2=6280
 Al₂O₃, 500° to 2000°K, expt. 2=3839
 α -Al₂O₃, 1200°-2500°K, expt. 2=18529
 Al—Pu alloy, δ -phase stabilized, at < 300°K 1=17412
¹²¹Sb, atomic, 12-273°K 3=12928
 Ar, from acoustic velocity 3=16659
 Ar, adsorbed on graphite, statistical calc. 4=2132
 Ar, C_v meas. near critical pt. 3=1729
 Ar, Grüneisen const., Born's theory 3=25203
 Ar, solid, three parameter interatomic potential calc. 4=17360
 Ar, solid, vacancy contribution 3=8364
 As₂O₃, structural prop. correl. 0=13490
 Au, anomalous lattice values at liq. He temps. 2=10331
 Au, atomic ht., 1.3 to 4.2°K 1=3606
 Au, atomic, 12-273°K, small electron contrib. 4=17364
 Au, calc., by modified Houston method 0=7850
 Au, Debye temp., anomalous, low temp. 4=25854
 Au, highly pure 2=8171
 Au, lattice, calc. 1=7530
 Au, rel. to lattice vibration 2=6262
 AuAl₂, AuGa₂, AuIn₂, similarity, low temps. 4=6743
 Au—Co alloys, 1.2° to 5°K meas. 2=8167
 (Ba_xSr_{1-x})TiO₃ 3=2957
 ABX₂ covalent compounds 2=20947
 ABX₂ covalent compounds 3=2739
 BaTe, X-ray characteristic temp. 4=28372
 Be, calc. 4=20194
 Be, const. vol., from lattice vibr. spectrum 3=10578
 Be, meas. 600-2200°K 1=6074
 Be, metal, Debye temperature 4=1561
 BeO, Debye temp. for neutron scatt. 3=12911
 BeO, irradiated, below 4°K, and He diffusion after annealing 3=15509
 BeO neutron irradiated, superfluid He transition study 1=18693
 BeO, 1.3°-3.5°K, rel. to He aggregation 4=4093
 BeO, 298-1200°K 3=25196
 Bi 4=12882
 Bi, rel. to effective hole mass 2=4031
 Bi, low-temp., calc. 4=1395
 Bi, nuclear quadrupole and electronic, 0.1-2°K 0=9856
 Bi—Pb alloys 2=2402
 Bi₂S₃, structural prop. correl. 0=13490
 Bi₂Te₃ 0=15807
 Bi₂Te₃ 4=13530
 Bi₂Te₃, at 1.37-65°K 0=8858
 Bi₂Te₃, C_p, temp. var. 2=8169
 C_v, near critical pt., gravitational effects in meas. 4=14468
 C_v[T, V(T)], conversion to C_v[T, V(0°K)] 3=6476
 CH₄ β -quinol clathrate, 15°-100°K, and CH₄ motion 3=8284
 CH₂Cl₂, CHDCl₂ and CD₂Cl₂, heat capacity 4=22396
 CH₃D, rel. to Coriolis interaction 4=12426
 (CH₃)₄NBr 2=14381
 (CH₃)₄NCl 2=14381
 CH₃NH₃Al(SO₄)₃.12H₂O, anomalies, rel. to ferroelec. phase transition points 4=22497
 CO occluded in β -quinol clathrate 4=15376
 CO₂, calc., 0°-1000°K, up to 100 bar pressure 4=5231
 CO₂, effect of H₂ and D₂ on relaxation time 3=16658
 CS(NH₃)₂, anomalous, and ferroelectric transform 4=1399
 CaCO₃, 1.6° to 70°K, rel. to antiferromagnetic transition 3=17659
 CaF₂, lattice dynamics theory rel. to expt. 2=3819
 CaF₂, 3.5-300°K 0=6018
 CaO, X-ray characteristic temp. 4=28372
 CaS, X-ray characteristic temp. 4=28372
 Cd, electronic sp. ht. 4=6793
 Cd, at low temp. 2=6279
 Cd, 1.3-4.2°K 1=3607
 Cd, 1.5-4.2°K, Debye temp. 3=2733

Specific heat—contd

Cd, 0.1°–4.2°K, supercond. and not supercond. 4=15426
 CdS, wurtzite, temp. var. calc. 4=3975
 Ce, cubic, calc. 0=11806
 Ce ethylsulphate, rel. to spin–lattice coupling 4=6739
 Ce, at low temp., anomalies explained by structure changes 1=9135
 Ce, 0.4°–4°K, α – β phase mixture meas. 4=12642
 CeMg nitrate, 1.5–10°K 0=20750
 ClO₂F, C_p/C_v, from sonic vel. 0=105
 Co β -quinol clathrate, 15°–100°K, and CO motion 3=8284
 Co, electronic, and energy bands 0=4267
 Co, 50° to 1400°C meas. 4=28369
 Co, magnetic, effect of ferromag. elastic modulus relaxation 4=25856
 Co, below 1°K 0=9860
 CoBr₂·6H₂O, 1.6–5°K, Néel temp. det. 0=3099
 CoCO₃, 1.8° to 70°K, rel. to antiferromagnetic transition 3=17659
 CoCl₂·6H₂O near Néel point 4=30519
 CoCl₂·6H₂O, 1.4–20°K, mag. contribution 0=4266
 CoCl₂, 11–300°K, rel. to antiferromag. ordering 2=6272
 CoF₂, 1°–4.2°K 2=23075
 Co–Fe alloy, at 0.35–0.7°K, hyperfine coupling 0=517
 Co_{0.5}Fe_{0.5}, nuclear mag. spec. ht., 1.6–4.2°K, internal field 1=8882
 Co–Ni alloys, at 0.35–0.7°K, hyperfine coupling 0=517
 Co(NO₃)₂·(6+x)H₂O, anomalous 2=18530
 Cr alum, spin system, calc. 2=18531, 20937
 Cr, anomaly at 38.5°C 0=17893
 Cr, electronic sp. ht. 3=8363
 Cr ferrite, Grüneisen's const., X-ray meas. 4=1407
 Cr, 20–1410°C 0=9853
 CrCl₂, 11°–300°K 3=1061
 CrCl₂, 11–300°K, mag. ordering effects 2=6273
 Cr–Fe alloy, b.c.c., 30–110°K 1=17414
 Cr–Fe alloys 0=7848
 Cr–Fe alloys, 1.4–4.2°K 0=17896
 Cr–Fe, –140 to 350°C, two maxima 2=6275
 Cr–Mn alloys, 1.4–4.2°K 0=17896
 Cr–Re system, rel. to antiferromag.–supercond. transition 4=25853
 Cr–Si system, rel. to mag. susceptibility 4=1802
 Cs, atomic heat, electronic and thermal contribs., 0.35–2°K meas. 4=25852
 Cs, and Debye temp. 2=16608
 Cs, 0.2°–4.2°K, thermal effective mass ratio 4=12643
 CsBr, Debye temp. 4=15702
 CsCl, effect of crystal lattice vibr. spectrum 4=3974
 CsCl type crystals, rel. to compressibility 1=9980
 CsCl type, effective temp. characteristics, temp. depend. 4=9827
 CsCl-type lattice, calc. by Houston method 4=28368
 CsCl structure, Grüneisen parameters rel. to temp. 3=4826
 CsF, calc. 0=13480
 CsI, Debye temp. 4=15702
 CsI, quantum-mech. box model 3=4796
 Cu 0=2791–4
 Cu 1=17413
 Cu, annealed and cold-worked, 0.4–1.5°K 0=20746
 Cu, calc. 3=6476
 Cu, calc., by modified Houston method 0=7850
 Cu, at const. volume, calc. 0=7846
 Cu, Debye temperature 1=11165
 Cu, dilute alloys, using Thomas–Fermi theory 2=2052
 Cu, effect of plastic deformation 1=7535
 Cu, Grüneisen constant 4=4000
 Cu, highly pure 2=8171
 Cu, impurities 3=22700
 Cu, including electron–lattice interact. 2=16597
 Cu, irradiated, determ. methods 4=354
 Cu, lattice dynamics model 4=12604
 Cu, plastically deformed –196° to +120°C 2=6274
 Cu, 0.1°–4.2°K, supercond. and not supercond. 4=15426
 Cu, 20–300°K 0=2786
 Cu–Al and Cu–Ga, effect of heating rate 4=6741
 Cu–Au alloys, Debye temp. 1=17606
 Cu₂Au, rel. to increase of Debye temp. 1=11255
 CuCl₂, 11°–300°K 3=1061
 CuCl₂, 11–300°K, mag. ordering effects 2=6273

Specific heat—contd

CuCl₂·2H₂O, 0.1–0.55°K (spin-wave region), discrepancy of theory 1=9978
 Cu–Co alloys, <4°K 3=8635
 Cu–Co dilute alloys, 1.5–4.5°K 1=11161
 Cu–Fe alloys 1=17413
 CuK₂Cl₄·2H₂O, between 0.04 and 1.5°K 4=7252
 CuK₂Cl₄·2H₂O, between 0.04 and 1.5°K 4=17648
 CuKSO₄ spin system, calc. 2=18531, 20937
 Cu–Mn 0=20868
 Cu–Mn alloy, dilute, statistical model at low temps. 4=7299
 Cu–Mn alloys at Néel points 1=8879
 Cu–Mn alloys, 1.4–20°K 0=9859
 Cu – (1 and 0.13 at. %) Mn alloys, anomalous, down to < 0.1°K 4=17361
 Cu–Mn alloys, dilute, theory 0=11583
 Cu–Mn alloys, 1.3–20°K, and in mag. fields 0=18408
 Cu–Mn, to below 0.1°K 2=8171
 Cu–Mn, 1.4° to 5°K 2=8170
 Cu–Mn dilute alloys, at low temp. 1=17419
 Cu(NH₃)₄SO₄, at low temp. 3=1060
 Cu(NH₃)₂Cl₄·2H₂O, between 0.04 and 1.5°K 4=7252
 Cu(NH₃)₂SO₄·H₂O, below 1°K 1=19719
 Cu₂O, 2.8 to 21°K 2=23071
 CuSO₄·5H₂O, at 0.03–1°K 2=6282
 CuSeO₄·5H₂O, at 0.03–1°K 2=6282
 γ -Cu–Zn alloys, below 4.2°K, meas. 4=3992
 α -Cu–Zn alloys, meas. below 4.2°K 3=17660
 β -CuZn, below 4.2°K 3=766
 Cu_{0.05}Zn_{0.95}Fe_{2.05}O₄, 5–350°K 0=4498
 D, and crystal structure 4=29110
 D, –175° to +150°C 0=14909
 D, solid anomalous 2=6276
 D₂, solid and liq., heat capacities from 1.5°–22°K 4=20212
 D₂, solid (ortho), 2–18°K, lattice contrib. 0=20749
 D₂, solid, para-enriched, λ -anomaly 3=2732
 D₂O, liquid, statistical model 4=24200
 D₂O, meas. rel. to temp. and pressure 2=5000
 Dy crystalline salts 0=16054
 Dy ethyl sulphate, below 1°K 0=10094
 Dy ethyl sulphate, 1–20°K, mag. dipole interactions 0=13734
 Dy, 0.5° to 4°K 1=19712
 Dy, 0.4°–4°K meas., mag. and nuclear contribs. 2=12388
 Dy, spin wave specific heat eval. 3=3095
 Dy₂Al₂O₇, anomaly near Néel temp. 3=15436
 DyCl₃·6H₂O, 1.2°–220°K 1=17415
 DyCo₃, rel. to magnetic anomaly and thermochem. data 1=11160
 Dy₂O₃, lattice and electronic contribs. 3=20106
 Er ethylsulphate 3=4799
 Er ethylsulphate, from vibr. energy levels 4=1364
 Er, at 0.5–4°K 2=2051
 ErCl₃·6H₂O between 1.2 and 230°K 1=9979
 Er₂O₃, lattice and electronic contribs. 3=20106
 Eu, 0.4°–4°K meas., temp. reln. 4=12642
 EuO, spin wave theory rel. to expt. 4=7254
 EuS, low temp., spin waves, Heisenberg model test 4=13177
 EuS, magnetic 4=13178
 EuS, spin-wave contribution 3=2729
 EuS, 10°–35°K meas. 4=6742
 F₂, liq., C_p and C_v calc. using significant structure theory 4=8166
 Fe, alloyed with Si, Ge and Sn 4=30520
 Fe, α , Debye temp., effect of alloying with Mn, Mo, Si, C, from elastic consts. 4=6750
 Fe, α -phase, de Launay's model 3=22641
 Fe, α -phase, Debye temp. by X-ray diffr. 3=17662
 Fe, anharmonic correction at high temp. 2=14378
 Fe, discontinuity at Curie pt. 3=23136
 Fe, effect of plastic deformation 1=7535
 Fe, 800°–1420°C meas. 3=10598
 Fe, low-temp., analysis assuming spin-wave contrib. 1=10203
 Fe, magnetic, const. coupling approx. 4=30522
 Fe, magnetic, effect of ferromag. elastic modulus relaxation 4=25856
 Fe, meteoritic 3=11526
 Fe, 940°–1937°C, γ , δ , liquid phases 2=12383
 Fe silicides, 55–1925°K 4=12647
 Fe silicides, temp. depend., 55–300°K 3=8360
 Fe, sp. ht. –temp. curves 3=13244
 Fe, 20–1450°C 0=9853

Specific heat—contd

Fe, 25-1050°C, meas. by current pulse method 0=1558
 Fe—Al alloy, electronic, low temp., composition effect, calc. 4=28370
 Fe—Al alloys, low temp. 4=25857
 FeCO₃, 1.6° to 70°K, rel. to antiferromagnetic transition 3=17659
 FeCl₂·4H₂O, 1.15° to 20°K 2=23072
 FeCl₂, 1.8-4°K, magnetic contrib. 4=20213
 Fe—Co alloys, 1.4-4.2°K 0=17896
 Fe—Ir, Re, nuclear, and magnetic field at Ir, Re nucleus 4=17331
 Fe—Ni solid solutions, electronic 3=8367
 Fe₂O₃, contrib. of spin-wave dispersion 3=25200
 Fe—Re, nucl. mag. sp. ht., mag. field at Re nuclei 3=6479
 Fe—Sb, nucl. mag. sp. ht., mag. field at Sb nuclei 3=6479
 Fe—V alloys, effect of magnetic clusters 1=7536
 Fe—V alloys, Einstein, below 1°K, and ferromag. cluster oscils. 4=3991
 Ga, atomic heat, 6-21°K 0=4269
 Ga chalcogenides 3=25825
 Ga, Debye temp. anisotropy, from elec. cond. 4=20217
 Ga, discontinuity, anomalous, at superconducting critical temp. 1=4533
 Ga, in normal and supercond. states 0=8947
 Ga, 0.1°-4.2°K, supercond. and not supercond. 4=15426
 Ga, 20-700°K 3=22659
 GaAs, atomic, 12-273°K 3=12928
 GaAs, Debye temp., neutron scatt. data 3=25201
 GaSb, Debye temp., neutron scatt. data 3=25201
 GaSb, 20-700°K 3=22659
 Gd, magnetic, const. coupling approx. 4=30522
 Gd, 0.4°-4°K, meas. and theory 3=8368
 Gd, 1.3°-5°K, effect of O₂ 2=2053
 GdCl₃, 1.2°-2.9°K, discontinuity at Curiepoint, 2.2°K 4=17363
 GdCl₃·6H₂O, 1.1-260°K 1=8881
 GdFe garnet, rel. to spin-wave spectrum 4=7293
 Gd—La, superconducting, latent heat at critical temp. 0=19553
 Gd(NO₃)₃·6H₂O, 1.3° to 220°K 2=20936
 Gd₂O₃, 10°-350°K, electron and lattice contribs. 3=20105
 Gd₂(SO₄)₃·8H₂O, Schottky anomaly 2=16605
 Ge 1=17399
 Ge, anharmonic correction at high temp. 2=14378
 Ge, atomic, 12-273°K 3=12928
 Ge, Debye temp., X-ray data 3=11257
 Ge, Debye temperature, effect of donor conc. 2=14384
 Ge, Grüneisen parameters, lattice vibrations 4=22507
 Ge, n-type, low-temp., electronic and lattice contrib. 1=17420
 Ge, pure 0=15812
 H, liquid, normal and para 2=1138
 H, -175° to +150°C 0=14909
 H plasma 1=18843
 H, solid, anomalous 2=6276
 H, solid, λ anomaly at small molar volumes 4=12644
 H₂, constant vol., 15-90°K, up to 340 atm. 3=11784
 H₂ crystalline, anomalous sp. ht. 0=11586
 H₂, liquid, normal and para, C_p/C_v 3=23880
 H₂, solid, lattice heat capacity, Debye theta 4=22491
 H₂, solid (para), 2-18°K, lattice contrib. 0=20749
 HClO₄, anhydrous, C_p 4=9859
 HD, solid, along saturation curve 4=22492
 H₂ and D₂, -175° to 150°C, up to 2500 atm 3=23930
 H₂O vapour and liquid, supercritical range, var. P, V, T 4=14467
 He, behind strong shock front, calc. 3=16699
 He, C_p meas. 2.5-20°K, 0-100 atm. 0=19203
 He, solid, anomalies, rel. to crystal ordering 2=17719
 He vapour, <4.2°K 1=4522
 He³, adsorbed on zeolite, 0.1-1.4°K, and nuclear spin orientation 4=14506
 α He³, anomalous, rel. to lattice defects 3=8422
 He³, liq., 0.015°-0.3°K meas. 3=12016
 He³, liquid 0=8883, 10821
 He³, liquid, down to 0.008°K 1=8276-7
 He³, liquid, below 0-1°K 1=18688
 He, liquid, logarithmic var. around λ point 4=21370
 He³, liquid, near melting curve 2=15834
 He, liquid, near λ -curve, density depend. 0=5228
 He³, liquid, near saturated vapour pressure 0=223

Specific heat—contd

He³, liquid, 0.054 - 0.3°K 3=5564
 He³, liquid, 0.054° to 0.3°K 4=14483
 He³, liquid, possible superfluid phase 2=7490
 He³, liquid and solid, 0.02° to 0.1°K, 0.12 to >29 atm. 2=1322
 He³, liquid, T³ and T² depend., Fermi liq. theory 4=5494
 He³, liquid, temp. var. peak and superfluidity 4=21385
 He³, liquid, theory 0=11124
 He³, 0.02°-0.3°K, rel. to melting curve 3=14437
 He³, 0.3-2°K 2=2949
 He³, below 1°K 0=8879
 He³, solid, α and β -phases meas. 3=1887
 He³, solid, calc. 0=14921
 He³—He⁴ mixture, solid 3=323
 He³—He⁴ mixtures, between 0.4°-2°K 1=8272
 He³—He⁴ mixtures, solid, and phase separation 4=14504
 He³—He⁴ soln. 0=19543
 He⁴ γ -phase 4=11454
 He⁴, liquid, calc. 0=16934
 He⁴, solid, rel. to equil. with liq. He⁴ II 3=1888
 He⁴, solid, near γ phase 4=21386
 He⁴, solid, 1.3-4°K 4=29825
 He⁴ and He³ mixtures between 1 and 4°K 1=255
 Hf, HfO₂, Debye temps. 3=12568
 Hf, 1.1°-4.5°K 3=15437
 Hg amalgams, Debye charact. temp. 3=16604
 Hg, electronic, at low temp., temp. depend. 0=8935
 Hg, 0.35°-4.2°K, meas. analysis 4=25859
 Hg, below 1°K 0=11584
 Hg, supercond. and normal, equal lattice T³ term. 4=18585
 Hg₂SO₄, 15°-300°K, meas. 3=6477
 Ho metal, below 1°K 4=9856
 Ho, at 0.5-4°K 2=2051
 Ho, 0.95-4.2°K, nuclear contrib. 1=17424
 Ho, 0.38-4.2°K 3=2730
 HoCl₃·6H₂O between 1.2 and 230°K 1=9979
 Ho₂O₃, lattice and electronic contribs. 3=20106
 In, below 1°K, lattice contribution in superconducting state 0=13489
 In, Debye temp. same in normal and superconducting states 1=2923
 In, lattice, below 1°K, calc. from vib. spectrum 3=8348
 In, lattice dynamics calc. 0=6017
 In, low temps., normal and supercond., down to 0.08°K 4=16343
 In, normal and superconducting 1=11162
 InAs, Debye temp., neutron scatt. data 3=25201
 InAs, InP, InSb, atomic 12-273°K 3=12928
 InSb, Debye temp., neutron scatt. data 3=25201
 InSb, electronic, meas. 4=14519
 InSb, metallic, calc., lattice mechanics 4=1396
 InSb, 20° to 680°K 3=22661
 InSe, (n = 1.25, 1.5, 1.75, 2.00), temp. variation 2=3840
 Ir—Fe alloys, nuclear sp. ht. 4=3994
 K, calc. using Toya's electron-phonon interact. 4=20196
 K, calc. by Toya's method 3=10599
 K halides, calc. 0=13480
 K, 0.15-1°K 0=9858
 K, 0.2°-4.2°K, thermal effective mass ratio 4=12643
 K, solid 1=17400
 KBr 1=12353
 KBr, spectroscopic meas. 3=12926
 K₂CO₃, solid and molten 3=22663
 KCl, at const. volume, 300°K to melting pt. 0=16207
 KCl, Grüneisen const., Born's theory 3=25203
 KCl, rel. to lattice dynamics 2=6250
 KCl, at low temp., calc. for 3 models 0=4261
 K₄Fe(CN)₆·3H₂O, anomalous, and ferroelectric trans-form 4=1399
 KI 2=3828
 KMnF₃, low-temp., contrib. of Mn^{5s} polarization 2=23689
 KMnF₃, 78-300°K, and antiferromagnetic and crystal structure transitions 3=8365
 KNO₃, meas. with "thermograph" 0=2275
 KPF₆, rel. to first-order phase transition 3=12927
 K₂SnBr₆, 20°-300°K 0=11582
 K₂SnCl₆, 20°-300°K 0=11582
 Kr 3=16659
 Kr, solid, at constant pressure 2=6270
 Kr, solid and liquid 2=6270

Specific heat—contd

La magnesium nitrate, energy diff. between 1st excited and ground state, calorimetric determ. 4=12641
 $\text{La}_{1-x}\text{Gd}_x$, ferromag. superconductor 1=1863
 La_2O_3 , 5°-350°K meas., Schottky anomaly 3=20104
 Li, atomic heat, electronic and thermal contribs., 0.35-2°K meas. 4=25852
 Li, calc. from elastic constants 2=16592
 Li, evaluation by electron gas modification 1=8880
 Li isotopes, 20 to 300°K 0=15813
 Li metal of various isotopic compositions, below 30°K 4=6745
 Li, three models 3=12914
 Li, 20-300°K, martensitic transformation 0=7852
 Li^+ and Li^0 , solid, electronic heat 1=17421
 LiCl , Debye temp., Houston and Blackman methods of evaluation 4=12651
 LiCl , 15-325°K 0=17891
 LiClO_3 and $\text{LiClO}_3-\text{LiNO}_3$ mixtures, molten 4=29620
 Li_2CO_3 , solid and molten 3=22663
 $\text{LiCuCl}_3 \cdot 2\text{H}_2\text{O}$ 1=19716
 $\text{LiCuCl}_3 \cdot 2\text{H}_2\text{O}$, rel. to Néel temp. 3=1205
 LiF , contrib. of F_2^- centres, calc. 3=15439
 LiF , Debye temp., Houston and Blackman methods of evaluation 4=12651
 LiF , quantum-mech. box model 3=4796
 LiF , from vibr. spectrum 2=14373
 Li-Mg alloys, electronic, 0.2-2.5°K 1=19721
 Li-Mg, martensitic transformation 0=2787
 Lu ethylsulphate, 15-300°K 2=23032
 Lu, Lu_2O_3 , Debye temps. 3=12568
 Lu, 0.38-4°K, Debye and electron components 4=9854
 $\text{LuCl}_3 \cdot 6\text{H}_2\text{O}$, 1.4-220°K 2=16606
 Mg, calc. 4=20194
 Mg, const. vol., from lattice vibr. spectrum 3=10578
 Mg, at low temp. 2=6279
 Mg orthophosphate, from 17° to 320°K, expt. 4=9860
 Mg, pure and with H_2 impurity, 12-300°K 0=4268
 Mg pyrophosphate, from 14° to 378°K, expt. 4=9860
 Mg-Mn alloys, anomalies rel. to resistance-minimum 1=19713
 MgNi_2 0=16126
 MgO , crystalline 0=7849
 MgO , from 50° to 850°K, calc. 2=6257
 MgO , Grüneisen parameter 2=6290
 MgO microcrystals, theory 2=15080
 MgO , 298°-1200°K 3=25196
 MgO , X-ray characteristic temp. 4=28372
 MgS , X-ray characteristic temp. 4=28372
 α -Mn, Debye temp. and mag. specific heat 4=25858
 Mn, γ -phase, electronic contrib. 2=2055
 α -Mn, 0.4-1.0°K 4=20568
 Mn_3AlC , anomaly, rel. to mag. props. 2=16607
 MnBr_2 , 1.7 to 20°K, anomaly rel. to magnetic ordering 4=3993
 MnCO_3 , magnetic and other contribs. 2=4137
 MnCO_3 , magnetic and other contribs. 3=3145
 MnCO_3 , 1.6° to 70°K, rel. to antiferromagnetic transition 3=17659
 $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$, at low temp. 1=17417
 MnCl_2 , 11-300°K 2=6272
 MnCl_2 , liq. He temps., rel. to mag. transitions 3=2731
 MnCl_2 , 1.3° to 4.2°K, in 50 kG fields parallel to b axis 4=20214
 $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$, 1.17-4.43°K, λ -type anomaly 1=12356
 Mn-Cu alloys, electronic contrib. 2=2055
 Mn-Cu alloys, rel. to temperature, theory 3=8358
 Mn-Cu, and antiferromagnetic transition, Mn rich 4=13270
 MnF_2 , 1-4.2°K, lattice and hyperfine contribs. 2=23075
 MnF_2 , spin wave theory rel. to expt. 4=7254
 Mn-Fe solid solutions, electronic 3=8367
 $\text{Mn}_x\text{Fe}_{1-x}\text{O}$, ferrite, 1.5-6°K anomaly 3=15435
 $\text{MnHPO}_4 \cdot 3\text{H}_2\text{O}$, no anomaly at mag. transition 1=14179
 Mn-Ni solid solutions, electronic 3=8367
 MnP, rel. to temp. 2=23073
 MnS, rel. to and antiferromagnetic ordering 1=912
 $\text{MnSO}_4 \cdot 4\text{H}_2\text{O}$, no anomaly at mag. transition 1=14179
 MnZn ferrite, 20-350°K 0=7853
 Mn_3ZnC , anomalies, rel. to mag. props. 2=16607
 Mo, Debye temp. from elastic constants 3=13325
 Mo, using de Launay's electron-lattice interaction 1=19701
 Mo, electronic, coefficient 3=3959

Specific heat—contd

Mo, electronic, temp. variation 4=7356
 Mo, thermal capacity and enthalpy, 1200° to 2500°K 2=23074
 Mo, 0-2400°K 3=20102
 Mo, at 1-4.5°K 1=19715
 Mo, 10-273°K 0=1561
 Mo, 1000°K to melting pt. 1=17416
 Mo, 1200°-2400°K 3=10596
 Mo, up to 2337°K, expt. determination 2=8174
 MoS_2 , Debye temp. 3=8376
 N_2 , liquid, γ at 90°K at high press. 0=19132
 N_2 , from acoustic velocity 3=16659
 N_2 , β -quinol clathrate, 15°-100°K, and N_2 motion 3=8284
 N_2 plasma, 1-30 atm., 1000-30 000°K 1=10700
 N_2 , ratio, rel. to pressure 2=21946
 N_2 , ratio, rel. to pressure 3=1728
 $(\text{NH}_4)_2\text{BeF}_4$, near ferroelec. transition pt. 3=17941
 $(\text{NH}_4)_2\text{BeF}_4$, rel. to phase transition 2=14916-17
 $(\text{NH}_4)_2\text{Cd}(\text{SO}_4)_3$ 2=16604
 NH_4HSO_4 , anomaly at -2.55°K due to ferroelec. transform 3=20101
 NH_4PF_6 , rel. to phase transitions 3=12927
 $(\text{NH}_4)_2\text{SO}_4$, rel. to phase transition 2=14916-17
 $(\text{NH}_4)_3\text{SiF}_6$, cubic and hexagonal, 25° to 300°K 4=12645
 $(\text{NH}_4)_2\text{SnBr}_6$, ammonium ion motion 0=11582
 $(\text{NH}_4)_2\text{SnCl}_6$, ammonium ion motion 0=11582
 NO vapour, saturated 3=11833
 Na, anharmonic contribution 4=30506
 Na, C_v calc. by Toya's method with modified interference factor, agreement with expt. above 40°K 4=6716
 Na, calc. 3=6476
 Na, calc. by Toya's method 3=10599
 Na, electronic, correlation effects and effect of martensitic transformation 1=913
 Na, 5°K, annealing effect 3=8445
 Na, lattice, from vibr. spectrum 2=14371
 Na metal, below 30°K 4=6745
 Na, 0.4-1.5°K, variation of unknown cause 1=14180
 Na, 0.15-2°K 0=9857-8
 Na, 20-300°K, martensitic transformation 0=7851
 Na vapour, and heat of vaporization, inconsistency 3=21444
 Na_2CO_3 , solid and molten 3=22663
 NaCl , Debye temp., Houston and Blackman methods of evaluation 4=12651
 NaCl , and frequency distribution 3=25188
 NaCl , frequency distrib. and sp. ht. at low temp. 1=2378
 NaCl , Grüneisen const., from eqn. of state 3=25205
 NaCl , Grüneisen constant at high pressures 3=4827
 NaCl , Grüneisen vel. at high press., anharmonicities 4=15432
 NaCl , low temp., calc. for 3 models 0=4261
 NaCl microcrystals, theory 2=15080
 NaCl , new calculation 1=6076
 NaCl , quantum-mech. box model 3=4796
 NaCl , theor. and exper. data, effective Debye temp. 0=20743
 NaCl -type crystals 1=19690
 NaCl -type crystals 2=8151
 NaCl :Ca, X-irradiated, thermal props. 0=2833
 $\text{NaH}_2(\text{SeO}_3)_2$, anomalies, rel. to ferroelec. phase transition points 4=22497
 NaI , 2.4-8°K 0=17895
 Na and K, modified electron gas calc. 1=14232
 NaNO_2 1=14181
 NaNO_3 2=8535
 NaNO_2 , temp. var., and phase transform, ferro- tsanti ferroelec. 4=17769
 Na_2O , high temperature heat content 1=2380
 NaOH and monohydrate 3=7388
 $\text{Na}_2\text{O} \cdot 0.875 \text{WO}_3$, 15-300°K 4=15431
 Nb, atomic and electronic heats, 10-273°K 0=20752
 Nb, electronic, temp. variation 4=7356
 Nb, lattice, in supercond. and normal state, difference 0=19565
 Nb, 0.4°-4.2°K meas., Debye temp. 4=20215
 Nb, 1200°-2400°K 3=10596
 Nb, supercond. and normal, meas. 4=18593
 Nb, superconducting electronic sp. ht. 0=8948
 Nb, rel. to vacancy formation 4=1463
 $\text{NbB}_{1.963}$, 5 to 350°K 4=6746
 Nb-Mo alloys, electronic, min. where supercond. T_c is low 4=16356

Specific heat—contd

Nb—Mo alloys, electronic, temp. variation 4=7356
 Nb—Ru alloys, electronic, and Debye temp. 3=22662
 Nb—Ru, electronic, and superconducting T_c , var. composition 4=16357
 Nd ethylsulphate, from vibr. energy levels 4=1364
 Nd, 0.4°–4°K, magnetic and nuclear components 4=9853
 $NdCl_3 \cdot 6H_2O$, 1.2°–220°K 1=17415
 NdMg nitrate, lattice and mag. contribs. 2=12384
 Nd_2O_3 , 5°–350°K meas., Schottky anomaly 3=20104
 Ne isotopes, at low temps., temp. dependence 0=12416
 Ni alloys, binary, Debye temp. 1=20305
 Ni-base alloys with Cu, Zn, Al, Si and Sb, low-temp. 4=9852
 Ni, characteristic temperature, λU^0 –600°K 3=17661
 Ni, electronic, and energy bands 0=4267
 Ni, Grüneisen constant by X-ray methods 4=25866
 Ni, magnetic, const. coupling approx. 4=30522
 Ni, magnetic, effect of ferromag. elastic modulus relaxation 4=25856
 Ni, 99.95% pure 3=8359
 Ni, 180–1160°K 0=9853
 Ni, sp. ht. —temp. curves 3=13244
 Ni, superconducting and normal 2=19817
 Ni, superconducting, at upper crit. field, discrepancy 4=18573
 NiAl, 4.2°–2.2°K meas. 3=23270
 $NiCl_2 \cdot 6H_2O$, 1.4–20°K, mag. contribution 0=4266
 Ni—Co alloys, electronic s.h. and energy bands 0=4267
 Ni—Cr, at high temps. 2=4445
 Ni—Cu alloys, effect of magnetic clusters 1=7536
 $NiCO_3$, 1.6° to 70°K, rel. to antiferromagnetic transition 3=17659
 Ni₃Fe—(3%)Mo, rel. to K-state formation, rel. to excess vacancies 3=13531
 $NiFe_2O_4$, 1.8–20°K 2=571
 $Ni(IO_3)_2 \cdot 2H_2O$, 1.3°–30°K temp. range, meas. 4=28371
 $Ni(IO_3)_2 \cdot 2H_2O$, $(\partial\sigma/\partial T)_n = (\partial\sigma/\partial H)_T$, confirm. 4=28823
 Ni—Mn(25, 30 at.%), 13–1300°K 4=22493
 Ni₃Mn, disordered alloy, temp. dependence 0=17890
 $Ni(NH_3)_6$ -halides, ht. capacity below 1°K 4=22494
 $Ni(NH_3)_6Br_2$, below 4°K 2=3841
 $Ni(NH_3)_6Cl_2$, below 4°K 2=3841
 Ni, Ni—Cu, electronic sp. ht., temp. depend. 3=23143
 Ni—Pd alloys, heat capacity meas., electronic specific heat coeffs. and Debye 4=15428
 Ni₃Pt, characteristic temp., effect of short-range order and annealing 3=8906
 α - $NiSO_4 \cdot 6H_2O$, 1 to 20°K 4=12648
 NiZn ferrite, 20–350°K 0=7853
 0.2Ni:0.8ZnFe₂O₄, 1.8–20°K 2=571
 NO plasma, 1–30 atm., 1000–30 000°K 1=10700
 Np, α -phase, temp. depend. 0=2789
 O₂, C_v, near critical point 4=5480
 O₂, at 1–30 atm., 1000–30 000°K 0=7129
 P₂O₅, hexagonal, 12–324°K 4=9858
 Pb 0=2791–4
 Pb, anharmonic contrib., calc. 2=569
 Pb, calc., by modified Houston method 0=7850
 Pb, determ. from vibration spectrum data 4=9825
 Pb, 20°–300°K, rel. to Grüneisen's law 2=10339
 Pb, normal and supercond., Grüneisen const. 2=6286
 Pb, 0.3°–4°K 3=10601
 Pb, 65°–105°K 2=23077
 Pb, supercond. and normal, equal lattice T^3 term. 4=18585
 Pb, superconducting, jump at critical temp. 4=5519
 Pb(99%)—Bi alloy, electronic 3=6478
 PbS, rel. to lattice vibration spectrum 2=10313
 Pb—Sb—Sn alloys, 0°–500°K 2=6271
 Pb—Sn (50–50 wt) solder, 20–300°K 4=15427
 PbTe, rel. to lattice vibration spectrum 2=10313
 Pd, electronic contrib. at high temps. 3=10600
 Pd, heat capacity meas., electronic specific heat coeffs. and Debye temps, calc. 4=15428
 Pd, 1.4° to 100°K 4=25860
 Pd, Pd—Ag, Pd—Rh, electronic sp. ht., mag. susceptibility 3=13228
 Pd—Rh alloys, rel. to energy-band structure 1=1441
 Pd—Fe alloys, 1.4° to 100°K 4=25860
 Pd—H solutions, maximum at 55°K 1=17418
 Pd—H and Pd—D systems, anomalies 2=12385

Specific heat—contd

Pd₃Mn₂ alloy, ξ - and μ -phase 4=23033
 Pd and Pd—H alloys, 30–300°K 3=12924
 Pd and Pt chalcogenides, low temp. 1=19717
 Pd and Pt chalcogenides, low temp. 1=19718
 Pr ethylsulphate, from vibr. energy levels 4=1364
 Pr ethylsulphate, rel. to spin—lattice coupling 4=6739
 Pr, hyperfine anomaly below 1°K 4=7222
 Pr, at 0.5–4°K 2=2051
 Pr—Gd, 1.3° to 4°K 4=6748
 Pr, 0.4°–4°K, magnetic and nuclear components 4=9853
 Pt, atomic ht., 1.3 to 4.2°K 1=3606
 Pt—Au alloys, rel. to energy-band structure 1=1441
 Pt—Ir alloys, rel. to energy-band structure 1=1441
 Pt-metal F₀ cps, temp. var., and electronic spectra 4=17365
 Pt metal, Pt—Au and PtIr alloys, electronic sp. ht. 4=28780
 Pu, effect of self-irrad. 2=23076
 Pu, room temp. to melting point 4=9849
 PuC, heat capacity from 400°–1300°K, calc. from enthalpy meas. 4=22495
 PuO₂, low temps. 4=6747
 Rb, atomic heat, electronic and thermal contribs., 0.35–2°K meas. 4=25852
 Rb, and Debye temp. 2=16608
 Rb halides, calc. 0=13480
 Rb, 0.2°–4.2°K, thermal effective mass ratio 4=12643
 RbPF₆, rel. to order—disorder changes 3=12927
 Rb₂SnBr₆, 20–300°K 0=11582
 Rb₂SnCl₆, 20–300°K 0=11582
 Re, 1.2° to 24°K 2=6284
 Re—Fe alloys, nuclear sp. ht. 4=3994
 Ru, 10–273°K 0=1560
 S, liq., pure and containing iodine 2=2711
 S, liquid, containing P, Se or Te 3=5430
 SF₆, 100° to 1500°K 3=21445
 SOF₄, 100° to 1500°K 3=21445
 Sb, atomic ht., 1.3 to 4.2°K 1=3606
 Sb, Debye temps., rel. to longitudinal and transverse vibs. 4=9826
 Sb, temp. depend. 4=1588
 Sb, 20–700°K 3=22659
 Sb₂S₃, structural prop. correl. 0=13490
 Se, 1.7° to 4.2°K 1=19720
 Se, low temp., calc. 3=8362
 Si 1=17399
 Si, Grüneisen parameters 23°–530°K 3=4824
 Si, meas., 1200–1900°K 2=6277
 Si, pure 0=15812
 SiO₂, different forms at low-temp. 4=6749
 SiO₂ glass, low-temp. excess 3=767
 Sm ethyl sulphate, mag. sp. ht. 0=10047
 Sm, hyperfine structure 1=9977
 Sm, 0.4°–4°K, mag. and nuclear contribs. 2=12387
 Sm, 13–350°K 0=2788
 SmMg nitrate, magnetic heat 1=2443
 Sm₂O₃, 10°–350°K, electron and lattice contribs. 3=20105
 Sn alloys, theory and rel. to supercond. transition 2=10330
 Sn, Debye temp. 4=17583
 Sn, grey and white, interreln. 3=11209
 Sn, In, normal and supercond. 2=7516
 β -Sn, normal and superconducting 1=1293
 Sn, normal and superconducting 1=11162
 Sn, supercond., temp. var. 4=21370
 Sn, superconducting, λ -type singularity 2=19818
 SnBr₄, gas, calc. 2=11420
 SnCl₄, gas, calc. 2=11420
 SnI₄, gas, calc. 2=11420
 Sn—Pb eutectic layers, and supercond. proximity effect 4=18612
 Sn—Pb soft solders, 1.3°–20°K 4=6744
 SrTiO₃ 3=2957
 Ta, Debye temp. from elastic const. 3=13325
 Ta, rel. to frequency of lattice vibrations, theory 4=25843
 Ta, superconducting, λ -type singularity 2=19818
 Ta, 1000°K to melting pt. 1=17416
 Ta, at 1000–3000°K 2=2925
 Ta, 1200°–2400°K 3=10596
 Ta₂H 2=2054
 Tb anomaly rel. to mag. transition in Tb₂O₃ 2=21346
 Tb, hyperfine structure 1=17422
 Tb metal, below 1°K 4=9856
 Tb metal, nuclear contribution 1=17423

Specific heat—contd

- Tb, 0.37-4.2°K 3=771
 Tb, 1.4-4.0°K 0=6016
 Te, low temp., calc. 3=8362
 Th, 0.38-3.9°K, rel. to mag. and nuclear components 4=20216
 Th, 25-1000°C 0=17894
 Th—Er alloys, at low temp. 1=11415
 ThO₂, 298-1200°K 1=14182
 Th_{1-x}U_xAl₂, 1.7-20°K, electronic contribution 4=12649
 Ti alloys, dilute hexagonal, meas. 4=18613
 α-Ti, anomalous, rel. to thermal electron transitions 3=20127
 Ti, 1.1-4.5°K 3=15437
 Ti, 600-1345°K 3=22660
 Ti—Co—Ni, electronic, for CsCl structure 2=14382
 Ti—Fe—Co, electronic, for CsCl structure 2=14382
 Ti—Mo alloys, normal and superconducting 1=13046
 Ti, Ti—Mn, Ti—Co, low temp., and supercond. search 4=27436
 Ti—V alloys, electronic, rel. to supercond. data 2=16609
 Ti, V—Ti, electronic sp. ht. 3=25509
 Ti—V alloys, 1.4-4.2°K 0=17896
 Ti—V solid solutions, electronic 3=8367
 Ti₂O₃, 50°-250°C, at 10⁻⁴ mm Hg 1=14183
 Tl, 0.35°-4.2°K, meas. analysis 4=25859
 TlCl, 15-310°K 0=1066
 Tl(1%)—Pb(98%)—Bi alloy 3=6478
 Tm ethylsulphate, 15-300°K, crystal field splitting 2=23032
 Tm, 15 to 360°K 1=11163
 Tm, at 0.5-4°K 2=2051
 U dicarbide, 1484° to 2581°K 3=15438
 U, phase transition in α-type at 42°K 1=15135
 U²³⁵, hyperfine, <0.75°K 4=9850
 UC, 1.5°-4.2°K and 20°-85°K 4=1398
 UC and UC₂ 4=13611
 UC, U₂C₃ and UC_{1.81}, heat capacities, low temp. 4=22498
 UF₆, 1.3-20°K 0=15811
 U—Mo alloy, γ-phase, rel. to Friedel band model 1=17450
 U₃O₇, α and β-phases, low-temp. meas. 2=10329
 V, atomic and electronic heats, 10-273°K 0=20752
 V, lattice, temp. var., renormalization, calc. from vibr. 4=1400
 V, 65°-105°K 2=23077
 V, three models 3=12914
 V, V—(Cr, Ti), electronic sp. ht. 3=25509
 V—Cr alloys, 1.4-4.2°K 0=17896
 V—Cr solid solutions, electronic 3=8367
 V—Fe alloys, 1.4-4.2°K 0=17896
 V_{0.33}Fe_{0.67}, nuclear mag. spec. ht., 1.6-4.2°K, internal field 1=8882
 V₃Ga in high mag. fields, superconductivity 2=11570
 V—Ni solid solutions, electronic 3=8367
 V—Ta alloy, supercond., meas. in high mag. field 4=8576
 W, Debye temp. from elastic constants 3=13325
 W, Debye temps., rel. to X-ray interference 4=12618
 W, using de Launay's electron-lattice interaction 1=19701
 W, electron structure calc. 0=7830
 W, 14-300°K 0=21103
 W, 0-2400°C 2=12386
 W, 10-273°K 0=1561
 W, 1000-3000°K 2=2925
 W, 1200°-2400°K 3=10596
 W, 2400-2820°C 2=18528
 Y ethylsulphate 3=4799
 Y, 1.7° to 4.2°K 1=19720
 YFe garnet, low-temp., spin wave contrib. 4=9855
 YFe garnet, 1.5-4.2°K, lattice and spin-wave contrib. 1=7539
 YFe garnet, 1.45°K, mag. field depend. 0=16143
 YFe garnet, rare-earth-doped, theory 1=14611
 YFe garnet, rel. to spin-wave spectrum 4=7293
 Y_{1-x}Gd_xOs₂, ferromag. superconductor 1=1863
 YH₂ and YD₂, 5-350°K 2=6278
 YH₃ and YD₃ 3=17858
 Yb, heat capacity, from 15°-350°K 4=25861
 Yb metal and cpds., electronic contrib. 4=10348
 Yb, 0-4°-4°K, meas. and theory 3=8368
 YbFe garnet, low-temp., calc. 1=12541
 Yb₂O₃, 10°-350°K, electron and lattice contribs. 3=20105
 Zn, analysis of data 1=6075

Specific heat — contd

- Zn, anomalous lattice values at liq. He temps. 2=10331
 Zn, calc. 4=20194
 Zn, discontinuity, anomalous, at superconducting critical temp. 1=4533
 Zn, electronic, first principles calc. 3=8395
 Zn, Debye temp. from elec. props. 4=12865
 Zn, in normal and supercond. states 0=8947
 Zn, 1.3-4.2°K 1=3607
 ZnBr₂, room temp. to 700°K 4=14156
 ZnCl₂, room temp. to 700°K 4=14156
 ZnFe₂O₄, 1.8-20°K 2=571
 ZnS, Debye temp. 4=13450
 ZnS, long-range and short-range force models, lattice vibrations 0=7847
 Zr alloys, dilute, 1.2°-4.5°K 3=25199
 Zr, 14-300°K 0=21103
 Zr, 1.1-4.5°K 3=15437
 ZrD_{1.58}, 30-500°K 1=11164
 ZrH_{1.58}, 30-500°K 1=11164
 ZrH₂ and ZrD₂ 1=7538

Spectra

- See also Absorption, light; Astronomical spectra; Atmospheric spectra; Colour; Mass spectra; Raman spectra; Spectrochemical analysis; Spectroscopy; Stark effect; X-ray spectra; Zeeman effect
 absorption band profiles, in aberrationless monochromators 0=12486
 absorption edge image-tube, rel. to thermal imaging 2=7455
 absorption and emission of molecules, probability calc. 2=14241
 absorption lines, Rayleigh scattering, near 4=327
 absorption lines, two overlapping, equiv. width 4=18400
 absorption, total band, comparison of models for correl. 4=18399
 absorption, in turbid media 2=5173
 adsorbed molecules, far-i.r. obs. attempts. 4=12421
 adsorbed molecules, i.r. and Raman 3=5152
 air, heated, absorpt. coeff. calc. 4=15327
 air, high temp., i.r. continuum 4=27222
 alkali halides, far u.v., and structure changes on melting 4=16292
 anions in soln., correl. with lyotropic props. 2=10983
 arc, d.c., line intensity variations with electrode volatilization 0=19646
 arc, metal iodide—Hg, spectral characts. 4=18785
 band models, general method and i.r. atmospheric absorption 4=25602
 for chromaticity evaluation, by a.c. analogue computer 4=29727
 complex molecules 0=20613
 complex molecules, absorption theory 0=9791
 complex molecules, rel. to luminesc. spectra 2=22943-4
 complex mols. in soln., oscillator strengths from light dispersion 4=2681
 complex systems, band characterization 2=18444
 conference on molecular spectroscopy, Amsterdam (1961) 2=6117
 correction for finite slit width 2=19706
 crystals, evaluation of lattice sums 2=23030
 crystals, exciton absorption region 0=9988
 crystals, impurity absorption, effect of acoustic waves 0=2944
 crystals, infrared rel. to phonon spectra 2=4146
 crystals, quasi-line electron-vibrational spectra, Shpol'skii effect 3=20456
 crystals, rel. to weak exciton—phonon coupling 4=22543
 diagrams, photographic reduction to standard size 1=10596
 diatomic molecules, higher-order spectroscopic parameters, empirical potl. func. 3=22524
 dimers, electronic spectra, coupling and intensities 1=14047-9
 discharge, capillary, osc., continuum 4=18719
 discharges, glow, cathode, and surface ion neutralization 4=18722
 discharges, pulsed, line widths 2=11626
 disordered diatomic chains, vibrational spectra, calc. 0=7845
 disperse system particle spectrum, from transparency 4=20840

Spectra—contd

- disperse systems, transparency, rel. to particle distrib. 4=15849
 distance bet. spectrum lines, precise meas. 3=1814
 effect of r.f. resonance of natural line form 1=5958
 elec. discharges, "slant" effect in axial mag. field 3=19200
 electron in deep trap, absorption and emission 0=11755
 electrons, synchrotron accelerated, visible emission 0=11142
 Elsasser model for band absorpt., integral representation 4=15312
 emission, substances at room temp., method 0=3622
 emission-line profile parameters, nomogram 0=2231
 excitation by ion bombardment, review 3=9594
 excitation by shock waves, review 3=11912
 far infrared, bibliography 1=2855
 far u.v. intensity and wavelength, absolute measurement 3=9591
 Fourier spectroscopy, spectral signal-to-noise ratio 4=24365
 free radicals, microwave 4=22433
 gases, compressed adiabatically, grey body 4=14216
 gases, electronic spectra, excited by collisions with Ar afterglow 4=18725
 gases, i.r. bands. integr. intensity and line widths, meas. method 3=7248
 gases, i.r. pressure induced 1=2789
 gases, line broadening mechanisms and profile meas. 3=14340
 gases, processes and eqns. 0=8718
 gas pressure broadening, as relax. process 3=16663
 gases under pressure, perturbations calc. 4=5248
 gases, shock excited, effect of transverse mag. field 4=24307
 gases, transparency, population shift theory 3=16662
 gases, vacuum u.v. absorption 4=11250
 gyromagnetic ratio dispersion 1=11083
 h.f.s. det. of nuclear mag. moments, comparison with n.m.r. values 0=5657
 h.f.s. in i.r. 0=16855
 high pressure cell 4=28658
 higher orders from grating, identification 2=1275
 hydrated electron, absorption spectrum 3=6926
 i.r. absorpt. rel. to atomic polarization 3=12809
 i.r. absorption, liquids and compressed gases, theory 0=974
 i.r., gases 0=1033
 i.r., history 0=154
 i.r., human body radiation, fine-structure 0=206
 infrared induced absorption, by press., elec. fields, intermolec. interact. 1=3544
 i.r. internally reflected appl. to surface study 3=18397
 i.r., and molecular structure 3=15316
 infrared spectrometry, review 2=17607
 infrared, two-dim. Wiener, inference from one-dim. meas 2=7361
 impurities in molecular crystals 1=14128
 inert gases, i.r. using stimulated emission 3=9507
 ionic crystals absorption, at low temps. 4=28442
 ions, impurity in plasma torus TA 2000, far u.v. emission 3=5680
 laser, gas, inherent spectral purity 4=19283
 light molecules, spectroscopic terms 0=5870
 lightning, visible and u.v. 1=4113
 line broadening by collision, general theory 3=3877
 line displacement, rigid-sphere model 1=4889
 line emission, thermodynamics 0=12524
 line intensity rel. to evaporation rate 2=22037
 line intensity and shape, self absorption effects 4=29757
 line profile correction for instrumental broadening 2=2877
 line profiles, functional description 0=3626
 line profiles, transformation, applic. temp. meas. 0=12483
 line shape and breadth meas. by optical simulator 4=24011
 line shift and broadening by collisions, rigid sphere model 1=2270
 lines, low-intensity, effect on band absorbance 4=24364
 lines of narrow breadth 1=16086
 liquid, frequency shift and solvent refractive index 4=18202
 liquids, i.r. absorption band parameters 0=12488
 liquids, spectral distrib. of light scattered by anisotropy fluctuations 4=11197

Spectra—contd

- luminescence, intensity and polarization, theory 4=9685
 mag. field, analyzer 4=30014
 magnetic multipole radiative transitions, $\Delta S=1$ 4=17236
 magnetic resonance, effect of modulation, analysis 2=4239
 microwave, of molecules, group-theory treatment 2=8092
 Milne's eqn. for general line profiles, power series expansion soln. 4=27309
 molecular aggregate excitons, calc., from vibr. electronic coupling 4=9796
 molecular band absorption, quasi-random model 2=22939
 molecular crystals, electron spectra 2=18822
 molecular crystals, rel. to molecular distortion zone structure 4=6806
 molecular, photoelec. meas. on discharge, theory 3=2620
 molecular polarizability, tensor derivatives, components, computational formula, derivation 4=12429
 molecular solids, i.r. lattice combination bands 3=4969
 molecular, Soviet work, review 1=3534
 molecules, asymmetric top, Zeeman effect 4=28163
 molecule in condensed medium, effect of effective field 3=19958
 molecules in dil. cryst. solvents, $T^* \leftarrow T$ absorptions, 77°K 4=10149
 molecules in electronically degenerate states, Jahn-Teller effect 2=3725
 molecules, i.r., band shape calc., overlapping rotational lines 3=17554
 molecules, i.r., vibr.-rot. band intensities calc. 2=6153
 molecules in liq. and solns., i. r. band contours 4=2690
 molecules, microwave and rot., review 4=3827
 molecules, polyatomic, absorpt., i.r., review 3=15323
 molecules, Raman rel. to electronic absorption 3=15319
 molecules, spin-degenerate, vibrational spectra and Jahn-Teller effect 3=717
 molecules, Stark effect, with strong nuclear quad. coupling 4=20005
 molecules, symmetric top, rovibronic transitions, selection rules 4=20009
 molecules, symmetrical top, difference of upper and lower state rotational consts., from i.r. intensities 0=13430
 molecules, universal reln. to fluoresc., rel. to excited states 3=15320
 moments, continuum perturbation theory 2=2596
 Mott exciton, Zeeman and Stark effects 4=1438
 multicomponent mixtures, automatic calc. of absorption spectra 2=6900
 naphthalene crystals, electron spectra 2=18821
 narrow-line optical, conference report, Berkeley (1961) 2=11241
 Newton and absorption lines 2=9390
 Ninth Ampere Colloquium 1=4734
 noncond. crystals, fund. absorption edge, effect of elec. fields 0=11757
 noncubic centres in cubic crystals, piezo-spectroscopic props. 4=28441
 one-dimensional equilibrium, in isotropic turbulence 0=3501
 optical and microwave absorption, line contour theory 4=7095
 overlapped molecular bands, intensity meas. 2=3733
 plane wave in grating theory 4=5398-9
 plane wave scattering by finite number of bodies 4=5398
 plane wave scattering by infinite grating of identical cylinders 4=5399
 plasma, Al III broadening and shift 4=18846
 plasma, asymmetric self-reversible line profile 4=11610
 plasma, broadening due to r^{-3} potential 4=18861
 plasma, discharge, spectral emission coefficients 2=1419
 plasma, under fast mag. compression 2=11639
 plasmas, high temp. collision-dominated 3=7506
 plasma, H₂ Balmer line Stark broadening 3=4108
 plasma, Holtsmark theory generalization, considering "broadening" ions' thermal motion 4=18858
 plasmas, hot, stimulated-emission effects 4=509
 plasma jet, emission, far i.r. rel. to frequency 2=22231
 plasma line intensities, optically thin approx. criteria 4=18852
 plasma, line self-absorption, extension of limits of applicability 3=19282

Spectra—contd

- plasma, low-pressure, vacuum-u.v. investigation 4=18855
 plasma, mag. compressed, vacuum u.v. 3=7505
 plasma, rarefied, resonance impurity radiation 4=18859
 plasma, thermally luminous, half-widths and shifts 2=178
 plasma, from Ti gun with hydrogenated electrodes 3=7519
 plasma, transient, emission-line profile meas. 4=18863
 plasma, turbulently heated 4=8717
 plasma in Zeta, 0.1-2.0 mm wavelength 3=7594
 polarized crystal spectra, analysis 1=17883
 positronium, Lyman α line, det. attempt 3=7839
 pressure-broadened line, intensity distrib. theory 4=19941
 pressure broadening, theory incl. multiple molecular scatt. 2=3689
 pressure-induced shifts of i.r. lines due to polar molecules 3=8227
 pressure shifting, empirical relations 0=5928
 production, low-voltage pulse discharge 0=3628
 quantum transitions to continuous, by adiabatic perturb. 4=5069
 quantum mechanics conference 0=13426
 random matrix diagonalization, numerical calc. 3=21201
 real, from instrument spectra, instrument functions 1=4464
 reproducibility, in elec. discharge, effect of electrode material 2=17807
 resolution enhancement for spectra of chemical and physical interest 4=21293
 rocket exhaust radn. in upper atmosphere, meas. 2=8982
 Rydberg const., precise value 0=4925
 semiconductors, i.r. absorption, effective mass of current carriers 0=18014
 Shannon approx., calc. of true shape of spectra 3=3878
 signal to noise ratio, minimization in calculation from interferogram 1=16074
 singlet-triplet transitions in magnetic rotation spectra 3=2594
 smearing aberrations, correction method 2=7696
 solids, narrow-line electronic, thermal broadening 3=2697
 solids, phonon broadening of impurity lines 3=20457
 solids, photoexcitation absorption 1=14579
 solutions, electron spectra of solute, effect of internal field 3=21373
 solutions, solute relative influence 4=27180
 solutions, two-component, electronic spectra rel. to mol. interaction 1=19644
 solvent effects, i.r., allowance for in analysis 4=7799
 Stark and Doppler broadening hydrogen like line profiles, calc. 4=30370
 symmetric top molecules, i.r. band profiles, calc. 1=14025
 thioindigo-chlorobenzene system, absorpt. spectra, molar extinction coeffs. determ. 4=16114
 thioindigo-chlorobenzene system, molar extinction coeffs. determ. by graphical method 4=16114
 two-component system, absorpt. spectra, molar extinction coeffs. determ. 4=16114
 u.v., historical account 1=6707
 u.v. prompt and delayed emission, in G.M. counters 0=15183
 uniaxial crystals, absorpt., dispersion shift 2=23565
 upwelling natural light from ocean 1=20804
 vibrational absorption band intensity meas. 1=4458
 Zeta plasma, 0.1 to 2.0 mm 4=8699
 Ar lamps, 230-1200 μ , effect of structure and excitation 3=16760
 H plasma, energy emitted at equilibrium 3=19232
 H₂O vapour, total absorbance in near i.r. 3=23933
 I, adsorbed, diffuse reflection 3=13574
 I, excitation in hollow discharge 3=17527
 Kr lamps, 230-1200 μ , effect of structure and excitation 3=16760
 Kr, 600-886A absorption coeffs. 3=23934
 N₂O, total absorbance near 4.5 μ 3=14217
 O arc plasma, Stark-broadening, shifts and widths 3=24277
 O-H bond, absorpt. band, effect of ions 3=8285
 TiCl₄-Ar mixtures, neutral Ti emission behind reflected shock waves 3=11836
 Xe lamps, 230-1200 μ , effect of structure and excitation 3=16760

Spectra—contd

continuous

- absolute negative absorption, maser action 1=13175
 alkali metals, in H flames 0=1517-18
 "auroral afterglow", laboratory-scale model 0=2346-7
 gases, electron beam energy losses 0=19764
 inert gases in reflected shock waves 2=21931
 infrared, 2.-8 μ , air and nitrogen at high temp. 4=2732
 perturbation theory 2=2596
 plasma, contrib. from highest atomic states 0=19680
 plasma X-ray continua 1=8820
 quantum transitions from discrete states, by adiabatic perturb. 4=5069
 rare gases 0=5056, 9758
 rare gases, combining of continua 1=1770
 stars, interpretation 0=4904
 A, in high-pressure discharge 2=16473
 Ar, shock excited, visible 4=29678
 Ar, vacuum u.v. 3=7462
 Ar, vacuum u.v. meas. 3=7246
 Ca, 4^3P-n^3D and 3^3D-n^3F limit 3=12758
 Cs atom, continuous emission spectra and series limits 3=25050
 Cs, emission and series limits 3=25050
 Cu₂O, absorption, 4-293°K 2=4145
 FeO particles, after heating 4=22359
 H plasmas 0=479
 He, vacuum u.v. 3=7462
 He, vacuum-u.v., in discharge 2=16473
 He, vacuum u.v., meas. and origin 3=7246
 He, vac. u.v., suggested He₂⁺ state 1=12248
 Hg, emission and series limits 3=25050
 Kr, behind shock wave 3=14218
 Kr, shock excited, visible 4=29678
 N, recomb. and "minus" continua 0=1487
 N₂, plasma, arc-heated, meas. 4=14652
 O, free-free continuum, rel. to polarization and exchange 3=17531
 O, recomb. and "minus" continua 0=1486
 W, spark, emission, spatial distribution, apparatus 3=24249
 W, spectral power distrib. from colour temp. 3=7322
 Xe, absorption, energy distrib. 3=17535
 Xe, behind shock wave 3=14218
 Xe, in high-pressure discharge 2=16473
 Xe, shock excited, visible 4=29678
 Xe, vacuum u.v. 3=7462
 Xe, vacuum u.v. meas. 3=7246
- flames**
 absorption, low-pressure organic-gas flames 0=19219
 acetylene-atomic oxygen, effect of O₂ 1=8842
 acetylene, effect of deuteration on band spectra 0=5937
 acetylene-oxygen, in shock tube, vac. u.v. emission 2=12963
 acetylene, reaction zone, atomic spectra excitation of 25 elements 3=19925
 active N reacting with HBr, Br, and ethylene 1=4093
 alkali metal-organic halide 4=7755
 alkali metals, detection and abundance 3=8990
 alkali metals, in H 0=1517-18
 alkali metals with organic halides, diffusion flames, chemiluminescence 4=22406
 atomizers 1=18600
 boron-containing, green bands 0=7767
 Bunsen, comparison with luminescence of (Zn, Cd)S:Cu 0=10052
 burner, atomising, three capillary spray for spectrophotometry 4=24371
 electron concentration from microwave attenuation 1=8234
 emission flame photometry, review 2=17581
 flame mechanism and atomic absorption spectroscopy 3=699
 4000-8000A, resulting from atom-ion colls, 60-500 keV 4=25520
 fluorine-hydrogen 1=4932
 hydrocarbon bands, isotope effect, deuterium substitution 4=25706
 jet engine, liquid fuel, visible emission 0=8852-3
 line intensities 0=4174
 liquid-propellant flames, i.r. spectra 4=4699
 of metal powder-oxygen flames 3=10504

Spectra—contd

flames—contd

- metals in flames, anomalous excitation 4=9658
- methane-oxygen, in shock tube, vac. u.v. emission 2=12963
- methyl alcohol—air, OH bands and rotational temperature 3=12830
- molecule and radical excitation, review 3=10483
- organic cpds. in atomic N, band due to (5,5) transition 1=13942-3
- oxyacetylene, OH emission, 1.5 μ region 0=15730
- processes and eqns. 0=8718
- radiance and temp. determination 1=1842
- resonance lines, optical cross-section 1=8815
- and thermodynamic equilibrium, deviations from, in outer cone 2=17679
- Al—oxygen flame 3=10504
- CN emission from active N flames 1=14045
- CO bands, ascribed to CO₂ 4=6560
- CO, flame bands 3=25091
- CO₂, 4.3 μ band emission at 1200°K 4=6585
- COS, combustion, spectroscopy in vac. u.v. 4=17861
- CS₂, combustion, spectroscopy in vac. u.v. 4=17861
- Cl gas at atmospheric pressure, recombination and "minus" continua 2=22902
- HCl, emissivity, 1000-3400 cm⁻¹ 1=851
- H + O₂, OH radical emission 0=5931
- H + O₃, u.v. emission 2=3789
- H₂/air with excess H₂ and SO₂; S₂ bands 2=20823
- H₂S, combustion, spectroscopy in vac. u.v. 4=17861
- Mg—oxygen flame 3=10504
- MgH bands, and deviations from thermodynamic equilibrium 2=17679
- N₂(active)—H₂S, NS radical system 2=20818
- Na, effect of compound on line intensities 0=4174
- Ni and Li atomic forbidden lines in d. c. arc flame 4=29899
- OF₂—NO diffusion flame, emission and absorpt. spectra 4=6599
- OH, in H₂/O₂/N₂ flames 0=1519
- O—Si—Al, u.v., i.r. and visible, energy distrib. 0=8854
- SnCl₄ reactions, fluted bands 3=20990
- Sr, effect of compound on line intensities 0=4174

resonance

- See also Luminescence
- aqueous salt solutions, asymmetrically broadened emission lines 0=16709
- coherence effects in crossed-level method 1=8810
- correction and quantum efficiency calc., by computer 4=8429
- "crossed" excited atomic states, interference effects, theory 1=2285
- discharge tubes, non-circular cross-section 0=19629
- double resonance, detection by freq. change, h.f.s. det. 1=3515
- fluorescence, polarization, calc., using radiation diffusion 0=5871-2
- h.f.s. intensity anomalies 0=4175
- imprisonment of resonance radiation, effect of Doppler and collision broadening and of h.f.s. 0=2729
- incoherent scattering theory for transport of resonance radiation, verification 0=13394
- layers, plane-parallel, secondary absorption and emission processes 0=11770
- line-shape functions 1=12247
- mole., axially symmetric, l type vibrational and splitting matrix element calc. 4=30412
- motional narrowing, theory 2=2638
- narrowing in inverted populations 4=12329
- paramagnetic, double quantum transitions 2=2296
- plasma, Doppler-broadened lines, radiative transfer 3=9813
- scattering of light near Na resonance line 4=11364
- scatterings by resonance line photon 4=29371
- transport of resonance radiation, boundary effects 2=7149
- Cd 5³P₁, r.f. field at twice Larmor freq. parallel to static 4=15276
- Cd vapour, optical resonance and selective reflection 1=802
- CdS, optical absorption, 4.2°K, and excitons 3=8594
- Cs, effect of A at press. up to 1500 atm. 0=5882
- Cs¹³³, pressure, light and temp. shifts 2=524
- Cu, ion beam prod., ang. var., mechanism 4=13071

Spectra—contd

resonance—contd

- H, ang. distrib. in crossed-level method, coherence effects 1=8810
- He, absorption, in He—D discharge 0=483
- He, forbidden resonances 1=12257
- Hg, atoms, resonance fluorescence and Zeeman effect 1=12246
- Hg, imprisonment of resonance radiation, theory and expt. compared 0=2729
- Hg, polarization, collision processes with foreign gases 0=17691
- Hg, at 2537 Å, decay, rel. to incoherent scattering theory 0=13394
- Hg, 2537 Å line, broadening in inert gases 3=703
- Hg²⁰¹, double resonance, detection by freq. change, h.f.s. det. 1=3515
- I₂, u.v. resonance 0=5951
- K, effect of A at press. up to 1500 atm. 0=5882
- Na, optical orientation, effect of spin-exchange collisions 2=1964
- Ne, 736 Å line transition probability 4=26133
- Rb, effect of A at press. up to 1500 atm. 0=5882
- Rb⁸⁷, pressure, light and temp. shifts 2=524
- Zn vapour, optical resonance and selective reflection 1=802
- atoms
 - See also Atoms, excitation; Atoms, structure absorpt., for spectrochemical analysis, use of Beer—Lambert law to improve cells 3=23556
 - absorption and configuration interaction effects 3=10439
 - absorption spectroscopy and flame mechanism 3=699
 - actinide elements, 1st and 2nd spectra 3=18998
 - actinides 0=9772
 - air plasma, analysis 4=18856
 - alkali elements, narrowing hyperfine lines 1=17263
 - alkali metal discharges, high-pressure 4=18709
 - alkali metal vapours, transmission intensity rel. to polarization 4=3801
 - alkali metals in flames, detection and abundance 3=8990
 - alkali metals, freq. shifts in hyperfine splitting due to rare gas atoms, calc. 1=8811
 - alkali metals, hyperfine transitions of ground state 0=17701
 - alkali metals, in inert-gas solids, g-factors calc. 4=9821
 - alkali metals, 0-0 hyperfine resonance shifts 2=524
 - alkali metals, pressure shift of high series 4=3782
 - alkali metals, pressure shifts due to foreign gases, calc. 0=7723
 - alkali metals, satellites due to inert gas atom oscs. 4=25494
 - alkaline earth metals, optical pumping in foreign gas under high press., spin distrib. 0=17694
 - analytical curves rel. to line profiles in absorption 3=18465
 - arc discharges, decay 1=2956
 - arc plasmas, atomic concentration determination 1=2289
 - atom distrib. by states, rel. to emission of radn. effect on thermodynamic equilb. 4=27368
 - atom, spectrum, isotope shift meas. 3=1219
 - atomic beam resonance method 3=2
 - autoionizing level, reduced width, R-matrix theory 3=25037
 - b₁ tables for H and He, programme 2=4803
 - broadening effect of several atoms, theory 3=15273
 - calculation of levels for monovalent atoms 4=28107
 - calculations in, electronic digital computer programming 0=5165
 - "carrier" effect mechanism, line intensity 2=20737
 - complex atoms, theoretical intensities 0=20583
 - complex spectra, interpretation, review 1=799
 - complex spectra, repulsion of energy levels 1=12237
 - configuration f⁹, spin-orbit interaction 0=7686
 - configurations of three electrons, matrix elements of tensor operators 0=7685
 - conference, Gor'kt', 1961 3=18981
 - conference on quantum mechanics, Sanibel Island (1963) 4=6449
 - configuration 2p^Nn^l, classification 4=19928
 - crystals, mag. ion, Zeeman term intersection 4=3972
 - D theta pinches, impurity radiation losses 4=18958
 - dipole transitions, SCF approx. 1=4891
 - double resonance expt., modulation of light 3=22474
 - effect of terms with high quantum numbers 1=18115

Spectra—contd

atoms—contd

effect of longitudinal plasma oscillations, use as a probe 1=10696
 eighty-two elements, principle visible lines, tables 2=3690
 electron capture, polarization effects 1=17277
 electron impact widths and shifts, dispersion relation 2=3699
 energy distrib. of terms and line arrays 2=20738
 environmental effects on energy levels, calc. 2=1955
 excitation functions, measurement, vacuum u.v. monochromator 4=16238
 excitation, by high-frequency pulses 0=12479
 excitation by low-voltage discharge 3=24230
 forbidden emission lines, intensity 3=2550
 forbidden lines in gaseous nebulae, electron-excitation cross-sect. 4=25518
 forbidden lines, review 1=13931
 forbidden lines, transition probabilities, calc. 4=15268
 forbidden, mag. dipole transitions, theory, nebulae, corona 4=2363
 Fraunhofer line wind profile formula 4=26895
 Fraunhofer lines, central intensity, effect of inhomogeneities 2=4776
 Fraunhofer lines, solar centre-limb variation of profile 2=4772
 frequency shift, resonance, due to radiation field, theory 4=9623
 gf values for 70 elements 3=2551
 gas mixture, stimulated emission 2=15653
 gas mixture, stimulated emission 3=5465
 gas-phase chemical reactions, coherent light generation 4=19282
 gases under pressure, rigid sphere model 4=5248
 gases selectively excited in He afterglow meas. 4=12385
 halogens, in arc in He atmosphere 4=9642
 halogens, radiative electron capture 4=25493
 heavy elements in plasma, Stark broadening of isolated lines 3=701
 heavy elements, X-ray L intensities, 50 kV electron excitation 3=8178
 highly ionized, from plasmas, grazing incidence meas. 4=25490
 highly ionized, vac. u.v., differentiation method 4=25476
 hydrogen-like lines, Stark broadening 1=2290
 hydrogenic, hyperfine splitting calc. 4=30373
 hydrogenic ions, radiative recombination 0=17707
 hyperfine interaction Hamiltonian 0=17698
 h.f.s. calc., light atoms 3=15288
 hyperfine splitting, rel. to nuclear structure 4=9361
 i.r. emission, extraphotographic obs. 3=18983
 i.r. emission, progress of radiometric observation 1=797
 impurity in crystals, transition interacts. with vibrs. 4=28345
 inert gases, absorption, photoionization meas. 4=11345
 inert gases, α -excited, nitrogen impurity bands 2=20745
 inert gases, compressed, induced i.r. spectra 0=17700
 inert gases, elec. dipole oscill. strengths 4=28153
 inert gases, energy losses, resolution by optical emission analyser 3=21880
 inert gases, forbidden transitions in continuum, electron scatt. obs. 4=15279
 inert gases, i.r. emission, interferometric wavelength meas. 0=16854
 inert gases, Lyman- α emission cross-sect. 4=25519
 inert gases, maser transition line strengths 4=27676
 inert gases, pair coupling, 5g levels 4=28116
 inert gas-proton collisions, Lyman α production 3=16910
 inert gases, time-resolved emission 2=7576
 inert gases, u.v. absorpt. 3=13179
 ion, using Van de Graaf accel. 4=22285
 ions, in Alpha plasma machine 1=9605-7
 ions, in "Alpha" plasma machine 1=5479-81
 22 ions, u.v. multiplets, oscillator strengths 4=3781
 ionized, multiple, discharge, vacuum, low voltage, atlas 3=25035
 ionized multiple, excitation as nova 4=15922
 irregular doublet law, rel. to screening consts. theory 3=25039
 isotopic analysis 0=13419
 isotopic analysis 2=23986

Spectra—contd

atoms—contd

isotopic analysis, review 1=3526
 isotopic line shifts, computation methods 4=15267
 isotope shift 2=10205
 isotopic shift 3=25040
 isotopic shift, for non-homog. nuclear charge distrib. 4=14346
 isotope shift for non-uniform charge distrib. 1=3512
 isotope shift, due to non-uniform nuclear charge distrib. 0=4169
 isotope shift, rel. to nuclear deformation 0=11507
 isotopic shift, nuclear deformation effect, nonaxiality 4=6463
 isotope shift, second-order contris. 3=8216
 isotope shifts, effects of nuclear polarizability 2=20496
 kinetic theory applic. to study of emission 0=3559
 Lamb shift, effect of e.m. radiation 0=2730
 Lamb shift, and other radiative effects 0=2731
 lanthanide elements, 1st and 2nd spectra 3=18998
 lanthanides, in ThO₂, tertiary refl. spectra 4=20462
 lifetimes, mean, polarimetric meas. 3=15287
 light atoms, spectroscopic terms 0=5870
 line half-width, broadened by electron impact, calculation 3=8174
 line identification list below 2000 Å for 10 elements 3=21538
 line intensity ratio, meas. 0=6934
 line radiation in N₂ and air shocks 4=19943
 line spectra, in alkali metal-organic halide flames 4=7755
 line strengths and selection rules for different vector couplings 4=1180
 magnetic multipole radiative transitions, $\Delta S = \pm 1$ 4=17236
 mesic, review 0=20564
 μ -mesic, K- and L-series, X-ray yields 2=1975
 μ -mesic, X-ray spectrum, effect of quadrupole transition 4=17267
 metal vapour, optical anisotropy near absorption line 1=9904
 metals, group II, double reson. lines, collision broadening 4=17240
 metals, in halide flames, var. with active N 3=22605
 metals, mixed vapours, negative absorption 1=798
 meteors, i.r., due to NI, OI and Ca II 2=4757
 multiplet lines, causes of source function equality 4=6456
 multiply-ionized, by sliding and triggered vacuum spark techniques 3=9593
 multipole lines, fifth group elements 4=19949
 3nj coeffs., classification and identification 4=1192
 $n^2s^2.n^2f$ term series, quantum defect var. with n 4=12361-2
 neon, stimulated emission of new i.r. transitions 4=12383
 neutral atoms, absolute oscillator strengths, meas. 4=9622
 non-hydrogen Stark broadening in fully ionized plasma 4=18853
 non-hydrogenic system, continuous absorption coeffs. 3=3599
 0 \rightarrow 0 transitions, measurement 2=18404
 nuclear and relativistic effects 1=8818
 nuclear and relativistic effects 3=12752
 odd-odd nuclei, isotope shifts 1=8567
 optically driven spin precession 1=8821
 oscillator strength meas., using gas stabilized arc source 4=8431
 oscillator, strengths, absolute scale 3=22470
 oscillator strengths, absolute value determ. 2=6098
 oscillator strengths, calc. from line widths 0=15658
 oscillator strengths calcs. using Coulomb approx. 3=2548
 oscillator strengths, meas., review 4=25475
 oscillator strengths, by shock tube spectrosc. 4=18335
 photoelectric edges, apparent positions, and merging of spectrum lines 4=12389
 photoionization, calc. 2=20751
 plasma, broadening, statist. theory 4=14650
 plasma excitation, collisional effects 4=2972
 plasmas, high-density corrections 3=1961
 plasma jet de-excitation 4=21551
 plasma multiply-charged ions, line width and location 4=18845
 in plasma, spectral line width 4=18860
 plasma, two types of atoms 3=9812
 plasma, Zeta, 16-400 Å 4=19065

Spectra—contd

atoms—contd

- polarization of line radiation excited by electron impact 0=17699
 polygon conditions in 18j coeffs. 4=1191
 pressure broadening, theory incl. multiple scatt. 2=3689
 quantum electrodynamic study, Coulomb gauge, propag. function 0=20025
 Racah generalized coefficient 0=17697
 rare earth, arc, atlas. 3=25854
 rare-earth elements 0=9771-3
 rare-earth elements, new light source 2=19715
 rare-earth ions, absorption intensities, calc. 2=18421
 rare-earth ions in cryst. fields, shielding and distortion 4=12567
 rare-earth ions, Hartree-Fock calc. 4=30504
 rare-earth ions, time-resolved spectra, apparatus 2=14204
 rare earths, doubly and triply ionized 3=19947
 rare earths, emission spectra of neutral and ionized atoms 1=11071
 rare-earth, 1st and 2nd spectra 3=19946
 rare gases, electron-beam excited 0=15657
 recombination, calc., collision transition effects, planetary nebulae 4=12352
 repulsion of energy levels in complex spectra 1=800
 resonance radiation, r.f. fields interference effects 2=520
 review of line spectra from outer electrons 3=19916
²S_{1/2} ground state, h.f.s. Stark shift 2=3694
 Saha equation departure, Lyman continuous opacity 0=9763
 scatt. of light and γ -rays on isolated and overlapping mag. sublevels 1=19599
 SCEPTRE III, as source of higher spectra 1=235
 screening doublets and X-ray satellites 3=10443
 screening theory, for complex theory 0=5873
 second order Z dependent theory 4=30367
 self-absorption of lines rel. to total intensities 3=10440
 semiconductors, magneto-optical absorption, close trajectory case 2=4119
 sensitivity of emission spectral analysis 2=863
 70 elements, 39 000 spectral-line intensities 2=3691, 12280
 shift, due to nuclear isomerism 0=2733
 shifts, chemical, Z-dependence 4=17270
 VI, isotope shifts 4=12379
 in solar photosphere, 2 levels plus continuum, source function calc. 4=4901-2
 Sommerfeld constant, grav. independence, rel. to general relativity 2=521
 source function calc., not in thermodynamic equil. 4=20898
 source function in non-equilibrium atmosphere 1=4206-7
 Soviet research 1=3499
 spacing distrib., next-nearest neighbour energy levels 3=7978
 spark discharge in nitrogen and air, 5 000-10 000 Å 1=19593
 sparks, electric, var. with self absorption and conc. 4=2171
 spd' config. h.f.s. 4=25509
 spectrograph for near i.r., scanning grating with PbS detector 2=2879-80
 spectrometer calibration from calc. Be II, Al III osc. strengths 4=5381
 spectrophotometer, atomic absorption 3=24025
 spectroscopy, emission, review 4=15263
 Stark effect in complex atoms, theory 4=28115
 statistical line broadening in plasmas 2=1958
 statistical properties 0=17696
 statistics of radiative transition probabilities 3=4700
 three-electron systems, oscillator strengths 4=6476
 Tokamak machine, ion temp. meas. 4=14731
 transition metals, in H₂O and D₂O solvents, spectral and reactivity differences 0=13455
 transition probabilities eval. method 2=12287
 transition probabs. calc. for 70 elements 3=19917
 trapped, at 4°K 0=9776
 trapped, in solid A, Kr, Xe, environmental perturbations 0=20661
 25 elements, excitation in acetylene flame reaction zone 3=19925
 24 elements, impurity detection in ZrO₂ 0=1971
 two photon processes 4=30372
 ultraviolet multiplet table, collected 2=18401-2-3

Spectra—contd

atoms—contd

- vacuum spark, condensed, time-resolved line emission 1=17262
 vacuum u.v. radiation physics, conference 3=5515
 vacuum u.v., research report 4=12327
 from Van de Graaff beam passed through C foil and imaged on Raman spectrograph 3=19918
 vector coupling, inhomogeneous, with strongly excited electron 0=20582
 wave functions and transition probabilities, nodal boundary condition model 4=25474
 wavelength measurement, using photoelectric scanner and Moiré fringes 3=698
 wave-number meas., from Fabry-Perot interferograms 0=10768
 X-ray, isotopic shift 4=19940
 X-ray satellites, origin, survey 3=10442-3
 X-ray, Z = 40 - 51, L fluorescence yield 4=30386
 Z=60 to 67, X-ray, prod. by 25-100 keV protons 4=25505
 Z = 33-44, K α satellites 2=14212
 Zeta discharge, impurity u.v. line radiation, temporal variation 3=7463
 A, afterglow emission 0=13412
 A, collision broadening in near i.r. 1=11066
 A, continuous 2=16473
 A, electron excited, excitation cross-sections 0=9759
 A, emission in high pressure arc plasma 3=8180
 A ions, vacuum u.v. emission 2=1201
 A, isotope shift 0=5885
 A, l.p. arc with axial mag. field 1=2953
 A plasmajet i.r. emission 1=11070
 A, spark discharge, line broadening and shift 0=17702
 A, u.v., corona discharge 0=1123-4
 A⁺, excitation in inert gases 0=10880
 A I, i.r. new lines 2=3703
 A I and Hg¹⁹⁸I, i.r. secondary stds. 2=10207
 A II, in discharge, enhancement by mag. field 2=20744
 A II, energy levels anal. 0=15638
 A II, in spark discharges 0=13417
 A II, spectrum analysis 1=4900
 A II and III, in plasma due to shock wave 2=11640
 Ag, collision line broadening 4=25511
 Ag, L-absorpt., bent-crystal and proportional counter study 2=1959
 Ag, transition probabilities 0=7732
 Ag I, $\lambda\lambda$ 3281, 3383, absolute oscillator strength 4=22302
 Ag I, resonance doublets, absolute oscillator strengths 4=6485
 Ag I and II, isotope shift 2=10211
 Al, absolute f-values 0=9757
 Al, arc spectrum, near i.r. 2=3692
 Al, doublet arc spectrum 1=4897
 Al, K, L, $\lambda\lambda$, effect of crystal lattice 2=4160
 Al, line intensities, oscillation, in toroidal discharge with mag. field 4=14651
 Al, oscillator strengths of 15 lines 3=15279
 Al, 14000-25000 Å 0=478
 Al, n's^a.nf²F term series, quantum defect var. with n' 4=12361-2
 Al II, term system recalculated 3=8179
 Al I 3962 Å line intensity rel. to press., in arc. 3=24250
 Al III calc. osc. strengths and spectrometer calibration 4=5381
 Al III, doublets, fine structure 3=10446
 Al III, intensity ratios of some doublets 1=17264
 Al VII, in spark discharge 3=11921
 Am²⁴¹, missing band 17500 cm⁻¹ 4=30377
 Am²⁴¹, 1.6-2.1 μ , h.f.s. 1=811
 Am I, f.s. and h.f.s., J-value calc. 1=7436
 Am IV in LaCl₃, energy levels, assignment of 10 lowest 4=20177
 Ar, absorption coeff., continuous, 4000-7000 Å, 8000-24 000 Å 3=1972
 Ar, absorption cross-sections, 600-170 Å 4=15272
 Ar, absorption, 600-1025 Å 3=25056
 Ar arc, visible and i.r. meas. 4=18781
 Ar, autoionized energy levels, meas. and theory 4=6474
 Ar cascade arc, vacuum-u.v. intensity definition 3=4076
 Ar, discharge, electric, r.f., similarity to Geisler tubes at high powers 4=5612
 Ar, excited by α -particles, optical emission, and quenching 4=28117

Spectra—contd
atoms—contd

Ar, i.r., interferometric meas 4=6467
 Ar ions, forbidden transition probabs. calc. 3=25055
 Ar ions in vacuum C arc 3=19330
 Ar, K-absorption edge, counter response meas. 4=9636
 Ar, neutral, var. with type of elec. discharge 4=18782
 Ar plasma, absorption oscillator strengths of CI multiplets between 1100 and 1800 Å 4=19953
 Ar plasma produced by shock waves, mag. driven 4=24648
 Ar, in plasma, Stark broadening 3=701
 Ar, reson. lines 1048 Å, 1067 Å, oscill. strength, meas. 4=30378
 Ar, in shock tube, thermodynamic state meas. 4=27527
 Ar, transition probabilities 3=19943
 Ar, two-electron transitions to autoionizing states 3=19927
 Ar⁺, 10 laser wavelengths, 4500 Å to 5300 Å 4=19285
 ArI, absolute oscillator strengths 3=15280
 ArI, line broadening in plasma jet 4=9635
 Ar I, pair coupling, 5g level 4=28116
 Ar I and II, resonance lines 3=14355
 Ar I and II, transition probabs. meas. 3=10447
 Ar II 3=4217
 Ar II in low press. plasma, excited by electron beams 3=7609
 ArII and III in plasma wrapped round Cu vapour 3=7557
 Ar IX, X, XI, XII, grazing incidence meas. 4=25490
 As 0=16397
 At, absorpt., 2244.01 and 2162.25 Å 4=28118
 Au, doubly ionized 1=17266
 Au, new L transition, non-quadrupole 3=8183
 Au, X-ray L intensities 1=13951
 Au¹⁹⁷, h.f.s. separation, for ground-state ²S_{1/2} 0=9518
 Au I, resonance doublets, absolute oscillator strengths 4=6485
 B, highly ionized, in high-temp. plasma 3=10448
 B³⁺, isotope shift, open-shell calc. 3=10456
 B^{10,11}, 1360-2090 Å 1=4938
 B¹¹, ²P_{3/2}, ²P_{1/2} states, h.f.s., calc. 3=15288
 B I, technique and meas. 2=14191
 Ba, absorption spectrum, shock-excited 2=22897
 Ba, absorption, in u.v. 0=7724
 Ba, first excited state, oscill. strength from lifetime 4=6469
 Ba, ionized, in plasma 4=8708
 Ba, isotope shifts and h.f.s. 4=19952
 Ba, optical cross-sections of resonance lines 1=8815
 Ba, principal series 2=14200
 Ba, oscillator strengths of 65 lines 1=5973
 Ba, resonance lines, oscillator strengths meas. 2=10209
 Ba, transition probabilities eval. 2=12287
 Ba, u.v. absorption 2=14190
 Ba⁺, absolute f-values 0=9757
 Ba^{135, 137}, h.f.s., and mag. and quadrupole moments, using atomic beam in interferometer 4=9638
 Ba^{135, 137}, h.f.s. of reson. line in arc spectra 4=25496
 BaI 1=4901
 BaI, 5535 Å, hyperfine and isotopic struct. 4=22300
 Ba I 5535.6 Å (6s² ¹S₀-6s6p¹P₁) isotopic shift 2=18414
 Ba I, isotope shifts in resonance line 3=22477
 Ba I, 6³P₁ lifetime 1=17257
 Ba II, low pressure arc, excitation cross-section 2=1411
 Ba II, resonance doublet shift and broadening rel. to He and A colls. 3=2562
 Ba II spectral lines, oscillator strengths 1=13954
 Be, K emission 0=15327
 Be I, 2050-18200 Å 3=2563
 Be II calc. osc. strengths and spectrometer calibration 4=5381
 Be II, 1500-12100 Å 1=19586
 Be II, oscillator strengths calc. 4=6476
 Bi II, multipole lines 4=19950
 Bi, X-ray L intensities 1=13951
 Bi⁸³, quadrupole and forbidden lines in L-emission 0=20584
 Br 0=16397
 Br, analysis 4=9637
 Br, doubly ionized 1=19587
 Br⁻, gaseous ions, absorption 3=2565
 Br I, 2000 to 13000 Å wavelengths and intensities 2=3693
 Br II, 4p⁴ ground configuration, energy levels, magnetic dipole transitions 1=8812

Spectra—contd
atoms—contd

Br IV, energy bands 0=20585
 in C arc, line intensities rel. to ionization potl. 2=18400
 C, arc, visible and i.r., as radiation standard 3=21539
 C, highly ionized, in high-temp. plasma 3=10448
 C, K emission 0=15327
 C, mesic, K series meas. 4=22329
 C, oscillator strengths of certain lines 3=25048
 C, use as standards in vacuum u.v. 3=13989
 C, solar u.v. lines, oscillator strengths 2=19307
 C, in vacuum spark discharges 1=10683
 C⁻, photodetachment 3=4003
 Cl, absorption oscill. strengths, 1100-1800 Å 4=6472
 Cl in 3420-9659 Å region 4=12364
 Cl, transition probabilities 3=702
 Cl I, visible, transition probability 2=3704
 Cl I and II, intensity ratio, rel. to hydrocarbon arc temp. 3=7484
 Ca, absorption in vac. u.v. 0=9761
 Ca, double resonance due to modulated light, meas. 4=9662
 Ca, first excited state, oscill. strength from lifetime 4=6469
 Ca, 4³P-n³D and 3³D-n³F limit continua 3=12758
 Ca, optical cross-sections of resonance lines 1=8815
 Ca, resonance lines, oscillator strengths meas. 2=10209
 Ca, 6573 Å line, collision broadening 0=17704
 Ca, transition probabs. of 19 lines 4=12365
 Ca, u.v. absorption 2=14190
 Ca, vapour, 2100-1080 Å absorption 0=19220
 Ca⁺, absolute f-values 0=9757
 Ca I, 4s4p ³P₁ term, g_J factor meas. 2=10208
 CaI, 4s4p³P₁ term, g_J factor meas. 3=2564
 CaI oscillator strengths, hook method 1=19588
 Ca I 4227 Å oscillator strength, by absorption in atomic beam 3=19932
 Ca II, in quiescent solar prominences 0=6597
 Ca II spectral lines, oscillator strengths 1=13954
 Ca II, transition integrals, wave function theory 2=10210
 Ca XIII, ³P₁-³P₂ transition, 4086.3 Å coronal line 3=17522
 Cd, collision line broadening 4=25511
 Cd, emission, 1.6-3.7 μ 3=15281
 Cd, excitation functions 2=18424
 Cd, excitation functions of 5³P₀₁₂-6³S₁ 2=8065
 Cd, fine structure of excitation functions 2=12289, 14192
 Cd, 5³P₁ level, Landé g-factor meas. 4=17246
 Cd, i.r. emission, interferometric wavelength meas. 0=16854
 Cd, near i.r. 0=10840
 Cd, optical double reson. lines, self-broadening 4=17345
 Cd, red line contour, atomic beam meas. 0=11508
 Cd, spark spectrum, wavelength shift meas. 1=3511
 Cd^{107, 111, 113}, ³S₁ h.f.s. and isotope shifts 3=25049
 Cd¹⁰⁹, (5s5p)³P₂ state, Zeeman effect and h.f.s. 3=19931
 Cd¹¹⁴, self-absorption, model 2=519
 Cd¹¹⁴, vacuum wavelengths 1=8814
 Cd¹¹⁴ vacuum wavelengths 3=12763
 Cd I, λ3261, absolute oscillator strength 4=22302
 Cd I, h.f.s. and intercomb. line intensities 2=16480
 Cd I, isotope shift in 3261 Å line 0=5877
 Cd I spectral lines, oscillator strengths 1=13953
 Cd I, triplets, intensity at different excitation conditions 0=17703
 Cd I, triplets, intensity ratios 1=13952
 Cd I, 2288 Å line, isotope shift 2=6093
 Cd I, II, in submerged spark, press. effect of foreign Zn 4=25497
 Cd II, excited levels, mag. dipole resonance 0=2715
 Cd II, isotope shift 2=18415
 Ce³⁺, in alkaline earth fluoride crystals 3=25452
 Ce³⁺, in Ce : LaAl₂, Stark splitting 3=20071
 Ce I, low energy levels 3=19933
 Cf, 14 lines from 3700 to 4400 Å 2=12288
 Cl, atm. pressure, recombination and "minus" continua 2=22902
 Cl ions, forbidden transition probabs. calc. 3=25055
 Cl, 7000-25000 Å 0=477
 Cl, Zeeman, microwave 1=11068
 Cl⁻ gaseous, absorption spectrum 2=3697
 Cl⁻ gaseous ions, absorption 3=2565
 Cl^{35, 37}, microwave mag. resonance, two-quantum transitions 2=22903

Spectra—contd

atoms—contd

- Cl I, II, absolute transition probabilities 0=5887
 Cl I and II, transition probabilities 3=702
 Cl I, (³P)nf levels 1=5964
 Cm³⁺, in La ethylsulphate and LaCl₃, e.s.r. 3=13299
 Co, absolute f-values 0=9757
 Co, crossing two levels with same M value 4=22301
 Co⁺⁺ paramagnetic ions, in soln., light absorption 1=15883
 Co⁵⁶, h.f.s., rel. to nuclear quadrupole moment 1=7437
 Co⁵⁹ I, h.f.s. splitting 0=13121
 Co II, d⁷ p config. 1=806
 Co II, relative oscillator strengths 3=8181
 Co III, vacuum u.v. observations 0=9762
 Cr, absolute f-values 0=9757
 Cr, emission, pressure shift 2=13450
 Cr, K_{α1} and K_{α2}—K_{α2} doublet separation rel. to chemical binding 4=1427
 Cr lines in seeded Cu arc, integral radiation 4=16457
 Cr, Q correction for 3d⁴4s¹ configuration of second spectrum 0=13414
 Cr, in shocked gases containing Cr(CO)₆ 1=13933
 Cr³⁺ in Al₂O₃, absorption bands and lines, theory and exp. 0=645-6
 Cr³⁺, in ruby, B₁ and B₂ absorption lines, mag. and elec. field effects 4=28703
 Cr I emission from shock tube 3=8182
 Cr I, 4500-5000 Å intensities 0=484
 Cr II, d⁴ p config. 1=806
 Cs, absorption in hydrocarbon vapours 3=22478
 Cs, continuous emission and series limits 3=25050
 Cs, h.f.s. study of atomic-beam resonance 1=11082
 Cs, i.r. emission 2=22899
 Cs, i.r. emission 3=12756
 Cs, optical cross-sections of resonance lines 1=8815
 Cs, optically driven spin precession 1=8821
 Cs, oscillator strengths, calc. 2=18416
 Cs, oscillator strengths calc. 4=25501
 Cs, P_{1/2} doublet quenching in gas mixtures 4=9674
 Cs, plasma-broadened lines, calc. and meas. of profiles 2=18417
 Cs, in plasma, Stark broadening 3=701
 Cs, relative doublet line strengths in principal series, calc. 1=13932
 Cs, satellite bands in gaseous mixtures 4=25781
 Cs, satellite bands in gaseous mixture spectra 4=25594
 Cs, satellite bands, position dependence, in presence of inert gases 1=9910
 Cs, under increasing gas pressure, resonance lines 0=1533
 Cs¹³³ I, 8²P_{3/2} term, h.f.s. and lifetime 3=10451
 Cs¹³³, 8²P_{3/2} state, h.f.s. 3=12757
 Cs¹³³, ground state, h.f.s. Stark shift 2=3694
 Cs¹³³, (4, 0), (3, 0) microwave transitions 0=17701
 Cs¹³³, resonance lines 0=17705
 Cs I, interferometric meas. 2=8063
 Cs I line, oscillator strength 4=28125
 Cs I λ 8521 perturbation by Xe satellite collision bands 4=28120
 Cu, in arc discharge in air, intensity ratio 0=19643
 Cu, exploding wire 2=16485
 Cu, in glow discharge above aqueous solns. 0=8716
 Cu, in low-temp. flame, using new spark source 3=11923
 Cu, X-ray flash tube, and ionization collisions 1=19589
 Cu I 5782 and 5292 Å line intensity rel. to press., in arc. 3=24250
 Cu I, line intensities and gf values 3=6352
 Cu I, radiative recombination coeffs. in H discharges 0=13412
 CuI, 3d⁹4s4p h.f.s. and electron struct. 4=25509
 CuI, transition probs., arc. meas. 4=25498
 Cu I, II 3=4217
 Cu I and II, isotope shift 2=6094
 Cu II, standard wavelength in vacuum u.v. 0=4170
 Cu II, h.f.s. and shifts, for two isotopes 4=9640
 Cu XIII, ³P_{1/2}—²P_{1/2} transition, 3454.3 Å coronal line 3=17522
 Cu^{63,65}, h.p.s. of 3d⁹4s²m²D—3d¹⁰4p²D transition 1=9902-3
 Cu with Zn, in discharge, effect of Si, Na, time var. 3=25845
 D, Lamb shift of ground state 3=7328
 D, n = 3 level, fine structure by microwave-optical method 0=17708-9

Spectra—contd

atoms—contd

- D plasma in Scylla 0=13385-7
 D I, 6157 Å multiplet, transition probability 1=12251
 Dy, isotope effect meas. 3=15282
 Er II, energy levels 3=10453
 Er II, low-lying levels 2=10201
 Er³⁺ in LaCl₃, orbital calc. 4=4259
 Eu I, isotope shift effect meas. 2=12290
 Eu II, h.f.s. 0=17706
 Eu II, h.f.s., quadrupole moment det. 1=4903
 Eu³⁺, in Eu bromate, visible absorption lines 0=647
 Eu^{151,153}, h.f.s. anomaly 1=4902
 F, line intensities, oscillation, in toroidal discharge with mag. field 4=14651
 F¹⁹, ²P_{3/2}, ²P_{1/2} states, h.f.s., calc. 3=15288
 F⁻, gaseous ion, absorption 3=12759
 F II, III in highly condensed discharges (2900-6000 Å) 3-35 cm pressure 1=9911
 F VI 1=235
 F VII, oscillator strengths calc. 4=6476
 F, Zeeman, microwave 1=11067
 Fe, absolute f-values 0=9757
 Fe, emission, pressure shift 2=13450
 Fe group, α and β parameters 1=12249
 Fe group, third spectra, low even configs. 2=14197
 Fe, line blackening in hollow cathode 3=19936
 Fe, Ni, Cr, Ti; mutual influences taken three by three 0=10378
 Fe, Q correction for 3d⁴4s¹ configuration of second spectrum 0=13414
 Fe group, neutral atoms, oscillator strengths 0=20590
 Fe group, second spectra, (3d + 4s)ⁿ configurations 0=4171
 Fe series (Sc to Cu), comparison with Hartree-Fock calculations 0=9737
 Fe, X-ray flash tube, and ionization collisions 1=19589
 Fe, 3720 Å, oscillator strengths 1=17271
 Fe I absorption spectra, in presence of A 1=17265
 Fe I, absorption spectra shift due to He 1=8813
 Fe I, arc-in-air, faint lines 1=4904
 Fe I line in low pressure arc 2=1411
 Fe I line, oscillator strength 4=28125
 Fe I, lower chromosphere of sun 0=6584
 Fe I 3175 Å line intensity rel. to press., in arc. 3=24250
 FeI, relative gf-values 4=8431
 Fe I and II lines, oscillator strengths 2=14198
 Fe I and II lines, solar centre-limb variation 2=4777
 Fe II, d⁶ p config. 1=806
 Fe II, transition probabilities of forbidden lines 2=22904
 Fe III, nonlinear effects in theory 3=8185
 Fe X, transition probabilities permitted and forbidden lines 2=14205
 Fe XIV, transition probabilities permitted and forbidden lines 2=14205
 Fe XVI and Fe XV, multiplet strengths for transitions 4=25500
 Fe²⁺ d_e energy splittings in ferrous cpds. 4=9808
 Fe²⁺ in Al₂O₃, trigonal fields, energy levels calc. 4=1356
 Fe²⁺ in cubic crystal field, optical spectrum and ground-state splitting 4=20463
 Ga, doublet arc spectrum 1=4897
 Ga, oscillator strengths of 13 lines 3=15279
 Ga, 4033, 4172 Å oscillator strengths 1=17271
 Gd isotopes, with special spectrometer 0=3634
 Gd, yellow-green region, isotope structure 2=6095
 Gd⁺⁺⁺ absorption bands, oscillator strengths 3=19935
 Gd⁴⁺ 3=12761
 Gd^{155,157}, h.f.s. 0=13420
 Gd^{155,157}, h.f.s., nuclear moments calc. 0=13123
 Ge 0=16397
 Ge, absorpt., var. with Su doping 4=17566
 Ge infrared absorption 1=19994
 Ge, use as standards in vacuum u.v. 3=13989
 Ge, Zeeman spectra of donor levels 2=2231
 GeI, correl. between obs. wavelength shifts and predicted Stark effect 4=15277
 Ge I, i.r., extension and analysis 4=28123
 GeI, oscillator strengths meas. 4=25510
 Ge I and II, as vac. u.v. wavelengths standards 2=22031
 GeII, 600-10 000 Å 4=6473
 H₂ adsorbed on crystal surface, i.r. 4=2131
 H, allowed r.f. lines 0=20591

Spectra—contd

atoms—contd

- H α , β , γ , δ in 1-200A plasma arcs burning in A and He 2=17844
- H α line, contours by electron-optical converter 2=1272
- H α narrow emission in aurora 1=6640
- H α in self-sustained Townsend discharge 4=18710
- H, auroral spectra 1=6637
- H, Balmer α -radiation excitation and polarization in electron collisions 2=22918
- H, Balmer emissions, by proton impact on H₂ 3=15278
- H, Balmer emissions due to H₂⁺ and H₃⁺-H₂ collisions 3=25043
- H, Balmer line profiles in arc discharge 2=17805
- H, Balmer lines, Stark broadening 3=19926
- H, Balmer lines, pressure broadening in plasma 4=28110
- H, Balmer:Paschen ratio in chromosphere, populations of ang. momentum states 1=5155
- H, Balmer series excitation cross-section 4=22290
- H, Balmer series formula confirmed, data errors 2=10204
- H β broadening, rel. to hydrocarbon arc temp. 3=7484
- H β line profile, in A behind shock wave 0=15659
- H δ , γ , in plasma jet, line shape 3=2000
- H β , Stark profile 2=3696
- H, capture-cascade equations 0=17667
- H, from collision dissociation of H₃⁺ and H₃⁺ 1=11132
- H⁺, continuous absorption coeff., analytical formula 1=17270
- H⁺, continuous absorption due to free-free transitions, calc. 1=2277
- H, D impurities in solid Ar, Ne, 1s-2p transition 4=30503
- H, use for detection of intergalactic matter 1=15413
- H, in discharge plasma 0=15024
- H, discontinuities, mean optical depth of formation and series limit line strength 3=25041
- H emission in night glow 1=6630
- H, excitation of L α near threshold in atomic beam collisions with electrons 0=1475
- H, excited by impact, Lyman- α radiation polarization 4=12350
- H, h.f.s., meson corrections 0=466
- H, high quantum number Balmer line broadening 4=22289
- H, high, Stark and Doppler broadening calc. 2=6091
- H, higher lines, Stark effect 2=4810
- H, hyperfine freq., He buffer-gas atoms effect 2=14196
- H, in inert-gas solids, g-factor shift calc. 4=9821
- H, intensities in Balmer series 0=1477
- H, ionized, continuous radio absorption coeff. 0=20592
- H-like, absorption in strong mag. field, calc. 2=8062
- H-like ions in a plasma, Stark broadening, calc. 1=8809
- H, line blackening in hollow cathode 3=19936
- H line broadening of plasma in arc and shock tube 3=18861
- H, line strengths in elec. field, calc. 4=25480
- H lines, asymptotic widening parameters 2=3695
- H lines, Stark-broadened, wing formulae 3=2558
- H Ly α , on quenching 3=4717
- H, Lyman- α and Lyman- β lines, Stark profiles, e. m. shock tube meas. 4=28109
- H, Lyman α in plasma, wing profile meas. 4=28108
- H, Lyman- α , prod. by ion-atom collisions 3=6366
- H, Lyman- α , spark-discharge, with resolution of time and along channel cross-section 1=4456
- H, Lyman- α , Stark broadening by high-velocity charged particles, calc. 1=2286
- H, metastable 2S state 0=17689
- H, number of observed lines in a series 1=19596
- H⁺, oscillator strengths, sum rules 2=20741
- H plasma, analysis 4=18856
- H plasma, effect on radiant ht. cond. coeff. 4=21330
- H plasma, electron-ion recombination 2=3029
- H, plasma, line asymmetry 3=12753
- H plasma, line profiles and ratios using rapid scan spectrograph 4=27315
- H, plasma produced by impulsive discharge 1=290
- H plasma produced by shock waves, mag. driven 4=24648
- H, in plasma Stark effect in h.f. field 4=11625
- H, pressure shifting, empirical relations 0=5928
- H, pulsed discharge, high-temp. plasma parameters 0=10914
- H, in quiescent solar prominences 0=6597

Spectra—contd

atoms—contd

- H, r.f. elec. discharge, Balmer spectrum interpretation 2=1398
- H, self-absorption in electrodeless discharge 0=4172
- H, short-lined states, fine structure by microwave-optical method 0=17708-9
- H in solid Ar, 1s-2p, 1s-2s excitation calc. 4=30548
- H, Stark-broadened Balmer line profiles 3=8176
- H, Stark broadening in plasma, calc. 0=1480
- H, Stark effect, quantum mech. interpret. 2=16470
- H, Stark lifetimes calc. for n = 2-25 4=9627
- H, Stark profiles in plasma 2=3700
- H, 2s state, Lyman- α radiation, ang. distrib. in weak elec. fields 1=2282
- H, 256-1216A 3=14355
- H, two-photon transitions, h.f.s. levels of 1S-state 2=12283, 14195
- H, variation intensity, with current through discharge 0=3623
- H, Zeeman transition frequ. in geomag. field 3=8190
- H⁺, absorption coeffs. 0=9765
- H⁺, free-free transitions, in exchange approx. 4=28147
- H⁺, photodetachment 3=4003
- H⁺ 0=20646
- H⁺, recombination, calc., planetary nebulae 4=12351-3
- H^{1,2,3}, hyperfine splittings, precise det. 0=7725
- He afterglow 4=22298
- He, afterglow, de-excitation cross-sections for metastable atoms 2=22894
- He arc, rel. to radial distrib. of temp. and density 4=18783
- He arc, visible and i.r. meas. 4=18781
- He, continuous, vacuum-u.v. 2=16473
- He, in crossed elec. and mag. fields 0=476
- He, diffuse lines, pressure broadening in plasma 4=28110
- He, discharge, electric, r.f., similarity to Geisler tubes at high powers 4=5612
- He, electron excited, lines polarization 3=2581
- He, electron-impact induced radn, polarization 4=25531
- He, electron impact spectrum 4=12394
- He, electron impact spectrum, higher-resolution study 4=12354
- He, electron-induced radiation, polarization 4=25484
- He, electron scatt. meas., agreement with u.v. 4=3828
- He, in e.m. driven compression shocks 3=1752
- He, emission, 1.6-3.7 μ 3=15281
- He, excitation by electron beam, new process of excitation transfer 1=9915
- He, excitation by proton and deuteron impact 2=526
- He, excited by electron impact 0=20562
- He, fine structure, precise meas. 0=2732
- He, forbidden line in plasma 2=1416
- He, 4713 and 4472A, triplet intensity ratios 1=17267
- He, 5016 A line, precise wavelength 0=4925
- He, 5876 A, formation in shock tube 0=483
- He, 5876 A precursor radiation in shock tubes 1=12917
- He, in flowing afterglow 4=18727
- He, forbidden resonances 1=12257
- He, He⁺, Stark profiles in plasma 2=3700
- He, i.r., in sunlit upper atmos. 3=16282
- He ions in vacuum C arc 3=19930
- He, isotope shift of deepest ³P and ¹P levels, calc. 0=1470
- He, Lamb shift, calc. 1=12242
- He, level populations in glow discharge 0=9767
- He-like, oscill. strengths, transition probab. and lifetimes calc. 4=1205
- He, line blackening in hollow cathode 3=19936
- He, line intensity ratios, electron temp. determ. 4=16486
- He, Lyman- α , prod. by ion-atom collisions 3=6366
- He, n³P level, fine structure 4=30375
- He, near i.r. 0=16846
- He, optical, self-broadening calc. 4=17240
- He, optically driven spin precession 1=8821
- He plasma 1=291
- He plasma, electron-ion recombination 2=3029
- He plasma, weakly ionized 4=18854
- He plasma jet i.r. emission 1=11070
- He, polarization, induced by p and H colls, 5-35 keV 4=25533
- He, due to proton impact, meas. 4=25485
- He, by proton impact at 200 keV 1=7435
- He, in quiescent solar prominences 0=6597
- He, r.f. resonances, detection of opt. transition n = 4 \rightarrow n = 3 0=17656

Spectra—contd
atoms—contd

- He, radiation width and resonance broadening 4=9634
 He, rel. oscill. strengths of 10 transitions 4=30376
 He, self-absorption in electrodeless discharge 0=4172
 He, Stark broadening in a plasma, calc. 2=3698
 He, Stark effect 0=5875
 He, Stark line broadening, in arc under variable press. 4=1201
 He, used to study elec. sparks 1=16281
 He, two-electron transitions to autoionizing states 3=19927
 He, two-electron transitions to autoionizing states 3=19928
 He 3^1P , rel. to far-u.v. abs. intensity calibration 4=18407
 He, transitions between S and P states, f values 4=17243
 He, u.v., corona discharge 0=1123-4
 He, v.h.f. pulse discharges in a restricted gap 1=4907
 He³, h.f.s. and isotope shift 0=9766
 He^{3,4}, fine structure 0=5879
 HeI, in arc, profiles 4=19947
 He I line at 10830 Å in solar faculae 2=4762
 He I lines, transition probabilities, half-widths, and shifts 4=3780
 He I, rel. to excitation cross-sections by p and H 4=22316
 He I, in spark discharges 0=13417
 He I, wavelength determinations 0=2734
 He I and II in pinch discharge 3=7559
 He I and II, in plasma due to shock wave 2=11640
 He I and II, resonance lines 3=14355
 He I and II, shock-wave excited structure 1=2782
 HeI and HeII, transitions due to proton excitation 3=2560
 HeI, HeII, intensity ratio 3=12142
 He II, detailed balance in resonance lines 1=5968
 He II, excitation in solar chromosphere 0=6596
 He II line broadening, exptl. contrib. to theory 3=4069
 HeII in low-press. plasma, excited by electron beams 3=7609
 He II λ 4686 Å line, electron impact excit. 4=1225
 He II, in plasma, displacement, blue 4=530
 He II, in shock tubes, rel. to plasma electron density and temp. 4=18857
 He II, 3s, p, d—4s, p, d, f line complex 4=22299
 He₃, h.f.s. of 2^1p - 4^1D line, no 4^1D_2 h.f.s. anomaly 4=12359
 He³, Lamb shift of ground state 3=7328
 He^{3,4}, Lamb shifts 0=11509
 He⁴, Lamb shift of ground state 3=7328
 He⁴, optical pumping in 3S_1 metastable state 0=13415
 He⁴ I 0=7722
 He⁴, Lamb shift of first excited state 3=7828
 He—Ne mixture, laser excited transitions 3=22475
 He—Ne, stimulated transitions 4=28130
 Hf, arc, spark spectra 2=6096
 Hf III, Slater parameters 3=703
 Hf III, Zeeman effect 3=22480
 Hf, (III and IV) 1=19590
 Hg, absorption at 2537 Å, effect of polar molecules 1=13938
 Hg, arc, wavelength meas. at diff. voltages 0=6937
 Hg, atoms, resonance fluorescence and Zeeman effect 1=12246
 Hg, broadening shape and shift due to Ar at higher pressure 4=28127
 Hg, continuous emission and series limits 3=25050
 Hg in-discharge lamps, line intensity ratios, 1 to 400 torr. 3=255
 Hg, excitation functions for Hg I and Hg II 4=16238
 Hg, excited, effect of N₂ pressure 2=14220
 Hg, 4258 Å line polarization, rel. to 7S , level, magneto-optical resonance study 4=3794
 Hg, 4561 Å line-shape in arc, detm. 3=7578
 Hg, under increasing gas pressure, resonance lines 0=1533
 Hg, h.f.s. and isotope shifts in 2537 Å line 1=9907
 Hg, i.r. emission, interferometric wavelength meas. 0=16854
 Hg, influence of N 2=6090
 Hg, isotope abundance 1=16081
 Hg, λ 5461, isotope structure 2=20736
 Hg, λ 2537 broadening by Xe, high-temp. anomaly 1=13936
 Hg, λ 2537 displacement by H₂ and D₂, difference 1=13934
 Hg, Lamb shift, calc. for K-electron 0=9731
 Hg, line blackening in hollow cathode 3=19936
 Hg, in low-pressure discharge lamp 1=18599
 Hg, magnetic dipole radiation 3=25059
 Hg, for monochromator calibration, near i.r. 4=24372
 Hg, multiplet and hyperfine structures 0=20586

Spectra—contd
atoms—contd

- Hg, near i.r. 0=16846
 Hg, optico-acoustic effect, u.v. excitation 0=19214
 Hg, population enhancement by Kr 1=12250
 Hg, pressure shifting, empirical relations 0=5928
 Hg, rare-gas, resonance radiation, radial and total intensities 3=12764
 Hg, re-emitted resonance radiation, influence of inter-atomic resonance 0=17713
 Hg, resonance line, broadened by A 1=13935
 Hg, resonance line perturbation by inert gases 1=808
 Hg, resonance radiation in discharge, quenching 3=19938
 Hg, resonance radiation, 2537 Å, quenching 4=28129
 Hg $6(^3P_0)$, pressure broadening meas. 2=6877
 Hg, 6^3P_0 — 6^1S_0 line, effect of nuclear spin 2=14201
 Hg 6^3P_1 level, coherent multiple diffusion in mag. field 1=9906
 Hg, 7^3S — 6^3P_{012} triplet 2=12291
 Hg, 7^3S , state, mean lifetime meas. 3=15287
 Hg, 6123 Å line, h.f.s. 0=5880
 Hg, spark spectrum, wavelength shift meas. 1=3511
 Hg, trapped in isopentane and Ar matrices, absorption, 1650 to 2600 Å, 20°K 3=17528
 Hg, trapped in solid A, Kr, Xe 0=20661
 Hg, 2536.52 line, influence of Kr 0=7727
 Hg, 2537 Å displacement and width 4=1211
 Hg, 2537 Å, isotope shift 3=22484
 Hg, 2537 Å line broadening 2=5071
 Hg, 2537 Å line, hyperfine structure 3=25054
 Hg, 2537 Å line, 6^3P_1 state lifetime, det. for five isotopes 0=5856
 Hg, 2537 Å line structure, meas. by multilayer interf. 4=24376
 Hg, 2537 Å resonance line, pressure broadening, temp. depend. 4=1210
 Hg, 2537, 4077, 4358, 5461 lines in Hg—Ar discharge 3=24236
 Hg, use as standards in vacuum u.v. 3=13989
 Hg vapour lamps, 1850 and 2537 lines, intensities 0=9768
 Hg I, h.f.s. 0=5656, 17710
 Hg I, h.f.s. and intercomb. line intensities 2=16480
 HgI, nuc. mag. moment of Hg¹⁹⁹ 1=19342
 Hg I, triplets, intensity ratios 1=13952
 HgI, Zeeman effect and g-values 3=15286
 Hg II, λ 2815 Å, h.f.s. rel. to isotope shift 2=3702
 HgII, Zeeman effect and g-values 3=15286
 Hg II, III in low press. plasma, excited by electron beams 3=7609
 Hg^{193m}, 194, 195, 196m, h.f.s., isotope and isomer shifts 3=17530
 Hg^{194, 195, 196m}, h.f.s. and isotope shifts 3=17529
 Hg¹⁹⁵, nuclear isomer shift 2=18419
 Hg¹⁹⁷, h.f.s. 0=17711
 Hg¹⁹⁷, isomeric shift, effect of nuclear shape 0=7721
 Hg¹⁹⁷ nuclear isomer hyperfine structure, direct measurement 1=13937
 Hg¹⁹⁸, green line filtering, by resonance absorption 2=19708
 Hg¹⁹⁸, green line, Zeeman splitting 4=16230
 Hg¹⁹⁸, self-absorption, model 2=519
 Hg¹⁹⁸, 2537 Å absorpt. line in atomic beam and Zeeman filter, wavelength comparison 4=6478
 Hg¹⁹⁸, 2537 Å line, precise wavelength determ. 4=2830
 Hg¹⁹⁸, vacuum wavelengths 1=8814
 Hg¹⁹⁸, wavelength meas. for standard of length 1=10464
 Hg¹⁹⁸ vacuum wavelengths 3=12763
 Hg¹⁹⁸, wavelength shift as function of temp. 2=5169
 Hg¹⁹⁸, wavelengths and pressure shifts 2=16481
 Hg¹⁹⁹ n.m.r. line displacement by optical pumping 1=7443
 Hg¹⁹⁹ 6^3P_1 hyperfine levels 1=2283
 Hg¹⁹⁹, 2537 Å line, $F=1/2$ hyperfine component, effect of coherent multiple scatt. 4=17249
 Hg^{199, 201}, h.f.s. 0=5879
 Hg²⁰⁰⁻²⁰², isotopic shift 4=12346
 Hg²⁰¹ 6^3P_1 hyperfine levels 1=2283
 Hg—Na vapours, excited by Hg 2537 Å 1=798
 Hg—Tl mixtures, sensitized fluorescence, effect of added A and He 0=15660
 Ho in ethyl sulphate, h.f.s. splitting 3=10572
 Ho isotopes, with special spectrometer 0=3634
 Ho³⁺, 8 components, in crystalline
 Ho(C₂H₅SO₄)·9H₂O 1=1158
 Ho³⁺ in salts 1=19987
 Ho¹⁶⁵, microwave spectrum 2=14194

Spectra—contd

atoms—contd

- I, rel. to energy levels 2=10202
 I, line blackening in hollow cathode 3=19936
 I⁺, gaseous ions, absorption 3=2565
 I⁺, in molten salt, charge transfer 4=15338
 I⁺ photodetachment energy dependence near threshold 4=24582
 I, single ionized 1=17268
 In 1=17273
 In, collision induced satellite bands 1=19591
 In, doublet arc spectrum 1=4897
 In, first excited state, oscill. strength from lifetime 4=6469
 In, first sharp series doublet lines, oscillator strengths and transition probabilities 1=809
 In, λ 4101 and 4511 lines, effect of He and A at up to 120 atm 0=5881
 In, in glow discharge above aqueous solns. 0=8716
 In, oscillator strengths of 26 lines 3=15279
 In I line, h.f.s. component intensities 2=12292
 In¹¹⁵ III, isomeric shift, effect of nuclear shape 0=7721
 K, arc lines, excitation cross-section 3=17533
 K, under increasing gas pressure, resonance lines 0=1533
 K, optical cross-sections of resonance lines 1=8815
 K, oscillator strengths KI(4²S_{1/2}—4²P^o_{1/2,3/2}) doublet 3=17532
 K, satellite bands, position dependence, in presence of inert gases 1=9910
 K I, h.f.s. of 5 ²P_{3/2} term, double resonance meas. 2=9996
 K^{39,41}, h.f.s., pressure shifts in H and inert gases 0=17712
 Kr, absorption in far u.v. 1=2291
 Kr, in arc pulses 2=9551
 Kr, autoionization lines 600-886 Å 3=23934
 Kr, autoionized energy levels, meas. and theory 4=6474
 Kr, auto-ionizing states, u.v. 4=15280
 Kr, continuous, behind shock wave 3=14218
 Kr, excitation cross-sections 2=16479
 Kr gas discharges, Stark effect broadening 3=4751
 Kr ions, five laser lines, 0.43-0.52 μ 4=30084
 Kr ions, vacuum u.v. emission 2=1201
 Kr, isotope shift 0=5885
 Kr, 150 Å, rel. to inner shell electron excitation 4=17247
 Kr, transition probabilities 3=19943
 Kr, 1070-1400 Å 4=17584
 Kr I, pair coupling, 5g level 4=28116
 Kr I, 14000-25000 Å 0=478
 Kr II, line broadening in plasma 3=10454
 Kr⁸³, h.f.s., term-splittings 0=1483
 Kr⁸³, radiofrequency h.f.s. 1=13927
 Kr⁸⁶, use for definition of the metre 2=4904
 Kr⁸⁶, line asymmetry meas. 4=11344
 Kr⁸⁶ line profiles, analysis 4=8411
 Kr⁸⁶, shift along length of capillary discharge 1=16279
 Kr⁸⁶ 2p₁₀-5d₅ line, wavelength for non-perturbed atoms 1=16085
 Kr⁸⁶ 2p₁₀-5d₂ radn. as length std. 2=11240
 Kr⁸⁶, vacuum wavelengths 1=8814
 Kr⁸⁶ vacuum wavelengths 3=12763
 Kr⁸⁶, vacuum wavelengths 4=19957
 Kr⁸⁶, wavelength meas. for standard of length 1=10464
 Kr⁸⁶, wavelengths and pressure shifts 2=16481
 La, ions, in CaF₂, SrF₂, BaF₂, after 2 MeV β irradi., d² 4=10167
 La I, h.f.s., quadrupole coupling 2=3701
 Li, 4603 Å line, Stark broadening 2=1960
 Li, isoelectronic sequence, oscill. strengths calc. 4=6475
 Li, isotope shift, open-shell calc. 3=10456
 Li, isotopic analysis 0=9748
 Li-like, oscill. strengths, transition probabs. and lifetimes calc. 4=1205
 Li I 6103 Å line intensity rel. to press., in arc 3=24250
 Li, optical cross-sections of resonance lines 1=8815
 Li, oscillator strengths calc. 4=25501
 Li, satellite bands, position dependence, in presence of inert gases 1=9910
 Li, threshold energy of (1s2s2p)⁴P_{5/2} state 4=17248
 Li, 2P state, "anticrossing" 3=17526
 Li⁷, hyperfine structure of level 2²P_{1/2} 4=28126
 Li I, oscillator strengths calc. 4=6476
 Li I, 7000-27000 Å 0=5883

Spectra—contd

atoms—contd

- Li III excitation in vacuum sliding spark 4=18765
 Li⁺, Lamb shift 0=1481
 Li⁺, Lamb shift of first excited state 3=7328
 Li⁺, 1s2s ¹S—1s2p ¹P transition 3=2569
 Lu I, fine structure 4=3793
 Lu isotopes, with special spectrometer 0=3634
 Lu I, Zeeman effect analysis 3=22481
 Lu II, Zeeman effect data 3=22482
 Mg, in acetylene flame, reaction zone study 3=23543
 Mg, absorption in solid inert-gas matrix 1=17269
 Mg, principal series 2=14200
 Mg, spark spectrum, wavelength shift meas. 1=3511
 Mg triplet lines, intensity distrib. 2=4774
 Mg 2852 Å resonance line in vapour mixture with Na 2=66
 Mg, 2852 Å line, short-wavelength wing interpret. 3=15285
 Mg, u.v. absorption 2=14190
 Mg, u.v. absorption (2400-1600 Å) 1=9905
 Mg I, h.f.s. and intercomb. line intensities 2=16480
 Mg I line, oscillator strength 4=28125
 Mn, absolute f-values 0=9757
 Mn, absorption in solid inert-gas matrix 1=17269
 Mn, pressure broadening of violet triplet by A and He 0=13416
 Mn⁺, and Zeeman effect 4=25503
 Mn²⁺ in cubic crystal field, optical spectrum and ground-state splitting 4=20463
 Mn⁴⁺, in Al₂O₃, R line splitting in elec. fields 4=9820
 Mn⁵⁵, sign of ground state h.f.s. 2=8061
 Mn I, analysis of 2030 lines 4=15281
 Mn I, Zeeman patterns 1=13940
 Mn II 3=19948
 Mn II, d⁵ p config. 1=806
 Mo, absolute f-values 0=9757
 Mo, isotope shift for Mo^{96,97} 0=5884
 Mo, isotopic shift 0=15661
 Mo, isotope shifts 1=2292
 Mo, M_{4,5} emission 0=15327
 Mo III 3=19948
 N, active, at high press. 2=6099
 N, discharge and afterglow emission 1=13939
 N, excited by 200 keV protons 1=13944
 N, free-free continuum 1=11069
 N, highly ionized, in high-temp. plasma 3=10448
 N, hyperfine splitting, effect of buffer gases 2=18420
 N ions in vacuum C arc 3=19330
 N, metastable sextet, estimated energy 4=3795
 N, metastable sextet, lifetime 4=3796
 N, oscillator strength, Hartree-Fock calc. 3=4708
 N, oscillator strengths of certain lines 3=25048
 N plasma, Stark effect of local fields 4=9645
 N plasma in vortex stabilized arc, narrow-band distrib. 4=18843
 N plasmajet i.r. emission 1=11070
 N, pink afterglow, excitation mechanism 3=22486
 N, pink afterglow, u.v. component 3=22485
 N, resonance absorption in afterglows 4=24611
 N, use as standards in vacuum u.v. 3=13989
 N, (5,5) transition in flames with active N 1=13942-3
 N, from Van de Graaff beam passed through C foil and imaged on Raman spectrograph 3=19918
 N⁻, shock excited 4=21455
 N I, i.r. new lines 2=3703
 N I, lead-sulphide region, rel. to energy levels 1=19592
 N I, oscillator strengths of multiplets 1=12252
 N I and N II, spark-discharge, with resolution of time and along channel cross-section 1=4456
 N II, bands in air point-discharge 0=11510
 N II, emission cross-sections in excitation of N₂ by N₂⁺ 4=12464
 N II lines, from lightning 3=11415
 N II and III in plasma wrapped round Cu vapour 3=7557
 N IV in plasma, rel. to ion collective motion 3=24304
 N V, Rydberg series 3=19939
 N V spectrum from SCEPTRE III plasma machine 1=13945
 N VI, N V, 8000-480 Å 4=15286
 N VII, h.f.s. transition in ground state 4=2462
 N¹⁴, h.f.s., pressure shift, 7-87 torr 3=19941
 N¹⁴, ⁴S_{3/2} state, h.f.s., calc. 3=15288
 Na, absorption, 2400-1000 Å 4=28137

Spectra—contd

atoms—contd

- Na, D₂ line, broadening and shift by perturbing gases under flame conditions 4=12376
- Na D-lines, differential filter for optical pumping 1=11075
- Na D lines, intensity distribution 2=4773-4
- Na D lines, solar centre-limb variations 2=4775
- Na, distance between D lines 0=16871
- Na doublets, in vapour mixture with Mg 2=66
- Na, energy spectra by effective pot. method 4=30383
- Na, excitation functions 2=18424
- Na, first excited state, oscill. strength from lifetime 4=6469
- Na, in flames, effect of compound 0=4174
- Na, glow discharge, level population meas. 2=22912
- Na, glow discharge, level population inversion 3=8177
- Na, h.f.s. D₁ and D₂ absorption lines 1=19343
- Na, liberated from rockets 1=11690
- Na, line blackening in hollow cathode 3=19936
- Na lines in seeded Cu arc, integral radiation 4=16457
- Na, optical cross-sections of resonance lines 1=8815
- Na, optical excitation function meas. 3=10469
- Na, oscillator strength 2=6098
- Na, re-emitted resonance radiation, influence of inter-atomic resonance 0=17713
- Na, resonance lines, broadening, by perturbing gases under flame conditions 4=12375
- Na, satellite bands, position dependence, in presence of inert gases 1=9910
- Na, sharp and diffuse series, excitation cross-sections 2=14206
- Na, $3^2P_{3/2}$ state, mean lifetime meas. 3=15287
- Na²³, microwave (2, 0), (1, 0) transitions 0=17701
- Nb, M_{4,5} emission 0=15327
- Nd, additional levels 4=6480
- Nd, isotopic shift 0=15662
- Nd, time-resolved, meas. 2=14204
- Nd³⁺ in LaCl₃ 4=4260
- NdI, isotope shifts 4=12371
- NdI, line classification, Zeeman effect and isotope shift 4=9644
- Ne, absorption, 600-220 Å 0=9770
- Ne, in arc pulses 2=9551
- Ne, discharge, electric, r.f., similarity to Geisler tubes at high powers 4=5612
- Ne, elec. discharge, under pulsed h.f. field 0=10889
- Ne, excitation functions 2=18424
- Ne, highly ionized, in high-temp. plasma 3=10448
- Ne induced by H⁺ and He⁺ impact, 5-35 keV 4=25540
- Ne ions, vacuum u.v. emission 2=1201
- Ne, isotope shift 0=5885
- Ne, new He-Ne laser stimulated transitions 4=21681
- Ne, 1.15 μ 2p_{1/2} \leftarrow 2s_{1/2} transition, isotope shift and saturation behaviour 3=19944
- Ne, photoeffect, sum rules 4=25544
- Ne, use as standards in vacuum u.v. 3=13989
- Ne, 736 Å line transition probability 4=28133
- Ne, stimulated transitions 4=28131
- Ne, transition probabilities 3=19943
- Ne, two-electron transitions to autoionizing states 3=19927
- Ne, u.v., corona discharge 0=1123-4
- Ne, v.h.f. pulse discharges in a restricted gap 1=4907
- Ne I, i.r. new lines 2=3703
- NeI lines, precise meas. of separation 3=1814
- Ne I, pair coupling, 5g level 4=28116
- Ne I and II, resonance lines 3=14355
- Ne I, 3d-4f transition, 18 lines meas. 4=6479
- Ne I transition probabilities using e. m. shock tube 4=19961
- Ne II 3=4217
- Ne II, excited by electron impact, time correl. of photons 4=19962
- Ne II, line broadening in plasma 3=10454
- Ne II in low-press. plasma, excited by electron beams 3=7609
- Ne IV, transition probabilities of forbidden lines 0=17670
- Ne IV, V, VI 1=235
- Ne IV, V, VI, new lines, 2200-3000 Å 3=10459
- Ne VII, VIII, IX, grazing incidence meas. 4=25490
- Ne VII and VIII, vacuum u.v., rel. to solar spectra 4=15283

Spectra—contd

atoms—contd

- Ni, absolute f-values 0=9757
- Ni, isotope shift in arc spectrum, for 31 lines 1=5974
- Ni, X-ray flash tube, and ionization collisions 1=19589
- Ni I 3002 Å line intensity rel. to press., in arc. 3=24250
- Ni II 3=19948
- Ni II, d⁸ p config. 1=806
- Ni II, in KNiF₃ and KMgF₃, spin-orbit and vibr. analysis 4=12574
- Ni II, relative osc. strengths 3=10460
- O 0=480, 20587
- O, absorption 0=1533
- O, airglow, synthetic 3=6989
- O, auroral green line, production mechanism 2=4659
- O, e.s.r., fine Zeeman level transitions 4=6481
- O, excited by 0.5-1 MeV protons 0=5942
- O, 5577 Å line, by α -radiation of N₂-O₂ 4=15287
- O, highly ionized, in high-temp. plasma 3=10448
- O, line intensities, oscillation, in toroidal discharge with mag. field 4=14651
- O, 1360-2090 Å 1=4938
- O, plasma, Stark effect of local fields 4=9646
- O, in Si, electron irradi., 1.5 MeV, new i. r. bands 4=28707
- O, 2p⁴ $^3P-2p^3s$ $^3S^0$ transition, oscillator strengths 4=12372-3
- OI 5577 Å line in airglow, three-body atomic O mechanism discounted 1=1552
- O I, forbidden doublet, intensity ratio 0=15663
- O I, forbidden line intensities, in expanding stellar atmosphere 0=18844
- OI lines in aurora, time delay 1=10334
- OI, quintet, triplet terms, below ionization limit 3=22487
- OI, 6 multiplet transitions, arc meas. 4=28134
- O I, 2p³3s config., energy levels, oscill. strengths, mutual mag. interactions 1=810
- O I, visible, transition probability 2=3704
- O I, 6300 and 6364 Å lines, lifetime 0=7728
- O II, bands in air point-discharge 0=11510
- O II and III lines, relative oscill. strengths 4=15284
- O III, emission, asymmetric auto ionized lines 4=15285
- O III, recombination, calc. 4=4867
- O V line in Sceptre IV plasma discharge 1=11954
- O V, O III, 8000-480 Å 4=15286
- O VIII Lyman, from transient plasma 4=19963
- O⁺, photodetachment 3=4003
- O¹⁸, 3P_2 ground state, h.f.s. splitting 3=19945
- O¹⁷, 3P_2 , 3P_1 states, h.f.s., calc. 3=15288
- Os, isotope shifts meas. 2=16482
- Os neutral and ionised, structure 1=8816
- Os, radiative transition probabilities 3=4700
- Os I, hyperfine struct. quadrupole coupling 2=16484
- Os I, II 0=20588
- Os I and II, structure and Zeeman effect 1=2293
- Os¹⁸⁴, relative isotope shift 2=3705
- Os¹⁸⁶, relative isotope position 2=22910
- Os¹⁸⁷, relative isotope shift and h.f.s. 2=1779
- P ions, forbidden transition probabs. calc. 3=25055
- P³¹, h.f.s. by spin-exchange polarization 2=22911
- Pa²³³, h.f.s. and nuclear moments 1=7434
- Pb, isotopic anal. 0=13419
- Pb resonance line, impurity broadening 3=2568
- Pb, L-spectra, quadrupole and forbidden transitions 3=4712
- Pb, oscillator strengths of four transitions 1=5970
- Pb vaporized, reacting with various gases, u.v. absorpt. study 2=15652
- Pb I, resonance lines, oscillator strengths 4=6487
- Pb I 2833 Å line, absolute f-value 1=5976
- Pb II, multipole lines 4=19950
- Pb²⁰⁷, h.f.s. 0=5879
- Pb, X-ray L intensities 1=13951
- Pd, arc, line intensity variations with electrode volatilization 0=19646
- Pd, isotope shifts at 4212 Å 1=5975
- Pd, L emission bands, comparison study 1=13946
- Pd III, spectrum and levels 3=12765
- Pd to Te, L absorption and emission 4=19964
- Pd¹⁰⁶, h.f.s. 0=5879
- Pm³⁺ in molten LiNO₃-KNO₃, dilute DCl 4=30381
- Pm³⁺, term values 2=8060
- Pm¹⁴⁷, h.f.s. 1=5971
- Pm¹⁴⁷, hyperfine structure, high resolution 3=10463

Spectra—contd

atoms—contd

Po^{205,207}, h.f.s. invest. rel. to interaction constants. 2=523
 Pr, time-resolved, meas. 2=14204
 Pr I and Pr II, hyperfine structure 1=12253
 Pr III, energy level analysis 3=15291
 Pr³⁺, calc. 0=5886
 Pr³⁺ in LaF₃, excited optical state widths and phonon-ion relaxation 5=40686
 Pt, X-ray L intensities 1=13951
 Pt¹⁹⁴⁻¹⁹⁶, isotopic shift 4=12346
 Pu, arc spectrum, ground-state multiplet 3=6354
 Pu, ⁷F term levels 1=8817
 Pu, ground-state multiplets, arc, calc. 4=1213
 Pu, hyperfine and isotopic structure 3=15290
 Pu, 1.6-2.1 μ , 1=811
 Pu I 0=7700
 Pu I, h.f.s. 4=9647
 Pu I, hyperfine structure 3=10461
 Pu II, hyperfine structure 3=10462
 Pu I, second system of levels 4=3798
 Pu I, II, new pair levels 4=3798
 Pu²³⁹, h.f.s. 0=20589
 Pu²³⁹ h.f.s. 3900 to 6900 Å 3=15289
 Pu^{239,241}, h.f.s., and nucleus, mag. moment 3=17392
 Pu²⁴¹, nuclear mag. moment calc. 4=1214
 Rb, doublet displacement by H, D, pressure var. 4=6483
 Rb I, r. emission spectra, 1.6 to 3.7 μ 4=3799
 Rb, optical cross-sections of resonance lines 1=8815
 Rb, optically driven spin precession 1=8821
 Rb, oscillator strengths calc. 4=25501
 Rb, pressure effects, Ar 3=22488
 Rb, red bands in Xe, effect of Xe press. 4=15290
 Rb, relaxation on silicones and paraffins 2=18425
 Rb, satellite bands, position dependence, in presence of inert gases 1=9910
 Rb, under increasing gas pressure, resonance lines 0=1533
 Rb, Xe perturbed, red satellite band intensity analysis 4=22306
 Rb I, 6²P_{3/2} state, h.f.s., 1=2284
 Rb⁸⁷, h.f.s. 4=6203
 Rb⁸⁷, h.f.s. splitting 1=7438
 Rb⁸⁷, 70 c/s line width, optical orientation and microwave detection 0=17695
 Rb⁸⁷, Zeeman transition frequ. in geomag. field 3=8190
 Re, L-spectra, quadrupole and forbidden transitions 3=4712
 Re⁷⁵, L-emission, quadrupole and forbidden lines 3=15293
 Re^{185,187} mag. h. f. s. splitting and Re^{186,188} mag. moment 4=28135
 Rh III 3=19948
 Ru, isotope shifts 1=2292
 Ru⁴⁴, arc, isotope shift 4=25508
 Ru I, analysis 0=7729
 Ru I, low even configurations 0=7731
 S ions, forbidden transition probabs. calc. 3=25055
 S I, vacuum u.v. spectrum 1=13950
 S²⁻, u. v. absorption, in soln. 4=16117
 S⁻, photodetachment 3=4003
 Sb 0=16397
 Sb, h.f.s. rel. to nuclear quad. moment 2=3467
 Sb I 3029 Å line intensity rel. to press., in arc. 3=24250
 Sc, ions, in CaF₂, SrF₂, BaF₂, after 2 MeV β irradi., d¹ 4=10167
 Sc I, 3d 4s 4p h.f.s. and electron struct. 4=25509
 Se 0=16397
 Si infrared absorption 1=19994
 Si I, isotope shift 2=6097
 Si II 1=13948
 Si III, 400-10 000 Å spectrum 1=13949
 Si I, II, III, IV in highly condensed discharges (2900-6000 Å) 3-35 cm pressure 1=9911
 Si I, oscillator strengths meas. 4=25510
 Si I in PbS-region, and solar lines identification 4=28136
 Si I, II, absolute transition probabilities 0=5887
 Si IV 0=15664
 Si IV, doublets, fine structure 3=10446
 Si IV, transition integrals, wave function theory 2=10210
 Si X, transition probabilities, permitted and forbidden lines 2=14205
 Sm ground multiplet, Zeeman effect 1=13947
 Sm, isotope shift 3=15294
 Sm isotopic shift, peculiarities 2=16483
 Sn 0=16397

Spectra—contd

atoms—contd

Sn I, resonance lines, oscillator strengths 4=6487
 Sn I 3009 Å line intensity rel. to press., in arc. 3=24250
 Sn II, h. f. s. and isotope shift, B283 Å 4=25513
 Sr, in flames, effect of compound 0=4174
 Sr, first excited state, oscill. strength from lifetime 4=6469
 Sr isotope shifts, nuclear volume effect discontinuity 1=9913
 Sr, isotopic composition 0=13418
 Sr, optical cross-sections of resonance lines 1=8815
 Sr, principal series 2=14200
 Sr, resonance lines, broadening, by perturbing gases under flame conditions 4=12375
 Sr, resonance lines, oscillator strengths meas. 2=10209
 Sr, stable isotopes and Sr⁹⁰, isotopic shift 0=9774
 Sr, u.v. absorption 2=14190
 Sr I, h.f.s. splitting, elec. moment of Sr⁸⁷ 2=18243
 Sr II spectral lines, oscillator strengths 1=13954
 Sr⁺, absolute f-values 0=9757
 Ta I, hyperfine struct., quadrupole coupling 2=16484
 Ta II 2=14207
 Tb, h.f.s. splittings, Zeeman effect and intensities 0=17714
 Tb I, ground state as ⁶G_{13/2} 4=28138
 Tb¹⁵⁹, $\Delta F = 0$ transitions in h.f.s. levels 4=19966
 Te 0=16397
 Te, isotope shift and h.f.s. 1=19594
 Te, isotope shifts in Te II 4049 Å line for Te^{124,126,128} 1=9909
 Te, spark spectra 4=17251
 Te²⁰³⁻²⁰⁵, isotopic shift 4=12346
 Te I, f-values 3=17534
 Te II, energy levels 4=25512
 Th 4=22308
 Th, isotope shift for Th^{229,233} 1=4906
 Th, isotope shifts 4=15291
 Th, 16 levels in L, M, N, O shells, meas. 4=17252
 Th, 2650-3400 Å, interferometric wavelengths 2=8064
 Th, X-ray L intensities 1=13951
 Th I, even and odd levels, g-values 0=7733
 Th I, low even configurations 1=5977
 Th I-IV, 2000-11550 Å 0=15665
 Th²²⁹, h. f. s. rel. to nuclear moments 4=28139
 Ti, absolute f-values 0=9757
 Ti, ions, in CaF₂, SrF₂, BaF₂, after 2 MeV β irradi., d¹ 4=10167
 Ti, oscillator strengths from vortex-stabilized arc 1=11072
 Ti, 218 faint lines, 3341-4186 Å 4=15292
 Ti I, high-excitation relative f-values 0=15666
 Ti I lines, solar excitation temp. 1=15472
 Ti I, revised term values 0=13410
 Ti I, u.v. spectrum 1=4905
 Ti II, d²p config. 1=806
 Ti II, in lower chromosphere of sun 0=6584
 Ti II, oscillator strengths 2=18422
 Ti, absolute f-values 0=9757
 Ti, collision induced satellite bands 1=19591
 Ti, doublet arc spectrum 1=4897
 Ti 5350 Å line for excitation of Raman spectra 4=5388
 Ti, 7²S_{1/2}-6²P_{1/2} transit, hyperfine struct. and isotope shift 2=10206
 Ti, under increasing gas pressure, resonance lines 0=1533
 Ti, μ -mesic, effect of nuclear shell structure 4=17268
 Ti, vapour, perturbation by A and H under pressure 0=5888
 Ti I, h.f.s., isotopic shift 1=2295
 Ti^{199-202,204}, h.f.s. separations and isotope shifts 1=8567
 Tm, arc, ionization potential 3=8193
 Tm I, II, arc and spark, Zeeman effect 2=20747
 Tm³⁺, calc. 0=5886
 Tm¹⁶⁹, hyperfine structure of 70 lines 4=15293
 Tm III in CaF₂ 4=12601
 U, isotopic displacements 0=5890
 U^{233,235,238}, 0.8-2.5 μ emission region 4=1217
 U^{235,238}, mixture, isotopic shift of 46 lines 0=4176
 U^{235,238,239}, 1.6-2.1 μ , isotope shift 1=811
 U, X-ray L intensities 1=13951
 UV, in UF₄, 2000 Å-8 μ 0=1731
 V, absolute f-values 0=9757
 V, Q correction for 3dⁿ4s^k configuration of second spectrum 0=13414
 V II 3=19948

Spectra—contd
atoms—contd

- V II, $d^3 p$ config. 1=806
 V III, 500-8600 Å meas. 3=8195
 V^{2+} , in Al_2O_3 , R line splitting in elec. fields 4=9820
 V^{2+} , in octahedral coord. crystal 3=12768
 W, arc spectrum, isotopic shift 0=15667
 W, bremsstrahl-isochromat, structure of short-wave limit 0=20593
 W, L-spectra, quadrupole and forbidden transitions 3=4712
 W, X-ray L intensities 1=13951
 WII, 2173 lines, 1756.6-6219.77 Å 4=22309
 Xe, absorption, 600-1025 Å 3=25056
 Xe, in arc pulses 2=9551
 Xe, autoionized energy levels, meas. and theory 4=6474
 Xe, auto-ionizing states, u.v. 4=15280
 Xe, continuous 2=16473
 Xe, continuous, behind shock wave 3=14218
 Xe, excitation cross-sections 2=16479
 Xe, 400-600 Å, absorpt. ms-np lines 4=12380
 Xe, ionized by m.h.d. shock tube 4=14581
 Xe ions, vacuum u.v. emission 2=1201
 Xe, isotopic shift 0=5885
 Xe light sources, pulsed var., time, discharge 4=24355
 Xe, 150 Å, rel. to inner shell electron excitation 4=17247
 Xe, 1070-1400 Å 4=17584
 Xe, reson. 1469.6 Å line, satellite prod. by mixing with inert gases 4=22311
 Xe, shock-heating 1=169
 Xe, trapped in Ar, Kr at low temps. 4=7160
 Xe I, i.r. new lines 2=3703
 Xe IX, grazing incidence meas. 4=25490
 Xe- O_2 mixtures, electron-beam excited 0=15657
 Y, ions, in CaF_2 , SrF_2 , BaF_2 , after 2 MeV β irradi., d^1 4=10167
 YI, 4d 5s 5p h.f.s. and electron struct. 4=25509
 Yb I, isotope shift in λ 5556 Å 3=8196
 Yb, I, II, arc and spark, Zeeman effect 2=20747
 Yb¹⁷³, h.f.s., nuclear quadrupole moment 3=2364
 Yb^{171,173}, rel. to h.f.s. of Yb¹⁷³ 4=19639
 Zn, spark spectrum, wavelength shift meas. 1=3511
 Zn 4³P₁ levels excited by electron bombard., mag. res. emission, modulation 2=12296
 Zn, i. r. emission spectra, 1.6 to 3.7 μ 4=3799
 Zn vapour, selective refl. at 2139 Å 2=1199
 Zn I 4680 Å line intensity rel. to press., in arc. 3=24250
 Zn I, h.f.s. and intercomb. line intensities 2=16480
 Zn I spectral lines, oscillator strengths 1=13953
 Zn I, triplets, intensity ratios 1=13952
 Zn I, visible triplet, intensity ratios at liq. N₂ temp. 4=22312
 Zn II, excited levels, mag. dipole resonance 0=2715
 Zn II, u.v. lines, isotope shift 3=19949
 Zn IV 4=19967
 Zn VIII triplet at 160 Å 3=9593
 Zn^{65,67}, g_J factor of ³P₁ state, level crossing meas. 4=15295
 Zn with Cu, in discharge, effect of Si, Na, time var. 3=25845
 Zr I, isotope shift meas. 4=1219

inorganic molecules

- See also Molecules
 absolute intensities of transitions, rel. to pressure 4=12418
 absorption bands, infrared, and dipole moments 1=14117
 absorption bands, 2-16 μ , for spectrometer calibration 0=6938
 absorption, pressure-induced, line shapes 4=9684
 adsorbed molecules, i. r. spectra 4=30884
 air, behind shock waves 0=19212-13
 α -excited, dissociation and γ -de-excitation branching 0=498
 amphibole i. r. 2=16837
 anomalous props. rel. to Jahn-Teller effect 3=19957
 band rot. consts. -heads reln., calc. 4=25601
 centrifugal distortion effects in asymm. rotator 3=2595
 complex systems, band characterization 2=18444
 condensed medium, correcting for universal effective field 3=25077
 condensed medium, effect of internal field, models 4=3831
 condensed phases, motion and moment analysis, dipole-allowed 4=6542
 Condon loci geometry, from quantum viewpoint 4=3830

Spectra—contd

inorganic molecules—contd

- conference on quantum mechanics, Sanibel Island (1963) 4=6449
 π -electron systems 1=19646
 diatomic polar mol., Stark effect, rotational depend. 4=12336
 electron scatt. meas. 4=3828
 electronic, band intensity and position, solvent influence 4=6517
 electronic band systems, estimation of Δr_e 1=14057
 Elsasser band, transmissivity 3=15322
 far u.v., theory and expt., review 2=14284
 forbidden transitions, effect of mol. vibr., calc. 2=12341
 Franck-Condon locus deriv. 2=18445
 gas mixtures, absorption, interpolation laws for unresolved structures 4=30407
 gases, fundamental vibr., i. r. absorpt., temp. depend. 4=30415
 gases under pressure, vibr. frequ. shift, theory 4=5248
 gases selectively excited in He afterglow meas. 4=12385
 glow discharges, 1-76 cm Hg 0=1520
 i. r. adsorbed layers 3=21285
 i. r. band characteristic polarization, conditions 1=14023
 i. r. intensities and molecular dipole moment 2=6155
 i. r., recent research 2=22032
 i. r., solvent effects 3=22521
 i. r. spectra, molecular motion and moment analysis 4=28162
 infrared, induced electric moments 1=7469
 isotopic analysis 2=23987
 linear, effect of vibr.-rot. interaction 3=8232
 microwave, analysis review 2=20785
 paramagnetic ions, line shapes, temp. dependence 0=20637
 photosphere and sunspots, band spectra 1=15454
 pressure broadening, quantum-mech. impact theory 2=12305
 pressure-induced shifts of i. r. lines, theory 3=17607
 review, work in USSR 0=9809
 rotational, with centrifugal distortion and torsional splitting, analysis tables 4=3834
 rotational, hyperfine structure theory 2=12313
 selenates, metallic, i. r. absorption spectra 0=20625
 saturation of microwave rotational resonances 0=5919
 simple, theoretical computations 3=10500
 solvent effects in infrared 0=1529
 spontaneous emission at absorption band wavelengths 1=12927
 sulphuryl chloride, rot. spectrum meas. 4=20071
 symmetric top, rotational consts. calc. 1=7456
 symmetric-top, unresolved bands, mol. consts. det. 3=10482
 tables of i. r. absorption bands for spectrometer calibration 1=16075
 term energies shift for thermal motion in elec. and mag. fields 4=3833
 tolane, N_p-component, rel. to temp. 2=21243
 transitions, polarizations and assignment 1=17331
 trapped, at 4 K 0=9776
 trapped, in solid Ar, Kr, Xe, environmental perturbations 0=20661
 unstable, absolute spectral intensities 4=12484
 vacuum u.v. radiation physics, conference 3=5515
 vacuum u.v., research report 4=12327
 vibration-rotation in near i. r., calibration system 1=16076
 vibrational absorption band intensities, temp. dependence 1=12928
 weak absorption, meas. 1=8831
 A-SO₂ mixtures, free radicals in shock waves 0=17760
 Au hydride, u.v. absorption 4=1260
 BeO, relative transition probabilities for band systems 1=3553
 C vapour molecules condensed in Ne, Ar, Xe matrices at 4°K and 20°K, u.v. and i. r. spectra 4=12472-3
 CaH, relative transition probabilities for band systems 1=3553
 Cd halides, Cd visible spectrum, rel. to complex formation 4=22375
 H-CO₂ mixtures, simultaneous vibrational transitions 0=7749
 Pb halides, Pb visible spectrum, rel. to complex formation 4=22375

Spectra—contd

inorganic molecules—contd

Pb, vaporized, reacting with various gases, study by u.v. absorpt. 2=15652

Pu³⁺-doped LaCl₃ and La ethylsulphate 2=4267

inorganic molecules, diatomic

adsorbed molecules, wide-band absorption 1=6011

air, heated, absorpt. coeff. calc. 4=15327

air, radiant emissivity at high temps. 3=1732

alkali halides, u.v., discontinuity on melting 4=5452

auroral N₂ bands, excitation 1=21055

charged molecules vibr. and rotat. intensities 2=3723

compressed gases, i.r. absorption 0=972

conference report, Bombay (1960) 2=14258

electric field-induced spectra, theory 4=15311

electron spectra, rel. to optical props. of solvent 2=22940

force constants, depend. on electronegativities 0=5895

Franck-Condon factors to high vibr. quantum nos., calc. 2=16521

Franck-Condon factors for Morse potential 4=15313

gases, induced, i.r. absorption 0=7748

inert gas free pairs, contribution to satellite bands of Hg resonance lines 1=808

i.r. emission at high temps., calc. 2=10256

i.r. emissivity for anharmonic vibr.-rot. model 2=12327

infrared, inert gas pressure effects, theory 3=25078

i.r. line shifts and broadening, press-induced 2=14273

i.r., temp. depend. of intensities, harmonic and anharmonic approx. 2=22945

intensities calc. from harmonic oscillator overlap integrals 2=6150

intensities of electronic transitions 3=15335

ionic halides, i.r., lattice resonances 1=17894

multiplet splittings, anomalous, analysis 4=20003

oxygen auroral red line, polarization 1=6638

rotational transitions, absorption coeffs. calc. 2=20791

Σ terms, multiplet, anomalous splitting 3=12796

Σ - Δ and Π - Δ transition intensities 0=15746

spectral absorpt. coeffs. for electronic band systems 3=2606

spectroscopic consts. from Hartree-Fock wave-functions 4=15326

u.v. absorption, O content in gas mixtures 0=4755

unresolved bands, mol. consts. det. 3=10482

vibration-rotation, pressurized, induced transitions and line shifts 4=3838

vibration-rotation bands, pressure broadening meas. 3=9510

A-Xe, visible bands, in h.v. discharge 0=4182, 7766

Ag₂, absorpt. in far u.v. 4=3868

Ag₂, production and study, state constants 0=5925

AgBr, absorption, rel. to Se, Te, S impurity ion 1=19968

AgD, near u.v., emission band constants 2=6175

AgF, near u.v. 3=12832

AgH, electronic band, by exploding wire method 4=25635

AgH, electronic, effect of vibr.-rot. interact. 2=20820

AgSe, absorption, three band systems 3=10524

AgTe, absorption, three band systems 3=10524

Al₂, 5650-6600 Å bands, rotational analysis 4=9699

AlAu, emission and absorption 3=10505

AlD, 2187 Å band 2=10262

AlH, electronic band, by exploding wire method 4=25635

AlO, A² Σ -X² Σ system, intensity meas. 4=17278

AlO (A² Σ ⁺-X² Σ ⁺) system electronic transition moment var. 4=12442

AlO, arc spectrum 2=3692

AlO, B² π -A² Σ band 4=22346

AlO, bands, visible 3=25089

AlO, electronic band, by exploding wire method 4=25635

AlO, Franck-Condon factors, calc. 2=16521

AlO, from metal-oxygen flame 3=10504

AlO, u.v. band spectra 1=2330

AsO, A-X system, (0, 0) band, rotation analysis 2=18450

AsO, AsO⁺, u.v. band spectra 1=14051

AsO, emission by heavy current discharge 4=30423

Au₂, production and study, state constants 0=5925

AuAl, production and study, state constants 0=5925

AuBa, band 1=19637

AuBa, AuCa, AuSr, vibrational analysis 3=19979

AuBe, Mg, Ga, Si and Ge vibr. and rot. 4=22352

AuCa, absorption band consts. 1=9931

AuH, electronic band, by exploding wire method 4=25635

AuH and AuD, far u.v. 4=30431

Spectra—contd

inorganic molecules, diatomic—contd

AuMg, production and study, state constants 0=5925

AuMg, u.v. band spectra 0=20657

AuSn, visible and near infrared 4=6563

AuTe, emission 3=12819

BCl, ¹ π - ¹ Σ ⁺ bands 4=12443

BF, BCl, attributed to CCl⁺ and CF⁺ 3=8252

BF, electronic 4=6557

BF, isotopic effect in singlet bands 1=3545

BH, BD, absorption, electronic states 4=25636

BO, α and β systems 0=15750

BO, γ -bands of B¹⁰, ¹¹O 1=4938

BO, rotational analysis of u.v. bands 1=2329

B-O system, origin of green bands 1=4937

BaO, A¹ Σ -X¹ Σ system, intensity distrib. 4=15328

BaO, Franck-Condon factors of band system 4=25660

BaO, relative transition probabilities for band systems 1=3553

BaO, shock tube studies, new absorption band system 2=696

BeO, (B¹ Σ → X¹ Σ) bands, transition moment variation 1=14059

BeO, blue-green system, intensity variation, temp. meas. 2=7441

BeO ground state, spectroscopic consts., MO approx. 4=20037

BeO, (B¹ Σ → X¹ Σ), overlap integrals 0=9811

BeS, B¹ Σ ⁺-X¹ Σ ⁺, rotational analysis 4=6558

BiBr, emission, A → X system analysis 3=6389

BiCl, emission, rotational structure, electron trans. 1=7475

BiCl, vibrational analysis of visible emission 1=14039

BiF, band spectra 1=19632

BiF, emission bands, u.v. 2=14288

BiF, rotational analysis, visible band system 2=20797

BiF, u.v. 1=17324

BiF, vibrational anal., A-X system, new bands 4=28182

Br₂, absorption, transient, $\nu'' = 0$ bands 4=1259

Br₂, liquid, Raman spectra 2=7368

Br₂, vac. u.v. resonance spectrum 4=28183

Br₂, BrCl, continuous 4=30426

C₂, A' ² Σ _g-X' ³ Π _u system, analysis 3=8250

C₂, band head intensities, rel. to hydrocarbon arc temp. 3=7484

C₂, bands in King furnace 2=2028

C₂ and CN in maser-induced graphite jets, rel. to temp. meas. 4=5881

C₂, in comet Mrkos 1955e, density determination 1=15431

C₂, electronic band, by exploding wire method 4=25635

C₂, ground state 0=4215

C₂, Phillips system extension 3=8251

C₂, Swan bands 3=19975

C₂, trapped in solid A, Kr, Xe 0=20661

CBR radical, near 3000 Å 3=25092

CCl, band, in halogenated hydrocarbon reacts. with N and O 2=12961

CCl, 2750-2800 Å, band system 1=14005

CCl⁺ and CF⁺, really due to BF and BCl 3=8252

CF, absorpt., pre-dissociation, from fluorocarbon discharge 3=15345

CF⁺ 1=17321

CH 3=7328

CH, band, in halogenated hydrocarbon reacts. with N and O 2=12961

CH, in flames supported by active N 1=13942-3

CH radical, ² π state, dissociation energy 4=12527

CH, 3000-5000 Å, spectrophotometric atlas 1=14042

CN, B² Σ ⁺-X² Σ ⁺g system 2=18452

CN band, in halogenated hydrocarbon reacts. with N and O 2=12961

CN band intensity in low pressure arc 2=1411

CN band, perturbations 2=6188

CN, chem. and mag. enhancement of violet lines 3=8253

CN emission from active N flames 1=14045

CN, in flames supported by active N 1=13942-3

CN, Franck-Condon factors to high vibr. quantum numbers 4=15329

CN, oscillator strength of violet system 2=3761

CN red system, (2, 0) and (3, 1) bands 3=21107

CN, red system, vibr.-rotational theory 3=2611

CN, rotational perturbations, theory 2=22962

Spectra—contd

inorganic molecules, diatomic—contd

- CN "tail" bands in active nitrogen flames 4=30430
 CN, as thermometric molecule in shock tube 0=12455
 CN, u.v., emission, intensity rel. to microwave absorption 3=6390
 CN, violet absorption band, matrix element for dipole moment for electronic transition 4=15330
 CN, violet band, dipole moment matrix calc. 4=30429
 CN, violet band, electronic transition dipole moment 4=22349
 CN violet band system, in arc. 2=14281
 CN, violet system 0—0 band, variation with temp. 3=11344
 CN violet band systems, electronic transition moment 1=14063
 CO 3=7328
 CO, absorption coeffs., 1006-600A 4=20038
 CO, adsorbed on chromia-alumina and on Al 3=3359
 CO, adsorbed on silica-supported Fe 2=19116, 23963
 CO in Ar matrix, i.r. 4=20039
 CO, band spectrum triplet system intensities 1=11095
 CO chemisorbed on Fe 2=12966
 CO, dense forms, 1-0, 2-0, 3-0 bands 3=17572
 CO, emission, excited by protons and H atoms 3=15338
 CO, excitation by reaction with active He 4=11533
 CO, excited by rare gases 1=14011
 CO, first overtone band, line width and intensity 2=8091
 CO, 4.7 μ band model appl. 4=25602
 CO, 4.7 μ band, total absorbance 4=28184
 CO, fourth positive band system 0=7776
 CO, fundamental band strength 2=20800
 CO, gas, radiation, shock wave heated 3=11835
 CO, i.r. absorption intensity, temp. dependence 0=3568
 CO, i.r. emission from Hg* \rightarrow CO electronic-vibrational transfer 3=10506
 CO i.r. emissivity on anharmonic model 2=12327
 CO, i.r. fluorescence, by radiation chopping techniques 4=15331
 CO, isotopic shifts 0=15713
 CO, line-strengths in 2-0 band 3=4744
 CO, in liq. O₂, and liq. and solid N₂ and Ar, O—2 transition 4=25638
 CO, 1800-2200A, from acetylene flames 2=16535
 CO, 1850 to 4000 A, absorption 4=11249
 CO, perturbation of rotation-vibration bands 1=13992
 CO, precise i.r. wavelengths 1=12985
 CO, pure and mixtures, solid, liq. and gaseous, i. r. spectra, molecular motion and moment analysis 4=28162
 CO, pure rotational absorption lines 3=24019
 CO rotation-vibration spontaneous emission probability 4=20070
 CO, rotational line broadening by HCl and Ar 3=12817
 CO, rotational temp. in hollow cathode 0=7753
 CO, in soln., i. r. absorption bands 4=5190
 CO, test of theoretical absorpt. band model approx. 4=9743
 CO, total absorption near 4.7 μ rel. to press. and conc. 2=11428
 CO, total band absorbance, 4-7 μ 4=22350
 CO, triplet band system 2=14262
 CO, triplet band system, Franck-Condon factors and r-centroids 2=544
 CO, triplet-system intensities 0=9812
 CO, 2—0 band, broadening by N₂ and H₂ 4=12444
 CO, 2 ν and 3 ν bands, self-broadening 3=19978
 CO, u.v. 1=19643
 CO, vibr.-rot. structure, gaseous and in solution 0=4199
 CO, vibr.-rot. bands, pressure broadening 3=9510
 CO, vibr.-rot. ϕ branch displacement in solns. 4=25634
 CO, vibration-rotation bands 2=3727
 CO, vibrational intensity distribution 3=10503
 CO⁺, comet-tail system 0=7777, 15750
 CO⁺, excitation functions 2=18424
 CO⁺, Franck-Condon factors and r-centroids 3=4743
 CO⁺, vibrational intensity distribution 3=10503
 CO-H₂ mixtures, pressure-induced transitions, calc. 0=493
 CO-N₂, simultaneous transition band, liquid, solid, gaseous 4=22351
 CO-NO-N₂ mixtures, vibrational relaxation 2=20817
 CO, 1¹ Σ^- state 2=20799

Spectra—contd

inorganic molecules, diatomic—contd

- CO₂, gas, i.r. absorption bands 0=8717
 CS absorption spectrum, rotational analysis 1=6003
 CaH, new u.v. band, rel. to dissociation 2=20801
 CaI, 4=25637
 CaO, Franck-Condon factors of band system 4=25660
 CdD, u.v. band system obs. 3=2612
 CdH, u.v. band system obs. 3=2612
 CdS, absorption, magneto-optical effects 2=4120, 8487
 CdS, absorption, Stark effect on exciton lines 2=4138, 10597
 CdS, i.r. absorpt., and Raman spectrum 4=17559
 CdS, reson. near absorpt. edge, temp. var., analogue of Mossbauer effect 4=17558
 CdTe, p-type, absorption 1=14445
 Cl, IBr, continuous 4=30426
 Cl₂, absorption, transient, $\nu'' = 0$ bands 4=1259
 Cl₂ band, in halogenated hydrocarbon reacts with N and O 2=12961
 Cl₂, continuous 4=30426
 Cl₂, in presence of A, band systems 0=20615-16
 Cl₂, vacuum u.v. absorption 0=497
 Cl₂, vacuum u.v. resonance, analysis 2=22963
 Cl₂, emission spectrum 0=5924
 Cl₂¹⁸, absorpt. bands, 4780-6000 A 3=19976
 ClO, band in halogenated hydrocarbon reacts with N and O 2=12961
 CoBr, λ 4300 - λ 4700A 3=12818
 CoCl, visible and photographic i.r. 2=6157
 CoD, band 4=25639
 CrO, A¹ $\Pi \rightarrow$ ³ Π band r-centroids, F-C factors 4=30427
 Cs halides heated by shock waves, absorption 2=3697
 CsI, lead sulphide region, normal and h.f.s. 2=1991
 Cu₂, production and study, state constants 0=5925
 CuAg, emission in visible region 1=14040
 CuBr, new band system 3700-4000A 4=30428
 CuCl, BX and CX band systems, rotational analysis 2=1984
 CuCl, band structure 1=19638
 CuCl, rotational analysis of some bands 1=14004
 Cu⁶³Cl³⁵, B and C systems, rotational structure 2=10253
 Cu⁶³Cl³⁵, D and E systems, rotational structure 2=22964
 Cu⁶³Cl³⁵, F-X band system, rotational structure 2=10252
 Cu⁶³Cl³⁵, rotational-band analysis 2=1983
 CuH, in glow discharge above aqueous solns. 0=8716
 CuS, bands in visible region 4=28186
 CuSe, emission, in visible region 2=10258
 CuTe, emission 3=12819
 D₂ arc, visible and i. r. meas. 4=18781
 D₂, C¹ $\Pi_u(2p)$ state Λ doubling, isotopic effect 3=2614
 D₂, heterogeneous perturbations between B¹ $\Sigma_u^+(2p)$ and C¹ $\Pi_u(2p)$ states 3=2613
 D₂ in liq. Ar, i. r. induced absorpt. 4=27177
 D₂, u.v. absorption 1=6052
 DBr, absorption in vacuum u.v. 2=22969
 DCl, line shift due to HCl, oscill. 4=17283
 DCl, vacuum u.v. 2=22970
 DCl, vibr.-rot. bands, pressure broadening 3=9510
 DCl³⁵, band lines, foreign gas effects 3=7244
 DCl³⁵, i. r. bands 1=842
 DF, u.v., analysis 0=9818
 FeCl, visible 0=5941
 FeO absorption spectra, by flash heating and kinetic spectroscopy 4=22359
 FeO, emission, low-press. arc source 4=9741
 GaH, emission bands, 5200-6400 A 1=14041
 GaO, emission, vibr. and rot. analysis 3=25093
 H₂⁺ continuous absorpt. coeff., free-free, calc. 4=10834
 H₂ 3=7328
 H₂, absorpt. spectra in vac.-u.v., Lyman and Werner bands 4=22355
 H₂, absorption and photoionization, 800-1000 A meas. 4=12480
 H₂ arc, visible and i. r. meas. 4=18781
 H₂, double minimum 1=834
 H₂, electron impact spectrum 4=12394
 H₂, emission, excited by protons and H atoms 3=15338
 H₂, fine structure, calc. 2=3762
 H₂, ground state constants 3=8254
 H₂, heterogeneous perturbations between B¹ $\Sigma_u^+(2p)$ and C¹ $\Pi_u(2p)$ states 3=2613

Spectra—contd

inorganic molecules, diatomic—contd

- H₂, induced fundamental band, in gaseous, liquid and solid Ar 4=3855
 H₂, intensity meas. rel. to planetary spectra 4=25640
 H₂, i.r. band profile in pressure-induced absorption 4=20044
 H₂, i.r. 1-0 band, quadrupole 3=248
 H₂ in liq. Ar, i. r. induced absorpt. 4=27177
 H₂, near i. r., singlet transitions 4=6566
 H₂, in overtone region, pressure-induced absorption 3=9512
 H₂, pressure-induced, rotational absorption 0=493-4, 1495
 H₂, quadrupole bands 1-0, 2-0, 4000-5000 cm⁻¹ 3=17576
 H₂, quadrupole bands, rel. intensities 4=9703
 H₂, quadrupole, collision narrowing obs. 4=3854
 H₂, quadrupole, fundamental band 2=20802
 H₂, quadrupole fundamental intensity correction 4=12448
 H₂, quadrupole and induced dipole 2=20803
 H₂, quadrupole lines, breadth and shape 4=8427
 H₂, spectroscopic consts. from Hartree—Fock wave-functions 4=15326
 H₂, u.v. absorption 1=6052
 H₂, u.v., excited by electron swarm 3=10515
 H₂, vibration-rotation, Jupiter high dispersion 0=14397
 H₂, C¹Π_u(2p) state Λ doubling, isotopic effect 3=2614
 H₂⁺ 0=20646
 O₂, Schumann—Runge band, Franck—Condon factor 1=7454
 O₂, Schumann—Runge band system, electronic transition moment 4=15339
 O₂, Schumann—Runge band system, Franck—Condon factors 4=9721
 O₂, Schumann—Runge band system, transition moments, detm. 3=19987
 O₂, Schumann—Runge bands 1=14037
 O₂, Schumann—Runge bands, electronic transition moments 4=15340
 O₂, Schumann—Runge system 0=5953
 O₂, Schumann—Runge system, emission intensities 2=543
 O₂, Schumann—Runge system, Franck—Condon factors 3=10521
 O₂, Schumann—Runge system, λ 2763 (0,9) band 1=14050
 O₂, shock-heated, rel. to temp. 2=2917
 O₂, 6300-3000 Å absorption 3=6395
 O₂, 6340 and 7030 Å emission bands 4=20056
 O₂, solid, α-phase, 2300-8800 Å absorption, electron irradi. effects 0=5945
 O₂, in solid N₂, electron excited 1=6221
 O₂, 3350-4500 Å, afterglow and airglow 0=5954
 O₂, trapped in solid matrix 0=7770
 O₂, vibrational intensity distribution 3=10503
 O₂, vibrational wave-functions and Franck—Condon factors 4=6577
 O₂⁺, first negative band system 0=5952
 O₂⁺, first negative vibrational system 3=8266
 O₂⁺, in hollow cathode discharge and aurora 4=22366
 O₂⁺, near i. r. discharge meas. 2=16518
 O₂⁺, negative system excitation by proton beam in air 1=9927
 O₂⁺, spectr. constants eval. 2=20816
 O₂⁺, ⁴Π_u multiplet anomalous splitting 2=18458
 OD radical, rotational emission 1=14014
 OD, rotational and vibr. analysis and Morse functions 4=3866
 OD⁺ rotational band analysis 3=12829
 OH, band, in halogenated hydrocarbon reacts, with N and O 2=12961
 OH, electronic band, by exploding wire method 4=25635
 OH, electronic, effect of vibr.-rot. interact. 2=20819
 OH emission in airglow, variations 1=21022
 OH, experimental oscillator strength ²Σ⁺→²Π, by chemical method 4=6580
 OH, OD, C²Σ⁺-X²Π, 1770-1900 Å 4=30439
 OH, 1.5 μ region 0=15730
 OH, 1-3 μ emission from H + O₂ flame 2=16513
 OH radical in night sky 1=15303
 OH radical, rotational emission 1=14014
 OH rotational temperature of the airglow 1=21021
 OH, rotational and vibr. analysis and Morse functions 4=3866
 OH, 3900-11500 Å 2=20821
 OH, u.v. bands, fundamental data 2=20822
 OH, ²Σ⁺ levels, abnormal emission in flames 0=1519
 OH²Π band system, and temperature measurement in shock tubes 3=7281
 OH²Σ→²Π band, use for temp. meas. in shock tubes 4=2770

Spectra—contd

inorganic molecules, diatomic—contd

- OH(²Σ⁺) emission, rel. to H₂O dissociation 4=30485
 OH ²Π-²Π bands, rotational constants 1=3530
 OH⁻ radical in solution, absorption spectrum 1=11128
 O₂-N₂-Ar discharges, forbidden auroral radiation 4=18708
 HBr, fundamental band, strengths and self-broadening widths 4=12452
 HBr, i.r. absorption, Q branch study, perturbed 0=7752
 HBr—Inert gas mixture, vibr.-rot., induced transitions and line shifts 4=3838
 HBr, i.r. Q-branch fundamental bands 3=248
 HBr, perturbation of rotation-vibration bands 1=13992
 HBr—rare-gas mixtures, absorption under pressure 3=4747
 HBr, vibr.-rot. φ branch displacement in solns. 4=25634
 HBr¹⁸, band lines, foreign gas effects 3=7244
 HBr⁺, ³Σ⁺-²Π₁, 4 new bands 4=3857
 HCl, absorption coeff., at elevated temp. 1=12026
 HCl, Ar and Xe perturbations, complex formation data 4=3858
 HCl, bands, shifts, pressure induced, due to noble gases 4=22358
 HCl, DCl, pressure broadening, Anderson's theory 4=9702
 HCl gas, pressure shift due to inert gases 4=15336
 HCl, i.r. absorption, collision-broadening by foreign gases 0=15788
 HCl, i.r. absorption, temp. dependence 0=3568
 HCl, i.r. absorption in vibration-rotation bands 0=9793-4
 HCl, i.r., discrepancy removal 4=17282
 HCl, i.r. emissivity on anharmonic model 2=12327
 HCl, i.r., line intensities, widths, 2-0 band 2=3743
 HCl, i.r. rel. to proton acceptors, 2=2723
 HCl, i.r. Q-branch fundamental bands 3=248
 HCl—Inert gas mixture, vibr.-rot., induced transitions and line shifts 4=3838
 HCl, matrix-isolated, rot.-vibr. 2=22971
 HCl overtone lines, self-broadened, widths 3=4748
 HCl, perturbation of rotation-vibration bands 1=13992
 HCl, pressure-induced Q branch 0=17749
 HCl, pressure-induced shifts of i.r. lines 3=17607
 HCl, pressure induced shifts of i.r. lines due to polar molecules 3=8227
 HCl, pressure-induced shifts in 1.8 μ band due to foreign gases 0=5926-8
 HCl, pressure shift due to inert gases 2=16508
 HCl, pressure shifts due to inert gases 1=14030
 HCl, pressure shifts by noble gases, theory 3=11837
 HCl, pressure shifts caused by noble gases 3=12820
 HCl, pure rot. linewidths, perturbed by rare gases 3=22542
 HCl—rare-gas mixtures, absorption under pressure 3=4747
 HCl, rotational constants 0=15701
 HCl, spectral perturbations of HCl—A mixtures 1=3532
 HCl, 2-0 bands, absorption and emission, pressure shifts 4=1264
 HCl, 2-0 band, perturbation by Kr and Xe 0=15726-7
 HCl, vibr.-rot. φ branch displacement in solns. 4=25634
 HCl, vibr.—rotation lines, impact broadening theory 4=1265
 HCl, vibration-rotation band, line shifts due to Xe 2=12320
 HCl³⁵, band lines, foreign gas effects 3=7244
 HCl³⁵, infrared bands 1=842
 HCl³⁷, i.r. absorption bands, dispersion 3=14345
 HD, heterogeneous perturbations between B¹Σ_u⁺(2p) and C¹Π_u(2p) states 3=2613
 HD, rotation-vibration spectrum 0=11523
 HD, u.v. absorption 1=6052
 HD, C¹Π_u(2p) state Λ doubling, isotopic effect 3=2614
 HD vapour, vibration-rotation band 0=5929
 HF, absorption, pure rotational, 22-250 μ 4=9711
 HF in combustion gases at 1000°C, i.r. spectral radiances and emissivities 4=12454
 HF, i.r. emissivity on anharmonic model 2=12327
 HF, i.r., line positions and line shapes 2=20808
 HF, rel. to KHF₂, KH₂F, NaH₂F 4=6568
 HF, monomer-dimer spectra, overlapping 0=5940
 HF, perturbation of line by compressed rare gases 0=20632
 HF, perturbation of rotation-vibration bands 1=13992
 HF, pressure, induced band, fine structure 4=17284

Spectra—contd

inorganic molecules, diatomic—contd

- HF, Stark effect and hyperfine structure 3=19984
 HF, u.v., analysis 0=9818
 H halides, vibr.—rot. lines, pressure effects 3=6377
 H halides, vibrational—rotational structure, gaseous and solutions 0=4199
 HI, fundamental and overtone lines 3=25097
 HI, ν_{0-3} band, vib.—rot. lines 3=19983
 HI, ν_{0-3} vibr.—rot., and transition moment 4=28192
 HI, line strengths and widths 3=4749
 H I, 1.2–3 μ 3=24023
 HO, adsorbed by SiO₂, var. 3=8922
 HS⁺, u.v. absorption, in soln. 4=16117
 He₂, (b³ Π_g —a³ Σ_g^+) band 2=3703
 He₂, in flowing afterglow 4=18728
 He₂, molecular continuum 3=14355
 He₂, 600 Å band 4=6569
 He₂⁺ in afterglow 4=24612
 He₂⁺ in He afterglow 4=20049
 HeH⁺, in stars, early, cannot explain 1600–2400 Å deficiencies 4=26909
 He—Ne, molecular ion bands in discharge 0=9813
 HeNe⁺, emission?, liquid air cooled hollow cathode lamp 3=12822
 Hg₂, u.v. absorption, rel. to dissociation 2=8102
 Hg^{199,201}H, A²H—X² Σ^+ system, h.f.s. 3=6393
 HgBr, 4000–5000 Å 0=20619
 HgH, multiplet splitting of X² Σ^+ term 3=6388
 HgH, 2930–4550 Å band spectrum analysis and isotope shift 2=22972–3
 HgI, 4000–5000 Å 0=20619
 HgI, u.v. bands 1=854
 Hg—Xe, vibration 1=13936
 I₂ band, visible, pressure dependence 4=12456
 I₂, emission band system in blue violet 1=8840
 I₂, in presence of A 0=1527
 I₂ in pyridine 4=28193
 I₂, u.v. resonance 0=5951
 IBr, magnetic rotation 0=5932
 IBr, near i.r. absorpt., rotational analysis 2=12324
 IBr, red absorpt., rotational analysis 2=12325
 IBr, red absorption band, rotational anal. 0=9769
 IBr, visible absorpt., rotational analysis 2=12326
 ICl 1=14012
 ICl, absorption, visible and near i.r. 0=7757
 ICl, magnetic rotation 0=5932
 IO, 4100–6300 Å 0=5947
 InCl, absorption, near 3600 Å 0=5933
 InCl, in glow discharge above aqueous solns. 0=8716
 InH, band 4=6570
 InH, magnetic effects and coupling conditions 4=30436
 KBr:Ti phosphors, absorption 2=2233
 KF, i.r. and vibrational constants 4=9727
 KI, lead sulphide region 2=1991
 K³⁹F¹⁹, h. f. s., Zeeman and Stark splittings 4=3867
 Kr₂ and Kr₂⁺, discharge obs. 3=4751
 KrO 2=6169
 Kr—Xe, visible bands, in h.v. discharge 0=4182
 LaO (B → X) system, transition probabilities 1=14060
 LaO, Franck—Condon factors of band system 4=25660
 LaO, proposed electronic transitions 0=11529
 LaO, rotational analysis 2=10247
 Li halide monomers and dimers in inert matrices 4=25652
 Li halides, i.r. 0=20620
 Li halides, i.r. spectra of dimers 1=7470
 Li₂, u.v. 1=3547
 LiCl, i.r., by matrix isolation method 3=22544
 LiF, emission, rel. to R-centres 1=19814
 LiF, extreme u.v., absorption spectra rel. to irradiation and temp. 1=19980
 LiF, i.r., by matrix isolation method 3=22544
 LiF, i.r., in solid Ar, Kr and Xe matrices 3=8261
 LiF, irradiated, u.v. absorption 1=14584
 LiF, by matrix isolation 1=4935
 LiF, spectroscopic consts. from Hartree—Fock wave-functions 4=15326
 LiF, vapour, i.r. 2=6158
 LiH, i.r. 0=5935
 LiO, i. r., matrix-isolation meas. 4=3862
 MgCl, emission, new doublet 4=20052
 MgD, emission 2=16514

Spectra—contd

inorganic molecules, diatomic—contd

- MgD, u.v. 1=11101
 MgH, absorption 2=16514
 MgH, relative transition probabilities for band systems 1=3553
 MgH, u.v. 1=11101
 MgH and MgD, u.v. absorpt. bands analysis 3=25100
 MgH and MgD, T_e values 2=18456
 MgO, constants deriv.; parabolic interpolation technique 2=12323
 MgO, diatomic and polyatomic, isotope shift 1=2328
 MgO, relative transition probabilities for band systems 1=3553
 MgO, Franck—Condon factors of band system 4=25660
 MgO, Franck—Condon factors, calc. 2=16521
 MgO, from metal—oxygen flame 3=10504
 MgO, new band system identification in near u.v. 4=17286
 MgO, u.v. emission 2=8105
 MgO, u.v. system, analysis 2=14283
 Mg²⁴O¹⁸ and Mg²⁶O¹⁸, green bands meas. 4=20053
 MnF, u.v. band 2=10261
 MnH, multiplet splitting of Σ term 3=6388
 MnO, band spectrum, 57 band-heads 0=2768
 N, active, pressure dependence 0=20621
 N₂ 0=9810
 N₂, A² Σ_u^+ and B'² Σ_u^- terms, splittings 3=6388
 N₂, absorpt., 720–830 Å, vibr. isotope shifts 4=22362
 N₂, absorption band systems, forbidden, in vac.—u.v. region 4=22364
 N₂, absorption coeff., 580–1000 Å 3=25101
 N₂, absorption and photoionization, 600–1000 Å meas. 4=12460
 N₂, absorption, vacuum u.v. 3=7329
 N₂, activated by microwaves 2=4537
 N₂, active, at high press. 2=6099
 N₂, afterglow, rel. to atmospheric spectra 2=15252
 N₂, afterglow, 5 msec after discharge 0=1522
 N₂, afterglow in vacuum region 1=6021
 N₂, afterglows 0=4189
 N₂, auroral afterglow 1=17310
 N₂, band, in halogenated hydrocarbon reacts, with N and O 2=12961
 N₂, band system 0=7769
 N₂ (1+) band system 4=25656
 N₂ bands, intensity measurements 1=14010
 N₂ bands, in N₂—A discharge 0=1523
 N₂ bands, optical excitation functions 0=1521
 N₂, compressed, far i.r., rot., collision induced dipole moments 3=17580
 N₂, 8265.5 Å system 0=1530
 N₂, effect of CO in glow discharge 0=5994
 N₂, emission, excited by protons and H atoms 3=15338
 N₂, emission, meas. of temp. of flowing gas 2=1205
 N₂ emission spectrum, 900–1130 Å 4=17287
 N₂, excitation functions 2=18424
 N₂, excitation by reaction with active He 4=11533
 N₂, excited by 0.5–1 MeV protons 0=5942
 N₂, excited by 200 keV protons 1=13944
 N₂, excited by rare gases 1=14011
 N₂, far u.v., high-dispersion absorption 3=10513
 N₂, first negative system, in He 3=2622
 N₂, first positive band 2=3703
 N₂, first positive system, in perseid meteor spectra 1=4195
 N₂, 5–1 band of B'—B system 1=2315
 N₂, forbidden band systems 0=7788
 N₂ gas, radiation, shock wave heated 3=11835
 N₂, Goldstein—Kaplan bands, structure 3=8262
 N₂, high temp., i. r. continuum, polarization inclusion in free—free calc. 4=27222
 N₂, i. r., induced absorpt., and quadrupole moment 4=6573–4
 N₂, i. r. Y bands, structure 0=15724
 N₂, infrared continuum, 2–8 μ at high temp. 4=2732
 N₂, in high tension discharge 3=4762
 N₂, intensity distrib. in band systems 0=20622
 N₂, isotopic shifts 0=15713
 N₂ in lab. or aurorae, composition rel. to av. electron energy 2=6149
 N₂, lines excited by 5–130 keV protons 4=9716
 N₂, pink afterglow 2=14287
 N₂, pink afterglow, u.v. component 3=22485

Spectra—contd

inorganic molecules, diatomic—contd

- N_2 , predissociation 0=13435
 N_2 , pre-ionized absorption bands 3=14220
 N_2 plasma, rel. to heavy-particle temps. 4=14676
 N_2 , r.f. excited jet, 3000-9000 Å 3=22545
 N_2 radn. from shock-heated gas, 6000°-7000°K 2=9319
 N_2 , Rydberg absorpt. series, 600-1000 Å 3=4754
 N_2 , second positive system, in discharge reaction 2=10250
 N_2 , second positive system, intensities 3=2620
 N_2 , second positive system, intensity ratios in v progression 2=20812
 N_2 , short duration afterglow 1=6022
 N_2 , transition probability for 1st-positive band system 2=13377
 N_2 , trapped in solid matrix 0=7770
 N_2 , u. v. absorption 2=14285
 N_2 , u.v., excited by electron swarm 3=10515
 N_2 , vac. u.v. absorption, 'pink' afterglow 4=12461
 N_2 , vac. u.v., emission bands of forbidden systems 0=5955
 N_2 , Vegard-Kaplan bands, intensities 2=20811
 N_2 , vibrational intensity distribution 3=10503
 N_2 , weaker systems, isotope shifts and vibrational structure 4=28195
 N_2 and N_2^+ in auroral afterglow 0=5293
 N_2 , N_2^+ band excitation, by electrons, secondary effects 4=25655
 N_2 and O_2 (in air), electronic transition moments 4000° to 9000°K 4=9700
 N_2 - O_2 mixtures, afterglow at low pressures 1=6021
 N_2^0+ , 2nd positive system, Einstein A coeff., oscillator and abs. band strengths 3=22546
 N_2^+ 3=4755
 N_2^+ auroral band spectra, temperature determination 1=15313
 N_2^+ , use in auroral temp. meas. 3=9104
 N_2^+ , bands, in air point-discharge 0=11510
 N_2^+ , bands, rotational temp. 0=1494
 N_2^+ , emission cross-sections in excitation of N_2 by N_2^+ 4=12464
 N_2^+ emission in lightning 4=23764
 N_2^+ , excitation functions of neg. system bands 0=15703
 N_2^+ , first negative band intensity behind shock waves rel. to pres. 3=4756
 N_2^+ , Meinel bands near 1.5 μ , in aurora 0=6474
 N_2^+ , negative band system, pressure depend. 1=14046
 N_2^+ , vibrational intensity distribution 3=10503
 N_2^+ , volume emission, rel. to oscillator strengths 4=20054
 N_2^+ , $^2\Pi_g$ - $A^2\Pi_u$, new emission bands 1=17320
 N_2^+ , $^2\Pi_g$ - $A^2\Pi_u$ system, Franck-Condon factors and r-centroids 2=12322
 N_2^+ , $D^2\Pi_g$ - $A^2\Pi_u$ band origin wave-numbers 3=22547
 N_2^+ , $D^2\Pi_g$ - $A^2\Pi_u$ bands, vibr. assignment 4=3864
 N_2^+ , spectr. constants eval. 2=20816
 N_2^{15} u.v., isotopic shifts, anomalous 3=25102
 $N^{14}N^{14}$, $N^{14}N^{15}$, $N^{15}N^{15}$, band head intensities 2=1971
NBr in excited N_2 1=17311
NBr radical, i.r. spectrum 4=20122
ND radical, two new bands 3=12876
NCl radiation, i.r. spectrum 4=20122
NF radical, i.r. spectrum 4=20122
NH 0=495
NH, band, in halogenated hydrocarbon reacts. with N and O 2=12961
NH, (1,0) band, rotational anal. 0=15699
NH radical, band system 3=12876
NH radical, emission, rel. to shock wave in N_2 - H_2 systems 4=17320
NH, study reaction nitrogen and atomic hydrogen 1=2557
NH, trapped in solid A, Kr, Xe 0=20661
NH, triplet system, in elec. discharge 2=10250
NO, absolute intensity of 5 μ fundamental 3=15339
NO, absorpt. γ -bands, rel. to matrix element meas. for transitions 4=22365
NO, absorption 0=1533
NO, absorption 3=10517
NO, absorption, $G^2\Sigma$ - $X^2\Pi$ system 4=20055
NO, absorption, Rydberg series 2=3735
NO, afterglow, rel. to atmospheric spectra 2=15252
NO band emission in shock heated air 3=3836
NO, below 1600 Å, fine structure analysis 2=10263
NO, β -bands, upper vibration state ($v'=7$) 0=7790

Spectra—contd

inorganic molecules, diatomic—contd

- NO, β and γ band system, Franck-Condon factors 4=9719
NO, β and γ bands, Franck-Condon factors calc. 4=15337
NO, β , γ , δ , and Ogawa band excitation 3=8264
NO, β and γ systems, band and oscillator strengths, rel. to electronic transition moments 4=9718
NO, δ -bands, oscillator strength 1=2334
NO, far u. v., transition probabilities 2=8108
NO, Franck-Condon factors, calc. 2=16521
NO, γ_{00} band, use in temp. meas. 3=10516
NO, γ -bands, oscillator strength 0=13432
NO, γ -bands, rotational anal. 0=15704
NO, γ -bands at 2000°K, absorpt. 3=2606
NO, γ , ϵ , β bands 0=5943
NO, $H^2\Sigma'$ and $H'^2\Pi$ states, doublet splittings theory 4=6575
NO, i.r. absorption temp. dependence 0=3568
NO, i. r. emission at high temps., calc. 2=10256
NO, i. r. emissivity on anharmonic model 2=12327
NO, i. r. $X^2\Pi_{3/2}$ - $X^2\Pi_{1/2}$ bands, intensity 4=12465
NO, isotopic molecules 1=19636
NO, magnetic rotation spectra, near i. r. 0=20623
NO, molecular orbital calc. 0=15712
NO, near i. r. emission spectrum 4=28199
NO, ν_0 -3 band 4=25658
NO, 1.2-3 μ 3=24023
NO, 1850 to 4000 Å, absorption 4=11249
NO, shock tube study of vibrational relaxation 1=5997
NO in solid Ar and Kr, emission, a $^4\Pi$ state 4=25657
NO, trapped in solid matrix 0=7770
NO, u. v., Franck-Condon factors and electronic oscillator strengths 4=9715
NO, u. v. γ -bands, oscillator strengths 0=9819
NO, vib.-rot. structure, gaseous and in solution 0=4199
NO, vibrational relaxation time and quantum no. 1=12274
NO, visible and i. r., Rydberg series 3=10518
NO, (0,0) and (1,0) bands 3=19986
NO $^+$, excitation functions 2=18424
NO $^+$, spectr. constants eval. 2=20816
NO-CO- N_2 mixtures, vibrational relaxation 2=20817
NS, $B^2\Pi$ - $X^2\Pi$ system, vibr. analysis 3=12825
NS, new $^2\Pi$ - $X^2\Pi$ band system 3=12826
NS, new $^2\Pi$ - $X^2\Pi$ band system 4=25659
NS radical, in active N_2 - H_2S reaction 2=20818
NaI, lead sulphide region 2=1991
Na $_2$, band emission behind shock fronts 0=5946
Na $_2$, second positive system, intensities, effect of He 3=2621
Na $_2$, u. v., and electronic structure 3=22549
NaCl, absorption, 250 to 650 $m\mu$, rel. to pressure up to 600 kg cm^{-2} 2=4137
NaCl, coloured by Ag $^+$ and Ca $^{++}$, absorpt. 4=22629
NaF, i. r., by matrix isolation method 3=22544
NaF, i. r. and vibrational constants 4=9727
NiBr, band heads, 4000 to 4500 Å 3=10512
NiBr, visible emission spectrum 0=5944
NiCl, photographic i. r., five new band systems 2=6160
NiCl, visible emission spectrum 0=5944
NiH, NiD, u. v. absorpt., analysis of bands 3=25103
O $_2$, absorpt. cross-sections in 1050-1800 Å region 4=12468
O $_2$, absorption lines, microwave frequency 3=22548
O $_2$, absorpt. spectrum in far u. v. 4=15341
O $_2$, absorption, 1060-580 Å, rel. to dissociation and ionization 4=9723
O $_2$, adsorbed on silica-supported Fe 2=23963
O $_2$, afterglow, rel. to atmospheric spectra 2=15252
O $_2$, auroral bands, excitation 1=6639
O $_2$, ($b^1\Sigma_g^+$ - $a^1\Delta_g$) electric quadrupole transition 1=17312
O $_2$, dissolved, emission spectrum, ligand-field splitting of antibonding orbitals 4=20058
O $_2$, emission, excited by protons and H atoms 3=15338
O $_2$, electrodeless discharge 0=480
O $_2$, excitation by reaction with active He 4=11533
O $_2$ gas, radiation, shock wave heated 3=11835
O $_2$, Hopfield's emission bands 3=8267
O $_2$, i. r. and red atm. absorpt. band systems, effect of high press. 4=6578
O $_2$, from O + NO $_2$, kinetic, vibr. distrib. 3=25818
O $_2$, 1850 to 4000 Å, absorption 4=11249
O $_2$, 1942-6532 Å, vibrational assignments 2=2001

Spectra — contd

inorganic molecules, diatomic — contd

- PF and PF⁺, electronic 2=16520
 PH, (1, 0) band of $\Pi_1-\Sigma^-$ system 0=11520
 PN, bands of $A'\pi-X^+\Sigma^+$ system, rel. transition probability 4=9726
 PO radical in P₄ + O reaction 4=23638
 PO, u.v. doublet systems 2=16519
 PbF, visible bands, rot. analysis 4=20051
 PbO, PbTe, i.r. band system 3=22543
 PbO, rotational absorption bands 1=14006
 PbS, absorption spectrum, rotational analysis 3=10511
 PdH and PdD, absorption 4=15342
 PtH, electronic band, by exploding wire method 4=25635
 Rb halides heated by shock waves, absorption 2=3697
 RbI, lead sulphide region, normal and h.f.s. 2=1991
 RbH, Franck-Condon factors and r-centroids 3=4757
 S₂ 4=25663
 S₂, $B^3\Sigma^-_g-X^3\Sigma^-_g$ perturbations 3=12831
 S₂, band 2=6154⁷
 S₂, bands of $B^3\Sigma^-_g-X^3\Sigma^-_g$ transition, intensity distribution 4=3922
 S₂, electronic and rotational 2=10264
 S₂, emission band system 3=12833
 S₂, emission in vac. u.v. 2=6177
 S₂, ground state, $X^3\Sigma^-_g$, triplet splitting 3=10525
 S₂, three u.v. bands, rotational analysis 4=9728
 S₂, trapped at 20°K, vibration spectra 3=2624
 S₂, u.v. fine structure 4=28201
 S₂ in H₂/air flame with SO₂ 2=20823
 SH, absorption spectrum 1=3572
 SH⁺, meas. in mol. beam crossing electron beam 4=12474
 SO, absorption 0=8318
 SO, emission spectrum, rotational perturbations 4=12469
 SO radical, absorption 3=2625
 SO, radical, dissociation limits, u.v. band interpretation 4=6655
 SO, vacuum u.v., and dissociation energy 4=17861
 SbBr, emission, vibrational analysis 3=22539
 SbF, band spectra 1=19632
 SbF, emission band spectra 2=3140-3340 Å 2=14288
 SbO, band spectrum, doublet system 0=7773
 SbO, u.v. emission and absorption 2=3750
 ScF, electronic 3=17583
 ScF, singlet transitions, rotational analysis 4=20061
 ScO, Franck-Condon factors of band system 4=25660
 ScO, rotational analysis 2=10246
 SeO, excited by r.f. discharge 4=25664
 Si₂, absorpt. spectrum 3=8268
 SiCl, 3220-2735 Å, B-X system 3=10522
 SiF, $^4\Sigma^+-^2\Pi$ transition meas. 2=12332
 SiN, $B^3\Sigma^+-X^3\Sigma^+$ spectrum 3=8269
 SiO, Franck-Condon factors, calc. 2=16521
 SiO, intensity distrib. in forbidden $^3\Sigma^+-^3\Pi_x$ transition 3=10523
 SiO, $^1\Sigma^+-^3\Sigma$ spectrum 1=9932
 SnO, rot. analysis of $A'\Pi-X^1\Sigma$ system 0=9800
 SnS 2=6167
 SrD, $C^2\Sigma\rightarrow X^2\Sigma$ system 3=25107
 SrD, near u.v. absorption bands 3=25106
 SrH, near u.v. absorption bands 2=25106
 SrI, 4=25637
 SrO, Franck-Condon factors, calc. 2=16521
 ThO, rot. analysis of two 7888 Å bands 4=22368
 TiCl, 4200 Å region, vibrational structr. 2=18459
 TiO 2=14253
 TiO, α -bands, intensity distrib. 1=3550
 TiO, $b^1\Pi-d^1\Sigma$ transition, rotational analysis 2=22975
 TiO band at 10025 Å, rotational analysis 1=11098
 TiO, band 11032 Å, rotational analysis 0=5936
 TlBr 1=15959
 TlF, h.f.s., Stark and Zeeman effects 4=22369
 TlH, four bands in 4200-4300 Å region 3=8270
 VO, Franck-Condon factors, calc. 2=16521
 VO, vibrational spectrum 2=14254
 Xe₂, u.v. and visible emission due to shock waves 0=15728-9
 XeN, 4925 Å, system, rotational structure 2=6168
 XeN, visible 3=15341
 XeO 0=6169
 YO, Franck-Condon factors of band system 4=25660

Spectra — contd

inorganic molecules, diatomic — contd

- YO, multiplet splitting of B $^2\Sigma$ term 3=6388
 YO, rotational analysis of blue-green and orange systems 1=19634
 YbH, rotational analysis of band system 5000-8000 Å 2=14278
 ZnD, in far u.v. 2=20824
 ZnH, in far u.v. 2=20824
 ZnIn 4=30440
 ZnS phosphors, emission, correl. with stoichiometry deviation 4=22926
 ZrCl, band systems 2=3736
 ZrO, $\alpha(C\rightarrow X)$ band system 2=14256
- inorganic molecules, diatomic, radiofrequency**
 See also Nuclear magnetic resonance and relaxation; Paramagnetic resonance and relaxation
 alkali bromides and iodides, rotational, by molecular-beam method 2=18449
 alkali chlorides, 0.96-3 mm rotational spectra 4=17277
 measurement, by paramag. reson. absorption, for radio-astronomy 3=19988
 AlF 3=19973
 BaO 3=17570
 BaO, molecular-beam electric-resonance 2=20796
 CN, microwave transition probabilities 2=22962
 C¹²O¹⁶, J = 5 \rightarrow 6 rotational line meas. 4=24858
 CS^{32,34}, (60 to 300) $\times 10^3$ Mc/s 4=6561
 D halides 0=2769
 H₂ negative ions, absorption frequencies, 2.5-44 Mc/s 0=9806
 H₂, nuclear spin-spin interaction energy, calc. 1=7493
 H₂⁺ 0=17742, 20617
 H₂⁺, possible obs. by selective photodissociation 2=6229
 HCl³⁵ J = 0 \rightarrow 1, 3 hyperfine components meas. 4=24858
 HCl³⁵, proton spectrum 1=19661
 HF, magnetic interactions 1=2347
 IBF, J = 4 \rightarrow 5 and J = 5 \rightarrow 6 transitions, molec. and nuclear parameters 1=4931
 In¹¹³Cl³⁵, In¹¹⁵Cl³⁷, In¹¹⁵Cl³⁵, In¹¹³Cl³⁷, microwave rotation spectra 1=17315
 K³⁹F, molecular beam determination 0=5914
 LiCl 4=12459
 Li⁶F¹⁹ 3=10510
 NO, h.f.s., N nucl. quadrupole moment 0=13443
 NS, $^3\Sigma-X^2\Pi$ system 3=10520
 N¹⁴S, N¹⁶S, β - and γ -band systems 3=10519
 O ions, absorption from 3 to 44 Mc/s 0=4795
 O₂, in 60 kMc/s range, precise meas., det. of vel. of light 1=837
 O¹⁶H, $^2\Pi_{1/2}$ levels, Zeeman effect 2=12335
 O₂ absorption line, 2.53mm wavelength, shape, intensity and pressure broadening 4=17288
 O₂, microwave absorption, freq. rel. to pressure 3=23938
 O₂, microwave absorption, pressure effect calc. 4=6579
 OH and OD, Zeeman effect 1=7496
 OH radical, calc. of dipole moment 1=7497
 OH, ground-state A-doubling transitions, lab. observation 0=1534
 SH, by paramagnetic reson. absorption, and radio-astronomy 3=19988
 SO, millimeter wave spectroscopy 4=28202
 SO radical 4=28203
- inorganic molecules, polyatomic**
 actinide cpds., absorption 0=20656
 adsorbed molecules, wide-band absorption 1=6011
 air, behind shock wave 2=1180
 air, emission, excited by protons and H atoms 3=15338
 alkali metaborate vapours, i.r., bond structure 3=25808
 alkali nitrates, liquid, i.r. reflection 2=7214
 alkali permanganates, decomposed 3=16161
 alkaline earth hydrides and deuterides, u.v. systems, rotl. analysis 4=1258
 arsenic oxide 1=2326
 boron-containing flames, green bands 0=7767
 calculation, first approx. of generalized valence-optical theory 4=15325
 carbonyls, Group VI, phosphine-substit. 3=6397
 complex, electronic absorption, adiabatic approx., theory 2=14261
 complex molecules, absorption, theory 2=16505
 compressed gases, i.r. absorption 0=972
 cyclo-silicates, i.r. band, calc. 3=13171

Spectra—contd

inorganic molecules, polyatomic—contd

deuterides of group V elements, absorpt. spectra 4=6581
 diamond, effect of electron beams 2=12477
 diboranes, B¹¹ labelled, i.r. 4=1272
 difluoramine, i.r. 3=8275
 diiride (N₂H₂), i.r. 4=28214
 disiloxane, far. i.r. 0=20635
 frozen products of gas discharges, exam. of absorption spectrum 0=4420
 germinates, i.r. 2=541
 germyl cyanide 2=20833
 germyl halides, i.r. 4=6593
 glasses (VO₂, PO₂, RO_x type) infrared transmission 1=10047
 halides of group V elements, absorpt. spectra 4=6581
 hexahalide complexes, electron transfer spectra 0=20650
 hexahalide complexes, 4d and 5d, charge-transfer states 3=19972
 "hot" bands, effect of pressure modulation 2=2777
 hydrated electrons 4=20073
 hydrides of group V elements, absorpt. spectra 4=6581
 i.r. absorpt., electro-optical parameters 2=22942
 i.r. absorption, intensities and polarizations, calc. 0=1531
 i.r. band characteristic polarization, intensities 1=14022
 i.r. band intensities 0=20608
 i.r. band intensity and structure 3=25076
 i.r. emission of gases, pressure modulated 2=11430
 i.r., intensity and polarization calc. 0=15721
 i.r. overtones and combination tone intensities, general formula 3=10526
 infra-red combination and overtones intensity calc. 4=22334
 infrared intensity theory in valence-optical scheme 1=14024
 ions, emission, in mol. beam interacting with electrons 4=12474
 MA₃B₃, asymmetric complexes, absorption spectra band splitting 4=12441
 metal cations, with 6 mols. of H₂O of coordination 4=28205
 metals carbonyls, low-frequency fundamentals 2=16530
 nitrile band, solvent effect on intensity 0=490
 nitrites, double and complex, i.r. 4=15351
 paramagnetic salts, absorption by hydrated ions, theory 0=5939
 platinum complex bonds, i.r. bands 4=25715
 polyhalide ions, i.r. 1=14029
 polythionates, u.v. structure study 1=2331
 pyroselenites, i.r. absorption study cation X₂O₆²⁻ 0=11526
 pyrosulphates, i.r. absorption study cation X₂O₆²⁻ 0=11526
 quartz vapour, emission, 2500-4500 Å 0=1525
 Rydberg levels in O-containing mols. 3=15321
 s-tetrazing (C₂H₂N₄) 2=1987
 silane, i.r. intensities 2=22982
 silanes, α and β-functional, rel. to chemical props. 4=12491
 thiocyanates, complex, i.r. and Raman frequencies 2=18818
 transition-element complexes 0=5958
 transition metal complexes, effect of different ligands on hydrogenic vibrations 1=869
 transition-metal dihalides, i.r. 2=14274
 transition metal ions, halide complexes 3=15354
 uranyl nitrate, absorption bands analysis 3=8282
 uranyl salts, i.r. 4=22383
 vibrational, calc. methods 4=6524
 water sorbed on synthetic zeolites 1=1460
 water vapour, far. i.r. 1=18596
 water vapour, i.r., rel. to adsorption on cell wall and N₂ addition 4=5247
 water vapour i.r. bands 1=6590
 AgClO₃, liq., i.r. refl., analysis 2=14275
 AgNO₃, liquid, i.r. reflection 2=7214
 AlF₃, i.r. absorption, 1340-1424°K 3=22553
 Al₂O₃, gaseous, i.r. spectrum 4=25666
 Al₂O₃, α-phase, defect band due to electrons 2=12478
 AsH₃, i.r., rel. to NH₃, PH₃, SbH₃ 2=8095
 B hydrides 4=21460
 B₂F₄ gas, i.r. spectrum 4=21187
 BF₃, i.r. intensity calc. 0=17747

Spectra—contd

inorganic molecules, polyatomic—contd

B₂H₆, i.r., Coriolis perturbations 4=25212
 BO₂, absorption 2=2004
 BO₂ bands in 5450 Å emission from discharges through BF₃ vapour 4=22371
 B₂O₃, B₂O₅, BO₂, i.r. absorption in solid A matrices 3=8272
 B₂O₃, flame emission 1=849
 B₂O₃, i.r. interpretation 2=1998
 B₂, ¹⁰, ¹¹O₂, vibrational, calc. 2=10243
 B₂O₃ and B₂O₅, i.r. emission 0=4193
 B₂O₃(OH)₃ (orthorhombic metaboric acid) 1=3542
 B-S system, ionic species, i.r. emission 0=14970
 B₂S₃, i.r. interpretation 2=1998
 B₂¹⁰, ¹¹S₂, vibrational, calc. 0=10243
 BaNO₃, lattice frequencies, rotational barriers 2=16835
 2 BaO.3 SiO₂, infrared 1=20551
 2BaO.3SiO₂, infrared 2=8834
 Be₂O₃, matrix isolated high-temp. vapour 2=18501
 BrCN, i.r., vibr.-rot. structure meas. 2=14251
 BrCN, vibration-rotation 3=12834
 BrF₃, analysis 3=2631
 BrF₃, i.r. absorption 2=16523
 C₃, absorpt., vapour condensed in solid Ne, A, Xe 2=22976-7
 C₃, oscillator strength for 4050 Å bands 2=6166
 CCl₄, absorpt., in strong i.r. band region 4=22397
 CCl₄ in cyclohexane soln. 2=1153
 CF₂ 4=28209
 CF₃, absorpt., pre-dissociation, from fluorocarbon discharge 3=15345
 CF₃ radical, absorption 1=2317
 CF₂ trapped in argon matrix, u.v. absorpt. 2=18492
 CF₂Br-CCl₂Br 1=14026
 CFCI₃, 100-180 Gc/s 4=6616
 CH₃OH, microwave 2=14269
 C₂N₂¹⁵, gaseous, i.r. spectrum 4=26211
 CO₂ 0=7779
 CO₂, absorbed on silica-supported Fe 2=23963
 CO₂, absorpt. in far i.r., collision-induced 3=23932
 CO₂, absorption in extremen u.v. 0=7781
 CO₂, adsorbed on chromia-alumina and Al 3=3359
 CO₂ in atmosphere, weak telluric band 3=9045
 CO₂, band intensity calc. from i.r. dispersion data 1=6012
 CO₂ emission in CO flames 4=6560
 CO₂, emission, excited by protons and H atoms 3=15338
 CO₂ emission meas., multiple beam interferometric method 4=27310
 CO₂, enriched with 10 at.% O¹⁸, i.r. spectrum 4=12477
 CO₂, excited states in CO flames 3=25091
 CO₂, 15-18 μ, high resolution 2=1997
 CO₂, 4.3 μ band emission at 1200°K 4=6585
 CO₂, 4.3 μ band, lineshape in wing beyond band head 4=25669
 CO₂ gas, radiation, shock wave heated 3=11835
 CO₂ gas, ν₂ fundamental at 1200°K, model 3=5467
 CO₂, "hot" bands, effect of pressure modulation 2=2777
 CO₂, i.r. absorption lines, 5.3-4.6 μ 3=19991
 CO₂, i.r. absorption in vibration-rotational bands 0=9793-4
 CO₂, i.r. band, excited by active N 3=25108
 CO₂, i.r. emissivity, 4.3 μ band 3=17584
 CO₂, integrated intensities, 2.7 μ, 1200°-1800°K 4=17290
 CO₂, intensity meas. rel. to planetary spectra 4=25640
 CO₂, interferometric in far i.r. 1=841
 CO₂, molec. crystals, far. i.r. spectra 4=20446
 CO₂, ν₃, 4.3 μ absorption, 1200° to 2400°K 3=1731
 CO₂, 1850 to 4000 Å, absorption 4=11249
 CO₂, 1.9 μ bands, integrated intensity meas. in range 1400°-2500°K 4=12475
 CO₂, Rydberg absorption series 2=16524
 CO₂, spectral emissivity in 4.3 μ region 1=4379
 CO₂, test of theoretical absorpt. band model approx. 4=9743
 CO₂, total absorptance in i.r. 3=14216
 CO₂, total emissivity at 1000°-4000°K 4=12476
 CO₂, transmission, shock-tube meas., 1500°-3500°K, 4.25 μ 4=22373
 CO₂, 2.8-4.2 μ, band constants 2=20827
 CO₂, 2.7 μ band, i.r. spectral emissivities 4=20064
 CO₂, 2.7 μ band, 1200°-3000°K intensity meas. 4=3871

Spectra—contd

inorganic molecules, polyatomic—contd

- CO₂, 2.7 μ region, i.r. spectral emissivities 2=8094
 CO₂, 2350 cm⁻¹ absorption at high temp. 2=14263
 CO₂, u.v. absorption 2=14286
 CO₂, u.v. absorption, shock-wave heated, to 6300°K 4=5249
 CO₂, vibration band shift in solvents 2=15598
 CO₂⁺ electronic spectrum, weaker bands explanation by antisymmetric stretching frequencies 4=30442
 CO₂⁺, meas. in mol. beam crossing electron beam. 4=12474
 CO₂⁻ radical, trapped 3=6418
 C¹²O₂, rotational perturbations 4=9736
 C₃O₂, i.r. absorption, $\Sigma_u - \Sigma_g$ and $\pi_g - \pi_u$ 4=12478
 C₃O₂, i.r. absorption in solid Ar matrix 3=10527
 C¹³O₂, i.r., rotational perturbations 3=6399-400
 CO₂-H₂O hot mixtures, spectral emissivities in 2.7 μ region 1=11097
 COS 0=7780
 COS gas, electric dipolar transitions, two freq. 4=28210
 COS molec. crystals, far i.r. spectra 4=20446
 COS⁺, meas. in mol. beam crossing electron beam 4=14474
 CS₂ 0=7780
 CS₂, i.r. absorption, temp. dependence 0=3568
 CS₂, i.r. fundamentals in CCl₄ soln. 2=1153
 CS₂, i.r. reflection, rel. to optical constants 1=7698
 CS₂, mag. rotation, origin of doublets 4=6587
 CS₂, near u.v. absorpt. spectrum 4=6586
 CS₂, near u.v. absorption 3=11839
 CS₂, near u.v., Zeeman effect 4=25670-1
 CS₂, 2100 Å band 4=20065
 CS₂, 3 ν_3 band of C¹²S³²S³⁴ 0=1526
 CaCO₃, lattice frequencies, rotational barriers 2=16835
 CdIn₂S₄, infrared absorption 1=10066
 ClF₃ 4=9737
 ClN₃, in solid A, i.r. bands of N¹⁴Cl³⁵ and N¹⁴Cl³⁷ 1=12680
 ClNF₂, i.r. 3=17585
 ClO₂, absorpt. bands in vac. u.v. 4=6589
 Cl₂O₇, i.r. absorption 2=16527
 Co(III) complexes, spin-forbidden/band 3=22557
 Co(CO)₃NO 1=4933
 CoCl₂ 1=8848
 CrCl₂, CrCl₃ 4=28205
 Cu(CN)₄²⁻ complex ion 4=1773
 [Cu(CN)₄]³⁻ ions, 7600-61 000 cm⁻¹, calc. 3=19992
 CuCl₂ 1=8848
 Cu₂O, exciton spectra, irradiation effects 2=23555
 Cu₂O, fundamental absorption line, polarization 1=3830
 DCN, vibration bands, line strengths 0=9797
 DCO radical, electronic absorption spectrum 4=6594
 DNO, absorption, analysis 2=10257
 D₂O, absorption in 1220-1240 Å u.v. 3=8276
 D₂O, u.v. absorption, temp. depend. 0=15736
 DON¹⁴, ¹⁸O, u.v. absorpt., rel. to isomerism 3=6403
 D₂PO₂, i.r., rel. to normal coord. treatment 2=12330
 D₂Se, microwave, analysis 2=14264
 Er₃Fe₂O₁₂, i.r. at 1.5 μ 2=12604
 FeCN, rotational, in excited bending vibr. states 4=9735
 FeCl₃, i.r. 1=4936
 Ge₂H₆ and Ge₂D₆ 3=2627
 Ge₂H₆ and Ge₂D₆, i.r. 4=9739
 H₃⁺ and H₄⁺ 0=20646
 HBO₂, i.r. emission 0=4192
 HCN 0=7756
 HCN, broadening of ν_3 lines, due to Ar, CO₂, HCl 4=3874
 HCN, DCN, adsorbed on metal oxides, as crystalline HCN 4=10618
 HCN, highly precision, i.r. wavelengths 0=17745
 HCN, i.r. spectra from 2000 to 3700 cm⁻¹ 4=12485
 HCN, ν_2 band, in i.r. 0=4198
 HCN, precise i.r. wavelengths 1=12985
 HCN, pure rotational absorption lines 3=24019
 HCO, from acetylene, effect of deuteration 0=5937
 HCO radical, electronic absorption spectrum 4=6594
 HDO, u.v. absorption, temp. depend. 0=15736
 HF dimer, rotational fine structure 1=853
 HN₃, photolysis 0=3320
 HNO, absorption, analysis 2=10257
 HNO, predissociation 1=2352
 HO₂, i.r. evidence 3=17586
 H₂O 3=7328

Spectra—contd

inorganic molecules, polyatomic—contd

- H₂O, absorbed on silica-supported Fe 2=23963
 H₂O, absorpt. cross-section 4=28218
 H₂O, absorption in 1220-1240 Å u.v. 3=8276
 H₂O, absorption and photoionization, 606-1000 Å meas. 4=12430
 H₂O, continuous absorpt. spectrum 4=25690
 H₂O and D₂O, i.r., calc. 4=6596
 H₂O, and d and t substitution products, vibr. 4=15347
 H₂O, electron impact spectrum 4=12394
 H₂O, emission, excited by protons and H atoms 3=15338
 H₂O, HDO, D₂O, u.v. absorption 1=852
 H₂O, i.r. absorpt., D determ. 2=12302
 H₂O, i.r. absorption, up to 1000°K 4=15359
 H₂O, intensity meas. rel. to planetary spectra 4=25640
 H₂O, Landé factor 3=22562
 H₂O, line widths from collisions with H₂C and C₂ 4=22439
 H₂O, matrix-isolated in pure rotation region 4=6595
 H₂O natural and heavy, i.r. absorption, 42-2000 μ 2=1149
 H₂O 1, 87, 1, 38 and 1, 14 μ bands, spectral emissivities and integrated intensities, 1000°-2200°K 4=28219
 H₂O, 166-600 cm⁻¹, for spectrometer calibration 2=17617
 H₂O, 1850 to 4000 Å, absorption 4=11249
 H₂O, ortho and para, trapped in solid A and Xe, near i.r. absorption 0=15722
 H₂O, pure rotational absorption lines 3=24019
 H₂O, rotation in solid Ar, i.r. evidence 3=2628
 H₂O, rotational spectrum, i.r. absorption 0=4200
 H₂O, Rydberg series, theory 4=28217
 H₂O, 6.3 μ , band model appl. 4=25602
 H₂O, 2.7 μ band, spectral emissivities and integrated intensities, 530°-2200°K 4=12483
 H₂O, 2.7 μ region, computed transmission spectra 4=3881
 H₂O u.v. absorption peaks 1=6025
 H₂O, u.v. absorption, temp. depend. 0=15736
 H₂O vapour, absorpt. bands 125°-200°C 3=15348
 H₂O vapour, absorpt. spectrum in far i.r. 3=24032
 H₂O vapour, i.r., and liquid, mol. aggregation differences 4=21138
 H₂O vapour, strength of ν_3 vib. 3=15347
 H₂O₂, i.r. 2=5159
 H₂O₂, torsional oscillation frequency 1=7468
 H₂O₂: N₂ system, i.r., matrix isolation 3=15349
 HON¹⁴, ¹⁸O, u.v. absorpt., rel. to isomerism 3=6403
 H₂PO₂, i.r., rel. to normal coord. treatments 2=12330
 HPO, DPO, chemiluminescence of H, D + P + O 4=15346
 H₂S 3=7328
 H₂S, absorpt. cross-section 4=28218
 H₂S, and d and t substitution products, vibr. 4=15347
 H₂S, i.r., effect of centrifugal distortion on fundamental bands 2=18454
 H₂S₂, i.r., rel. to internal rotation 3=6401
 H₂S⁺, meas. in mol. beam crossing electron beam 4=12474
 H₂Se, and d and t substitution products, vibr. 4=15347
 H₂Se, microwave, analysis 2=14264
 HSiCl and HSiBr, free radicals, rel. to structures 4=15345
 HfCl₄, infrared 1=11790
 HfF₄, infrared 1=11790
 HgIn₂S₄, infrared absorption 1=10066
 IF₃, analysis 3=2631
 In₂Te₃, absorption and photoconductivity response 1=11366
 Ir(IV) hexahalides, far u.v. absorpt. bands 2=22981
 IrF₆, vibrational spectra, search for Jahn-Teller effect 0=15723
 KBr: Pb, absorption, emission, and excitation spectra 1=17890
 KCN, i.r. 1=14028
 KClO₃, liq., i.r. refl., analysis 2=14275
 KCl: Pb, absorption, emission, and excitation spectra 1=17890
 K₃Fe(CN)₆, visible charge transfer band nature 4=0745
 KHf₂ rel. to HF, KH₂F₃, NaH₂F₃ 4=6568
 KH₂F₃, rel. to HF, KHf₂, NaH₂F₃ 4=6568
 K₃IrCl₆ 3=4973
 KMg(Ni)F₃, mag. dipole character 3=19993
 K₂ReCl₆ 0=17761
 K₂UO₂F₆, i.r., and U—O bond force const. 3=22575
 LiAlF₄, i.r. absorption, 1200°-1600°K 3=22553
 LiClO₃, liq., i.r. refl., analysis 2=14275

Spectra — contd

inorganic molecules, polyatomic — contd

- LiClO₄, liq., i.r. refl., analysis 2=14275
 Li₂F₂, i.r. in solid Ar, Kr and Xe matrices 3=8261
 Li₂O and Li₂O₂, i.r. matrix-isolation meas. 4=3862
 MO(CO)₆, vibr. spectrum rel. to force constants 2=14245
 Mg₂Ge, n-type, i.r. absorpt. 2=4152
 Mg(Ni)F₂, mag., dipole character, from pleochroism 3=19993
 MgOH, u.v. emission 2=8105
 Mg₂Si, n-type, i.r. absorpt. 2=4152
 (MnO₄)³⁻ in alkaline soln. 4=20068
 Mo halides, far-i.r. absorption 4=3877
 MoCl₅, visible and u.v. 2=2002
 MoF₆, vibrational spectra 2=14276
 NCN free radical 4=28280
 NCO radical, electronic band system 0=2765
 N₂D₄, i.r., and vibr. freqs. 4=12486
 N¹⁴D₃, inversion line J = 6, K = 6, hyperfine structure 3=2633
 NF₂, absorpt. spectrum 4=22380
 NF₂ radical, i.r. spectrum 1=17319
 NF₃, vacuum u.v. 1=6024
 NF₂ radical, electronic absorption spectrum 4=28281
 NF₂ radical, i.r. 2=20883
 NF₃, i.r. intensity calc. 0=17747
 N₂F₂ isomers 1=12326-7
 N₂F₂ isomers, infrared 1=3541
 NH₂, in comet Mrkos, emission mech. 2=13116
 NH₂ radicals, absorption spectra with N¹⁴, N¹⁵, H and D 0=4214
 NH₃ 0=4201
 NH₃, adsorbed on Vycor glass, i.r. absorption bands 2=6858
 NH₃, absorption, 1440-1840 cm⁻¹ and 510-1280 cm⁻¹ 0=5934
 NH₃ adsorpt. on Vycor glass, i.r. study 4=20817
 NH₃ atomic clock 1=18343
 NH₃, continuous absorpt. spectrum 4=25690
 NH₃, emission, excited by protons and H atoms 3=15338
 NH₃, gaseous emission of i.r. 0=8794
 NH₃, in high tension discharge 3=4762
 NH₃, i.r. rel. to PH₃, AsH₃, SbH₃ 2=8095
 NH₃, i.r., theory of intensities 0=4203
 NH₃, i.r. and u.v. 3=2632
 NH₃, interferometric in far i.r. 1=841
 NH₃, isotope exchange equilb. const. from i.r. spectra 1=11610
 NH₃, J = 3, K = 3 line shape, rel. to pres. and microwave power, 23.86 Gc/s 3=3837
 NH₃, Jupiter high dispersion spectra 0=14397
 NH₃, magnetic h.f.s. 1=14020
 NH₃, 1850 to 4000 Å, absorption 4=11249
 NH₃, 1600 Å band system 1=8845
 NH₃, rotation in solid A and N 1=6010
 NH₃, in solid argon 1=11100
 NH₃ suspended in solid N₂, i.r. 2=4151
 NH₃, u.v. absorption 2=3749
 NH₃, u.v. absorption bands 4=6583
 N₂ + H₂, in high tension discharge 3=4762
 N₂H₄, in high tension discharge 3=4762
 NH₂D, interferometric in far i.r. 1=841
 NH₂H₂PO₄, i.r. absorpt. 3=15342
 NH₂NH₂: N₂ system, i.r. matrix-isolation 3=15346
 NH₃OH salts, and deuterated counterparts, i.r. 2=540
 N₂-N, existence in solid state, discharge product 0=4419
 N-O compounds 1=4941
 NO₂, abs. i.r. intensity, meas. rel. to temp. 2=12328
 NO₂, absorption, 1650-1350 Å 2=12334
 NO₂, absorption of visible light, temp. depend. 0=1524
 NO₂, in air afterglow 0=790
 NO₂, emission, max. intensity freq., calc. 3=19994
 NO₂, isotopic molecules 1=19636
 NO₂, Rydberg series, rel. to ionization potential 2=13535
 NO₂ ion, solvent band shifts and electronic transition assignments 4=3878
 NO₃ ion, u.v. bands and electronic transitions 2=20837
 NO₃⁻, in molten salt, charge transfer 4=15338
 NO radical, trapped 3=6418
 N₂O 0=7780
 N₂O, rel. to atm. abundance 2=17126
 N₂O, 4.5 μ, band model appl. 4=25602

Spectra — contd

inorganic molecules, polyatomic — contd

- N₂O, i.r. absorpt., 1830 cm⁻¹—2270 cm⁻¹ 4=15350
 N₂O, i.r. absorpt. intensities meas. 2=3744
 N₂O, i.r. band, excited by active N 3=25108
 N₂O infrared, rel. to relaxation time meas. 1=19630
 N₂O, isotopic, i.r. spectra 4=20069
 N₂O molec. crystals, far i.r. spectra 4=20446
 N₂O, and N₂O-N₂ mixtures, total i.r. absorbance bands rel. to conc. and press. 2=19619
 N₂O, 02²0-01¹0 band 4=28221
 N₂O, 1.2-3 μ 3=24023
 N₂O, 1850 to 4000 Å, absorption 4=11249
 N₂O, precise i.r. wavelengths 1=12985
 N₂O, press.-modulated, i.r. emission 2=11429
 N₂O, pure rotational absorption lines 3=24019
 N₂O, rotation-vibration spontaneous emission probability 4=20070
 N₂O, test of theoretical absorpt. band model approx. 4=9743
 N₂O, vibration-rotation bands, 2395-3510 cm⁻¹ 1=832
 N₂O, i.r. absorption in solid, unstable isomer 0=17750
 N₂O₄, abs. i.r. intensity, meas. rel. to temp. 2=12328
 N₂O₄, assignment of 3.21 μ band 3=2666
 N₂O₄, ht. of dissociation determ. 2=2027
 N₂O₄, i.r. absorption in solid state, unstable isomers 0=17750
 N₂O₄, i.r., nonplanar isomer 0=2751
 N₂O₄, isotopic molecules 1=19636
 N₂O⁺, meas. in mol. beam crossing electron beam 4=12474
 N₂O⁺, radiative lifetime of B²Σ⁺ state 0=15754
 N₂¹⁴,¹⁵O¹⁶, N¹⁵N¹⁴O¹⁶, absorpt. rot., fermi diodes 4=25676
 N₂¹⁴,¹⁵O₄, i.r. spectra, gaseous and liquid 0=13436
 NO₂F complexes with BF₃, PF₅, and SbF₅ 1=2325
 NT₃, ν₃ and ν₁ bands meas. 4=6576
 NT₃, ν₂ and ν₄ bands 2=6163
 NT₃, pure rotational spectrum 2=22980
 NaAlF₄, i.r. absorption, 1200°-1600° K 3=22553
 NaCN, i.r. 1=14028
 NaClO₃, liq., i.r. refl., analysis 2=14275
 NaH₂F₃, rel. to HF, KHF₂, KH₂F₃ 4=6568
 NaNO₃, lattice frequencies, rotational barriers 2=16835
 Nb oxide, band system 0=2766-7
 NbCl₅ 2=2002
 Nd chloride, in alcohol-water, absorption, temp. depend. 3=21374
 Ni(II) complexes 0=2749
 NiCl₂ 1=8848
 NpF₆, theory 0=7768
 (O₂)₂, absorpt., press. 2-35 atm, 12600-3600 Å 4=25677
 O₃, absorption profiles in far i.r., interpretation 4=28224
 O₃, pure rotational absorption, 125-500 μ 0=17748
 OCS 4=27314
 OCS, J = 0 → 1 transition study 1=14019
 OCS, perturbation in 003 band 2=16546
 OCS, vibration-rotation bands 2=14252
 Os(IV) hexahalides, far u.v. absorpt. bands 2=22981
 OsF₆ 0=4202
 OsF₆ 1=3543
 PCl₃, far i.r., rel. to force constants 2=12329
 PCl₄F, PCl₃F₂, PCl₂F₃ and PF₅, i.r. spectra giving molec. structures 4=25679
 PCl₃, i.r., force constants calc. 1=13980
 PH₂ and PD₂, electronic absorpt. spectrum 4=28168
 PH₃, i.r. rel. to NH₃, AsH₃, SbH₃ 2=8095
 PH₃, i.r., theory of intensities 0=4203
 PH₃, phosphine, near u.v. absorption 3=19996
 POCl₃, i.r. absorpt. intensity of symmetrical vibrations, effect of O¹⁸ 4=25680
 POH group, i.r. absorpt. bands 2=16531
 PbNO₃, lattice frequencies, rotational barriers 2=16835
 PmCl₃ dissolved in D₂O, absorption 2=8060
 Pt(IV) hexahalides, far u.v. absorpt. bands 2=22981
 Pt metal F₆ cpds, electronic, and specific heat, temp. var. 4=17365
 PtF₆ 0=4202
 ReF₆ 0=20624
 ReF₆, rotl. Raman spectrum, Rayleigh scatt. depolarization 3=2623
 ReF₆, vibrational spectra 2=14277
 RhA₆ type complexes, visible and u.v. 4=15354

Spectra—contd

inorganic molecules, polyatomic—contd

- RhF_6 , i.r., Jahn-Teller effect 3=12839
 $\text{Rh}_2(\text{CO})_4\text{Br}_2$, i.r., rel. to structure 2=10234
 $\text{Rh}_2(\text{CO})_4\text{Cl}_2$, i.r., rel. to structure 2=10234
 RuF_6 , i.r., Jahn-Teller effect 3=12839
 RuO_4 , infrared 1=4934
 SCl_2 , i.r. in gaseous state 2=22957
 S_2F_2 , second FSSF structure isomer 4=6604
 SF_6 , i.r. intensity calc. 0=17747
 $[\text{SN}]_x$ polymer, rel. to semiconductivity 4=15545
 SO_2 , absorpt., α_2 system, force consts., isotope effect 4=25683
 SO_2 , absorption profiles in far i.r., interpretation 4=28224
 SO_2 , absorption, 2500-2000 Å 4=12489
 SO_2 , collision broadening 3=17621
 SO_2 , rel. to dissociation and recomb. 2=20878
 SO_2 , i.r., theory of intensities 0=4203
 SO_2 , line broadening by N_2 3=8279
 SO_2 , rotation spectrum 13 000-25 500 Mc/s 3=4763
 SO_2 , rotation-vibration spontaneous emission probability 4=20070
 SO_2 , rotational analysis of bands of 3800 Å system 4=6602
 SO_2 , rotational spectrum 3=15353
 SO_2 , rotation spectrum, 1st vib. state 3=12840
 SO_2 , u.v. absorption 4=12488
 SO_2 , vac. u.v. 2=6179
 SO_3 , gaseous 2=6161
 $\text{SO}_2^{16,18}$, absorption in vac. u.v. 4=6601
 SO_3^{16} impurity, vibration in KCl crystals 1=12497
 $\text{S}^{32}\text{O}^{16}\text{O}^{18}$, $\text{S}^{32}\text{O}^{18}\text{O}^{18}$, rot. and centrifugal distortion consts. 4=9747
 $\text{S}^{32}\text{O}^{18}\text{O}^{16}$, rot., (0, 0, 0) 4=28229
 $\text{S}^{32}\text{O}^{18}$, $\text{S}^{32}\text{O}^{18}\text{O}^{16}$, rot., (0, 1, 0) 4=28228
 $\text{S}^{34}\text{O}^{16}\text{O}^{18}$, $\text{S}^{34}\text{O}^{18}\text{O}^{18}$, ground state, rotational 4=28230
 $\text{S}^{32}\text{O}^{16}\text{O}^{16}$, rotational lines in 8000-38 000 Mc/s region, rotational consts. and coeffs. of distortion, calc. 4=30445
S-S bonds, u.v., theory 2=6207
 SbCl_3 , i.r. 1=4936
 SbCl_5 , i.r. 1=4936
 SbH_3 , i.r., rel. to AsH_3 , NH_3 , PH_3 2=8095
 SeO_2 emission bands 2=8103
Si carbides trapped in neon and argon matrices at 4° and 20° K, i.r., visible, and near u.v. 4=25681
 Si_2 , Si_3 and Si_4 trapped in neon and argon matrices at 4° and 20° K, i.r., visible, and near u.v. 4=25681
 SiF_2 , u.v. band 2=16532
 SiF_2 , u.v. emission 2=6182
 SiF_4 , i.r. intensity calc. 0=17747
 Si_2H_6 , i.r. analysis 2=16529
 $(\text{Si}_2\text{O})^{2-}$ type anions, i.r. vibrational spectra 1=2327
Sn-F complexes 1=833
 SnH_4 , i.r. spectrum 1=7471
 SrNO_3 , lattice frequencies, rotational barriers 2=16835
 TcF_6 , vibrational spectra 2=14276
 ThCl_4 , infrared 1=11790
 ThF_4 , infrared 1=11790
 TiI_4 , normal vibration frequencies and thermodynamic functions 0=1496
Ti (III) complexes 2=3775
 TiN_4 , absorption 3=19999
U compounds, tri and tetra-valent, and U electron structure 3=1216
 UO_2^{++} , ligation effects 1=11104
 VCl_4 , i.r., vibr. bands 4=1281
 VCl_4 , 9 kK band intensity and molecular association 4=3880
 VCl_4 , u.v. 4=9749
 VCl_4 vapour, Jahn-Teller splitting 2=6162, 20842
 VF_5 , i.r. spectrum from 3-24 μ 4=25687
 VOF_3 , i.r. spectrum from 3-24 μ 4=25687
Va-O compounds, i.r. absorpt., vibr., and structure 3=22574
W halides, far-i.r. absorption 4=3877
 XeF_4 , semiempirical MO treatment 4=17299
 XeOF_4 , infrared, rel. to Xe-O bond 3=17580
 XY_3ZV_3 , electro-optical parameters calc. 2=22991
Zn cpds; shock tube studies, emission band 2=696
 ZnIn_2S_4 , infrared absorption 1=10066
 ZrCl_4 , i.r. 1=4936
 ZrCl_4 , infrared 1=11790
 ZrF_4 , infrared 1=11790

Spectra — contd

inorganic molecules, polyatomic, radiofrequency

- See also Nuclear magnetic resonance and relaxation;
Paramagnetic resonance and relaxation.
ammonia absorption lines, frequency shift 1=2316
cis- N_2F_2 , microwave spectrum 3=25111
difluoramine 3=8274
energy levels of slightly asymmetric top 0=13431
hydrazine, internal motions 3=10509
multiquantum transitions, exemplified by
DPPH 4=25604
paramagnetic centres, microwave 4=4398
l-type doubling and resonance, interpret 3=19960
 $\text{CO}(\text{CN})_2$, calc. 4=22394
 CO_2 at 1200°K, rel. to gas effects 3=5467
 ClO_2 2=20829-30
 ClO_2 , Stark and Zeeman effects 2=20831
 $\text{Cl}^{35}, \text{Cl}^{37}\text{O}_2$, rotational assignment 1=3536
DCN and HCN, vibration-rotation bands 4=20066
 DN_3 , microwave and millimeter wave spectra 4=20067
 D_2O , microwave h.f.s. 0=20667
 F_2CO , microwave, rel. to vibr. states 3=12836
 $\text{F}^{35}, \text{F}^{37}\text{ClCO}$, centrifugal effects analysis 2=18467
 $\text{F}_2\text{DC-CD}_2\text{F}$, rot., 7-30 kMc/s 4=25672
 $\text{F}_2\text{HC-CDHF}$, 7-25 kMc/s, Stark modulation 3=17593
 F_2O 2=3737
 $\text{HC}^{13}\text{N}^{15}$, resonance at 3.5 mm 3=14767
HDO, h.f.s., beam-maser spectrometry 4=9733
HDO, microwave h.f.s. 0=20667
HDO, microwave series, $\Delta J = 0$ 1=4930
HDS, h.f.s., beam-maser spectrometry 4=9733
 HN_3 , hydrazoic acid, rel. to quadrupole coupling constants 4=3873
 HN_3 , microwave and millimeter wave spectra 4=20067
 HN_3 , N^{15} substituted 4=28220
 H_2O_2 , e.s.r. 0=10678
 H_2O , 2.7 μ bonds, calc. 4=30447-8
 H_2S , absorpt. meas. 3=21984
 N_2F_4 0=2752
 NH_3 , inversion frequency, pressure shift 0=13442
 NH_3 , inversion vibr., influence of solid adsorbent, study by microwave absorpt. 4=6582
 NH_3 , line breadths 1=6006
 N^{14}H_3 , refractive index in microwave region 3=21362
 NH_2D , microwave spectrum, hyperfine structure 4=28206
 NH_2D and ND_2H , microwave absorption and Stark effect 4=12479
 NH_2NO_2 , NHDNO_2 and ND_2NO_2 4=1278
 NO_2 , fine structure, theory 0=2761
 NO_2 , microwave spectrum, fine structure and mag. coupling 4=22379
 $\text{N}^{14}\text{O}^{18}$, vibr.-rot. bands at 4.5 μ 3=6404
 NSF , microwave 3=22563
OCS, saturation of rotational resonances 0=5918
OCS, self-broadening, quadrupole moment det. 4=25678
 $\text{O}^{18}\text{C}^{12}\text{S}^{32}$, microwave spectrum 2=5494
 OF_2 1=6007
 OF_2 3=8278
 OF_2 , spin-rotational hyperfine structure 3=19995
 PH_3 , k-type doubling 0=13440
 SF_4 2=6125
 SF_5Br , microwave rotational spectrum 3=22572
 S_2F_2 , microwave spectra 4=3879
 SO_2 , ~4, 8 mm 4=9748
 SO_2 , microwave spectrum in excited vibrational state 4=22382
 SO_2 , millimeter wave spectrum 4=15356
 SO_2 , molecular interaction and linewidth 3=12841
 SO_2 , rot. 4=28227
 $\text{S}^{34}, \text{S}^{32}\text{O}_2$, 25-27.5 Gc/s 3=15351
 S^{33}O_2 2=10841
 $\text{S}^{33}, \text{O}_2$, h.f.s., semi-rigid rotor interpretation 0=5917
 S^{34}O_2 , rot. spectrum in first vibr. excited state 3=15351
inorganic liquids and solutions
absorption rel. to fluorescence spectra, exptal. support for formula 1=18411
actinide 4+ ions, rel. to free ion spectra 4=28316
alkali metals, absorption perturbations, rel. to absorbed H, 400°-500°C 3=5443
alkali nitrates, liquid, i.r. reflection 2=7214
alkali nitrates and nitrites, i.r. absorption above and below melting pt. 0=16069

Spectra—contd

inorganic liquids and solutions—contd

- alkylammonium salts, i.r. bands, hydrogen bonding 4=22386
 anthracene, in solution, rel. to molec. vibrations 2=14374
 Chicago research (1958) 0=9810
 complex mols., absorption—fluoresc. noncoincidence 4=186
 dielectrics, radiofrequency, rapid measurement
 1-10 000 Mc/s 1=10796
 elasticoviscous liquids, relaxation spectrum 1=15884
 electronic spectra of molecules in two-component
 solns. 4=29633
 halide ions in solution, solvent effects 1=8124
 halide solutions, absorption by dihalide ion after flash
 photolysis 0=10357
 hydrates, H-bond i.r. absorption 1=15882
 i.r. absorption lines, rel. to temp. 2=9279
 i.r. band widths compared with corresponding Raman
 bands 1=2758
 i.r., solvent effects 3=22521
 iodide, solvated, u.v. absorption, pressure effects 4=184
 iodine solns., u.v. and visible absorption peaks 0=16705
 ionic interactions in solns. of electrolytes 1=137
 ionic melts, u.v., changes on melting 2=16822
 ionic salts, fundamental absorpt. band in far
 u.v. 4=179
 light source, modified Maekiev arc 4=8435
 and luminescence, viscous quenched solns. 4=2691
 measurement, using multiple attenuation total reflection,
 opaque 3=18989
 molecular excited dipole moment from variation with
 solvent 4=15321
 quasi-lattice, excitation rel. to light scatt. 2=7213
 Raman, H_2 , D_2 , and HD, high resolution 2=2721
 reflection, i.r., rel. to optical constants 1=7698
 salts, fused, i.r. techniques using Si 4=27181
 solutions, aq., pressure effects on charge-transfer and
 transition metal ion spectra 3=1690
 solvent effects, i.r., allowance for in analysis 4=7799
 transition metal ions and complexes in D_2O , isotope
 shifts 0=3531
 uranyl nitrates, solutions, absorption spectra 1=4344
 uranyl nitrates, solutions, absorption spectra 1=10514
 uranyl salts, rel. to luminescence 2=15603
 water drops, i.r. absorption cross. sect. 2=11026-7
 water $\sim 8000\text{ cm}^{-1}$, rel. to combination
 vibrations 4=21139
 water, $\sim 8000\text{ cm}^{-1}$, rel. to H-bonded polymers 4=21140
 water, i.r. 0=82
 water, i.r. spectra 1=6860
 water, ionic solns., H-bonding, near i.r. meas. 4=154
 water layers, adsorbed on alkali halides 0=10375
 water, O_2 u.v. absorption bands 2=5020
 water, pure, i.r., rel. to H-bond polymerization 4=153
 water, soln. of alkali halides, Raman spectra 2=5021
 water, sonoluminescent spectra, effect of dissolved
 A, He, O_2 , N_2 1=4345-6
 water, sorbed onto zeolite, absorption bands 0=10376
 water, vibration 2=10321
 AgBr sols, Tyndall, higher order 3=13629
 AgNO₃, liquid, i.r. reflection 1=15885
 AgNO₃, liquid, i.r. reflection 2=7214
 AlCl₃ in SOCl₂, Raman, 0.11-0.73 mole per mole 3=14170
 B₂O₃, infrared reflection 1=11379
 B₂O₃, molten, i.r. absorption 1=5346
 Bi metal in molten BiCl₃, solute species
 equilibrium 4=5185
 Bi-BiCl₃ molten system, absorption 2=19563
 CCl₄ in cyclohexane 2=1153
 CCl₄, intense i. r. absorpt., 740-810 cm⁻¹ 4=30455
 CCl₄, infrared intensity and breadth calc. 1=9394
 CO₂, dissolved in CCl₄ and CS₂, i.r.
 absorption 1=18412
 CO, i.r. 3=1693
 CO, in liq O₂, N₂ and Ar, O-2 transition 4=25638
 CO, solns. in N₂ and air 3=17572
 CS₂, absorption spectra 1=2757
 CS₂ in CCl₄, i.r. fundamentals 2=1153
 CS₂, infrared intensity and breadth calc. 1=9394
 CS₂, Raman spectra at 28°C and -80°C 4=5182
 CaBr₂, impurity complexes, u.v. 4=1733
 Ca₂, impurity complexes, u.v. 4=1733
 Co halides in organic solvents 4=29634
 Co²⁺ and Ni²⁺ in sulphate media (melts) 2=17463

Spectra—contd

inorganic liquids and solutions—contd

- Cr³⁺, in solutions, absorption bands 0=10041
 CuCl-LiCl fused system 4=183
 CuCl₂ fused mixtures with LiCl and KCl 4=183
 CuSO₄, Cu²⁺ absorption, water cluster 1=11756
 D₂ in liq. Ar, i.r. induced absorpt. 4=27177
 DCl solution in heavy water, i. r. spectrum 4=24218
 D₂O, vibration 2=10321
 Eu(III) aqua ions absorption bands, with sulphate
 ligands 4=2685
 Eu³⁺, 0.35 to 2.6 μ 3=9462
 Fe(CO)₅, i.r., low-frequency 3=23883
 Fe(CO)₅, far i.r. spectrum 4=26201
 Ge, reflectivity, rel. to carrier formulae 3=14167
 Ge₂H₆ and Ge₂D₆ 3=2627
 Ge₂H₆ and Ge₂D₆, Raman spectra 4=9739
 H₂, i.r. fundamental band 0=4196
 H₂ in Ar, induced fundamental band 4=3855
 H₂ in liq. Ar, i.r. induced absorpt. 4=27177
 H₂ in CCl₄ and CFC₂.CF₂Cl, i.r. 2=9280
 HCl in liquid Xe 2=17464
 HCl, in solution 0=15702
 H₂O, electron beam effects 4=20073
 H₂O, H-bond i.r. absorption 1=15882
 H₂O, HDO, D₂O, i.r. 4=11199
 H₂O, HDO, D₂O, u.v. absorption 1=852
 H₂O, i.r., and vapour, mol. aggregation differences 4=21138
 H₂O, near i.r. absorpt., 27°-209°C 4=21137
 H₂S and HDS, comparison of i.r. absorption 1=18413
 He, energy transfer obs. 4=18517
 HeII, excitation spectrum at T = O 4=11106
 Hg, dissolved in A 1=15842
 I⁻, in molten salt, charge transfer 4=15338
 I₂ in pyridine 4=28193
 KAuCl₄ in HCl, u.v. spectrum 1=12885
 K₃Fe(CN)₆ 1=11368
 KNO₃, liquid, i.r. reflection 1=15885
 KNO₃, Raman spectra with ionic admixture 4=16115
 KNO₃-AgNO₃ fused system 4=183
 KOH, molten, i.r. reflection 2=1150
 KSCN, 250, 400°C 4=8209
 LiClO₃-H₂O fused system 4=183
 LiF-KF and LiF-KF-ZrF₄, molten 4=2689
 LiNO₃, i.r. absorption 0=6926
 LiNO₃, liquid, i.r. reflection 1=15885
 LiNO₃, mixtures with NaNO₃, LiOH and H₂O, fused 4=183
 LiOH, molten, i.r. reflection 2=1150
 LiOH-NaOH fused system 4=183
 MnBr₂²⁻ in acetonitrile soln. and Mn²⁺ electronic
 struct. 4=15349
 MnBr₂[OP(C₆H₅)₃]₂ in acetonitrile soln. and Mn²⁺ electronic
 struct. 4=15349
 Mn(II) and Co(II) in fused halides 2=15594
 MoO₄²⁻, i.r. spectrum 4=26213
 N oxides-H₂ system, absorption at 357 m μ 4=14168
 N₃⁻ in solution 3=21377
 NO in Kr and methanol solns., charge-transfer
 absorption spectra 4=21136
 NO in liquid Kr 3=15685
 NO, spin-forbidden transition in soln. 2=1148
 NO, in various solvents, near u.v. absorption, HONO
 formation 2=19561
 NO₃⁻ in ionic melts, u.v. rel. to positive ions 2=15593
 NO₃⁻ in molten salt, charge transfer 4=15338
 NO₃⁻ in solution, absorption spectra 2=5024
 Na, in NH₃, reflection, i.r. 2=1151
 NaF-KF-ZrF₄, molten mixture, i. r. 4=2689
 NaNO₂, i.r. absorption 0=6926
 NaNO₃, liquid, i.r. reflection 1=15885
 NaNO₃, Raman spectra with ionic admixture 4=16115
 NaOD solution in heavy water, i. r. spectrum 4=24218
 NaOH, below melting point 1=11381
 NaOH, molten, i.r. reflection 2=1150
 NaSCN, 300, 400°C 4=8209
 Nd³⁺, 0.35 to 2.6 μ 3=9462
 NdCl₃ in alcohol-water soln., absorption, -87°C 3=1691
 NdCl₃ in alcohol-water solutions, absorption 3=18816
 NiF₂ in LiF-NaF-KF eutectic and struct. 4=14170
 Np(IV) hexahalides, electron transfer and 5f \rightarrow 6f
 transitions 4=5186
 O liquid, absorption bands rel. to pressure (to 7000 atm),
 temp. (78°-300°K) and density 3=1692

Spectra—contd

inorganic liquids and solutions—contd

- O₂, dissolved, emission spectrum, ligand-field splitting of antibonding orbitals 4=20058
 O₂ in liq. Ar and N₂, vac. u.v. absorpt. spectra 4=16116
 O₂F₂, absorption spectra, molar extinction coeffs. 1=15886
 O₃, absorption spectra, molar extinction coeffs. 1=15886
 O₃F₂, absorption spectra, molar extinction coeffs. 1=15886
 POCl₃, i.r. absorpt. intensity of symmetrical vibrations, effect of O¹⁸ 4=25680
 Pb salt solns. with excess Br⁻ and Cl⁻, temp. depend. 2=7220
 PbCl₂ 2=15599
 Pr(III) aqua ions absorption bands, with sulphate ligands 4=2685
 Pr³⁺, 0.35 to 2.6 μ 3=9462
 Pu (IV) hexahalides, electron transfer and 5f → 6f transitions 4=5186
 S, absorpt. and i.r. emission spectra 4=15600
 S²⁻ and HS⁻ solns., u.v. absorpt. spectra 4=16117
 Se, absorpt. and i.r. emission spectra 4=15600
 SiO₂, infrared reflection 1=11379
 Sm(III) aqua ions absorption bands, with sulphate ligands 4=2685
 Sm³⁺, 0.35 to 2.6 μ 3=9462
 Sn²⁺, ⁴⁺ halides, absorption, mechanism 2=17468
 SnCl₂ 2=15599
 Tb(III) aqua ions absorption bands, with sulphate ligands 4=2685
 TeO₄²⁻, i.r. spectrum giving structure 4=26213
 Tl salt solns., with excess Br⁻ and Cl⁻, temp. depend. 2=7220
 Tl⁺, ³⁺ halides, absorption, mechanism 2=17468
 TlBr 2=15599
 TlCl—alkali chloride, aq., absorpt. spectra 2=21911
 U (IV) hexa-halides, electron transfer and 5f → 6f transitions 4=5186
 V, absorption in aqueous solution, crystal-field theory 1=8122
 Yb(III) aqua ions absorption bands, with sulphate ligands 4=2685
 ZnCl₂ fused mixtures with LiCl and KCl 4=183

inorganic solids

- absorption bands, of defect electrons 1=2397
 absorption, β-band, rel. to electron transitions, theory 4=9882
 absorption edge of anisotropic crystals, fine structure 1=19983
 absorption edge, correlation with luminescent edge 1=17906
 absorption edge, rel. to defect fields 3=13161
 absorption, of impurity centres, band structure, quantum mech. model 1=14625
 absorption, position of edge, determination 1=18594
 actinide 4+ ions, rel. to crystal-field parameters 4=28316
 alexandrite, absorption, temp. depend. 0=16061
 alkali-earth metal oxides, absorption edge relationship with lattice energy 1=3836
 alkali fluoberyllates, vibr. i.r. absorpt., BeF₄²⁻ ion 4=10161
 alkali halide phosphors, explanation 3=23100
 alkali halides, absorption, rel. to colour centre energy levels 2=23212
 alkali halides, absorption, phonon and zero-phonon lines 4=22843
 alkali halides, absorption, analysis, rel. to exciton structure 1=945
 alkali halides, absorption, rel. to F₂⁺-centres 1=14597
 alkali halides, Ag ions, oscillator strength 3=10965
 alkali halides, α and γ bands, exciton model 3=20467
 alkali halides, colour centres, effect of pressure 0=9906
 alkali halides containing U-centre, u.v. region 4=4226
 alkali halide crystals, effective ionic charge from long-wavelength optical mode frequencies 1=2363
 alkali halide crystals, effective ionic charge from long-wavelength optical mode frequencies 1=6241
 alkali halides, CsCl-type, colour centres 2=6384
 alkali halides, effect of quartic anharmonicity 2=8532
 alkali halides, exciton absorption spectra 0=6036
 alkali halides, extinction bands, correl. with plasma resonance 0=7876
 alkali halides, far i.r. 1=18596
 alkali halides, i.r., Born—Huang dispersion theory 1=1168

Spectra—contd

inorganic solids—contd

- alkali halides, isoelectronic, u.v. 2=8521
 alkali halide phosphors, absorption, pressure-effects 1=19984
 alkali halide phosphors, effect of pressure and temp. 1=11364
 alkali halide pressed pellets, effect of hydration 1=7898
 alkali halides, "pure" F-centres, absorption band shapes 2=23214
 alkali halides, secondary absorption spectra 1=7711
 alkali halides, rel. to specific heat 3=754-65
 alkali halides, theory of halogen atom doublet 0=2810
 alkali-halides with U-centres, i.r. absorpt. 3=20247
 alkali halides, U-centres, i.r. spectrum 0=11631
 alkali halides, u.v. absorption at room temp. and 80°K 0=2937
 alkali halides, u.v., and crystal excitons 4=13020
 alkali halides, u.v., electron affinities calc. 2=8146
 alkali halides, vac. u.v. 3=10964
 alkali halides, X-ray irradi., absorption by F₂⁻, Cl₂⁻, Br₂⁻, I₂⁻ 1=3840
 alkali hydrides, fundamental absorpt. bands rel. to U-centre absorpt. 4=17551
 alkali metal azide crystals, i.r. 1=8994
 alkali metal azides, u.v. 2=4143
 alkali nitrates and nitrites, i.r. absorption above and below melting pt. 0=16069
 alkaline earth platocyanides, transitions 2=18817
 amethyst, absorption spectra 2=18800
 anatase, X-ray absorption spectrum 1=7720
 anthracene, meas. and exciton model 3=2970
 anthracene, rel. to molec. vibrations 2=14374
 atomic energy levels in crystals 1=14148
 azide ion in alkali-halide lattices, i.r. 2=21250
 benzene, near u.v. absorption below -259°C 2=8525
 beryl, Fe³⁺ absorption 0=16169
 beryls, Fe-coloured, absorption, 290° to 1.7°K 3=3001
 α-brasses, absorption, 0.23-4.0 μ, at 4.2°K 0=1542
 calcite, i.r. absorption, rel. to dolomite and magnesite, theory 1=17896
 calcite, neutron irradi., magnetic centres 1=14791
 calcium aluminates, hydrated, i.r., and H₂O behaviour 3=13165
 chars of model cpds., i.r. spectra 4=4722
 chromia-alumina powders, reflection 4=7124
 cobaltous salts, hydrated, absorption band structure 0=16052
 colour centres, LiF, line and band 3=6540
 complex salts, line spectra 2=577
 complex salts, theory 2=576
 complexes of Cu²⁺, Co³⁺ and Fe²⁺, effect of pressure 1=12490
 corundum, i.r. lattice vibr. analysis 4=4256
 corundum, rel. to ligand field for Cr³⁺ ions 2=10298
 corundum, Mn-activated 1=10105
 corundum, transition metal ions 2=14677
 crystal excitons, and photoconductivity, luminescence 3=22689
 crystal impurity centres, when Condon's approx. is not valid 3=20458
 crystals, additional light waves in exciton absorption region 3=10913
 crystals containing Fe³⁺, down to 1.7°K 3=15681
 crystals; exciton absorption in elec. fld., theory 3=10937
 crystals, isotopically disordered, absorption 1=7527-8
 crystals, perturbed exciton 3=10932
 crystals with rare-earth ions, absorption spectra 3=12350
 crystals with strong hydrogen bonds, i.r. bands 1=11377
 crystals, with trigonal and rhombic symmetric fields, d³-term splitting 1=3620
 cubic crystals, deformed, band-splitting 1=17879
 cubic crystals, effect of compression on optical absorption 1=16121
 cubic crystals, quadrupole exciton absorption 1=17875
 cubic diamond-type, derivation from structure theory 3=10618
 cuprite, green and yellow series as exciton spectra 3=25455
 d³ ions in trigonal crystal fields 4=7096
 d⁵ configuration in cubic crystalline fields 4=25827
 danburite, i.r. spectra 1=8995
 diamond, absorption, phonon effects 2=14688

Spectra—contd

inorganic solids—contd

- diamond, composite class 2=8501
 diamond, hot semiconducting, i. r. absorption 2=23382
 diamond, i. r. absorption, rel. to free vibr. 2=8497-8506
 diamond, i. r. absorption, rel. to lattice vibrations 3=10577
 diamond, i. r., interpretation 1=1169
 diamond, i. r., review, Raman's work 3=23069
 diamond, intrinsic edge absorption 4=10172
 diamond, strong absorption bands in u. v. 0=4417
 diamond synthetic, i. r., 500-3500 cm^{-1} 2=4148
 diamond, 3000-7000 Å absorption 0=16053
 diamond, two-phonon i. r. absorption 1=19995
 diamond, type I, i. r. absorption 3=10928
 diamond, type I, i. r. and u. v. absorption due to N impurities 0=652
 diamond, type II, absorption rel. to electron irradiation 2=23558
 diamond, type IIb, absorption, optical phonon effects 3=10933
 diamond, u. v. absorption and reflection 2=16831
 diamond, u. v. and i. r. 1=888
 diamond, u. v. reflection meas. 4=13033
 diamonds, i. r. absorption 1=8992
 diamonds, i. r. absorption, effect of neutron irradiation 1=6211
 diamonds, i. r. at large dispersion, temp. depend. 1=1170
 diamonds, i. r., vibr. freqs. 3=18003
 diamonds, irradiation, n, e, γ , thermal annealing, review 4=1729
 diamonds, natural and synthetic, i. r. absorpt., 6 band groups 4=7129
 diamonds, synthetic, types I and II 3=8595
 dichromates, electronic absorpt. spectra, interpret. 3=4837
 dielectrics, i. r., rel. to lattice vibr. "centro-freq." 4=28349
 dielectrics, u. v., separation of exciton and scatt. struct. 4=22826
 diimide (N_2H_2), i. r. 4=28214
 dolomite, i. r. absorption, rel. to calcite and magnesite, theory 1=17896
 electrocorundum, absorption, rel. to colour centres 3=15515
 emerald, absorption, temp. depend. 0=16061
 exciton absorption bands, theory of line-shapes 0=11608
 exciton absorption in crystals, effect of deformation and mag. field 2=10598
 exciton absorption bands, line shape theory 2=8192
 exciton absorption lines rel. to crystal size 4=4245
 exciton absorption, phonon coupling, interband effect 4=13007
 exciton absorption, quadrupole lines rel. to electric field 2=4140, 8513
 exciton-lattice interaction, line shape of exciton absorption band 0=13508
 exciton lines, effect of formation and decay 2=8191
 exciton lines, enhancement in elec. field 2=10594
 ferric iron-containing oxides, absorption 2=6569
 ferrites, optical and infrared 1=6208
 films, AB_2 form, absorption meas. 4=2085
 fluorides, u. v. absorpt., oscillator strength for first band 4=7131
 fluorite 3=8458
 frustrated total internal reflection, surface study 0=10030
 fundamental edge, shift by elec. fields 1=17880
 fund. edge shift, use in elec. field distrib. study 1=17860
 garnets, optical and infrared 1=6208
 gases, condensed, at low temps., review 3=10929
 glass, alkali-silicate of high u. v. transmission, absorpt. spectra of cations 4=7111
 glass, CdS- and CdSe-coloured, absorption 2=18820
 glass, Na borate and silicate, u. v. absorpt., composition and temp. effects 3=13173
 glass, Nd^{3+} doped, absorpt. spectra 4=13037
 glass, Pb silicate, γ -irradiated, absorption 1=17886
 glass, phosphate, rel. to colour centres 1=19809
 glass, phosphate, rel. to colour centres 2=8259
 glass, Si 104, irradiated 1=19070
 glasses, absorpt. bands, and halogen ion, di formation by u. v., X-rays 4=4707
 glasses, based on Tl, As and Sb chalcogenides, absorption spectra 0=13609
 glasses, titaniferous, rel. to coord. state 3=25459

Spectra—contd

inorganic solids—contd

- graphite, reflection spectra 0=11760
 graphite, spectral line intensity, carrier effect 4=26224
 guanidine Al sulphate hexahydrate, Cr^{3+} absorption spectrum 3=936
 guanidine sulphate, rel. to H_2O molecular vibrations 2=14681
 heavy transition metal hexahalide complexes, effect of pressure 1=11367
 heavy metal halides, absorption edge, pressure depend. 0=4406
 howlith, i. r. spectra 1=8995
 hydroxides, near i. r. complexity, rel. to lattice-internal mode combination 4=6702
 i. r. absorption lines, rel. to temperature and intermolecular vibrations 3=15662
 i. r. absorption at longit. optic freqn. 3=15663
 i. r., second order effects and finite number of vibr. modes 4=7099
 ice, crystals, i. r., H positions 0=10044
 ice, dense forms 0=6178
 ice, far i. r., vitreous, cubic, hexagonal forms 4=13040
 ice, Ih and Ic, i. r. 4=17568
 ice, molecular potentials 0=13694
 ice, reported new form actually $\text{NaCl} \cdot 2\text{H}_2\text{O}$ 2=16834
 ice, II, III and V, i. r. 4=17569
 impurities in insulators, dynamic perturbations effects 4=28348
 impurities, multiplet transitions, vibr. structure 4=17546
 impurities, narrow "no-phonon" lines, theory 4=10150
 impurities, singlet spectra, vibration structure theory 4=13006
 impurity absorption bands, vibr. structure 3=8587
 impurity absorption near exciton bands, theory 3=17993
 impurity atom effects on vibrational absorption spectrum 1=10098
 impurity centres, effect of lattice anharmonicity 4=28452
 impurity zero phonon line broadening 4=30689
 Inconel, oxidized, heated to 1000°C, spectral emittance 4=14443
 inert gases, solid, u. v. line shape 2=16826-7
 inert gases, u. v. absorption line shape 1=11362
 inert gases, u. v., and crystal excitons 4=13020
 ionic crystals, colour centres 4=28496
 ionic crystals, exciton spectra 0=16048
 ionic crystals, i. r. absorption, departures from approx. theory, rel. to dielec. const. 0=1364
 ionic crystals, i. r. band shape, quantum-mechanical model 2=2236
 ionic crystals, luminescence and absorption spectra 1=2452
 ionic crystals, optical lattice absorption and reflection 4=22842
 ionic crystals, u. v. absorpt., interpret. 3=929
 ionic crystals, u. v. absorption, change on melting 0=10038
 ionic crystals, u. v. changes on melting 2=16822
 Irtran-1 3=20480
 lanthanides (III) in ThO_2 , reflection meas. 4=20462
 lattice particles, rel. to Bethe's electron levels 2=6302
 lattice vibration spectra, centre law 0=16050
 M-centres, absorption, macroscopic approx. 1=1154
 magnetic crystals, absorption, 10^4 - 10^5 cm^{-1} 0=10036
 magnesite, i. r. absorption, rel. to calcite and dolomite, theory 1=17896
 metal films, plasma reson. due to fast electron 3=8407
 metal halides, far i. r. spectra 4=7117
 metallic oxides, chromates, phosphates, i. r. 2=6578
 metallic oxides, reflection, 300-1000 $\text{m}\mu$ 3=13154
 metals, absorption, rel. to characteristic losses of fast electrons 1=6099
 mica, heat effects, muscovite sheet 4=10181
 mica, i. r. reflection spectra, residual lines, props. 4=17576
 micas, i. r. spectra and its depend. on crystal orientation 4=15594
 micas, muscovite, 0.3-16 μ , classification 3=25463
 mixed crystals, contg. Ag, exciton absorption, Cu_2O -type 1=3637
 Mössbauer analogue, impurity electronic trans. 4=20442
 muscovite, vibrations of OH ions 3=13164
 nitrate ions in solid alkali halides, i. r. absorption 1=7714

Spectra — contd

inorganic solids — contd

- nitrates, i.r., lattice freqn. and rotational barriers 3=746
 nitrates, nitrites, melting, u. v., and ion surrounding shell changes 4=5451
 nitrates, nitrites, u. v. and phase transformations, crystal 4=7509
 octahedral crystal fields, with Cr^{3+} 3=25454
 olivine, absorption edge, temp. and press. depend. 0=8798
 one-dimensional ionic lattices, i.r. absorption, calc. 1=19992
 I—VII, II—VII, and III—V cpds., absorption edges, pressure effects 1=8986
 paramagnetic, atomic interaction splitting 4=22824
 paramagnetic ions, linewidth, effect of strains 2=12602
 paramagnetic ions, optical pumping 0=18121
 phosphates, 7, i. r., selection rules 4=13059
 polar crystals, absorption of linear anharmonic chain 0=18122
 pressure effect, octahedral complexes of Ni^{2+} , Co^{3+} , Mn^{2+} 1=17888
 quartz, artificial, Brillouin scattering 0=11763
 quartz, extinction bands, correl. with plasma resonance 0=7876
 α -quartz, with Ge impurities, absorption, rel. to X-irrad. 3=22832
 quartz glasses, $\lambda = 150\text{--}275\mu$, absorption 2=7341
 α -quartz, i.r. absorpt., rel. to H^+ incorporation 2=21009
 quartz, i.r. absorption, due to defects 0=16070
 quartz, i.r. absorption, 3μ region 0=4416, 18128
 quartz, i.r., rel. to coordination 4=1744
 quartz, i.r., effect of electrolysis, heat treatment, and n-irrad. 1=3847
 quartz, i.r., H-containing defects 2=6320
 α -quartz, i.r. lattice bands 1=3845
 quartz, irradiated, u.v. absorption 1=7708
 quartz, with Na and Li impurity ions, X-irrad., absorption bands 0=18154
 quartz, plates, natural, far i. r. absorption 4=10207
 quartz, smoky, heat treatment effects 4=1742
 quartz, synthetic, i.r. absorption due to OH defects 0=11764
 quartz, visible absorption band 0=18135
 Raman scattering tensor for vibrations of any class of crystal 1=14613
 rare-earth chlorides, i.r. absorption 2=6577
 rare earth cpds. (24), absorption 3=11038
 rare earth elements, complex spectra, term analysis technique 0=16853
 rare-earth ions, absorption intensities, calc. 2=18421
 rare earth ions in crystals, effect of pressure 1=3832
 rare-earth ions in crystals, hyperfine interacts., theory 2=21295
 rare-earth ions in crystals, intensities 2=18831
 rare-earth ions (divalent), in cubic crystals 4=7153
 rare earth ions, divalent, in cubic crystals 4=20465
 rare-earth ions, rel. to spontaneous phonon emission 2=12591
 rare-earth iron garnets, far i. r. absorption 3=8597
 rare-earth iron garnets, low-lying spectrum, theory 1=14611
 rare-earth nitrides, absorption edges rel. to semiconducting props. 4=20376
 rare earth salts, absorption, rel. to ionic energy levels 4=25823
 rare earth trivalent ions rel. to laser material suitability 4=19296
 reflection bands, rel. to nature of incident light 3=9600
 refractory materials heated to 1000°C , spectral emittance 4=14443
 rock salts; i.r. activity rel. to sp. ht. calc. 2=6259
 rocksalt-type crystals, absorption spectra detail 0=20976
 ruby, $^4\text{A}_2 \rightarrow ^2\text{F}_1$ transition, identification of components 3=3015
 ruby, absorpt., B_1 and B_2 lines Zeeman effect 2=10599
 ruby, absorption 4=15596
 ruby, absorption, ground and excited states 4=15596
 ruby, absorption R lines 4=20468
 ruby, absorption spectrum, theory 4=22885
 ruby, absorption, temp. depend. 0=16061
 ruby, absorption, U and Y bands, analysis 4=20467
 ruby, B and R absorption lines, Zeeman effect 4=4271

Spectra — contd

inorganic solids — contd

- ruby, Cr^{3+} doped, γ -ray effects 4=17607
 ruby, Cr^{3+} line inversion anomalies 2=4158
 ruby, determ. of R. linewidth by laser 4=10188
 ruby, ^2E state linewidth, effect of strains 2=12602
 ruby, effect of configuration mixing and covalency 1=7549
 ruby, effect of pressure 1=12491
 ruby, energy levels and sharp line splittings calc. 4=1747
 ruby, excited absorption, rel. to maser operation 2=8507
 ruby, far-i. r. absorption spectrum, liquid He temperatures 4=4270
 ruby, green band, fine structure meas. by magnetic resonance 4=26218
 ruby, green band, theory 4=26168
 ruby, hemihedral field effects 4=26219
 ruby, impurity zero phonon line broadening 4=30689
 ruby, i. r., and electron dipole transition 4=15457
 ruby, i. r., $300\text{--}3000\text{ cm}^{-1}$ 4=1746
 ruby laser, emission, time-resolved, high-resolution 4=19314
 ruby, piezo-effects, rel. to Cr ions position 2=10578-14669
 ruby, R lines, linewidth and temp. shift 3=15690
 ruby, stimulated emission 0=20988
 ruby, strong field coupling scheme in ionic model 4=28306
 ruby, symmetry 3=13183
 ruby, u.v. absorption 4=20466
 ruby, u.v. absorption spectrum 1=11371
 ruby, vibrational, $2\text{--}200\mu$ 2=21252
 rutile, far i. r. polarized reflection 3=15687
 rutile, i. r. absorption of single crystals 1=14602
 rutile, rel. to vibr. spectrum and elec. props. 2=14359
 rutile X-ray absorption spectrum 1=7720
 sapphire, absorption, induced by neutron and electron irradiation 0=20989
 sapphire, extinction bands, correl. with plasma resonance 0=7876
 sapphire, in far i. r. 1=2438
 sapphire, γ -ray effects 4=17607
 semiconductor crystals, exciton absorption rel. to fine structure, of luminescence and photocond. 2=8400
 semiconductor lattice i. r. absorption bands, shell model applic. 3=10927
 semiconductor surface states, i. r., from frustrated total internal reflections 2=6575
 semiconductors, absorption edge in high mag. field, theory 1=19985
 semiconductors, absorption edge line structure as examination tool 3=2994
 semiconductors, absorption and recombination spectra 1=7635
 semiconductors, absorption rel. to impurity levels 3=10733
 semiconductors, bound electrons or excitons with coupled phonon field 3=10906
 semiconductors, fundamental absorption edge 2=2216
 semiconductors, i. r. absorption 0=1734, 18015
 semiconductors, i. r. absorption by free carriers 2=23525
 semiconductors, i. r., and electron states and phonon spectra 3=15667
 semiconductors, i. r. photon absorption rel. to phonon state density 4=25834
 semiconductors, i. r. region, free-electron theory 0=6163
 semiconductors, intraband transitions absorpt. 4=22831
 semiconductors and ionic cpds., exciton spectra 2=16820-1
 semiconductors, magneto-optical absorption, close trajectory case 1=19955
 semiconductors, optical and nonradiative transitions, temp. depend., calc. 3=23032
 semiconductors, phonon effects in optical absorption 2=14689
 semiconductors, pressure effects on absorption edge 1=7630
 semiconductors, refl., plasma oscill. theory 3=8584
 semiconductors, strongly-doped, interband transitions 4=6937
 semiconductors, surface local electron centres 4=12741
 semiconductors, III-V cpds., absorption rel. to band struct. 2=23560
 semiconductors, III-V cpds., i. r. lattice refl. 2=18844

Spectra—contd

inorganic solids—contd

- semiconductors, u.v. reflectance edges, exciton-induced images of phonon spectra 3=20442
 7 ferroelec. cpds. with short H-bonds, i.r. absorption 0=650
 silica-alumina, i.r. study of surface 3=11313
 silica, fused, effect of γ -irrad. 2=16832
 silica, fused, radiation-induced coloration 0=16073
 silica, irradiated, u.v. absorption 1=7708
 silica, surface hydroxyl groups 1=20691
 silicate crystals and glasses 0=1499
 silicate glass, i.r., 4.2° to 773°K 3=3019
 solicate ion, in garnet structure 0=2941
 spinels, i.r. absorpt. and cation distrib. 3=13184
 stainless steel, heated to 1000°C, spectral emittance 4=14443
 steels, effect of apparent dilution by components on each other 0=8339
 substances transparent in far i.r. 0=10035
 sulphates, 18, i.r., selection rules 4=13059
 sulphide films, absorption edge 4=20810
 sulphide phosphors, absorption in vis. and near u.v. region 0=10037
 sulphur, rhombic, i.r. 1=19990
 superconductors, far i.r. absorption 0=10845
 tetrathionates, and SO₂ vibr. 4=1716
 3d metals, M_n, emission spectra 3=8605
 titanates, oscillation freqn. interpret. 3=25180
 tourmaline, absorption, temp. depend. 0=16061
 transition-element ions, rel. to electronic structure 0=20728
 transition-metal ions in crystals, field splitting, effect of next-nearest neighbour ions 2=16583
 transition metal ions in MgO and Al₂O₃, effect of pressure 1=14589
 trapped species, in solid A, Kr, Xe 0=20661
 uranyl fluorides, u.v. absorpt. 4=10198
 uranyl oxalate, electronic absorption spectrum 4=1756
 uranyl phosphate, electronic absorption spectrum 4=1756
 uranyl phosphate, oxalate, and salicylate, i.r. 1=14599
 vacuum u.v. radiation physics, conference 3=5515
 vanadyl complexes, electronic spectra 4=22801
 X-ray absorption edge, fine structure, review of theories 4=15579
 A, vac. u.v. absorption, at 4.2°K 0=13699
 Ag azide, reflection 4=17493
 Ag films, reflection and transmission rel. to heating 4=1748
 Ag halide, absorpt., fine struct. meas. 4=22890
 Ag halide doped with chalcogen ions and X-irradiated 1=19969
 Ag halides, absorption 0=20871
 Ag halides, absorption, analysis, rel. to exciton structure 1=945
 Ag halides, absorption band positions, impurity ions 0=16049
 Ag halides, absorption edge fine structure 2=8519
 Ag halides, extinction bands, correl. with plasma resonance 0=7876
 Ag halides, mixed, exciton, theory and expt. 2=18839
 Ag halides, Ni²⁺ absorption spectra 3=6654
 Ag halides, with O, S, Se, Te substitutional impurities 3=3022
 Ag halides, photochemically coloured, absorption 1=8985
 AgBr, absorption edge rel. to compression 2=10591
 AgBr, absorption, rel. to impurity doping 2=2228
 AgBr, with divalent impurities, absorption peaks 1=1166
 AgBr—AgCl mixed crystals, absorption tail 3=3020
 AgBr, CdS-doped, meas. and model 3=18006
 AgBr:Ni, effects of irrad. and heat treatment 3=13187
 AgCl, Co²⁺ and Ni²⁺ impurities 3=15487-8
 AgCl, with divalent impurities, absorption 1=5046
 AgCl, reflection, u.v. at 20°K 3=4959
 AgCl, trapping level spectrum, thermal effects 3=8397
 AgCl, u.v. absorpt. 3=329
 AgI, exciton, absorpt. and refl. 3=4975
 AgI films, exciton bands 1=17892
 Al films, i.r. reflectance 2=23537
 Al, oxide anodic films, i.r. absorpt. 4=23566
 AlLaO₃, La³⁺ replaced by Nd³⁺, Al³⁺ by Cr³⁺ 3=15670

Spectra—contd

inorganic solids—contd

- Al₂O₃, α -phase, vibrationa, 2-200 μ 2=21252
 Al₂O₃ films, far i.r. transmission and reflection 2=4153
 Al₂O₃ heated to 1000°C, spectral emittance 4=14443
 Al₂O₃, Ni centres, i.r. 2=16830
 Al₂O₃, ruby, Cr³⁺ line optical spectrum 0=20978
 Al₂O₃, sapphire, colour centre decay, light vs. γ -irradiation and untreated 4=30696
 Al₂O₃—Cr₂O₃ mixtures, optical absorpt. 2=15022
 Al₂O₃—Cr₂O₃, Cr content analysis 2=862
 Al₂O₃—Cr₂O₃, Cr³⁺ coloured crystals, absorption 0=4410
 α -Al₂O₃:Mn²⁺ 2=14712
 Al₂O₃:V, 0.4-1.2 μ 0=20991
 Al(OH)₃, i.r. 1=1171
 Al₂(SO₄)₃.6H₂O, rel. to H₂O molecular vibrations 2=14681
 AlSb, absorption edge, pressure effects, to 140 kbars 1=8986
 AlSb, i.r. lattice bands 2=16838
 AlSb, n-type, absorption, 0.7-38 μ 0=6184
 AlSb—GaSb alloys 0=12079
 AlVO₄ glass, i.r., and structure 4=10626
 Am³⁺ in LaCl₃ 2=2232
 Am³⁺(5f⁶) in LaCl₃ 1=19991
 Ar films, and Xe impurity states, 10°K 4=1721
 Ar, u.v. absorpt., 20°-50°K meas. 3=2998
 As, in Si, absorption 2=23557
 As₂O₃, absorption in Schumann u.v. region 1=17893
 As₂S₃, long-wavelength edge absorption 4=17553
 As₂S₃, reflection, u.v., maxima 4=7109
 As₂S₃—As₂Se₃ glasses, i.r. absorption rel. to composition 2=18845
 As₂Se₃, absorption in films 2=18692
 As₂Se₃-type glasses, far i.r. 3=10930-1
 Au, i.r. absorption 1=3844
 Au (III) tetrahalo complexes, charge transfer spectra 2=4244
 Au—Ni thin films, i.r. absorpt. 3=8580
 B, in Si, compensated, i.r., vibr. absorpt. 4=4274
 B in Si, i.r. absorpt. impurity lines, width and temp. depend. 4=28673
 BaSO₄, AlAsO₄ glass, i.r., and structure 4=10626
 BCl₃, i.r. spectrum 1=7713
 BF₃, i.r., at 83°K 0=2940
 BF₃—B₂O₃, i.r. absorption spectrum 4=22847
 B₂F₄, i.r. spectrum 4=21187
 BN heated to 1000°C, spectral emittance 4=14443
 B₂O₃, glassy, i.r. absorption 1=5346
 B₂O₃, infrared reflection 1=11379
 B₂O₃, vitreous, i.r. spectra, interpretation 4=7112
 BPO₄, AlPO₄ glass, i.r., and structure 4=10626
 BVO₄ glass, i.r., and structure 4=10626
 Ba nitrate, i.r. absorpt. 2=6580
 BaAl₂O₄, i.r. absorption 2=2239
 BaF₂, coloration, rel. to Mollwo relation 3=2837
 BaF₂ doped with Sm²⁺, absorpt. spectrum 4=17582
 BaF₂, Er³⁺ absorption 3=3000
 BaF₂, Yb³⁺ absorption 3=3000
 BaF₂:Ho,Er, absorption of Ho²⁺ and Er²⁺ 4=13038
 BaF₂:Sm²⁺, spectra analysis 2=14717
 BaF₂:Sm²⁺, vibronic, model rel. to transitions away from k = 0 4=13085
 BaN₃, u.v. absorption meas. 3=25450
 Ba (NO₃)₂, i.r., overtone and combination bands, rel. to NO₃⁻ vibrations 4=10163
 BaO films, absorption bands 2=16818
 Ba(OH)₂, octahydrated, i.r. 1=1171
 BaO—TiO₂—P₂O₅, u.v. absorption 0=11773
 BaTiO₃, absorption 2=2224
 BaTiO₃, BaTiO₃(75%)SrTiO₃(30%), i.r., 670-15 cm⁻¹, absorpt. 3=23064
 BaTiO₃, effect of added Co 4=30807
 BaTiO₃, i.r. absorption 2=14682
 BaTiO₃, i.r., rel. to lattice dynamics 2=20918
 BaTiO₃, oscill., 45°-140°C, rel. to dielec. permeability 4=30677
 BaTiO₃, i.r. reflection, 2-1000 μ , 45° to 140°C 4=1722
 Be, K-emission band meas. 3=8605
 BeO, absorption in Schumann u.v. region 1=17893
 Bi, absorption bands in 3-36 μ spectral region 1=5812
 Bi, far i.r., zero-field and magneto-optical studies 1=1147

Spectra—contd

inorganic solids—contd

- Bi, far u.v. absorpt. edge, assignment to d-band transitions 4=15446
 Bi halides, in pressed alkali halide disks 0=8001
 Bi₂O₃, absorption in Schumann u.v. region 1=17893
 Bi₂Te₃, i.r. absorption by free carriers 1=1146
 Br₂ mol. crystals, far i.r., at 77°K 4=20445
 CBr₄, vibration spectra 3=15677
 (CH₃)₄N₂Cr₂O₇, electronic absorpt. spectrum 3=15671
 C₂N₂¹⁶, polycrystalline, i. r. spectrum, intermolecular coupling 4=28211
 CO, i.r. 1=14600
 CO, i.r. 3=1693
 CO, i.r., as solid and in solid matrices 1=14601
 CO, 1-0, 2-0, 3-0 bands 3=17572
 CO, in solid N₂ and Ar, O-2 transition 4=25638
 CO₂ molec. crystals, far i.r. spectra 4=20446
 COS molec. crystals, far i.r. spectra 4=20446
 CS₂, absorption bands 3=17999
 CS₂, i. r., absorption 4=10202
 Ca fluorophosphate, Mn²⁺ absorpt. 3=13168
 Ca halophosphates, colour centres meas. 4=22626
 Ca halophosphate phosphors, excitation and absorption 1=6200
 CaAl₂O₄, i.r. absorption 2=2239
 CaBr₂, impurities, crystals and frozen solutions 4=1733
 CaCO₃, calcite, crystal field effects 0=524
 CaF₂, colouration, rel. to Mollwo relation 3=2837
 CaF₂, coloured monocystals 1=14329
 CaF₂, dispersion meas. in far i.r. 2=8537
 CaF₂ doped with Sm²⁺, absorpt. spectrum 4=17582
 CaF₂, Er²⁺ absorption 3=3000
 CaF₂, i.r. absorption 0=10040
 CaF₂, optical, "piezospectroscopic" effects 2=23559
 CaF₂, pure and doped, coloured by electrons at 2.5 MeV 0=20836-7
 CaF₂, synthetic and natural 0=11759
 CaF₂, Yb³⁺ absorption 0=11938
 CaF₂, Yb²⁺ absorption 3=3000
 CaF₂, Y-doped, coloured by X-rays 3=8593
 CaF₂:Eu³⁺, line luminescence 0=9909
 CaF₂(Eu²⁺), Zeeman and uniaxial stress spectra 3=10943
 CaF₂:Ho, absorption, rel. to impurity ion behaviour 3=8710
 CaF₂:Ho,Er, absorption of Ho²⁺ and Er²⁺ 4=13038
 CaF₂:Nd³⁺ 3=13167
 CaF₂:Sm, rel. to colour centres and laser action 2=12589
 CaF₂:Sm, 200-800 mμ, rel. to radiations effects on Sm³⁺ 2=12597
 CaF₂:Sm²⁺, absorption, Zeeman effect 3=18026
 CaF₂:Sm²⁺, spectra analysis 2=14717
 CaF₂:Sm³⁺, line luminescence 0=9909
 CaF₂:Tm²⁺, energy-level scheme 2=18833
 CaF₂:Tm²⁺, Zeeman effect of 1.116μ line 4=26183
 CaF₂:U³⁺, absorption and emission, 2.1 to 2.5 microns 4=7113
 CaF₂:U⁴⁺, rel. to e. s. r. 2=23870
 CaF₂:Y²⁺(4d¹) 3=15516
 CaF₂:Yb³⁺, absorption, high-resolution study 2=16828
 CaF₂:Zn²⁺Si₂O₆, i.r. absorption spectra 1=14610
 CaI₂, crystalline films 4=2065
 CaI₂, impurities, crystals and frozen solutions 4=1733
 CaMgSi₂O₆, i.r. absorption spectra 1=14610
 CaMoO₄, i.r. reflection, lattice vibr. 4=25841
 CaMoO₄, Tm³⁺ and Ho³⁺, energy transfer from Er³⁺ 4=7180
 CaO, after neutron irradi. 3=13169
 CaO, 14.5 μ-200 mμ absorption meas. 4=7120
 Ca(OH)₂, i.r. 1=1171
 Ca(OH)₂, lattice vib. spectra 4=3973
 CaSO₄·2H₂O, reflection, vibration states 3=23038
 CaTiO₃, i.r. reflection and transmission 4=26184
 CaWO₄, i.r. reflection, lattice vibr. 4=25841
 CaWO₄:Er³⁺ 2=23546
 Cd films, u.v. absorption 3=11318
 CdF₂, free-carrier effects 2=14551
 CdF₂, single crystals, before and after X-irradiation 0=2823
 CdF₂ single crystals, pure and rare-earth doped, 0.2-15 μ 3=3003
 CdF₂:Ce, ²F_{7/2} ← ²F_{5/2} transition of Ce³⁺ 0=13698
 CdF₂:Eu³⁺, rel. to Eu crystal states 2=10588

Spectra—contd

inorganic solids—contd

- CdF₂:Nd, i.r. absorption 0=13698
 CdF₂:Pr, i.r. absorption 0=13698
 Cd_xHg_{1-x}Te solid solution, i.r. absorption, rel. to composition 3=17997
 CdI₂ and CdI₂·PbI₂, absorption in vis. and near u.v. region 0=10037
 CdI₂, crystalline films 4=2065
 CdIn₂Te₄, transmission, 0.75-2.5 μ meas. 4=7121
 CdO films, doped and undoped 3=25359
 CdO, i.r. absorption 0=11752
 CdS(Ag) emission bands 1=19978
 CdS, absorpt. bands, dispersion shift 2=23565
 CdS, absorption edge, press. depend. 0=4408
 CdS, absorption edge, pressure effects, to 140 kbars 1=8986
 CdS, absorption edge shift, field-induced 4=13024
 CdS, absorption edge, temp. depend. 0=10039
 CdS, absorption, at low temps., mechanical working depend 0=18123
 CdS, absorption, 1-24 μ, meas. and theory 4=13025
 CdS, absorption, with polarized light and green-edge emission, rel. to pressure, 77°K 3=931
 CdS, absorption, 20°K 2=23543
 CdS, bound exciton complexes, props. 3=6651
 CdS crystal excitons 3=22689
 CdS crystals at low temp., effect of mechanical treatment 2=6571
 CdS, deformed, absorption bands, position 2=18847
 CdS, dispersion and exciton absorption band 3=18000
 CdS, exciton absorption 2=12596, 14671
 CdS, exciton lines, effect of formation and decay 2=8191
 CdS, exciton spectrum, fine structure and magneto-optical effects 1=7559
 CdS, films, absorption spectrum 1=14588
 CdS, films, absorption spectrum 1=17882
 CdS, fine structure of photoconductivity spectra 0=7955
 CdS, fund. absorption edge, shift by elec. fields 1=17880
 CdS, rel. to field emission spectrum 3=16972
 CdS, i.r. absorption of ion impurities 1=11380
 CdS, i.r. absorption, polarization effects 2=8533
 CdS i.r. emittance rel. to absorption processes, 323° to 473°K 3=10961
 CdS, large crystals, rel. to defects 3=17704
 CdS layers, band in absorption spectrum 1=3837
 CdS, layers, fundamental absorption edge 1=3842
 CdS layers, 0.4-18 μ, impurity effects 3=20469
 CdS, mag. field effect on exciton absorption 1=19971
 CdS, magneto-optic absorption 2=23527
 CdS, multiphonon i.r. absorption 4=7116
 CdS, optical absorption, 4-2°K, and excitons 3=8594
 CdS, optical observation of exciton 4=1441
 CdS, optically active phonon processes 4=17560
 CdS, phonon peaks in i.r. absorption 3=10947
 CdS, polarized reflection, at 4.2 and 77°K, exciton spectrum 0=2943
 CdS, polycrystalline films, reflection, effect of substrate heat-treatment 2=4134
 CdS polycrystals, visible absorption, effect of temp. 2=4132-4
 CdS, reflection, dispersion effect 3=15652
 CdS, reflection peaks near exciton line 4=1705
 CdS, reflection spectrum 0=6185
 CdS, reflection, of wurtzite structure 3=8583
 CdS, review 1=2436
 CdS, sharp lines rel. to bound excitons 3=10630
 CdS, at 20°K and 1750 atm 2=7094
 CdS type crystals, transmission, i.r. 2=21253
 CdS, u.v. refl., polarization effects 4=4279
 CdS, u.v. reflection spectrum 4=26180
 CdS, zincblende-type, absorpt. band edge, thermal depend. 4=17557
 CdS_xCdSe_{1-x} mixed crystals, fine structure 2=6552, 10596
 CdS_xCdSe_{1-x}, 20°K 1=1104
 CdS_xZnS_{1-x} mixed crystals, fine structure 2=6552, 10596
 CdSb, absorption, rel. to band structure 3=10811
 CdSb, absorption, temp. variation 2=4033
 CdSb, i.r. absorption, pleochroism 3=923
 CdSb, i.r. absorption with polarized radiation 2=23415
 CdSb, transmission to beyond 30 μ 2=23373
 CdSe, abs. and reflection, at 77° and 4°K 0=13692

Spectra—contd

inorganic solids—contd

- CdSe, absorption edge, pressure effects, to 140 kbars 1=8986
 CdSe, absorption, exciton structure interpretation 4=20248
 CdSe, doped with Ga, Burstein effect 3=915
 CdSe, exciton line and lattice defects 3=6652
 CdSe, excitons, Zeeman effects rel. to structure 2=10359
 CdSe films 0=18113
 CdSe, reflection and absorption, Zeeman structure 1=17474
 CdSe, reflection, of wurtzite structure 3=8583
 CdSnAs₂, i.r. absorption 1=17723
 CdTe, absorption 2=14679
 CdTe, absorption edge, pressure effects, to 140 kbars 1=8986
 CdTe, absorption, rel. to acceptor states 4=4145
 CdTe, fundamental reflectivity 3=17979
 CdTe, reflection, 20-400 μ , 90°-300°K 1=14578
 CeMg nitrate, far i.r. meas. 4=4254
 CeZn nitrate, far i.r. meas. 4=4254
 Cf³⁺(5f⁹) in LaCl₃ 2=2248
 Cl₂ mol. crystals, far i.r., at 77°K 4=20445
 Cl₂O₇, i.r. absorption 2=16527
 Co-doped oxides 2=4142
 CoBr₂, absorption, crystal-field spectra of d³, d⁷ ions 3=25453
 CoBr₂·6H₂O, low temp. optical absorption 0=16051
 [Co(CN)₆]³⁻ stretching vibrations in KCl and NaCl 2=8516
 CoCl₂, absorption, crystal-field spectra of d³, d⁷ ions 3=25453
 CoCl₂·6H₂O, low temp. optical absorption 0=16051
 CoCl₄²⁻ in crystalline environments 3=20472
 CoF₂, antiferromagnetic resonance in far i.r. 3=15930
 CoF₂, i.r. absorption, effect of antiferromag. ordering 3=15673
 CoFe₈³⁺, in various salts, electron (d-d) absorption, Jahn-Teller effects 1=3831
 [Co(NH₃)₆]Cl₃, absorption, ligand field bands 2=18825
 CoO, optical absorption, above and below Neel temp. 0=1725
 CoO, 200-1000 m μ 0=20977
 Co(II) cpds. 0=4413-14
 Co(III) hexammine salts 2=8514
 CoSO₄·7H₂O, i.r. absorption, 350-4000 cm⁻¹ 4=22880
 CoSO₄·7H₂O, SO₄²⁻ ion bands 2=4155
 CoWO₄, absorption, crystal-field spectra of d³, d⁷ ions 3=25453
 Co²⁺ in KCl crystals, optical absorpt. spectrum, crystalline field theory 4=7128
 Co²⁺ in LiF and KMgF₃ 3=20043
 Co²⁺ salts, i.r. absorption from L.S. splittings 0=1732
 Co²⁺ in sulphate media 2=17463
 Co²⁺ in tetrahedral sites in crystals 2=14673
 Cr cpds., X-ray emission, chemical-bond effects 3=23086
 Cr ions in crystals, fine lines 2=4141
 Cr, transmission in vac. u.v. plasma freq. and M₂, band 0=20981
 Cr²⁺, in chloride and sulphate hydrates 3=23066
 Cr(III) complexes in rigid glass, meas. 4=22920
 Cr³⁺, in crystals and glasses, absorption bands 0=10041
 Cr³⁺ ions in crystals, molecular orbital theory 3=13163
 Cr³⁺, in ruby 0=20979
 CrBr₃, absorption, rel. to mag. props. 3=15656
 Cr in K₃CrO₈ and K₃NbO₈-K₃CrO₈ 3=3166
 Cr₂O₃, Cr³⁺ lines, exchange splitting 3=15672
 CrO₂, vibrational spectrum 4=10169
 CrO₃, vibrational spectrum 4=10169
 Cr₂O₃ and ruby, comparison of crystal fields 3=15675
 Cr₂O₃, solid soln. in In₂O₃ 2=21248
 Cr₂O₃, vibrational spectrum 4=10169
 Cr₂(SO₄)₃·nH₂O, i.r. absorption, hydration study 1=17897
 CsBr, colloid absorpt. band at 1050 m μ 3=25451
 CsBr, dispersion meas. in far i.r. 2=8537
 CsBr, F-band structure 0=7894
 Cs₂CoCl₆, no i.r. absorption from L.S. splittings 0=1732
 CsF, absorption, after X-irradiation, 295, 80, 18°K 3=15676
 CsF, F band peak energy calc. 4=30586
 CsF, i.r. lattice refl., Kramers-Kronig analysis 4=1737
 CsI 2=2249

Spectra—contd

inorganic solids—contd

- CsI, first exciton peak, oscillator strength 2=12601
 CsI, Raman spectra 4=1725
 CsI, u.v. absorpt. 3=13179
 CsI: Tl phosphors, emission and absorpt. spectra, rel. to press. 4=28699
 Cs-Sb layers 0=11709
 Cs₂Sb, absorption, analogy with photoelectron energy d.scrib. 0=1544
 Cu halide films, absorption 2=23563
 Cu halides, exciton, low-temp. 3=10934
 Cu oxide, 2nd exciton absorption band 1=943
 Cu²⁺ in tetrahedral sites in crystals 2=14673
 Cu-Ag-Au alloys, reflection, rel. to plastic deformation 4=1719
 Cu-Bi, reflectance 1=8981
 CuBr, absorption edge, pressure effects, to 140 kbars 1=8986
 CuBr, exciton, absorpt. and refl. 3=4975
 CuBr, reflection, 77°K 0=16047
 CuCl, absorption edge, pressure effects, to 140 kbars 1=8986
 CuCl, absorption, fine structure, temp. depend. 2=8527
 CuCl, absorption and reflection 3=15678
 CuCl, exciton, absorpt. and refl. 3=4975
 CuCl, exciton spectrum, elec. field effects 3=8405
 CuCl, at 4.2°K 0=11761
 CuCl, new absorption lines 3=25456
 CuCl, reflection, 77°K 0=16047
 CuCl₂²⁻, electronic absorption spectrum 4=28682
 Cu-Ge alloys, absorption below 6000 Å at 4.2°K, rel. to rigid band model 1=1156
 Cu₂GeO₆, i.r. absorption spectra 1=14610
 CuI, absorption edge, pressure effects, to 140 kbars 1=8986
 CuI, absorption spectra, at low temps. 0=21000
 CuI, exciton, absorpt. and refl. 3=4975
 CuI, exciton lines, crystallite size effects 4=26187
 CuI, exciton, rel. to crystal size 4=4245
 CuI films, exciton absorpt. bands, 82°K 3=20473
 CuI, reflection, 77°K 0=16047
 CuO, light blue and blue regions, absorption 3=4971
 Cu₂O, absorption 3=10936
 Cu₂O, absorption curve and optical transitions 2=23553
 Cu₂O, absorption, effect of γ -irradiation 1=1157
 Cu₂O, absorption and reflection spectra 1=19966
 Cu₂O, absorption, rel. to electron energy structure 1=19986
 Cu₂O, absorption, rel. to exciton states 3=10631
 Cu₂O absorption, low-temp. photometric study 3=4972
 Cu₂O, absorption at 30-250 μ , 4 and 300°K 4=7125
 Cu₂O, Ag-doped, yellow and green exciton series 4=22855
 Cu₂O, blue exciton reflection, rel. to energy band structure 3=15650
 Cu₂O, copper-coloured, absorption spectrum 0=18125
 Cu₂O crystal excitons 3=22689
 Cu₂O, exciton absorption, neutron and γ -irrad. effects 4=1727
 Cu₂O, exciton absorption, quadrupole excitation 0=11762
 Cu₂O, exciton, class 1 and 2, low-temp. quantitative 3=10935
 Cu₂O, exciton-phonon absorption 2=10581, 14659
 Cu₂O, exciton reflection spectrum 2=12582, 14654
 Cu₂O, exciton scattering 3=17690
 Cu₂O, exciton spectra, theory 3=3004
 Cu₂O, exciton transitions, Zeeman effect 2=684
 Cu₂O, exciton yellow line, Zeeman effect 4=22854
 Cu₂O, excitonic, absorption, rel. to internal and external fields 2=12599
 Cu₂O, films 0=20982
 Cu₂O, fund. absorption edges and exciton lines, splitting on compression 1=3829
 Cu₂O, fundamental absorption edge, unidirectional compression effects 1=12496
 Cu₂O, green series at low temp. 1=14590
 Cu₂O, i.r. absorption, 8-24 μ 1=5049
 Cu₂O, i.r. absorption, energy band structure 1=6205
 Cu₂O, i.r. absorption, energy band structure 1=2446
 Cu₂O, i.r. absorption, rel. to lattice vibrations 3=22735
 Cu₂O, i.r. transmission and refl. 4=1726

Spectra—contd

inorganic solids—contd

- Cu_2O , long-wave absorption, "piezospectroscopic" effects 2=23559
 Cu_2O , polaron-produced absorption 0=644
 Cu_2O , structural longest-wavelength line, props. 1=3838
 Cu_2O , red, yellow continua 2=4145
 Cu_2O , reflection and absorpt. at low temps., anomalies 2=8494
 Cu_2O at 20°K, rel. to deformation 1=11365
 Cu_2O , two new feeble lines at 4.2°K 3=20474
 Cu_2O , visible, at -180°C 1=5051
 Cu_2O , visible absorption, surface treatment effects 0=1679
 Cu_2O , visible absorption, temp. depend. 0=643
 Cu_2O , yellow exciton absorption, effect of deformation 2=21245
 Cu_2O , yellow exciton absorption, effect of deformation 3=3005
 Cu_2O , yellow exciton series, effect of Ag impurities 3=932
 Cu_2O , yellow series, $n = 1$ line, oscillator strength 3=23068
 Cu_2O yellow series, spectrophotometric study at low temp. 2=697
 $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$, i.r. absorption bands due to SO_4 4=4255
 $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ and $\text{CuSO}_4 \cdot \text{H}_2\text{O}$, SO_4^{2-} absorption bands 1=17895
Cu X-ray absorption spectrum 1=7720
Cu—Zn alloys, containing Al, Sn, Mn or Pb 0=1488
DBr molecular crystals, far i.r., at 77°K 4=20444
DCl molecular crystals, far i.r., at 77°K 4=20444
Dy chloride and nitrate, absorption, 58 and 4.2°K 0=16054
Dy salts, i.r. 2=4156
DyCl₃, hexagonal 1=19974
Er chloride, u.v. absorpt., Er^{3+} ion energy levels 2=14680
Er ethyl sulphate, u.v. absorpt., Er^{3+} ion energy levels 2=14680
Er ferrite, absorption, (15400 cm^{-1}), 4°-293°K 1=10100
Er ferrite garnet, absorption, near i.r. 3=20475
Er, visible, rel. to 4f shell transitions 3=13182
 Er^{3+} 0=6179
 Er^{3+} in YGa garnet, rel. to crystal potential 3=13172
 Er^{3+} in CaF_2 matrix, absorpt. and emission 4=20454
 Er^{3+} in crystalline salts 1=10099
 Er^{3+} in LaCl_3 , orbital calc. 4=4259
 Er^{3+} in LaF_3 , u.v. absorption 4=28684
 Er^{3+} in Y_2O_3 , single crystals, absorpt. spectrum 4=22856
 ErCl_3 , absorption 2=14678
 ErCl_3 1=12493
 $\text{ErCl}_3 \cdot 6\text{H}_2\text{O}$, spectra and Zeeman effect at low temps. 1=1165
 $(\text{Er}, \text{Gd})_2\text{O}_3$, visible, term analysis, 20°K and 90°K 2=10606
 $(\text{Er}, \text{La})_2\text{O}_3$, visible, term analysis, at 20°K 2=10605
 $\text{Er}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O}$, spectra and Zeeman effect at low temps. 1=1165
 $(\text{Er}, \text{Y})_2\text{O}_3$, rel. to Er ions interact. 3=10565
 $(\text{Er}, \text{Y})_2\text{O}_3$, visible, term analysis, 20° and 90°K 2=10606
Eu (trivalent) salts, u.v. absorption 3=10944
 Eu^{2+} in alkali halides, absorpt. and fluoresc. 4=15611
 Eu^{3+} in silicate glasses, and Eu—O interaction 4=10174
 Eu^{2+} and Gd^{3+} in CaF_2 0=18126
 Eu^{3+} in LaCl_3 3=15683
 $\text{EuCl}_3 \cdot 6\text{H}_2\text{O}$, absorption, $^7\text{F}_0 - ^5\text{D}_0$ transition 4=7130
F'-centre absorption, polaron theory 1=14581
F, cryst. at 4°K, absorpt. and fluoresc. 2=18826
Fe oxide glasses, absorption 4=2137
 Fe^{2+} in cubic fields, theory and expts. 0=10228-9
 Fe^{2+} in cubic crystal field, optical spectrum and ground-state splitting 4=20463
 FeAl_2O_4 — MgAl_2O_4 mixed crystals 4=20514
 $\text{Fe}(\text{CO})_5$, far i.r. spectrum 4=26201
 Fe_2O_3 , α -phase, vibrational, 2-200 μ 22=21252
 Fe_2O_3 , absorption, at low-temp. transition 4=4510
 $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$, SO_4^{2-} ion bands 2=4155
 FeSiF_6 , low-temp., rel. to Jahn-Teller effect 2=8522
Ga, oxide anodic films, i.r. absorpt. 4=23566
GaAs, absorpt. edge, var. with compensation, meas. 4=30681
GaAs, absorption 2=14679
GaAs, absorption edge rel. to electric field 1=17729
GaAs, absorption edge, press. depend. 0=4408

Spectra—contd

inorganic solids—contd

- GaAs, absorption edge rel. to temp. 1=19970
GaAs, absorpt. and recombination spectrum, with view to laser prod. 4=28688
GaAs, emission line narrowing, rel. to exciton binding 3=15659
GaAs, films, absorption 1=20668
GaAs, n and p-type, i.r. absorption edge 4=10175
GaAs, n-type, transmission rel. to irradiation and annealing 2=23387
GaAs, phonon peaks in i.r. absorption 3=10947
GaAs, recombination, effect of doping 3=20476
GaAs, recombination radiations, 77-300°K, diode 3=17990
GaAs, reflection, 2 to 5 eV 3=925
GaAs, reflectance, for 1.5-25 eV photons 3=8584
GaAs, semiconducting diodes, 2·1°K, donor-acceptor absorpt. 3=25458
GaAs, 30-40 μ , lattice absorption bands 1=6212
GaAs—InAs alloy, visible and u.v. reflectivity spectra 4=26190
GaAs, P_{1-x} diodes, emission from junctions 4=7183
GaP, absorption edge, press. depend. 0=4408
GaP, absorption, fine structure 2=10600
GaP, and crystal excitons, bound, 77, 4°K 4=154 62
GaP, effect of high press., rel. to band structure 4=20243
GaP, 8 to 12 μ absorption, rel. to 3-phonon combination bands 3=20085
GaP, emission and absorption near band edge 3=10949
GaP, lines due to excitons bound to defects 3=25253
GaP, 1-4 μ absorption band, origin 0=16055
GaP, p-type, absorption measurements 0=20916
GaP, reflectance, for 1.5-25 eV photons 3=8584
GaP—GaAs, i.r. absorpt., p,n-type material 3=20477-8
GaS absorption, 4° to 300°K, rel. to photon energy 3=10950
GaS, GaSe single crystals, absorption edges, temp. var. 4=28687
GaS i.r., rel. to phonon processes and selection rules 4=28357
GaSb, absorption 2=14679
GaSb, absorption edge, press. depend. 0=4408
GaSb, absorption edge, pressure effects, to 140 kbars 1=8986
GaSb, i.r., effect of carriers 1=17733
GaSb, recombination emission, rel. to exciton and impurity absorption and emission 3=10948
GaSb, reflection, 2 to 5 eV 3=925
GaSb—InSb alloys, i.r. absorption, temp. depend. of optical energy gap 1=18996
GaSb—InSb alloy, visible and u.v. reflectivity spectra 4=26190
GaSe absorption, 4° to 300°K, rel. to photon energy 3=10950
GaSe, films, oriented, exciton, absorpt. reflect., emission 4=1730
GaTe absorption, 4° to 300°K, rel. to photon energy 3=10950
GaTe, optical absorption edge, rel. to temp. 3=3007
 Gd^{3+} in Gd salts rel. to spin-orbit interaction 2=12593
Ge, absorption edge broadening 3=10951
Ge, absorption at $\lambda = 1.3-13 \mu$, temp. depend. 2=10607
Ge, absorption near fund. edge 3=10954
Ge, absorption 1-10 eV 0=8005
Ge, As-doped, heavily, emission and absorption 2=23561
Ge, with As and P donors, (1s \rightarrow np) absorption-band shift and splitting 2=23327
Ge containing O, i.r. absorpt. band, dominant, stress-induced dichroism 4=28485
Ge, direct energy gap, pressure depend. 1=17447
Ge, with dissolved O_2 , 11.7 μ absorption 1=3662
Ge, electron irradiated, i.r. emission, radiative recomb. 0=20984
Ge, effect of phonons 2=14689
Ge, far-i.r., 7.5°K meas 4=26197
Ge, films, absorption and reflection spectra 1=17872
Ge films, 12-60 $\text{m}\mu$, absorption, from 0.4-0.7 μ 3=10953
Ge, free-electron i.r. absorption, 77° to 373°K 3=10925
Ge, frustrated total internal reflection, surface levels 3=2989
Ge, frustrated total internal reflection, surface study 0=10030
Ge, Group V impurities, ground-state splittings, optical meas. 4=28337

Spectra—contd

inorganic solids—contd

- Ge, heavily doped, absorpt., energy depend. 4=26198
 Ge, heavily-doped, intrinsic absorption edge 4=26192
 Ge, i.r. absorption, due to minority carriers 0=1733
 Ge, i.r. absorption edge, fine structure 1=6210
 Ge, i.r. absorption, high doping effect 3=15679
 Ge, i.r. absorption, studies of Cu acceptor levels 1=1057
 Ge, i.r. anisotropic absorption, rel. to hot-carrier distribution function 4=4157
 Ge, i.r., due to recombination of excess carriers 0=591
 Ge, i.r. emission 1=17899
 Ge i.r. emittance rel. to absorption processes, 323° to 473°K 3=10961
 Ge, i.r., interpretation 1=1169
 Ge, n and p doped, i.r. absorption 3=935
 Ge, n-type, heavily doped, i.r. absorption 2=8534
 Ge, n-type, impurity scatt., calc. 1=3826
 Ge, optical radiation from breakdown avalanches 1=17694-5
 Ge, oxygen-defect complexes, irradiation effects 4=6830
 Ge, reflectance, for 1.5-25 eV photons 3=8584
 Ge, reverse biased p-n junction, visible light from 0=2875
 Ge, two-phonon indirect-transitions 2=23350
 GeCl₄, Raman, using coupled prism-monochromator—recording interferometer 0=16842
 Ge:Cu, i.r. absorption, at low temp. 0=18124
 Ge:Fe, i.r. absorption 2=18848
 Ge₂H₆ and Ge₂D₆ 3=2627
 GeO₂, fluorescence 1=9005
 GeO₂, oxygen diffusion 0=7900
 GeS, absorption 2=21244
 GeS, absorption 3=2990
 GeS₂, absorption 2=21244
 GeS₂, absorption 3=2990
 Ge—Si(0-34%) alloys, reflection, 2 to 5 eV 3=925
 Ge—Si alloys, rel. to band structure 2=2215
 Ge—Si alloys, i.r. lattice absorption 2=23571
 Ge:Zn, i.r. absorption, at low temp. 0=18124
 Ge—ZnS films, i.r. transmission curves 3=10952
 H, i.r. absorption, h.f.s. 2=23575
 H, i.r. fundamental band 0=4196
 H, i.r. spectrum Q-branch, theory 4=20459
 H, rotation—vibration absorption line 1=14605
 H, solid, phonon branches of i.r. spectrum 2=6576
 H₂ in Ar, induced fundamental band 4=3855
 HBr, absolute i.r. intensities 3=25460
 HBr, cryst., far i.r. at 77°K 3=938
 HBr molecular crystals, far i.r., at 77°K 4=20444
 HCl, absolute i.r. intensities 3=25460
 HCl, cryst., far i.r. at 77°K 3=938
 HCl crystal, overtone frequency and double excitation 4=7136
 HCl molecular crystals, far i.r., at 77°K 4=20444
 HF-DF mixed crystals, i.r. 4=7137
 HN₃, irradiated 0=4727
 H₂O₂, i.r. 1=3843
 H₂O, vac. u.v. absorption 0=13696
 H₃PO₂, D₃PO₂, and their salts, i.r. spectra 4=22870
 Hg halides, absorption edge, press. depend. 0=4407
 Hg halides, exciton, low-temp. 3=10934
 Hg halides, in pressed alkali halide disks 0=8001
 Hg₂Cl₂ 1=9925
 Hg(CN)₂ crystals, vibration spectra 4=22876
 HgI₂, absorption edge, rel. to luminescent edge 1=17906
 HgI₂, absorption, rel. to exciton excitation 2=23587
 HgI₂, absorption, intensity and structure 2=18836
 HgI₂ crystal excitons 3=22689
 HgI₂, exciton lines, effect of formation and decay 2=8191
 HgI₂, red, absorption and reflection 2=6565
 HgI₂, spectra, absorpt., emission, reflection, 4-290°K, various forms 3=25462
 HgS 4=7142
 α-HgS, absorption edge, effect of elec. field 2=23405
 α-HgS, absorption edge, effect of elec. field 3=6600
 HgS, black, i.r. absorption edge 2=18840
 HgS, reflection spectrum 2=12583, 14655
 HgSe, absorption 2=14679
 HgSe, reflectivity, 4-12 eV meas. 4=10180
 HgTe, absorption 2=14679
 HgTe, fundamental reflectivity 3=17979

Spectra—contd

inorganic solids—contd

- HgTe, reflectivity, 4-12 eV meas. 4=10180
 HgTe—CdTe, absorption and refl. near fundamental edge 4=13048
 Ho ethyl sulphate, due to $^5I_8 \rightarrow ^5I_6$ and $^5I_8 \rightarrow ^5I_4$ transitions 2=12605
 Ho garnet ferrites, i.r. absorption 2=685
 Ho(C₂H₃SO₄)·9H₂O, absorption, nuclear h.f.s., Ho³⁺ transitions 1=1158
 HoFe garnet, far i.r. absorption 3=15680
 I crystals, absorption edge, temp. shift 3=6653
 I₂ mol. crystals, far i.r., at 77°K 4=20445
 In, far u.v. absorpt. edge, assignment to d-band transitions 4=15446
 InAs, absorption 2=14679
 InAs, absorption edge, pressure effects, to 140 kbars 1=8986
 InAs, absorpt. and recombination spectrum, with view to laser prod. 4=28688
 InAs, i.r. absorption mechanism 2=23573
 InAs, n-type, near fundamental edge, rel. to impurities 1=12487
 InAs, reflectance, for 1.5-25 eV photons 3=8584
 InAs, reflection, 2 to 5 eV 3=925
 (In, Ga)As, energy band gap 0=2897
 InP, absorption edge, pressure effects, to 140 kbars 1=8986
 InSb, absorpt. and recombination spectrum, with view to laser prod. 4=28688
 InSb, absorption 1=1159
 InSb, absorption 2=14679
 InSb, absorption, 5-10 μ, at 78 and 298°K 0=1727
 InSb, carrier-recombination radiation 2=643
 InSb, carrier-recombination radiation 3=4924
 InSb, magneto-absorption 3=10924
 InSb, n-type, absorption bands, 15 to 130 μ, 4.2° to 90°K 2=23572
 InSb, oscillatory magnetoabsorption 1=17900
 InSb, reflectance, for 1.5-25 eV photons 3=8584
 InSb, reflection 2 to 5 eV 3=925
 InSb, review 1=6158
 InSb—GaSb 0=611
 InSb—GaSb, i.r. absorption, composition depend. 0=1726
 In₂Se, self-absorption edge meas. 4=7138
 In₂Te₃, with defect structure, absorption 2=23399
 K azide, coloured by u.v. and X-irradiation 0=8008
 K azide cryst., i.r. 3=18004
 K dihydrogen phosphate, continuous-wave optical harmonics 4=8366
 K dihydrogen phosphate, relaxation in extreme i.r. 3=17942
 K ferrocyanide, far i.r. 1=14598
 K halides, doped with O, S, Se, Te, absorpt. 3=2999
 K halides, F- and M-centre processes, photochemical 4=10003
 K halides, F-centres, short-wave absorption 0=17965
 K halides, with O complexes, absorption spectrum, photochem. 0=8009
 K halides, reflectance, rel. to exciton processes 3=25433
 K halides, Tl-doped, F-band absorption 0=16065
 K manganicyanide, polarized i.r. absorption 1=3846
 K pentaborates, absorption spectra 0=6360
 KAlO₂, i.r. absorption 2=2239
 KBr, absorpt. bands due to anionic impurities 3=25464
 KBr, absorption coeff. at F-band maximum, rel. to Pb impurity content 4=6895
 KBr, absorption, after electron probe irradiation 3=8460
 KBr, absorption by O₂⁻ impurities 1=11363
 KBr, coloration near fundamental edge 3=15517
 KBr, colour centres, photochemically produced 1=7601
 KBr, Br₂⁻ absorption spectra rel. to photoconductivity 2=8425
 KBr, F- and M-band absorption after neutron irradiation 1=12468
 KBr, i.r. absorption, anionic impurities, temp. depend. 0=6177
 KBr, V-centre bands in crystals containing Ca, Sr, Ba ions 0=6051
 KBr, vacuum u.v., α and β absorpt. bands 3=8590
 KBr, X-ray irradiation at 10°K, colour centre absorption 0=9910

Spectra—contd

inorganic solids—contd

- KBr:In, absorption, effect of X-rays 0=10065
 KBr:KH, anion vacancies, effect of interstitials 4=7149
 KBr, OH⁻ ion impurity u.v. bands 4=4266
 KBr with OH⁻ and SO₄²⁻ ions, new absorption bands 2=19161
 KBr:Ti, rel. to Ti⁺, to diffusion constant 2=3946
 KBr:Ti, X-ray irradi., at low temp. 0=1596
 KBr,U-centres, i.r. absorption meas. 4=1531
 KBr, Z₂ centres, absorption peaks rel. to Ca, Sr, Ba doping 4=28501
 KCl, absorption, assoc. with F-centre 2=12600
 KCl, absorption, effect of OH⁻ ions 3=18005
 KCl, absorption by O₂⁻ impurities 1=11363
 KCl, absorption spectra, rel. to M-centres 2=18619
 KCl, colloid centres, absorption 0=11634
 KCl, coloration near fundamental edge 3=15517
 KCl, colour centres, photochemically produced 1=7601
 KCl, electron excess centres, rel. to bleaching and annealing 1=14330
 KCl, F-centre and Ti⁺, absorption band shape 4=12809
 KCl, fundamental absorption tail, rel. to temp. and Br content 2=8517
 KCl, i.r. absorption, anionic impurities, temp. depend. 0=6177
 KCl, Harshaw, gamma ray effect vars. in different samples 4=1525
 KCl, "OH" absorption rel. to O₂ and water vapour 2=18834
 KCl, U-centres, i.r. absorption meas. 4=1531
 KCl, u.v. absorpt. 3=13179
 KCl, V-centre bands in crystals containing Ca, Sr, Ba ions 0=6051
 KCl, vacuum u.v., α and β absorpt. bands 3=8590
 KCl, vibration of SO₄²⁻ impurity 1=12497
 KCl, X-irradiated, 420 m μ absorption 0=558
 KCl, X-ray irradi., α and β bands 0=16064
 KCl, X-ray irradi. at 10°K, colour centre absorption 0=9910
 KCl, X-rayed, u.v. absorption 3=3013
 KCl, Z₂ centres, absorption peaks rel. to Ca, Sr, Ba doping 4=28501
 KCl: Ag, X-irradi., trapped holes and electrons 3=5044
 KCl: Br crystals, absorption band 1=10105
 KCl:Ca, X- and γ -irradi. 0=2938
 KCl:Co, and coord. of Co 4=26186
 KCl:I single crystals, u.v. absorption bands 1=10104
 KCl: In, (:Sn) absorption, temp. var. In⁺ conc, dipole strength effect, meas. 4=28698
 KCl and KBr, i.r. absorption line intensity rel. to impurity vibrations 90° to 300°K 4=10183
 KCl-KBr mixed system, u.v. absorption 1=8989
 KCl-KI crystals, fund. absorption edge 2=2230
 KCl:LiCl, absorption 2=10602
 KCl-NaCl, colloidal band absorption 3=930
 KCl-NaCl, exciton absorption rel. to composition 4=4267
 KCl-NaCl, mixed crystals, 420 m μ absorption 0=558
 KCl-NaCl, mixed crystals, X-irradiated, F-band position 0=557
 KCl with OH⁻ and SO₄²⁻ ions, new absorption bands 2=19161
 KCl:Pb, absorption, effect of annealing, at 600°C 0=20990
 KCl, with Pb impurities 1=4983
 KCl-RbCl, exciton absorption rel. to composition 4=4267
 KCl:Ti, absorption up to 560°C, rel. to Ti conc. 0=13709
 KCl:Ti, far u.v. absorption 1=1181
 KCl:Ti, interpretation by configuration coordinate model 0=6033
 KCl:Ti, u.v. absorption and excitation 1=12494
 KCl: Ti, KCl: Pb phosphors, emission and absorpt. spectra, rel. to press. 4=28699
 K₃Co(CN)₆ 2=8530
 K₃Co(CN)₆, i.r. spectrum 4=25842
 KCoF₃, absorption, crystal-field spectra of d³, d⁴ ions 3=25453
 K(Cr, Al) alums, visible absorption 1=7710
 K₂Cr₂O₇, electronic absorpt. spectrum 3=15671
 K₂CrO₆, diffuse reflectance spectrum and its dil. in CaF₂ 4=12566
 KCr(SO₄)₂.12H₂O, Cr³⁺ coloured crystals, absorption 0=4410
 K[Cu(CN)₂], i.r. absorpt. spectrum 4=26212
 KF, i.r. lattice refl., Kramers-Kronig analysis 4=1737
 K₃Fe(CN)₆ 1=11368
 K₃Fe(CN)₆, absorption, 20-28 kK, rel. to temp. 3=3011

Spectra—contd

inorganic solids—contd

- K₄Fe(CN)₆.3H₂O ferroelectric 1=20274
 KH₂PO₄, far i.r. polarized reflection 3=15687
 K₂HgI₄, K₂HgI₃.H₂O, powder diffuse reflectance, u.v. 3=23557
 KI 2=21083
 KI diluted in KCl, u.v. absorption 2=8524
 KI, exciton band, extinction coeff. 0=2811
 KI, F-centres, optical aggregation 0=1597
 KI, first exciton peak, oscillator strength 2=12601
 KI, i.r. absorption, anionic impurities, temp. depend. 0=6177
 KI, u.v., two-quantum absorpt. 4=7151
 KIO₃, powder, diffuse reflectance, u.v., for chemical analysis 3=23557
 KI:Ti, absorption and emission 0=20997
 KI:Ti, i.r. absorption, γ -irradi. effects 3=25449
 KI:Ti, X-ray irradi., at low temp. 0=1596
 K₃IrCl₆ 3=4973
 K₃Ir(CN)₆, i.r. spectrum 4=25842
 KMgF₂ Ni²⁺, 300°-4.2°K meas. 3=12892
 KMnO₄ and K₂CrO₄, pressure shift 1=11369
 KNO₃, bands due to X and γ -irradi. 2=18832
 KNiF₃, antiferromagnetic resonance in far i.r. 3=15930
 KNiF₃, molec. orbital analysis 3=933
 KNiF₃, 300°-4.2°K, covalency effects 3=12892
 KOH 0=20987
 KOH and monohydrate, i.r. 1=1171
 KOH, KOD, near i.r. absorption 0=1736
 K₂O.3Al₂O₃.6SiO₂.2H₂O, muscovite, absorption rel. to added KBr 3=10958
 KReO₄, i.r. spectrum 4=26213
 K₂ReCl₆ 1=8988
 K₃Rh(CN)₆, i.r. spectrum 4=25842
 K₂Sb, absorption, analogy with photoelectron energy distrib. 0=1544
 KTeO₄, i.r. spectrum 4=26213
 Kr, u.v. absorpt., 20°-50°K meas. 3=2998
 Kr, vac. u.v. absorption at 4.2°K 0=13699
 LaBr₃, Pr³⁺ absorption spectra 2=10595
 LaCl₃, i.r. -active lattice-vibr. modes 4=12614
 LaCl₃, Ho³⁺ absorption 2600 to 12 000 Å 4=30685
 LaCl₃ and LaBr₃, lattice vibrations 4=20195
 LaCl₃, Nd³⁺ spectrum, erratum 4=17572
 LaF₃, i.r. spectrum 1=22478
 LaF₃:Er³⁺, 3500-10 000 Å 3=25457
 LaF₃, Nd³⁺ doped, hidden selection rule 3=20481
 LaF₃: Pr³⁺, 4=30686
 LaF₃:Pr, absorption 3=23072
 Li halide monomers and dimers in inert matrices 4=25652
 Li, K-emission bands meas. 3=8605
 LiAlO₂, i.r. absorption 2=2239
 LiBr, i.r. lattice refl., Kramers-Kronig analysis 4=1737
 LiCl, F-centre absorption 1=995
 LiCl, i.r. lattice refl., Kramers-Kronig analysis 4=1737
 LiCrGeO₄, i.r. absorpt. 3=13175
 LiD, i.r. absorption, 12.5-25 μ 0=18127
 LiF, absorpt. and reflection 1=19941
 LiF, absorpt., sharp lines due to X-irradi., 3=23073
 LiF, absorption, after electron pulse irradi. 3=8460
 LiF, absorption bands, rel. to n-irradi. 4=28694
 LiF, coloured, absorpt. at 20°K 4=28695
 LiF, coloured, i.r. absorption, phonon-free transitions 4=17573
 LiF crystals, optical bleaching of R-bands 1=10102
 LiF, extreme u.v. absorption 2=8523
 LiF, extreme u.v. absorption, rel. to exciton interaction 3=10955
 LiF, extreme u.v., reflection, 1300-500 Å 2=6573
 LiF, F band, isotope effects meas. 4=22633
 LiF, fundamental absorption 1=14585
 LiF, γ -irradi., F and M-centres 3=25300
 LiF, rel. to growth from melt 2=14949
 LiF:hexavalent U, piezo-effect 3=8619
 LiF, in i.r. 0=6182
 LiF, i.r. absorption, γ -irradi. effects 3=25449
 LiF, i.r. absorption at longit. optic freqn. 3=15663
 LiH, i.r. absorption, 12.5-25 μ 0=18127
 LiF, i.r. reflection, temp. var., and lattice dispersion theory 4=30684
 LiF, line luminescence 0=9909

Spectra—contd

inorganic solids—contd

- LiF, 1100 to 6000 Å, 80° to 673°K 4=1738
 LiF, optical, "piezospectroscopic" effects 2=23559
 LiF, reflection, in extreme u.v., rel. to electron states 2=4123
 LiF, transmittance, vac. u.v., rel. to crystal surface 3=15682
 LiF, u.v. reflection and absorption 1=14591
 LiF, vacuum u.v., absorpt. and refl. 3=8596
 LiF, vacuum u.v. incremental absorption, rel. to X-irrad. 3=13145
 LiF, rel. to vibr. spectrum 2=14373
 LiF: Co, absorption, X-irrad. and non-irrad. 3=8598
 LiF:U, 230-450 mμ absorption, U conc. depend. 1=14632
 Li₂GeO₃, i.r. absorption spectra 1=14610
 LiH, u.v. absorpt. 3=13179
 LiH₃(SeO₃)₂, absorption, 55 to 170 cm⁻¹ 4=28668
 LiI, first exciton peak, oscillator strength 2=12601
 LiI, u.v. absorption, change on melting 0=10038
 LiNO₃, i.r. absorption 0=6926
 LiOD, i.r. absorpt., interpretation 3=13176-7
 LiOD, i.r. absorption 2=14685
 LiOH films i.r. absorption, 75 to 650 cm⁻¹ region 4=13043
 LiOH, i.r. absorpt., interpretation 3=13176-7
 LiOH, i.r. absorption 2=14685
 LiOH, i.r. absorption, polarized 0=1735
 LiOH, and monohydrate, i.r. 1=1171
 LiOH, LiOD, near i.r. absorption 0=1736
 LiOH, LiOD and LiOH. LiOD, single crystals, i.r. 1=6214
 Li₂(Si, Ge)O₃ mixtures, i.r., vibr. analysis 3=10579
 Li₂SiO₃, i.r. absorption spectra 1=14610
 Mg, far u.v. absorption 3=10956
 Mg fluorogermanate, absorption 1=9006
 Mg fluorogermanate, Mn⁴⁺ centre absorption 0=16087
 Mg radical in solid inert-gas matrix, absorption 1=17269
 MgF₂, X-irrad., absorpt. bands 4=17575
 (Mg,Fe)₂Si₂O₈, i.r. absorption spectra 1=14610
 Mg₂Ge, i.r. reflection 3=15653
 Mg—Nd double nitrate, reflection 3=23063
 MgO, absorption bands, rel. to point defects 3=22717
 MgO, Fe²⁺ and Fe³⁺ absorption in 0=10229
 MgO heated to 1000°C, spectral emittance 4=14443
 MgO, i.r. absorption edge 1=8991
 MgO, i.r. absorption, rel. to lattice vibrations 2=6254
 MgO i.r., reflection, temp. var., and lattice dispersion theory 4=30683
 Mg(OH)₂, i.r. 1=1171
 Mg(OH)₂, lattice vib. spectra 4=3973
 MgSO₄·7H₂O, i.r. absorption, 350-4000 cm⁻¹ 4=22880
 MgSO₄·7H₂O, SO₄²⁻ ion bands 2=4155
 Mg₂Sb₂, 248-800 μ 2=2213
 Mg₂Si, i.r. reflection 3=15653
 Mg₂Sn, i.r. absorption in n and p-type 4=10179
 Mg₂Sn, i.r. reflection 3=15653
 Mg₂Sn_{1-x}Pb_x, absorption edge rel. to composition 3=869
 Mn radical in solid inert-gas matrix, absorption 1=17269
 Mn in solid Ar, absorption 4°K 3=23074
 Mn²⁺ in cubic crystal field, optical spectrum and ground-state splitting 4=20463
 Mn²⁺ in cubic field, calc. 2=553
 Mn²⁺ in ZnS monocystals, absorpt. 4=22875
 MnBr₂, absorption 0=16058-9
 MnBr₂·4H₂O, absorption in antiferromag. state 0=13695
 MnBr₂·4H₂O, 1.2°-20°K meas., rel. to ordered state 4=4261
 MnBr₂, optical absorption, ligand field theory 0=1728
 Mn(CH₃COO)₂·4H₂O, absorption lines at liq. He temps. 4=4263
 MnCO₃, antiferromagnetic ordering effects 4=17574
 MnCl₂, absorption 0=16058-9
 MnCl₂·4H₂O, absorption in antiferromag. state 0=13695
 MnCl₂·4H₂O, 1.2°-20°K meas., rel. to ordered state 4=4261
 MnCl₂, optical absorption, ligand field theory 0=1728
 MnF, absorption, (25 to 28) × 10³ cm⁻¹, 20°-290°K 4=7143
 MnF₂, absorpt. bandwidth, temp. depend. 3=25461
 MnF₂, visible and u.v. absorption 1=1162
 MnF₂—ZnF₂, visible and u.v. absorption 1=1162
 MnO flame-fused crystals, i.r. props. 1=6215

Spectra—contd

inorganic solids—contd

- MnO, optical absorption, above and below Néel temp. 0=1725
 MnS, α, β and γ-phases, reflection 3=20072
 MnSiF₆·6H₂O, absorption lines, 1.2°-20°K 4=4262
 MoS₂, thin crystals, absorption 3=10957
 N—CO and N-acetylene mixtures condensed from elec. discharge products 2=10251
 NH₃ in solid argon 1=11100
 NH₃ suspended in solid N, i.r. 2=4151
 NH₃, vac. u.v. absorption 0=13696
 NH₄ dihydrogen phosphate, relaxation in extreme i.r. 3=17942
 NH₄ halide phosphors, explanation 3=23100
 NH₄⁺ in crystals, i.r. intensities 0=6181
 (NH₄)₂BeF₄, i.r. spectra 0=11957
 [(NH₄)₂CS]_nNiCl₂, polarized spectrum 4=13064
 NH₄CNS 0=4411
 (NH₄)₂Cr₂O₇, electronic absorpt. spectrum 3=15671
 NH₄H₂PO₄, i.r. 3=15342
 NH₄HSO₄, i.r. absorption at ferroelec. Curie pt. 2=16823, 18841
 NH₄NO₃, i.r. spectra, showing phase transformations 4=10419
 (NH₄)₂SO₄, absorption, 55 to 170 cm⁻¹ 4=28668
 (NH₄)₂SO₄, i.r. absorption at ferroelec. Curie pt. 2=16833, 18841
 (NH₄)₂SO₄, i.r. spectra 0=11957
 N₂H₂, i.r. spectrum 1=7715
 NO, in crystalline Kr 3=15685
 NO in solid Ar and Kr, emission, a *π state 4=25657
 NOBr and NOCl, i.r., environmental effects 3=8599
 N₂O molec. crystals, far i.r. spectra 4=20446
 N₂O₃, unstable isomer 0=17750
 N₂O₄, unstable isomers 0=17750
 Na azide, absorption band at 520 mμ due to colloidal Na 0=16063
 Na azide, coloured by u.v. and X-ray radiation 0=8008
 Na borate glass, u.v. absorpt., composition and temp. effects 3=13173
 Na bromate crystals, X-ray irrad., absorpt. spectrum 4=13058
 Na formate, electronic spectra of trapped CO₂⁻ 2=10603
 Na silicate glass, u.v. absorpt., composition and temp. effects 3=13173
 Na uranyl acetate, absorption 2=16804
 NaAlSi₂O₆, i.r. absorption spectra 1=14610
 NaBr, colloid centres, absorption 0=11634
 NaBr:Co, NaCl:Co, and coord. of Co 4=26186
 NaBrO₃, reflection, i.r., n(λ), k(λ) calc. 3=20438
 NaCl, absorption, after electron probe irrad. 3=8460
 NaCl, absorption, β-band, rel. to electron transitions 4=9883
 NaCl, absorption, effect of Cd impurity 1=17877
 NaCl, absorption spectra, rel. to optical and thermal bleaching 4=28711
 NaCl, absorption by O₂⁻ impurities 1=11363
 NaCl, absorption, u.v., β-band maxima calc. and F' centres 3=20487
 NaCl, α and β bands, vac. u.v. absorption 1=3839
 NaCl: Cd, 300-700°K 1=4998
 NaCl, with Ca impurity 1=3694
 NaCl, coloured, absorption 0=18072
 NaCl, Cu impurities, absorpt. band at 253 mμ 3=10651
 NaCl, F- and M-band absorption after neutron irrad. 1=12468
 NaCl, infrared absorption 2=13425
 NaCl: I single crystals, u.v. absorption bands 1=10104
 NaCl, i.r. reflection 0=8007
 NaCl, Na₂CO₃ and NaOH doped, i.r. absorpt., reflection 3=20489
 NaCl, "OH" absorption rel. to O₂ and water vapour 2=18834
 NaCl, OH⁻ bands, origin 3=20488
 NaCl, with Pb impurities 1=4983
 NaCl-type crystals 1=19691
 NaCl-type crystals 2=8152
 NaCl, u.v. absorpt. 3=929
 NaCl, vacuum u.v., α and β absorpt. bands 3=8590
 NaCl, X-ray irrad., α and β bands 0=16064

Spectra—contd

inorganic solids—contd

NaCl:Ag, absorption, fine structure 3=23078
 NaCl: Cd, absorption, 1-6 eV, rel. to quenching 2=23564
 NaCl: Cu, meas. 3=18008
 NaCl: Ni, absorption, 1-6 eV, rel. to quenching 2=23654
 NaClO₄, reflection, i.r., n(λ), k(λ) calc. 3=20438
 NaCl: Pb, absorption, effect of annealing, at 600°C 0=20990
 NaCl: Tl and NaCl: Pb phosphors, emission and absorpt. spectra, rel. to press. 4=28699
 NaCl, Z₂ centres, absorption peaks rel. to Ca, Sr, Ba doping 4=28501
 Na₂Cr₂O₇, electronic absorpt. spectrum 3=15871
 NaF, i.r. absorpt. 3=10966
 NaF, fundamental absorption 1=14585
 NaF, OH absorption, F- and M-bands 1=14594
 NaF, OH⁻ absorption band, distrib. 3=18223
 NaF, OH⁻ doped, vac. u.v. absorption 4=7159
 NaF, u.v. absorpt. 3=13179
 NaF, vacuum u.v., α and β absorpt. bands 3=8590
 NaF, X-ray irradi., α and β bands 0=16064
 NaFeSi₂ fluoride, absorption peaks 3=25547
 NaFe³⁺ and SiO₂, i.r. absorption spectra 1=14610
 Na₂GeO₃, i.r. absorption spectra 1=14610
 NaH₂PO₄·2H₂O, i.r. absorption, OH groups 1=2444
 NaH₂(SeO₃)₂, absorption, 55 to 170 cm⁻¹ 4=28668
 NaI, first exciton peak, oscillator strength 2=12601
 NaI: Tl, absorption and emission 0=20997
 NaI: Tl, i.r. absorption, γ-irrad. effects 3=25449
 NaI: Tl, i.r. absorption, impurity study 4=2035
 NaI: Tl phosphors, emission and absorpt. spectra, rel. to press. 4=28699
 NaI: Tl, Tl conc. and temp. depend. 3=20490
 NaI, 22 samples, reflection and transmission, 20° to -190°C 0=21006
 NaMgAl(C₂O₄)₃·9H₂O, polarized visible spectra 1=19976
 Na₂Mo₂O₇, i.r., anion structure 3=4974
 Na₂MoO₄, i.r. spectrum 4=26213
 Na₂MoO₄·2H₂O, i.r. spectrum 4=26213
 NaN₃, single crystals, i.r. spectrum 4=22894
 NaNO₂, absorption, 20°K 4=7154
 NaNO₂, rel. to dielec. dispersion 2=16768
 NaNO₂, fund. absorption edge 2=16824, 18828
 NaNO₂, i.r. absorption 0=6926
 NaNO₂, i.r., γ-ray effects, var. polarization directions 4=15599
 NaNO₂, single γ-irrad. crystals, absorpt. 4=22777
 NaNO₃, absorpt. i.r. study rel. to phase trans-form. 4=20717
 NaNO₃, crystal field effects 0=524
 NaNO₃, i.r. polarized 2=8535
 Na₂O·B₂O₃·SiO₂ glass, rel. to ionizing radiations 3=17795
 NaOH, i.r., shift on melting 1=11381
 NaOH, NaOD, near i.r. absorption 0=1736
 NaOH, and monohydrate, i.r. 1=1171
 Na₂O-SiO₂ glasses, i.r. reflection 0=4679
 NaSO₄·5H₂O, i.r. absorption bands due to SO₄ 4=4255
 Na₂SiO₃, i.r. absorption spectra 1=14610
 Na₂V₂O₇, i.r., anion structure 3=4974
 Na₂WO₄, i.r. spectrum 4=26213
 Na₂WO₄·2H₂O, i.r. spectrum 4=26213
 Na₂W₂O₇, i.r., anion structure 3=4974
 Nb oxide anodic films, i.r. absorpt. 4=23566
 Nb₂O₅, absorption 1=12498
 Nb₂O₅, anodic oxide films 0=18411
 Nb₂O₅, non-stoichiometric, reflectance 4=10197
 Nd-activated glass, as optical quantum generator, flash spectrum time variation 3=25444
 NdCl₃, diluted with LaCl₃ 1=10101
 NdCl₃, i.r. absorption 1=2447
 Nd ethyl sulphate, electronic, analysis 4=1740
 Nd in SrF₂ 3=20482
 Nd, visible, rel. to 4f shell transitions 3=13182
 Nd₂Mg₃(NO₃)₁₂·24 H₂O 4=7145
 Nd³⁺ 0=6179
 Nd³⁺ and Er³⁺, Taylor series expansion 1=11370
 Nd³⁺ in LaCl₃ 4=4260
 Nd³⁺ in LaCl₃ at 77°K, u.v. absorpt. 2=21247
 Nd³⁺ in LaBr₃, single crystal absorption 3=3009
 Nd³⁺ in LaCl₃, crystal quantum no. reassignments 4=25829
 Nd³⁺ ion in NdCl₃ 1=8984
 Ni complexes, effect of pressure 1=6206

Spectra—contd

inorganic solids—contd

Ni coordination compounds 1=5047
 Ni-doped oxides, fine structure 1=17887
 Ni phosphates, substituted, 6-30 μ 3=15686
 Ni(II) ion, hydrated, in various crystals 0=4415
 Ni, u.v. and visible, by H ion bombardment, 200 keV 3=7657
 Ni²⁺ and Co³⁺ complexes, effect of pressure 1=12492
 Ni²⁺·6H₂O in cryst. salts, absorption 4=25830
 Ni²⁺ in sulphate media 2=17463
 Ni²⁺ in tetrahedral sites in crystals 2=14673
 NiF₂ 2=16583
 NiF₂, antiferromagnetic resonance in far i.r. 3=15930
 NiF₂ crystals, i.r. spectra of lattice vibrs. 4=26208
 NiF₂, magnetic dipole absorption band, fine structure 4=7269
 NiF₂, optical absorpt. spectrum for paramag. and antiferromag. states 4=17578
 Ni₂GeO₄, i.r. 2=12603
 Ni(NH₃)₄(NCS)₂, polarized spectra 4=13051
 Ni(NH₃)₄(NO₃)₂, polarized spectra 4=13051
 Ni(NH₄)₂(SO₄)₂·6H₂O absorption, 1.7° to 280°K 3=13180
 NiO, 0.24 eV absorption band, change due to added MnO and CoO 0=653
 NiO, spin-dependent i.r. absorption band model 4=10182
 NiO, 200-1000 mμ 0=20977
 NiSO₄·6H₂O and NiSO₄·7H₂O, down to 1.7°K 1=3835
 NiSO₄·6H₂O, NiSO₄·7H₂O, 2400-9100 Å, at -205° and 18°C 0=20985
 NiSO₄·7H₂O, i.r. absorption, 350-4000 cm⁻¹ 4=22880
 NiSO₄·7H₂O, SO₄²⁻ ion bands 2=4155
 Ni₂SiO₄, i.r. 2=12603
 Ni₂SiO₄-Ni₂GeO₄ solid soln., i.r. 2=12603
 O₂, α-phase, 2300-8800 Å absorption, electron irradi. effects 0=5945
 O₂ in crystalline Ar and N₂, vac. u.v. absorpt. spectra 4=16116
 O₃, reaction products with atomic H 0=12098
 P compound molecular groups in crystals, in i.r. vibration frequencies 3=20483
 P, in Si, absorption 2=23557
 P in Si, i.r. absorpt. impurity lines, width and temp. depend. 4=28673
 P, in Si, compensated, i.r., vibr. absorpt. 4=4274
 PH₃, i.r. absorpt. spectrum showing new phase transition at 10°K 4=10186
 P₂O₅-GeO₂-H₂O system compounds i.r. and struct. 4=17814
 P₂O₅-SiO₂-H₂O system compounds, i.r., and struct. 4=17814
 Pb alloys, supercond., far i.r. absorption 4=8569
 Pb, far u.v. absorpt. edge, assignment to d-band transitions 4=15446
 Pb halides, exciton, low-temp. 3=10934
 Pb nitrate, i.r. absorption 2=6580
 Pb silicate glasses, γ-irradiated, absorption 0=16074
 PbCl₂, absorption, local electron centres 1=11229
 PbCl₂ films, rel. to thickness and substrate 2=12598
 PbCl₂, u.v. absorption, water adsorpt. effect 2=10604
 PbF₂, crystalline films 4=2065
 PbF₂, exciton band at 2190 Å 3=24050
 PbI₂, absorpt. spectrum, interpretation in terms of ionization and excitation processes 4=26202
 PbI₂, absorption at 4.2°K, oscillator strength spectrophotometric method 4=30437
 PbI₂, absorption in vis. and near u.v. region 0=10037
 PbI₂, exciton absorption 2=8518
 PbI₂, exciton absorption, temp. depend. 1=1161
 PbI₂ films, exciton bands 1=17892
 PbI₂ monocrystals at 4°K 1=1160
 PbMoO₄, absorption, effect of preparation method 3=20479
 PbO, absorption in Schumann u.v. region 1=17893
 PbO, diffuse-reflection, rel. to activation energy 3=17978
 PbS films, i.r. absorption rel. to crystal struct. 2=10584
 PbS, reflectance, data or refr. index 3=25436
 PbSe films, i.r. absorption rel. to crystal struct. 2=10584
 PbSe, optical reflection spectra, 6-1.5 eV region 4=10177
 PbTe films, i.r. absorption rel. to crystal struct. 2=10584
 PbTe, infrared absorption 2=16839
 PbTiO₃, i.r. reflection and transmission 4=26184

Spectra—contd

inorganic solids—contd

PbTiO₃, infrared absorption 2=14682
 PbZrO₃, infrared absorption 2=14682
 Pm and Ho, trivalent, analysis 1=17891
 Pr, in ethylsulphate:Ce 1=1164
 Pr, h.f.s. of ions 1=19979
 Pr nitrite, i.r. 1=1163
 Pr, visible, rel. to 4f shell transitions 3=13182
 Pr³⁺, configuration interaction 3=10960
 Pr³⁺ in ethylsulphate crystals 3=10959
 Pr³⁺ in LaCl₃ and LaBr₃, vibronic spectra 4=1365
 Pr³⁺ in rare-earth trichlorides, anion effects 3=13181
 Pr³⁺ in LaBr₃, absorption 3=3014
 PrCl₃, below 25 000 cm⁻¹, analysis rel. to crystal field theory 4=25809
 PrCl₃, ion-pair absorption lines, 22220-28100 cm⁻¹ 3=23075
 PrCl₃, 100 and 325 μ absorption bands 4=26214
 Pr(NO₃)₃·6H₂O, absorption line shift with film thickness 0=2942
 Pt(II) nitrohalides, NO₂⁻ vibr. 2=18842
 Pu³⁺ in La trichloride 3=8601
 Rb halides, F-centres, short-wave absorption 0=17965
 RbAlO₂, i.r. absorption 2=2239
 Rb—Br, coloured with Na, colloidal absorpt. bands 4=17580
 RbBr, u.v. absorpt. 3=13179
 RbCl, coloured with Na, colloidal absorpt. bands 4=17580
 RbF, i.r. lattice refl., Kramers—Kronig analysis 4=1737
 RbHSO₄, absorption, 55 to 170 cm⁻¹ 4=28668
 RbHSO₄, i.r. absorption at ferroelec. Curie pt. 2=16833, 18841
 RbI, first exciton peak, oscillator strength 2=12601
 S, absorption edge, temp. and press. depend. 0=8798
 S, amorphous, absorpt. spectrum 4=15600
 S, amorphous and liquid, i.r. absorption 2=2235
 S, rhombic, i.r. transmission 3=8603
 Sb halides, in pressed alkali halide disks 0=8001
 SbCs₃, absorption spectra 1=16378
 SbI₃, absorption and reflection 4=1720
 Sb₂O₃, absorption in Schumann u.v. region 1=17893
 Sb₂S₃, i.r. absorption 2=8350, 18786
 Sb₂S₃, fundamental absorption edge 4=1590
 Sb₂S₃, reflection, u.v., maxima 4=7109
 Sb₂S₃—Sb₂Te, system 3=15585
 Sb₂Se₃, 400-800 mμ absorption 0=599
 SbSI, absorpt. edge shift in elec. field 3=20468
 Se₂O₃, diffuse reflectance, 3.0 to 6.5 eV 4=20469
 Se, absorption edge of hexagonal crystals 4=10190
 Se, absorption in vis. and near u.v. region 0=10037
 Se, amorphous, absorpt. spectrum 4=15600
 Se, amorphous, films 2=16823
 Se, amorphous, i.r. absorption 2=2235
 Se, amorphous and impure, absorption spectrum 3=3017
 Se, i.r. absorption by free carriers 3=13188
 Se, 0.4—23 μ, band model 1=2439
 Se, single crystals, 0.7 to 4 μ meas. 2=16801
 Se, u.v. absorption 1=7709
 Se, vacuum u.v., absorpt. and refl. 3=8596
 Se, vitreous, absorption 3=13081
 Se, vitreous and metallic, reflectance 3=15651
 Se: As, i.r. absorption, As conc. depend. 1=5050
 Se—Te alloys, absorption 4=20470
 Si, absorpt. spectra of impurities 4=1469
 Si, absorption band temperature variation, rel. to O impurity 3=23077
 Si, absorption edge displacement rel. to strong elec. field 2=23554
 Si, absorption at λ=1.3-13 μ, temp. depend. 2=10607
 Si, As and P impurity absorption 2=23557
 Si, B-doped, absorption line width 2=23556
 Si, B-doped, i.r. absorpt. 4=4275
 Si, carbon-doped, absorption band 1=2440
 Si containing O, i.r. absorpt. band, dominant, stress-induced dichroism 4=28485
 Si, crushed, i.r. absorption 2=18843
 Si, effect of O on fine structure 0=20986
 Si, effect of phonons 2=14689
 Si, electron irradi., 1.5 MeV, e.s.r. recovery 4=28707
 Si, emission, rel. to lattice absorption bands 2=10582
 Si, far-i.r., 7.5°K meas. 4=26197
 Si, free-carrier absorption 1=19989

Spectra—contd

inorganic solids—contd

Si, free-carrier i.r. absorption, 1.5-30 μ, 80°-550°K 2=23574
 Si, fund. absorption edge, effect of h.f. elec. field 1=19972
 Si, fund. absorption edge, effect of h.f. elec. field 2=4139
 Si, heavily doped, absorpt., energy depend. 4=26198
 Si, i.r. absorpt., rel. to vibr. peaks 4=17346
 Si, i.r. absorption bands (1.8-9.14 μ) neutron or electron irradi. 2=23570
 Si, i.r. absorption of defects, rel. to irradiation 3=23076
 Si, i.r. absorption edge, fine structure 1=6210
 Si, i.r., broadening, due to B doping, mechanisms 3=23080
 Si, i.r., due to free charge carriers 0=16071
 Si i.r. emittance rel. to absorption processes, 323° to 473°K 3=10961
 Si, i.r., interpretation 1=1169
 Si, intrinsic low-temp. emission, theory of intensity maxima 0=9871
 Si, intrinsic absorption, heavy doping effect 3=15688
 Si, irradi., A-centre absorption 1=3657
 Si, n and p doped, i.r. absorption 3=935
 Si, n- and p-type, i.r. absorption rel. to neutron-irradi. 3=3018
 Si, n-type, i.r. absorption, by electron scattering 0=18129
 Si, neutron irradi., i.r. absorpt. spectrum 4=9836
 Si, p-type, neutron irradi., 1-10 μ 0=651
 Si, phonon absorption bands 3=23044
 Si, phonon broadening of impurity lines 4=4276
 Si, radiation field interaction with lattice vibr. at critical points of Brillouin zone 4=22895
 Si, recombination radiation in high elec. fields 1=2410
 Si, reflectance, for 1.5-25 eV photons 3=8584
 Si, single phonon absorption bands 2=16598
 Si, two-phonon indirect transitions 2=23350
 Si, 2-7 μ, anomalous absorpt. coeff. 1=1152
 Si, u.v. reflection, rel. to strong doping 3=18007
 SiC, absorption edge and u.v. spectrum 3=20485
 β-SiC, absorption, 2.3-2.9 eV 0=16062
 SiC, cubic, interband absorption, phonon energy deriv. 4=10218
 SiC, 15R, absorption edge, rel. to exciton transitions 4=7157
 SiC heated to 1000°C, spectral emittance 4=14443
 SiC, lattice absorption bands 1=11372
 SiC, p-n junction recomb. radiation 2=4044, 6476
 SiC, 6H and 4H polytypes, absorption 2=23562
 SiO on Pt and Inconel, heated to 1000°C, spectral emittance 4=14443
 SiO₂, doped, absorpt. bands prod. by X-ray irradi., bleaching 4=15499
 SiO₂ glass, 96%, "small pore", near i.r. 4=22889
 SiO₂, high-pressure polymorphs, rel. to co-ord. 4=1744
 SiO₂, quartz, infrared emission 1=8998
 Sm, visible, rel. to 4f shell transitions 3=13182
 Sm³⁺ in alkali halide crystals, absorpt., 300, 77°K 3=23079
 Sm³⁺ in alkali-halide single crystals, 4.2°K 4=22887
 SmCl₃ 3=3016
 SmCl₃, 150 and 250 μ absorption bands 4=26214
 SmFe garnet, far i.r. absorption 3=15680
 SmMg nitrate 1=2443
 Sn, far u.v. absorpt. edge, assignment to d-band transitions 4=15446
 SnBr₄, SnI₄, absorption edge, press. depend. 0=4407
 SnI₄, far i.r. absorpt. 3=8604
 SnO, absorption in Schumann u.v. region 1=17893
 SnO₂, absorption in Schumann u.v. region 1=17893
 [Sn(OH)₆]²⁻·M²⁺, (M=Zn, Cd, Co, Ni, Cu, Na), i.r., and 2-ion structure 4=10196
 SnS, i.r. absorption 1=17760
 SnS, p-type, reflection spectrum analysis 2=2217
 Sr nitrate, i.r. absorpt. 2=6580
 SrF₂, colouration, rel. to Mollwo relation 3=2837
 SrF₂ doped with Sm³⁺, absorpt. spectrum 4=17582
 SrF₂, Er³⁺ absorption 3=3000
 SrF₂, Y-doped, coloured by X-rays 3=8593
 SrF₂: Ho, Er, absorption of Ho³⁺ and Er³⁺ 4=13038
 SrF₂: Nd 3=20482
 SrF₂:Sm³⁺ 2=16815
 SrF₂:Sm³⁺, absorption, Zeeman effect 3=18026
 SrF₂:Sm³⁺, spectra analysis 2=14717

Spectra—contd

inorganic solids—contd

- SrF₂:Sm²⁺, vibronic model rel. to transitions away from k = 0 4=13085
 SrF₂:U⁴⁺, rel. to e.s.r. 2=23708
 SrN₈, u.v. absorption meas. 3=25450
 Sr(NO₃)₂, i.r., overtone and combination bands, rel. to NO₃⁻ vibrations 4=10163
 Sr(OH)₂, octahydrated, i.r. 1=1171
 Sr(OH)₂.8H₂O, absorption, rel. to O—H bond 1=7717
 SrTiO₃, oscill., 45°–140°C, rel. to dielec. permeability 4=30677
 SrTiO₃, i.r. reflection and transmission 4=26184
 SrTiO₃, i.r. reflection, 2–100μ, 45° to 140°C 4=1722
 SrTiO₃, i.r., 870–15 cm⁻¹, absorpt. 3=23064
 Ta oxide, anodic films, absorbance index 2=698
 Ta₂O₅, absorption 1=12498
 Ta₂O₅, absorption in Schumann u.v. region 1=17893
 Tb oxides, reflectance 1=7705
 Tb³⁺ in LaCl₃ and YCl₃ 3=15689
 Te, i.r. absorption, hole band structure 1=5048
 Te, i.r. absorption, in mag. field 1=12495
 Te, i.r. absorption, polarization depend., theory 0=6127
 Te, u.v. absorption 1=7709
 TeBr, absorption, local electron centres 1=11229
 TeCl, absorption, local electron centres 1=11229
 TeI, absorption, local electron centres 1=11229
 TeO₂, cryst. and glassy states 2=16819
 TeS, u.v. absorption 1=3841
 TiO, diffuse reflectance, in visible and near u.v. 3=23040
 Ti—O system, i.r. 3=20491
 TiO₂, diffuse reflectance, in visible and near u.v. 3=23040
 TiO₂, non-stoichiometric, reflectance 4=10197
 TiO₂ powders, u.v. absorption 4=26223
 TiO₂:Cu, absorpt. bands 3=25564
 Ti₂O₃, diffuse reflectance, in visible and near u.v. 3=23040
 Ti X-ray absorption spectrum 1=7720
 TlBr—NH₄Br system, reflection spectra 0=13714
 TlCl, absorpt. and reflectivity spectra 3=3023
 Tm ethyl sulphate 1=6209
 U fluorides, pentavalent, near i.r. absorption 3=18011
 U⁴⁺, in crystals 0=18130
 U⁴⁺ in octahedral coord. complexes, meas. 4=22900
 UCl₄, absorption, at liq. He temp. 2=14676
 UF₄, 2000A–8 μ, U⁴⁺ absorption 0=1731
 UF₄ and UF₆, effect of pressure 1=3834
 UO₂, i.r. absorption 2=6581
 UO₃, i.r. absorption 2=6581
 UO₂ Cl₂.2H₂O, u.v. absorpt. 4=10198
 U₃O₈, i.r. absorption 2=6581
 U₃O₈, spectral line intensity, carrier effect 4=26224
 V complexes, rel. to magnetic properties 4=10247
 V corundum, polarized i.r. absorption 1=3846
 V—O system, i.r. 3=20491
 V₂O₅, absorption 1=12498
 V₂O₅, non-stoichiometric, reflectance 4=10197
 VSO₄.7H₂O, absorption, 9000–35000 cm⁻¹ 1=2448
 Xe, trapped in Ar, Kr at low temps. 4=7160
 Xe, u.v. absorpt., 20°–50°K meas. 3=2998
 Xe, vac. u.v. absorption, at 4.2°K 0=13699
 Y garnet ferrites, i.r. absorption 2=685
 Y garnet, 1–6 μ transmission spectrum 1=7704
 YAl garnet, Pr-doped, absorption 3=23072
 YFe garnet, exchange splitting 0=6186
 YGa garnet:Cu²⁺, absorption 1=14609
 Y—Ga garnet, Ni-doped 1=17887
 Y(Gd)Cl₃.6H₂O, u.v. absorption 3=10945
 YH₃ and YD₃, i.r. 3=17658
 Y₂O₃:Eu, absorpt., excitation and fluorescence spectra 4=10221
 YbCl₃.6H₂O 1=19977
 YbFe garnet, far-i.r. 2=12713
 YbFe garnet, in mag. field, anisotropy of exchange 2=23566
 YbFe garnet, far-i.r. exchange resonance 1=14612
 YbFe garnet, ferrimagnetic resonance in far i.r. 3=15930
 YbFe garnet, Yb—Fe exchange interaction 1=8996
 Yb³⁺ in Y Ga garnet 1=2442
 Yb³⁺ in YAl and YGa garnets 4=1354
 Zn-blende materials, absorption near fund. edge 3=10954
 Zn-blende type semiconductors, fundamental reflectivity 1=17762
 Zn rhodanide, Pb activated, absorption and luminescence spectra 4=28739

Spectra — contd

inorganic solids — contd

- Zn₂Cd_{1-x}Sb_x, i.r. absorption, pleochroism 3=923
 Zn₂Cd_{1-x}Sb_x solid solns, i.r. absorption with polarized radiation 2=23415
 ZnIn₂S₄, single crystals, i.r. absorpt. 4=28713
 ZnO 3=957
 ZnO, absorpt. bands, dispersion shift 2=23565
 ZnO, absorption edge, press. depend. 0=4408
 ZnO, Cu²⁺ impurity, rel. to wavefunctions 4=4042
 ZnO, diffusion reflectance, visible and near u.v. 3=13190
 ZnO, exciton spectrum, from u.v. absorption and reflection 1=19982
 ZnO, higher order i.r. absorpt., 5–33μ 4=28714
 ZnO, i.r. absorption 0=8002
 ZnO, i.r. absorption, calc. 1=14607
 ZnO, i.r. reflection spectra 0=11767
 ZnO powder, effect of adsorbed CO₂ 2=6582
 ZnO₂, diffusion reflectance, visible and near u.v. 3=13190
 ZnO:Cu²⁺, absorption 1=14609
 ZnS 0=13700
 ZnS, absorption, rel. to elec. vector orient. 3=10970
 ZnS, absorption edge, press. depend. 0=4408
 ZnS, absorption, 220–600 mμ, 110–500°K 0=10048
 ZnS crystals, refl., temp. depend., 300–370mμ, 77°K–room temp. 4=26226
 ZnS, Cu and Ag activated, u.v. absorption 0=6161
 ZnS, effect of u.v. irradi. in different gases 3=10969
 ZnS, Fe²⁺ absorption in 0=10229
 ZnS, rel. to impurities 3=20528
 ZnS lattice absorption, 8° to 420°K 3=10967
 ZnS, optically active phonon processes 4=17560
 ZnS, reflection, for wurtzite structure 3=8583
 ZnS, u.v. refl., polarization effects 4=4279
 ZnS, u.v. and visible absorption at 4.2°K, rel. to excitons 2=14672
 ZnS (wurtzite), i.r. absorption, calc. 1=14606
 ZnS(Ag) emission bands 1=19978
 ZnS—CdS, Cu and Ag activated, u.v. absorption 0=6161
 ZnS:Cu, excitation and quenching of luminescence 1=10112
 ZnS:Cu, prep. by neutron irradi. of ZnS 3=13207
 ZnS:In crystals, yellow and green emissions under u.v. excitation 4=7189
 ZnS : Mn, absorpt. fine struct. and phonon coupling 4=22903
 ZnS:MnS, rel. to exchange-coupled Mn²⁺, 4.2°–300°K 4=7162
 ZnS : Tm³⁺ and : Ho³⁺, energy terms meas. 4=13089
 ZnSO₄.7H₂O, i.r. absorption, 350–4000 cm⁻¹ 4=22880
 ZnSb, absorpt. edge, polarization 11 to each crystal axis 4=22802
 ZnSb, p-type, absorption edge meas. 4=12919
 ZnSe, absorption 2=14679
 ZnSe, absorption edge, press. depend. 0=4408
 ZnSe, effect of oxygen 2=18867
 ZnSe, exciton absorption 2=18827
 ZnSe, layers, fundamental absorption edge 1=3842
 ZnSe, u.v. and visible, absorption, at 4.2°K, rel. to excitons 2=14672
 (ZnSe)_x—(CdSe)_y, diffuse reflection spectra 1=12363
 ZnTe, absorption 2=14679
 ZnTe, absorption edge, press. depend. 0=4408
 ZnTe, fundamental reflectivity 3=17979
 ZnTe, optical edge absorption 3=10968
 ZnTe, p-type, i.r. rel. to photon energy 2=21251
 ZnTe, reflection, rel. to band model 3=25467
 ZnTe, reflection peaks near exciton line 4=1705
 ZnTe, sharp lines rel. to bound excitons 3=10630
 Zr, oxide anodic films, i.r. absorpt. 4=23566
 ZrO₂, absorption in Schumann u.v. region 1=17893
 ZrO₂ heated to 1000°C, spectral emittance 4=14443
 ZrO₂, spectral line intensity, carrier effect 4=26224

inorganic solids, radiofrequency

- See also Nuclear magnetic resonance and relaxation;
 Paramagnetic resonance and relaxation
 dielectrics, rapid measurement 1–10 000 Mc/s 1=10796
 glasses, B₂O₃, Na borates 3=13174
 impurity atom effects on vibrational absorption spectrum 1=10098
 MA₂(d¹)-type transition metals, rel. to inversion splitting 4=10332

Spectra—contd

inorganic solids, radiofrequency—contd

- paramagnetic resonance, at zero magnetic field 1=9694
 ruby, effect of configuration mixing and covalency 1=7549
 silica gels, microwave and dipolar 3=22984
 zeolites, microwave and dipolar 3=22984
 B₂O₃, glass 3=13174
 CaF₂:Mn²⁺ 1=1260
 Ce ethyl sulphate, possible detection of Ce³⁺ elec.
 quadrupole interactions 1=6426
 CoF₂, antiferromagnetic reson., var. field, temp.,
 stress 4=13302
 MnCO₃, antiferromagnetic reson. 4=13302
 Na borate glasses 3=13174
 NiF₂, antiferromagnetic reson., var. field, temp. 4=13302
 Sb in Ge, Lyman series, chemical splitting 3=939
 XeOF₄, microwave, 20-40 Gc/s 4=26225

organic molecules and substances

See also Molecules

- absorption and fluorescence, radicals, by h.f. discharge
 of aromatic vapours 0=6199
 absorption, in low-pressure flames, various
 molecules 0=19219
 absorption, monomolecular layers on water,
 spectrometer 4=5384
 absorption, pressure-induced, line shapes 4=9684
 absorption wavelengths, from metallic model of
 molecule 0=15679
 acetamide—nitrophenol complexes in benzene,
 i.r. 4=20077
 acetanilide, MO calc. 0=15705
 acetone, ionic solutions, i.r. spectra 4=18203
 acetonitrile, O₂ u.v. absorption bands 2=5020
 acetylanthracenes, in solvent mixtures, fluorescence
 spectra 0=10675
 acetylene, continuous absorpt. spectrum 4=25690
 acetylene derivatives containing gp IV elements, i.r.
 study 4=20075
 acetylene, $\nu_1 + \nu_3$ band, perturbation by Kr and
 Xe 0=15726-7
 acridone solns., no evidence of association 3=141
 acyl-phenols in cyclohexane and ethanol 4=25691
 alcohol—water soln., NaCl, absorption, -87°C 3=1691
 alcohols, aliphatic, OH stretching vibration, band
 shape 4=25692
 aldehydes, doublet rel. to C—H stretching vibr. 2=10248
 alkylbenzenes, u.v. absorpt., oscillator strengths 2=8107
 allene, i.r. 2=14684
 allene, Raman and i.r., integrated intensities and
 polarizations 4=6609
 alternant hydrocarbons, quantum-mech. calc. 1=14055
 amine—chloranil complexes, absorption 3=1694
 amino acids, aq. solns., complex formation with
 O₂ 2=6881
 3-aminophthalimide, with chlorophyll impurity 2=22944
 aniline, electronic spectrum calc., MO approx. 2=10275
 anilines, o-substit., first-overtone NH band splitting 4=15362
 anthracene, absorption at 4°K, rel. to purity 1=14644
 anthracene, absorption of single crystal plates at
 20.4°K 0=10057
 anthracene crystals, absorption and fluorescence 1=8983
 anthracene derivative vapours, absorption intensity and
 line shape, rel. to temp. 4=6607
 anthracene derivatives, vapours, effect of isopentane 4=6608
 anthracene films 4=10610
 anthracene, in hydrated derivatives, absorption 2=18835
 anthracene impurities in 9, 10-dihydroanthracene at
 20°K 1=20020
 anthracene impurity in polyphenyls, absorption 2=6567
 anthracene in liquid soln., obs. of triplet—triplet absorpt.
 spectra 4=2842
 anthracene, in octahydroanthracene 2=18838
 anthracene and six meso-derivs., vapours 2=21947
 anthracene, solid, shock excitation, CN, C₂ and CH
 bands 1=2310
 anthracene solns., structural absorption, temp.
 depend. 4=30452
 anthracene, solutions, changes on addition of ferric
 acetylacetonate 3=15359
 anthracene, 3800 Å system, crystal splitting 1=19639
 anthracenes, substituted, ¹L_b transition 1=19640
 β-anthrol, ¹L_b transition 1=19640

Spectra—contd

organic molecules and substances—contd

- anthrols, electronic spectra and H bonding 3=8287
 aromatic amine—P complex, bond i.r. bands 4=25715
 aromatic cpds. in nonpolar solns., electronic spectral
 shifts 4=2688
 aromatic crystals, electronic absorption spectra, theor.
 and exper. study 1=1155
 aromatic free radicals, g factors theory 3=20029
 aromatic hydrocarbon positive ions in solids 1=19866
 aromatic hydrocarbons, polynuclear, with condensed
 benzene rings 1=3860
 aromatic hydrocarbons, solvent shifts 2=21910
 aromatics, condensed-ring, effect of high pressure and
 low temp. on absorption 0=15733
 aromatics, proton dissociation 1=827
 aryl boron cpds., intramolecular charge-transfer
 bands 1=19641
 aryl derivatives of oxadiazole in polystyrene, absorption
 and luminescence 0=10073
 arylene-alkyl polymers, electronic—vibr. spectra 4=3886
 azines, emission, T—S polarization 2=14265
 azobenzene, π -electronic u.v. studies 3=25133
 azobenzene, u.v., rel. to stilbene photoisomers 2=14675
 azoxybenzene, π -electronic u.v. studies 3=25133
 azulene 1=12331
 azulene in frozen cryst. solns., absorpt. spectrum 4=10229
 azulene, lowest triplet level location 2=22984
 azulene, separation of overlapping transitions 1=11763
 azulene, solvent shifts 0=16707
 azulene, solvent shifts 2=21910
 bacteriochlorophyll, 3700-7900 Å, calc. 0=9815
 bacteriopheophytin, 3700-7900 Å, calc. 9815
 band rot. consts.—heads reln., calc. 4=25601
 benzalaniline, π -electronic u.v. studies 3=25133
 benzene, adsorbed, electronic spectrum 2=15100
 benzene, absorption, 4°K, H-like levels 4=1758
 benzene, absorption at 20°K, exciton doublet 4=7098
 benzene, in crystalline rare gases at 4.2°K 1=17313
 benzene, crystalline, u.v. 3=10586
 benzene derivs., i.r. absorption and H-bonding 4=30454
 benzene and deuterated benzene, crystals at 20°K 2=695
 benzene, forbidden transitions, effect of mol.
 vibr. 2=12341
 benzene, liquid and solid, high press. effects 4=22391
 benzene, and mono- and divalent ions, electronic spectra,
 correlations 0=20648
 benzene monohalides, emission from glow
 discharge 2=7257
 benzene, near-u.v. absorpt., 690°-1900°K 4=3887
 benzene, O₂ u.v. absorption bands 2=5020
 benzene, 1500-2000 Å symmetry reduction 2=6176
 benzenes, para-distrib., charact. vibrations 2=16537
 benzenes, p-disubstituted, forbidden character in allowed
 electronic transitions. 0=15747
 benzene, Raman and electronic abs. spectra 3=15319
 benzene, singlet → triplet absorption in vapour 1=14054
 benzene, solid, shock excitation, CN, C₂ and CH
 bands 1=2310
 benzene spectrum, quantum mechanical integrals,
 Pariser—Parr theory 4=22390
 benzene, unresolved bands, mol. consts. det. 3=10482
 benzene, u.v. 1=17309
 benzene, u.v., effect of O₂ 2=12333
 benzene, u.v. Rydberg series, derivation of ionization
 potentials 1=7478
 benzene, vapour and solid 3=20493
 benzene, vibronic calculations 0=15748
 benzidine—iodine crystal complex, visible and i.r.
 absorpt. 4=26063
 benzonitrile 2=3756
 benzophenone—naphthalene mixed crystals, energy
 transfer and T—S spectrum 2=12592
 benzophenone solutions, stimulated light emission 3=23886
 p-benzoquinone 0=15706-7
 benzoquinone, singlet—triplet transitions, mag.
 rotation 1=14038
 1, 12-benzperylene, absorption, 300°K 4=10230
 1-12 benz-perylene crystals, absorption 2=6572
 biradicals, ground-state singlet—triplet splittings,
 paradox 1=6026
 bis-acetylacetonato-copper (II) 1=8987

Spectra—contd

organic molecules and substances—contd

- bis-N-methyl-salicylaldimato-copper (II) 1=19975
 bis-salicylaldiminato-copper (II) 1=19975
 1 bromo-2-chloroethane, far i.r. 3=24031
 p-bromoaniline absorption ground and excited states 4=25696
 bromobenzaldehyde, o-, m-, and p-, $\pi^* \leftarrow n$ system 4=28239
 bromochlorobenzene, m- and p-, near u.v. absorption 4=26227
 bromoform, deuteriobromoform, vibr. 4=22904
 bromonitrobenzene, i.r. absorption 1=6952
 p-bromophenol, near-u.v., absorption 4=22387
 o-bromotoluene, singlet \rightarrow triplet absorption in vapour 1=14054
 1,3-butadiene u.v. absorption cross-sections 3=1932
 butadiene polymerizing with Li, Na, K, in solns. 4=25796
 n-butane u.v. absorption cross-sections 3=1932
 butene-1, vac. u.v. 2=6178
 butyl phenols, spectral shift 1=14018
 Capri blue, in lead nitrate crystals 0=13954
 carbon tetrachloride, Raman and electronic abs. spectra 3=15319
 carbonyl group, vibration band shift in solvents 2=15598
 carbonyl, 3000 Å absorption, mag. dipole character and rotatory power 3=728
 carbonyl, vacuum u.v. electronic transitions, correl. 3=22583
 carboxyl group, adsorbed on metal oxides, as ionized 4=10618
 carboxyl, vacuum u.v. electronic transitions, correl. 3=22583
 carboxylic acids, substituted, absorption 0=18140
 carotenoids, absorpt. 4=22400
 cellulose, colour changes on illumination 2=6891
 charge-transfer complexes in soln., effect of high press. 4=2686
 Chicago research (1958) 0=9810
 chinoxalin derivs., u.v. absorpt., spectra 2=22996
 chloranil, rel. to electronic structure calc. 2=8115
 chloranil-n-phenylenediamine crystal complex, visible and i.r. absorpt. 4=26063
 chloroform, i.r. reflection, rel. to optical constants 1=7698
 chloronitrobenzene, i.r. absorption 1=6952
 chlorophyll-a and fatty alcohols in mixed monomolecular films 4=25792
 chlorophyll a, monomolecular films 4=3942
 chlorophyll solutions 2=15601
 chlorophyll, in solutions, rel. to aggregation state 1=6863
 chlorophylls a and b and their pheophytins, metastable state 4=15364
 chlorophyll, monomolec. films, fluorescence quenching and energy transfer 4=30456
 chlorotrifluoromethane, Stark effect 2=3721
 chromium acetylacetonate, crystal spectrum 2=16836
 chromophores in molec. aggregate, absorption, effect of weak coupling 2=22985
 chrysene, powders and solutions, at 77°K 1=10114
 cis-butene-2 u.v. absorption cross-sections 3=1932
 cis-1, 2-dichloroethylene, microwave 1=8834
 coal vitrains, reflection spectra 0=11760
 complex mols., absorption, theory 2=16505
 complex mols., electronic absorption, adiabatic approx. theory 2=14261
 complex mols. in soln., absorption rel. to luminescence 2=17475
 complex mols. spectral classif. 2=16506
 complex systems, band characterization 2=18444
 complexes, trigonal, optical activity, model and data analysis 4=12419
 condensed medium, correcting for universal effective field 3=25077
 condensed medium, effect of internal field, models 4=3831
 condensed phases, motion and moment analysis, dipole-allowed 4=6542
 Condon loci geometry, from quantum viewpoint 4=3830
 conference on quantum mechanics, Sanibel Island (1963) 4=6449
 coronene, and mono- and divalent ions, electronic spectra, correlations 0=20648
 coronene, quasi-linear, true line-width 4=25699
 crystal spectra of very weak transitions 1=14592-3

Spectra—contd

organic molecules and substances—contd

- crystals, π -electron, triplet exciton interactions 3=25492
 crystals, isotopically disordered, absorption 1=7527-8
 cyameluric acid derivatives, aq. solns., u.v. 2=17466
 cyanides, complex, Raman 1=17333
 cyanine dyes, pressure effects 2=22988
 cyanoacetylene, rotational, in excited bending vibr. states 4=9735
 cyanogen, rotational analysis of 3000 Å absorpt. system 3=22582
 cyclic ethers, vac. u.v. absorption 3=15365
 cyclohexane, electron impact spectra 4=12394
 cyclopentane u.v. absorption cross-sections 3=1932
 DCN in org. solvents, vibrational absorption bands, freq. shifts and intensities 0=10669-70
 decaborane, near u.v., rel. to electronic spectrum 2=14300
 diamine-quinone complexes, optical absorpt. edges 4=26229
 1, 6-diaminopyrene solid complexes 4=13062
 diatomic, symmetric-top, unresolved bands, mol. consts. det. 3=10482
 diazenes 2=6185
 diazenes, $n \rightarrow \pi^*$ transitions, excitation transfer splitting 1=12292
 diazomethane, perpendicular bending modes meas. 4=1290
 diazomethane, vacuum u.v. absorpt. 4=22401
 dibenzene chromium, u.v. 2=2003
 dibenzyl, absorption spectrum 4=10205
 dibenzyl, effect of second impurity 2=16865
 dibenzyl-stilbene absorption, 4.2° and 20.4°K 4=17587
 1, 3-dienic silicohydrocarbons, vibr. spectra and struct. 4=30458
 diethyl ether, vacuum u.v. 4=3891
 9, 10-dihydroanthracene containing anthracene impurity 0=16066
 2, 2'-dihydroxy-1, 1' naphthalidiazine (lumogen), emission, absorpt. and excitation spectra 4=13099
 diketene 1=11121
 dimethylacetylene, perpendicular vibrational bands, internal rotation fine structure, theory 4=25701
 3-dimethylamino-6-aminophthalimide, collision stabilization 2=14260
 2, 6-dimethylnaphthalene, polarized absorption 0=18132
 2, 6-dimethylnaphthalene solution, absorption 4=5188
 2, 5-dimethylpyrazine, solvent effects on $n \rightarrow \pi^*$ transitions 0=15742
 dimethylsulphoxide, (CD)₃SO, rot. 4=22404
 dimethyl ether, vac. u.v. 3=12851
 dioxane, vac. u.v. 2=8104
 diphenyl, electron transitions, branched electron gas model 4=1992
 9, 10-diphenylanthracene, structural absorption, temp. depend. 4=30452
 diphenylene, in naphthalene 0=18131
 diphenylbutadiene, absorption spectrum 4=10205
 1, 4-diphenylbutadiene-1, 3, structural absorption, temp. depend. 4=30452
 2, 5-diphenyloxazole solns., rel. to concn. 3=1701
 diphenylpolyenes, absorption spectrum 4=10205
 distyrylbenzene derivatives in soln., absorpt. spectra 4=18209
 di-tetramethyl ammonium uranium hexachloride 3=8343
 dithioloxalato complexes, aqueous solns. 4=8212
 durene 2=12594
 dye films and solns., osc. strengths, overlap and luminescence quenching 4=11200
 dye solns., absorpt., and luminescence, diff. 4=14171
 dye solns., reflection, adsorption effects 4=16119
 dye solutions, absorption spectra 1=15891
 dyes, colour shift by electric field 1=6004
 effect of paramagnetic molecules on spin-forbidden transitions 1=14015
 electron scatt. meas. 4=3828
 electron spectra, rel. to optical props. of solvent 2=22940
 electronic, band intensity and position, solvent influence 4=6517
 electronic band systems, estimation of $\Delta\epsilon_e$ 1=14057
 electronic spectra, effect of solvents 0=15739
 electro-optical parameter theory, H-D isotope effects 3=25114
 Elsasser band, transmissivity 3=15322

Spectra—contd

organic molecules and substances—contd

- eosin, influence of solvent mixture of MAM or ethanol 3=21378
 eosine solns. in mono- and PMMA 2=9281
 eosine, yellow, in glycerine and polymethylmethacrylate, reflection symmetry 2=19566
 erbium ethyl sulphate, 0.9-1.1 μ , 77° 4°K 4=10173
 ethane, continuous absorpt. spectrum 4=25690
 ethane, electron impact spectra 4=12394
 ethane-type mols., perpendicular vibrational bands, internal rotation fine structure, theory 4=25701
 ethane u.v. absorption cross-sections 3=1932
 ethanol, O₂ u.v., absorption bands 2=5020
 ethers, vinyl alkyl, vibr. spectra 2=16548
 ethyl bromide, u.v. absorption in gas and solid 1=855
 ethyl iodide, u.v. absorption in gas and solid 1=855
 O-ethylaniline vapour, near u.v. absorpt. 4=17303
 ethylene, continuous absorpt. spectrum 4=25690
 ethylene, electron impact spectra 4=12394
 ethylene, electron scatt. meas., agreement with u.v. 4=3828
 ethylene, lowest triplet states 1=850
 ethylene u.v. absorption cross-sections 3=1932
 europium benzoylacetate soln., ¹⁵²D₀ → ⁷F₂, spectrum 4=30461
 exciton absorption in crystals, effect of deformation and mag. field 2=10598
 exciton lines, enhancement in elec. field 2=10594
 far u.v., theory and expt., review 2=14284
 ferrihaemoprotein hydroxides, correl. of mag. and spectrosc. props. 4=20145
 ferrocene 1=12290
 ferrocene 2=6183
 ferrocene and ferricinium ion, effect of pressure 1=11089
 fluorescein, absorption spectra, rel. to solute concentration 1=15887
 fluorescein cation, absorption 1=14013
 fluorescein, solns., absorption, effect of pH medium 2=19565
 fluorescein, solns. in mono- and PMMA 2=9281
 fluorescein solutions 4=29637
 fluorescein, u.v., visible and i.r., by quantum chemistry 3=2647
 fluoroacetylene, rotational, in excited bending vibr. states 4=9735
 O-fluoroasinoles vapour, near u.v. absorpt. 4=17304
 α and β -fluoronaphthalenes, u.v. absorption 0=5956
 forbidden character of allowed electronic transitions 0=15747-8
 forbidden transitions, effect of mol. vibr., calc. 2=12341
 formaldehyde, mag. dipole transition 3=12852
 formaldehyde, magnetic h.f.s. 1=12281
 formaldehyde, singlet-triplet transitions, mag. rotation 1=14038
 formaldehyde, 3000 Å absorption, mag. dipole charac. and rotatory power 3=728
 formyl fluoride 0=15740
 Franck-Condon locus deriv. 2=18445
 gases selectively excited in Fe afterglow meas. 4=12385
 gases, vibrational absorption band intensities, temp. dependence 1=12928
 glycine and addition cpds., i.r. and Raman spectra 4=22907
 (glycine)₃.H₂SO₄ rel. to dielec. dispersion 2=16768
 glyoxal, singlet-triplet transitions, mag. rotation 1=14038
 guanidine Cr sulphate hexahydrate, polarized light absorpt., 1.7°, 4°, 20°K 3=13192
 hexachloroacetone, u.v. absorption spectra 1=8846
 hexadeutero benzene, u.v. Rydberg series, derivation of ionization potentials 1=7478
 hexaethyldisiloxane, i.r. rel. to temp. 2=17467
 hexafluoroacetone, u.v. absorption spectra 1=8846
 hexa-m-phenylene radical anion 4=25731
 n-hexane, glow emission, analysis of four regions 1=14044
 holmium ethyl sulphate, optical absorpt. 3=8600
 hydrocarbon-quinone complexes 2=8669
 hydrocarbons, alternat. and mono- and divalent ions, electronic spectra, correlations 0=20648
 hydrocarbons, aromatic, in boric acid glasses, photo-ionization study 0=21290
 hydrocarbons, aromatic, glow emission, analysis of four regions 1=14044

Spectra—contd

organic molecules and substances—contd

- hydrocarbons, aromatic polynuclear, solvent shifts in paraffin hydrocarbons 0=16707
 hydrocarbons, conjugated, nonalternant, electronic spectra, calc. by limited configuration interaction method 4=20087
 hydrocarbons, electronic interaction 0=11530
 hydrocarbons, unsat., Raman and electronic abs. spectra 3=15319
 imidazole, electrophilic substances present, u.v. spectrum 4=15370
 impurities, in crystals, electron transition frequency 2=23567
 infrared, induced electric moments 1=7469
 iodine solns., u.v. and visible absorption peaks 0=16705
 isopentane, dispersion curves 3=17592
 isoprene polymerizing with Li, Na, K, in solns. 4=25796
 isotopic analysis 2=23987
 Keynon-Banfield radical, in methanol soln. 2=14584
 liquids, electronic absorpt. rel. to Raman spectrum 4=21135
 liquids, i.r. absorption lines rel. to temp. 2=9279
 liquids, i.r. reflection, rel. to optical constants 1=7698
 liquids, vibration absorpt. bands, intensity, temp. depend. 3=21376
 long-chain hydrocarbons, torsional vibrations 1=19627-8
 ketones, n- π^* u.v. absorpt. and i.r. CO band, correl. 0=7791
 measurement of absorpt. spectra of optically-excited species, 10⁻⁷ sec lifetime 4=2842
 mesonaphthodianthrene photo-oxide 0=21289
 metal coordination cpds., polarized crystal spectra 1=19975
 methane, absorption, 2470-3200 cm⁻¹ 0=15735
 methane, rel. to C-H bond moment 2=12339
 methane, continuous absorpt. spectrum. 4=25690
 methane, electron impact spectra 4=12394
 methane, solid, vac. u.v. absorption 0=13696
 methane, test of theoretical absorpt. band model approx. 4=9743
 methanol and alkali and alkaline earth halides in methanol, absorption 4=2683
 methanol, NO u.v. absorption bands 2=5020
 methanol, O₂ u.v. absorption bands 2=5020
 methyl alcohol, in acetonitrile, O-H bond 3=8285
 methyl bromide, unresolved bands, mol. consts. det. 3=10482
 methyl iodide, u.v. absorption in gas and solid 1=855
 methyl orange dyes on silica and silica-alumina gels, absorption, recording meth. 2=19705
 methyl red in solid polystyrene, Stark effect 2=14664
 3-methylaminophthalimide, effect of medium 3=1703
 methylcyclohexane and benzene, oxygen and CCl₄ effects 2=14674
 methylcyclohexane, fluorinated, dispersion curves 3=17591
 methylene blue and green liquid crystals 4=24220
 methylene-blue, polarization measurements of absorption spectrum 1=11099
 methylene, spin-spin interaction 3=17602
 molecular crystals, i.r., atomic vibration study 2=699
 molecules, rotational spectra, h.f.s. theory 2=12313
 monoalkylbenzene, absorption 2700 Å, rel. to substituent radicals, 20°K 4=7141
 monohalogen benzenes, glow discharge spectra 1=16286
 mononitrophenols adsorbed in solution and solid surfaces, reflectance 4=25711
 naphthacene, in dibenzyl and diphenyl, impurity conc. depend. 1=11374
 naphthacene in organic crystals, absorption 2=6568
 naphthacene, solvent shifts 2=21910
 naphthacene, in tolan, stilbene and p- ditolyl, 20°K 1=11375
 naphthacene vapour, absorption and fluoresc. 4=1300
 naphthalene, absorption bands, oscillator forces 2=23541
 naphthalene, absorption bands, various props. 2=18837
 naphthalene, band spectra, triplet-triplet transition 2=3015
 naphthalene derivatives, absorption and phosphorescence spectra 0=5949
 naphthalene and deuterionaphthalenes, vibr. spectra 4=30465
 naphthalene, and dihydroxy derivatives, absorption, comparison 2=20855

Spectra—contd

organic molecules and substances—contd

- naphthalene, electronic structure invest. 2=22992
 naphthalene h-8 and d-8 2=16817
 naphthalene, with methylnaphthalene and naphthols, temp. depend. 0=21003
 naphthalene and octodeuterated naphthalene, absorption 2=6566
 naphthalene, self-absorption band, 20-290°K 2=8526
 naphthalene, shifts, rel. to solubility in compressed nonpolar gases 4=6633
 naphthalene, solid, absorption spectrum 2=12595
 naphthalene, solid, shock excitation, CN, C₂ and CH bands 1=2310
 naphthalene, solutions, changes on addition of ferric acetylacetonate 3=15359
 naphthalene, solvent shifts 0=16707
 naphthalene, solvent shifts 2=21910
 naphthalene, term scheme 4=20473
 naphthalene, thermally stressed films, absorption, 20°K 4=15606
 naphthalene, 3200 Å system at 4°K 1=14592
 naphthalene, u.v. 3200-2200 Å 3=934
 naphthalene vapour, absorption bands, at 3200 Å 1=8843-4
 naphthalene vapour, u.v. emission, r.f. excited 1=7476
 naphthalenes, D-substituted, rel. to Rashba effect 4=1714
 naphthalenes, fluorinated, electronic shifts 0=5957
 naphthols, hydrogen bonding and electronic spectra 1=17329
 naphthols, oscillator strengths 2=18470
 β-naphthylamine, non-radiative transitions 1=6034
 nickelocene 1=12290
 nickelocene 2=6183
 nitrobenzene, electronic, SCF-MO calc. 1=14064
 nitromethane, molecular orbital calc. 0=15712
 novomethylene blue liquid crystals 4=24220
 octacyanide complexes 3=725
 n-octadecane, dispersion curves 3=17592
 octamethyltrisiloxane, liquid and crystalline, i.r. rel. to temperature 3=14169
 octodeuteronaphthalene, thionaphthene doped, 20.4-77°K 4=4316
 organophosphors, absorpt. spectra 3=20492
 1,3,4-oxadiazole in polystyrene, absorption 2=1160
 oxadiazoles, absorption, rel. to 1-methylnaphthalene 3=18815
 oxalyl chloride, u.v. absorption 2=14289
 oxazine dye crystals, absorption 1=14595-6
 oxazoles, absorption, rel. to 1-methylnaphthalene 3=18815
 2,2'-paracyclophane, electronic spectrum 3=4773
 n-paraffin, rel. to C-H bond moment 2=12339
 n-paraffins, crystalline, vibrational spectra, methylene rocking and wagging modes 0=13697
 para-nitrosodimethylaniline, freq. depend. of scatt. intensity in electronic absorpt. band 4=25713
 pentacene-pyrene mixed crystals, emission props. 4=30692
 n-pentane, dispersion curves 3=17592
 n-pentane u.v. absorption cross-sections 3=1932
 perfluorobenzene, near-u.v. absorpt., 690°-1900°K 4=3887
 n-perfluoroheptane, dispersion curves 3=17591
 perylene, lowest electronic transition, strong exciton coupling 4=20249
 phenanthrene, quasilinear phosphoresc. spectra 4=15374
 phenanthrene, solvent shifts 0=16707
 phenanthrene, solvent shifts 2=21910
 phenazine, absorption, 77° to 4.2°K in n→π* transition region 2=10601
 phenol, under flash photolysis 0=6413
 phenol, hydrogen bonding and electronic spectra 1=17329
 phenoxy radical in nitrogen matrix, rel. to photolysis 3=3403
 p-phenylenediamine, rel. to electronic structure calc. 2=8115
 phenylpropionic acid and derivs. C≡C, C=O bands 4=25714
 pheophytin 1=5053
 pheophytin a, monomolecular films 4=3942
 pheophytin solutions 2=15601
 phthalimide derivs., in liq. soln., rel. to interacts. 2=18472
 phthalimide, u.v., in alkaline solns 4=9759
 phthalimides and dyes, electronic-vibr. transition 2=14291

Spectra—contd

organic molecules and substances—contd

- phthallic acid, powder, reflection, rel. to absorbed layer 3=23062
 phthalocyanine complexes 2=18751
 phthalocyanine crystals, absorption 2=16825, 18829
 phthalocyanine crystals, polarization 3=20495-6
 phthalocyanine, frozen crystalline solution, emission and absorption 4=7163
 phthalocyanine, metal-free single crystals 3=10971
 phthalocyanines, rel. to degrees of association 3=18013
 π-electron systems 1=19646
 plastic scintillator, absorption spectrum 1=7726
 polyacene mono- and dinegative ions, absorpt. spectra 4=20093
 polyacenes, self-consistent field calc. 4=15375
 polyacenes, triplet → singlet transitions, polarization 2=20857
 polyacrylonitrile-AgNO₃ complex, i. r. 4=12509
 polyatomic, electronic spectra of solutions 2=14294
 polyenes, substituted, in various solvents 3=23891
 polyethylene, absorption, rel. to electron irradi. 4=1416
 polyethylene, crystalline vibrational spectra 2=23905
 polyethylene, i.r., b_{1u}, methylene wagging and twisting 0=15792
 polymer solutions, idealized relaxation spect. 1=15884
 polymerized methacrylic acid adsorption on glass, i. r. 4=7728
 polymers and hydrated monomers, i.r., rel. to intermolec. mechanics 4=20142
 polymers, i. r., rel. to oxidation 4=4697
 polynitroalkanes, vibrational spectra, analysis 4=9760
 polynucleotide, helical, double-stranded, exciton bands 4=9799
 polyphenyls, absorption spectrum 4=10205
 polytetrafluoroethylene, infrared transmittance and emittance 1=8999
 polyvinyl chloride, colour change on electron bombardment 1=10103
 polyvinylene, absorption bands 4=3951
 POPOP, solvent effect, dipole moments 3=25127
 porphin complexes, Kuhn electron gas model, ring form 0=9814
 porphyrin 1=5053
 porphyrin charge-transfer complexes with sym-trinitrobenzene 3=2651
 porphyrins 3=25129
 porphyrins, theory 0=20658
 phosgene, vacuum u.v. absorption 1=3548
 phosphors, pressure effects 1=20019
 phthalocyanines, absorption 1=7707
 phthalocyanines, absorption 1=11361
 pressure broadening, quantum-mech. impact theory 2=12305
 pressure shifts from solvent data 1=8125
 propane u.v. absorption cross-sections 3=1932
 propylene u.v. absorption cross-sections 3=1932
 propylene, vac. u.v. 2=6178
 protoporphyrin, absorption 1=7707
 protoporphyrin, absorption 1=11361
 purines, single crystals, polarized absorption spectra 3=25131
 pyrazine, n → π* transitions, excitation transfer splitting 1=12292
 pyrazine 2=6176
 pyrazine, elec. dipole nature of 3700 band 4=20092
 pyrazine, ground-triplet transitions and mixing 3=22588
 pyrazine, solvent effects in n → π* transitions 0=15742
 pyrazine, vibr., calc. and study 4=22411
 pyrene, absorpt. spectra at 20° and 4°K 4=10235
 pyrene in fluorene lattice, and polarization of first two singlet states 4=22410
 pyrene, polarization of first two electronic transitions 0=15755
 pyrene, solutions, changes on addition of ferric acetylacetonate 3=15359
 pyrene-tetracyanoethylene complex, polarized absorption 4=22909
 pyridazine, i. r. solution spectra, solvent shift 1=8123
 pyridazine, n → π* transitions, excitation transfer splitting 1=12292

Spectra—contd

organic molecules and substances—contd

- pyridine and deuteropyridines, vibr. spectra, calc. and interpretation 4=9761
 pyridine, ground-triplet transitions and mixing 3=22588
 pyridine, 1500-2000A symmetry reduction 2=6176
 pyridine, u.v. absorption in different solvents 0=6804
 pyridine, u.v. Rydberg series, derivation of ionization potentials 1=7478
 pyrimidine, $n \rightarrow \pi^*$ transitions, excitation transfer splitting 1=12292
 pyrimidine, 1500-2000A symmetry reduction 2=6176
 pyrimidines, single crystals, polarized absorption spectra 3=25131
 quasilinear, obtained at low temp. and in paraffin solid solutions 3=18012
 quinoxaline 2, 3 dithiol chelates with Ni, Co and Pd, absorption spectra 0=20631
 Raman scattering tensor for vibrations of any class of crystal 1=14613
 rare-earth ethyl sulphates, crystal field splitting 2=20906
 relation to fluorescence, mirror-image relation 3=23892
 review, USSR work 0=9809
 rhodamine B, influence of solvent mixture of MAM or ethanol 3=21378
 rhodamine B and 6G in glycerine and in polymethyl methacrylate, reflection symmetry 2=19566
 rhodamine B and 6G, solns. in mono- and PMMA 2=9281
 riboflavin, on addition of amino-acids 3=8954
 rotational, with centrifugal distortion and torsional splitting, analysis tables 4=3834
 salicylaldehyde—ethylenediamine copper (II) complex 1=11373
 sample mounting for u.v., compacted disks with KCl 1=18593
 semiconductor dyes, long-wave absorption, singlet excitation state 0=13619
 simple molecules, theoretical computations 3=10500
 solids, impurity atom effects on vibrational absorption spectrum 1=10098
 solute, u.v., rel. to dielec. const. of solvent 2=17440, 19550
 solutions, absorption rel. to fluorescence spectra, exptal. support for formula 1=18411
 solutions, effect of solvent 2=15595
 solutions, triplet state absorption, external heavy-atom spin-orbital coupling 4=8214
 solvent shifts 2=21910
 spontaneous emission at absorption band wavelengths 1=12927
 stannohydrocarbons, ene-yne, vibrational 2=16547
 stilbene, absorption spectrum 4=10205
 stilbene, in CCl_4 and mol. vibr. 4=12510
 stilbene and derivs., absorpt. and fluoresc. 3=735
 stilbene in n-octane at liq. H_2 temp., absorption and luminescence 4=5187
 stilbene, in octane at liq. N temp. 2=23609
 stilbene, 1-17 μ absorption, frequencies and intensities 4=15607
 stilbene, π -electronic u.v. studies 3=25133
 stilbene, u.v., rel. to photoisomerization process 2=14675
 stilbene, p-monohalogen, u.v. 2=14675
 stilbene—tolan, absorption, 20°K 1=11376
 styrene polymerizing with Li, Na, K, in solns. 4=25796
 substituted benzenes, perturbation theory calc. 1=6031
 sym-trinitrobenzene 4=15361
 p-terphenyl solns., rel. to concn. 3=1701
 tetracene microcrystals, bands at 5330 and 5350 Å, evidence for surface excitons 1=6090
 tetracene—pyrene mixed crystals, emission props 4=30692
 tetrachloroethane, far i.r. 3=24031
 tetrachloroethane, i.r. reflection, rel. to optical constants 1=7698
 tetracyanoethylene complexes 2=4040
 tetracyanoquinodimethane, absorption peaks, rel. to pressure 4=30602
 tetracyclic hydrocarbons and their alkyl-substituted derivatives 3=15360
 tetrauterioallene, Raman and i.r., integrated intensities and polarizations 4=6609
 tetrahydrofuran, vac. u.v. 3=15365
 tetrahydropyran, vac. u.v. 3=15365

Spectra—contd

organic molecules and substances—contd

- tetrakis-thiourea-nickel chloride, polarized spectrum 4=13064
 tetramethyl-1,3-cyclobutanedione, u.v. 3=17606
 s-tetrazine, vibr., calc. and study 4=22411
 tetrolaldehyde, near u.v., analysis 2=14290
 thalidomide, u.v., in alkaline solns 4=9759
 thiazine dye crystals, absorption 1=14595-6
 thionaphthalene, near u.v., vapour 3=15368
 thionine violet liquid crystals 4=24220
 tolan, absorption spectrum 4=10205
 tolan, u.v. absorption 1=14056
 tolane, oscillator strengths from i.r. dispersion data 4=4282
 toluenes, halogen-substituted, singlet \rightarrow triplet absorption in near u.v. 1=14053
 trans-dichlorotetrammine Co III, tetragonal splittings 4=22399
 transition-metal pentacyanonitrosyl complexes 2=6570
 transitions, polarizations and assignment 1=17331
 s-triazine and trimethyl-s-triazine, singlet-triplet absorption 1=10126
 s-triazine, $n \rightarrow \pi^*$ absorption spectrum 1=17322
 tri-1-naphthylboron, intramolecular charge-transfer bands 1=19641
 trimethylene oxide, vac. u.v. 3=15365
 triphenylene, and mono- and divalent ions, electronic spectra, correlations 0=20648
 triphenylmethyl, absorption and fluoresc. spectra at 4.2°K 3=4976
 triplet state decay in isopentane solns. 4=11198
 triplet state perturbation due to one singlet state 2=20781
 triptycene, u.v. absorption, calc. 1=6023
 trisoxalatometallates, crystalline 0=16067
 tryptaflavine cation, absorption 1=14013
 tryptaflavine in gelatine, absorption spectrum 1=6866
 tryptaflavine in poly and monomethylmethacrylate, absorpt. 4=22416
 tryptaflavine solutions 4=29637
 u.v. absorption, temp. depend., H-bonding 0=5950
 as u.v. converters, for gas scintillation counters 2=1626
 unidentified emitter in reaction between N_2 and chlorinated hydrocarbons 1=20731
 uranyl acetate, absorption bands analysis 3=8282
 vacuum u.v. review 1=17323
 vibrational, calc. methods 4=6524
 vinyl chlorides, i.r. bands at 1.6, 1.1, and 0.8 μ 2=14280
 vitrine, ultra-thin sections, absorption of u.v. and visible light 0=20992
 weak absorption, meas. 1=8831
 Wurster salts, anomalous bathochromic shift 4=6639
 xylenes, proton frequency spectr. neutron diffr. meas. 4=28251
 ytterbium ethyl sulphate, 0.9-1.1 μ , 77°, 4°K 4=10173
 C_3 radical, in flash photolysis of diazomethane 4=6613
 CBr_4 , Cl_4 , absorption edge, press. depend. 0=4407
 CCl radical, emission spectrum 1=3546
 CCl_4 , i.r. reflection, rel. to optical constants 1=7698
 CCl_4 , infrared intensity and breadth calc. 1=9394
 CDCl_3 in non-polar—proton-acceptor solvent, rel. to H-bond formation 4=28208
 CD_3H , vibrational—rotational bands 0=7761
 CH, in acetylene— O_2 detonation 1=12677
 CH band, blackening in hollow cathode 3=19936
 C—H, (0,0) band, spin-doublet splittings 1=2332
 CH radical, $^2\Pi$ state, dissociation energy 4=12527
 CH_2 3=7328
 CH_2 u.v. Rydberg type band series 2=548
 CH_3 3=7328
 CH_3 radicals, recorded through flash-heated grids 0=17759
 CH_4 , absorption cross-sections, 600-170 Å 4=15272
 CH_4 , Jupiter high dispersion spectra 0=14397
 CH_4 , 1850 to 4000 Å, absorption 4=11249
 CH_4 , emission, excited by protons and H atoms 3=15338
 CH^+ , extension of $^1\Pi-^1\Sigma$ system 0=6551
 CH^+ ($^1\Pi-^1\Sigma$) cometary band, rot. temp. 3=25118
 CHCl_3 , absorption spectra 1=2757
 CHCl_3 , infrared intensity and breadth calc. 1=9394
 CHCl_3 , intense i.r. absorpt., 740-810 cm^{-1} 4=30455

Spectra—contd

organic molecules and substances—contd

- CH and CD, mol. consts. 3=25119
 CH₄ and CD₄, i. r., crystalline and solutions 2=14683
 CH₄ and CH₃, Rydberg levels, orbital theory 4=3883
 CH₃D, vibrational-rotational bands 0=7761
 (CH₃)₂GeCl_{4-n}, stretching vibr., i. r. absorption 4=30463
 CH₃, absorption edge, press. depend. 0=4407
 CH₃O radical, u.v. absorpt., from photolysis of
 CH₃NO₂ 4=22435
 C₂H₂, absorpt., 1900-2200 and 4400-6750 cm⁻¹ 3=10531
 C₂H₂Cl₂, infrared intensity and breadth calc. 1=9394
 C₂H₂-O₂-argon mixtures, free radicals in shock
 waves 0=17760
 C₆H₆, C₆D₆ and (C₆H₆ + C₆D₆) mixed crystals,
 absorption 0=7800
 C₁₀H₁₂, absorption line calc. 0=11533
 CN, cometary study 0=18725, 20611
 CN, low chromosphere emission, excitation
 temperature 0=18775
 CN radical formed from C₂N₂ 2=20882
 CN, red system (0, 0) and (0, 1) bands, analysis 0=20618
 CN, rotational analysis of (20, 16) band 2=12331
 CN(²Σ⁺ - ²Σ⁺) system, temp. meas. 3=12846
 CNH₂N and CND₂N, vibrations and inversion 4=3872
 CN and N₂ bands in discharges through nitrogen-organic
 substances 3=12850
 Co phthalocyanine crystals, absorpt. polariza-
 tion 3=20495-6
 Co II coordination cpds 0=4413-14
 Co(III) acetylacetonate, polarized crystal spectrum 1=17883
 Co(III) complexes, rot. dispersion, circular
 dichroism 4=22398
 Co-Cl complex formation study in methanol, -80° to
 +80°C 4=27201
 [Co(MeOH)₅Cl]⁺ in methanol, optical spectroscopy, complex
 formation study, -60° to -80°C 4=27200
 Cr-acetylacetonate crystals and derivatives, inter-
 combination spectra, 4° and 77°K 4=10170
 Cr(III) complexes in rigid glass, meas. 4=22920
 Cr trio-acetyl acetone, crystal spectra 0=20980
 Cu acetylacetone, polarized absorption, 11 000 to
 22 000 cm⁻¹, 30° to 300°K 3=3027
 Cu mono, di- and tri-ethanolamine complexes,
 absorption 0=13693
 Cu, phthalocyanine crystals, absorpt. polariza-
 tion 3=20495-6
 Cu salt-quinoline complexes, i. r. absorption 4=22414
 D₂CO K-type doubling 1=12285
 Dy ethylsulphate, absorption, 58° and 4.2°K 0=16054
 Er(C₂H₅SO₄)₃·9H₂O 1=1165
 Eu benzoylacetate soln., absorpt. spectrum 4=20082-3
 Eu β-diketone chelate in PMMA, meas. 4=22906
 Eu chelate solution, laser radiation, 6129 Å 4=19281
 Eu dibenzoyl-methide, stimulated light emission 3=23886
 Eu thienyltrifluoroacetate, absorption and
 emission 3=23888
 Eu³⁺ in organic matrix solid solution, stimulated
 emission 3=25443
 F₂HC-CH₂F, 7-30 kMc/s 4=3893
 Fe mono, di- and tri-ethanolamine complexes,
 absorption 0=13693
 HC¹³N, ν₂ and 2ν₂ bands 1=829
 HCO₂ radical 4=6622
 HNCN, free radicals 3=8307
 K ethylamine solns., decay and mols. present 4=21158
 KCl, V₂-band, effects of plastic and elastic
 deform. 4=20318
 La ethyl sulphate, Pr-doped, absorption 3=23072
 La ethylsulphate, with Pu³⁺ 3=8601
 N-heterocyclics, π* → π and π* → n phosphoresc. polariza-
 tion 4=1296
 NCO free radical, in cyanate flash photolysis 1=856
 NH₄ carbamate and deuteroammonium carbamate,
 i. r. in thin solid films 4=30675
 N-O compounds 1=4941
 Na salicylate films, adsorpt. and emission, 1750-5000 Å,
 room temp. and 80°K 4=28716
 Ni complexes, effect of pressure 1=6206
 Ni complexes with salicylaldehyde and amines 1=5047
 Ni dimethylglyoxine and related chelates,
 pressure effects 1=3833

Spectra—contd

organic molecules and substances—contd

- Ni mono, di- and tri-ethanolamine complexes,
 absorption 0=13693
 Ni phthalocyanine crystals, absorpt. polarization 3=20495-6
 Rb ethylamine solns., decay and mols. present 4=21156
 SO₂ free radicals, absorption 2=16565
 Sm ethylsulphate, Sm³⁺ anal., term diagrams 0=10047
 Sm(C₂H₅SO₄)₃·9H₂O, Zeeman effect 1=6207
 Ti³⁺ in alcohol and glycerol, visible region
 absorption 3=1712
 XY₃ZV₃, electro-optical parameters calc. 2=22991
organic molecules and substances, infrared
 absorption bands, 2-16 μ, for spectrometer
 calibration 0=6938
 absorption maxima, evaluation of positions 2=10255
 adsorbed molecules, wide-band absorption 1=6011
 acenaphthene crystals, in polarized light 4=1757
 acetone nitril, in soln., temp. depend. 4=27182
 acetonitrile, i. r. absorpt., temp. depend. 3=8286
 acetonitrile, width and profile 0=20614
 acetylene acid, and D-substitution product, i. r.
 absorption- 3=15366
 acetylene adsorbed on alumina and silica 1=11601
 acetylene-d₂, i. r., 1900-3400 cm⁻¹ 3=2637
 acetylene, in organic solvents 0=9802
 1-alkenes, rotational isomerism 0=15783
 alkylidiboranes 0=7760
 alkylidiboranes 1=6013
 alkylidiboranes 1=6014
 alkylidiboranes, isotopic variants 0=20634
 N-alkyldithiocarbamate complexes with metals, normal
 coordinate analysis 3=25120
 allene 4=30450
 allylic chlorides, rot. isomerism 4=28235
 amides, monosubstituted, interaction with benzene in
 soln. 0=3532
 amides in solution 2=7218
 amines rel. to N-H stretching and bending freqs. 2=7219
 anthracene and anthracene-d₁₀, in polarized light 2=6164
 anthracene, 9, 10-dihalogen, interpret. 4=15363
 aromatic, large conjugated systems, in host matrix, and
 u. v. spectra 4=17547
 azine-quinone complexes 4=28242
 band shape calc., overlapping rotational lines 3=17554
 benzene, absolute absorption intensity meas. 1=7716
 benzene, absorption, rel. to pressure 3=25116
 benzene-I complex, enhanced intensity 2=6165
 benzene, crystal reflection 2=4149
 benzene, crystalline 0=2939, 8003
 benzene, crystalline, absolute intensities 2=23576
 benzene, crystalline, films 3=13191
 benzene-deutero benzene mixed crystals, absorption
 intensities 3=23081
 benzene, liquid phase 0=3533
 benzene, reflection spectra and absolute
 intensities 1=4343
 benzene ring, vibrational bands, temp. effects 1=12288
 benzene, solid, intensities 0=13690-1
 benzene-sulphonic acids, substituted, ethers 4=12498
 benzene, width and profile 0=20614
 benzenes, trisubstituted, to -180°C 1=14035
 benzenecarboxylic acids, absorption spectra 0=9803
 benzoic acid and o-halogen derivs. 3=733
 benzosulphochlorides, effect of substitutes 2=22987
 boron acid-alcohol complexes, spectra, i. r. absorpt.,
 and bonds 4=10201
 bromodichlorofluoromethane (CBrCl₂F),
 400-3000 cm⁻¹ 0=4207
 bromoform, reflection spectra and absolute
 intensities 1=4343
 calculation, first approx. of generalized valence-
 optical theory 4=15325
 carbon disulphide, high-resolution study 2=16525
 carbon disulphide, liquid, reflection 3=16624
 carbon disulphide, reflection spectra and absolute
 intensities 1=4343
 carbon tetrachloride, absorption, temp.
 dependence 0=3568
 carbon tetrachloride, liquid, reflection 3=16624
 carbon tetrachloride reflection spectra and absolute
 intensities 1=4343

Spectra—contd

- organic molecules and substances, infrared—contd**
 carbonato Co(III) complexes 2=3747
 carbonyl band intensity and mol. structure 2=6156
 carbonyl group, effect of non-polar solvents 0=9804
 carbonyl group mol. environment, effect on i.r. intensity 3=6405
 carbonyl, splitting due to water 3=8283
 carbonyls, metal 2=16530
 carboxylic acids, long wavelength absorpt., 20° and -170°C 4=25697
 centrifugal distortion effects in asymm. rotator 3=2595
 chloranil, rel. to anomalous dispersion effect 2=12578
 chloranil, effect of particle size on molar absorptivity 3=14346
 chloroform, absorption, temp. dependence 0=3568
 chloroform and deuteriochloroform mixed crystals 4=10203
 chloroform, liq. and crystalline 4=10203
 chloroform, 100-180 Gc/s 4=6616
 chloroform, reflection spectra and absolute intensities 1=4343
 chrysene monocrystals, polarized absorption, 20°K 1=11384
 cis and trans 1,2-difluoroethylenes 2=1996
 complex molecules, isotopic frequency rule 0=15715
 complex molecules with several identical groups 2=6152
 complexes, charge transfer, var. theory 4=25603
 compressed gases, absorption 0=972
 conditions of characteristic polarization 1=14023
 cyanogen, crystalline, and dipole-dipole coupling 4=4280
 cyclic sulphur-containing compounds 1=14115
 cyclobutane, rel. to normal vibrations and potential constants 4=6614
 cyclobutane, vibr. 4=30457
 cyclohexane, adsorbed, wide absorption bands 1=840
 cyclohexane, i.r. absorpt., temp. depend. 3=8286
 cyclohexane vapour, absolute intensities meas. 4=6619
 cyclohexane, width and profile 0=20614
 cyclopentane, absorption, temp. dependence 0=3568
 cyclopentane vapour, absolute intensities meas. 4=6619
 cyclopropane, single crystal 1=14603
 deoxyribonucleic acid 2=7049
 deuteriochloroform, liq. and crystalline 4=10203
 diamine-quinone complexes 4=28242
 diazirine 4=17301
 diazomethane, gaseous, i. r. 4=9756
 diazomethane, solid and in N or Ar, reassignment of molecular constants 4=10204
 dibromochlorofluoromethane (CBr₂ClF), 400-3000 cm⁻¹ 0=4207
 dichloroborane and dichloroborane-d 4=17302
 dichloromethane, rel. to deuteration 2=12311
 dichlorotoluenes, to -180°C 1=14035
 dideuteroacetylene, rotational constants 2=14279
 1,2-diethyldiborane, isotopic variants 0=20634
 dimethylacetylene vapour, liq. and solid, far i. r. spectrum 4=28243
 1,2-dimethyldiborane, isotopic variants 0=20634
 disubstituted 3-scano 2,5-pyrrolidiones and derivatives and vibr. 4=15603
 dithiocarbamate complexes with metals, normal coordinate analysis 3=25120
 electrolyte solutions, ionic interactions with solvent molecules 3=21375
 ethane 3=4766
 ethane (C¹³C¹³H₆), $\nu_1 + \nu_6$ band 3=20007
 ethane and ethane-d₆ 0=1513
 ethanol adsorbed on Al₂O₃ surfaces 3=3362
 ethers, CH vibr. and harmonics, perturbation by free orbitals of O 4=3882
 ethyl ethers, effect of substitutes 2=22987
 ethyl fluoride, barrier to internal rotation 2=25121
 ethylene acid, and D-substitution product, i. r. absorption 3=15386
 ethylene, and C₂D₄, crystalline 2=14686
 ethylene and C₂D₄, crystalline, absolute intensities 3=6656
 ethylene chloride in soln., ratio of gauche to trans-form 0=2770
 ethylene, Coriolis perturbations 4=20081
 α -ethylene ketones 4=3892
 ethylene, single crystal 1=14604

Spectra—contd

- organic molecules and substances, infrared—contd**
 ethylene, solid state vibrational 2=2237
 ethylenes, deuterated, vibration mode assignments 1=7437
 fatty acids, solid, 700-900 cm⁻¹ range 1=17901
 50-350 μ , use of plane grating in zero order 0=6927
 films, on metals, reflection study 0=6925
 fluorinated esters 2=8088
 fluorinated ethanes 0=5938
 fluorinated ethanes 1=8839
 formamide 0=4195
 glutaronitrile 1=17317
 glycine sulphate, O—H...O vibrations 1=14027
 high polymers, rel. to structure 1=12342
 hydrates, H-bond absorption 1=15882
 hydrocarbons, aromatic, polynuclear, out-of-plane CH vibrations 0=17738
 hydrocarbons, in solid A matrix, i. r., liq. He and H temp. 1=6213
 hydrocyamic acid, and D-substitution product, i. r. absorption 3=15366
 i. r. absorption lines, rel. to temperature and intermolecular vibrations 3=15662
 i. r., adsorbed layers 3=21285
 i. r. band intensity and structure 3=25076
 i. r. band widths compared with corresponding Raman bands 1=2758
 i. r. overtones and combination tone intensities, general formula 3=10526
 i. r., solvent effects 3=22521
 intensity calc. formula 0=15720
 intensity and polarization calc. 0=15721
 intensity theory in valence-optical scheme 1=14024
 isobutane 0=20689
 isopropanol 3=12853
 isotopic molecules, relationships between band intensities 0=15719
 ketene, and deuterated ketenes 3=17600
 ketene and deuteroketenes 3=12854
 ketones, $n-\pi^*$ u. v. absorpt. and i. r. CO band, correl. 0=7791
 ketonic carbonyl groups, vibrational bands, temp. effects 1=12888
 liquids, abs. intensity meas. by attenuated total reflection 4=5382
 malononitrile, in solid Ar matrix 3=10527
 metal-chelate compounds 0=4204
 methane, absorption, temp. dependence 0=3568
 methane in condensed O₂, N₂ and Ar, solvent shift and half-width of absorpt. band 4=5183
 methane-d₂, two bands, analysis 3=12855
 methane, deuterated (CH₃D) 3=22587
 methane, intensity of ν_2 band 2=1995
 methane, major bands, intensities 2=20800
 methane, solid, near λ -point 1=8993
 methanes, deuterated, vibrational intensities, bond moments 0=17740
 methanes, isotopic, calc. 0=5898
 methanol adsorbed on Al₂O₃ surfaces 3=3362
 methanol and deuterated methanols 1=8836
 methyl alcohol 1=13984
 methyl-1,2-benzanthracenes, out-of-plane CH vibrations 0=17738
 methyl and deuteromethyl halide solns., absorpt., rel. to mol. rot. 4=24219
 methyl halides, errata 4=20091
 methyl halides, solid, in far i. r. 2=4150
 methyl iodide 2=20854
 methyl iodide, absorption, temp. dependence 0=3568
 methyl and methyl-d₃ halides, solid-state 1=11383
 methyl silane, rotational analysis 2=16545
 methyl trideuterosilane, rotational analysis 2=16545
 methylacetylene, contour of ν_1 band 3=4770
 methyle bromide 2=20853
 methylgermane 3=17603
 methylsilyl-d₃-acetylene 4=28246
 methylsilylacetylene 3=4771
 methyltrichlorosilane, intensity calc. 2=22991
 molecules, polyatomic, electro-optical parameters 2=22942
 monoalkylbenzols, 20°K 2=18464
 monodeutero benzene, 00 + 912 and 00 + 920 transitions 4=15605
 monoethyldiboranes 0=15732

Spectra—contd

organic molecules and substances, infrared—contd

- monohaloacetylenes 1=7472
 monomethyl aromatic cpds, band assignments for 2900 cm^{-1} vibrations 1=845
 naphthalene, in dibenzyl stilbene crystals 2=23568
 naphthalene halogenated derivatives 4=28249
 naphthalene, in para-polyphenyls, absorption and luminescence spectra 1=14648
 naphthalene, width and profile 0=20614
 nitriles, $\text{C}\equiv\text{N}$ vibrations and isotope effects 2=18471
 nitriles, studied as proton acceptors in H-bond formation 2=17087
 nitrobenzene, adsorbed, wide absorption bands 1=840
 nitrosoderivatives, aromatic 1=6017
 nylon 6-6, effect of pressure 4=22908
 1,2 difluoroethane 1=3540
 1,2,4-trichlorobenzene, to -180°C 1=14035
 oxalato metal complexes 2=3745-6
 oxalic acid, effect of pressure 4=22908
 p-xylene, i.r. intensity calculation 3=15369
 patulin, chromone derivatives, and structure 4=30466
 pentachloroethane, far i.r. 3=24031
 penta-deutero-fluoro-benzene 0=20626
 phenanthrene, single crystals, exciton absorption band region 3=20494
 phenol 4=12498
 phenols, hindered, solvent effects 0=8667
 phenylacetylenes, intensities of $\text{C}\equiv\text{C}$ and $\equiv\text{C}-\text{H}$ bands 3=10537
 phthalocyanine, metal-free single crystals 3=10971
 pinacyanol 1=3783
 polar liquids, absorption band intensity, temp. dependence 0=3534
 polyacenes, triplet-triplet absorption, polarization 3=23082
 polyacrylonitriles, polarized spectra 4=28292
 polyatomic, intensities and polarizations of characteristic spectra 1=14022
 polyatomic molecules, band intensities 0=20608
 1,2 polybutadiene, syndiotactic 0=4077
 polyethylene, crystals, absorption 3=23083
 polyethylene glycol, polarized spectra 3=6444
 polyethylene, high density, far i.r. absorption 4=10207
 polyethylene, infrared-active interchain vibration 4=26228
 polyethylene, oriented crystalline 1=14608
 polyethylene, vibr. spectrum 3=10556
 polyoxymethylene 3=10557
 polypropylene, far i.r. absorption 4=10207
 polypropylene, irradiation changes in structure 0=10359
 polypropylene, isotactic 3=17624
 polystyrene, isotactic 0=4676
 polystyrene, isotactic, characteristic bands 1=17902
 polystyrene, transparency in far i.r. 0=10035
 polytetrafluoroethylene, vibrational spectra rel. to temp. and press. 4=20144
 polyvinyl alcohol, effect of pressure 4=22908
 polyvinyl chloride, dichroism of 603 cm^{-1} band 1=7712
 propane 0=20688
 pyrene, 4000-400 cm^{-1} 3=25468
 pyrene monocrystals, polarized absorption, 20°K 1=11384
 pyridine, adsorbed, wide absorption bands 1=840
 pyridine, width and profile 0=20614
 quinuclidine 0=17743
 recent research 2=22032
 Rochelle salt, fundamental frequencies of 4 water molecules 0=9799
 samarium ethyl sulphate, cryst. 2=2241
 sodium uranyl acetate, exciton absorption 2=18849
 solvent effects 0=1529
 solvent effects on intermolec. forces, freq. shifts and band intensities 0=10669-70
 solvent shifts and molecular interactions 2=20788
 stilbene, absorption, 20.4°K 1=11382
 symmetric top, rotational constants calc. 1=7456
 tables for spectrometer calibration 1=16075
 tetrachloroethylene, absorption, temp. dependence 0=3568
 tetracyanoethylene, with NaI or NaCNS solutions 0=16715
 tin-alkyls, 2-25 μ 1=843
 tolan, absorption, 283°K 1=11382

Spectra—contd

organic molecules and substances, infrared—contd

- tolane, i.r., absorpt. freqn. and intensities 3=25469
 toluene, i.r. absorpt., temp. depend. 3=8286
 tribromoethylene-d 0=17753
 tricyanomethanide ion 3=6407
 triethylborane- d_{18} 2=1532
 trifluoromethanethiol (CF_3SH), 3-22 μ 0=4205
 triglycine sulphate, polarized reflection 3=15687
 trimethylborane- d_9 0=1532
 trimethylplatinum cpds 4=30693
 trimethylene oxide 0=17755-6
 tris-acetylacetonates of Cr, Mn, Fe and Al, Jahn-Teller effect in Mn cpds. 0=20636
 tryptaflavine 1=3783
 vibration, H bond, proposed study 3=6378
 vibration-rotation, calibration system 1=16076
 vibrational, of excited electronic states, excitation modulation spectroscopy 3=12802
 vinyl chloride and vinyl chloride- d_3 0=2764
 AlH_3 and AlD_3 trimethylamine and tetrahydrofuran complexes rel. to coordination bonds 4=3869
 BF_3 , diethyl ether 3=15361
 BF_3 , tetrahydrofuran 3=15361
 BF_3 + dimethyl and diethyl ether addition compounds, valence vibr., gas, solid 4=25695
 C_{3v} symmetry, CH_3CCH and CH_3CN 1=19635
 C_{3v} symmetry molecules, at 1.65 μ 2=1994
 CCl_4 , adsorbed, wide absorption bands 1=840
 CCl_4 , aggregate state, band intensity and structure, Fermi reson. 1=14031
 CCl_4 , band intensities, temp. depend. 1=11791
 CCl_4 , liquid, absorption, 740-810 cm^{-1} 3=23884
 CD_2Cl and CD_2Br , crystalline 1=2445
 C_6D_6 , vibr., second order lines 4=22393
 CF_4 , 1850-3100 cm^{-1} 3=6406
 CF_3SD , i.r., rel. to internal rotation 3=6401
 CF_3SF_6 1=17318
 CF_3SH , i.r., rel. to internal rotation 3=6401
 C_2H_2 1=17316
 CH_3 in ethers, vibr. and harmonics, perturbation by free orbitals of O 4=3882
 CH_3 , fundamental ν , fine structure 1=6002
 CH_3 , and vibr. assignments and excitation energies 3=15363
 C_6H_6 , vibr., second order lines 4=22393
 CH_4 in liquid argon 2=17464
 CH_4 , $2\nu_3$ band, fine structure 0=17751
 CH_4 , vibrational-rotational structure 0=4199
 CH_3Br , adsorbed on porous glass, band shapes, rotational freedom 0=15731
 CH_3CCH 0=4194
 C_2H_2 , C_2HD and C_2D_2 , crystalline, absorpt. spectra 4=17585
 CHCl_3 , absorpt., in strong i.r. band region 4=22397
 CHCl_3 , adsorbed, wide absorption bands 1=840
 CHCl_3 , liquid, absorption, 740-810 cm^{-1} 3=23884
 CH_2Cl_2 , CHDCl_2 and CD_2Cl_2 4=22396
 CH_2Cl_2 - CN ($n = 0-3$), absorption band intensities 4=6634
 CH_3CN 0=4194
 CH_3CN , adsorbed, wide absorption bands 1=840
 $\text{C}_{11}\text{H}_{23}$, CO , $\text{C}_{11}\text{H}_{23}$, rel. to torsional oscillations 1=19626
 CH_3F , vibration-rotation spectra 4=1295
 $(\text{CH}_3)_3\text{N}$ 0=4194
 CH_3OH , adsorbed, wide absorption bands 1=840
 $\text{C}_2\text{H}_5\text{OH}$, adsorbed, wide absorption bands 1=840
 $\text{C}_4\text{H}_9\text{OH}$, temp. depend. 1=12289
 $\text{C}_6\text{H}_5\text{OH}$, temp. depend. 1=12289
 $\text{C}_{18}\text{H}_{37}\text{OH}$, temp. depend. 1=12289
 $\text{C}_3\text{N}_3\text{F}_3$, gas and liquid 4=22376
 COOH group, characteristic freqns. 3=733
 CO_2 , dissolved in CCl_4 and CS_2 , i.r. absorption 1=18412
 CO , adsorbed, wide absorption bands 1=840
 Co(II) pyridine complexes, thiocyanate group 3=22581
 Cu(II) pyridine complexes, thiocyanate group 3=22581
 HCF_3 0=4194
 HCN in org. solvents, vibrational absorption bands, freq. shifts and intensities 0=10669-70
 H_2CO K-type doubling 1=12285
 $\text{H}_2\text{C}^{13}\text{O}$ K-type doubling 1=12285
 H_2CO^{18} K-type doubling 1=12285
 HNC 3=22584
 H_2O , adsorbed, wide absorption bands 1=840

Spectra—contd

organic molecules and substances, infrared—contd

- H₂O, in various organic substances, absorption 0=16719
 I₂—alkylbenzene charge-transfer complexes 1=6015
 N-methyl acetamide, solvent effect 0=9805
 NH₃, adsorbed, wide absorption bands 1=840
 Ni(II) pyridine complexes, thiocyanate group 3=22581
 No, adsorbed, wide absorption bands 1=840
 SiH₃C≡CE and SiD₃C≡CE 4=12492
 Sr(HCOO)₂·2H₂O, reflection spectrum 4=7165

organic molecules and substances, radiofrequency

See also Nuclear magnetic resonance and relaxation;

Paramagnetic resonance and relaxation

- acetaldehyde—water mixture, n.m.r. study 0=6819
 acetic acid, absorption spectra, dielectric constant 1=12894
 acetone and acetone-d₆ 0=4212
 acetonitrile-d₃ 3=6408
 acetyl bromide 0=20630
 acetyl chloride 1=6005
 acetyl cyanide, 8 isotopic species 0=2763
 acetyl fluoride, 8 isotopic species 0=2762
 acetylenes, substituted 1=3537
 analysis for mol. data, review 2=20785
 aromatic solutions, rel. to molecular structure 4=18212
 benzonitrile, structural detm. by microwave spectra 3=2640
 bromocyclobutane 2=14266
 butyl acetylene, tertiary, l-type doubling and resonance 3=19960
 butyl acetylene, tertiary, structure determ. 2=6127
 butyl cyanide, tertiary, structure determ. 2=6127
 butyronitrile, rotational isomers 3=6409
 carbonyl fluoride 3=6410
 centrifugal distortion effects in asymm. rotator 3=2595
 1-chloro-2 butyne, 20-30 kMc/s 0=1528
 chloroacetylene 1=12284
 chlorobenzene, for C¹³ and C¹⁷ species 4=1288
 chlorodifluoromethane 3=6411
 chloroform 0=15737
 chloromethylsilane 2=6151
 2-chloropropane 4=12499
 cis-1-chloropropylene, microwave spectrum 4=20079
 cis-crotonitrile 3=17594
 cis-difluoroethylene 1=3538
 cis 1-chloro-2-fluoroethylene 1=7462
 cis-1, 2-dichloroethylene 2=3741
 cis 2,3-epoxybutane 1=11091
 cis-1-fluoropropylene 2=20846
 cyanamide 1=12284
 cyanamide, HDNCN and D₂NCN, 17-57 Gc/s 3=10532
 cyanamide, rotational 2=1990, 14267
 cyclohexane radicals, e.s.r. spectra 0=5969
 cyclopentane radicals, e.s.r. spectra 0=5969
 cyclopentene, microwave, analysis 2=14268
 cyclopropyl chloride, rotational 4=12500
 diatomic, rotation, selection rules 2=20790
 diazomethane 1=12284
 p-dichlorobenzene 1=10195
 p-dichlorobenzene, C¹³ quadrupole resonance, solvent shifts 0=4539
 1,1-dichlorocyclopropane 2=1993
 dichlorofluoromethane, 10-35 Gc/s 4=20080
 dielectrics, rapid measurement 1-10 000 Mc/s 1=10796
 diethyl amine, microwave absorption 0=19210
 difluoroethylenes 3=17595
 dimethyl ether 3=17596
 dimethyl phosphine, and mol. structure and dipole moment 4=6620
 dimethyl silane 1=5995
 dimethyl sulphide 1=9691
 dimethyl sulphide 1=12283
 dimethyl sulphide, 8-37 Gc/s 0=20627
 dimethyl sulphide, torsional fine structure 3=2644
 energy levels of slightly asymmetric top 0=13431
 ethyl alcohol, 20.7-31.7 kMc/s, dipole moment 3=20002
 ethyl bromide 3=17597
 ethyl chloride 2=6126
 ethyl chloride, press. dependence of microwave absorption 0=5920
 ethyl cyanide, 17-36 kMc/s 0=4211
 ethyl formate, microwave absorption 0=19210
 ethyl iodide 1=838

Spectra—contd

organic molecules and substances, radiofrequency—contd

- ethyl iodide 1=9928
 ethyl iodide, microwave spectrum 1=7463
 fluorine cyanide 1=12284
 fluoroacetylene 1=12284
 fluorobenzene 0=4210
 fluoroprene, 8-35 kMc/s 3=2641
 fluorotrichloromethane 0=15737
 formaldehyde and CHDO 0=5921-2
 formaldehyde, combined Stark—Zeeman effect 1=7465
 formaldehyde and isotopic species, mm region 3=25123
 formaldehyde, microwave Zeeman effect 1=7464
 formaldehyde, (6.3) rotational spectrum 3=25122
 formaldehyde, u.h.f., Q-branch transitions 3=25124
 formaldehyde, vibration—rotation interaction 1=14021
 formaldoxime 3=17598
 formamide 0=4239
 formic acid, deuterio-derivatives 1=6009
 formyl fluoride 0=20629
 formyl fluoride, anomalous Stark effect 0=20628
 formyl fluoride, isotopic variants 0=15738
 formyl fluoride-O¹⁸, rotational const. 1=12287
 glycine, rel. to X-irrad. 2=12822
 n-hexanol in hexane and benzene 2=2729
 isobutylene 1=8832
 isobutylene, rotational const. and structure 4=1297
 isoprene, Stark effect, and configuration 4=15371
 ketene and deuteroketenes 3=12854
 l-type doubling and resonance, interpret. 3=19960
 meta-fluorochlorobenzene, 10.5-26.3 Gc/s 3=4768
 methanol 0=9807
 methanol, K-doublet, Stark effect 1=3539
 methanol, Stark effect 0=513
 methinophosphide, HCP, microwave 4=15372
 1-methoxyvinyl esters, effect of substitutional R, COO⁻ groups 0=6276
 methyl acetate, microwave absorption 0=19210
 methyl acetylene, l-type doubling and resonance 3=19960
 methyl alcohol microwave, σ-Stark effect 3=734
 methyl chloride, collision broadening in inversion spectrum 4=20089
 methyl cyanide, l-type doubling and resonance 3=19960
 methyl fluoride, Stark effect 3=17601
 methyl hypochlorite 4=20090
 methyl isocyanate 4=6629
 methyl mercaptan 1=9929
 N-methyl methylenimine, microwave spectrum 4=25710
 methyl nitrate 1=11096
 methyl stannane 2=3740
 methyldifluoroarsine 2=20852
 methylene chloride 2=6206
 methylphosphine 2=1992
 monochloroacetonitrile 0=7813
 monochloromethane, h.f.s., using beam spectroscopy 4=6617
 monofluoroacetonitrile 3=4772
 nitriles, N¹⁴ pure quadrupole resonances 1=4950
 nitrobenzene 0=7771
 nucleic acids 1=6129
 ortho-chlorophenol soln., microwave absorption 0=5027
 perfluorodimethyl ether, calc. 4=22394
 phenol, microwave study of potential barrier 1=7466
 poly DL phenylalanine in chloroform, interpretation 1=11766
 polyalcohols 1=2768
 propargyl bromide, second-order quadrupole effect 0=2744
 propionaldehyde 4=17308
 propionic acid, absorption spectra, dielectric constant 1=12894
 n-propyl chloride, 2 rotational isomers 3=25130
 propyl fluoride, rotational isomerism 2=18473
 propylene 1=17371
 propylene sulphide 3=20009
 proteins 1=6129
 pyrazine ion, e.s.r. h.f.s. 2=3777
 silyl acetylene, isotopic species, microwave 3=25132
 silyl cyanide 1=12284
 symmetric-top molecules, hyperfine spectrum of J = 1 → 2 transition, calc. 0=15737
 tertiary butyl chloride 3=12849
 tetrachlorosemiquinone, polycrystalline derivs., anisotropic g-factor 4=10334

Spectra—contd

organic molecules and substances, radiofrequency—contd

- trans-crotononitrile 0=13438
 trans-1-chloropropylene 3=2642
 trichlorofluoromethane 20-40 kMc/s 2=14271
 trimethyl silane 0=17744
 trimethylene oxide 1=2322
 vinyl chloride 0=4236
 vinyl fluoride 1=8833
 vinyl formate, microwave spectrum 4=22417
 vinyl silane 1=6008
 vinylidene fluoride 3=17595
 C^{13} nuclei of solvent molecules, in solutions of free radicals 0=16716
 $CClF_3$, nonresonant absorption 0=10700
 $(CD_3)_2CCl$, microwave investigation 2=8093
 CF_3CCH 1=839
 $CF_3COOH-HCOOH$, $CF_3COOH-CH_2COOH$, and $CF_3COOH-CH_2FCOOH$, microwave rotation spectra 4=28241
 $CF_3COOH-HCOOH$, microwave rotation 2=3739
 C_6H_6 , liquid, reflection spectrum 0=12426
 $(CH_3)_3CBr$, in 20000 Mc/s region 2=8096
 CH_3CCH 1=839
 $(CH_3)_3CCl$, microwave investigation 2=8093
 $(CH_3)_3C^{13}Cl$, microwave spectrum 3=4769
 CH_3CHF_2 0=9808
 CH_3CN 1=839
 CH_3Cl , linewidth 1=3535
 CH_3Cl , nonresonant microwave absorpt. spectrum 4=25785
 $CHCl_3F$, linewidth 1=3535
 CH_3DCOH , CD_3HCOH , rotational analysis 3=8288
 CHF_3 , nonresonant absorption 0=10700
 CHF_3 , nonresonant microwave absorpt. spectrum 4=25785
 CHF_2Cl , microwave, mol. structure 2=3738
 CH_3F , nonresonant absorption 0=10700
 CH_3GeF_4 , v.h.f. absorption 1=2323
 CH_3I^{127} 0=491
 CH_3NC 1=839
 CH_3O and $CHDO$, h.f.s., beam-maser spectro-metry 4=9733
 CH_2O , $1_{01}-0_{00}$ transition, in beam maser 4=3206
 $CHOOCH_3D$, rotational analysis 3=8288
 $(CH_3)_2S$, microwave spectrum 2=5494
 $C^{13}H_3S$, $C^{13}H_3$, type, microwave spectrum group theory treatment 1=17314
 $DPPH$, proton hyperfine spectra 0=10680
 F_2CCHF , 800-24000 Mc/s, Stark effect and rot. 4=12505
 $F_2DC-CDHF$, absorption, 7000-25 000 Mc/s 4=1294
 HCN , I -type doublet transitions in isotopic molecules 1=9930
 HCN , π and σ Stark components 0=13441
 $HCO^{18}OH$ 0=13439
 $HCOO^{18}H$ 0=13439
 HDO , h.f.s. 2=10254
 H_2SiCN , D_2SiCN 0=13437
 OCS , power saturation of $J = 1 \rightarrow 2$ rotational transition 0=1500
 OCS , using 3-level maser 0=20642

Spectral line breadth

See also Doppler effect, Stark effect, Zeeman effect

- aberration tolerances of Strehl-intensity type 3=21547
 alkali elements, narrowing hyperfine lines 1=17263
 astronomical, equivalent, calc. from profile 4=26894
 atomic beam sources, possible meas. from correl. expts. using coincidence counting 3=21511
 atoms, broadening by several atoms, theory 3=15273
 atoms (neutral), electron impact widths, calc. 2=3699
 broadening by amplitude selector 1=16073
 in chromospheric spicules 2=4786
 collision broadening, rigid-sphere model 1=4889
 collision broadening, by sudden approx. 4=17240
 composition product simulator for meas. 4=24011
 correction for instrumental and other broadening 0=8796
 correction of profiles for instrumental broadening 2=15730
 crystal excited states, effect of strains 2=12602
 crystals, rare-earth ions rel. to phonon emission 2=12591
 crystal phosphors, absorption and emission bands 4=13008
 diatomic mols., vibr.-rot. bands, meas. 3=9510
 dipole liquids, vibrational, and Raman spectra 2=7216
 distortion, by photoelectric recording 3=14341

Spectral line breadth—contd

- Doppler and dispersion width, as Voigt functions 3=18988
 effect on use of spectral wavelengths as length standards 1=1722
 electron scatt., meas., low energies, Lindholm's theory 3=25063
 in emitting layers, non-coherent scatt. 2=22036
 equivalent width, two overlapping lines 4=18400
 fluid, molecular expressions, model 3=7140
 gas pressure broadening, as relax. process 3=16663
 gases, interdependence with sound velocity and viscosity 3=16660
 gases, mechanisms, and profile meas. 3=14340
 impurity effects in crystals 0=13486
 line form, rel. to contour of self-reversing lines 2=7364
 line half-width, broadened by electron impact, calculation 3=8174
 line-shape functions 1=12247
 line shapes, n.m.r. and e.s.r., modulation broadened, moments correction 4=8964
 liquids, broadening by Rayleigh scattering 4=11197
 long wavelength region 3=19466
 meas., lines photographed in vacuum u.v. 2=15734
 measurement, with microwave spectrometer 1=5603
 methane, l.r. absorption line broadening 2=14272
 microwave, meas. method 0=5428
 molecules, line broadening, rel. to coupled harmonic vibrs. 2=12306
 mols., linear, self-broadened line widths, calc. 4=3852
 Mössbauer, theory 2=3471
 n.m.r. rotary saturation lines 3=20674
 n.m.r. spectra, large Z nuclei, nuclear shielding effects 4=17270
 naphthalene crystals, exciton absorption 4=9916
 non-coherent scatt., calc. 2=22035
 in nonresonant microwave absorption 1=3535
 optical emission line profile analyser 2=22034
 oscillator strengths calc. 0=15658
 paramagnetic crystals in excited state 4=26168
 photometric width as meas. of line intensity 4=7797
 photomultiplier meas. 1=18605
 plasma, non-stationary theory 0=1479
 plasmas, high-density relationships 3=1961
 plasma, Stark effect quadrupole shift, and profile asymmetry 4=27533
 plasma, statist. theory 4=14650
 polystyrene solns., Rayleigh optical scatt., diffusion broadening 4=14142
 pressure-broadened line, intensity distrib. theory 4=19941
 pressure broadening, quantum-mech. impact theory 2=12305
 pressure broadening theories 2=2875
 pressure broadening of vibration-rotation bands 0=9795-6
 pressure shifting, empirical relations 0=5928
 profile recording, photoelectric, microsec. timescale 4=18401
 pure rotation lines, widths and shifts 3=22542
 quantum electrodynamics study, Coulomb gauge, propag. function 0=20025
 Raman, in crystals, broadening due to molecule rotation 2=703
 Raman line broadening, impact theory 2=20783
 Raman spectra, measurement 1=2859
 random time-varying medium broadening 4=11321
 rigid sphere model of collision broadening 1=2270
 ruby, 2E state, effect of strains 2=12602
 scanning with Fabry-Perot interferometer 3=21541
 scatterings by resonance line photon 4=29371
 self-absorption rel. to models 2=519
 simultaneous Doppler and foreign-gas broadening, calc. 1=8808
 slit-introduced errors in pressure-broadened line measurements 4=5379
 solid inert gases, u.v. 1=11362
 solvent effects in i.r., rel. to n.m.r. chem. shift 4=29630
 spark discharges, time variation, ion concn. det. 3=2553
 spectrochemical analysis effects 4=29238
 spectrograph slit, photographic, broadening 2=17622
 Stark and Doppler broadening, hydrogen like line profiles, calc. 4=30370
 stars, broadening due to turbulence and rotation 1=18105

Spectral line breadth—contd

- statistical line broadening in plasmas 2=1958
 statistics of radiative transition probabilities 3=4700
 Tokamak machine, ion temp. meas. 4=14731
 true contour determ. from observed contour 2=19709
 vacuum arcs, magnetically confined, high current 3=19930
 Voigt profile, new tabulation 3=16764
 Voigt profiles, computation and tables 0=5160
 A, collision broadening in near i.r. 1=11066
 A, spark discharges, pressure broadening and Stark effect 0=5874
 C₂H₂, effect of Kr and Xe 0=15726-7
 CO, i. r. absorption line broadening 2=14272
 CO, vibr.-rot. bands, foreign-gas effects 3=9511
 CO, 2-0 band, broadening by N₂ and H₂ 4=12444
 CO, 2ν and 3ν bands, self-broadening 3=19978
 CO, vibration and vibration-rotation bands, pressure broadening 0=9795-6
 CO₂, i. r. absorption line broadening 2=14272
 Cd, optical double reson. lines, self-broadening 4=17345
 Cs, plasma broadening, calc. and meas. of profiles 2=18417
 DCl, vibr.-rot. bands, foreign-gas effects 3=9511
 DCl, vibration and vibration-rotation bands, pressure broadening 0=9795-6
 DCl³⁵, foreign gas effects 3=7244
 F II, III in highly condensed discharges (2900-6000 Å) 3-35 cm pressure 1=9911
 F VI, Stark effect contrib. 1=235
 Fe⁵⁷, Mössbauer effect, frequency distrib. of resonance line versus delay time 1=603
 Ge, phonon broadening of impurity lines 0=11756
 Hα, using electron-optical convertor 2=1272
 Hα, Hβ, in arc and discharge tube 2=19920
 H, Balmer line profiles in arc discharge 2=17805
 H halides, vibr.-rot. lines, pressure effects 3=6377
 H, high quantum number Balmer line broadening 4=22289
 H, Lyman-α, due to high-velocity charged particles, calc. 1=2286
 H plasma, Stark-broadened Balmer lines 3=8176
 Hβ 2=3696
 Hβ, Hγ in arc discharge 3=21752
 HBr⁷⁹, foreign gas effects 3=7244
 HCl, effect of Kr and Xe 0=15726-7
 HCl, foreign gas broadening calc. 3=173
 HCl, i. r. absorption, collision-broadening by foreign gases 0=15788
 HCl overtone lines, self-broadened 3=4746
 HCl, pressure-induced, due to foreign gases 0=5926-8
 HCl, vibr.-rotation lines, impact broadening theory 4=1265
 HCl³⁵, foreign gas effects 3=7244
 HCN, broadening of ν₂ lines, due to Ar, CO₂, HCl 4=3874
 HF, fundamental band, Lorentz parameters 3=2617
 HF, i. r., pressure broadening 2=20809
 HI 3=4749
 H₂O, from collisions with H₂O and O₂ 4=22439
 H₂O, i. r. absorption line broadening 2=14272
 He discharges, meas. 4=11539
 He, 5876 Å, normal and resonance 0=483
 He ions in a plasma, Stark broadening, calc. 1=8809
 He, radiation width and resonance broadening 4=9634
 He, Stark broadening, in arc under variable press. 4=1201
 He, Stark broadening in a plasma, calc. 2=3698
 HeI, in arc, photoelectric meas. 4=19947
 He-Ne gas laser beam 3=11908
 Hg, effect of A 1=13935
 Hg, λ 2537 line, by Xe, high-temp. anomaly 1=13936
 Hg resonance line, pressure broadening, temp. depend. 1=807
 Hg, 2537 Å line broadening 2=5071
 Hg, 2537 Å resonance line, in inert gases 3=706
 Hg, 2537 Å resonance line, pressure broadening, temp. depend. 4=1210
 Hg¹⁹⁹, double resonance narrowing by coherent multiple scatt. 4=19960
 In, λ 4101 and 4511 lines, effects of He and A at up to 120 atm 0=5881
 Kr gas discharge, Stark effect 3=4751
 Kr II in strongly ionized plasma 3=10454
 Mn, pressure broadening of violet triplet by A and He 0=13416
 N IV in plasma, rel. to ion collective motion 3=24304
 NH₃, microwave lines 1=6006

Spectral line breadth—contd

- N₂O, i. r. absorption line broadening 2=14272
 Na, broadening of resonance lines, by various perturbing gases under flame conditions 4=12375
 Na, D₂ line, broadening and shift by perturbing gases under flame conditions 4=12376
 Ne, spark discharges, pressure broadening and Stark effect 0=5874
 Ne II in strongly ionized plasma 3=10454
 O₂, Raman spectrum, effect of 7-125 atm. pressure 0=7764
 O₂, under pressure, microwave 0=5915-16
 O III, asymmetric auto ionized lines 4=15285
 O V, Stark effect contrib. 1=235
 SO₂, broadening by N₂ 3=8279
 SO₂, collision broadening 3=17621
 SO₂, due to interaction with N₂ 2=14340
 SO₂, molecular interaction 3=12841
 Si, phonon broadening of impurity lines 0=11756
 Sr, broadening of resonance lines, by various perturbing gases under flame conditions 4=12375
 Xe, population inversion, Doppler broadening 3=22493
- Spectrochemical analysis**
 See also Chemical analysis, by mass spectrometry; Spectroscopy
 absorption analysers, error from interfering component, theory 1=20788
 absorption, atomic, use of Beer-Lambert law to improve cells 3=23556
 absorption of multicomponent mixtures, automatic calc. 2=6900
 absorption spectroscopy, use advocated 2=23980
 for adjacent elements 3=21018
 alkali earths, plasma jet source 4=10672
 alkali metals in flames 3=8990
 alloys, spectrometers, U.S.S.R., U.K., U.S.A., performance. 3=25848
 alloys, standard procedure 2=17635
 analytical curves rel. to line profiles in absorption 3=18465
 applied spectroscopy conference, Seascale, June 1960 1=385
 arc, atomic concentrations of substance analysed 2=7585
 arcs, electrode material emission mechanism 3=24252
 atomic emission, review 4=15263
 Beer's law and optimum transmittance 3=24041
 biological material 2=19174
 calculator for conversion of optical densities into composition 1=6582
 calibration function, general equation 4=29237
 calibration, Lomakin-Shaibe formula, anomalies. 3=25852
 capacitor papers, i. r. study 0=16396
 "carrier" effect, possible cause 2=864
 centennial, review 0=18454
 complex equilib. constants from spectrophotometric absorpt. meas. 2=8940
 conference on applied spectroscopy 4=5378
 data processing, i. r., five methods 4=13753
 discharge erosive characteristics, spectrosc. investig. 3=24251
 e. s. r. spectrometer, 3000 Mc/s, for radical conc. determ., -160° to +120°C 4=8958
 electron spectroscopy application 4=23694
 emission flame photometry 2=17581
 emission, use in nuclear field 0=3336
 emission, sensitivity limit 2=863
 emission spectroscopy, working curves eqns. 2=19180
 ferrous alloys, effect of electrode material 2=23982
 ferrous alloys, vapour-phase composition 2=23981
 flame, atomic absorption, limit of detectability 4=29241
 flame atomic emission, limit of detectability 4=29240
 flame, incomplete evaporation effects 4=29242
 flame photometric absorption, burner design 2=21601
 flame photometry, atomizing chambers 2=11003
 flame photometry, effect of slit and line/widths 4=7793
 flames, standard addition technique 0=8338
 fluorometer and double-beam spectro photometer, combined, reflectance meas. 4=7800
 fluxed sinter, line intensity, composition depend. 2=19178
 use in forensic medicine. 3=25853
 gas mixtures, absorption, interpolation laws for unresolved structures 4=30407
 gases, residual in vacuum systems, analysis by desorption spectra 4=18306
 globular arc, mechanism 3=24254

Spectrochemical analysis—contd

- graphite hot hollow cathode light source 4=4724
 hard-to-excite elements, low-voltage spark
 investig. 3=25843
 use of high-resolution spectrograph for trace
 impurities 2=23984
 history 1=2857
 homogeneity testing method 4=4723
 i.r. analysers, process control 1=12986
 i.r. gas analyser, use of selective gas emission 0=4753
 i.r. gas microcell for spectrometry 1=8231
 i.r. plant stream analyser, ratio recording 3=24027
 i.r., solvent effects, allowance 4=7799
 i.r. spectroscopy of gas phase of reaction of NOCl
 with CH₃OH 1=9168
 infrared cell for blood analysis 1=7923
 infrared spectrometry, review 2=17607
 intensity-blackening curve determ.; wavelength and processing
 condition dependence 3=1405
 isotope analysis using atomic spectra 2=23986
 isotope analysis using molecular spectra 2=23987
 isotopes, review 1=3526
 isotopic, increased precision method 2=865
 light source, general purpose unit 2=5170
 line breadth effects in absorption of resonance
 lines 4=29238
 liquid and gas mixtures, instrument errors 0=19395
 luminescence, flames 4=10670
 metals and alloys, high-melting, oxygen determ. 3=25851
 metals, by spark, h.f., surface phenomena. 3=25844
 metals, standard procedure 2=17635
 methyl and methylene groups, in paraffin-naphthene
 fractions, i.r. absorption 2=19176
 oil in paraffins, i.r. absorption, special cuvette 2=21602
 opaque liquids, new technique 3=18989
 optico-acoustic gas analysis 0=967-71
 use for ores and minerals 4=7798
 oximeter for blood, in vivo 3=3649
 by photoelectric emission, differential meas. 4=29239
 photometric width of spectral lines as meas. of
 their intensity 4=7797
 process-stream, photoelectric 3=5175
 Raman, advances and appl. 3=5517
 Raman spectral method, hydrocarbon mixtures 4=10673
 rare earth, arc, atlas. 3=25854
 reflection, internal, multiple, cells 4=10671
 refractory specimens, using plasmatron 2=109
 ruby, Cr conc., spectrophotometric determ. 4=15857
 short-lived transients in radiation chemistry 0=16383
 solutions, spraying into glow discharge 0=10766
 source unit, electronically controlled. 3=25842
 sparks, electric, var. with self absorption and
 conc. 4=2171
 spectrometer analysis of small samples,
 figure of merit 1=10299
 spectrophotometer, atomic absorption 3=24025
 sputtering yield meas. 0=12653
 stainless steels 0=8339
 steel, on C, local in depth 2=19179
 steel, using digital computer and emission spectro-
 meter 4=26770
 steel, spectrometer, multichannel, photoelectric,
 performance. 3=25849
 steels, use of VC1 vacuum quantometer 4=7795
 successive determ. of elements using photoelectric
 instrument 4=7796
 theory, review, plasma. 3=25841
 thiophene in benzene by i.r.
 absorption 4=30912
 time resolved, new high precision system 3=1813
 u.v. emission, search for Ge, As, Se, Br, Sn, Sb and
 Te 0=16397
 vacuum spark source for far u.v. 1=16088
 X-ray, by electron probe, light elements 4=23689
 X-ray spectrometer, single crystal, multichannel,
 scanning 4=4726
 Al alloys, spectrometer, multichannel, photoelectric,
 performance. 3=25850
 Al-Cu, effect of Si, Zn 3=25846
 Al-Mg, effect of Si, Zn 3=25846
 Al₂O₃-Cr₂O₃, Cr content 2=862
 B, in Si 1=19864

Spectrochemical analysis—contd

- Be 2=19177
 Be dust, in atmos., automatic monitor 1=1454
 Ca, Ti and Al in Zr, line broadening meas. 2=23983
 Cd in sulphide minerals 4=30913
 Co 2=19177
 Cr 2=19177
 Cu spark, effects of discharge chars. 4=7794
 Cu spark method, increase of sensitivity 0=12122
 Cu-Ni, Fe impurity intensity, effect of Ni conc. and
 arc temp. 3=25840
 Cu with Zn, in discharge, effect of Si, Na, time
 var. 3=25845
 D, in water, near natural abundance 2=12302
 D₂O, to 0.001% 2=10997
 Fe 2=19177
 Fe, in Mg, effect of Mg structure 2=19173
 Fe, Ni, Cr, Ti, mutual influences 0=10378
 Fe, Si and P determination, with modified quartz
 spectrograph 0=14828
 Ge halides, impurities, from i.r. absorpt. of
 liquid 4=7792
 H, using deuterium exchange, i.r. spectrophotometric
 method 0=18453
 Hg 6 (³Po), photoreaction with nine gases, meas. 2=6877
 KIO₃, diluted with inactive LiF, powder, diffuse reflectance,
 u.v. 3=23557
 Li, isotopic composition and concentration in
 solns. 2=866
 Mg-Be alloys, binary and multicomponent systems 2=19175
 Mn 2=19177
 Mo 2=19177
 N atom conc., quantitative meas. by e.s.r. 4=23687
 N¹⁵ and N¹⁵/N¹⁴ ratio 1=4917
 Ni 2=19177
 O atom conc., quantitative meas. by e.s.r. 4=23687
 O₂, solid, reaction products with atomic H 0=12098
 P, in Cu and in Al alloys, using gliding sparks, far u.v.
 method 0=6428
 S, impurity effects, arcs. 3=25847
 Se, impurity effects, arcs. 3=25847
 Si 2=19177
 Si halides, impurities, from i.r. absorpt. of
 liquid 4=7792
 Te, impurity effects, arcs. 3=25847
 Th, by d.c. arc. 0=21298
 Th, with thoron, in presence of Zr, spectrophoto-
 metric 0=12123
 U isotopes 3=18999
 X-ray microanalysis, low atomic no. elements 3=23089
 X-ray nondispersive, using β -ray source 3=21017
 Zn 2=19177
 Zn, concn. of 20 p.p.m., in plasma jet 3=1820
 Zn with Cu, in discharge, effect of Si, Na, time
 var. 3=25845
 Zr 2=19177
 ZrO₂, 24 impurity atoms 0=1971

Spectrometers

- See also Mass spectrometers; Monochromators;
 Spectrophotometers; Spectroscopy; X-ray spectro-
 meters
 aberration tolerances of Strehl intensity type 3=21547
 absorption, for near-Schumann region, with photoelec.
 recording 2=9391
 astronomical, concave gratings 3=9147
 astronomical photoelectric 1=9282
 astronomical, rocket-borne, for 1300-4000 Å 3=18584
 astronomical, solar, Jungfraujoch 4=2424
 astronomical spectrograph, 9 m, profile and
 resolving power 0=18587
 astronomical spectrographs, design, information
 theory 0=18585
 astronomical, stellar radn. flux on slit 2=929
 astronomical, for use on satellites 2=13201
 atomic beam E-H gradient spectrometer 0=15672
 automatic spectrograph, using UM-2
 monochromator 4=16231
 balloon-borne, for night airglow study 2=4661
 at Bellevue, Fabry-Perot type 0=16840
 β -ray, calculation methods 1=13400
 calibration, from calc. Be II, Al III osc. strengths 4=5381
 calibration of small grating-type, 166-600 cm⁻¹ 2=17617
 calibration, 2-16 μ absorption band data 0=6938

Spectrometers—contd

camera objective distortion, rel. to spectral line curvature 2=7363
 compensation for Rowland ghosts by double diffraction 0=14832
 crossed-dispersion, resolving power 2=17612
 Czerny-Turner, optimization 4=18403
 demonstration β -spectrometer 0=1161
 design, using grating and Fabry-Perot interferometer for $R \geq 100,000$ 0=16516
 for determ. of electronic energy levels of mols. by electron scattering, design 4=6520
 diffraction echellette grating, i.r. 3=16776
 diffraction grating, fast, for Raman studies 4=17316
 diffraction grating types, instrument function, meas. 1=11842
 for diffuse reflection from powders 0=12469
 direct reading 4=14359
 distance bet. spectrum lines, precise meas. 3=1814
 double-beam grating type, with photoelec. recording, for Raman spectra 2=1264
 double-beam i.r., conversion to grating operation 4=14361
 double-beam, 10 nsec recording time 4=18404
 double-beam, for thermoluminescence meas. 4=16232
 double-pass prism or grating system 1=10592
 Ebert, appl. to Fraunhofer diff. anomaly study 2=2895
 Ebert aspheric monochromator for many wavelength simultaneous obs. 2=11482
 Ebert and Ebert—Fastie, focal curves 3=7334
 Ebert, effect of aperture on performance 2=5163
 Ebert—Fastie grating type, for vacuum u.v. 1=2863
 Ebert—Fastie, i.r., performance 3=11916
 Ebert, image investigation 0=5164
 Ebert, optical props. 2=2887
 Ebert, plane-grating, image investigation 0=5164
 Ebert, 2-mirror, high resolution, photoelec. detection 0=19415
 Ebert-type plane grating mounting, stigmatic 4=11342
 Ebert-type vacuum i.r., 6 m focal length 4=2833-4
 echellette, 140-1600 μ 3=21544
 echelle, crossed dispersion type 3=7341
 echelle-type, for near i.r. 0=14819
 electrodeless discharge lamps, use of 3=18998
 electron-optical convertor, time-resolved contours 2=1272
 electron pair, high resolution methods 0=2632
 energy-limited resolution, middle-far i.r. 0=2241
 error in interpolation along intervals on Rowland circle 0=14831
 Fabry-Perot for auroral and airglow observations 1=1551
 Fabry-Perot, construction, for isotopic analysis 2=9393
 Fabry-Perot, for high-resoln. and laser work 4=16230
 Fabry-Perot, for hyperfine structures in i.r. 0=16855
 Fabry-Perot, i.r. 0=16844
 Fabry-Perot, integral 0=16874
 Fabry-Perot interference spectrometer 2=7382
 Fabry-Perot, with rect. aperture, instrument function 0=10775
 Fabry-Perot, scanned by pressure, He⁴ fine structure at low temp. 0=7694
 Fabry-Perot scanning, parallel strip-spring 2=2882
 for far i.r., high luminosity 1=18596
 far i.r., with Nichrome coil and Fresnel zone plate 1=6953
 far i.r., with plane grating and focusing mirrors, thermopile detector 0=16857
 far i.r., use with superconducting bolometer 0=8837
 far i.r., vacuum grating 3=24031
 for far u.v. continuous emission, spatial distrib. 3=24249
 far u.v. solar radiation, in 3rd Soviet spaceship 2=19303
 55-1200 μ vacuum spectrometer 3=24032
 fluorescence, absorption cell, for meas. down to -130°C 4=8428
 fluorescence, calibration 2=11483
 focal plane, exact determination method 2=2878
 focusing and slit inclination tolerances 1=12989
 Fourier, with filters 4=14367
 Fourier, for near i.r. 4=14368
 Fourier, two-grating interferometer 3=16770
 Freiberg radio spectrograph 1=18158
 grating, Bass-Kessler type 3=16772

Spectrometers—contd

grating, determ. of ion mobilities in rare gas mixtures 2=1395
 grating, for far i.r. studies 2=21249
 grating, 40-170 μ , medium size 3=21545
 grating, grazing, vacuum, 6-265nm 3=14350
 grating, high resolution, for study of i.r. spectra 4=27314
 grating, high-speed 0=3633
 grating, i.r., high resolution 2=17608
 grating mountings, concave, theory 2=2884
 grating mounting, grazing incidence, for 20-500 Å region 4=8424
 grating-prism, i.r. high-resolution 2=17609
 grating, for Raman spectra 1=847
 grating, with rectangular aperture, theory 0=162
 grating, resolution 0=5163
 grating-slit, i.r. emission spectra meas. 2=22899
 grating spectrometer for 45-150 μ range 1=6952
 grating, with 2 transmission gratings 3=24029
 grating, 2.2. m, for 2000-11 000 Å 3=16774
 grating type, application of ellipsoidal concave theory 1=2884
 grating type, with 2 polarizing components, intensity meas. 1=12990
 grating, in zero order, 50-350 μ 0=6927
 high resolution, using double etalon with pressure scanning 0=16843
 high-speed, high-resolution, large aperture 3=24028
 image defects, energy loss by diffraction 1=1825
 immersion grating, high-resolution 0=7757
 Infracord, adapted for 25 μ 0=2240
 i.r. absorption intensity meas., secular distortions 0=12481-2
 i.r. analysers, process control 1=12986
 i.r. for atoms, scanning grating with PbS detector 2=2879-80
 i.r., choice and use 2=15800
 i.r. differential absorption spectrometer 1=4459
 i.r. double-beam grating 0=5166
 i.r., double-beam, signal/noise ratio 0=10763
 i.r., f6, at Johns Hopkins University 2=1997
 i.r., far range (20-180 μ), high-resolution 2=7353
 i.r. gas analysers, increasing sensitivity 0=12489
 i.r. geometrical-optical image formation 0=6928
 i.r., for meteorological satellite 2=15194
 i.r., 1.2-3 μ , with calibration device 3=24023
 i.r., Perkin-Elmer Model 12C for solar radiation obs. 4=10899
 i.r. prism spectrometer calibration 1=9475
 i.r., rapid scan with linear wavelength presentation 1=10590
 i.r., recent advances 2=22001
 i.r., single-beam, range 1250-100 cm⁻¹ 3=21543
 i.r., UR10, spectral slit width calc. 2=11480
 infrared, high resolution 1=19635
 infrared spectrometer illumination device 3=24038
 infrared vacuum instrument, for petroleum process control 1=11841
 instrument-function profile, for Russian type IKS-11 0=12487
 instrumental effects in i.r. gas spectrometry 1=4378
 intensity distribution distortion, rel. to interferometer exit aperture 3=18995
 interference filter, for low-intensity extended sources 4=8422
 interference-modulator type, for i.r. work 2=18813
 interference, with selective amplitude modulation 2=19712
 interference spectrometer, theory, construction and performance 1=5354
 interference, spectrum accuracy rel. to measurement 1=18603
 interferometer, far-i.r. 4=8421
 interferometer, with osc. mirror for audio detect., advantages 4=14353
 interferometric, amplitude modulation selection 0=16835
 interferometric, modulation for visible and i.r., use of analogue computer 0=16833
 interferometric, using any number of gratings 0=16841
 large-aperture grating instrument 0=159
 large-aperture, slitless, for high-speed projectiles in rarefied air 3=7335
 line profiles, exptl. meas. 4=8427
 Littrow f/6 grating spectrograph 1=4460
 magnetic, double-focusing, for β -ray absorpt. studies 2=3314

Spectrometers—contd

Michelson interference, modification 4=14365
 mirror, focusing conditions and astigmatism 2=22023
 mirror spectrographs, props. of focal surfaces 1=2870
 monochromator, grating, i.r. resolving power 2=17630
 monochromators: Ebert, Pfund and Czerny-Turner types 2=2885
 monomolecular film absorption obs., 3800=8000 Å 4=5384
 multi-pass, for photoelectric meas. of low energy light 4=27318
 multi-slit arrays, 2 systems with superposed slit images, high luminosity 0=19417
 near i.r., 5 ft vacuum instrument 0=155
 Newtonian two-prism, astronomical 3=9153
 9 metre spectrograph, Paris-Meudon Observatory 1=16080
 noise analysis, interferometer spectrometers 4=27312
 nuclear quadrupole radiospectrometer 1=3072
 Pepsios interferometric scanning instr. 3=24020
 Pfund spectrograph, double-pass, rel. to solar research 4=20889
 photoelectric, for auroral spectra 0=8791
 photoelectric correlator for laser-beam analysis 3=9596
 photoelectric, with Fabry-Perot interferometer 0=3634
 photoelectric grating, for astron. use 3=9148
 photoelectric, with oscillating mirror scanning, 0.4-0.9 μ 0=14820
 photoelectric, scanning, Abel inversion, use of analogue computer, 3=14347
 photoelectric, use of spherical Fabry-Perot interferometer 0=16873
 photographic recording in vacuum u.v., review 3=21538
 plane grating, improvement of image quality 4=8415
 plane grating, stigmatic, from Zeiss 1=2864
 plane-grating type, giving a flat spectrum 1=9476
 plane-grating vacuum type, for far i.r., bolometer detector 1=2862
 polarimeter, also for monochromatic meas. 4=24395
 polarization spectrofluorimeter, automatic recording 4=14401
 polarizing interferometer, high luminosity, low resolving power 0=19417
 polarizing, ultra high vacuum system 4=14225
 power leveller for K band, milliwatt range 4=8928
 prism, calibration using computer interpolation 1=4463
 prism-, converted to grating-spectrometer 2=19713
 prism spectrograph, for i.r. atmospheric radiation 0=8419
 prism type, with 2 polarizing components, intensity meas. 1=12990
 quartz Cornu prism type, for far u.v. 0=14822
 quartz, with photoelectric attachment, for spectrochem. anal. 0=14828
 Raman direct-recording 0=5161
 for Raman spectra recording 3=24033
 for Raman spectra study 0=3620
 rapid scan, for plasma 4=27315
 recording spectrograph, for quartz transmission range 3=24035
 reflectometer, meas. of direct spectral reflectances at normal incidence, 0.2-2.5 μ 4=14363
 reflectometer modification, for u.v. reflectivity meas., at 4°K 4=14364
 resolution improvement, i.r. Perkin Elmer 221 4=21296
 resolving power, improvement, by suppression of intermediate image 0=14825
 resolving power rel. to integral transmission 2=107
 with rotating-disk scanning 0=16860
 single-beam, scanning distortions 0=10776
 for solar eruption spectra study, λ 3550-9000 Å 0=18768
 solar, Lyman- α , dissecting, satellite-borne 4=10939
 solar radiation in far u.v. 3=23682
 solar rotation meas. 2=4711
 solar spectrograph, scatt. light elim. 2=9046
 solar spectrum effect during long exposure 1=9479
 spectral diagram reduction to standard size by photographic method 1=10596
 spectrofluorimeter, energy-recording type 1=2865
 spectrogram, broad line, meas., by scanner comparator 3=16315
 spectrograph, time-resolved, for triggered light source use 1=9477
 spectroradiometer, wide-angle, 420-1100 nm 3=21542

Spectrometers — contd

spectroradiometers, ratio-recording, for fluorescent spectra 0=16858
 stellar, multichannel 0=16838
 systematic errors, Van Cittert's reduction method 3=7340
 Tennessee Univ., vacuum-grating, description 2=20808
 time resolution, review 4=14354
 with time sweep, synchronized to process 2=1271
 with two Fabry-Perot etalons, for i.r. absorption spectra 0=16850
 2 metre grazing incidence, Jerusalem 3=9593
 ultrahigh speed, for line profile meas. 4=27317
 ultraurometer with pulse lamp 4=14371
 u.v. absorption, microspectrograph 1=18598
 u.v. spectral analysis at high resolution 1=2283
 u.v., spectral response meas. 2=17618
 u.v., vacuum, grazing-incidence type 3=21546
 u.v., vacuum, review of grating theory 3=7338
 u.v., vacuum, 10 metre grating, design 3=14348
 ultraviolet spectrograph for pulsed events 3=7336
 vacuum 42 ft grazing incidence 3=7339
 vacuum spectrograph, for several concave grating locations and detection modes 4=11341
 vacuum u.v., geom. for normal and grazing incidence 4=11343
 vacuum u.v., 10.5 m 3=7328
 vacuum u.v., two-metre normal incidence 4=312
 use of zone system at entry and exit slits 3=5521
 for O₃ meas., upper atmosphere 4=10735

accessories
 absorption cell for adsorbed species and solids 2=1268
 absorption cell, use up to 400°C and 200 000 atm. 0=8798
 absorption cell, high-pressure, for pure liquids in i.r. 1=6955
 absorption cell, low-temperature double-beam 3=5518
 absorption cell, variable length 0=82
 absorption cell, white, multiple pass 3=24022
 analogue integrator, for e.s.r. spectra 0=2454
 autocollimator, use of inclined spherical mirror 0=16861
 automatic exposure controller for aurora spectrograph 2=4673
 card punching comparator for wavelengths and wave-numbers 3=18997
 circulating loop for i.r. study of reacting gases 4=2836
 coarse grating, for intensity determination 0=2251
 comparator image inverter 3=24021
 cuvette, with 2 furnaces, for i.r., absorption anal. 2=21602
 direct recording of integr. band intensities 3=16773
 Fabry-Perot, electron-optical scanning 2=7669
 filter gratings, i.r., transmission echellette 3=16775
 filter, image-forming, using resonance scatt. 3=16780
 filter pairs, for wavelength standards 0=3624
 filter for suppression of scatt. light in u.v. spectrometry 4=27304
 glass-infrared window seals 1=5347
 grating ruling and testing at M.I.T. 4=18402
 grating spectrometer, bore-prism drive 3=11915
 gratings and echelles, tandem use 3=5519
 high-pressure cell designs 0=1533
 hydraulic wavelength drive, interferometrically controlled 1=4462
 image intensifier electron-optical, for time scans 4=314
 i.r., amplifying and recording system 2=1269
 infrared cell for blood analysis 1=7923
 i.r. cell, high-temp., for pure liquids and solns. 2=17625
 i.r. cell, pressure broadening of gases 0=8799
 i.r. cell, 2-35 μ range, with diamond or sapphire windows 1=1817
 i.r. chopper adjustment device 0=19419
 i.r. cryostat. liq. N₂ temp. 0=14829
 infrared, far, review 4=14352
 i.r. gas microcell 1=8231
 i.r., illumination by image size reduction 4=14362
 i.r. plant stream analyser, ratio recording 3=24027
 i.r., polarizer, densitometer, cell 3=18990
 integrating sphere, asymmetry 3=16778
 Leitz spectrograph, 6:1 micro attachment for i.r. detection of small quantities of substances 3=11919
 line intensity measurement, digital circuit 1=8230
 Littrow mirror, reducing astigmatism, by deformation 1=4461
 metering units, for Russian IKS 11 and 12 spectrometers 2=17626

Spectrometers—contd
accessories—contd

for micro-absorption studies 1=1821
 microcell for ultraviolet absorption 2=15732
 microdensitometer, nonrecording 4=16236
 microphotometer, automatic recording 1=11839
 microscope, measuring, photoelec. setting device 2=11484
 mirrors, front faced Al, conversion factor anomalies 4=21299
 modulator, for removal of continuous-background 4=21298
 monochromator, high-resolution, for multi-wavelength simultaneous observations 1=8229
 monochromators, substitution of diffraction gratings, for prisms 4=8430
 optical cell for Raman spectra at medium pres. 3=24034
 optical filter selection, for grating spectrometers 0=1032
 photoelectric detection, of Raman spectra 0=3618
 photoelectric recording attachment, for Soviet instrument 3=21552
 photographic films, u.v., far, low fogging 3=24064
 photomultiplier attachment, with 4 exit slits, for quartz spectrograph 0=14828
 polythene cell for infrared 2=15731
 predisperser for grating spectrographs 3=24026
 prism, reflection, for autocollimation alignment 3=21527
 prism system for fast spectrographs 2=22039
 prisms, fused silica, inhomogeneity compensation 3=21528
 pulse discharge radiation recorder, with 10^{-8} sec time resolution 4=315
 Raman high-pressure gas cell 0=6932
 Raman low temp. apparatus 0=12484
 for Raman spectrometer 2=1265
 raster illuminating device, with cylindrical lenses 0=3615
 receiver for spectra lasting 10^{-7} sec. 1=18597
 reflectometer, absolute, for use with Cary 14 spectro-photometer, at low temps. 4=11339
 servo-method for spectral energy distributions 1=12988
 shutter, fast e.m. 4=21300
 shutter, high speed 0=6935
 shutter, mechanical, for extremely short exposure times 0=16862
 shutter for 1μ sec exposures 1=9478
 shutter, 2μ s 4=8426
 slit drive, automatic, for i.r. 0=156
 spectral photographs, use of interferometric photometry 4=14357
 sun-tracking head 3=21550
 time resolu. by rotating mirror camera in 2000-7000 Å 4=8425
 tracking systems, for double-beam i.r. instruments, anal. 1=4466
 window, AgCl cavity, for i.r. liquid cells 3=16779
 Be monitor, with intermittent elec. arc 1=1454

Spectrometers, radiofrequency—

amplifier, parametric, as first stage of mag. res. spectrometer 3=24485
 atomic beam mag. reson. apparatus 2=18242
 for atomic short-lived states, fine structure det. 0=17708-9
 autodyne, 30 Mc/s for direct nuc. mag. dispersion signals by frequency discrimination 4=16676
 automatic frequency control 4=18644
 backward-wave oscillators used as radiation sources 1=9691
 beam maser and cavity absorption spectrometers, sensitivities compared 1=3074
 beam maser spectrometer, constr. and operation 1=16594
 with bidirectional square-wave freq. modulation 2=1609
 Boltzmann interferometer for plasma study, 0.1-10 mm 3=9957
 carcinotron application 0=9807
 cathode follower amplitude control 4=18645
 cavity, for e.s.r. meas., at high temp. 1=12023
 cavity, variable coupling reflection 1=10802
 coaxial bridge, high-sensitivity 3=7724
 crystal mount, universal 2=1614
 for cyclotron radiation of H ions 2=19861
 detector sensitivity, props. of crystal diodes and barretters 1=1981
 e.s.r. det. of no. of free electrons contributing to signal 1=16596
 e.s.r. and double reson. travelling wave helix, use 2=17976
 e.s.r., with h.f. field modulation 4=21662

Spectrometers, radiofrequency—contd

e.s.r., h.f. modulation of d.c. mag. field 1=13191
 e.s.r., with homodyne balanced mixer detection 1=4736
 e.s.r., long cavities for aqueous samples 4=3191, 3193
 e.s.r., 1.2 cm 4=19247
 e.s.r., resonant-cavity and travelling-wave types 3=516
 for e.s.r. signals up to 1.1 Mc/s 1=16599
 e.s.r., slow sweep generator 2=11811
 e.s.r., source-frequency fluctuation compensation 1=9693
 e.s.r., superheterodyne pulse spectrometer 3=7725
 e.s.r. 3 cm, with 3×10^{16} ΔH unpaired spin noise-level equiv. 3=24486
 Fabry-Perot interferometer used 3=21984
 ferromagnetic resonance, microwave, recording, permeability 4=783
 gases, expt. and analysis technique 2=20785
 for gases, at medium pressures 0=19951
 generator, square-wave, high voltage 1=10664
 grating 0=1224
 high frequency modulation arrangement 1=16598
 high-power, amplitude modulated, frequency stabilized 1=13186
 high-resolution Stark-modulated instrument 2=5494
 high-temperature designs 4=12459
 induction, superheterodyne 1=10803
 integrated line intensity meas. 0=5428
 klystron, phase-stabilized system 2=3176
 for line-width measurement 1=5603
 line width measurement by triple modulation method 1=9692
 mag. resonance, appl. of semiconductor switch 1=4547
 magnetic spectrum analysers, 4 types 1=19047
 marginal oscillator type, 100-300 Mc/s 2=1610
 maser 3=12354
 maser, gas, three-level 1=12026
 minimum detectable signal change, independence of detector type 1=16597
 molecular-beam mm-wave apparatus 2=18449
 n.m.r. absorption detector 1=382
 n.m.r., amplifier noise 1=2928
 n.m.r. apparatus at Louvain Laboratory 1=19050
 n.m.r. for broad lines in solids and liquids 1=19051
 for n.m.r. in crystals 4=17689
 n.m.r., high resolution 0=3865-6, 5431, 11066
 n.m.r., high-resolution 4=24873
 n.m.r. in liquids, weak field 1=1612
 n.m.r., for organic cpds. structures 2=20171
 n.m.r. pulse apparatus 1=1977
 n.m.r., simple r.f. phase detector 2=9726
 n.m.r. transistorized, with frequency mod. 0=11064
 n.q.r. apparatus for freq. ~ 1 Mc/s 1=9695
 n.q.r., superregenerative, feedback coherence control 4=19249
 for nucl. quadrupole Zeeman spectra 0=17123
 nuclear resonance pulsed spectrometer for solids 4=17688
 paramag. resonance, bridge analysis and applications 0=19952
 paramag. resonance, broadband mm wave 0=9225
 paramagnetic resonance, at zero magnetic field 1=9694
 parametric spectrograph for quadrupole resonance 1=12025
 piezoelectric coupling detection in powders 3=24504
 plasma, microwave energy detector 2=5497
 Pound-Watkins, frequency stabilization, appl. to n.m.r. 1=3073
 precision Zeeman modulation 0=3869
 pulsed X-band e.p.r. 2=3177
 r.f. spectrograph with tuned circuit 2=5498
 radioastronomical, 21cm 3=16430
 recording spectrograph for absorption and refract. index studies of gases 1=8395
 self-quenched superregenerative, side-band suppression 0=5429
 signals, distorted by linear apparatus correction 2=4907
 spectrograph for e.s.r. 2=3179
 spectrograph for NMR meas. in ferromagnetics 1=16603
 spherical Luneberg lens 1=18566
 spin echo, for nuclear relax. study in liqs. 4=16127

Spectrometers, radiofrequency—contd

for spin-lattice relax. times meas., adiabatic passage technique 0=9223

for spin-lattice relaxation meas. 2=20172

Stark cavity type 0=491

Stark cavity type, "antimodulation" intensity meas. 0=15176

Stark waveguide 4=30069

superheterodyne spectrometer, for 9 Gc/s 1=5604

superheterodyne spectrometer, 9300 Mc/s 1=4735

technique for studying diamagnetism of gaseous

plasma 1=7074

3-cm, with klystron noise compensation 2=3178

tube and parametric, band-width and sensitivity 3=24484

for 2.5-5 mm wavelengths 0=1227

using maser techniques, sensitivity 1=1980

variable frequency, v.h.f. 0=10249

video, sensitivity improvement and noise reduction 1=16595

Zeeman, for cm wavelengths. 3=21983

Ge, n-type, 34 kMc/s detector 1=16608

NH₃ cell, direct absorption, near 23.86 Gc/s 3=3837

Spectrophotometers

See also Colorimeters.

absorption curve recorder 2=7358

absorption, for petrographic sections of

powders 0=8792

for absorption spectra of crystals in polarized light 2=17613

adapter for automatic meas. 2=17624

Asagio observatory, calibration by Kienle step-filter 2=6971

astronomical, pulse-counting, dual-channel 3=9145

atomic absorption technique device 3=24025

attachment for luminescence meas. with Soviet SF-4 instrument 2=22028

attachments for micro-absorption meas. 1=1821

for auroral studies 1=6634

Bauschad bomb 505, rel. to photodetector spectral response meas. 4=24370

Beckman IR-7, freq. reproducibility, accuracy (630-4000 cm⁻¹) 2=17611

burner, atomising, three capillary spray for spectrophotometry 4=24371

Cary-14, collaborative readings 0=160

cell holder, with Zeiss PMQ11 4=27319

concave grating, for 600-4500 Å 2=1266

double beam, for i.r. emission of gases 0=8794

double-beam microscope, assembly and performance 4=27320

double beam, for reflection coeff. meas. 0=5152

double beam, sensitivity and accuracy 4=14360

échelle, for solar u.v. meas. from satellite 2=13123

8-14 μ , for extra-terrestrial objects 3=21080

fast transmission spectra comparison with standard 1=2866

filter grating, i.r., design and props. 2=17610

flashing-light type for photosynthesis obs. 4=16234

furnaces for Cary 14 spectrophotometer 1=10595

grating, high resolution 0=16859

grating instrument, calibration for 240-600 m μ

fluorescence spectra 2=22027

grating, photoelectric 3=18996

grating, for Schumann u.v. range 0=3632

grating, Wood diffraction anomalies 2=17623

gratings, polarization of diffracted light 2=22056

Hardy, use as spectroradiometer 2=15733

head for microspectrophotometer 4=16235

high-resolution atomic-beam instrument 1=6954

i.r. 3=18990

i.r. analysers, process control 1=12986

infrared, calibration with rotating mirrors 2=9392

infrared, double-beam automatic recording 4=14358

i.r., double-beam, distortions, due to recording system 0=10777

i.r., extraneous radiation effects on accuracy 4=2835

infrared, freq. reproduction and accuracy 2=22026

i.r., fiducial wavenumber marking system 3=7342

i.r., linearity testing 4=8416

i.r., optical null double-beam double-pass system 4=8414

i.r., photometric calibration 4=8413

infrared spectrophotometer 2=5167

i.r., ultrarapid-scan 0=16856

Spectrophotometers—contd

in integrated intensity measurement, of i.r. bands 4=29753

Jobin-Yvon, with microscope attachment, u.v. to i.r. 0=14824

logarithmic, 0.2-0.7 μ 1=5345

luminescence, a.g.c. amplifier to correct for light source varns. 3=5605

metals, reflectivity meas., adaptation 2=5168

microdensitometer for continuous scanning of angularly-orientated spectral lines 4=2838

microscope-spectrophotometer 0=3595, 6929

microspectrophotometers with CdSe cells 3=24024

modification, Beckman DK-2R, for light source, spectral distrib., meas. 3=18991

moving specimen intensity modulation for improved sensitivity and accuracy 3=21551

oscillating Fabry-Perot, for rapid meas. of intensity 1=16081

photoelectric, for atm. spectra study 2=19231

photoelectric, construction and use 0=18588

photoelectric, high-dispersion 0=10761

photoelectric, for sky light meas., 0.3 to 1.0 μ 3=1448

photoelectric instrument for successive determ. of elements 4=7796

polarized-light attachment, for absorption meas. on crystals 2=1267

for polarized spectra recording, Beckman DK accessory 4=14370

portable spectro-radiometer for visible region 3=24030

prism-grating, transmittance, effect of polarization 4=16233

prism-grating, for universal use 4=8412

prism type, stray light determination 0=12485

for pulsed low-intensity sources 2=7357

Raman cell, for low temp. 4=29755

Raman, polarization compensator 2=105

recording apparatus, u.v.-i.r., review 1=4465

recording data on filing cards, for Perkin-Elmer

model 0=157

recording errors, optimal parameters 1=4457

recording spectrophotometer for 40-1200 μ 3=14351

reflection oximeter 0=8435

for reflection and transmission meas. at normal

incidence 4=10200

rocket-borne, far-u.v. 4=10940

rotary dispersion attachment, for visible and u.v. regions 4=29778

Russian, SF-4, attachment for luminescence spectra, 330-550 m μ 0=10762

SF-4, integrating sphere attachment, u.v. 2=106

scanning and integrating instrument for small objects 3=9595

solar, high-speed, photoelectric 2=925

for spectrochemical analysis, alloys, U.S.S.R., U.K., U.S.A., performance. 3=25848

for spectrochemical analysis Al alloys, multichannel, photoelectric, performance. 3=25850

for spectrochemical analysis, steel, multichannel, photoelectric, performance. 3=25849

spectrofluorimeter, double beam 3=3880

spectrofluorophosphorimeters 4=29754

spectrometer analysis of small samples, figure of merit 1=10299

spectropolarimeter, photoelectric 2=2902

specular reflectance attachment for Unicorn

SP 600 4=21302

stellar, integrating, description and operation 2=927

stellar spectra, continuous background det., effect of resolving power 1=15503

stellar spectrophotometric gradient, effect of resolving power 1=15504

stray-light determ., methods and materials used 4=8423

temperature-control system and remote stirring 1=233

for thermoluminescence, alkali halides, rapid scanning, automatic 3=18992

transmittance, NBS glass standards, recalibration 4=8420

u.v. cell for low temperatures 1=10594

u.v. recording micro, 2200-7000 Å, for tissue cell absorpt. 3=14349

u.v.-visible, photometric standard 3=1816

u.v., wavelength range extension 0=14823

ultra-violet vacuum, conversion to visible, density recording 3=18993

Spectrophotometers—contd

- ultraviolet with pulse lamp 4=14371
- vacuum, for solid state 2=2889
- for vacuum u.v. region 3=18994
- wavelength calibration, from crossover point of 2 filters 0=3624
- White i.r., accessory for pressure broadening study, i.r. active gases 0=8799
- X-ray, for simultaneous analysis of several elements 4=30009
- Optica CF4, adaption for spectral meas. over range of temp. 4=14366
- Ag sulphite photocell for near infrared range 1=9474
- Ho filter for wavelength scale checking 1=10591
- SF4, absorption cell, for meas. down to -130°C . 4=8428
- SF-4 spectrometer, optical density meas., stray radn. effects 4=27313
- VC1 vacuum quantumeter, use in determ. of S, P and C in low-alloy steels 4=7795

Spectrophotometry

- See also Colorimetry
- A and B type stars, interstellar absorption 2=6968
- absorption, cryostat for -194° to -40°C 3=9651
- absorptivity recorder 0=19416
- association const. det. of charge-transfer complexes 3=2674
- astronomical, standards 3=16316
- atomic-beam-excited spectra, use of Fabry-Perot spherical interferometer 1=18609
- attachment for microspectrophotometry 1=11840
- attenuator, rotating-sector, for precision work 2=5162
- aurora, absolute photometer 0=6475-6
- background correction 3=11914
- calculator, electrical analogue, for transmission data 0=6933
- celestial objects, use of constant-brightness phosphors 0=18589
- chemical flames, effect of slit and line widths 4=7793
- circuit for light intensity ratio meas. 0=6934
- colour indices for near-white samples 0=1048
- converting spectrophotometric data to colour coordinates 0=2258
- differential meas., use of photometric sphere 0=8793
- effective line-width meas. 0=6930
- flames, absorpt. meas., signal-to-noise ratio 3=21548
- fluorescence spectra correction methods 0=8795
- Fourier spectroscopy 2=22029
- immersion of interference films 3=11917
- infrared absorption, pressure modulator method 2=104
- infrared band profiles, statistical analysis 3=14344
- i. r. bands, integrated intensity meas., with double-beam photometer 4=29753
- i. r., near, transmission scale calibrating method by rotating sectors 3=249
- i. r., specular reflection techniques 4=8417
- infrared spectroscopic structure investigation, limitations 2=7354
- inorganic crystals, thin, thickness meas. 2=8515
- integrating sphere, distinction between absorption and scattering 0=5134
- integrator systems, glass filters for performance checking 2=17582
- intensity calibration, absolute, in vac. u.v. 3=16767
- light sources, Xe flash lamps, voltage var. 4=311
- line blackening, interference microscopy method 1=18595
- liquids, opaque, using multiple attenuation total reflection 3=18989
- Michelson interferometer and Fourier transformation for low-intensity spectra 1=16078
- use of Michelson interferometer in near i. r. 3=16769
- microspectrophotometry, biological appl. 3=24024
- microspectrophotometry, test using $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$ 2=18825
- using multiple attenuation total reflection, liquids, opaque 3=18989
- noise, filtering 3=11913
- optimum optical density, for "shot" noise limited spectrophotometers 0=1034
- use of oscillating Fabry-Perot interferometer 3=16768
- oscilloscope procedure, rapid 2=11464
- oxide films on U immersed in refractive media, for determ. optical props. 4=13060
- P cygnus type stars 3=11571

Spectrophotometry—contd

- phosphors, spectral energy distrib. 2000-8000 Å 0=6188
 - photoelectric, nightglow transfer problem 0=14296
 - photoelectric and photographic, comparison on stellar spectra 1=7972
 - photographic, line widths 0=6923
 - photographic, optical line profile 2=22024
 - precision, use of photomultiplier circuit 4=11497
 - primary standard, 3000-12000 Å 1=254
 - Raman line intensity meas. 0=14816
 - relations between two photometric systems, effect of filter pass-bandwidths 0=8763
 - review of three main accurate methods 3=16728
 - screens, as absorption standards 2=5166
 - of sea surface 2=23998
 - self-recording grating spectrophotometer 1=18417
 - semiconductors, absorption constants meas., techniques 0=1734
 - solar chromosphere, during eclipse (June 1954) 2=4788
 - solar extreme u.v., photoelec. study 3=9198
 - spectral transmittances of photographic objectives 0=10790
 - spectrogram, absolute intensity calibration 2=5134
 - spectroradiometric modifications 4=2829
 - spectroturbidimetry of emulsions 1=16072
 - standard stars 0=6617
 - standards of spectral transmittance, glass, recalibration 4=8419
 - stars, photoelectric-photographic comparison 2=6967
 - stars, 12 standard early 4=29364
 - step-wedge, spectral transmission meas. 2=9394
 - test methods, stray-light determ. 4=8423
 - test-tube adaptor, for optical density meas. 0=14783
 - time resolution, photoelectric 4=11340
 - total absorpt. of a band, theory 2=7367
 - 2-25 μ region, spectral absorbance meas. 4=2837
 - u.v., organic materials, sample disks compacted with KCl 1=18593
 - u.v.-visible, photometric standard 3=1816
 - vacuum u.v., attachment to monochromator 1=10593
 - vacuum-u.v., determ. of absolute intensities 4=2839
 - vacuum u.v., double-beam method 0=5167
 - vacuum u.v. line width meas. 2=15734
 - wavelength standard for u.v., visible and near i. r. 2=15735
 - CaF_2 plates, i. r. transmission 3=10942
 - of In alloys 4=15539
 - MgO, as diffuse reflector 1=12991
 - MgO reflectors, use at 0.45-1.03 μ 1=12992
 - Pt catalysts 2=21595
 - Ta_2O_5 anodic films, optical const. meas. 4=22896
- Spectroscopy**
- See also Spectra; Spectrometers; Spectrophotometry.
 - absorbance along atmosph. slant paths 3=14339
 - absorption advocated for spectrochemical analysis 2=23980
 - absorption cell design, multiple-traverse type 1=2869
 - absorption, method of obtaining two identical sources 0=3627
 - absorption and scattering coeffs. meas., applications of formulae 0=1044
 - absorption spectra, derivative recording, resolution 3=16766
 - absorption spectra of dyes on silica gel discs 2=19705
 - absorption spectroscopy, of dispersed materials 1=2858
 - absorption spectroscopy of upper atmosphere 1=6586
 - adsorbed molecules, i. r. methods 4=30884
 - use of analogue computer in side-on arc spectroscopy 4=11338
 - apodisation, review 4=18388
 - arc plasmas, atomic concentration determination 1=2289
 - astronomical i. r., refractive image slices 4=23835
 - atmospheric emissions, upper, technique 3=3509
 - atomic beam devices, wavelength shift correction 0=5168
 - atomic emission, review 4=15263
 - atomic and molecular applications, conference, Gor'kii, 1961 3=18981
 - atomic, review 3=19916
 - atomic spectroscopy, Soviet contributions 1=3499
 - atomic, wavelength meas. using photoelectric scanner and Moiré fringes 3=698
 - automatic spectrographs, review 1=12987
 - bandwidth and coherence time measures 3=233

Spectroscopy—contd

- biological substances 0=6491
- blackening behaviour of background affected spectral lines on plates 3=7343
- calibration, 2-16 μ , tables of absorption bands 1=16075
- carbon isotopic composition, method of determination 1=2305
- colour tristimulus values, variances 2=15439
- complex spectra, det. of line intensities, positions 3=5516
- condensed medium, absorption, observed—true relationship 3=18986
- conference on applied spectroscopy 4=5378
- conference, Jena (Nov., 1958) 1=224
- conference, Jena (Nov., 1958). 1=9464
- conference, Maryland (1962), report 3=3876
- conference (10th internat. colloquium), Maryland (June, 1962) 3=247
- conference, Seascale, June 1960 1=385
- conversion factor anomalies using front faced Al mirrors 4=21299
- correction of spectral profiles, derivation method 3=7323
- correction of spectral profiles for dispersion 3=7324
- corrosive liquids, i.r. cell, with diamond or sapphire windows, microtechnique 1=1817
- crystal thin section prep. by ultramicrotome for absorption spectroscopy 3=13978
- in crystalline rare gas solvents, spectra and energy transfer phenomena 1=17313
- detector, phase sensitive, for long integration time 4=14550
- differentiation of spectra 2=7359
- diffusion of atoms in electric arc, spectroscopic study 1=2955
- digital recording, for spectrum analysis 1=1818
- discharges, elec., investigations rel. to microwave and probe methods 3=4030
- disk technique, for powders 0=8002
- dispersion meas. in i.r. gas absorption bands 3=14345
- display comparator 0=5159
- of electron beam melting 4=16294
- electronic scanning microscope for plate comparator 2=5164
- emission analysis, measurement and presentation of spectral lines, using photoelectric device 0=10753
- emission, prod. of hot dense gases 2=13450
- emission, review 2=19181
- emission, scatter diagrams, statistical anal. 0=12480
- emission spectra meas. for bodies at room temp. 0=3622
- emission spectra, time-resolved, recording methods, limiting sensitivity 3=14342
- emission spectroscopy, as undergraduate subject 4=29751
- emission, working curves, eqns. 2=19180
- excitation modulation, vibr. spectra of mols. 3=12802
- extragalactic, review 0=18837
- extreme i.r. 1=17894
- extreme i.r., technique 1=16077
- Fabry-Perot, rapid-recording 2=5161
- far i.r. interferograms, direct interpretation, appl. to diatomic and linear molecules 4=16229
- far i.r., specimen prepn. techniques 3=3879
- far i.r., transparent substs. appl 2=17628
- far u.v., review 2=22030
- fine structure constant, non-dimensional nature 3=16486
- fine structure measurements, precise interferometric method 0=2732
- flame photometers, pneumatic annular atomizers 3=21549
- flames, standard addition technique 0=8338
- flash-absorption, appl. to radiation chemistry 2=15161
- flash-absorption, using quartz spectrograph 0=17760
- fluorescence spectra of solids, measurement 2=22040
- fluctuation study in Sceptre IV discharge 1=11954
- Fourier, apodization 3=9612
- Fourier, using interferometers without collimation, theory 4=11352
- Fourier space concept, application 0=19411
- Fourier spectrometry, distortions 2=15729
- Fourier spectrometry, instrumental function for discrete analysis 3=18987
- Fourier transform, "mock" interferometry 3=16771
- Fourier transform, apodisation and interpolation 4=18398
- Fourier transform, theory and expt. 4=27311
- Fourier transformation methods 1=1820
- Fourier transformation methods 2=7389
- Fourier transforms, applications 0=16871

Spectroscopy—contd

- Fraunhofer lines, polarization, photoelec. meas. 3=270
- frequency multipliers for frequ. standards comparison 4=5390
- furnace, for low-volatile substances 3=1817
- fused salts, i.r. technique 0=6926
- g-value det. by molecular orbital theory 4=24868
- gaseous species formed at flash-heated solid surfaces, absorption spectra meas. 2=17088
- gases behind shock waves 0=973
- gases, i.r. bands, integr. intensity and line widths, meas. method 3=7248
- gratings and echelles, tandem use 3=5519
- use of grid-controlled photomultiplier 2=1488
- high-speed events, time-resolved, technique 2=19710
- history, Newton to Bohr 1=2857
- hollow-cathode discharge, isotope structure anomaly 2=20736
- "hot" bands, use of pressure modulation 2=2777
- hot plasma investigation methods 1=10699
- hot plasma investigation methods 1=11952
- illumination systems for spectrographs 1=16079
- image intensification by anamorphic optics 3=18985
- infrared, absorpt., effect of wedge shaped sample 4=24362
- i.r. absorption spectrum, intensity parameters, abs. values 0=12481-2
- i.r. atomic emission spectra, extraphotographic, obs. 3=18983
- i.r. atomic emission spectra, historical review 1=797
- i.r. band absorption 0=14818
- infrared, crystallization study of glasses 2=4124
- infrared, developments since 1950, review 1=2856
- i.r. emission of gases 0=1033, 8794
- infrared, far, by attenuated total reflection, review 4=14355
- infrared, far, review 4=14352
- i.r., using Fourier transform 0=16469
- i.r., gases, Michelson interferometer 4=24367
- i.r., highly precise wavelengths 0=17745
- i.r., instrumental effects in gas spectra measurements 1=4378
- i.r., interferometric meas. of wavelengths 4=2827
- i.r. low temp. cell for liquids 3=1693
- infrared, organic liquids, abs. intensity meas. by ATR 4=5382
- i.r. 1-5 μ , precision, review, 3=248
- i.r., precise wavelengths of HCN, NaO and CO 1=12985
- infrared, pyrolytic graphite transmission polarizer 2=13462
- infrared, recent research and techniques 2=22032
- i.r., use of semiconductor detectors 0=18015
- i.r. spectra of high temp. vapours by matrix isolation 1=4935
- infrared spectrometry, review 2=17607
- i.r. spectroradiometry of liquid-propellant flames 4=4699
- infrared spectroscopic structure investigation, limitations 2=7354
- i.r., study of catalysis 1=4102
- i.r., thermal-radiation background 0=158
- i.r., total reflectance prism selection in rel. to sample refractive index 4=5383
- infrared, variable thickness vessel 2=7362
- i.r., wavelength meas. with diffraction gratings 0=10767
- instrument functions, real spectra calc. 1=4464
- instrument resolving power 4=24369
- instrumental broadening of line profiles, correction 2=15730
- instruments suitable for students, testing 2=22038
- intensity calibration, absolute, in vac. u.v. 3=16767
- intensity measurements, in i.r., effect of instrument errors 1=4458
- interference, detector noise effects 3=250
- interference modulation 0=10771
- interference modulation, analogue Fourier transform method 4=14356
- interference modulation, double-beam, aperiodic and periodic 0=6924
- interference patterns, superposition method 3=14343
- interferometers, compensated field, for Fourier transforms 3=21540
- interferometric analysis 0=10764
- interferometric, rel. to atm. turbulence effects 4=23761
- interferometric, factor of merit 0=16836

Spectroscopy—contd

interferometric, meas. of i.r. emission line wave-lengths 0=16854
 interferometric methods, new developments, review 1=1820
 interferometric multiplex spectrometry theory 0=16832
 interferometric, opt. path difference and noise, influence 1=18603
 interpolation formulae, diffraction grating work 0=1035
 irradiance measurement, u.v. to i.r. 1=10589
 kinetic absorption spectra, recorded through flash-heated grids 0=17759
 kinetic absorption spectra recording 3=18982
 kinetic, high-resolution by multiple-flash method 1=10586
 laser, for ionization spectra prod. 4=16239
 length standard definition using spectral lines, effects of broadening 1=1722
 light losses, at spectrometer slits, by diffraction 0=10772
 light source, self-reversed spectral lines 2=19715
 line asymmetry meas. 4=11344
 line curvature, effect of camera objective distortion 2=7363
 line displacement in recording of curved lines 4=14369
 line distortion, by photoelectric recording 3=14341
 line distortion, due to step filters 0=10773
 line form, Fourier anal. 0=16834
 line intensity distrib. analysis by interferometer 4=21295
 line profile analysis, interferometer intensity distrib. evaluation 4=2828
 line profile determination, instrument function method 1=11842
 line profile time evolution, device 3=7326
 line profiles, transformations, applic. temp. meas. 0=12483
 line shift due to atmospheric pressure var. and compensation 4=21297
 lines in populous spectrum, interferometric wavelength measurement 3=11924
 in liquid rare-gas solvents, infrared 2=17464
 mag. resonance spectra, modulation-distortion correction 0=8796
 mathematical identity involving 9-j coeffs. 4=21015
 matrix-isolation, miniature cryostat 4=5490
 measurement of absorption band widths, optimum conditions 1=2874
 measurement procedure, electronic, uniqueness 2=19711
 melts and hygroscopic glasses, i.r., techniques 1=5346
 microscopic 4=26684
 microwave, "antimodulation" method, intensity meas. 0=15176
 microwave, cell for observing π and σ Stark components 0=13441
 microwave, molecular internal rotation, review 0=5913
 microwave, 9th Ampere Colloquium 1=13184
 microwave, phase stabilized klystron system 2=3176
 microwave, pulsed nuclear resonance technique 0=9226
 microwave, quantum phenomena 0=293
 microwave, review 2=17952
 molecular bands, intensity, shock wave technique 4=3871
 molecular dipole meas. in solutions 3=2604
 molecular, Soviet work, review 1=3534
 molecular, in U.S.S.R., review 0=9809
 molecules in liq. and solns., i.r. band contours 4=2690
 Mössbauer, line shape calc. 2=3471
 moving specimen intensity modulation for improved sensitivity and accuracy 3=21551
 narrow spectral distrib., mean wave number 0=16847
 narrowband distribution analysis, from detector fluctuations 4=2832
 new regions of spectrum, review 1=19046
 objective for 3-prism stellar spectrograph 3=11884
 observation of absorption spectra of short-lived species 4=2842
 one-angle reflection, optical constant determination 3=21517
 optical cell for chem. corrosive solns. 3=7333
 optical masers, solid-state 2=15728
 optical window, low temp. 2=2883
 and optics, conference, Jena (1960) 2=17579
 and optics, Conference, Jena 1960 3=11875
 optimum meas. conditions, effect of scanning and selection 0=10770
 organic films, on metals, i.r. reflection study 0=6925

Spectroscopy—contd

overlapping lines, mathematical resolution 2=19371
 particle size effect on i.r. absorpt. 3=14346
 by photocell, proposal 3=5520
 photoconductive CdS recording 4=18405
 photoelectric mixing, users 1=4454
 photographic films, visible and i.r. sensitivity 3=9631
 photometer—recorder device for spectroscopic densitometry 1=5344
 plasma density and temp. meas. 3=7577
 plasma electron temp. meas. with "Alpha" appar. 3=24303
 in plasma energy loss meas. 1=2977
 plasma, highly-dense; short-time, methods 3=7580
 plasmas, high-density corrections 3=1961
 plasmas, high-temp. collision-dominated 3=7506
 plasmas, high temperature 0=19686
 plasmas, meas. of temp. and density 3=9806
 plasmas, non-thermal, problems 3=7504
 polarized, recording, accessory for Beckman DK spectro-photometer 4=14370
 polychromator for time-depend. line profiles 3=7346
 powders, crystal, absorption meas. 1=4452
 power spectrum smoothing for increased dispersion and resolution 4=24010
 profile meas., Michelson interferometer, with photo-multiplier fringe counter 0=19426
 r.f., information flux rate, spectra comparison 0=19420
 r.f., review 1=4743
 r.f., use of spin-Hamiltonian eigenvalues, tables 1=18281
 r.f., using 3-level maser action 0=20642
 Raman, advances and appl. 3=5517
 Raman, book 2=13451
 Raman effect, third-order radiation process 4=17272
 Raman, intensities and depolarization, effect of illumination geometry 3=7332
 Raman line intensities, slot width effect, photoelectric meas. 0=16864
 rapid-scan, using moving plate Fabry-Perot interferometer 1=8228
 recording of spectra, optimum conditions 1=4453
 reflectance change at const. wavelength 3=16777
 reflection spectra of crystals, obs. method 2=17621, 19707
 resolution of close lines 1=4453
 resolution enhancement for spectra of chemical and physical interest 4=21293
 resonance Raman spectroscopy, dyes 0=7765
 review of far u.v. spectroscopic optics in Japan 4=24363
 scanning rate, optimum time const., and slit width selection 0=3625
 sensitivity gain enhanced by Fourier spectrometry 3=1815
 Shannon approx., calc. of true shape of spectra 3=3878
 shock-excited powdered solids 3=24018
 shock tube, hydrodynamic aspects 1=170
 shock tube, quantitative studies 4=8410
 shock tube, review and recent results 4=18335
 shock-wave temp. meas. by spectrum-line reversal, double-beam method 0=14732
 shock waves, temp., relax., line shape, transition 4=2831
 signal-to-noise ratio, enhancement by continuous averaging 4=24859
 signals, distorted by linear apparatus, correction 2=4907
 slit-introduced errors in pressure-broadened line measurements 4=5379
 slit-width error in absorption constants meas. 1=2867
 solar 0=16544, 18768-9
 solid state emission, 50-1000A, accurate recording 3=11918
 solid-state spectra, for appl. to lasers 3=7330
 solids, i.r. cell, with diamond or sapphire windows, microtechnique 1=1817
 spark-discharge spectra resolved in time and along channel cross-section, recording method 1=4456
 spectral cinematographical methods, development 3=7327
 spectral distrib., true contour determ. 2=19706
 spectral energy distributions by servo-method 1=12988
 spectral intensity decomposition into Gaussian curves 1=18592
 spectral line shapes, distortion by recording instruments 1=2868
 spectral line true contour determ. 2=19709
 spectral purity, coherence theory conception 2=86
 spectral time scans, using Fabry-Perot etalon and electron-optical intensifier 3=24036
 spectropolarimetry, instrument problems 3=16806

Spectroscopy—contd

- stellar, quantitative, automation system 2=17297
 sum rules, including induced emission effects 3=7331
 symposium, Bombay (1960) 2=13449, 17606
 theory, subalgebra of associated complexes 2=11242
 thin films, absorption, polarimetric determ. 2=5165
 thin films, absorption, polarimetric determ., Bartell—Churchill relations simplification 4=313
 time-lapse spectrograms, using rotating slotted disk 0=2239
 time resolution, review 4=14354
 time resolved, new high precision system 3=1813
 time-resolved spectra, photoelectric recording 0=3631
 time-resolved spectra, recording and measuring techniques 0=6936
 time resolution techniques, conference 2=5160
 time-resolved, conference 2=1451
 time var., use of image intensifier 4=314
 transfer function, Japanese work 2=13429
 transmission funcn. for bands with Doppler-Lorentz line shapes 0=3621
 transmittance error due to slit function 2=17620
 two-beam interferometry, atmospheric absorption spectra 0=16837
 U.S.S.R. (1958) 0=9757
 u.v., astronomical, using satellites, below 2900 Å 0=4913
 u.v., extreme, history and review 3=14337
 u.v., intensity scale marking 4=16240
 vacuum, flap-valve for narrow apertures 0=19235
 vacuum u.v., abs. intensity meas. 4=8418
 vacuum u.v. radiation physics, conference 3=5515
 vacuum u.v., reflectance-increasing coatings 0=8797
 vacuum u.v., wavelength standards and order separation 3=7329
 vacuum ultraviolet, recent advances 3=7325
 vacuum vessel for high temp. work in i.r., visible, u.v. ranges 2=17627
 vibration-rotation in near i.r., calibration system 1=16076
 visible and far i.r., interferometric modulation 0=16833
 visual signal generator with sinusoidal modulation 1=4451
 wavelength calc., reflecting echelon patterns 1=5343
 wavelength calibration in i.r. using replica grating 2=17619
 wavelength corrections, from air to vacuum 0=6910
 wavelength meas., concave grating spectrograph 3=18984
 wavelength meas., in near i.r. interferometric 0=16852
 wavelength meas., quantum limit 3=14304
 wavelength meas. in vacuum u.v., review 3=21538
 wavelength standard, possible use of Hg¹⁹⁸ 2537 Å line 4=2830
 wavelength standards, Fabry-Perot white light fringes 0=16853
 wavelength standards, I₂ absorption lines 0=16660
 wavelength variation along spectral line, recording apparatus 2=11481
 wave-number meas., from Fabry-Perot interferograms 0=10768
 weak absorption by molecules, meas. 1=8831
 wedge-density matching, logarithmically sectorized spectra, accuracy 1=6951
 Fe d. c. arc electrode vapour jet vels., estimation 4=29894
 of In alloys 4=15539
 InSb, i. r. detectors, nanosec. time response 4=8497
 Kr⁸⁶ line profiles, analysis 4=8411
 Pt reflecting films for vacuum u.v. 3=19005
- light sources**
 arc, Al-0.1% Mg, d. c. constant-temp. 2=17631
 arc, gas stabilized, for atomic osc. strength meas. 4=8431
 arc, high-voltage with perforated anode 3=19000
 arc, modified Maeklev, for solutions, aerosols 4=8435
 arcs, jet-controlled, third spectra excitation 4=8432
 atomic beam, collimation 1=5982
 atomic beams, for spectra of gases 2=110
 atomic line spectra in vacuum u.v., review 3=21538
 Balmer light, intensity modulation 3=21555
 Balmer series tube 0=153
 burner mount, adjustable, for use in atomic absorpt. spectroscopy 4=8433
 cathodes, composite metal, simultaneous emission of several lines 4=8436

Spectroscopy—contd**light sources—contd**

- chopper, electronic 3=21554
 continuous, below 500 Å 3=9592
 d. c. arc, controlled-atmosphere chamber 0=14834
 discharge, electric, h. f., torch N or Ar with Al electrode 4=8667
 discharge lamp for vacuum u.v. 1=2871
 discharge, single-electrode, of variable excitation 2=7589
 electric arc for quantitative spectroscopy 4=8434
 electrodeless discharge lamps 3=18998
 electrodeless discharge tubes, BrI wavelengths 2=3693
 electrodeless, high intensity, for Raman spectroscopy 3=7350
 far i. r., pulse mass oscillator 0=19421
 far i. r., radiant energy comparison 2=17685
 far-u. v., absolute intensity calibration 4=18407
 flame, acetylene-oxygen, using various diluents, for study of broadening and shift of spectral lines 4=11347
 flames, ionization measurements by microwave attenuation 1=8234
 flames, temp. meas., from alkali indicator partial pressure 3=19051
 flames, temp. meas., by spectral lines of alkali metals 3=16829
 flash, for chemical kinetics 0=10778
 flash sources, continuous, energy distrib. 3=4047
 graphite hot hollow cathode 4=4724
 h. f. light modulation 0=8800
 high pressure optical bomb, calibration 1=5348
 high-temp. arc jet 3=24259
 hollow cathode discharge, for impurity detection in ZrO₂ 0=1971
 hollow-cathode, elec. field 1=16090
 Houtermans, Cario-Lochte-Holtgreven, and cataphoresis lamps, interferogram comparison 3=256
 infrared, based on SC 2=5172
 infrared, far, review 4=14352
 i. r., incandescent lamp with mica window 0=16867
 for infrared spectrometer 3=24038
 inhomogeneous, linear absorption method applicability 4=11348
 iodine lamp emitting 2062 Å line 4=13738
 jet-controlled arc, second spectra excit. 3=16783
 lasers, Conference, Great Malvern 1963 3=24039
 line form, rel. to contour of self-reversing lines 2=7364
 low-intensity, extended, use of interference filter spectrometer 4=8422
 low-voltage pulse discharge 0=3628
 Lyman-continuum flash source 0=3629
 microwave line source for vacuum u.v. 3=11922
 molecular stream, electronic excitation 2=8138
 PRK-4 Hg lamp, plasma radiation in far i. r. 4=24650
 particle accelerator, Van de Graaf, for ions 4=22285
 Penning discharge, extreme u.v. 3=7348
 plasma, impurity free, 250 cm long 4=13752
 plasma jet, for alkali earth analysis 4=10672
 plasma jet, line intensity fluct. small 3=1820
 plasma jet, mag. stabilized 4=5389
 plasma, temperature, rel. to current electron conc. 4=16459
 plasmatron, for spectral analysis 2=109
 plasmatron, spectroscopic characts. 4=29959
 primary standard, 3000-12 000 Å 1=234
 quartz-iodine lamp as standard of spectral irradiance 4=2840
 radiance standard, 0.25-2.6 μW strip lamps 0=19490
 radiation standard, near u.v. to near i. r., carbon arc 4=21303
 Raman, He-Ne laser, red, continuous 4=8437
 Raman, laser 4=18408
 Raman, laser, ruby 4=14372
 Raman, rotational, Hg lamp, l. p., high power 4=319
 Raman, use of ruby laser 3=7347
 Raman source, using ruby optical maser 2=5171
 rotating electrodes, for solutions, spraying into glow discharge 0=10766
 ruby laser, use in investigation of Raman spectra of powder samples 4=2841
 Schuler lamp, for extreme u.v., improved electrode 4=320
 Schuler lamps for hyperfine structures 1=16087
 secondary standard, ribbon lamp, 2450-26000 Å 3=253
 single-discharge emission, time-intensity reln. 3=5522

Spectroscopy—contd**light sources—contd**

- single flash, determination of CO₂ dissociation 0=1961
- solar spectrum simulation with Xe lamp 3=5523
- spark, electric, time resolved, for atomic absorption 3=11923
- spark source 0=5169
- spark source, h. f. 3-electrode system, for vacuum u. v. 4=29758
- sparks, time resoln. of excitation processes 4=316
- standard, Institute d'Astrophysique, Paris 1=15403
- standard stars for photoelectric spectrometry 0=6617
- time spent by atoms in excitation region for various sources 4=24375
- u.v., all-metal, arc, l.p. 3=21533
- u.v., comparison with sunlight distrib. 0=10769
- u.v., extreme, two sources 3=14355
- u.v., far, quartz l.p. H lamp 3=21556
- for u.v. source, utilizing Lyman discharge 4=11346
- u.v., vacuum, two discharge sources 3=7349
- universal source, modified Raiskii generator 2=17635
- vacuum u.v. 3=7329
- vacuum u.v. absorption, use of He and Ar continua 4=11345
- vacuum u.v., inert gas continua 3=7462
- vacuum u.v., intense sources 0=14835
- vacuum u.v., low inductance sliding spark 3=11921
- vacuum, u.v., use of sparks 4=11343
- for vacuum u.v., vacuum sliding spark and gas spark chamber 1=4468
- vacuum ultraviolet, Cornell 3=10964
- Van de Graaff beam passed through foil and imaged on Raman spectrograph 3=19918
- variable freq., use in optical dispersion determ. near ³P₁—¹S₀ transition in Hg 4=11365
- Ar, discharge, electric, h. f., torch, with Al electrode 4=8667
- D lamp, intensity, u. v. 4=2825
- H lamp, intensity, u. v. 4=2825
- Fe arc, temp. determination and f value derivation 1=16083
- H plasma, continuous spectrum 0=479
- H and Hg—He lamps 0=161
- He continuum for photoelec. scanning, 600-1100 Å 3=16782
- He lamp, low-voltage, Raman spectra excit. 3=1821
- Hg discharge lamp, spectral line intensity ratios, 1 to 400 torr 3=255
- Hg, for far i.r. 1=2862
- Hg vapour, induced fluorescence 4=9651
- Hg-vapour lamp, high-power 4=318
- Hg vapour lamp, for Raman spectra, of solids 3=5524
- Hg vapour lamps, intensities of 1850 and 2537 Å lines 0=9768
- Hg¹⁹⁸ electrodeless lamp as wavelength standard 2=16481
- Hg¹⁹⁸, wavelength shift as function of temp. 2=5169
- Hg¹⁹⁸ and Cd¹¹⁴, line breadth, self-absorption 2=519
- Kr⁸⁶ 2p_{1/2}—5d₅ line, wavelength for non-perturbed atoms 1=16085
- N, discharge, electric, h. f., torch, with Al electrode 4=8667
- U tetrachloride and tetraiodide lamps 3=18999
- W-filament quartz-iodine lamps, I-vapour spectral modification 4=18406
- Xe arc, u. v. spectral distrib. and aging characts. with filters 4=27306
- Xe, for far i.r. 1=2862
- Xe resonance lamp 3=24040

Spectroscopy, radiofrequency

- See also Nuclear magnetic resonance and relaxation; Paramagnetic resonance and relaxation; Spectrometers; radiofrequency
- alkali metal vapours, magnetometer 4=21616
- Ampere Colloquium, Eindhoven (1962) 3=20629
- Ampere Colloquium, Leipzig (1961) 3=23198
- cavities, high Q, dynamic investig. method 3=5885
- conference, Varenna (1960) 4=24857
- double resonance in the rotating frame 3=6761
- dynamic polarization and resonance signal detection by double irradiation 3=21982
- ellipticity analyser using transition turnstile 3=19467
- extension to below $\frac{1}{2}$ mm wavelength 4=24858
- frequency standards, lab. installation 3=19465
- integrator, long-period, for e.s.r. spectrometer 3=5609
- klystron stabilizer, 10 kc/s Pound-type 3=14765

Spectroscopy, radiofrequency—contd

- microwave discharge tube, liq. helium cooled 4=14583
- microwave, noise radiation from magnetoplasmas 4=21505
- microwave, review 3=21981
- microwave, for study of general mol. structure 4=1235
- radioelectric method for dielec. props. 3=3838
- relative intensity meas. 3=22000
- recording of high frequency radiations at lower frequencies 4=3203
- signal-to-noise ratio enhancement 3=19473
- spectral line shape theory 3=19466
- weak line obs. by effect on couple transition 4=28226

Speech

See also Hearing.

- American English, acoustic correlates of word stress 0=6497
- amplitude clipping 3=13944
- analysis, computer technique 3=9291
- analysis, instruments and methods 0=8439
- analysis by synthesis 2=4890
- analysis and synthesis, applic. to Swedish 1=1601
- analysis—synthesis, using orthog. exponentially damped sinusoids 3=13947
- analysis, synthesis, perception and compression, conference review 4=15972
- articulation index calc. and use in intelligibility testing 3=3651
- articulation index, use in speech distortion, noise masking 3=3652
- articulation in noisy rooms 1=6660
- articulation - testing programme 4=4971
- auditory perception rel. to acuity 2=24204
- automatic recognition, phoneme selection 2=11217
- automatic recognition of spoken digits 2=4892
- axis crossings and intelligibility 0=808
- bandwidth compression through spectrum selection 0=8440
- buzz-hiss detection 4=29714
- channel-vocoder, spectral distortion, pitch-induced 3=16444
- compression, using bandpass filters 4=26986
- compression for transmission, rel. to tracking of formants 1=12719
- computer-catalyzed research 4=10945
- computer recognition of spoken digits 4=10946
- consonants, dimensions of perception 4=10964
- conversion into typed and translated form 3=1551
- Czech, discrimination in cinemas 1=1604
- discrimination process, human 2=24198
- display for visual perception 3=14283
- echo in speech circuits with long delay 4=4969
- "emotional" content, fundamental frequency, amplitude 2=21751
- 50 c/s-3.3 kc/s spectrum analysis 1=5334
- filtering and vocal duration, effect on aural identification of speakers 4=4967
- formant-amplitude meas. 4=4968
- formant freqn. extraction by moment calc. 3=13948
- formant-frequency extraction 3=25998
- frequency-modulated, intelligibility 4=26984
- frequency spectrum intensities display 3=1779
- fricative consonants, voiceless, properties 1=7957
- fundamental periodicity, normal and pathologic larynges 3=11621
- German/r/phoneme, spectral structure 1=1600
- "helium speech" 4=10947
- intelligibility, audio-noise-reduction circuit 3=9289
- intelligibility in auditoria 3=23990
- intelligibility, binaural summation 2=7054
- intelligibility, effect of talker-listener angle 4=7996
- intelligibility, investigations with sound energy integrator 0=3591
- intelligibility under reverberant conditions 2=2578
- intelligibility, in reverberation and noise 0=14327
- intelligibility, short time-delayed echoes, subjective masking 0=14330
- intelligibility, signal and context components 3=16443
- intelligibility of time-compressed speech 1=6661
- interference, classification of noises 3=25997
- interference by noises aboard ship 3=25996
- interrupted, communication efficiency 3=11622
- intonation analysis 1=7952
- loudness, sound press. and subglottal press. relationships 3=13945

Speech—contd

- marine animal sounds 2=17576
- masking signal, intelligibility 3=11623
- muscle action in speaking /f/ 3=13946
- nasal consonants, analysis 3=7064
- nasal consonants, electronic articulatory analogue 2=7061
- noise-masked, liveness effects on intelligibility 1=7956
- noise spectrum, from multi-channel speech anal. 0=6495
- perception, study of time cues 2=11219
- perception, word-frequency effect 3=9290
- phonemes, American English 0=14328-9
- phonetic recognition and meas. 0=6494
- phonetic typewriter III 1=18527
- pitch detection, short-time spectrum and "cepstrum" techniques 4=10948
- pitch distribution in German speech 0=18529
- pitch extraction by computer processing 3=11620
- pitch extraction, computer programme 2=21755
- pitch extractor for fundamental frequency 4=4966
- pitch, speaking condition effects 4=23957
- pitch synchronous analysis of voiced sounds 1=4143
- porpoise sounds 2=11220
- porpoise "tone language" 2=7067
- processed, articulation effectiveness measure 3=21154
- processing by selective amplitude sampling 1=1603
- quantized, spectral density and correlation function 4=2479
- rapidly-repeated sounds, recognition, classification 1=4146
- reading with auditory feedback 2=7056
- reading rate, effect of previous instructions 2=7057
- reception thresholds, test methods 2=7058
- recognition by computer programme 1=15377
- recognition and synthesis 0=2045
- reflection, multiple, in room, perceptibility 2=85
- reinforced, intelligibility, applic. to broadcasting systems 0=18531
- role of acoustics in artistic work 3=16712
- singing voice, vibrato, and choir singing 0=6496
- soprano voices 1=7954
- sound forms, picture represent. on oscilloscope 4=10950
- sound radiation from mouth 1=1602
- sound spectrograms, apparatus 2=9344
- speaker identity, perceptual bases 4=23959
- spectrographic pictures prodn. 3=21153
- spectrum determination 0=18530
- spectrum display and integrator instrumentation 4=20967
- speech power spectra, Fourier coeffs. meas. 2=21753
- spoken digit recognition, using time-freq. pattern matching 0=21405
- spoken English, statistics 3=18670
- sung chords, frequency analysis 1=9213
- syllable nuclei, duration 0=12218
- syllables, spectral analysis, automatic recording 2=7059
- synthesis 1=9214
- synthesis, minimal rules 0=810
- synthesizer 1=4141
- synthetic, use in auditory correction 3=3682
- telephone speaking, monaural, effects of head and air-leakage sidetone 4=15973
- temporal pattern, distortion, interruption and alternation 4=23958
- time-frequency-energy patterns 3=11624
- time normalization method 2=7066
- time patterns, Markovian model 4=26985
- transitions, glides and diphthongs 1=6662
- transmission circuits, evaluation 2=15426
- transmission, ear-microphone 0=3363
- two-frequency complexes, patch discrimination 0=21406
- vocal pitch perturbations 1=7955
- vocal-tract formant freqs. and bandwidths meas. 3=21152
- voice-excited vocoder simulated by digital computer 3=25999
- voice intelligibility, added noise, electronic meas. 4=30997
- voice level: autophonic scale, perceived loudness, effects of sidetone 1=4142
- voice mechanism, rel. to elec. waveform generator 4=10944
- voiceprint identification 3=9292
- vowel duration 1=12708
- vowel duration, cross-linguistic validity 2=21752
- vowel formant bandwidths, meas. 2=4891

Speech—contd

- vowel formant bandwidths and synthetic vowels 2=21750
- vowel formant frequencies and durations 4=4970
- vowel recognition computer programme 0=809
- vowel recognition, computer programme 1=7953
- vowel recognition using multiple discriminant function 1=6666
- vowel spectra, automatic reduction, analysis-by-synthesis method 4=10949
- vowel types, computer identification 1=2578
- vowels, effect of He inhalation 2=9137

Spin

- See Fundamental particles; Hyperons, spin and parity; Mesons, spin and parity; Nucleus, spin and parity; Rotating bodies

Spinors

- See Quantum theory, wave equations

Sprays

- See also Aerosols; Drops; Jets
- atomization of liquids by u.s. vibrations 2=2695
- charge analyzer 4=23683
- diesel nozzles, flow pattern, discharge coeff. 1=123
- diffuser, motion of slightly cond. liquid 0=9176
- disintegration of fluid sheets 0=8639
- disk atomizers 0=6754-5
- from impinging jets, distribution 0=12412
- liquid atomization, electrostatic 2=4997
- retention on solid surfaces, theory 2=11343

Sputtering

- adhesion, greater than evaporation, mechanism 3=23505
- angular distrib. of material, by Hg⁺ bombard. 0=1174
- applying in contacts to CdS 0=16364
- arc electrode material emission mechanism 3=24252
- atom ejection patterns in single-crystal sputtering 1=1929
- average energy and yield, 10 to 2000 eV 4=19125
- average kinetic energy of ejected particles 2=17902
- beta-ray source and uranium converter prep. 4=12171
- cathode, by inert-gas ions, low-energy 4=609
- cathode, for ion beams current density meas. 2=20045
- cathode, in hollow discharge 3=377
- cathode, on to large areas 3=14682
- cathode, oxide, by low-pressure discharge, rel. to temp. and geometry 3=7654
- cathode, radioactive sources prodn. 3=19801
- cathode, spectrum, from ions dislodged by sputtered atoms from auxiliary target 3=12258
- cathode, use in vacuum pumps 4=14227
- cathodes, surface cleaning 0=16747
- cathodic etching in Penning cold cathode discharge 1=6493
- cathodic, micromag. structure of films 2=15094
- cathodic, thin films of separated isotopes prep. 2=9648
- compound materials 4=30598
- conference 2=10423
- controlled, multicomponent, method 2=17901
- crystals, expt. and theory review 4=22641
- dielectrics, anisotropy 0=21245
- dielectrics, use of h.f. fields 3=450
- in discharges, electric, high-pressure, of electrodes 3=14533
- Duraluminium, by Hg, 500-3000 eV, energy distrib. of Al⁺ and impurity K⁺ 4=21583
- elec. discharge erosive characteristics 3=24251
- electrodes, glow discharge in mag. field 3=9750
- electron emission microscope, by ions 3=14642
- etch effects from oblique incidence bombardment 1=4672
- evaporation masks, registration 2=19642
- ferromagnetic thin films, preparation 3=8674
- film preparation from refractory materials 4=20798
- film preparation techniques, review 4=20799
- films, multilayer of uniform resistivity, by rot. cathodes 4=7708
- films, thin, of superconducting substances, for use as getter, prep. 4=14231
- at 5-25 keV, theory 1=11987
- focusing and channelling, distinguishability 4=25980
- in gas discharge hot-cathode tubes 2=9560
- glass, cathode sputtering, by Kr ions 4=12825
- glow discharge, rel. to current 3=4213
- high-energy, review 4=28502

Sputtering — contd

high-energy, theory, rel. to focused collision sequences 3=4212
 inert gas ions on metal surfaces, 0-10 keV, review 2=9646
 inert gas ions, refl. from solid surfaces 2=22280
 ion beam uniformity obs., from interference colours of Ta₂O₅ film on Ta 4=8857
 ion bombardment, expt. and theory review 4=22641
 ion pump leak detectors, sensitivity 3=1742
 ion sorption 2=7677
 ion source, high-temp. for isotope separator 1=18949
 ion source, for solids analysis 3=21894
 lunar surface, by solar wind, simulation expts. 4=7975
 magnetic film preparation 1=6325
 magnetic oxide film formation in O₂ atmosphere 4=4349
 mass spectrometer study 4=27586
 meas. near threshold, using plated quartz crystal oscillator 1=4671
 measurement of yield by replication 4=27582
 mechanical collision theories, threshold energies 2=11725
 mechanisms, review 4=19122
 metal crystalline spheres, by Kr ions from 1 to 10 keV 2=3097
 metal crystalline spheres, by Kr ions from 1 to 10 keV 3=2051
 from metallic electrodes in corona discharge 2=19912
 metallic surface, mechanism 3=24372
 metals, b.c.c., spatial distrib. of atom ejected from single crystals 3=10704
 metals, by canal-ray bombard., angle of impact correl. 0=15089
 metals, of Cu, hollow-cathode Ar discharge 3=16988
 metals, f.c.c., ejected atom distrib. 2=13608
 metals, by H⁺, H₂⁺ and H₃⁺ 4=12826
 of metals, by He⁺, Kr⁺, Xe⁺, atomic number depend. 2=11726
 metals, by Hg ion beam of 4-15 keV energy 1=7109
 metals, with inert gas ions, gas bubble formation 4=17458
 metals, by light ions, theory 4=4104
 metals, at low ion energies, collision theories compared 1=4670
 of metals, mechanism for high-energy ions 2=1523
 metals, microheterogeneous condensation 2=1308, 7468
 metals by 1 keV H ions, rel. to optical properties 4=20472
 metals, polycrystalline foils, preferred orientation 0=18290
 metals, by positive ions of up to 25 keV 0=1172
 metals and semiconductors, using 1-5 keV Ar⁺ ions 3=9877
 metals, by U²³⁵ fission fragments 3=8152
 metals, yields and anisotropies 4=12824
 metals, yield, by Ar⁺ ions, medium energy 3=14679
 meteorites, by 20 keV Ar⁺ ions rel. to space erosion 3=1516
 mica, cathode sputtering, by Kr ions 4=12825
 molecular beams; meas. in threshold region 2=3092
 use in monitoring of reactor-radiation damage 2=14178
 multiple cathode system, for one metal after another 1=10746
 neutral particles and ions, independent analysis 3=24389
 noble gas ions, collection expts., theory 2=3095
 oxide layers, mixed, deposition 3=2050
 by penetrating ions, comp. of theory and expt. 1=7108
 Penning discharge ions, patterns 3=7453
 for permalloy film preparation, cathodic 4=13676
 Permalloy films, cathode-sputtered, props. 1=6324
 Permalloy films, coercive force variations 2=12660
 Permalloy films, rel. to structure and magnetic anisotropy 3=15819
 Permalloy source, broad, self-sustaining, for evaporation of ferromag. films 4=29182
 plasma, r.f. method 3=6883
 polycrystalline metals, by inert gas ions 100-1000 eV 1=18950
 pulse, in inert-gas glow discharges 3=24243
 quartz, cathode sputtering, by Kr ions 4=12825
 quartz, by Xe⁺ 1=3026
 review 3=7653
 review 4=8637
 satellites, as atmospheric ionization mechanism 2=4877
 single-crystal film semiconductor compound prepn., cathodic 4=4665
 single crystals, effective collision radius value 4=1546

Sputtering—contd

single crystals, rel. to incident particle directions 3=19374
 sputtering-ion pumps, Ti sheets for cathodes 4=21191
 surface cleaning efficiency 3=4203
 theory 0=12088
 theory, effect of collision focusing 4=25979
 thin β -ray sources, prep. 0=17516
 thin film, yield monitoring from thickness meas. 2=11724
 threshold, definition and criteria for exptal. threshold 1=8362
 time-of-flight mass spectrometer study 2=20053
 titanium ion pumps 1=18481
 transition metals for superconducting films, protected 4=18587
 vel. distrib. of sputtered atoms 4=19126
 velo. meas., atoms, time of flight 3=14681
 velocity of metal atoms ejected by ion beam 2=9649
 yield curves, maximum lattice-chain energy 1=7110
 yield meas. 3=14679
 yields of metals for A⁺ and Ne⁺ ions, 50-600 eV 1=4669
 yields, spectroscopic meas., thresholds rel. to displacement energies for 20 metals 0=12653
 yields, from var. metals, Hg⁺ bombard., angle of incid. depend. 0=1173
 yields, at very low bombard. energies 2=15966
 Ag films, inside electron microscope 3=451
 Ag films, Kr⁺, As⁺, Ne⁺ yields meas. 2=11724
 Ag, by inert-gas ions 1=13136
 Ag, by inert-gas ions 4=4105
 Ag, by ion beams, atomic collision sequences 1=14157
 Ag, by ions of inert gases 4=4105
 Ag, by light ions 0=10989
 Ag, single and polycrystals 0=3815
 Ag target, 45 keV ions, collection formula 2=3096
 Ag by A ions, etching patterns and orientation 2=6764
 Ag by Ar⁺ ions, 1-10 keV yields of single crystals 4=4103
 Ag, by Ar⁺ ions, 30-170 keV 4=22644
 Ag by Ar⁺ ions, 10-200 keV 3=7655
 Ag-Pd with A, He and Xe positive ions 0=12645
 Al, by Ar⁺, 1.2 MeV; preferential ejection 3=7656
 Al, by Hg, 500-3000 eV, energy distrib. of Al⁺ and impurity K⁺ 4=21583
 Al by Hg⁺ ions, energy distrib. of neutral and charged sputtering products 4=6904
 Al monocrystal, atomic ejection sequences by Ar⁺ bombardment, 50 keV 3=2845
 Al, by Zr ions, ~ 10 keV 3=4219
 Ar, re-emission of sorbed Ar 3=9518
 Ar⁺, N⁺, N₂⁺, incident on Cu and Al, momentum accommodation above sputtering threshold 4=19123
 Ar⁺, on 16 metals, full-plane threshold energies 3=22875
 Au, by A ions 1=4671
 Au by A⁺ and Kr⁺ ions, using radioactive tracers 2=3098
 Au, by Ar⁺ ions, directional ejection, effect of thermal motion 3=452
 Au, energy spectrum, rel. to thermal spikes investig. 3=8421
 Au, film formation 2=8880
 Au films, by inert gas ions meas. 3=10707
 Au, focused collision sequence energy, <110> 4=4096
 Au, under 43 keV, Xe⁺ ions, atom energy spectrum 2=17900
 Au, by ion beams, atomic collision sequences 1=14157
 Au targets, low-energy yield, guarding effects 3=22876
 Au, threshold energy to displace atom from lattice and subthreshold displacement 4=12827
 Au, by 20-100 eV He, Ne and A ions 2=13607
 Au by Ar, meas. of yield by replication 4=27582
 Be, Ni, Pt, by inert gas ions, rel. to mass ratio 4=19124
 C, cathode sputtering ratio, under Cs bombard., energy depend. 4=24753
 Cr, by A⁺ and Hg⁺ 0=12653
 Cr, under electron bombard., achieving ultra high vacuum 2=17518
 Cs, surface layer sorbed on Mo, rel. to secondary emission 4=5717
 Cu, angular dependence for single crystals 3=10705
 Cu, by A⁺ and H₂⁺, directed emission 0=10990
 Cu, by A⁺ ions, rel. to crystallographic direction 2=3094
 Cu by A⁺, Kr⁺, Ne⁺ of 300-2000 eV energies 1=9647
 Cu, by Ar⁺, Cu and Cu₂ emission, mass spectrometric study 4=14769

Sputtering—contd

Cu, Ar⁺-ion bombardment, 25-75 keV, focused recoil trajectories 3=2049
 Cu by Ar⁺ ions, 1-10 keV, yields of single crystals 4=4103
 Cu by Ar⁺ ions, 10-200 keV 3=7655
 Cu, by Ar⁺ ions, 30-170 keV 4=22644
 Cu by Ar⁺, 1-2 MeV; preferential ejection 3=7656
 Cu, by Ar⁺ and Ne⁺, temp. var. 4=10018
 Cu₂Au, with A, He and Xe positive ions 0=12645
 Cu, cathode, particle vel. meas., rel. to focusing energies 3=25315
 Cu cavity cathode, conical projections 4=16552
 Cu crystals, by Ne⁺, Ar⁺, Kr⁺, Xe⁺ ions, 100-1000 eV 3=4218
 Cu^{63,65} by Cs¹³³⁺ ions, isotopic abundance determ. 2=22925
 Cu, rel. to directions of incident Ar particles 3=19374
 Cu, by 80-1200 eV ions, energy distrib. 4=24754
 Cu, by energetic ions, surface study 2=1523
 Cu, by 5-25 keV ions 1=8363
 Cu, by H ions 2=7676
 Cu, by H ions 3=4218
 Cu, by H ions, up to 50 keV 0=9109
 Cu, by inert-gas ions 1=13136
 Cu, by ion beams, atomic collision sequences 1=14157
 Cu by ion bombardment, 40° to 900°K target temp. 4=20320
 Cu, mass analysis of emitted positive ions 2=7675
 Cu, on metals, hollow-cathode Ar discharge 3=16988
 Cu, by Ne⁺, Ar⁺, Cu⁺ ions, 5-20 keV 3=4217
 Cu and Ni by 27 eV, A ions 1=10745
 Cu and Ni by 27eV, A ions 1=11985
 Cu, in O and Ar, thin film prep. 4=23572
 Cu, (100) faces, by 15-30 keV Ar⁺, Ne⁺ ions 3=13020
 Cu, (100) and (111) faces deposit patterns 3=15522
 Cu, preferential atomic ejection directions, bombarded by Ar⁺ ions, 40 keV 4=4095
 Cu single crystal, ratio anisotropy 4=25983
 Cu single crystals, anisotropy 4=12823
 Cu single crystals, by deuterons, meas. 2=13609
 Cu, single crystals, at ion energy 50-350 eV, orientation depend. 0=19810
 Cu single crystals, temp. dependence 4=10017
 Cu, by Sn, Zr and Mg ions, ~ 10 keV 3=4219
 Cu (100) surface, by 27 keV Ar⁺ ions 3=10703
 Cu target, 45 keV ions, collection formula 2=3096
 Cu, threshold energy to displace atom from lattice and subthreshold displacement 4=12827
 Cu, by 20 keV Ar⁺ and Ne⁺, temp. var. 4=10018
 Cu, by 20 keV Ne⁺, Ar⁺ and Kr⁺ ang. depend. 4=17459
 Cu, by various ions at 5-25 KeV, calc. 1=11987
 Cu, by Xe⁺ ions, 25 to 60 keV 4=20321
 Cu₂O, films, deposition by sputtering of Cu in Ar and O 3=16138
 Cu₂O, films, growth structure, by electron diffr. 3=16139
 Fe, cathode sputtering ratio, under Cs bombard., energy depend. 4=24753
 Fe polycrystalline spheres, by Ne⁺, Ar⁺, Kr⁺, Xe⁺ ions, 100-1000 eV 3=4216
 GaAs, mol. mechanism and surface structure models 4=25985
 GaSb 4=30598
 Ge, deposit patterns 3=22877
 Ge, ejected atom distrib. 2=13608
 Ge, ejection patterns, 0-350° C 4=6903
 Ge, as etching technique 2=10959
 Ge surfaces, hillocks 3=24386
 K, by noble-gas ions, angular distrib. 1=11986
 K by rare gas ions 2=3093
 KCl, low-energy, K atom ang. distrib. 3=4215
 Li, absence of isotopic separation 2=227
 Mo, cathode sputtering ratio, under Cs bombard., energy depend. 4=24753
 Mo cathode, surface layer removal by Kr ions 4=27581
 Mo, by Cs⁺, spectrum, from ions dislodged by sputtered atoms from auxiliary target 3=12258
 Mo, in inert-gas glow discharges 1=16442
 Mo polycrystalline spheres, by Ne⁺, Ar⁺, Kr⁺, Xe⁺ ions, 100-1000 eV 3=4216
 Mo⁺ ions during Mo bombardment by Cs⁺ 2=1524
 Nb, cathode sputtering ratio, under Cs bombard., energy depend. 4=24753
 Nb films, gasfree, by asymmetric a. c. sputtering 4=5523

Sputtering—contd

Nb, in prod. of superconducting films 2=17720
 Nb, vapour-deposited superconductive films, use as getter in vacuum system 4=11481
 Ni, cathode sputtering ratio, under Cs bombard., energy depend. 4=24753
 Ni, (100) faces, by 15-30 keV Ar⁺, Ne⁺ ions 3=13020
 Ni, by Hg ions, energy distrib. of Ni atoms 4=14770
 Ni polycrystalline spheres, by Ne⁺, Ar⁺, Kr⁺, Xe⁺ ions, 100-1000 eV 3=4216
 PT, by inert gas ions 0=17043
 Pb, by A⁺ ions, rel. to crystallographic direction 2=3094
 Pb, by Ar⁺, 1-2 MeV; preferential ejection 3=7656
 Pt, cathode sputtering ratio, under Cs bombard., energy depend. 4=24753
 Pt, film formation 2=8880
 Re, cathode sputtering ratio, under Cs bombard., energy depend. 4=24753
 Si, by A ions 2=22279
 Si, by A⁺ ions, yield rel. to A⁺, 1=1930
 Si, with argon and CO₂ ions 1=8361
 Si, ejected atom distrib. 2=13608
 Si surfaces, with A ions 2=22279
 SiC by positive ions 3=4214
 Ta, cathode sputtering ratio, under Cs bombard., energy depend. 4=24753
 Ta films, rel. to resistance and temp. coeff. 4=20811
 Ta, in prod. of superconducting films 2=17720
 Ta target, 45 keV ions, collection formula 2=3096
 Ta, vapour-deposited superconductive films, use as getter in vacuum system 4=11481
 Ta and Mo, by 900-2150 eV Cs⁺ ions 0=9107
 Ti, cathode sputtering ratio, under Cs bombard., energy depend. 4=24753
 Ti by D ions, 10 to 25 keV 3=449
 V, vapour-deposited superconductive films, use as getter in vacuum system 4=11481
 W, cathode sputtering ratio, under Cs bombard., energy depend. 4=24753
 W, effect of ambient gas at high temp. 3=14680
 W, guidance and collimation in discharge 2=9647
 W, surface vacancies, after α -irrad. 3=17775
 W, var. K ion energy, temp. 4=19127
 Zn, by Ar⁺, 1-2 MeV; preferential ejection 3=7656
 Zn, deposit patterns 3=22877
 Zn single crystals, anisotropy 4=12823
 Zn and W patterns, from 30 keV Ar ions 4=12828

Standards

See also Constants; Units
 acoustics 4=8317
 atomic clocks, double resonance principle application 1=15776
 atomic, $\Delta m_f = 0$ transitions in alkali atoms 0=17695
 atomic frequency, long distance comparison 2=7172
 atomic spectrum oscillator strengths 3=22470
 atomic time scale 3=11750
 audiometric zero, international 4=29498
 barometers, 0-1200 mb 0=8677
 beam frequency, choice of molecule 3=12882
 β and γ ray source, Co⁶⁰ for coincidence meas. 3=7822
 blackbody, practical realization 0=19488
 brightness, candela, reproduction by secondary standard tungsten filament lamps 3=9317
 C.I.E. artificial daylight 0=14297
 calibration, at N.B.S., and measuring tapes 0=12396
 calorimetric, use of quartz 0=10795
 capacitance, mica, effect of temp. on stability 4=11491
 Celsius versus centigrade temp. scale 2=11520
 conference, 44th Nat. Weights and Meas. (1959) 0=6720
 dielectric at microwave frequency 3=13103
 e.m.f., NBS standard volt box 3=14472
 end standards, parallelism, by optical interferometry 0=5177
 freq. transmissions, Ottawa 1=2726
 frequency, alkali metal vapours, field independ. hyperfine transitions of ground state 0=17761
 frequency, atomic, Rb⁸⁷, Cs¹³³ optical pumping 2=16486
 frequency, comparison by frequ. multipliers 4=5390
 frequency comparison of atomic standards by radio links 4=2512
 frequency, Cs beam, operation and improvements 3=13992
 frequency, using Cs beam resonators, direct and servo methods, comparison 3=11749

Standards—contd

frequency, Cs, use in magnetic field measurement 0=15102
 frequency, Cs transmissions 0=10546
 frequency, meas. of standard transmissions against
 Cs-beam resonator 0=4915
 frequency, use of $N^{14}H_3$ maser on
 3, 2 line 3=519
 frequency, $N^{15}H_3$ double-beam maser as primary 3=12346
 frequency, $N^{15}H_3$ double-beam masers 4=770
 frequency, use of optical orientation 0=17695
 frequency, precision thermostat for control 1=16162
 frequency, quartz-controlled, lab. installation 3=19465
 frequency, quartz crystal 2=15531
 frequency, quartz crystals, special surface
 finish 1=15172
 frequency, Rb vapour, optically pumped 3=13991
 frequency, using resonance inversion line 3=5031
 frequency, review 0=855
 frequency, Soviet Union, quartz resonators 2=13301, 17410
 frequency standards by double beam masers 2=5466
 frequency standards, use of solid-state masers 3=9989
 frequency and time, NH_3 beam 2-level maser 0=18892
 frequency, Tl^{205} atomic beam 3=13990
 frequency transmissions 0=12343, 18893
 frequency transmissions, check against caesium
 clock 1=4301
 frequency, use of NH_3 beam maser 2=20141
 gauge blocks, improved stability, materials and meas.
 study 0=19037
 gauge blocks, meas. with parallel testing interfero-
 meter 0=19036
 glass colour standards, for sugar products 0=181
 gravitational and inertial mass 1=1679-80
 gravity, meas. 4=4736
 heat capacity at high temp. 1=14182
 interference comparator for line standard
 calibration 1=9359
 international metre, redefinition by Nat. Res. Council of
 Canada 0=16661
 international metre, relation between old and new
 defn. 1=9306
 International Practical Temperature Scale 1=18666
 length, line standards, interferometric comparison 3=13988
 length scale calibrator using interference fringes 4=24004
 length and temperature, new 3=9315
 light, international, reproducibility 3=3701
 light, primary, diffraction in meas. 4=14329
 light, primary photometric 2=15715
 light, spectral transmittance, glass, recalibration 4=8419
 luminescence standards 4=11203
 luminous intensity and flux 2=19673
 mass, accuracy of British kilogramme 3=21188
 mass, atomic counting method 4=2504
 mass, Conference, 44th Nat. Weights and Meas.
 (1959) 0=6720
 metre, engraving of lines 0=12242
 metre, Hg^{196} atom-beam light source 0=10758
 metre, krypton 86 wavelength standard 1=8036
 metre, red Cd line, USSR (1958) 0=9757
 in microscopic physics 0=862
 NBS standard thermal neutron flux recalibration 2=3354
 neutron, Canadian 0=9377
 neutron density, in graphite cylinder with
 cavity 4=27867
 neutron flux, thermal, calibration 3=19651
 neutron source, absolutely calibrated 2=3355
 neutrons, thermal, NBS density standard 2=18390
 new set of values by NAS-NRC 4=11007
 nuclidic masses, atomic weights, new
 scale 2=14184
 pound/kilogramme comparisons (1960-1) 2=15443, 19364
 primary, use of absorption lines 0=16660
 radiation, C arc, visible and i.r. 3=21539
 radiation source, use of C arc 2=19762
 radioactivity, N.B.S. solution C^{14} recalibration by Geiger
 and proportional gas counters 0=13159
 radioactivity, nomenclature for
 standards 1=13665
 radiological, Internat. Commission recommenda-
 tions 4=12163
 reactance, stability 1=262
 reflectance, 0.3-2.6 μ , MgO surface 3=1786
 resistance, evaluation of NBS unit 2=5248

Standards—contd

reverberation room, international comparison
 measurements 1=16044
 second, redefinition as freq. of e.m. radn. corresp. to
 atomic energy level transit. 4=21006
 semiconducting devices, IEEE standard letter
 symbols 4=30632
 spectral irradiance, quartz-iodine lamp 4=2840
 spectral lines for refractometry 4=2824
 spectral radiance, 0.25-2.6 μ , W strip lamps 0=19490
 spectral wavelengths, line-width effects 1=1722
 spectrophotometric absorption, screen standards 2=5166
 spectrophotometric glass standards, NBS recalibra-
 tion 4=8420
 spectrophotometric, primary standard,
 3000-12 000 Å 1=234
 temperature, Bi, high-purity, freezing pt. 3=9642
 temperature, high-purity Pb freezing pt. 0=10803
 temperature, ice point, thermoelectrically maintained for
 thermocouples 3=19050
 temperature, international, role of Pt resist. thermo-
 meter 3=21598
 temperature, Pt, 90-27°K 0=7002
 temperature scale, 1948 international practical
 scale 2=2916
 thermal conductivity, high alloy steels 0=6963
 thermal conductivity, Inconel 702, unsuitability as
 standard 4=8473
 thermal conductivity, Pt for high temp. 3=25216
 thermal conductivity, suitability of Pt 4=11385
 threads, for instruments, U.S.A. handbook 1=1816
 time, comparison between N.P.L. and L.S.R.H. 3=9318
 time and frequency, at P.T.B. 0=2092
 time, high-frequency chronometry 0=10545
 time, using two radioactive clocks, proposal 0=8532
 time, var. due to relativistic effect 4=16004
 vacuum u.v. radiation 2=3704
 voltage, high-frequency; by wire bolometer and thermistor
 bridge 3=344
 wavelength calibr. in 30-1000 μ 3=24019
 wavelength, Cu II in vacuum u.v. 0=4170
 wavelength, Fabry-Perot fringes in white light 0=16853
 wavelength, use of Ge I and II vac. u.v. lines 2=22031
 wavelength, He I 0=2734
 wavelength, use of high gain laser 4=21294
 wavelength, i.r. atomic emission lines 4=2827
 wavelength, i.r. precision spectroscopy 3=248
 wavelength, NBS programme 3=9591
 wavelength in vacuum u.v. 3=13989
 wavelengths, Kr^{86} , Hg^{198} , Cd^{114} 1=8814
 wavelengths of Kr^{86} , Hg^{198} , Cd^{114} , secondary
 standards 3=12763
 wavelengths in vacuum u.v., review 3=21538
 weight-in-air, basis of adjustment 0=3485
 work at National Physical Laboratory 2=1037
 X-rays, medium quality, Canadian free air
 chamber 1=1951
 yard, UK standards, in terms of international
 metre 4=11011
 C^{12} atomic mass standard 1=8035
 C^{12} = 12 as common at. wt. standard 2=20759
 C^{14} β -rays, for liquid scintillation counters 0=15529
 Hg^{198} spectral lines, use of electrodeless lamp 2=16481
 Kr^{86} , $2p_{10}$ - $5d_5$ emission, metre
 standardization 2=7108, 11240, 22022
 Kr^{86} and Hg^{198} wavelengths, precise meas. 1=10464
 Kr^{86} $2p_{10}$ - $5d_5$ line, wavelength for non-perturbed
 atoms 1=16085
 S, i.r. reflectance standard 3=11882

Stark effect
 acetone and acetone- d_6 0=4212
 acetyl cyanide 0=2763
 acetyl fluoride 0=2762
 asymmetric-top rotator 3=8231
 atoms, effect of nuclear elec. dipole moment 1=796
 cell, microwave, for observing π and σ com-
 ponents 0=13441
 coeff. det., new method 1=19599
 complex atoms, energy eigenvalues 4=28115
 fluoroacetylene, and dipole moment 4=9735
 formaldehyde, combined Stark-Zeeman effect 1=7465
 formaldehyde, splitting of rotational lines of 3390 Å
 band 4=12504

Stark effect—contd

- formyl fluoride, anomalous 0=20628
 formyl fluoride, microwave 0=15738
 in h.f. discharges field meas. 0=2352
 hydrogen-like line profiles, calc. combined with Doppler broadening 4=30370
 hydrogen-like lines, broadening by electrons and ions 1=2290
 ionic crystals, exciton mechanism 1=7558
 isoprene, and molecular configuration 4=15371
 ladders, non-observation with Zener emission 2=4051
 methanol, microwave 0=513, 9807
 methanol, microwave K-doublet 1=3539
 methyl fluoride 3=17601
 non-hydrogen quadratic broadening in fully ionized plasma 4=18853
 paramag. crystals, energy level splitting, rel. to spin-lattice relaxation 3=3182
 paramagnetic crystals, energy level splitting, rel. to spin-lattice relaxation 2=21378
 plasma, dense, quadrupole shift, and profile asymmetry 4=27533
 plasma, electron density by H_β and H_γ broadening 2=19980
 in plasma, h.f. elec. field meas. 2=19984
 in plasma, heavy-element isolated lines 3=701
 plasma, non-stationary theory 0=1479
 for plasma temp. meas., electron 4=21515
 rare earth ions in crystals, splitting 4=25823
 rare earth oxides, crystalline 0=20776
 ruby, fluorescence doublets 1=12505
 second-order, on e.s.r. of impurity ions in MgO 4=26414
 semiconductor excitons, order decrease 2=23267
 in solids, due to isolated absorbing centres 2=14664
 spark discharge spectra, ion concn. time variation 3=2553
 strong field effect 2=6136
 symmetric-top molecules, Stark energy levels 3=17564
 for voltage measurement 3=12041
 waveguide for microwave spectroscopy 4=30069
 A, spark discharge, line broadening and shift 0=17702
 A, spark discharges rel. to pressure broadening 0=5874
 BaO 2=20796
 $CF_3COOH-HCOOH$ microwave rotation spectrum 2=3739
 CH_3CHF_2 0=9808
 CdS crystal, exciton levels 2=4138, 10397
 CdS, excitons rel. to mag. field 2=23527
 CdS, magneto-Stark effect, exciton motion 1=17881
 ClO_2 , microwave spectrum 2=20831
 Cr^{3+} , in ruby, B_1 and B_2 absorption lines, mag. and elec. field effects 4=28703
 Cu_2O , anisotropic absorption, calc., symmetry of excitons 1=17476
 Cu_2O , exciton Stark effect at low temp. 1=17885
 DCI, DBr, DI, mm wavelengths 0=2769
 F VI, contribution to line width 1=235
 F_2 CCHF, microwave, and rot. 4=12505
 FCN, and dipole moment 4=9735
 $F_2HC-CDHF$, 7-25 kMc/s 3=17593
 GeI, correl. between obs. wavelength shifts and predicted Stark effect 4=15277
 H atom 1=7427
 H atoms, theory 2=6089
 $H\beta$, profile calc. 2=3696
 H, calc. 2=20740
 H calc. 4=25481
 H, electron excitation, cross-sections 3=25044
 H, hyperfine separation 4=30374
 H-like ions in a plasma, broadening, calc. 1=8809
 H lines, oscillator strengths, transition probabilities, and lifetimes 4=25480
 H, Lyman- α , due to high-velocity charged particles, calc. 1=2286
 H, Lyman- α and Lyman- β lines meas. 4=28109
 H, in a plasma, calc. 0=1480
 H, profiles in plasma 2=3700
 in H, spectra, plasma line asymmetry 3=12753
 HCN, microwave, π and σ components 0=13441
 HF 3=19984
 He 0=476
 He, He^+ , profiles in plasma 2=3700
 He ions in a plasma, broadening, calc. 1=8809
 He, line broadening in arc under variable press. 4=1201
 He, line broadening in a plasma, calc. 2=3698
 He, para 0=5875

Stark effect—contd

- Kr^{86} , rel. to Doppler effect 1=8814
 $LaCl_3$, Ho^{3+} spectra 4=30685
 N plasma, local fields 4=9645
 Na arc jet, direct current, 4982.8 Å line broadening 3=9757
 NH_2D and ND_2H 4=12479
 NO_2 , dipole moment determ. 4=9744
 $NaClO_3$, Cl^{35} nuclear quadrupole coupling 4=23080
 Ne, spark discharges, rel. to pressure broadening 0=5874
 O V, contribution to line width 1=235
 O plasma, local fields 4=9646
 OCS, σ -splitting patterns, automatic recording 1=12282
 OH radical, dipole moment from microwave spectrum 1=7497
 S, in ionic gaseous H_2S and crystalline $CaSO_4$, X-ray K absorpt. spectrum and excitons 3=23097
 $Tl^{100}F^{19}$, molecular-beam Stark-Zeeman effect 1=12293

Stars

- See also Nebulae; Novae; Sun
 absolute magnitude detm. by Ohman's method 3=13899
 absorption coeff. of H^- 4=25563
 acoustic noise generation in turbulent atmosphere 3=11540
 ADS 48 A, B, F, parallel and motions 2=24130
 ADS 784, 1865, 3991 binaries, orbits 2=24133
 AGK2 and AGK3 measurements 3=7005
 AGK3 0=12291-2
 age and rotation of galactic stars, model 2=4797
 Andromeda nebula, eclipsing variable 2=19339
 Andromeda nebula, 223 variables obs. 2=19338
 angular diameters, interferometry obs. 0=823-4
 anharmonic pulsations of composite model 1=15500
 AO Cassiopeiae, 3 colour photometry 0=12310
 astrographic work, automatic meas. 0=12244
 astrolabe observations, both hemispheres 0=12294
 astrometric conference 0=14375
 astrometric observations, in southern hemisphere, U.S.S.R. participation 0=12303
 astrometric problems, in southern hemisphere 0=12299
 astrometric work, at La Plata Southern Station 0=12237
 astrometry with large reflectors 3=7008
 astrometry programme of Cordoba Observatory 0=12297
 astrometry symposium 3=7004
 atmosphere, at chromospheric densities, temp. increase cause 4=10826
 atmosphere, completely ionized, evaporation loss 4=2444
 atmosphere, compressible, wave generation and propag. 4=10822
 atmosphere, inhomogeneous, non-coherent scattering 2=19334
 atmosphere, nongray, Schwarzschild-Milne integral eqn. 4=10824
 atmosphere, optical thickness calculation 1=6717
 atmosphere, stationary shock wave propag. 3=5263
 atmospheres, with anisotropic scatt., radiative transfer 4=10823
 atmospheres, gravitational, shock waves 4=17978
 atmospheres, H_2 , quasi-molecular, absorption coeff. 4=23868
 atmospheres, homogeneous, Chandrasekhar theory 1=15515
 atmospheres, intense shock wave decay 4=4863
 atmospheres, isotropic scattering in, H-functions 0=19002
 atmospheres, Milne integrals eval. 4=14
 atmospheres, model in non-grey case 2=2543
 atmospheres, motion 0=3423
 atmospheres, nongrey, computer programme 4=2351
 atmospheres, non-grey model 1=15512-13
 atmospheres, non-grey, model 3=1530
 atmospheres, non-grey, in radiative equil., temps. 4=2350
 atmospheres, oscillations of two superposed fluids 0=18860
 atmospheres, polytropic, convective growth rate 2=19333
 atmospheres, polytropic, convective instability 1=15510-1
 atmospheres, rate of collisional excitation 3=3597
 atmospheres, reson. radiation diffusion 3=16403
 atmospheres, resonance radiation diffusion 3=9240
 atmospheres, rotational temp. of molecular constituents 2=4815
 atmospheres, shock wave decay theory 3=9235
 atmospheres, structure and metal index 4=29382
 atmospheres, temp. distribution 3=13904-5
 atmospheres, temp.-press. reln., iterative procedure 4=2352

Stars—contd

- atmospheres, thermally induced convection in 1=9287
 atmospheres, turbulence 1=15514
 atmospheric phenomena in RR Lyrae stars 4=29387
 B stars, Balmer series 2=4811
 β CMA type, pulsation 4=2349
 beta-decay, effect of stellar conditions 2=13146
 beta-decay in interiors, exclusion princ. effect 4=2342
 binaries, close, surface forms and mass loss in general case 4=10840
 binaries, eclipsing light elements 2=21717
 binaries, eclipsing, times of minimum light 1=4205
 binaries, unresolved, three-colour photometry 2=4819
 binaries, visual, ang. momentum 4=26916
 binaries, visual, orbit calc. 2=19320
 binary, ang. momentum transfer of ejected particles 4=2336
 binary, close, evolutionary trends 0=18847
 binary, eccentricity variation with decreasing mass 2=9084
 binary, gravitational and rotational surface potentials 0=18800
 binary, H-R diagram 0=14443
 binary, initial mass function and origin 2=15361
 binary, interferometer obs. 4=23836
 binary, mass ejection and effect on orbits 4=2335
 binary, 140, positional meas. 2=19321
 binary orbit orientation changes, interpretation 1=12765
 binary, relativistic motion of DI Hercules 0=18802
 binary, seventy, relative positions 2=19322
 binary system, component radial speeds 4=4847
 binary, visual, orbit calculation, by digital computer 3=5261
 blue, faint, high galactic lat., and radial velo. 4=23862
 blue, high galactic latitude, mean absolute magnitude 3=7034
 brightness, at 1314 and 1427 Å 4=4864
 brightness variations, small amplitude 4=4850
 Cape photographic and meridian programme 0=12298
 on "Carte du Ciel" completion 0=12305
 Cassiopeia A, flux density, secular variation 1=18207
 catalogues, longitude diff. due to Ephemeris Time 1=4202
 Centaurus A, radio source 0=6563
 central temperature, quick calculation 0=6625
 Cephei, location on H-R diagram 1=2627
 β -Cephei, pulsation 4=26903
 Cepheid instability, effect of second He ionization 1=2630
 cepheids, comparison of small magellanic cloud cepheids with those near sun 1=5159
 cepheids, rel. to Galactic structure and rotation 3=9246
 cepheids, in Small Magellanic Cloud, photometry 0=18831
 Cepheids, distance meas., simple 4=29360
 Cepheids, review of theories 4=20891
 cepheids and supergiants, colour excess photometry 0=18792
 chain formation, and oscillations of a gaseous cylinder under pinch effect 4=11662
 circumpolar, calc. of apparent posns. 3=13898
 class O, two-dimensional classification criteria 2=17287
 classes O and B, motion at 90° to galactic plane 4=20904
 close binary systems, evolutionary mass exchange 0=14445
 close binary systems, motion of gas streams 0=14446
 clouds, statistical study of projected globules 0=10515
 cluster centre, from radial velocities analysis by least squares method 4=17982
 cluster formation in interstellar space 2=13148
 cluster of two populations, escape 2=24152
 clusters, density distrib. and mean stellar velocities 4=30969
 clusters, empirical density law 2=24153
 clusters, expansion, virial theorem appl. 3=18591
 clusters, extended main-sequence 4=29403
 clusters, galactic distribution 4=4871
 clusters, galactic and extragalactic, photoelectric photometry 1=1655
 clusters in the Galaxy, review 2=4829
 clusters, globular, dia.—magnitude—distance—absorpt. relation 3=23701
 clusters, globular, distrib., det. of distance to galactic centre 3=7038
 clusters, globular, escape velocity 0=18815
 clusters, globular, limiting radius for stability against galactic forces 3=11581

Stars—contd

- clusters, globular, possible existence of dust and gas in 0=18814
 clusters, globular, review 2=4827
 clusters, globular, spectral types and cluster radial velocities 0=18811-13
 clusters, globular, structure 3=16416
 clusters, globular, variable stars 3=16415
 clusters, irreversibility in small stellar dynamical systems 4=29401
 clusters, isochron, model 0=18808-10
 clusters, moments of velo. distrib. 4=15923
 clusters, n-body problem, numerical integr. 3=9244
 clusters, n-body problem, numerical integration 0=14455
 clusters, open, luminosity comparison 3=9243
 clusters, open star, classification 3=11579
 clusters, relative position, randomness 2=15384
 clusters, role of escape, two populations of different masses 3=16413
 clusters, spherical, in quasistationary state 3=16412
 clusters, spherical, quasistationary state 4=26917
 clusters, super-giant emission and blue star accretion 4=29405
 clusters, tidal effects 4=10839
 clusters, young, search for late-type stars 3=11575
 coal carbon stars, spectra 0=14378
 collapse, with allowance for back pressure 4=13882
 collapse gravitational, after energy source exhaustion 2=13976
 collapse, gravitational, after energy-source exhaustion 3=6149
 collapse, and neutrino processes 4=20899
 collapse and quasi-stellar radio sources 4=20900
 collapsing, mag. fields 4=26902
 collapsing, neutrino luminosity 4=26900
 colour and magnitude, by astronomical photometry 4=30968
 colour—magnitude diagram, high vel. stars 3=3600
 colours and luminosities, rel. to interstellar reddening 3=13897
 Compton scattering in, monochromatic intensity 0=8572
 convection, turbulent, spectrum 4=11392
 cool, in vicinity of N galactic pole 1=1652
 co-ordinate, computation 1=12766
 coronas, heat-flow integral eqn. for various cases 4=10821
 coronas, hydrodynamic momentum eqn. 4=10820
 "cosmic cycles" theory, constancy of no. of stars 3=5267
 Cygnus- α , radio source 0=18666
 Cygnus Loop and IC 443 radio sources 1=18179
 Cygnus-X radio source, nature 1=18181
 Darwin ellipsoid pair stability 4=29359
 δ Cephei, velocity and light curve phase relationship 3=13910
 degenerate, secular stability condition and entropy—temp. variation 4=2339
 δ Librae, three-colour photoelec. investigation 2=9082
 diameter meas. using intensity interferometer 0=14442
 diameters, angular, effects of light diffraction 1=6962-3
 disk of, gravitational stability 4=23879
 distance scale from apparent versus intrinsic brightness, review 2=15365
 distrib. in Sculptor dwarf galaxy 1=18127
 distribution function of system, from potentials 2=21733
 disturbances and shock waves propag., evaluation 2=15369
 double, high velocity, colour-magnitude diagrams 0=14447
 double, mass rel. to ang. momentum 3=11585
 double, measures 0=12317
 double, measures of 552 3=11551
 double, 956, 4109 micrometer measures 2=24134
 double, obs. using moderate sized instruments 2=13141
 double, orbit calculation, programme for IBM650 0=18799
 double, orbit calculations 3=13851
 double, orbital evolution 3=13852
 double star astrometry, principles, techniques 2=13142
 double stars, long-period, dynamical parallaxes, accuracy 2=11138
 double stars, measures of 313 3=11552
 double stars, 278, meas. 2=19319
 double, 271 stars, 1195 micrometer meas. 2=9083
 double, wide, six, proper motions 2=24131
 dynamics, Jeans' theorem, use of isolating integrals 2=17286
 dynamics, self-gravitation eqn., exact. soln. 2=11140

Stars—contd

- dynamics, spherical galaxies 3=11580
- dynamics, stability 2=983
- early-type, atmosphere, spectral study review 2=4800
- early-type, corpuscular emission, through gas nebulae 0=18840
- early-type, distrib. in Galaxy 3=11578
- early-type near sun, kinematical studies 2=24151
- early-type, radial vel. from galactic centre 3=13901
- early-type, turbulence and rotation 1=18105
- eclipsing binaries, extinction errors in light curves 2=17283
- eclipsing binaries, photometric obs. 1=18102
- eclipsing, ephemerides calc. 3=16394
- eclipsing system at high galactic latitude 2=19318
- eclipsing system V Tucanae 1=18103
- ejection into spiral arms, from gas rings 0=10473
- electron density—electron temp. relns. 3=9245
- electron-positron pairs, effects 2=4795
- "encountering stars", double-stars in hyperbolic orbits 2=11143
- energy production and nuclear reactions 1=18116
- ϵ Aurigae, photometric observations 0=12329
- equatorial, catalogue for equinox 1950.0 (TME) 3=9227
- equilibrium and oscillations of magnetic stars 2=4793
- ER Orionis, light variation and orbit elements 2=7012
- eruption of K in G and K dwarfs 4=29386
- escape from clusters 0=12320-1
- escape from isolated cluster 0=14454
- escape during two-galaxy collision 4=23881
- evolution, decreasing in mass 1=12761
- evolution in early phases of gravitational contraction 2=15372
- evolution, effects of var. gravitation G 4=13910
- evolution, expt. data summary 2=21727
- evolution in the Galaxy rel. to the two-colour diagram 4=4875
- evolution, He burning, 0.8 solar mass, H—R horizontal branch 4=13884
- evolution, Hertzsprung—Russell diagram 1=12760
- evolution, influence of neutrino processes 4=2334
- evolution, from initial pure M to via p—p to C—N cycle, osc., instability 4=4856
- evolution, initial, of spherical mass 4=23849
- evolution, later stages 0=18848
- evolution with mass ejection 4=13883
- evolution with mass loss 1=18107
- evolution, neutrino emission processes 3=10085
- evolution, O, H exhaustion and contraction 4=29373
- evolution, photoneutrino prevention of supernovae 4=26899
- evolution, pre-main-sequence, for small masses 4=4858
- evolution, review 3=21114
- evolution, review 4=26896
- evolution, Royal Society discussion 1=12755
- evolution, survey 1=12762
- exploding stars, review 3=1525
- explosion interior, energy transfer by shock waves 4=13895
- explosions, gas dynamical theory 2=17288
- field stars, unevolved, luminosity functions rel. to galactic clusters 1=15520
- flare, and equality of light and e.m. wave velo. 4=21269
- flares and radio emission (240 Mc/s), red dwarf 3=18659
- fluid, in non-rigid rotation and in mag. field, stability 2=4799
- fluids, incompressible, oscillations of sphere of varying density 0=14601
- formation by capture of cosmic matter 2=2524
- formation, clusters 1=12757
- formation, early stages, opacity processes 4=10808
- formation in elliptical galaxies, role of turbulence 3=9248
- formation in expanding universe 3=16323
- formation in Galaxy, rel. to its age 2=13143
- formation in globular clusters, random fragmentation 3=1535
- formation by gravitational self-contraction of entire cloud in mag. fld. 4=10847
- formation, from He data 0=2075
- formation, initial mass function 2=7017
- formation from interstellar dust by radiation pressure 3=3536
- formation, from interstellar gas 0=18690

Stars—contd

- formation from interstellar matter 2=941
- formation mechanisms 0=10514
- formation, O associations, velo. and density distrib., var. with nucleus distance 4=2338
- formation, random fragmentation 2=4822
- formation, survey 1=12756
- 42 Comae = ADS 8804, parallax and orbital motion 1=11681
- fundamental, system in southern hemisphere 0=12293
- galactic clusters, linear diameters 2=21734
- galactic clusters, mass-function 3=16325
- galactic clusters, space distrib. rel. to age 3=11584
- galactic clusters, surface densities and tidal force 4=13896
- galactic motions perpendicular to plane 2=19344
- galactic nuclear bulge, density 2=19337
- Galaxy, star clusters, luminosity function 4=29404
- gas of stars, stability, vibrs. 2=24160
- gaseous cylinder, self-gravitating, with mag. parallel to axis, instability 4=4848
- general catalogue, revised 0=12295
- giant, energy transport in H ionization zone 3=3596
- globular cluster velocity moments 4=26918
- globular clusters, dynamic mass - estimation 2=7019
- globular clusters, luminosity distrib. 2=7016
- gravitational forces in random star field 4=2369
- gravitational lens effect 4=29520
- gravitationally contracting, red shift and recession velocity 2=15374
- growth rates, convective, effect of radiative transfer 4=23848
- halo, gas motion, intergalactic matter role 3=16327
- He burning, nuclear synthesis, reaction rates 4=3720
- helium-burning, equilibrium model 1=8000-1
- heterochromatic magnitudes, effect of interstellar absorption 0=18790
- high-density, dispersion of e.m. waves 0=12709
- high-velocity, analysis 2=11137
- Ho 581 binary, parallax and mass-ratio 0=18801
- Hu 575 = ADS 9352 binary, parallax and orbital motion 0=18806
- inhomogeneous atmosphere, shock wave propag. 3=3602
- initial mass function, occurrence of small mass stars 2=13147
- instability of equipartition state in fluid sphere 4=29358
- intergalactic space, formation contention 2=6979
- ionization—equilibrium eqn. of state 3=3589-90
- ionization equilibrium eqn. of state 3=16401
- irregular force theory, multiplicity of star approach 2=17285, 13139
- K-stars, velocity distrib., mass density near the sun 1=2624
- kinematical character of near-by stars 4=23845
- kinematics of high vel. and galactic force 2=6978
- Lalande 21185, astrometric analysis 0=18788
- late main-sequence, colours and spectra, relationship 3=3595
- late-type, spatial distrib. near north pole of Galaxy 2=7025
- Lick Observatory, proper motion programme 0=12300
- lightning discharges in stellar atmospheres, mechanism, rel. to terrestrial lightning 0=14310
- long-period double stars, orbit calc. 2=4791
- loss of mass during evolution 2=2539
- loss of matter 2=11136
- low luminosity stars, search with 82 in. reflector 1=18104
- luminosity function 0=12306
- M-dwarf, duplicity survey 2=17284
- M-dwarf emission, as origin of cosmic rays, theory 1=9781
- M3 cluster, horizontal branch distrib. 4=23872
- M37 cluster, positions and proper motions 2=24154
- magnetic problems 1=12758
- magnetohydrodynamic co-rotation, lab. expts. 2=4799
- magnitudes and colours by photoelec. photometry 4=24335
- mass distrib. calc. 4=20914
- mass-energy excess, static solns., in general relativity 2=17233
- mass—luminosity relation, single? 4=15914
- mass-luminosity relations 0=16549
- massive, energy release on collapse, rel. to radio sources 4=10811
- massive, evolution, H exhaustion by onset of C burning 2=19317

Stars—contd

massive, evolution, H-He cycle 0=6609
 massive, gravitational radiation, binary fission and radio sources 4=23843
 massive, model, including Kramers' opacity 3=11558
 massive quasi-stellar objects, formation 4=29400
 massive stars, evolution, models 1=18109
 massive, vibrational instability, effect of convection 4=23854
 meridian circle observations, wide-angle cameras 0=12245
 metal-abundance classification criteria 4=2358
 metal abundances, rel. to freq. of stars 2=24150
 molecular H:C:N:O abundance ratio calc. in cool atmospheres 4=23856
 molecules and late-type stellar models 0=6623
 motion in the Galaxy 3=11554
 motion in galaxy, third integral 4=17972
 motion perpendicular to galactic plane 3=9251
 motion, relativity equations for continuous medium with mass conservation 4=14038
 motions, proper, computation and improvement 2=24128
 motions, proper, computation and improvement 3=3584
 multiple, widely separated, absolute magnitude distrib. 2=17282
 NGC 5466 globular cluster 1=5163
 NGC 6166 and cluster Abell 2199, radial velocities 2=11145
 NGC 6838, M-star members 1=5165
 negatively charged, hypothesis 2=15295
 net electric charge 0=10512, 18789
 net electric charges, existence, theory 1=9285
 neutrino emission, in late C-burning phases 3=13896
 neutrino emission, $\gamma + \gamma \rightarrow \gamma + \nu + \bar{\nu}$ process 3=24689
 neutrino pair production 4=4855
 neutrino production in $e^- + e^+$ annihilation 1=10875
 neutrino's role, review 4=30213
 neutron-capture reactions 3=1532
 neutron evaporation, cosmic-ray evidence 0=1326
 neutron stars as X-ray sources, atmospheric props. 4=23870
 non-grey model atmospheres, effects of errors in absorpt. coeff. 4=29383
 nuclear electron-capture rates in interior 4=10813
 OB stars near galactic nebula M17 1=6715
 O-type, absolute magnitudes 3=18642
 observations 1959-60, conference 3=9139
 occultations (1956-7) 0=12315
 ω -Orionis, point-source of cosmic rays 1=3325
 opacity, rel. to e.m. scatt. by free electrons 2=5355
 opacity, rel. to Rayleigh scatt. by H_2 2=11134
 open clusters, proper motions 3=7007
 origin, in stellar associations 0=10513
 oscillation of cylindrical fluid in perm. mag. field 0=3838-40
 oscillations, adiabatic, generalized Roche model 4=29370
 oscillations of Jean's incompressible spheroid 4=26891
 oscillations, near surface, blue and white approx. 4=13885
 oscillations, non-radial, adiabatic, massive star 4=10814
 oscillations, radial and non-radial, variational princ. 4=17971
 oscillations and stability of rotating gaseous masses 2=4794
 PFKSZ system, investigation 0=12302
 p-p reaction chain completion, neutrino emission 0=848
 parallaxes of 91 stars, Yale 26 in. telescope obs. 2=11135
 Perseus double cluster, and galactic magnetic field 0=10517
 photographic positions meas., effect of atmosph. dispersions 4=10802
 photography, colour review 4=23838
 photometry, atmospheric extinction coefficient 2=6969
 photometry, characteristic curve in focal method 0=18795
 photometry, colour, atmospheric extinction 4=26905
 photometry methods, three-colour 2=11100
 photometry, photoelectric, effect of absorption lines 0=14440
 photometry, 3-colour, of giants and supergiants 3=9225
 photometry, three-colour, of two star-fields 3=9253
 photometry of very faint stars 3=18317
 photon and neutrino emission in ν -e interactions 0=12838
 planetary companions, origin, rel. to small contracting stars 4=10807
 planetary nebulae, thermal equil. 3=1536
 population II, He-burning phase, evolution 2=9086

Stars—contd

position, colour effect on astrometric plates 0=12301
 positions of high accuracy 0=12304
 proper motion components, time derivatives 0=12290
 proton capture by Be⁷ 0=7550
 protostars, formation, gravitationally stable 2=24135
 pulsating, cooling behind shock wave front 0=18798
 pulsating gas sphere, variable star models 0=16554
 pulsating, masses 0=12319
 pulsating, second He ionization as instability cause 4=2337
 pulsating variables 2=11097
 pulsations, adiabatic radial, asymptotic form 2=24139
 pulsations, anharmonic, of early main-sequence model 4=10817
 pulsations of early main-sequence model 4=10816
 pycnonuclear reactions 0=11396
 R Canis Majoris photometry 0=14441
 RR Lyrae variables, photographic magnitude 3=7038
 radial oscillations of composite model 1=15499
 radial velocities in Galaxy meas. 2=13153
 radiation intensity increase before exit of shock wave 3=9228
 radio emission (240 Mc/s) and flares, red dwarf 3=18659
 radio spectra 0=18661
 radio stars, angular size 4=2465
 radio stars, identification 0=3409
 radio-stars, identification with optical objects 2=19353
 rate of formation, rel. to interstellar gas density 2=15362
 rate of formation, rel. to mass 3=18640
 red giant, outer convection zone calc. 4=20924
 red giants, origin of planetary nebulae 2=9095
 red, photoelec. i.r. colour indices 2=19336
 reference, in southern hemisphere 0=12307
 reference stars, international programmes 3=7006
 Roche model, non-radial oscillations 0=18862
 rotating, magnetic braking 0=17091
 rotating star cluster, shape 1=5162
 rotating and supernovae, motion equations of variable mass gyro 0=8579
 rotating, toroidal magnetic field, thermal generation 3=3585
 rotation of inner parts of galactic system 0=6613
 rotation instability, theory 3=9234
 rotation, retardation due to light and corpuscular radiation 3=23691
 rotation of upper main-sequence stars 4=29368
 rotational velocity distrib. of faint stars 4=2333
 "run-away", origin 3=7035
 SX Phoenixis, photoelectric observations 1=12768
 S-type, mixing processes, time scale 0=13
 Sagittarius A, radio emission, high resolving power study 0=10483
 Sagittarius, 12 variable stars 2=13138
 satellite survey, plans 0=14439
 scintillation, directional, photogr. harmonic anal. 0=6608
 scintillation, review 0=4903
 scintillation, use in tropopause wind meas. 2=2486
 Scorpio-Centaurus association, interstellar absorpt. lines 2=24137
 Scorpio-Centaurus association, radial vels. 2=24136
 Scorpio-Centaurus cluster rel. to galactic distance scale 2=4830
 Scutum, two fields, three-colour photometry 2=11100
 shell, and rotationally unstable Be stars 4=20894
 shock wave decay in stellar atmosphere 1=1654
 shock-wave propagation 3=23692
 shock wave propagation, calc. method 2=21722
 shock wave propagation in stellar envelopes 1=15508
 shock waves in envelopes 0=18856
 shock waves, front-to-back ratios 3=23690
 Σ 2398, parallax, proper motion and mass ratio 0=12316
 60 stars of unusual spectral classifications 1=8004
 source function in non-equilibrium atmosphere 1=4206-7
 southern zone catalogues, present work 3=9226
 space distrib. for spectral types F2-G5 3=13913
 spherical clusters and galaxies, dynamical models 4=2368
 spherical systems, high-energy stars, distrib. 3=9247
 star clusters, evolution 1=32
 star fields, integrated colours 2=15364
 star-gas dynamics, cooperative phenom. 3=13914
 starlight, integrated over sky 1=2575
 starlight, polarization by oriental nonspherical particles 4=15915

Stars—contd

- stellar atmosphere, shock-wave, mechanical decay 2=9093
- stellar atmospheres, opacity means 2=9094
- stellar dynamics, stability 2=983
- stellar evolution, neutrino emission processes 1=15495
- stellar evolution, theory, rel. to radiation transfer 1=18106
- stellar systems, polytropic gas-sphere representation 1=15519
- stellar systems, spherical, loss rate rel. to star mass 4=10845
- stellar thermopauses 2=995
- stellar-wind equations 4=29388
- subdwarf, interior models 0=18784
- subdwarf, review 2=15366
- subdwarf, series of atmospheres 0=18786
- subdwarf, space motions 0=18783
- subdwarf, symposium 0=18781
- subdwarf, trigonometric parallaxes 0=18782
- subdwarfs, identification 2=24144
- superconductivity of stellar matter 2=21725
- superdense degenerate gas masses, equilib. configuration 2=24141
- supergiants, similarity to Magellanic Clouds 2=24161
- supernovae, multiple formation of nucleon pairs 2=15375, 19331
- surfaces, "specific volume" rel. to temp. 2=15368
- Sydney, astrometric programme 0=12296
- systems, polytropic gas spheres model 3=1524
- systems with spherical symmetry, stellar mass distribution, calc. 0=18817
- systems, stratified, self-gravitating, non-steady solutions 0=18818
- T Tan, colours 4=23864
- TX Ursae Majoris, Russel model departures 1=9281
- TZ CrA, eclipsing system 0=12313
- Tau A, radio emission intensity in decimeter region 4=26970
- telescopic images, detection limits rel. to image structure 4=10800
- temp., rel. to planetary nebulae 1=1657
- temperature, by electric discharge theory 3=16405-6
- temperature, envelope, Wolf-Rayet, from bright lines 4=13888
- temperature and gas velocity 0=6607
- temperature scales, bolometric corr. 4=4857
- thermonuclear reactions 1=12759
- thermonuclear reactions up to Fe formation 3=9232
- 3C 273, classification 3=13900
- 26 Draconis, triple system, parallax and orbital motion 2=24129
- U, B, V meas., effect of Fraunhofer lines 2=4816
- u.v. nebulosities, rocket and satellite observations 0=14469
- V 839 Ophiuchi, photoelectric light curves 0=12326
- VV Cephei system 1=1651
- variable, auto-oscill. of ten-layer model 4=23853
- variable, electron temperature from spectra 0=9042
- variable, 45 stars in USF 193 1=6716
- variable, long-period, theory 3=16399
- variable, M type long period, particle formation in circumstellar envelope 4=13886
- variable, observations made by Stanley Williams 1=12764
- variable, rel. 140-200 day period, space vel. var. with period 4=15916
- variable star reductions, calculator 2=21686
- variable, Ti long-period, luminosity variation 2=21719
- variable, Ti long-period, statistical study 2=21718
- variable, ultra-short-period, photoelectric search 4=17980
- variables, periods of 58 Mira-type stars 0=18805
- vel., tangential, 1319 stars in 19 selected areas 3=11555
- velocity distrib., of spectral types O to B₉ 3=9231
- velocity, early type, < 2 kpc from sun 4=17981
- velocity perturbations 0=18787
- velocity perturbations, in homog. isotropic stellar population 0=4902
- velocity selection, for stars with common origin in solar neighbourhood 2=4828
- visibility, in daylight at high altitudes 0=843
- W Serpentis, photometric observations 1=12767
- W Ursae Majoris systems, observations 1=4203

Stars—contd

- Wachmann's flare star, parallax and proper motion 2=24132
- weak, rotation in Galaxy 3=11582
- white dwarf in stability before Schwarzschild limit 4=26897
- white dwarfs, atmosphere models 3=11573
- white dwarfs, effective temp. and surface grav. 3=11560
- white dwarfs in galactic clusters, test of variation in gravitational const. 3=5336
- white dwarfs, population assignment 4=2347
- white dwarfs, radial pulsation period 1=15497
- Wolf-Rayet, galactic distrib. and data 2=7026
- Wolf-Rayet, "nuclei" temps. from He II emission 4=23847
- Wolf-Rayet phenomenon reviewed 4=23865
- YZ Canis Minoris, flare activity 1=6003
- zeta Aurigae-type, late-type component, atmosph. 3=9237
- AK Herculis, light variation and orbital elements 1=4204
- As Eridani, photoelectric photometry 0=12311
- Be, in galactic clusters 0=16550
- B, peculiar motions 4=20890
- Be, rotationally unstable, and shell stars 4=20894
- CNO bi-cycle, mean lifetimes 3=3588
- C¹³(p,γ) and C¹²(p,γ) reactions 1=4865
- D(p,γ)He³ reaction, below 50 keV 3=15045
- H_α emission, rel. to type II supernova remnants 3=9242
- H II regions, expansion, protostar formation 2=24135
- He-burning reactions, 1-6×10⁸ °K 3=1531
- He-star models, massive, homog. 3=16398

composition

- See also Elements, origin
- abundances, line profile determination 0=18859
- atmosphere, abundance-equivalent - width diagrams 2=7014
- atmospheres, isotopes in, spectral studv. review 2=4801
- B stars, helium abundance 0=10527
- 3 Centauri, He deficiency, nuclear theory 2=21726
- central stars of planetary nebulae, model atmospheres 4=4862
- chemical, differences 2=21724
- chemical element occurrence 1=15411
- chemical evolution, introductory report 2=2549
- chemical, origins of differences 2=19332
- chemical, rel. to nuclear reactions, in interior and at surface 1=18116
- computation from spectra, programme 2=7015
- element abundances, neutrino emission effects 2=17293
- element abundances, rel. to mag. activity 2=11139
- evolution of the elements 1=15412
- evolution of massive stars, model 1=9279
- evolution of stars from H 4=20892
- γ + p → n + ν + e⁺ process 3=23693
- heavy element synthesis, neutron capture chains 1=7389
- heavy nuclide abundances, table 2=2548
- iron group, formation process in supernovae 1=15516
- isotopic synthesis by neutron capture 3=21113
- magnetic stars, surface 3=11564
- massive, evolution rel. to convection model 2=4798
- metal abundance, high, Fe, Sr 3=18641
- metal deficiency in population II stars 4=20895
- metal deficiency in population II 4=26904
- metal deficiency, rel. to distance from galactic plane 4=2375
- metal index and structure of atmospheres 4=29382
- metals, deficiency in population II 3=13908
- metals, effect on stellar spectra 1=18118
- Mira type variables, metal deficiency 3=11567
- model atmosphere computations, rel. to radiative transfer 4=4861
- neutron production, Ne²¹(α, n)Mg²⁴ as source 4=15151
- nuclear reactions in, buildup from C 0=3424
- nuclear reactions, expt. and theoretical results 2=4792
- old population I, He content 2=7030
- photosphere, balance and abundance 0=14414-15
- plasma 0=2361
- proton-rich elements prod., reactions 2=6983
- red giants, compound nucleus formation 2=3625
- red giants, metal deficient, low mass type I super-nova origin 4=15918
- shock waves study, Fermi-Dirac gas model 0=8693
- 63 Tau, atmosphere, metals abundance 3=16404
- spectrophotometry, photoelec. - photographic comparison 2=6967

Stars—contd

composition—contd

- stellar atmospheres, temp. distrib. 2=9092
- stellar models and evolution, introduction 2=2542
- subdwarf, and mean atmosphere parameters 0=18785
- white dwarfs, atmospheres, theory 3=5265
- Ba II, molecular abundances 2=24146
- C abundance, effect on ionization 1=18114
- C₂ partition function for abundance determinations 1=2336
- H, neutral, in Taurus—Orion region, 21 cm spectral study 0=4906
- H₂, detection, by ³Σ continuum, and temp., B stars 3=16407
- HD101065, a GO star with high metal content 1=9284
- H and He distrib. in interior 1=5161
- He-burning reaction products, energy prod. 3=11563
- Li abundance, gravitationally contracting stars 3=11562
- Li abundance and origin of solar system 0=16537
- Li, rel. abundance in T Tauri stars 1=5160
- Li and He³ formation by accelerated particles 3=21087
- Li⁶/Li⁷ ratios in F5-G8 dwarfs 4=29380
- Ne²⁰ production 2=997
- Ng/Mg in Am, Ap stars 4=29381
- O, ionization and excitation in hot stars 0=6610
- Se, B-type 4=2356
- Ti abundances 1=15451
- Ti abundances from Ti I multiplet study 1=15452

magnetism

See also Sun, magnetism

- activity in star evolution processes, theory 2=11139
- average field of variable star by virial theorem 4=2345
- contracting polytrope in magnetic field 1=9286
- decay of primeval toroidal field, as for poloidal 4=17975
- dynamo theory, expt. test 3=18566
- gravitating rotating mass, adiabatic magnetodynamic equilibrium 0=19914
- instabilities in structure 1=12771
- magnetic star equatorial acceleration 1=15498
- magnetohydrodynamic ellipsoids of revolution 0=291
- nonuniform, rel. to surface element distrib. 2=15376
- proto-star, mag. and dynamical fields outside 0=17090
- radiosources, possible mechanism 4=4868
- rotating mag. stars, steady meridian circulation 3=21115
- shape of magnetic stars 1=2631
- and solar system origin, with nearby approach 3=18596
- spectra of magnetic stars 4=29393

radiation

See also Cosmic radiations, radiofrequency; Sun, radiation

- A and B type, interstellar absorption by spectrophotometer 2=6968
- AH Virginis, light radiation and orbital elements 0=18803
- A-type, luminosities, colours and motions of the brightest 4=4866
- A-type, 3-colour photometry 4=2362
- absolute measurement 0=18797
- absorpt., total to selective ratio 2=19275
- absorption, in stellar atmosphere 0=10915
- absorption, total to selective ratio, var. with galactic longitude 3=11553
- approximation formulae, radiation and flux intensity calculations 0=18851
- atmospheres, adiabatic gradient calc. 2=15381
- B, i.r., excess mechanism 4=29390
- B8, B9 type, U, B, V, H_β photometry, 501 stars 3=11561
- B stars, H₂ emission 4=26913
- B stars, radiation below 2400 Å, boundary conditions 3=3601
- binary systems, light curves 3=13906
- blackbody model, for high-temp. operation 1=18659
- blended lines, non-coherent scatt. function 3=1529
- bolometric corrections 4=10833
- brightness of celestial source, Bouger's determ. 2=923
- bursts, UV Ceti, combined optical and radio obs. 4=26969
- Cass A, at 45 Mc/s, decreases and reception 0=18671
- Cass A, at 45 Mc/s, scintillation vote 0=18672
- Cassiopeia, 45 Mc/s, study of ionospheric drifts 3=3493
- Centaurus A, central component polarization 3=7052
- β-Cephei, pulsation 4=26903
- cepheids, luminosity variation 0=12318
- cepheids, period-colour relation 0=18793

Stars—contd

radiation—contd

- cepheids, short-period, luminosity 3=11572
- colour temp., formula 1=2635
- corpiscular, stellar flare origin 0=14444
- corpiscular, and stellar winds, hydrodynamic theory 1=2611
- cosmic rays, He³ abundance 3=6099
- curve of growth, rel. to atmosph. model 4=2346
- diffusion theory 0=18796
- dimensional analysis 4=20896
- early-type atmospheres, monochromatic flux 2=4805
- eclipsing binaries, adjustment of spectrographic elements 4=4865
- eclipsing variables in galactic clusters, list 3=18639
- emission and absorption in stellar atmospheres 1=40
- emission mechanism, plasma interactions with electron beam 1=5441
- emission spectroscopy, scatter diagrams 0=12480
- energy and spectral distrib., review 2=21730
- equilibrium, radiative, stellar atmosphere 4=2344
- filtered, bandwidth, effects on detected energy 3=18585
- galactic cluster luminosity functions 4=4870
- grey scattering, Rayleigh phase function 0=16634
- i.r. artificial, search 0=12330
- i.r., meas., using multiplex interferometric spectrometer 0=16839
- i.r., meas. at 10 μ 4=23860
- initial luminosity function 0=6612
- intensity, scattered monochromatic radiation, Compton process 0=8572
- interstellar polariz. rel. to wavelength 3=13855
- interstellar polarization, meas. and results 0=6548
- interstellar polarization, review 2=4821
- interstellar radiation field 3=1527
- interstellar reddening, i.r., theory 2=11144
- light polarization by helical magnetic field 1=15507
- line-blanketing effects, on A-G dwarfs 0=14461
- luminosity rel. to neutrino-pair production from photons 2=3299
- luminosity rel. to neutrino-pair production from photons 3=2232
- Magellanic clouds, polarization of light 2=21723
- magnetic stars, absorption line equiv. width increase 2=984
- magneto-acoustic, on motion in ionized gas 4=13894
- magnitudes, hetero- and monochromatic three-colour systems 4=13890
- mass-luminosity relationship 3=16410
- massive collapsing stars, generation of gravitational waves 4=23842
- microvariability, rel. to other props 4=13880
- motion of two bodies with corpiscular radiation 4=10796
- N III emission spectrum, hot star temp. estimation 0=16551
- neutrino emission from black-body radiation at 10⁹ K, prediction of supernova outburst 1=2636
- neutrino emission from γ + e⁻ and e⁺ + e⁻ processes 1=8445
- neutrino emission due to neutrino radioactivity 4=10818
- neutrino pair emission by hot plasma, calc. 3=7824
- neutrino pairs, bremsstrahlung emission 0=11141
- neutrino radiation 4=882
- neutrinos 2=273
- neutrinos 3=577
- neutrinos, rel. to Type II supernova freqn. 4=10837
- non-stationary, relativistic electron production in atmospheres 0=12312
- optical thickness of extensive stellar atmosphere 0=2088
- photometric study, multicolour photoelec. 1=18128
- photometric systems correl. 3=16393
- photon fluxes near λ 2000 Å 4=26912
- photosphere, spectral line analyses 2=4807
- photospheric, quantum emission rates calc. rel. to obs. 2=4804
- polarimetric investigation for 1300 stars 2=4820
- polarization by interstellar matter 4=2386
- polarization, by interstellar matter, microwave analogue 1=2887
- polarization meas., instrument polarization effects 0=1
- polarization, origin 2=13152
- polarization by paramag. particles 3=1508
- polarization of starlight 1=15506

Stars—contd

radiation—contd

- pulsating star, phase and amplitude variations rel. to non-adiabatic envelope 2=985
- pulsating stars, light variation phase-shift rel. to radius variation 2=992
- pulsations of early main-sequence model 4=10816
- radio star scintillations rel. to auroral mag. activity 4=4952-3
- Rayleigh scattering by molecular H 3=3587
- red giants, u.v. emission and coronas 4=26915
- reflection and transmission, in inhomogeneous layer 2=21991
- relaxation times at high temp. 1=15753
- Rosseland mean opacity, upper limit 2=21728
- and rotation retardation 3=23691
- scattering by electrons, relativistic, and high energy photons prod. ? 3=19723
- scintillation, chromatic 0=18794
- scintillation, r.m.s. brightness fluctuation, directivity 0=16548
- scintillation, turbulent atmosphere model 0=2085
- shock waves, interaction bet. radiation, mass flow 1=18451
- source function calc. of atom not in thermodynamic equilib. 4=20898
- in space navigation 0=12690
- starlight polarization of near stars 0=6611
- stellar atmosphere, radiative transfer, non-grey, absorption 1=15751
- stellar atmosphere, radiative transfer, non-grey, moment method solution 1=15750
- stellar atmospheres, with anisotropic scatt., transfer 4=10823
- stellar gravitational lenses, imaging props. 4=10806
- supergiant—cepheid colour differences for various classes 4=15921
- supergiants, intrinsic colours 4=13891
- T Tauri, H atoms excited by synchr. radiation 3=11569-70
- temperature distribution near solar limb 2=4802
- three colour obs., conversion to U, B, V system 4=26906
- transfer, with electron collisions 4=513
- transfer equation, numerical solution 4=20897
- transfer, growth curves, stellar classification 0=4905
- transfer, numerical approximations 3=21266
- u.v. quanta, det. from gaseous nebula absorpt. 3=3612
- u.v. to visible ratio, 40 O, B, A stars 3=11481
- ultraviolet emission 2=13149
- variables, 6-colour photometry of 10 classical cepheids 1=35
- variations, rapid, meas. by photometry of trail photographs 4=13879
- V371 Orionis, flare star, radio emission 4=4956
- X-radiation, soft, $\lambda < 100$ Å, calc. 4=2364
- X-rays, from neutron stars 4=23871
- X-rays, night-sky isophote plots 4=10830
- XY Leonis, light curves, photoelectric 0=18804
- Be stars, radiation field, theoretical Balmer decrements 2=15379
- U-B and B-V black-body colours 1=8002

spectra

- (subheading introduced in 1963; for earlier entries see Astronomical spectra, stars)
- A-type, spectral classification, 3-colour photometry 4=2362
- absolute measurement 0=18797
- absorption, bands, due to metallic particles 3=13909
- absorption line profiles, probability method 2=957
- analysis, in stellar evolution 0=6621
- atmosphere model, line blanketing effect, perturbation theory 4=13887
- with atmospheres, extensive 3=21117
- B-stars, continuous spectra, helium depend. 0=10527
- B stars, early, far u.v. 2=15367
- B-stars, model atmospheres, i.r. predictions 4=29384
- B stars, O I and N II forbidden lines 2=17292
- B stars, u.v. attenuation, rel. to circumstellar dust 2=9901
- B stars, u.v. continuum, H atom mechanism 3=9236
- B-type stars, H-line intensities rel. to rotl. vels. 3=9241
- B and A stars, interstellar absorption by spectro-photometry 2=6968
- B and Be stars, line contours 2=4812
- B2 stars, far u.v. lines 2=4814

Stars—contd

spectra—contd

- Balmer line central intensities, used for deducing temps. 0=18845
- β , CMA type stars, line profiles 4=2349
- β -Lyrae, photoelectric observations 0=12327
- binaries, H-R diagram 0=14443
- binaries, spectral and luminosity anomaly 0=14444
- binaries, unresolved, three-colour photometry 2=4819
- binaries, visual, mass-luminosity relations 3=16409
- binary or multiple, 77, spectrophotometric study 2=9089
- blended lines, analysis 2=2876
- blue, faint, high galactic lat., and radial velo. 4=23862
- calc., from model atmosphere 4=2354
- calc., from model atmosphere, early type, computer programme 4=2356
- calc., main sequence model atmospheres, var. metal to hydrogen ratios 4=10827
- carbon stars, $C^{12}, ^{13}N^{14}$ red system 2=19329
- Cepheids, reversing layer, absorption lines 3=9238
- chromosphere, model 4=13893
- classification, composite spectra late component 4=23858
- classification, from objective-prism plates 0=14462
- classification, spectral, application of component analysis 4=23857
- classification, 3 dimensional, G and K stars 4=29392
- classification, two dimensional wideband photometric 4=13889
- clusters, globular, spectral types of individual stars and of integrated light 0=18811-13
- colloquium, profiles of spectral lines 1=10388
- continuous background det., effect of resolving power 1=15503
- continuous, interpretation and intensity variations 0=4904, 14456-7
- continuous, interpretation and intensity variations 0=4904, 14456-7
- continuous, obs. above earth's atmosphere 4=26879
- continuum emission from rapidly rotating atmosphere, theory 4=10829
- continuum intensity meas. for advanced type 3=9239
- cool carbon stars, review 0=14378
- cool, meas. methods 4=29426
- corona, sp^2 config. forbidden lines, calc. 4=26959
- early, deficiencies 1600-2400 Å cannot be explained by HeH⁺ absorpt. 4=26909
- early-type, atmospheres, review 2=4800
- early-type, broadening due to turbulence and rotation 1=18105
- early type, narrow band 4=26910
- early-type, reddening trajectory slopes and intrinsic colours 4=10828
- early type, used as standards in photoelectric H β photometry 0=14458
- early type, u.v. flux deficiency, origin 4=7953
- effect of metal abundance 1=18118
- electron temperature determination 0=9042
- emission-line stars, S stars, late-type variables, new or unclassified, spectral classification 4=23859
- emission profiles formed in moving stellar envelopes 4=4859
- energy distrib. in 18 stars 3=16316
- extreme u.v., from space vehicles, review 3=14337
- 56 Arietis, variations, photoelec. study 4=2359
- Fraunhofer H- and K-lines of CaII, emission reversals, origin 4=29389
- Fraunhofer line wind profile formula 4=26895
- Fraunhofer lines, Doppler widths, empirical inference 3=9224
- Fraunhofer lines, saturation effects 0=847
- G stars, continuous background meas. 2=19330
- geometric line broadening 1=2637
- globular clusters, colour index, rel. to interstellar absorption 4=4869
- gravitationally contracting, red shift and recessional velocity 2=15374
- HD101065, a G0 star with high metal content 1=9284
- hot stars, continuous spectra, calc. 2=21729
- hot stars, excitation and ionization of O 1=1653
- i.r., 8248-8321 Å, carbon stars 3=16408
- i.r. meas. using multiplex interferometric spectrometer 0=16839
- i.r., use of PbS photocell 1=36
- i.r. spectroscopy 2=9060

Stars—contd

spectra—contd

- i.r., Twelfth International Astrophysics Colloquium, 1963 4=26878
 intensity of λ 4430 and colour excess 3=16400
 interstellar reddening 2=19328
 ionized element lines, oscillation broadening 2=2547
 late-type, rel. to distrib. near north galactic pole 2=7025
 late-type giants, observational limitations to mass loss 0=14463
 late type stars, energy distrib. 4=29391
 line blanketing effects on A-G dwarfs 0=14461
 line intensities computation 2=4806
 line strength, for H⁺ continuous absorpt. 4=23867
 line transfer problems 4=2361
 line visibility, low intensity 0=8514
 lines, calc., weighting function method generalization 3=23696
 luminosity function, rel. to distance from galactic plane 4=4851
 luminosity, width of H α as discriminant 4=26914
 Lyman, in near AOV stars, obs. poss. 4=26911
 M and S stars, ZrO band intensities, rel. to temp. 2=994
 M, S, C and WR, i. r. objective prism spectra 4=10831
 M-type stars, absorpt. 3=11574
 magnetic stars 4=29393
 magnetic stars, colours and variability 2=19327
 main-sequence band and Hertzprung gap 0=18869
 mean absorption coefficient in solar-type star, models 0=18852
 mean line stars, data and theories 0=8515
 Mira type variables, line weakening 3=11567
 model atmospheres, computation 2=15377-8
 monochromatic emission, study in high density stellar regions 0=18838
 multiplet lines, causes of source function equality 4=6456
 non-hydrogenic atomic system, continuous absorption coeffs. 3=3599
 non-stationary, distrib. near Balmer limit, plasma theory 4=13892
 nova Aquilae 1945, Ne absorption lines 0=14460
 nova outburst, central exciting stars, temp. and radius 0=14452
 nova outburst, H α intensity 0=14451
 nova RR telescopia (May 1949-Aug. 1960) 0=14459
 novae, absorption line profiles 1=18113
 novae, coronal lines 1=18120
 O-type, identification of B III 0=6618
 objective prism spectra, survey in northern Galaxy 2=13155
 Of, 2 unidentified emission lines 4=23866
 1314 and 1427 A 4=4864
 Ori D and E, comparison of spectral lines 2=4809
 α Orionis, 10 μ radiation measurements 3=13903
 Osawa's model atmospheres, curves of growth of Fe multiplet 4=15920
 P cygnus type, temps., spectrophotometry 3=11571
 parallaxes with Thaw Refractor, 55 stars 0=12309
 photoelectric and photographic spectrophotometry, comparison 1=7972
 photoelectric spectrophotometry for early-type stars 0=6617
 photoelectric spectrophotometry, 3500 < λ < 4500 4=2358
 Pleiades and Hyades, faint members, classification 2=15387
 quantitative anal., automation system 2=17297
 quantitative anal., computation programme 2=7015
 quasi-stellar radiosources 3C 48 and 3C 273 4=26975
 RGU system, blanketing corrections 4=10836
 radiating as black bodies, three-colour photometry 0=8513
 radiative transfer theory, growth curves 0=4905
 rocket observations 0=16538
 rocket and satellite observations of vacuum u.v. and X-rays 0=14438
 Sagittarius, 20 variable stars 0=12314
 scatterings by resonance line photon 4=29371
 scintillation, meas. by u.v. recorder 2=21685
 scintillation, turbulent atmosphere model 0=2085
 Scorpio-Centaurus association, interstellar absorpt. lines 2=24137
 self-ionization of light atoms and Fe ions 0=846
 ^2Ne continuum, H γ detection, and temp., B stars 3=16407
 60 stars of unusual spectral classifications 1=8004
 63 Tau, metallic-line spectrum 3=16404

Stars—contd

spectra—contd

- small magellanic cloud, emission-line stars, catalogue 1=6721
 source functions, Eddington's approx., comments 2=4808
 spectral line study using inclined Fabry-Perot interferometer 0=16553
 spectrophotometric gradient, effect of resolving power 1=15504
 spectrophotometry, photoelec.-photographic comparison 2=6967
 spectrophotometry of 12 standard early stars 4=29364
 spectrophotometry, u.v. from above atm., disagreement with theory 2=19316
 star, late main-sequence, relationship with colour 3=3595
 starlight polarization in interstellar medium 4=26924
 stars, blended lines, non-coherent scatt. function 3=1529
 stars and planets, irradiance 0.1 to 100 microns, above atmosphere 2=19270
 stars u.v. obs. rel. to interstellar radiation field 3=1527
 stellar envelopes, moving, emission line profiles 2=993
 stellar, ionized elements, oscillation broadening 1=9283
 subdwarf, composition 0=18785
 sub-dwarf, rel. to identification 2=24144-5
 subdwarf, series of atmospheres 0=18786
 supernovae, Cf lines 2=12288
 T Tan, rel. to colour 4=23864
 T Tauri, Li I doublet, rel. to abundance of Li 1=5160
 T Tauri, radiation from H atoms, theory 3=11569-70
 TX Ursae Majoris, photoelectric light curves 1=9281
 3C 273, absolute energy distribution 3=13907
 Trumpler shifts, origin from use of unsuitable He lines 4=10835
 turbulence 3=18643
 U, B, V system parameters, influence of band-width effect 4=26907
 U, B, V system, reddening lines calc. 4=10832
 U Pegasi, light variation and orbital elements 0=12328
 u.v. 2=13149
 u.v., central stars of planetary nebulae 2=17295
 u.v., Conference (Liege 1960) 2=11142
 u.v. spectrum 2635-2085 A 1=2612
 u.v., theoretical prediction 2=17294
 unidentified lines, tables 1=15501
 veiled Fraunhofer absorption lines 1=10389
 visual absorption rel. to colour excess 1=18112
 visual binaries, having primaries above main sequence 0=12325
 white dwarfs, atmosphere models, continuous spectra 4=23861
 width of H α as discriminant of luminosity 4=26914
 Wolf-Rayet, emission line profile analysis 3=23695
 Wolf-Rayet, He II emission analysis 4=23847
 WR, Of and emission-line central stars of planetary nebulae, emission-line phenomena 4=29379
 X-ray sources in Galaxy 4=23869
 B1-B8, Underhill model atmosphere series calc. 4=23863
 C, vibrational spectrum 1=15505
 C II, N III, O IV, lower levels, statist. equilib. 3=21116
 CN anomaly and U, V, W components of space vel. 3=7037
 CN, 4200 A band in G8-K5 spectra 0=18846
 Ca, 6573 A line, collision broadening in stellar atmospheres 0=17704
 Ca II, K-line, in A stars, rel. to Osawa's models 2=9085
 Fe II 2=22904
 Fe II, gf values 3=9201
 G δ -K δ , λ 5250A FeI triplet and D lines 1=9282
 Ga II, identification 2=17291
 H, Balmer series, polarization 1=18121
 H, capture-cascade equations 0=17667
 H⁺, continuous absorption due to free-free transitions, calc. 1=2277
 H, discontinuities, mean optical depth of formation and series limit line strength 3=25041
 H, high lines, Stark and Doppler broadening calc. 2=6091
 H, high lines, Stark effects 2=4810
 H lines, high, in early-type stars, profiles calc. 4=2360
 H $_2$, quasi-molecular, absorption coeff. 4=23868
 H $^-$ continuous absorpt. coeff. rel. to opacities 4=10834
 H and He continuous emission, upper atmosphere 4=4860
 He white dwarfs, continuous spectra 4=26908
 N III, emission, hot star temperature estimation 0=16551

Stars—contd

spectra—contd

- O stars, in diffuse nebulae, u.v. 2=17296
- O I, forbidden lines, relative intensities in expanding atmosphere 0=18844
- O I, recombination spectrum 2=4804
- O III, recombination, calc. 4=4867
- Si II, high-excitation lines 2=17290
- Ti, balance and abundance in stellar photospheres 0=14414
- Ti, f-values, comparison with laboratory excitation 0=15666

structure

- A stars, Osawa's model atmospheres, Ca II K-line 2=9085
- atmosphere, calc., use of $\log \tau$ as integrating variable 4=2353
- atmosphere, convective mixing depth 4=2416
- atmosphere, equilibrium 3=1659
- atmosphere, flux constancy required for given max. temp. var. 3=23694
- atmosphere, gray, time dependent heating 4=17979
- atmosphere, model, early type calc., computer programme 4=2355
- atmosphere, model in late type 4=29385
- atmosphere, model, spectrum, calc., early type, computer programme 4=2356
- atmosphere, stationary shock waves 2=2544
- atmosphere, Underhill model series calc., B1-B8 4=23863
- atmospheres and ambia, dynamical aspects 2=4715
- atmospheres, conservative scatt. model, sphericity correction 1=12770
- atmospheres, convection problem, linear theory 2=2546
- atmospheres, gas dynamics (symposium, 1960) 2=11097
- atmospheres, grey-body models calc. 1=12769
- atmospheres, ionization, effect of C abundance 1=18114
- atmospheres, isotopes study, review 2=4801
- atmospheres, models, computing methods 2=13150
- atmospheres, source function 2=4716
- atmospheres, theory from photographic observations of solar photosphere 0=14412
- atmospheres, upper 4=4860
- B-stars, circumstellar dust clouds rel. to u.v. attenuation 2=9091
- B-stars, model atmospheres, i.r. predictions 4=29384
- baryon configs., superdense, main parameters calc. 4=23851
- beta decay of nuclei in stellar interiors, bound-state decay 1=17016
- binary systems, mass accumulation by secondary component, model 1=9278
- CNO cycle, reaction rate of $O^{17}(p, \alpha)N^{14}$, O^{17}/O^{16} ratio 2=3575
- calculation, Henyey approach appl. 4=29369
- Cassiopeia-A and Cygnus A at 127 and 3000 Mc/s 1=18177
- β -Cephei, pulsation 4=26903
- δ Cephei type, pulsation models 2=7013
- chromosphere, heating by shock waves 0=18858
- chromosphere, model 4=13893
- collapsed, highly degenerate cores, numerical calc. 4=20893
- collapsing, energy-momentum tensor 4=26901
- contraction of molecular H protostars 4=29372
- convection, effect of super-adiabatic temp. gradient 2=15380
- convection zones, 3-layer models, depth-dependent temp. grad. 0=14467
- convective envelope, surface condition 2=15370
- convective envelopes, differential rotation 3=11565
- convective zone, rel. to evolution 2=4818
- convective instability of radiactivity fluid layer 1=2632
- convective zone model 1=15509
- cooling behind shock fronts in atmospheres 2=4813
- core evolution rate, rel. to neutrino emission 1=8445
- coronal thermoelectric phenomena 2=971
- cosmic plasma jets and hyperthermal wind tunnels 2=24142
- cosmical gas dynamics (symposium, 1960) 2=11097
- degenerate superdense gas of elementary particles, theory 1=19154
- dwarfs, dense, white, condensed state 0=8517
- early evolution at mass ten 2=989
- early type, H II region, formation 3=11556

Stars—contd

structure—contd

- electron atmosph., optical thickness from Compton shift 3=5264
- electron distrib., effect on Be⁷ electron capture rate 3=2404
- element distrib. on surface, rel. to mag. field 2=15376
- energy transfer from core to surface 1=40
- equilibrium, hydrostatic, stability criterion 4=2344
- evolution, role of magnetic activity 2=11139
- during evolution, of upper main sequence 0=18847
- evolution without heavy elements 2=9090
- evolutional connection between stars and nebulae 0=18847
- evolutionary models, time sequences, automatic calc. 4=10812
- 5-solar masses, He-burning to H-burning transition 3=3594
- formation in one direction through cloud complex 4=10805
- formation of young population I stars, problems 4=7963
- gas layer, atomic excited states, equilib. population 4=19972
- gaseous spheres, lunar mass, imperfections and phys. conditions 2=19326
- general relativistic polytropic fluid spheres 4=29365
- giant stars in globular cluster, He burning possibility 0=18870
- giant stars with shell sources of C-N and p-p reactions 0=10528
- giants with surface convection zone, outer envelope 2=15371
- globular clusters, dynamic evolution and structure 2=7018
- gravitational contraction times of stars, in very young clusters 0=18807
- gravitationally contracting, of one solar mass 3=11562
- H II regions, extent 0=18863
- heavy element creation, by neutron capture on fast time-scale, theory 0=20485
- hydrogen stars, evolution and stability to radical oscillations 4=2340
- hyperon configurations, internal structure 2=13144, 17289
- inhomogeneous stellar atmospheres 1=2654
- interiors, termination of p-p chain, reactions 4=17976
- intermediate mass, evolution after H burning 2=15363
- intermediate mass star, evolution after hydrogen burning 1=18119
- internal constitution, rel. to H convective zone 2=996
- ionization equil. at high densities, eqn. of state 4=13881
- late-type, physical atmospheric parameters 1=2625
- long-period variables, luminosity 2=24143
- long-period variables, luminosity 3=3598
- M and S type, ZrO spectral bands rel. to temp. 2=994
- M-type stars, atmospheres 3=11574
- magnetic stars, shape 1=2631
- magnetic variable, double star model 4=10815
- magnetogravitational instability of sphere with variable density 4=4849
- magnetohydrodynamic turbulence growth 2=19308
- magnetostatic model for compressible star 0=6622
- main-sequence band and Hertzsprung gap 0=18869
- main sequence, models 0=18849
- massive, convection model 2=4798
- massive, models in He-burning stage 0=8516
- massive stars, early-stage evolution 0=14464
- massive, with uniform composition, models 4=2343
- massive stars, evolution, helium-burning stage 1=38
- massive stars (46.8 solar masses) at early stage of evolution 1=39
- mixing of material and magnetic problems 1=12758
- model 1=21
- model for helium star of solar mass 1=2629
- model of mixed opacity rel. to mass, chem. comp., opacity coeffs. and energy-generation coeff. 2=19325
- models with double energy-sources 1=2626
- models, early-type, rel. to diffuse nebulae 2=1000
- models, Gaunt factors for free-free transitions in H 1=19582
- models of massive pure hydrogen stars 1=2628
- models of massive stars in He-burning stage 2=987
- models with partially degenerate isothermal cores 1=6718
- multiple frequencies and beats in B Canis Majoris 3=3593
- neutron core stability in gen. relativity theory 3=7036
- neutron core stability in general relativity theory 2=13151
- neutron cores, detection 3=16402

Stars—contd

structure—contd

- neutron model, density variation, and observable masses 2=986
- neutron star models 0=10526
- neutron, as X-ray sources 4=29378
- neutron, and zero temp. 4=20899
- neutron, stability 4=26898
- neutrino emission processes, evolution 2=2541
- neutrino gas, density and pressure, var. temp., chemical pot. 4=4854
- neutrino, μ , e, super, sizes and masses calc. 4=23850
- non-LTE approach, discussion 2=4807
- nuclear reactions in, element build-up by He, n and p capture 0=14465
- nuclear reactions in red giants, buildup of elements from C^{12} 0=17609
- nuclear reactions in, syntheses of α -particle nuclei heavier than Ne^{20} 0=14466, 18867
- O-type, evolution, H-burning, zonal models 4=10809
- opacity, interior, contribution of broad absorpt. lines 4=10819
- optical thickness of extensive stellar atmosphere 0=2088
- oscillation model for radio source 3C 273 4=23953
- oscillations, radial, adiabatic, asymptotic form 4=4853
- oscillations and stability of rotating gaseous masses 3=3591-2
- outer convective zone, existence 2=4817
- P-Cygni, plasma-jet atmosphere model 2=24142
- perturbation method 0=6624
- plane gray photosphere, transfer eqn. soln. 1=18000
- Pleiades, H-R diagram, interpretation 0=18847
- Pleione, structure and instability 0=18868
- population I, gravitational contraction 0=18864
- population II, interior models 0=18866
- pulsating star, phase and amplitude variations rel. to non-adiabatic envelope 2=985
- pulsating stars, radius variation rel. to light variation phase-shift 2=992
- pure H stars, convective core model, with radiative envelope 1=37
- pure H stars, evolution 2=990
- pure He stars, equilib. models 3=11557
- pure hydrogen stars, vibrational stability, model 1=18108
- quasistatic equil. for 10^2 - $10^9 M_{\odot}$ binding energy 4=10810
- red giants, coronal evaporation as mass loss mechanism 0=18857
- red giants, models 3=16395
- red giants, neutrino processes 3=13902
- red giants of population II 2=19323-4
- red giants, population II, mixing due to He flash 4=15917
- red, low luminosity, degeneracy 4=23846
- rejuvenation by accretion 1=18117
- Roche model, generalization 2=988
- Roche model, generalized, adiabatic radial pulsations 2=24138
- rotating gas masses, and stability 4=29367
- rotating liquid stars, magnetostatic 2=9087
- rotating mag. stars, steady meridian circulation 3=21115
- rotating, non-rigid, meridional circulation 0=2086
- rotating polytropes 4=29366
- rotating star, eqns. of internal structure 2=11141
- rotating stars, early type, H convection zone, turbulence 1=6719
- shock-wave propag. in gravitating gases, Chisnell's method 1=2780
- shock waves in, spherical wave propagation in interior 1=18455
- small masses, early evolutionary phases 2=991
- solar-type star models, mean absorption coeff. 0=18852
- stability of massive stars in general relativity 4=30967
- stellar atmospheres, gravity determination 0=18850
- stellar atmospheres, magnetohydrostatics 0=18853-5
- subdwarfs, internal structure, C content 3=1526
- superdense, critical mass 4=15919
- superdense neutron configs., nonrelativ. theory 3=9233
- surface model boundary conditions 4=10825
- symposium (Lucknow, 1955) 0=18847
- temperature, B stars, and H_{α} detection, by ^{52}Fe continuum 3=16407
- 10 solar mass star, evolutionary model sequence 1=18110
- time rate of formation 1=15496

Stars—contd

structure—contd

- turbulent convection spectrum 1=2633
- type B, photosphere models, spectral lines 2=17292
- upper atmosphere, electron density and temp. distrib. 4=23855
- variable, computer calc. of large envelope pulsations 4=23852
- variable, long period, model 3=5262
- variable red giant, model 1=4210
- variable stars, envelope models 0=18861
- very-low-mass stars, convective models and evolution 3=16396-7
- vibrational stability and radial oscillation modes 2=4796
- visual binaries and eclipsing variables, density 1=18111
- white dwarf models, total energy 4=2341
- white dwarf, pressure ionization 0=15799
- white dwarf, rotating, limiting mass 4=2348
- white dwarfs, evolution rel. to accretion of H 2=2540
- white dwarfs, general relativistic effects, internal state study of gravitating gas 1=8039
- white dwarfs, origin, structure 2=19335
- white dwarfs, Thomas-Fermi atoms in interior, thermodynamic functions 1=3501
- zero temp., electron capt. effect 4=29377
- zero-temp. models 2=9088
- zero-temp. plasma, energy and pressure 2=5328
- Be^7 electron capture rate, nuclear matrix elements 3=2404
- C^{12} prod., and γ -ray width of 9.63 MeV level 3=11568
- C^{13}/C^{12} ratio, and $C^{13}(p,\gamma)N^{14}$, effect of possible N^{14} level ~ 7.60 MeV 3=11566
- H and He burning, computer calc. 4=29376
- He burning, large mass, elements abundance 4=29375
- He burning, small mass, semi-degenerate 4=29374
- He thermonuclear reactions, exclusion of 4.97 MeV Ne^{20} level 2=1808
- $He^3(e^-, \nu)H^3$, rate theory at high densities 4=17977
- Ne^{20} prod., by $O^{16}(\alpha,\gamma)$, and γ -ray width of 7.20 MeV Ne^{20} level 3=11568

Statistical analysis

- See also Measurement, errors; Probability; Random processes
- analyser for random waveforms 2=17336
- auroral forms 1=21045
- cascade theory, characteristic-functional methods 1=6
- combinatorial problems, simple class 2=13239
- correction of dispersion for observational error 1=9246
- critical percolation probabs. for two-dim. site and bond problems 4=27081
- critical percolation probabilities, series methods 4=8081
- dimer arrangements on quadratic lattice 2=1072
- disordered linear chain of N degrees of freedom, natural freqs. 3=21200
- Dyson-Schmidt eqn. for linear chain, soln. of 4=5086
- energy-level spacing distrib., mth-order 4=18084
- energy levels of complex systems 3=14048-7
- equipment for examining distrib. laws of chance 0=3399
- extrapolation, reliability, over long periods 3=5327
- fractional coverage of plane by inequigranular powders 0=10325
- Ising model, two-dim., Kramers-Wannier duality as Poisson's summation formula 4=18079
- light, and Sudarshan quantum-classical equivalence, density matrix 4=8368
- linear stochastic operators 3=14037
- linear systems, new treatment 3=14040
- linear systems with randomly varying parameters 3=16492
- and Monte Carlo methods 4=27075
- multidimensional transfer analysis 1=16228
- Nakagami-Rice probability distrib., statistical parameters 4=24829
- observation equations, least-squares method of solution 0=14370
- one-dimensional interaction statistics, semiconductor dislocation acceptors 0=18005
- Poisson accumulation, electronic solution of statistical problems 1=15396
- pulses, random-shaped, overlapping, correl. function and power spectrum 4=8079
- pulses with a statistical time distribution 1=401

Statistical analysis—contd

- radial distrib. functions from integral eqns. and Monte Carlo 3=1656
- random matrix diagonalization, numerical calc. 3=21201
- random placement on linear lattice 3=9357
- random variable regression and correlation theorems 3=5326
- random walk on lattice, number of sites visited 3=23775
- Rayleigh distrib., generalized, moments 1=17986
- Rayleigh distribution, review of problems 2=15456
- renormalization techniques and stationary entropy principle 4=8101
- rigid-disk phase transitions 4=16288
- sampled flow of random pulses, counting rate, errors 4=28089
- sampling, continuous through a tube, damping of fluctuating conc. 4=8140
- stochastic regenerative processes 0=18578
- stochastic system, stability probability 4=8023
- stress tensors, non-uniform bodies 4=21067
- sums of distribution functions, analogue computer 0=4839
- vinyl polymers, statistical molecular wt. distrib. 1=12340
- vision, probit methods 4=2490
- white-noise probing, parameter identification 3=11671
- applications**
 - accelerating flames, study 0=3680
 - acoustic field in atmosphere, rel. to turbulence 2=17140
 - angular distribution of fission products 0=7632
 - astronomy 1=1628
 - atomic and nuclear spectra 0=17696
 - b.c.c. hydrides, crystallog. requirements and configurational entropy 4=22447
 - best fit line 3=21202
 - breakdown of air atm. press. in small gaps. 4=29889
 - Brownian motion, modified Langevin eqn. 4=2575
 - chem. reaction probabilities 1=20725
 - chemical reactions, unimolecular, complexion calc. 4=13707
 - coin tossing, quantum mechanical discrepancy 0=4959
 - colour matching 2=13434
 - combinatorial problem 2=2587
 - compound-nucleus level-density fluctuations 3=24855
 - concrete, flexure failure, stochastic theory 0=21141
 - correlation functions and spectra of low-frequency processes, meas. device 4=14009
 - correlation and regression theory, bibliography (1930-57) 0=6546
 - counting rate autocorrelation functions 1=758
 - crystal structure intensities 3=23430
 - cubic lattice model chain polymers 2=2035
 - degradation in scanned image systems 4=27295
 - dust counting 0=8326
 - dust counting, inter-observer checks 0=8327
 - electromagnetic oscillators, classical, and quantum electrodynamics 4=5092
 - electron-photon showers, electron number distrib., validity of Monte Carlo calc. 1=9787
 - exponential absorpt., n obs., optimum design of expts. 3=5328
 - forced choice and phenomenal-report hearing thresholds, prediction 0=8441
 - frequency distribution curves in overlapping Gaussians 4=2520
 - hard-spring oscillator, randomly excited 0=10711
 - Ising model, Monte Carlo computations 1=6536
 - lattice models with four states per site, exact soln. 4=27080
 - lattice models, 2- and 3-dimensional, excluded vol. effect 3=16544
 - life times, short, meas. with background 3=24669
 - limit theorems, bibliography (1930-1957) 0=18579
 - linear distributed systems, first order 3=16538
 - macromolecular configurations, Monte Carlo study 3=15400
 - Markoff cascades with general source terms 0=15309
 - metals, equation of state 0=13461
 - micromeritics, statistical technique 3=6934
 - Monte Carlo calc., slowing of electrons by water 0=3956
 - Monte-Carlo method applied to Fermi age calc. for light water reactors 1=3484
 - μ -meson mean life 0=5579
 - multiple scattering, correction for energy losses 3=24667

Statistical analysis—contd

applications—contd

- neutron distributions in moderators 0=12981
- neutron flux at a point, Monte Carlo estimation 3=24739
- neutron slow down, collision number 2=7865
- neutron time-dependent thermalization problem 3=24738
- neutrons in moderator 0=20152
- neutrons and precursors in multiplying medium, probability distrib. 3=25002
- noise fluctuation records, photoelectric method 0=14943
- non-Gaussian character of real polymer chains 3=10558
- nuclear emulsions scanning, max. likelihood method 4=24958
- nuclear many body problems, Monte Carlo calc. 2=11905
- nuclear reaction yields with different multiplicities 2=14070
- nuclear reactions, data handling using on-line computer 4=22088
- order-disorder systems, one-dimensional, phase transitions 2=16576
- PAPA, mathematical theory 2=2590-1
- particle energy anal., from emulsion tracks, maximum likelihood method 0=5465
- particle size distrib. in mixing vessels 4=2158
- performance of spark guards 0=6998
- phase space functions rel. to quantum mechs. form. 4=24059
- photoneutron multiplicity meas. 3=10330
- polarization of particles 1=472-3
- polycondensation, non-random, statistics of substitution effect 4=17863
- polydisperse polymer system, random degradation 2=23961
- polymer chains, new Monte Carlo method 3=12887
- polymer molecules, packing 1=12341
- polymer solns., Monte Carlo calc. 2=1144
- polymers, linear, molecular structure deduction from electric moments 1=8867
- polymer molecules with solvent interaction 3=10562
- polymer systems, stochastic processes 3=8320
- pulse trains, random, independent, appl. to Barkhausen noise 2=21837
- radiation scattering, statistical geometric bases 3=14041
- radii of gyration for random flight chains 3=15403
- radio star scintillation 1=15266
- radio wave propag. data, theory 3=502
- random flight chains, q-dimensional excluded volume 1=12337
- random mixtures and percolation processes, cluster size 1=7512
- random scattering, amplitude and phase distrib. 2=15492
- random walk, to localized lattice vibrations 4=1375
- random walk problems, with unequal steps, resultant vector probability 0=4958
- reactor burnout, heat flux calc. 1=17216
- resonance states of particles 3=24671
- rock magnetism 0=21306
- sampling theorem of information theory, expansion theorem 0=14791
- semiconductors, negative temps. 3=17839
- spark counters, multiwire, accuracy track location 3=24543
- spectral intensity decomposition into Gaussian curves 1=18592
- sphere packing with discrete radius distrib. 4=71
- stars, radial vel. analysis, least squares method 4=17982
- stellar clouds, study of projected globules 0=10515
- sunspot maxima prediction 0=2079
- time distribution analysis, correlation of pulses 1=15392
- time measurement 1=10474
- time series, bibliography (1930-57) 0=6547
- ultrasonic cavitation 4=2642
- Van de Graaf accelerator, integrated data handling system 4=24766
- vibrating bar, extremal statistics 1=1778
- voltages, random, instrument for statistical characteristics 4=16388
- vowel recognition, computer programme 1=7953
- wind velocity fluctuations, continuous computation 4=17880

Statistical analysis—contd

applications, counters

- angular correl. attenuation coeffs. 3=19512
- angular correl. data analysis 3=12377
- angular correlation meas., ang. resolution correction 4=9005
- background determ. in meas. of low activities 3=3235
- coincidence circuits, chance coincidence elimination 4=9026
- coincidence circuits, estimation of random counts 4=9023
- coincidence method, decay rates determ. 2=22747
- coincidence technique, errors 1=19071
- coincidences bet. 2 out of line counters 4=24937
- coincidences and spurious correlations 1=15392
- correlation function for dead-time 3=14832
- correlation spectral analyser for recording processes 4=2521
- counting performance computation, universal function 1=13236
- data analysis systems, review 4=21691
- data handling techniques 1=7175
- dead-time corrections for short-lived nuclides 3=17119
- to decay spectra, multicomponent time dependent 4=12165
- differential interval analyzer, output distortion 0=17183
- double isotope liquid scintillation by internal standard 4=24947
- $4\pi\beta$ -counting, self-absorption error elimination 1=13235
- effect of long decay chains, Ra^{224} and Ru^{223} 4=12192
- electron multipliers 1=4636
- fluctuations for pairs, as for radioastronomy 4=21695
- γ -ray absorption in NaI well crystals 0=11133
- γ -ray spectra, complex 4=21825
- γ -scintillation spectrometers, accuracy 4=16860
- generating functions of probab. theory 3=14833
- kicksorter, two-dimensional, with magnetic storage 1=8291
- lifetimes meas., delayed coincidences analysis 3=2384
- Markov generator, electronic 4=427
- multiparameter analyser, two-dim. 4=21704
- multiparameter analysers use for high energies 4=21693
- multiparameter analysers use for low energies 4=21692
- multiparameter pulse-height analysers 4=22054
- nuclei, lifetimes of excited states, errors in delayed coincidence 0=7258
- parameters det. from grouped samples 3=530
- particle accelerators, multiparameter analysis 4=24765
- photomultipliers, multiplication times 4=19086
- photonuclear yield curves, second difference analysis 4=22101
- pulse-height analyser, two-parameter multi-channel 4=21707
- pulse height analysers 2=19843
- pulse-height analysis, analogue-to-digital converters 4=21711
- pulse height spectra, digital analysis 2=18034
- pulse-height spectra, resolution distortion correction 4=21839
- pulse losses due to dead time in scalars 0=20001
- pulse series analysis, time selector 3=1918
- radiation analyser, multiparameters, stored-programme computer 4=21694
- radiation gauges, parameters 2=5613
- ratemeter, speed of response rel. to random fluctuations amplitude 4=773
- registrations number, distributions 3=14811
- RDL type 3300 hundred-channel analyser 0=7259
- scintillation counters, timing limits 1=7171
- scintillation, using internal standards, error eqns. 3=22039
- scintillation NE102, neutron energy calc., pulse height distribution 4=30237
- scintillation pulse-height distrib., unscrambling 1=1987
- scintillation spectrometer, pulse size statistical spread 0=17144
- simultaneous meas. for several spectra 3=1922
- spurious count evaluation in coincidence measurements 0=15220
- statistics of X-ray spectroscopy 1=16470

Statistical analysis—contd

applications, counters—contd

- tests for estimating errors 1=11046
- time-constants, effect on recorded count rate 4=3234
- time-of-flight techniques, fluctuations 0=6691
- triple-correlation expts., geometrical corrections 4=24938
- variable beam bombardment secondaries 4=24936
- width, channel, optimum, single-channel analyser 3=19513

Statistical mechanics

See also Quantum theory, many Particle systems

- action option, Feynman quantization of spinor fields 1=2007
- adiabatic invariants asymptotic behaviour 2=11300
- adiabatic invariants in quantum mechanics 1=6795
- adiabatic and isolated susceptibilities, theory 1=12813
- adiabatic processes, thermodynamic equivalence 4=16048
- adiabatic processes, thermodynamic equivalence, eqn. of state 4=16049
- adiabatic theorem for Hamiltonian differential eqns. 2=4939-41
- adsorption of monolayer on square lattice 3=3367
- Albertoni-Bocchein-Loinger theorem, stronger form proof 2=37
- alloy, Curie point, elementary application 2=2645
- alloys, n-component, order-disorder transformations 0=14063
- almost one-dimensional system 2=17372
- almost one-dimensional systems 4=29547
- almost periodicity and quantal H theorem 2=9202
- analogy between quantum and classical system 4=16051
- anisotropic system, thermodynamic props., at zero temp., calculation method 0=18980
- anomalous diagrams, method of elimination 4=11102
- antiferromagnetic resonance, formulae, 1=10176
- antiferromagnetics, quantum statistics 3=5027
- antiferromagnetics, quantum theory 3=8693
- antiferromagnetism, Green functions appl. 4=28853
- antiferromagnetism, lattice gas associated with spherical Ising model 4=4387
- antiunitary operators, normal form 0=16608
- approach to equil., effect of initial correl. 4=18105
- approach to equilibrium 1=15745
- approach to equilibrium of dense classical fluid 2=7178
- approach to equilibrium, general theory 0=16618
- approach to equilibrium, general theory 1=5210-11
- approach to steady state far from equilibrium 2=21840
- approach to thermodynamic equilibrium 1=6793
- assembly on a lattice, configuration partition function 2=17457
- assembly in mass-motion 0=2138
- association problem, matrix-spinor method criticized 1=8058-9
- association problem soln. by matrix-spinor method 0=8559
- asymptotic behaviour of perturb. expansions 3=7141
- asymptotic form of structure function for real systems 3=11712
- average value calc., hypervirial theorems appl. 2=9201
- averaging process for av. values of a variable at different instants 1=4279-80
- Bernal liquid, simplified two-dim. 4=14133
- Bogolyubov's variation method, generalization 1=71
- Boltzmann and anti-Boltzmann equations 2=1073
- Boltzmann, Bose-Einstein and Fermi statistics correlation, theory 1=9337
- Boltzmann eqn. for collisionless plasma, nearly spatially uniform 1=15723
- Boltzmann eqn. for conduction electrons 3=25227
- Boltzmann eqn. differential-operator approximations 0=16622
- Boltzmann eqn., generalization to general order in the density 3=56
- Boltzmann eqn. and inverse collisions 0=18977
- Boltzmann eqn., kinetic integral soln. 4=95
- Boltzmann eqn., relaxation time of conduction electrons in noble metals 3=25228
- Boltzmann eqn., Wild's inversion, derivation 4=16059
- Boltzmann equation for bounded medium 1=8061
- Boltzmann equation derivation from Liouville equation 1=6799

Statistical mechanics—contd

- Boltzmann equation, generalized, for fluid of rigid sphere molecules 1=8060
- Boltzmann equation, relativistic, and its applications 1=8343
- Boltzmann equation, various derivations, connections 1=8062
- Boltzmann gas, charged, at absolute zero 2=9205
- Boltzmann operator, linear, expansion 1=18285
- Boltzmann's H-theorem, proof for gas in finite vessel 1=74
- Boltzmann's integro-differential eqn., solns. summary 2=13368
- Born expansion, convergence 0=16631
- Born series convergence, bound states 3=21248
- Bose-Einstein gas with repulsive interaction, ground-state energy 0=3460
- Bose-Einstein lattice gases equivalent to Heisenberg model of ferro-, antiferro- and ferrimagnetism 0=13748-9
- Bose-Einstein non-ideal system, thermodynamic perturbation theory 1=10437-8
- Bose-Einstein particles, mixtures, Bogolyubov method 4=16054
- Bose-Einstein statistics, influence in proton-antiproton annihilation 0=17339
- Bose-Einstein system with attractive interactions, energy levels 0=49
- Bose-Einstein system with attractive interactions, eqn. of state, comparison with He⁴ 0=14531
- Bose and Fermi gas, phase separation in isotopic mixture 1=8347
- Bose fluid, ground-state calc. 0=18985
- Bose gas, charged, ground state energy and sp. heat 4=18095
- Bose gas, charged, at high density, ground-state energy 4=8104
- Bose gas in finite volume, ground-state occupancy 4=14077
- Bose gas, free, nonrelativ., canonical commut. relns. 3=14056
- Bose gas, ground state energy, simple calc. 3=16552
- Bose gas, hard-sphere, dynamical props. of impurity 4=18097
- Bose gas with hard sphere interaction, low-temp. 1=15737
- Bose gas, hard-sphere, using nonlocal field operators 4=18096
- Bose gas, imperfect, ground-state energy, one-dim. model 4=14078
- Bose gas, impurity excitation spectrum, pseudopotential method 4=8102
- Bose gas, interacting, exact analysis 3=14064
- Bose gas, interacting, excitation spectrum 3=14065
- Bose gas, non-ideal, equilib. and quasi-equilib. props. 0=18984
- Bose gas, non-ideal, excitation spectrum 0=901
- Bose gas at non-vanishing temp. 2=13276, 19464
- Bose gases, imperfect, superfluidity, theory 2=2651
- Bose hard-sphere gas, exact momentum-space formulation 0=16629
- Bose hard-sphere gas, low-lying excitations 0=10609
- Bose hard-sphere gas, low-momentum excitations, temp. depend. 0=18987
- Bose hard-sphere system, pair distribution form 0=16627-8
- Bose liquid, perturb. expansion at zero temp. 4=27100
- Bose liquids, elementary excitation spectrum, near disintegration threshold 0=10816
- Bose particle system, cluster expansion of ground state 0=14529
- Bose particles, interacting system, collective description 2=11305-6
- Bose system, chem. potential and low-lying excitation 3=18752
- Bose system, dilute 0=3461
- Bose system, ground-state energy for Lennard-Jones potential 0=12382, 14532
- Bose system of hard spheres, ground state 0=899
- Bose system, interacting, ion mobility in, soln. of Boltzmann eqn. 1=10672
- Bose system, interacting, low-temp. props. 4=27099
- Bose system of hard spheres, pseudopotential method 4=2593
- Bose system, N-body, with finite states number 3=11724
- Bose system with repulsive interactions, ground state, equivalence of cluster integral method and pair approx. 0=14530

Statistical mechanics—contd

- Bose systems, transport theory 4=5102, 8112
- boson beams, counting correlations 4=29561
- boson gas, Bose-Einstein condens. order 3=18751
- boson gas, degenerate, thermodynamically equivalent Hamiltonian 1=75
- boson gas, ground-state energy 0=2133-4
- boson gas, with hard-sphere interaction, three-body correl. function 4=24098
- boson gas, hard-sphere, with weak potential 3=21264
- boson gas, nonideal, pair Hamiltonian model 3=78
- boson gas, phase transformations 0=3462
- boson system, interacting, ground-state energy and excitation spectrum 0=2132
- boson system, interaction of foreign particle 2=19463
- boson system, internal energy and partition function 2=21846
- boson system, method of auxiliary variables, ground-state energy calc. 0=14534
- boson system, simple model, Bogolyubov method analysis 4=8105
- boson systems, cluster expansions incl. higher-order diagrams 4=2598
- boson system, condensed, density waves excit. theory 4=18098
- boson system, degenerate, dilute hard-sphere gas 4=27103
- boson system, degenerate, Λ transformation of quantum theory 4=27102
- boson system, degenerate, Lee-Yang quantum statistics 4=27101
- boson system, excitation spectrum, dispersion eqn. 4=2592
- boson system, use of many-time Green's functions 4=14079
- bosons and fermions with negative energies 3=5389
- bosons, rel. to ferromag. spin waves 3=13234
- bosons, ground state 0=7304
- bosons, hard-core, pseudospin model with attractive interact. 3=23803
- bosons with impenetrable cores, field operators 0=2136
- bosons, impenetrable, one-dim. system, momentum distrib. 4=24097
- bosons, interacting, Green functions and self-energy parts 3=11725
- bosons, interacting, ground state and sound velocity 3=23802
- bosons, interacting system, low-lying states 3=79
- bosons, point-particle, one-dim. gas 3=14057
- bosons, quantum cell model 3=5388
- bosons, weakly interact., superfluidity 3=11729
- Brandeis summer institute 1962 lectures 4=9040
- Brownian motion of nonlinear system 0=8564
- Brownian motion, particle in crystal 4=29538
- Brownian movement of linear harmonic oscillator 1=6788
- canonical anticommutation relns., cyclic represent. 4=21054
- canonical distribution, system in thermal contact with heat bath 1=11709
- canonical ensemble, transport coeffs. from dissipation 0=12376
- canonical ensembles, generalized 1=9331
- canonical reduction, special case of n-body problem 2=4943
- canonical relativistic kinematics of N-particle systems 4=24087
- Caratheodory's local theorem and global application to thermostatics 0=12539
- causal interpretation of quantum mechanics 1=1699
- causality and second law of thermodynamics 1=8088
- causality, second thermodynamic law, supersonic signal propag. 1=5208
- cellular method calc. for fluids 3=21292
- chain, "almost one-dimensional," quantum mechanics 3=23773
- chain, disordered two-component, eigenfrequency distrib. calc. 4=14060
- charged-particle collisions, collision integral 1=19157
- charged-particle collisions, collision integral 3=4354
- charged particle distrib. function for equilib. 4=24095
- charged particle gas in neutralizing medium, Debye-Hückel theory 0=14535
- charged particle, relativistic, Liouville eqn. 4=8095

Statistical mechanics—contd

- charged particle system, equation of state, classical, high temp., low density 3=21258
 charged-particle system, kinetic eqn. 4=5093
 chemical exchange reactions 0=14097
 chemical kinetics, deductions from theory 1=11616
 chemisorption isotherms calc. for semiconductor surface 2=4543
 chromatography, stochastic theory 3=8963
 classical analogue of Bogolyubov's variational princ. 4=11096
 classical distrib. of mutually interact. system of particles 3=9358
 classical, distrib. and thermodyn. functions, inequalities 4=11109
 classical ensemble theory 0=16615
 classical ensemble theory, remarks 4=89
 classical fluids, convolution approx., identity with Morita's method 1=10501
 classical fluids, distribution function as cluster series 1=10502
 classical fluids, general treatment 1=15843
 classical fluids, theory, appl. to multicomponent systems 1=10500
 classical mechanics, new aspects 0=4964
 classical, partition functions class, integration method 4=11100
 classical and quantum mechanical hypervirial theorems 0=18974
 classical, relationship with quantum theory 1=1705
 classical, relationship with quantum theory 1=4271
 classical system, 12 degrees of freedom 3=21204
 classical systems, Green's and distribution functions 3=1620
 classical, for two-body potential 3=11708
 classical vibrating systems, variational methods 0=16614
 closed system, approach to equilibrium 4=29545
 cluster expansion methods for systems of polar molecules 3=10552
 cluster expns., equil. distrib. functions 3=58
 cluster expns., non-equilib. distrib. functions 3=57
 cluster integrals, in spatially nonuniform systems, distrib. functions 1=4273
 cluster theory of saturated vapour of He-isotope mixtures 2=11418
 coin tossing, quantum mechanical discrepancy 0=4959
 collective behaviour, formal theory 1=2716
 collective motion of particles at finite temp. 3=7140
 collective states of finite system, generalized Hartree-Fock approx. 4=2583
 collision integral for charged particle system 3=3770
 combinational problems on a lattice, Pfaffian method 4=8085
 complexions of assembly of quasi-independent localized systems 4=29554
 composite-particles system, second quantization represent. 3=21257
 condensation 1=10429
 condensation theory, critical pt. and metastable state 3=21634
 condensation, Yang-Lee theory 3=7393
 condensed systems, functional method 3=14054
 condensed systems, isotope effects on thermodynamic props. 1=8065
 condensing systems, cluster theory 0=12094
 condensing systems, generalized theory 2=131
 conference, Onsager, Providence (1962) 3=7131
 continuous media dynamics, perturbation methods 4=27130
 convergence of virial expansions, bounds on radius 4=24094
 cooperative phenomena 1=15705
 cooperative phenomena, phase transitions, interreln. of theories 4=8098
 copolymerization statistica, matrix formulation 2=14343
 correlated interacting subsystems 3=7138
 correlated pairs, Bose-Einstein condensation 1=4278
 correlated systems, entropy 3=11707
 correlated systems, time-independent distrib. 3=18740
 correlation functions for classical gas with two-body central interact. 4=2582
 Coulomb interactions, appl. of giant cluster expansion theory 0=18991

Statistical mechanics—contd

- Coulomb particles, correlation functions of equilibrium system 2=13271, 19451
 Coulomb system, 1-dimensional, uniform charge background 4=77
 coupled harmonic oscillators, Poincare cycles, ergodicity and irreversibility 0=4956
 coupled oscillators, irreversible behaviour 1=12814
 coupled oscillators, irreversible behaviour 2=4942
 coupled oscillators, nonlinear, perturb. theory 3=11714
 coupling, weak, between two systems 1=18319
 creation and annihil. operators, invariant functions 3=9363
 critical percolation probabilities, site problem 1=17385
 cross-relaxation, quantum statistical theory 2=13267
 cross-relaxation in spin systems, quantum statistical theory 3=5372
 crystal, harmonic, dynamics, isotopic defects 3=20076
 crystal lattice, dipolar interactions 3=10575
 crystal lattices, review and exact isotherm 3=12910
 crystals, statistical equilibrium, solution of functional differential eqn. 1=3590
 crystals, weak-coupling rate eqns. 3=12935
 crystals, Yvon method 2=16579
 cubic lattices, model for Brownian motion 0=17876
 cumulant expansion method 2=19375
 Debye-Hückel theory, corrections 1=4275
 Debye-Hückel theory, corrections 0=14535
 decay of long-range correlations 1=9353
 decaying states, initial state and decay probability 0=2140
 defect containing solids, formalism, and appl. to ionic crystals 4=17418-9
 degenerate dynamical systems, generalized canonical formalism 4=85
 degenerate ionized gas, thermodynamic functions 1=9340
 dense chemical systems, Boltzmann eqn. 0=18426
 density expansions of correlation functions for equilibrium systems 1=4270
 density matrices, Dirac and canonical, inter-relation 0=18996
 density matrices, eigenvalues 1=2713
 density matrix, generalized master eqns. 4=8093
 density matrix method, theory and applications, review 1=15716
 density matrix, by new expansion theorem 1=8072
 detailed balance and microscopic reversibility equivalence 4=21051
 diagram expansion in quantum statistics, classical limit 1=5206
 diagram expansions 0=8567
 diagram techniques, Bose-Einstein gas, degenerate 3=18753
 diagram techniques, topological and otherwise 2=9197
 diamond, Ising model 3=12898
 diatomic molecules, relaxation eqn. for vibrations 2=15648
 dielectric const. for permanent dipoles with induced polarization 4=2933
 dielectric fluids 2=2679
 dielectric formulation for general interact. 3=14051
 dielectric formulation for interacting particles 0=18988
 dielectric function for classical system 3=16549
 dielectric relaxation in high-temp. dipole lattice 3=16543
 dielectric relaxation of polar liquids 0=19143
 diffusion coeffs. on liquid solutions 0=10653
 diffusion in crystals, dynamics 1=7589
 diffusion, turbulent by random-walk model 1=2709
 dimer problem, covering of plane square lattice 2=35
 dimers on a plane lattice 2=1071
 dimers on plane lattice, correlns. and monomers 4=2584
 dipole assembly, electrostatic polarization-field relation 4=2932
 dipole assembly on vibrating lattice, equil. approach 3=2715
 dipole-dipole interact., short range 3=8542
 dipole ring, elementary exact treatment 2=4947
 direct correlation functions and derivatives rel. to particle density 4=24083
 distribution function for quasi-particles, thermodynamic quantities 0=12371

Statistical mechanics--cont'd

- distribution functions, radial, from linear integral eqn. 4=21069
- distribution functions, reduced, in homogeneous dense classical fluid 2=7177, 7179
- distribution of N atoms on N sites or in N cells 1=4269
- domain boundary dynamics 1=7752
- double-time Green functions in statistical physics 1=5212
- driven classical system and characteristic functions 2=2648
- Duffin-Kemmer algebra, Fock representation 2=4955
- dynamics of classical many-body systems 1=9346
- e.m. wave, ensemble-average, in irreg. gases 3=17048
- e.m. waves, partially coherent 4=3129
- effective cross-sections, definitions 0=10604
- eigenenergies and functions from density operator 2=17370
- eigenstate system, autocorrel. field, information content 0=893
- eigenvalue problems, asymptotic soln. 0=3455
- elastic-disk 2-dimensional system, phase transition study 2=17699
- elec. cond., quantum statistical calculation method 0=7060
- elec. and mag. response of thermodynamic systems 0=16638
- electric double layer, structure and props. 4=2161
- electrolytes, irreversible processes 4=21116
- electrolytes, strong, basic equations 0=14121
- electrolytes, strong, rigid spheres with central point charges 0=14122
- electron gas, free energy, rel. to magnetism 3=3769
- electron gas, high-density, imperfect, pair correlation function 1=17482
- electron gas, i.r. divergencies 3=7149
- electron gas, relativistic, renormalization of partition function 2=1083
- electron-phonon system, elec. conductivity 3=6468
- electrons, transverse conductivity, zero-freq. limit 3=4848
- electrons, velocity distrib. in gases 4=5251
- elementary particles 4=11885
- energy equipartition, restatement with kinetic theory of gases 4=27093
- energy exchanges in quantized systems, non-linear theory 1=5214-15
- energy-level spacing distrib., mth-order 4=18084
- energy-level spectra, class of ensembles 4=18085
- energy levels of complex systems 2=4950-2
- energy levels of complex systems 3=14046-7
- energy levels distrib., statistical theory 2=19444
- ensemble theory, classical, functional averaging method 3=5370
- ensembles of max. entropy, theorem 1=9339
- ensembles of maximum entropy 0=18976
- entropy concept, rel. to total information available from observations 1=4279-80
- entropy definition in non-equilibrium 1=69
- entropy of distrib. of dynamical variables 1=18327
- entropy of distrib. of dynamical variables 2=7148
- entropy increase and quantum relaxation theory 4=8091
- entropy increase and quantum theory of relaxation 4=29566
- entropy of non-equilibrium ideal quantum gas 0=6703
- entropy, rel. to probability and information 4=18080
- entropy production, minimum 0=16646
- entropy, simple variational bound 4=11098
- entropy, system of almost indistinguishable components 3=18738
- entropy and uncertainty 2=13240
- eqn. of state for hard spheres 0=8562
- eqn. of state of one-dimensional system with attractive potential 3=65
- equation of state of classical hard spheres at high density 2=19465
- equation of state of Lennard-Jones and hard sphere molecules 4=29558
- and equations of state, theoretical survey 3=20116
- equilibrium correlations, dense fluids 1=18284
- equilibrium, dynamical derivation, diagrammatic technique 1=5205
- equilibrium, rel. to one- and two-particle densities 3=62

Statistical mechanics--cont'd

- equilibrium states 0=889
- equipartition of energy deviations with non-quadratic Hamiltonian 0=18962
- ergodic methods 0=2118
- ergodic problem, alternative to "coarse-graining" 1=73
- ergodic theorem in soln. of scalar wave eqn. 1=16047
- ergodic theories, conference 3=55
- ergodic theory, classical and mechanical, review 2=34
- ergodic theory, classical and quantal aspects 0=10602
- ergodic theory in classical and quantum statistical mechanics 1=10431
- ergodicity condition, quantum, averaging procedure 2=13269
- evolution of many-body system, cluster formulation 4=87
- exchange coupling, generalized 3=16547
- excitons, Bose-Einstein condensation 2=14415
- excitons, Bose-Einstein condensation in CdS and CdSe 3=6498
- excitons, Bose-Einstein condensation, phase transition 4=6804
- Feller's theorem, thermodynamics application 4=11093
- Fermi-Bose liq. mixture, collective oscill. 4=5096
- Fermi-Dirac gas, equation of state approx. 4=21057
- Fermi-Dirac gas, heuristic approx. 3=7143
- Fermi-Dirac gas, shock relations 0=8693
- Fermi-Dirac integrals, approx. calc. 4=21056
- Fermi-Dirac system, two-particle bound states 2=19452
- Fermi-Dirac system, two-particle bound states 3=1629
- Fermi-Dirac systems, divergent levels in formal perturbation theory 2=11302
- Fermi-Dirac systems, non-ideal, field equations 3=5377
- Fermi fluid, ferromag., quantum field theory 4=20531
- Fermi fluids, Landau theory, quasi-particle assembly 3=23798
- Fermi gas, canonical transformation 0=14536
- Fermi gas, collective excitations 0=47
- Fermi gas, compressed, energy 0=11122
- Fermi gas, degenerate 0=10608
- Fermi gas, degenerate, acoustic excitations 0=1071
- Fermi gas, with hard-core interactions 2=4964
- Fermi gas in potential well, boundary energy 4=11118
- Fermi gas, random fields, and electrons in glasses and inorganic polymers 3=20918
- Fermi gas of rigid spheres, ground state 4=29563
- Fermi gas, statistical treatment 0=10608
- Fermi integrals evaluation 4=27106
- Fermi liquid, mobility of charged impurity 4=2594
- Fermi liquids, sum rules 2=17377
- Fermi particle systems, thermal cond. 2=15494
- Fermi statistics of two-dimens free-electron systems 4=29564
- Fermi system, collective excitation with non-zero ang. mom. pairing 3=5383
- Fermi system, collective excitation with non-zero ang. momentum pairing 2=15498
- Fermi system, Feynman system 0=8570
- Fermi system, viscosity rel. to degeneracy 2=4962
- Fermi systems, superfluid, zero sound absence 4=16056
- fermion, C and P invariance 1=18308
- fermion density formula, one-dimensional 3=14055
- fermion density matrix, second-order 4=29562
- fermion gas, degenerate, giant fluctuations 0=16636
- fermion hard-sphere gas with spin $\frac{1}{2}$, ferromagnetism 0=14537
- fermion interactions, two-body correlation 0=16637
- fermion operator, general, second quantiz. 3=9372
- fermion pairs, Bose-Einstein condensation 2=15500
- fermion system with attractive interact., two-particle approx. 3=7148
- fermion system, BCS repulsive pair-interaction 4=11463
- fermion system, collective motion and particle excitation 0=15303
- fermion system, density modulation and superconductivity 4=27111
- fermion system, effects of hole-hole interactions 0=18981
- fermion system, ground-state energy 0=10607
- fermion system, ground-state energy, critique of Brueckner-Goldstone perturbation series 0=8568
- fermion system, ground state energy, perturbation series 4=2595

Statistical mechanics—contd

- fermion system, ground state, perturb. series 4=27107
- fermion system, Hartree-Fock ground state 2=11304
- fermion system, interacting, Fermi surface and low temp. props. 0=14538
- fermion system, linear response function 2=4960
- fermion system, moment of inertia, effects of particle-particle interaction 0=2131
- fermion system, normal, static responses, Sampson-Seitz procedures 3=5387
- fermion system, pairing correl. theory 3=11727
- fermion system with repulsive interactions, moment of inertia 1=76
- fermion system, self-bound, density propagator 3=9369
- fermion system, superfluid, moment of inertia 0=12375
- fermion system, in terms of one and two-particle functions 4=92
- fermion system, normal, perturb. theory eqns 4=11115
- fermion system, odd number, ground state energy, BCS approx. 4=18099
- fermion systems with attractive interactions 2=13277
- fermion systems, interacting, t-matrix singularity 3=75
- fermion systems, large, linked clusters 4=18100
- fermion systems, with pair correl., two-particle approx. 4=11119
- fermion systems, stability conditions 3=18750
- fermions, gravitational interaction 3=14068
- fermions, quasi-particle approx. 3=1638
- fermions, quasispin formalism including isotopic spin 4=27109
- fermions, response function, superconductivity and ferromag. 4=27105
- fermions, statistical model, quantum corrections 4=5101
- ferromag. system, random 0=674
- ferromagnetic, cubic anisotropic, free energy 3=18067
- ferromagnetic single-domain particles, ensemble 3=15762
- ferromagnetism, linked cluster expansions 3=6698
- ferromagnetism, spin wave theory, review 3=15766
- ferromagnetism, theory, in high-density behaviour 0=18172
- finite system, self-bound, energies and wave functions 4=24086
- first collision probability, in regions with circular symmetry 0=6699
- fluctuation compressibility theorem and pairing model 3=7136
- fluctuation law, distrib. of N particles among g cells 3=9359
- fluctuation thermodynamics of non-equilibrium processes 1=18293
- fluctuations of pressure 1=9336
- fluctuations, small, closed formulae 4=18081
- fluctuations, theory 0=16642
- fluid, classical, probability distrib. in phase space 2=38
- fluid in external potential field, distrib. functions 0=14624
- fluid, grand partition function, Bethe method 2=13305
- fluid, rigid-sphere 0=6698
- fluid, rigid-sphere, moderately dense 0=18967-8
- fluid superposition approximation and fourth virial coeff. 1=10503
- fluid transport, ensemble theory 0=14548
- fluids, chemical potential rel. to micropotential distribution function 4=11582
- fluids, classical higher order approximate integral equations 4=11112
- fluids, classical theory 1=9329
- fluids, distribution function, radial 4=24129
- fluids, distribution function, radial, average density approx. 4=18094
- fluids in external field, cluster integral theory 1=6797
- fluids, functional expansions 4=21052
- fluids, one-dimensional, hole theory and quasi-chemical approximation 4=16070
- fluids, scaled particle theory 0=19095
- Fokker-Planck eqn., for harmonic oscill., soln. 1=2712
- Fokker-Planck eqn., Laplace transform. of soln. 3=16491
- Fokker-Planck eqn. of plasma 1=16321
- Fokker-Planck equation for plasma with constant mag. field 1=9546
- Fokker-Planck equation, soln. using Campbell's theorems 3=9373

Statistical mechanics—contd

- Fokker-Planck-Kolmogorov eqn., soln. by functional integration 0=2130
- formulation in terms of occupation numbers 1=12810
- formulation in terms of occupation numbers 1=18289
- free energy of gas of small density, calc. 0=14540
- free energy, ions and dipoles system 2=19462
- free energy perturbation theory variational property 4=14071
- free energy of system with random elements 3=23778
- free fermions and bosons, linear response function 3=1628
- free-molecular flow, in cryopump configurations 4=11264
- free radicals, thermodynamic properties 1=15193-4
- freezing, using molecular field theory 4=2889
- fugacity expansion, convergence, and bounds on molec. distrib. for mixtures 4=21173
- fugacity expansions, convergence radius 4=83
- functional expansions in equilibrium theory 4=14063
- functional integrals method, review 1=9328
- functional integrals for partition function of interacting particle system 4=14062
- γ -ray resonance absorption by system of interacting particles 0=18902
- Γ^2 representation structure 4=2580
- gas cluster integrals, calc. up to seven points, various models 4=11112
- gas dynamics, one dimensional, unsteady 0=8678
- gas, generalized Tonk's, partition function 4=16053
- gas, hard sphere, approach to translational equilb., Monte Carlo calc. 4=2586
- gas-liquid transition and random phase approx. 2=15802-3
- gas with long and short-range forces 0=18965
- gas in mag. field, with different orbit and spin temp. 0=2139
- gas mixture, two-temperature classical system, relaxation time 4=18236
- gas models, one- and quasi-one-dimensional 3=1631
- gas, molecular, linked-diagram expansion 1=10544
- gas molecule collisions, with moving body, probability distrib. 0=3557
- gas, monatomic charged, integral instantaneous kinetic equation method 4=2719-20
- gas, one-dimensional, many-body functions 4=8238
- gas of rigid-core particles, config. partition function 1=6798
- gas, spherical model, one-dim. phase transition 3=16554
- gases, with Coulomb interaction, rel. to thermodynamic props. 4=11226
- gases, harmonic oscill. vibr. contribs., tables 3=23926
- gases, hexadecapolar, mol. polarization and refr. 4=24260
- gases, irreversible processes 3=3827
- gases, irreversible processes 3=11710
- gases, neutral and ionized, irreversible processes 2=5056
- gases of parallel hard lines, squares and cubes 3=7145
- gases, perfect, containing different isotopes 2=7250
- gases, quantum mech., new eqn. of state 4=24089
- gases, real, theory, book 3=11816
- gases, transport coeffs., Kubo formulae validity 3=18850
- Gaussian average over partition function of free particles 4=27095
- generalized ensemble, density operator 1=66
- generalized master eqn., deriv. 3=71
- generalized oscillator operators, irreducible represent. 3=21253
- generalized statistical model, approx. soln. 1=18307
- generating function of two-time Green functions 4=29549
- giant cluster expansion theory, appl. to high-temp. plasma 0=18991
- Gibbs free energy increase, bulk specific, rel. to phase change 4=27376
- grand canonical ensemble, random-variable theory 0=894
- Green function 4=27091
- Green function poles, further note 3=1621
- Green's function, classical, binary collision expansion 2=9203
- Green's function derivation of method of approx. 2nd quantization 4=5077
- Green's functions, iteration method for connected graphs 2=15453
- Green's function method appl. 4=5081

Statistical mechanics — contd

Green functions, and appl. to fermion system and neutron
scatt. from liq. He 4=24081
Green's functions, two-time 4=2590
Hamiltonian differential eqns., adiabatic
theorem 2=4939-41
hard discs in plane, cluster integrals and virial
coeffs. 4=24093
hard line mixture config. partition function 4=18087
hard parallel squares and cubes, high-density eqn. of
state 4=14066
hard-sphere Fermi system, density expansion 0=3921
hard sphere fluid, fifth virial coeff. 4=18091
hard sphere gas, classical, with long-range attraction,
condensation 4=24091
hard-sphere gas, fifth virial coeff. 2=7145
hard-sphere gas at 0°K, partition function, appl. of
Mellin transforms 1=11715
hard sphere system, equation of state 1=18311
hard-sphere system, many-body pseudo-
potential 0=12380-2, 14528
hard sphere virial coeffs., signs 4=18090
hard-sphere viscosity, calc. using correlation
functions 4=18092
hard spheres, mixtures, thermodynamic props. 4=24090
hard spheres, three intersecting, volume integral 4=24092
hard spheres, triplet correls. and superposition
approx. 4=18172
harmonic oscillator system, coupled, heat flow 4=16047
harmonically coupled particles, heat flow 3=7132
Hartree-Fock approx., thermal, stability 3=7144
Hartree-Fock, density matrices, calc. 1=8071
heat capacity, and ensemble averages 2=15826
heavy nuclei, model, repulsive core 1=9803
helix-coil transition in polypeptides 1=9961
higher random-phase approximations 3=16553
hydrodynamic eqns. for transport processes, rel. to correl.
functions 4=5104
hypervirial relations, classical 3=21259
hypervirial theorem, approx. wavefunctions 4=29552
hypervirial theorem, off-diagonal, appl. 4=11076
ideal gases, two-dim., specific heats identity, quantum
theory 4=27108
identical particles, space-time correl. function 3=5382
imperfect gas, derivation of dielec. const. 2=2781
imperfect gas, press., Mayer density series 0=16623
incompressible stochastic bodies, with inhomog. props.,
displacements 1=1703
inert gas solids, ideal, using Mie-Lennard-Jones
potential 4=6712
rel. to information theory 4=14061
information theory appl., "lack of information"
concept 0=18998
information theory as basis for thermodynamics 1=15707
information theory, quantum thermodynamics 2=11291
inhomogeneous fluids, equilibrium mechanics 2=17367
"integral-over-all-paths" 0=14368
integration in functional spaces, application 0=4939
interacting harmonic oscillator system 4=76
interacting ions and dipole particles 2=11301
interacting particles, partition functions, cluster integral
theory 1=15718
interacting particles, relativistic corrections 3=3760
interacting particles spectra and collective loss on
passage through matter 4=5078
interacting-particles systems, grand partition function,
logarithm 0=10605
interacting particles, thermodynamic quantities and pair
distribution function 0=8566
interactions, collective description 1=12368
"intermediate", gas, ideal, thermodynamic props. 3=18741
intermediate statistics 2=21842
intermolecular forces, long-range 2=12352-3
ion decomposition reactions and stability 3=19375
ion-dipole system, free energy and binary distrib.
functions 4=29550
ion-dipole system of interacting particles 1=10440
ion-dipole system, interaction and free energy 4=2697
ions, compressed, Thomas-Fermi-Dirac
model 1=11062
ionic systems 1=11710
ionized gas, kinetic rel. to potential energy 4=14569

Statistical mechanics—contd

ionized gases, microscopic theory 1=15720
irreversibility, in angular variables space 0=4951
irreversibility, ensemble method 0=18970
irreversibility in interacting spin systems 0=16639
irreversibility of systems perturbed by random
forces 0=6690
irreversible cooperative phenomena 0=12369
irreversible phenomena with stationary constraints,
non-linear law 1=15709
irreversible process, new method 3=11720
irreversible processes 0=16651
irreversible processes 3=2
irreversible processes in gases, inhomogeneous
systems 1=9352
irreversible processes, general theories, review 3=21251
irreversible processes in isolated systems, Loschmitt
and Zermelo paradox 0=18986
irreversible processes, linear theory 1=9332-3
irreversible processes, in nonstationary systems 4=74
irreversible processes in polyatomic gases 1=15955
irreversible processes, quantum theory, variation
principle 4=2581
irreversible processes theory, initial conditions 1=15710
irreversible processes, theory, parameters of
smallness 2=19446
irreversible processes, thermodynamic theory 2=2643
irreversible processes, thermodynamics 0=16640
irreversible processes, 2 Gibbsian distrib. and function
single distrib. 0=4949
irreversible processes, variation principle 3=16541
irreversible thermodynamics, macroscopic
approach 4=29541-3
irreversible thermodynamics, memory effects 1=18291
irreversible thermodynamics of nonlinear processes and
noise in driven systems 0=902
Ising lattice, combinatorial factor approximation 4=29536
Ising lattice, infinite plane, thermodynamic
averages 4=27083
Ising lattice, long-range order parameter 3=3249
Ising lattice with 1st and 2nd interacts. 3=14044
Ising lattice, statistical sum calc. 4=29537
Ising lattice, two-dimensional non-planar, crit.
behaviour 4=22955
Ising lattices, soln. by Pfaffian method 3=16542
Ising model with arbitrary spin and range of
interaction 2=2037
Ising model, cluster sums 2=4953
Ising model for ferromagnetism 0=11814
Ising model, free energy, rel. to lattice gas
pressure 3=16548
Ising model, partition function, combinatorial
approach 4=1337
Ising model partition function on hypercubical
lattices 4=9806
Ising model, perpendicular susceptibility 3=8327
Ising model series, coeffs., asympt. form 3=16546
Ising model, spin correl. on triangular lattice 4=26276
Ising model, two-dim., spin correlations 3=13239
Ising model, with weak interplane interact. 4=12637
Ising partition function, high temp. 2=4954
Ising problem, critical region thermodynamics 3=23777
Ising spins, random, cluster expansion theory 4=20511
Ising systems with long-range forces, stochastic
fields 3=23779
isotope effects, quantum statistics 1=10435
kinetic equation, new form 4=78
kinetic phenomena, theory 0=8561
kinetics of small systems 3=8964
kinetic theory of dense fluids 1=10445-6
Kirkwood superposition approx. 0=14620
Knudsen gas, irreversible processes 1=15711
Lagrangian and Hamiltonian, covariant generalization
attempts 4=33
large system, dynamical decomposition, quantum
theory 4=11101
lattice defect theory 1=2387
lattice gas, multi-component, 1-parameter theory 0=6009
lattice gas, spherical, eqn. of state and phase
transitions 0=18997
lattice gas, triangular, supercritical region 4=84
lattice gas, two-dimensional 3=66-7

Statistical mechanics — contd

lattice, plane Ising—Onsager dipole, partition function 3=21252

lattice point theory, generalized in hyperspace 3=3761

lattice systems, grand canonical ensemble, Monte Carlo calc. 3=16545

lifetime effects in condensed fermi systems 1=13037

light amplification, linear, and attenuation, quantum statistics 4=27275

linear colloids, order—disorder theory 3=3416

linear couplings, between even and odd variables, free energy with time reversal 1=79

linear system with arbitrary masses, frequency eqn. 4=8082

linked-cluster expansion for electron gas "toron" formalism 0=4276

linked-cluster expansions, appl. to nonspherical situations 0=14527

linked-pair expansions, Lee and Yang method 1=8075

Liouville eqn. for relativistic charged particle 4=8094

Liouville equation, Green's function 1=4274

Liouville's eqn., application to collisionless Boltzmann eqn. 0=16621

Liouville's eqn., asymptotic case, application 0=10615

Liouville's eqn., asymptotic case, study method 0=10614

Liouville's eqn., perturbation soln., time independent 0=18963

Liouville's eqn., and resolvent formalism 0=16619

Liouville's eqn., soln. 0=16620

Liouville's eqn., for weakly interacting gas 0=3509

liquid crystals, nematic phase, molecular-statistical theory 0=14625

liquid mixtures, associated 2=21896

liquid molecular interactions, cage model 1=11753

liquids, critical fluctuations and opalescence 0=14659

liquids, with molecular interaction 3=21314

long-range correlations in a closed system, appl. to nonuniform fluids 1=9345

Lorentz gas, Boltzmann elastic collision action on isotropic velocity 1=8079

Lorentz gas, transport eqns. 2=1085

macromolecular configurational changes and isomeric equilibria 1=10430

macromolecules in chains in velocity field 0=15793

macroscopic observables, ergodic theory 0=4954

macroscopic observables and generalized canonical ensembles 1=9331

magnetic ion systems, isolated and adiabatic susceptibilities 0=13724

magnetic lattice, disordered 0=18160

magnetic lattice, disordered, at low temps. 0=18161

magnetic resonance for strong exchange interact. 3=23214

many-body problem, conference, Hoboken (1957) 4=27090

many-body problem, degenerate phase in Bose-Einstein condensation 0=4948

many-body problem, formulation in terms of av. occupation no. in momentum space 0=3458

many-body problem, maximum linearization 4=27094

many-body problem, method of approach 1=72

many-body problem, review 0=3448

many-body problem, rotation about barycentre 2=9152

many-body problem, zero-temp. limit for dilute hard spheres 0=3457

many-body problems in solids 2=579

many-body system with square-well interaction 2=11299

many-body systems, analytical invariants 0=16612

many-body systems, perturb. theory techniques 3=1627

many-body systems, stochastic models 2=13272

many-body systems, trial wave-functions 3=14066

many-boson system, chem. potential and low-lying excit. 4=91

many-boson system, reaction matrix 1=18312

many-boson systems, perturbation theory 3=3768

many-boson systems, single and gen. condensation 3=1635

many-boson systems, weak-coupling expansion for ground-state energy 0=900

many-fermion perturb. series, divergence 3=21262

many-fermion system, exactly soluble model 3=23799

many-fermion system, graphical resummation 4=12101

many-fermion system, Green's functions 0=6697

many fermion system, zero-temp. props. 3=9370

many-fermion systems, degenerate problems, perturb. theory 3=9364

Statistical mechanics—contd

many-fermion systems, nonuniform, one-particle Green's function 3=5385

many-particle problem, redundant coords 2=17375

many-particle problems, congress, Utrecht (June 1960) 1=1707

many-particle problems, review 0=48

many-particle systems, of arbitrary spin, statistical weight 0=2137

many-particle systems, classical, coupling rule 2=11295

many-particle systems, classical, theorems 3=3759

many-particle systems, with linear interaction, time-dependent fluctuations 0=16625

many-particle systems, theory 0=896

many-particle systems, time Green functs., analytical props. 3=3765

Markov processes and Boltzmann's H-theorem 1=18292

masers, quantum, radiation field 3=12356

masers, three-level 1=16551

master eqn., generalized, t'-matrix expansion 3=11732

master eqn., global, deriv. 4=18104

master eqn., properties 2=2635

master eqn., with special transition probab. 3=11717

master equation, quantum, generality 4=24102

matrix method appl. to DNA transitions 0=20707

Mayer's fugacity series, cluster integrals, mutual cancellation 4=8103

Maxwell-Boltzmann law generalizations 4=79

Maxwell equations, macroscopic, derivation from field operators 1=8372

Mayer diagrams, equilibrium props. 1=5205

measurement theory, irreversibility 0=4950

mechanics and thermodynamics, foundations, conference 0=14523

Mellin transforms, applications 1=11715

meson cloud, hydrodynamical model 0=9290

metals, electron-phonon interaction 0=11592

metals, fluctuation and conductivity theory 1=10661

metastable states in strongly coupled quantum systems with continuous spectra 1=8081

micelles, ionic and nonionic 4=7790

micro- and macromeasurements 4=27089

microcanonical ensemble 4=29540

mixture of particles, reduced distrib. function 3=14048

mixtures, Ising square lattice, interaction parameter 1=12812

mixtures, "one fluid" theory, var. property 4=14067

model system, comparison with original perturbation theory, expectation values 3=18737

molecular chaos and Kirkwood superposition hypothesis 0=18971

molecular collisions 4=6662

molecular dynamics, mixture of hard spheres 4=18093

molecular dynamics, small number of elastic spheres 0=18993

molecular friction const., calc. 1=10545

of molecular ions, equilibrium against dissociation 1=2353

molecular potential curves and energy surfaces for small nuclear separations 1=17377

molecule migration, in gas mixture 0=8560

molecules, isotope substituted 2=1082

molecules, nonspherical 4=5123

molecules, pressure broadening theory 2=3689

monatomic systems in external periodic potential field 1=8066-7

Monte-Carlo applications to statistical physics 1=5219

motion of a charged particle, classical treatment 1=9342

multicomponent fluids, double-index distrib. functions 4=21070

multicomponent system, binary collision method 3=5379

multicomponent systems, mol. Kerr effect 3=7249

multiple particle prod. using information theory 4=3312

multiple scattering, by new expansion theorem 1=8072

N-body problem, one-dim., exactly soluble, with δ -function interactions 4=18086

N-dimensional spherical volume, redetermination 3=3761

n-pion wave function, symm. props. 4=15085

negative probability, physical meaning, applic. to particle theory 1=18295

Nernst heat theorem 3=1626

Statistical mechanics — cont'd

Neumann flows, generator of unitary group 2=4940-1
 nodal expansions, exact integral eqns. for particle correlation functions 0=12372
 nonconstancy of the adiabatic invariants 1=6794
 non-equilib processes, criticism of Prigogine's work 3=5371
 nonequilibrium, based on information theory 4=29544
 non-equilibrium, Dyson eqn. technique 4=27088
 non-equilibrium mechanics, solution of Bogolyubov's eqn. 1=4268
 non-equilibrium phenomena 1=9330
 non-equilibrium phenomena 1=15719
 nonequilibrium processes, generalized theory 0=6687
 nonequilibrium processes, random 0=12384
 nonequilibrium processes, steady-state distribution 0=16617
 nonequilibrium processes, stochastic eqns. 0=18982
 nonequilibrium systems, fundamental theory 4=5075-6
 non-equilibrium systems, local props. 1=10441
 nonequilibrium systems, macroscopic separability and thermokinetic pot. 2=7142
 nonequilibrium thermodynamics, homogeneous many-reaction system 3=23776
 non-equilibrium thermodynamics of systems in electromag. field 1=9668
 non-equilibrium thermodynamics, Onsager's theory 1=9334
 non-equilibrium thermodynamics, quantum statistical basis 1=8073
 nonequilibrium, three-body scatt. operator 4=88
 nonideal systems 0=10605
 nonlinear coupled oscillators 4=5089
 non-linear fields 1=15667
 nonlinear one-dim. system, energy sharing and equil. 4=11099
 non-linear response theory 1=12809
 non-linear responses of many variable systems 2=1070
 nonlinear systems, coordinate probabilities, Gibb's method 0=10610
 nonlinear systems, Onsager's reciprocal relations 1=9335
 nonlinear systems, phase-space diffusion 0=10613
 nonuniform gas 0=18973
 nonuniform multi-component systems, free energy and distrib. function 0=16630
 nuclear matter, superfluidity 3=19742
 nuclear reactions, complex particle emission, statistics compared to evaporating water drop 0=20422
 nucleation of vapour deposits 3=1873
 occupation number rel. to localized one particle functions 4=11103
 occupation numbers of quantized states 0=10603
 occupational number representation of equilibrium system 4=5074
 one-dimensional lattice with isotopic impurity, dynamical behaviour 2=12369
 one-dimensional molecular system, classical mechanics 2=19449
 one-dimensional particle chain, velocity auto-correl. function 0=16626
 one-dimensional system with Coulomb forces 1=15704
 one-dimensional system, Coulomb forces, functional integration 2=19445
 Onsager's reciprocity relations for strongly coupled system 4=96
 Onsager relations in intrinsic form 4=27086
 Onsager symmetry, proof 0=14544
 open systems in contact with thermal reservoirs 3=1625
 operator techniques in quantum statistics 1=6796
 orbital collision probabilities 4=4845
 oscillator system, by Feynman functional integrals 4=57
 oscillators, nonlinear, system, energy sharing and ergodicity 4=82
 pair correl. function, time dependent, atoms, neutron scatt. meas. 4=11105
 pair correlation function diagrams, classification 4=27096
 pair correlation functions, thermodynamic theory 1=8064
 pair distrib. function for classical fluids, hyper-netted chain approx. 1=2748
 pair distrib. function, integral eqns., hypernetted chain approx. 1=4277
 pair distrib. function of system of Bose hard spheres 0=2135
 pair distrib. function and two-body propagator 0=898

Statistical mechanics — cont'd

pair distrib. functions, scatt. phenomena 2=17374
 pair distrib. in non-spherical liquids 0=6773
 pair distribution function of classical fluid, exact integral eqn. 1=2749
 parallel hard-cube model, 6th and 7th virial coeffs. 2=17378
 paramagnetic spin—spin relax., generalized Pauli eqn. 4=8961
 parastatistics of rank > 2 4=5083
 particle correlation functions and free energy 1=6802
 particle processes, invariant embedding methods 0=16616
 particles of proper mass, positive, negative, imaginary 3=7092
 particles, superparamag., specific heat calc. 1=14178
 particles which cannot exchange places 3=3763
 partition function, analytic props. w.r.t. Planck's const. 3=68
 partition function, bounds, Bogolyubov's variational method 1=71
 partition function of bulk polymers 2=12356
 partition function, evaluation using Laplace transforms 1=18302
 partition function of liq. mixtures, from order—disorder transition theory 4=11173
 partition function, plasmas and dense gases, theory 2=5330
 partition function, from temp. independent two-particle Green's function 1=68
 partition functions as averages of functionals of random functions 1=5204
 partition functions, const. press., quantum mech. formulation 4=2579
 partition functions of ions 2=2998
 partition functions, pressure-dependent 1=67
 partition problems with analogies in quantum statistics 1=15713
 path integral in irreversible statistical dynamics 2=1077
 Peierl's variational theorem 4=5091
 percolation probabilities, critical, bond problem 1=12346
 Percus-Yevick eqn. based on Taylor series expansion 3=59
 Percus-Yevick eqn., generalized, for hard spheres mixture 4=8096
 Percus-Yevick eqn. for hard core plus short-range tail 4=18082
 Percus-Yevick eqn., solns. 1=11752
 periodic classical systems, adiabatic invariants 0=50
 persistency, pseudo-entropy, thermokinetic potential 2=19448
 perturbation theory, connection with supercond. theory 0=16942
 perturbation theory for double-time Green functions 3=7142
 perturbation theory free energy variation prop. erratum 4=24084
 perturbed system, eigen-fuctions from Maxwell—Boltzmann density operator 3=7133
 petit canonical ensemble, linked cluster expansion for free energy 1=77
 phase transformations, liquid—vapour 4=16297
 of phase transformations, 2-dimensional configuration model 4=5079
 phase transitions, conference 3=9356
 phase transition in one-dim. system 4=8087
 phenomenological eqns. near equilibrium in correlated systems 4=14065
 phenomenological matrices, diagonalization 3=23776
 phenomenological theory of irreversible processes, interpretation 1=9338
 phonon-phonon interaction in system of Bose particles 2=19468
 photon detection 0=8830
 photon distance correlation in black body radiation 1=10620
 plasma, Bogolyubov's eqn. 0=15018
 plasma, continuum description, equil. props. 4=11569
 plasma, fluctuations in 3=5653
 plasma, fully ionized 0=2362
 plasma, irreversible processes 0=10616
 plasma, Lorentzian, electron distrib. 0=15005
 plasma, micropotential distribution function and free energy 4=11583
 plasma, multi-component 0=12603

Statistical mechanics—contd

- plasma, multicomponent 1=16302
- plasma, non-isothermal kinetics 3=7501
- plasma, partition function as integral over phase space 4=11572
- plasma, quantum kinetic equations 4=2587
- plasma, quantum statistical, equilibrium 1=2961
- plasma, review 0=12604
- plasma, "sheet", one-dim., elec. field 3=11713
- plasmas, irreversible processes 1=5448
- polar media, interactions 3=23894
- polarization systems, nonequil., homog. and electrochem. 4=2578
- polarons, Boltzmann eqn. 3=12951
- polymer molecule, lattice model 4=12549
- polymer solns., 2nd virial coeff. of branched star molecules 3=1686
- polymer solutions, viscosity theory 2=11368
- polymers, mean square radius of gyration 2=6242
- polymers, semicrystalline 2=20892
- potential parameters determined from thermal diffusion 1=10432
- pressure fluctuations for general systems and ideal gas 1=8068
- proper self-energy function, asympt. form 3=14049
- pseudo-Markovian collision operator, properties 4=27114
- quantal systems, approach to equilibrium, theory 0=12378
- quantized radiation and gas energy 0=6702
- quantized system, in weakly dissipative medium 0=3459
- quantum, ang. momentum transport eqns. 3=7139
- quantum, approach to equil. 3=11718
- quantum and classical mechanics, correl. 3=21239
- quantum, cluster expansion method 4=16050
- quantum, density matrix representations 3=3762
- quantum effects in gases using n.m.r. techniques 0=8719
- quantum electrodynamics, analogue of Ward's identity 1=13284
- quantum, ergodicity conditions and Van Hove's Hamiltonians 2=11292
- quantum field theory application 2=4958
- quantum gas, evolution eqn. soln. 3=9365
- quantum gas, irreversible phenomena 4=29556
- quantum gases, approach to equilibrium 0=8687
- quantum gases, cluster expansion deriv. 4=27097
- quantum, generalized entropy function 2=7143
- quantum, Lee-Yang collision method appl. 2=15495
- quantum, linear transport coeffs., Kubo's theory 4=98
- quantum, linked-cluster expansion, proof 0=892
- quantum, linked-diagram expansions 0=890
- quantum, Lippmann-Schwinger eqns. 3=21243
- quantum liquids, collective oscill. amplification 4=5097
- quantum, many-body problem, virial expansion for hard-sphere gas 0=897
- quantum-mech. ring sum with Boltzmann statistics 3=5374
- quantum-mechanical law of corresponding states 4=5080
- quantum mechanical system, density matrices 3=18690
- quantum-mechanical systems, stochastic dynamics 1=2699
- quantum mechanical systems, with stochastic Hamiltonian 1=8074
- quantum mechanics, book 1=6779
- quantum mechanics, causal interpretation 0=17212
- quantum mechanics, ergodicity conditions 0=12373
- quantum, Monte Carlo method 2=21843
- quantum, partition function, numerical eval. 3=5376
- quantum partition function, Peierls' theorem extension 1=2711
- quantum plasma, Boltzmann-Vilsov eqn. 0=15006
- quantum plasmas, kinetic theory 2=19459
- quantum, reduced density operators, generating functional 3=5375
- quantum, self-energy operator, perturb. theory 3=23786
- quantum statistical equilb., evolution to 3=18743
- quantum statistical equilibrium, many-body system 4=14070
- quantum statistical ergodic and H-theorems 1=15715
- quantum statistics, density operators and thermodynamic quantities 1=18294
- quantum statistics, formulation in terms of distribution functions 1=78
- quantum statistics, functional method application 4=9048

Statistical mechanics — contd

- quantum statistics, Green's function method 0=10606
- quantum statistics of interacting particles 0=7303
- quantum statistics of nearly classical systems 2=11293
- quantum system of hard lines 4=29551
- quantum systems, approach to equilb. 3=23791
- quantum systems, approach to equilibrium 1=1709
- quantum systems, approach to equilibrium 1=15714
- quantum systems of diatomic molecules, hydrodynamic eqns. 0=3456
- quantum systems, dissipative, ergodicity 3=11716
- quantum systems of particles with two-body interact. 4=5082
- quantum theory, entropy of localization and extension 1=4272
- quantum theory, entropy of localization and extension 1=10434
- quantum, rel. to theory of measurement 2=15487
- quantum, 2-particle Green's function 4=2591
- quantum statistical diagram for Bose-Einstein degeneracy 2=1078
- quantum statistics, binary-collision pair propagator 2=4959
- quantum statistics, non-equilibrium thermodynamics 2=4956-7
- quasichemical equilibrium theory 0=12383
- radial distrib. function, asymptotic behaviour 3=11722
- radial distrib. functions for Gaussian model 4=29548
- radiation, black body, classical source 4=14439
- radio-wave propagation over ideally conducting plane 0=299
- random-walk interpretation and generalization of linear Boltzmann eqns., neutron transport 0=10618
- random walk problems, Monte Carlo methods 1=2585
- random-walk problems, with unequal steps, resultant vector probability 0=4958
- random walk on sphere, on Riemannian manifold 1=2710
- random-walk treatment of heat of transport in crystals 0=13497
- rarefied gas, distrib. function of dissipative processes 0=12434
- Rayleigh and Lorentz gases, hard-sphere, relax. 4=11108
- recurrent partition function 2=4948
- Redfields' semiclassical relaxation theory 4=21053
- reduced density matrix for N particles 3=18749
- relativistic, of continuous media, Lagrangian 2=19450
- relativistic energy mechanics of continuous media 4=2543
- relativistic ideal gas, current vector and mass tensor 3=70
- relativistic ideal gas, current vector and mass tensor 3=1630
- relativistic Maxwell-Boltzmann distrib. and integral form of conservation laws 2=19615, 21941
- relativistic Maxwellian distrib., quantum deriv. 4=24082
- relativistic Maxwellian ensemble, most probable speed and mean momentum 1=15708
- relativistic particle kinematics, geometric soln. 3=9323
- relativistic streams 0=17003-4
- relaxation of isolated ensemble of harmonic oscillators 0=14525
- relaxation of moments, from master equation 2=15493
- relaxation processes, quantum theory 2=13270
- relaxation processes, quantum theory 3=5373
- relaxation of system of particles 2=19453
- relaxation-time distrib., rel. to temp. 2=11250
- renormalization techniques and stationary entropy principle 4=8100-1
- response function, long-term behaviour 3=18742
- resonance, theory 3=21254
- reversible eqns. deriv. for distrib. and correl. functions 4=18106
- rigid sphere fluids 1=5220
- rigid-sphere gas, model, transition calc. 4=27098
- rigid-sphere mols., Boltzmann integral eqn. 3=14058
- room acoustics, use of Monte Carlo method 2=2853
- Schwinger's action principle 0=8555
- second virial coeff., general formula 2=36
- self-avoiding walks on simple cubic lattice 3=23774
- self-consistent field and dielec. formulations 3=14050
- semiclassical ensemble, single-particle density matrix, quantum corrections 1=4276

Statistical mechanics—contd

semiconductor conductivity in magnetic field,
theory 2=4009
semiconductors, disordered Ising lattice 0=6217
semiconductors, elec. cond. 0=571
semiconductors, grand partition function treatment 1=7631
separation of motion into two parts by projection onto
equil. varieties in phase space 4=8088
separation of motion into two parts by projection onto
equil. varieties in phase space 4=8089
simple system, evoln. to equil., exact calc. 4=18103
sixth virial coeff. for gases of parallel hard lines,
hard squares or hard cubes 1=8082
small systems, pressure depend. on N 2=1074
solar absorption-line profiles, probability method
appl. 2=957
solid and liquid mixtures of o- and p-H 1=15846
solid model, one-dim., thermal expansion and Young's
modulus 4=3995
solid solns., dilute, electronic partition function 4=17359
solid solutions, configurational partition function 0=4689
solid solutions, regular, with molecules occupying several
sites, partition functions 0=12082
solids, Boltzmann transport eqn. 3=25226
solids, general theory of Van der Waal's forces 2=6243
solids, Ising model, dimer statistics 3=14043
solids, Ising model, time-dependent 3=14045
solids., spin-spin interactions 4=26355
solids, theory spin systems, quasiequil. states,
thermodynamics 4=7209
solutions of interacting particles, irreversible
processes 4=24172
spacing distribns., higher-order, for unitary ensembles
class 4=18083
spatially inhomogeneous systems with weak coupling,
kinetic eqn. 3=11728
specific heat, low temp. variations, quantum theory 0=219
specific heat of particle in box 2=1075
spectral moments and continuum perturbation
theory 2=2596
spin and harmonic oscill. systems, relax. 3=7137
spin-1 system, appl. of reduction of Cartesian
tensors 2=21785
spin operators, principle of entropy increase 3=61
spin resonance and relax., quantum 4=14914
spin resonance saturation, steady-state soln. 3=5378
spin-spin relaxation, quantum statistical theory 4=10314
spin and statistics, connection 2=1045
spin system, mag. and acoust. excitation 3=11021
spin systems, deriv. of modified Bloch eqns. 4=15663
statistical physics, information as a fundamental
notion 1=15393
statistical thermodynamics of plasmas 1=18815
statistical thermodynamics of real fluids 0=3507
statistical weight calc., simplified formulae 0=14524
steady state distrib. in non-equilibrium
processes 2=2636
steady-state phenomena, in terms of Gibbs
ensembles 0=891
steady-state processes, irreversible
thermodynamics 3=64
steady state, variational derivation 2=1076
stochastic dynamics, appl. of reduction of Cartesian
tensors 2=21785
stochastic processes, open, first order, relaxation of
multistate system 0=16613
stochastic system, nonequilibrium, minimum
principle 4=14068
stochastic systems, quantum theory, correlation
operators 2=13268
strictly regular mixtures, approximations 2=21841
strongly interacting particles, perturbation theory, appl.
to Lennard-Jones potential 0=12382
structured continua, ang. momentum and
polarization 3=23781
student textbook 4=8084
successive approximation methods, Mayer expansion for
non-ideal gases 1=5203
superconductivity, Bose gas, ring currents,
persistent 1=13047
superfluidity calc., hydrodynamic and collisionless
domains 4=14081
superfluidity of imperfect Bose gases 2=2651

Statistical mechanics — contd

superfluidity, Landau criterion 3=9668
surface effect of dilute gas in a vessel 1=12820
surface phenomena, cluster expansion 2=12940
surface phenomena, local props., cluster expansion
by statistical mech. 2=17064
surface tension rel. to curvature 3=14052
survey article 0=14521
susceptibilities, isolated and adiabatic 1=8069
symplectic ensemble, multi-channel reduced width ampl.
distrib. 4=11091
system with memory, entropy production 4=29546
system of particles with negative energies 2=21844
system of particles with spin, and nuclear dyn.
polariz. 4=24096
system specified by three classes of states,
interactions 2=15461
system of weakly interacting particles, impulse
excitation 2=15499
system of weakly interacting particles; impulse
excitation 3=5384
systems connected by capillary, transfer
processes 2=13280, 17380
systems with non-central law of particle inter-
action 0=895
systems not in equilibrium, statistical operator 2=11307
systems of oscillators with statistical energy exchange
in collisions 2=3679
systems with angular interaction, ground-state energy
and excited states 0=16624
temperature Green's functions 0=3463
temperature Green's functions, spectra, with time
variables 0=3464
temporal evolution of isolated dynamical systems 0=18975
tests of superposition approximation in liquid
phase 0=19090
theory of neutral and ionized gases (book) 1=6800
theory of neutral and ionized gases (book) 1=18296
thermal activation relations 4=16062
thermodynamic equilibrium, of 2 macroscopic
ensembles 0=6701
thermodynamic potential of Fermi particles 1=15729
thermodynamic props. of condensed systems, isotope
effects 2=4949
thermodynamics of assembly in mass-motion 0=8571
thermodynamics, coiling-type molecules 3=15401
thermodynamics, deriv. from "phenomenological"
princs. 4=11097
thermodynamics, elements of, book 3=7134
thermodynamics of equilibrium, in terms of extensive
variables 4=2577
thermodynamics, of incompletely specified systems 4=24080
thermodynamics of isolated particle 2=17369
thermodynamics, laws 0=16641
thermodynamics, nonequilibrium, statistical
basis 0=16645
thermodynamics of nonuniform fluids 3=7135
thermodynamics pots. for reacting gas mixtures,
new classes of 4=7739
thermodynamics on quantum mechanics basis 3=11715
thermodynamics of reaction kinetics, conditions for
validity 2=21580
thermodynamics of system with different orbital and
spin temp. 1=15739
thermodynamics, zeroth law 3=60
third virial coeff., quantum theory 0=903
three-dimensional aggregate structure, theory 4=14059
three-particle scatt. operator in classical gases,
structure 2=21850
time arrow and irreversible processes theory 2=2641
time correlation functions, quantities described by kinetic
eqns. 4=75
time-dependent distributions of correlated
systems 4=14064
time, direction 2=9144
time scales, nonlinear clocks, stochastic
rectification 0=8533
t-matrix for potentials with hard core, calc. 1=8057
Tomonaga's method, appl. to plasma
oscillations 1=9629
Tomonaga's theory of collective motion,
3 dimensions 4=3527
transition probab. for random perturbations 2=2638

Statistical mechanics — contd

- transition probability distrib., by method of moments 2=22878
- translational inertial spin effect 3=3711
- transport coefficients and non-equilibrium stationary states 1=12828
- transport coefficients, time-correlation formulae, elementary derivation 4=18110
- transport phenomena, using BBGKY hierarchy 3=5390
- transport phenomena in gases 3=9497
- transport processes 0=16647-8
- transport processes, diagrammatic calc. technique 2=13283
- transport processes, diagrammatic calc. technique 3=5391
- transport processes, linear relations in multicomponent systems 0=18964
- transport processes, range of validity 3=7151
- transport processes, time dependent, one-dimensional case 1=15746
- turbulence, in boundary layers 0=927
- turbulence, theory 0=4999
- turbulent flow of incompressible liquid 0=926
- turbulent fluid, averaged Navier-Stokes 0=68
- uncertainty for long and certainty for short times 2=11289
- unimolecular reactions, computation of statistical complexions 2=17085
- unitary and anti-unitary symmetry operators 0=16609
- unitary ensemble, expectation value fluctuations 4=81
- unitary ensemble, fluctuation of energy levels 4=5084
- unitary ensemble, reduced width ampl. distrib. 4=80
- unstable systems, exponential decay law 1=16611
- Van der Waals forces, general theory 1=15706
- van der Waals gas, Yang-Lee distrib. of zeros 4=8235
- variational calcs, hypercritical theorems 4=11095
- variational princ. and entropy prod. 3=23780
- variational principles, from information-probability relation 4=5072
- variational, in terms of "observables" 3=11719
- vibration sum over states of degenerate anharmonic oscillators 1=10433
- vibrational spectra of disordered chains 1=12825
- virial coefficients, by new expansion theorem 1=8072
- virial coeffs. determ. from potential of mean force 2=21852
- virial relationship, deviations in many-centre variational wavefunctions 4=17234
- viscosity of binary liquid solns. 0=19092
- von Neumann's hidden-parameter proof 1=10425
- Wick's theorem, simple proof 0=6686
- Wigner distribution function, for boson and fermion systems 0=14533
- Wilson-Kistiakowsky eqn. for gases 0=19198
- Yang-Lee distribution of roots for 2 cases of repulsive potentials 4=8090
- A liquid, shock Hugoniot 0=8653
- Ar fluid, radial distrib. function calc. 4=14101
- He³, liquid, condensation by bound pairs 2=15831
- He³-He⁴ liquid mixtures, partition function method 3=19086
- He⁴, liquid, partition function evaluation for cubic lattice 0=16934
- He⁴, liquid, structure, neutron scattering 2=1324
- He⁴-He³ solutions, Boltzmann gas model 0=8863

Steam

- bubbles, in water, upward trajectories, condensation effects 4=24152
- composition, water-vapour, in heated pipe 4=14456
- condensation, dropwise, heat transfer meas. 4=16298
- conductivity, thermal, rel. to temp. and density 4=8248
- density meas., in boiler, by radioactive tracer 4=16130
- diffusion, in O₂, rel. intermol. potentials 2=2764
- enthalpy 0=10695
- equation of state, at high temps. and press. 4=21174
- equations of state for machine computation 2=13366
- flow, critical, steam-water, pressure gradients 4=2632
- heat capacity at high temp. and press. 1=18395
- Mollier diagram, transformation for enthalpy-composition diagram 4=8531
- plasma properties, 1000-30 000°K, 1-30 atm. 1=10701
- pressure-entropy diagram, complement to Mollier diagram 4=8532

Steam—contd

- second virial coeff. 2=15636
- sonic velocity in, saturated and supersaturated states 1=201
- sound vel. in dry saturated steam 2=5010
- specific heat, const. press. on saturation curve 4=11192
- spectra, emission, excited by protons and H atoms 3=15338
- spectral absorption, i.r., up to 1000°K 4=15359
- steam-gas system, transverse flow in condensation 0=6959
- steam-water convection heat transfer, theory and expt. 4=24409
- superheated, equations for properties 0=14911
- vibrational relaxation behaviour 2=3726
- viscosity, high temp. and press. 2=21876
- viscosity, high temp. and press. equation of state 4=11236
- viscosity, 200-800 kg/cm², 370-650°C 1=1759
- viscosity when superheated 1=6876
- viscosity when superheated, pressure dependence 4=5236
- volume fraction prediction in boiling systems 1=18675
- and water mixtures, density meas. 0=10806
- water vapour, eqns. of state 2=19613
- wet, nuclear reactor 'burnout' studies 0=2698

Steel

- abrasive wear 1=4003
- adhesion, 100μ foil, to Al (7μ), Cu (50μ) 4=1922
- adsorption, pulsed, stainless steel, high-vacuum gases 3=16147
- ageing and C diffusion 1=6573-8
- ageing, effect of absorbed hydrogen 1=6539
- ageing, kinetics, structural changes 4=29009
- anelastic rebound expts. with balls impinging on blocks 4=13366
- annealed and deformed, u.s. attenuation, mag. contribution 0=10615
- arcback, dropleess 4=11560
- Armco, granular structure, after annealing 0=14055
- austenite-ferrite boundary curvature rel. to interstitial C or N concentration 4=26540
- austenite formation, rapid heating, X-ray anal., recording apparatus 4=23270
- austenite grain growth and boundary migration rates 3=23482
- austenite, with Mn, arrangement of C atoms 0=12049
- austenite, second-kind ordering, by intermediate transform. 1=7832
- austenite, under-cooled, transformation theory 4=20708
- austenitic, cold brittleness and plastic deformation 1=10214
- austenitic, NbC precip., rel. to heat treatment 3=18359
- austenitic, neutron irradi., mechanical props., microstructure 2=10430
- austenitic, precipitation, NbC precip. on stacking faults 3=18357
- austenitic, stainless, stabilized with Ti; σ-phase formation and metastability 3=3337
- austenitic, substructure, columnar and equiaxial grains 4=15807
- austenitic, surface stress meas. 0=10254
- austenitic, thermal treatment, second kind ordering 0=18397
- austenitic, thermomechanical treatment 3=24383
- austenitic transformation, in C and Cr steels, white layer formation 4=23269
- austenitic, X-ray diffr. rel. to grain size at low temp. 4=23486
- b.c.c. stainless, dislocation interactions 1=7584
- balls, in layer, heat-mass exchange 0=12514
- Barkhausen effect, circular, in wires 4=13192
- β-ray back-scatt., local mag. domain effect 2=745
- brittle fracture, transition temp. rel. to grain size 1=11506
- brittleness, due to H 2=8744
- bulk modulus, temp. depend., theory and expt. 2=10735
- carbon, cold brittleness threshold, rel. to cyclic loading 2=16966, 21439
- carbon diffusion in α and γ iron 1=3662
- carbon, fatigue process near fracture 2=19016
- carbon, mag. viscosity as function of fatigue 0=10132
- carbon, plastic flow mechanism 0=6304
- carbon precipitation in α-iron 0=18405
- carbon solubility in α-iron, C¹⁴ technique 0=4684
- carbon steel, α-phase, plastic deformation, oriented micro-stresses, X-ray study 4=23213

Steel—contd

carbon steel, cold-worked and annealed, square mag.
hysteresis loop 1=2471
carbonyl iron, suspension, magnetization process 0=11843
case-hardened layer, substructure 3=1247
cast C steels, magnetization and hysteresis data, effect
of heat treatment 0=4485
cavitation damage, initial, obs., 2=19018
cementite, Curie point, effect of deform. 4=13167
cementite, phase separation in austenite 4=1989
chemical analysis, using magnetization intensity 1=15212
coercive force after annealing, effect of shape 1=1204
cold-rolled, rupture limits, anisotropy 2=4340
components migration, in d.c. fields 1=12655
cond., thermal, low temp., electron and phonon,
stainless 4=22515
construction elements, cyclic overloading 0=14563
creep and failure under load 1=6462
crack propagation, dynamic fracture 3=3242
crystal dislocations, before and after recrystallization,
3%Si 4=2114
crystal imperfections, stacking, electron microscope
obs., stainless 4=6861
crystal orientation methods, (3% Si), cube texture 4=13654
crystal texture and rolling conditions 4=20785
crystallography of martensite reaction 1=20582
damage by fission fragments and neutrons 2=613
deformation recovery, 50° to 70°C 4=4462
deformation by shock waves, and $\alpha \rightarrow \gamma$ phase
transform. 2=2322
deformation of surface texture 0=8132
diffraction of 8-45 Mc/s ultrasound 3=12918
diffusion of Al, Cr, Ti, B or C, residual stresses,
tensile and compressive 4=1952
diffusion of H in ferritic steel, Fick's law
modification 4=6873
diffusion of H after proton irradi. 2=21069
diffusion of H₂ in mild steel cylinders at 65°C 1=990
diffusion of iron in low-carbon steel, effect of
stress 1=10012
discontinuities in long-term strength curves 3=23349
dislocation damping of cold-worked steel, u.s.
study 2=21018
dislocation interactions 0=2821
dislocation networks, within ferrite grains 0=17939
dispersion-strengthening, study 1=1454
domain structure in Si steel rel. to tensile stress 4=7256
eddy current and hysteresis losses, domain size
effects 4=12864
eddy current loss and domain width, var. with grain size
and Si content 3=10727
effect of plastic deformation on phase
composition 1=6456
effect of temper temp. on hydrogen diffusion and
solubility 1=6117
18 Cr/12 Ni/1 Nb austenitic, Ni and Cr
precipitation 3=18358
elastic consts. depend. on tensile stresses 3=3210
elastic const., effect of temp. and alloying 3=13328
elastic moduli and velocity surfaces, before and after work
hardening, u.s. determ. 4=29026
elastically deformed, X-ray study 1=15188
elastoplastic waves, prod. by explosion 3=18885
electrical conductivity, effect of surface enrichment
with Al, Si, Cr, Mo, W or Ti 4=28535
electrical engineering grade, magnetostriction,
20-750°C 3=3114
electrical transfer, by inert tags 2=6413
electrochemistry, potential-time curves during
stress cracking 1=1485
electron emission charac. in gases 3=418
electron emission in vacuo 3=5690
electron microscope exam., by replica, Cr—C 3=18426
electron microscope observation 2=6866
embrittlement, by external H₂ atm., at room
temp. 2=19009
embrittlement, rel. to neutron irradi. 3=11181
embrittlement due to radiation damage in
reactors 0=7674
etched surfaces, replica prod. 2=23910
expansion coeff., plastically deformed 0=19501
extra-soft, ageing effects 3=16111

Steel—contd

failure, under compression 1=12608
fatigue behaviour, low-cycle 3=20753
fatigue damage, detm. 3=25643
fatigue fracture surface, electron microscope
study 3=1244
fatigue limit, effect of disloc. locking and strain
ageing 4=10382
fatigue limit of strain-aged material 3=8783
ferritic, neutron irradi., mechanical props.,
microstructure 2=10430
ferromanganese alloy, $\gamma = \epsilon$ transformation cycles 3=5128
flat layers in contact with ice, sliding expts. 1=14932
fracture, effects of fracture temp. and heat treat-
ment 4=10385
fracture, intergranular, due to AlN 2=10771
fracture of rod, tensile, by two pulses 4=20684
friction on Al and other metals, resultant
work hardening 1=6465
friction on Al and other metals, resultant work
hardening 1=10220
friction coeff. meas. rel. to sliding vel. and time of
stationary contact 4=10367
friction coeff. meas. rel. to speed 4=7400
friction with rubber-like polymers, measurement 1=11525
friction and wear of sapphire, erratum 3=11191
friction on wood 0=8137
frictional forces—deformation relationship 0=4571
 γ -ray absorption efficiency, effect of multiple
scatt. 4=9157
grain size and yield phenomenon 2=2325
grain structure, effect on u.s. attenuation 0=726
Hadfield, martensitic transformations 4=17760
hardenable steels, method of revealing austenitic
grain size 1=20609
hardened steels, internal friction and work
hardening 3=20696
hardened, strength temp. and time dependences 1=14908
hardening and embrittlement by cyclic stressing at
fatigue limit 0=16242
hardening techniques 3=1235
heat treatment, mag., effect of field on hysteresis and mag.
curve, Type E310 3=20584
heat treatment, 2-4% Si transformer steel,
carbide formation and coercive force 3=16101
heating to ~ 1000°C, ultrasonic, effects on
structure 4=11398
high alloy, as thermal cond. standard 0=6963
high-carbon, cold worked, fine structure meas. 4=15806
high-speed, secondary and red hardness 1=20392
hysteresis loops, displaced 1=20076
hysteresis, rot., W-steel, in motors 4=13223
impact of radioactive projectiles 3=25646
impacting projectile, indentation depth 0=10629
industrial processes, automatic control, conference,
Brussels (Feb. 1962) 2=15073
internal friction, cold-worked and quenched
specimens, theory 1=3963
internal friction, effect of heat treatment and plastic
deformation 0=1849
internal friction, heat-treated specimen 1=10207
internal friction and notch sensitivity, 4 NiCr
steels 4=23212
internal friction, 0° to 100°C 2=4312
internal strains, distribution, in grains and grain
boundaries 4=26529
internal stresses, X-ray back-reflection meas. 2=4318
irradiated, thermal diffusivity meas. 1=17430
irradiation, brittle fracture, strain ageing 2=23770
isothermal transformations, free energy charges,
kinetics 2=23874
lattice defects, high Mn content 1=12394
liquid, temp. meas., industrial 4=27360
low-alloy, X-ray spectroscopic analysis 2=4585
low-carbon steel, ultrasonic wave attenuation 1=6335
low carbon steels, precipitation contribution to
strain ageing 1=3988
low-alloy, S, P and C determ. using VC1 vacuum
quantometer 4=7795
low-carbon, grain boundary migration and dimensional
change 0=1860

Steel—contd

low-carbon, stress induced ordering and strain-ageing 0=16220
 for low temperatures 3=16847
 Lüders front propag. in low-C steels 3=1225
 macrostresses, radiographic meas. 1=3967
 mag. permeability, rel. to demag. method 1=6283
 magnetic Bitter patterns and Bloch walls 4=26329
 magnetic hysteresis anisotropy, effect of stretching 3=20578
 magnetic properties, effect of surface enrichment with Al, Si, Cr, Mo, W or Ti 4=28535
 magnetization distribution, domain boundary layers 3=25530
 magnetization, paramagnetic and ferromagnetic components 4=28779
 magnetostriction, composition depend., 20-750°C 3=3114
 magnetostriction, volume, anisotropy, var. with field 4=10284
 martensite, β , Cu—Al, structure 4=4604
 martensite, crystal growth, surface temp. conditions 0=13940
 martensite, high and low-carbon, internal friction rel. to decomposn. products coherency 4=20685
 martensite, kinetics of tempering 0=15850
 martensite, labyrinth structure 0=8267
 martensite plates, twinning 2=8768
 martensite transformation at low temp. 4=10416
 martensite, X-ray diffr. from layer faults 2=23840
 martensitic, X-ray diffr. rel. to grain size at low temp. 4=23486
 martensitic structures, morphology 2=4468
 measurement, by shearing interferometric method 0=19414
 mech. props. under hydrostatic pressure 0=18271
 mechanical strength criterion, for thermal fatigue 3=8779
 mechanical strength, long-term 2=14899, 19004
 micro crack stability, effect of hydrogen 1=2517
 microcracks, effect of H adsorption 2=14908
 microhardness effect and distrib. of absorbed H_2 4=23216
 microsegregation, low-alloy steel, electron-probe microanalysis 2=10923
 microstresses due to plastic deformation 0=10263
 mild, brittle-ductile transition, neutron effects 2=6824
 mild, crack propagation velocity meas. 2=14909
 mild, cutting by plasma jet 4=14738
 mild, defect clusters, rel. to fission fragment irradi. 3=17803
 mild, delay time, strain-rate and strain aging 3=1221
 mild, delayed yield, effect of grain structure 3=1227
 mild, effect of plastic flow on magnetic props. 0=21048
 mild, explosively loaded, Bauschinger effect 4=23215
 mild, normalized, plastic deformation propagation yield front 4=4472
 mild and stainless, plastic deformation meas. during tensile testing 1=20327
 mild steel, fatigue process, axial texture formation, X-ray anal. 4=23210
 mild, thermo-e.m.f. prod. by plastic deformation 0=15999
 mild wear, role of oxidation 2=4349
 mild, yield point, rel. to Mn, Si, C, N additions 3=13358
 mirror fabrication, for high-speed rotation 0=2235
 molten, e.m. removal of nonmetallic inclusions 3=20912
 Mössbauer effect in embedded Au^{197} 1=11147
 Mössbauer effect, Fe^{57} , 14 keV, var. velo., thicknesses, angle 4=17334
 Mössbauer effect magnitude, rel. to plastic deformation 4=9810
 neutron damage, spectra effects 2=6397
 neutron, Fermi age, in stainless steel 0=7369
 (n, γ) reaction, effect of B carbide 2=8045
 neutron irradi., dislocation behaviour 2=12488
 neutron irradi., relaxation strains 3=20717
 neutron irradi., then annealed, props. 2=12489
 neutron irradiated, effect on mech. props. 0=7905
 nonmagnetic pressure vessels, 20 000 kg/cm² 0=3386
 NS-225, stainless, desorption, pulsed thermal 2=23920
 particle size and lattice distortions, effect of cold pressing, by X-ray reflections 3=18401
 pearlite, grain boundary structures 1=14281
 pearlite nucleation, role of austenitizing temp. 0=18393

Steel—contd

phase analysis, quantitative, additive props., calc. 4=17749
 (225), phase transformation 2=15056
 phase transformations, effect of tensile stress 0=16337
 phase transformations rel. to plastic deform. 4=17763
 phase transformations, tempering process, hardness and coercive force 1=12644
 plastic deformation inhomogeneity, polycrystals 4=23214
 plastic deformation, initial processes 3=8764
 plastic deformation, Lüder's lines, yield-point elongation 2=23758
 plastic deformation by machining, X-ray study 2=15112
 plastic deformation, threshold meas. 4=15691
 plastic flow on explosive loading 3=1224
 plastic flow, Peierls—Nabarro force 1=1316
 plasticity, high pressure effects 0=1856
 plasticity, press. var. 4=13445
 plasticity, theory 2=16953
 plates, cratering and shock wave phenomena 0=8741
 polycrystalline, stress-strain and contraction-ratio curves 4=7458
 precipitates, lamellar, lattice structure, electron diffraction study 0=4625
 precipitation changes, electron microscope study 0=14095
 pressure of hydrogen in cavities 0=18391
 projectiles, impact on Al and Cu, pit formation 0=8142
 projectiles, spherical, impact on rock 0=11900
 radioactive tracers, use in Czechoslovakia 3=6874
 recrystallization during thermal deformation 2=12930
 reflection coeff. for ultrasonics meas. 1=2625
 residual austenite, temper ageing 1=15138
 residual stresses, after deformation in yield plateau region 3=20712
 resonance broadening, absorption line-shape calc. 0=19217
 rolling, temperature effects 0=13910
 SAE 3140 and 4150, u.s. attenuation 1=902
 SAE 4150, u.s. scatt., Rayleigh and stochastic 3=10590
 scabbing by detonation waves 2=14905
 scratches, periodic, on stainless steel 2=4350
 shear stress under pressure 3=13354
 sheet, magnetostriction vibration spectrum meas. 4=23007
 shock wave damage, due to surface explosions 2=2758
 shock wave damage, due to surface explosion 3=3852
 shock waves, oblique collision, irregular conditions 2=2759
 shock waves, oblique collision; irregular conditions 3=1756
 Si-steel sheets, magnetic props., annealing effects 1=20115
 silicon, magnetostriction 2=23672-3
 "silicon steel", domain structure, rel. to u.s. vibration and alternating mag. flds. 3=11069
 "silicon steel", magnetic stability 3=11062
 silicon (3.25%) steel, mag. domain structure, effect of elec. field and tensile stress 3=15801
 sliding of surfaces over stearic acid film 1=1354
 slip lines across Ag-steel interface 2=16653
 soft magnetic, prod. for British elec. generating industry 3=17015
 sound effects in pulse magnetization 4=10264
 solubility of N and C in cold-rolled transformer steel 4=26541
 sound velocity 0=5081
 sound velocity variation with temperature 1=16027
 spalling, by shock waves 2=12865, 14904
 spectrochemical anal., using digital computer and emission spectrometer 4=26770
 spectrochemical analyser, multichannel, photoelectric, performance. 3=25849
 spheres, impact, rel. to coeff. of restitution 2=7157
 spheres made to high degree of accuracy 1=21159
 sputtering, using 1-5 keV Ar^+ ions 3=9877
 stainless, adhesion to ice 2=23798
 stainless, change of density on deformation 2=23746
 stainless, cycling speed effect on thermal fatigue 4=23211
 stainless, defect clusters, rel. to fission fragment irradi. 3=17803
 stainless, deformed, surface examination 0=21117
 stainless, disloc. rearrangement by electropolishing 3=10668

Steel — contd

stainless, dislocation, etch pits technique 2=17057
 stainless, dislocation rearrangement during electro-polishing 3=17737
 stainless, electron erosion, carbide particles effects 2=3021
 stainless, electron micrographs 3=11334
 stainless, electron microscope exam. of extended specimen 1=1464
 stainless, fatigued, dislocation distrib. 2=6335
 stainless films, anodic oxidation, production of $\text{NiO} \cdot \text{Cr}_2\text{O}_3$ 0=3279
 stainless, films, high-voltage electron microscope study 2=4434
 stainless, heated to 1000°C, spectral emittance 4=14443
 stainless, hydrogen bubble chamber use, choice 0=17160
 stainless, magnetic exchange anisotropy 1=6278
 stainless, martensite transformation obs. 2=6825
 stainless, photoelec. yield, 3000-250 Å 3=21865
 stainless, proton prod. by H_2^+ ion impact 4=28270
 stainless sintered, acoustic impedance characts. 4=22487
 stainless, spectrography, influence of components 0=8339
 stainless, stacking fault fringe phenomena 4=4067
 stainless steel, Li^+ bombard., electron yield 1=8345
 stainless steel welds, ferrite estimation 1=12002
 stainless steels, Néel temperatures, determ. using Mössbauer effect 3=23153
 stainless, surface roughness, electrolytic meas. 2=10933
 stainless, thermal transformation f.c.c. to h.c.p., nucleation 4=26567
 stainless, type 316, enthalpy and specific heat 2=4445
 stainless, types 321, 420, total hemisph. emittance 3=289
 stainless, vacuum-arc evaporation 1=6688
 Cr-steel, effect of irradiation on austenite-martensite transformation 1=4005
 steel, microhardness of ferrite grains 1=1507
 steel-2, radioactive, electrode potentials 3=16175
 strain ageing, dislocation locking and precipitation hardening 0=16345
 strength anisotropy 1=3991
 strength anisotropy, due to various treatments 0=21140
 strength determ. from applied stress, theory and expt. 4=13380
 strength in liq. Na containing O_2 4=7457
 stress change of ultrasonic attenuation 0=2800
 stress, lattice, residual, on plastic deformation, X-ray diff. meas. 3=18180
 stress pulses in rods of, effect of plastic deform. 1=16001
 stress shear, under pressure, annular specimens 3=6784
 stress-strain curve derivation, theory 4=23100
 stress-strain relations, torsional pre-strain effects 4=7459
 stress studies with X-rays 1=1506
 stresses, creep and fracture of notched rods 1=12589
 stresses, internal, 0.01-1.25% C, Cr K α X-ray meas., reliability 3=13346
 substructure, revealed by etching, contradictory data 4=29036
 surface area, specific, effect of abrasion 4=28984
 surface charge on separation from nitrocellulose, meas. 4=7695
 surface texture and rolling resistance 0=8131
 surfaces, brittle fracture, plastic deform. 2=21442
 Teflon coated, bearings for instrument alignment 3=9393
 tensile elongation and yield stress rel. to n-irrad. 2=23765
 tensile strength and fracture, γ -ray effects 2=19005, 23775
 texture, effect on X-ray diffraction line intensity, and deformation in yield-stress range 4=17744
 thermal analysis, automatic calorimeter for 2=1303
 thermal cond., electron-phonon ratio 0=7861
 thermal cond. at low temp. 0=6022
 thermal e.m.f. rel. to plastic deformation 3=13141
 thermal expansion density, Cr-Ni, effect of cold working, ageing 4=1951
 thermal expansion measurement 4=17367
 thermo-electric properties rel. to heat treatment 1=10071
 ticonal G magnet, anisotropy measurement during cooling, 900°-400°C 1=10756
 Ticonal G, magnetic annealing 1=6342

Steel — contd

transformer, domain-wall widths 3=13252
 transformer, effect of precipitates on coercive force 0=18186
 transformer strip, cube texture, mag. props. 2=23928
 for transformers, mag. props. 4=13221
 tubes, for reactor fuel cans, bursting strength 2=23779
 tungsten steel, γ -rays mass attenuation coeffs. 2=4431
 u.s. absorption, rel. to grain size 1=17405
 u.s. velocity meas. 3=21502
 U-10, quenched, tempered, lattice distortions 3=16106
 ultrasonic attenuation characteristics 2=8161
 ultrasonic attenuation and velocity, in transformation products 4=20205
 ultrasonic double refraction 1=20627
 ultrasonic machining, effect of mech. props. 1=9241
 ultrasonic machining, effect of mech. props. 1=10358
 wear in friction between bronze and steel 2=4351, 12872
 wear and friction, structural distortions, X-ray diff. study 1=15187
 white layers, structure 4=13653
 wires, neutron activated, to meas. flux 2=12262
 wires, stressed, magnetization, in a.c. fields 0=679
 wool, acoustic wave propag. 3=11862
 worked, autoradiography of defects 3=5143
 X-ray back reflection, intensity extinction, cold-deformation 1=4086
 X-ray line profiles, effect of stress 4=23143
 X-ray He-path diffractometry 4=13628
 yield and flow stress, rel. to grain size 3=11149
 yield and flow stress, temp. effect 0=21109
 yield instability at low temps. 1=1319
 yield point rel. to brittle fracture 2=14880, 21423
 yielding phenomena, X-ray study 2=21418
 410 stainless, cold-work recovery rel. to neutron irradi. 3=11171
 on C, spectral anal., local in depth 2=19179
 C steel, martensitic transform. 2=23875
 C steels, crack propagation 2=23788
 C, stress meas. by X-ray method 4=23097
 C, u.s. damping meas. 2=13418
 (0.3% C, 2% Cr, 8% W), dislocation heredity during phase transforms. 2=16656
 Cr stainless, heat capacity and phase transform., 30-1000°C 2=23078
 Cr-Mo steel, precipitation of Mo_2C 0=18389
 Cr-Ni austenitic, thermal and elec. cond., effect of cold deformation and ageing 4=12663
 Cr-Ni steel, thermal cycling effects 2=21447
 Cr-Ni steels, sinterability 2=831
 Fe-Cr-Ni, phase transform., martensitic, association of hcp and bcc phases 4=20709
 Fe-Cr-Ni-C of 18/8 type, nucleation of Cr carbide on twin boundaries 2=2408
 H_2 penetration in rolling surfaces with water-accel. fatigue 3=25644
 H_2 permeation, 400° to 900°C 2=12457
 Mn, γ - α transform., effect of etching 2=21457
 Mn, $\gamma \rightarrow \epsilon$ transform., plastic deform. effects 2=23876
 Mn-Fe, spectral line intensity ratio 0=6934
 Mn-Mo steels, embrittlement rel. to neutron irradi. 3=11182
 MnS inclusions, dislocations 3=25282
 Mn-V steels, phase transform., during elec. heating 2=6827
 Ni-steel, u.s. wave velocity rel. to stress 3=6471
 Ni-Cr-Mo alloy steel, martensite formation rel. to applied tensile stress 3=3323
 Ni-Cr-Mo, microsegregation 2=10923
 Si steel sheet, mag. structure, demagnetization effects 3=13253
 Si steels, X-ray scatt. from MnS impurity phase 2=12703
Stellar clusters
 See Stars
Stellar composition
 See Stars, composition
Stellar motion
 See Stars
Stellar structure
 See Stars, structure
Stereoscopy
 binocular eye movements and depth discrim. 3=5302

Stereoscopy—contd

- in bubble chambers 0=1232
- cloud and bubble chamber photography 0=15198
- cloud chamber photographs, det. of coordinates, apparatus 1=16629
- colour 0=14354
- depth effect, induction 4=26995
- depth perception from after-images 3=9306
- Desarguesian space 4=20980
- effect of exposure delay between images to the two eyes 4=4986
- electron microscope stereo photographs 2=15117
- electron microscopy, convergence angle det. 1=20708
- electron microscopy of metal foils 2=4514
- electron microscopy, minimum detectable height 2=4513
- equidistance settings at photopic retinal illuminance levels 4=10981
- eyes, relative convergence range 4=2489
- fixation disparity, subjective and objective meas. 2=13225
- fusion and saturation loss for flickering bright field 4=7999
- image elongation, oblique observation, "subjective" space 0=18546
- image production, from plan and elevation 2=7318
- magnitude as function of target thickness 0=6516
- non-Euclidian nature of visual space, from illusions 4=2493
- perception function, accommodation and conveyance distances 0=18545
- perception function, applic. to observation of stereoscopic aerial photographs 0=18547
- perceptual fluctuations with ambiguous figure 3=9308
- perspective distance calc. 0=12230
- perspective photographs with distortion 2=9361
- projected images, binocular combination 3=3691
- space perception, physical and visual, general theory 2=1036
- spatial localization of photopic retinal illuminance levels 0=18563
- stability threshold for intermittent stimulation 3=1565
- stereoscopic acuity rel. to obs. distance 3=11635

Stopping power

See Particle range

Storms

See Atmosphere, movements; Magnetic storms; Thunderstorms

Strain gauges

- Araldite photoelastic varnish, optical response 1=15765
- automatic strain-measuring device 1=12581
- compressibility of solid at high press. meas. 1=20326
- cyclic strain meas., multi-way instrument 0=1801, 16197
- dismountable inductive gauge 1=20286
- elastic hysteresis in torsion, meas. 1=20285
- elastic load devices 1=6816
- electrical, use in magnetostriction meas. 2=743
- error due to bonding, elimination at low values by bridge 4=16005
- gauge factor determination, method 1=10467
- h.f., and accelerometer calib. 0=2146
- high-temp., review, development of NBS 5B gauge 1=14843
- use as load controller 2=19838
- for low temp. press. meas., unbonded superiority 4=11435
- materials of large extensibility, methods 2=7152
- microstrain, capacitance extensometers 4=7369
- micro-tensile testing for extensions of few A-15 mm of specimens $> 10^{-7}$ mm² cross-section 1=10200
- optical, silhouette, tensile, under high hydrostatic pressure 3=13343
- Pfender BAM extensometer strain transfer device 1=12580
- photoelastic, coatings 3=14092
- photoelastic technique for strain meas. on flat surfaces 1=1713
- prefabricated, resistance 3=97
- for pressure meas. by diaphragm displacement 4=29508
- pressure meas., external, in glass systems, borosilicate, 0-2 atm. 3=21290
- remote meas. on moving machine-part 4=2513
- resistance, advances in semiconductor and high-temp. types 4=24007
- resistance, with gauge bodies of synthetic materials and metals, accuracy 0=6287
- resistance, low temperature sensitivity 0=4551
- resistance and photoelastic, modern forms 3=7170

Strain gauges—contd

- resistance-strain gauges, high pressure meas. 4=15689
- resistance, use with transformer bridges 0=16959
- resistance type, pressure depend. 3=23334
- semiconductor piezoelec. elements 4=7058
- semiconductor piezoresistive devices 3=22969
- semiconductors, stress dependence of piezoresistance 1=17787
- solids, u. s.-produced, calorimetric meas. 4=10356
- strain meas., optical diffraction method 4=15690
- tensile machine for small specimens 4=17715
- tensile testing machine for whiskers 1=10201
- tensile testing technique for submicron specimens 2=18976
- testing, prod. of well-defined 2-dimensional stress field 4=1911
- thin film resistances 1=6441
- thin films 2=14865
- transducers, semicond. piezoresistive stress and strain 1=14495
- vapour, multiple ionization, by Auger effect, meas. 4=11520
- vibrating-wire extensometer 0=62
- vibrating-wire gauges, oscillator measuring equipment 0=8583
- vibrating-wire pressure cells, for earth press. meas. 0=12399
- for viscoelastic stress meas., in elastic inclusion 4=7362
- Ag films, 30-2500 Å thick, on mica, stress measurement 1=11440-1
- BaTiO₃, for membrane manometer system 0=5042
- Bi films 1=9078
- Bi layer, on deformable substrate, resistance variation 0=21253
- Bi, strain coeffs. 0=16198
- Cr-Si film poss. 4=26502
- Ge film poss. 4=26502
- Ge, strain coeffs. 0=16198
- PbS sensitivity, methods of obtaining 3=18176
- Pt-W alloy, for over 340°C 3=6771
- Pt-W-Cu, tests, high-temperatures 3=11747
- Te, piezoresistive effect 2=4105, 8473
- Te, strain coeffs. 0=16198

Strange particles

- associated production in p-p collisions, two models 0=20131
- baryon mass spectrum, perturbation effect 1=16907
- baryon, strangeness -3, production theory 4=9286
- β -decay, effective coupling constant 0=13069
- classification 0=5619
- compound model with baryons 3=17173
- construction from one baryon and one meson 0=9278
- decay, effect of final-state interactions and isotopic spin selection rules 0=13053
- decay interactions 0=11231
- decay interactions, theory 0=11232
- decay, leptonic 1=13370
- decay, leptonic, rel. to $|\Delta I| = \frac{1}{2}$ rule 0=12839
- decay, nonleptonic, $|\Delta I| = \frac{1}{2}$ selection rule 3=2197
- decay, non-leptonic, Hamiltonian transformation properties 4=15014
- decay, parity nonconservation 0=9317
- decay properties, review (1957-9) 1=2094
- decay, spin changes, concept of i'-space 0=11233
- decay, up-down asymmetries 4=25188
- decay, weak interaction current, review 1=8497
- decays in emulsion of negative-strangeness particles 2=314
- decays, isospin structure analysis 4=27767
- diffractional production, by p-nucleus interactions 3=15169
- effects in π -nucleon s-wave scatt. 0=20200
- electroproduction on nucleons, dispersion theory 4=9285
- formation, in K- and π -meson inelastic scatt. 0=20243
- historical review 2=20242
- interaction resonances rel. to Sakata model bound states 2=18065
- interaction resonances rel. to Sakata model bound states 3=5928
- interactions, rel. to weak hyperon decays, theory 0=13061
- isobars, 0 isospin, exptl. evidence 3=4463
- $\Lambda_{1/2}$ decay 2=22648
- in Lee's renormalizable field model 0=7286, 9277

Strange particles—contd

leptonic decays, $\Delta Q = \Delta S$ rule validity 4=12070
 in meson-nucleon collisions, Fermi's statistical theory 0=13070
 multiple production, in π -N collisions 0=15312
 new hypothetical D-particle 0=15457
 nonleptonic decays, spurious, rel. to strong interaction symm. 4=27768
 pairs, prodn. by 6, 11, 18 GeV/c π^- interacts 3=24775
 parastatistics 3=12506
 parities and coupling consts., methods for det. 0=2598
 parity conservation 1=3104
 parity, from dispersion relations 1=16908
 parity, from hyperon polarization in $K^- + p \rightarrow Y + \pi$ 0=2599
 parity nonconservation in strong interactions 0=11234
 "particle mixture" effects and decay interactions 0=15299
 photoproduction 3=22203
 photoproduction, associated process 1=16910-1
 photoproduction at high energies 4=12071
 π^- -p collisions, above 10 GeV 3=4360
 in π^- -p interactions, produced together with π -meson resonances 4=27890
 $\pi^- + p \rightarrow Y + K^+$, resonances at 1380 and 1580 MeV 2=22641
 prodn., by $K^- + d \rightarrow \pi + Y + N$, evidence for π - Σ resonance 1=12115
 production in emulsion by K^- and other mesons 1=2097
 production in H by π^- -p at 16 GeV/c, and by p-p at 24 GeV/c 2=22644
 production by $K^- + p$, Σ - π resonance 1=12126
 production, multiple, cross-section calc. 1=16909
 production of neutral V's by π^- in Cu, at 1.12 BeV/c 1=4811
 production by 1 GeV neutrinos at nuclei 2=18099
 production in p-p collisions, theory 2=3414
 production, in p-p interactions at 2 BeV, meas. 2=9838
 production, in p-p scattering at 2.85 BeV 1=12127
 production by $\bar{p} + p$ at 1.61 and 1.99 BeV/c 1=5727
 production, by penetrating cosmic-ray showers, transverse momenta 1=574
 prodn. in π^- -p interacts., 11.4 GeV/c 3=19674
 production, cosmic ray, energy, transverse momentum distrib. 4=956
 production cross-sections 3=19700
 production by 4.65 BeV/c π^- -mesons 3=12507
 production, by 9 BeV protons interacting with emulsion nuclei 0=13068
 production in p+d reactions 0=12936
 production, in \bar{p} -p and \bar{p} -C interactions at 75-200 MeV 0=11172
 production, by π^- in C, Fe, Pb at 1.5 BeV, lifetimes 0=17426
 production from π^- -p interacts., 16 GeV/c 3=15012
 production by π^- on propane, resonances 3=2322
 production, from π^- -proton collision 0=7408
 production, π^- -Xe interaction 3=24796
 production, by proton interaction in C, Fe, Pb, at 2.8 BeV 0=17427
 production in proton-nucleon collisions, calc. 3=7927
 production, in proton-nucleus interactions at 9 GeV 0=4088
 production in p-p collisions, 24.5 GeV/c 3=22206
 production and strong interactions 4=3483
 production by 2.77 BeV/c π^+ on p 4=16971
 proton-antiproton annihilation, statist. model 3=7858
 reactions, appl. of Chew and Low's method 0=13066
 resonant states, phenomenological theories 3=14872
 resonant states, prod. by 2.1 BeV/c π^- -mesons 2=20427
 review 0=7420
 spin > 1 particles, wave-functions 0=17247
 spin, rel. to parity nonconservation 0=11235
 spin-statistics connection? 3=22202
 strangeness, isobaric spin, and spinor inversion props. 0=7283
 strangeness replaced by new symmetry in strong interactions 3=5931-2
 strangeness-violating $\Delta S = 4$ 2=16149
 strong interactions 1=16912
 strong interactions, parity nonconservation 1=2099
 strong interactions, review 1=2018
 theory, within framework of nonlinear spinor theory 1=16671
 theory by non-linear spinors 2=22645
 transverse momenta, distrib. analysis 1=19235

Strange particles—contd

transverse momenta, distrib. analysis 2=22566
 in He II, near λ -point, particle hydrodynamics 0=10826-7
 K^0 meson decay, strangeness change 1=16883
 $\Delta S = 2$ interactions, study of Ξ direct decay and muonium-antimuonium transitions 1=5787
 $V \rightarrow \theta$ collisions in the Lee model 1=7204
 V^0 prod., by π of 6.1, 11.6, 18.1 GeV/c 2=22627
 Y^* absence in K^- capture in He and D 2=22632
 Y^{*0} effects in $K^- + p \rightarrow \Sigma + \pi$ reaction 1=16893
 Y^- hyperon system, resonances 2=13890
 Y^0 isobar, search for evidence in K^- capture by emulsion nuclei 2=22835
 Y -K resonance at 1650 and 1920 MeV, intermediate particals 2=22636
 Y^* and K^* in strong interactions 1=13522
 Y^* , Λ - π resonant state, prod. and decay, spin and parity analysis 1=4810
 Y^* by π^- -p at 1.6 GeV/c 2=22646
 Y^* , props. from $K_s^0 + p \rightarrow \Lambda^0 + \pi^+ + \pi^0$ 1=8514
 Y^* resonance, decay, Σ/Λ branching ratio 1=12104
 Y_1^* and Y_2^* , exptl. evidence 3=4462
 Y^* , 1385 MeV, K and π prodn. isobars 3=4463
 zero strangeness and nonrelativistic rotator quantum theory 2=11872

Strength

See Electric strength; Mechanical strength

Stress analysis

See also Bending; Photoelasticity; Strain gauges; Torsion

acoustic loading, linear response techniques 2=21962
 adsorption-extension phenomena 3=20937
 aeolotropic circular disk 0=19008
 aeolotropic paraboloid, effect of surface friction 0=19014
 aeolotropic solid, two-dim. thermal stresses 3=23808
 Airy stress-function surfaces, geometrical properties 0=8603
 anisotropic and inhomogeneous materials, conference, Manchester, April 1964 4=23082
 annular plates under tension and bending 0=19019
 application method, strain calc. for polycrystalline wires 0=4544
 Araldite models for analysis of composite structures 1=18332
 around inclusion in cylinder, under torsion 0=4968
 autographically recording machine 0=4550
 axially-symmetrical hole in flat plate, soln. by analytic functions 0=10624
 beam, absolute max. bending moment 2=19474
 beam-column weld, stress analysis at rupture 1=11719
 bending plate to spherical shell 0=3474
 brittle materials, elastic square with rigid indenters 2=2665
 buckling of fluid-filled metal column 0=6727
 buckling of dislocated plate 1=15761
 buckling of rect. orthotropic plates 3=85
 in buttress dams 0=4972
 Cauchy problem for loading on contour, power series 4=5118
 circular cylinder under torsion 0=19018
 circular disks, with heat source, thermoelastic conditions 1=85
 circular holes, with line heat source 1=84
 circular plates, cylindrically orthotropic, large deflections 0=19025
 circular ring, with thermal inclusion 1=86
 composite beams, increased carrying ability 0=1868
 compression, thermodynamic limitation on modulus 3=21273
 conducting paper analogue for two-dimensional elasticity 4=117
 cone, truncated, due to shearing forces on surface 2=9219
 conference, Delft 1959 1=10455
 conference, Delft (1959) 1=12831
 conference, Keele, Staffs. April (1960) 1=2500
 contact problem in stressed elastic layer 0=19011
 convex shells, critical buckling load 1=5239
 crack, equilibrium, at edge 4=26488
 curved anisotropic rods, oval sections, under torsion 0=19009
 curvilinear holes in thin elastic plates 2=15508
 cyclically consolidating media 3=16559
 cylinder, elastic, free lateral surface 2=9220

Stress analysis—contd

cylinder with exponential varying modulus 2=15513
 cylinders in contact, elastic-plastic, along generators 4=8128
 cylindrical shell with strengthening rings 0=19013
 cylindrical shells in torsion, supercritical deform. 2=9218
 deformation of tubular solid of curved axis 0=8578
 deformed and stresses states considered as initial state 3=23817
 dilation centre, in semi-infinite solid, with fixed plane face 0=19026
 disk, heavy vertical, with fixed edge and isolated load 1=12832
 disk, unlimited, with rigid medium 1=87
 disks, with phys. characteristics varying along radius, elastic tension meas. 3=18763
 dynamic problems, conference 3=13342
 elastic body, with cylindrical hole at const. temp. 0=6706
 elastic layer, under eccentric vertical force, on rigid punch 1=5238
 elastic medium with circular insert, under temp. distrib. 4=21065
 elastic plane corner, under edge stresses 0=14560
 elastic rod, thin, semi-infinite, when free end is subjected to instantaneous temp. rise or transient temp. distrib. 3=14082
 elastic solids with nucleus of thermo-elastic strain 1=95
 elastic sphere, under tangential torsional force, with transverse rigidity variation 0=10620
 elastic thin plates, rotating about an axis lying in their middle planes 0=19032
 elastica, deformed 2=19475
 elasticity of finite deformations, theory, duality of inverse methods 4=5115
 elasticity theory, soln. of axially-symmetrical problems using analytic functions 4=13371
 elastodynamics, 3-dimensional problem, potential representation 0=10623
 elasto-viscous liquids, stress differences, normal rel. to viscosity 4=27142
 electrolytic tank model for stress concentration determinations 1=6808
 elliptical hole in large plate, stress distribution during pulse 1=10458
 fatigue-curve parameter, estimation method, with limited number of specimens 3=20733
 fracture growth, kinetics of Griffith criterion 0=19027-8
 fracture theory of surfaces of maximum shear 3=3773
 frames, static and kinematic, plastic collapse, dual linear programming 0=8575
 free circular hole, in isotropic plates, under normal loading 0=6708
 frictional extrusion in plain strain 1=15764
 generalized plane stress in strip under end load 4=29578
 glass, in ultrasonic machining, var. with amplitude, clamping press. 4=2756
 gravitational, in accreted body 4=8131
 half-plane disk, under concentrated moment 1=88
 hinged spherical shell 1=1714
 hole in beam bent with shear, stress distrib. 3=23810
 impacted notched beams, dynamic stress conditions 1=11720
 inclusion, elliptic, in orthotropic medium 4=18131
 inclusion problem 3=790
 inelastic material behaviour 3=14076
 infinite elastic parabolic plate, stresses, under conc. force 0=4967
 infinite elastic sheet under tension 0=6710
 infinite elastic solid, with spherical inclusion, and centre of rotation 0=19007
 infinite flat plates 0=3473
 infinite strip, bending, position of edge dislocations 0=8102
 interfacial instability under initial stress 3=14079
 internal buckling under initial strain 3=14077
 isotropic elastic materials, energy functions 3=11736
 Lamb's problem, weak anisotropic medium 2=21859
 layered systems under asymmetric surface shears, elastostatic theory 4=24128
 Ligtenberg's moiré method applied to disks and shells 1=11718
 liquids with laminar flow, cross stresses 0=10637
 magnetic analysis methods 1=6250
 magnetoelastic stresses in rotating cylinder in mag. field 3=23811

Stress analysis—contd

membrane theory of thin shells 0=12389
 metallic films, lattice strain 3=20932
 metals, formulation of strength 4=13380
 metals, quadratic elasticity theory and electron density 3=5053
 nonlinear thin plate inextensional bending theory 3=87
 nontransparent solid bodies, by γ -absorption, possibility 3=20703
 notched specimens, by photoelasticity 4=7378
 numerical mathematics conference 0=12232
 numerical mathematics conference 1=4169
 orthotropic plates with stepwise rigidity change 1=15988
 paraboloids, composite elastic, twisted 0=6709
 pattern technique, on single crystals, silk-screen transfer process 4=13520
 piezoelectric hollow rotating quartz cylinder 4=21068
 pipe with discontinuous bend 1=15760
 plane frames, elastic-plastic failure loads 3=21272
 plane stress, complex representation 2=15514
 plastic compression, plane strain, between rough plates 0=6714
 plastic compression, between smooth plates, under plane strain 0=6713
 plastic deformation, cyclic, consolidating medium 3=16559
 plastic equilib. eqns., characteristic surfaces 2=19478-9
 plastic materials, rate-sensitive, constitutive eqns. 3=11738
 in plastic range 0=16225
 plate, with central hole, rotating about dia. 2=9216
 plate with flow, electrical analogue for stresses 0=19030
 plate, infinite, effect of rigid ovaloid inclusion 2=9215
 plate problems, elementary solutions, general formula 0=14558
 plate strip, under external load 1=90
 plates, dynamically loaded, stability 1=4292
 plates, dynamically loaded, stability 1=10457
 plates, semi-infinite, under internal load 1=89
 Poisson's ratio, effect on thermal stress 4=2626
 from polarized light, elliptical 3=23813
 prestressed bound elements, rheological effects 2=12855
 principle of minimum complementary energy 3=92
 in resonance condition in spin-wave resonance 1=20172
 ring plates, circular 0=6712
 rubber two-ply cord, torsional behaviour 1=6450
 sectorial plates 0=6712
 self-adjoint problems, uniqueness and extremum principles 2=19483
 shear stress hypothesis 2=7153
 sheets, thin, tension states 2=15506
 shells, cylindrical, past-initial deformations 1=15757
 shells, cylindrical, post-critical deformations 1=18333
 shells, instability, local, bulging 3=5394
 shells, thin, in hyperbolic paraboloid form, theory 2=1092
 short beams, varying sections, photoelastic study 2=4970
 simulation of random stress fatigue effects by minimum number of discrete stress levels 3=5403
 slab, with varying rigidity mod., under shearing stress 0=4966
 solid under hydrostatic pressure and tensile load 0=16228
 solid surface, by differential geometry 3=21271
 solids, strains, u. s.-produced, calorimetric meas. 4=10356
 spheres, elastic isotropic, twisted 0=6707
 spherical shell, incompressible, appl. to neo-Hookean solid 1=9355
 spherical shell, polarized, piezoelec., radial deformation 2=19876
 spherical shell, with thermal inclusion 1=86
 statistics, non-uniform bodies 4=21067
 steels, for strength determ., theory and expt. 4=13380
 strain distrib. meas. by diffr. grating modulation 4=24344
 strain, finite large, theory 2=19476
 strain, plane, boundary value soln. 3=7160
 strain, plane, in elastic/plastic bodies, relaxation 4=27129
 stress-deformation intensity correlation 4=24124
 stress due to nucleus of thermoelastic strain 3=23809
 strip, infinite 3=5393
 strip rolling, cold, at onset of plasticity 4=7377
 stroboscopic dynamic photoelasticity 0=2143
 surface energy tensor props. and rel. to linear force 4=5121
 surface instability under initial stress 3=14078
 surface of semi-infinite elastic medium 2=19477
 T-junctions of hollow pipes, Poisson's ratio depend. 0=12385

Stress analysis—contd

- thermal, elastoplastic, in solidifying body 3=18764
 thermal, Grueneisen's relation 0=8574
 thermal, photoelastic meas. 4=116
 thermal stress in semi-infinite elastic solid 0=10626
 thermal stresses for coupled thermoelast. and heat cond. in body 4=109
 thermal stresses, crack in semi-infinite solid 3=9382
 thermal stresses in crystallizing ingot 4=115
 thermal stresses in slabs, cylinders and spheres, tables 1=15763
 thermal, in temp. dependent viscoelastic media 1=15762
 thin elastic shells, strain energy 3=16560
 3D, scatt. light photoelastic polariscope 4=24398
 three-dimensional, use of plastic models 1=11726
 travelling cracks in elastic materials under longitudinal shear 0=19029
 truncated cone, due to surface friction 0=19015
 twisting of elastic cylindrical shell 0=4969
 uniqueness in general boundary-value problems 1=15758
 viscoelastic flow in tube, axial stress at wall 3=11772
 viscoelastic materials, isotropic, stress tensor 3=7159
 viscoelastic thin rods, finite or semi-infinite 0=14714
 wedge, edge near corner 4=5117
 wedges, thermoelastic problems 1=1716
 X-ray measurement 2=6712
 Ag-Zn alloys, shear stress values, critical resolved, rel. to temp. and comp. 4=28982
 Ag₃-Al, for prismatic slip, rel. to strain rate and temp. 4=30783
 AgMg, flow stress rel. to low-temp. and strain rate, Peierls' mechanism 4=30785
 Al alloys, for strength determ., theory and expt. 4=13380
 Cr, yield stress, effects of C, N, O and S 4=30770
 Cu films 3=11145
 Cu sheet surfaces, X-ray refl. obs. 4=26499
 KCl, shearing temperature range of quenching 3=11172

Stress effects

(Heading introduced in 1962)

- acousto-elastic effect, velo. meas., metallurgical appls. 3=23275
 alkali halides, O₂⁻ mols. alignment 2=14362
 alloys, magnetic structure and properties 3=8634
 on anisotropic defects in crystals 3=22695
 Armco ingot iron, blue-brittle 1=1308
 bar, cylindrical, plastic strain wave propag. 3=5484
 beam, deformation and primary creep 2=10759
 body-centred cubic crystal, moving edge dislocations 3=10654
 Brass, cumulative fatigue damage 4=28946
 α-brass, stress-corrosion process 3=11190
 Bravais crystal, phonon frequ. shifts 3=2717
 brittle solids, fracture stress rel. to grain size and residual strain, theory 4=10364
 colloids, coagulation under shear 2=8938
 creep, high-temp., activation energy 2=4326
 creep-resistant materials, thermal cycling effects 2=21447
 crystal dislocation displacement, b. c. c. crystals 4=17430
 and crystal dislocation velo. 4=12745
 crystal space groups reduction to subgroups 4=4514
 crystals, acoustic dispersion anomalies 4=6726
 crystals, homog. stress, small-ampl. sound waves 4=13368
 crystals, review 3=25626
 crystals, vacancy formation, rel. to internal stresses 3=22741
 crystals, vibrating, nonelasticity theory 2=4320
 cyclic, internal mechanism for fatigue 2=6755
 cyclic stress required for edge cracks propag., results for eight materials 4=30759
 dislocation helix or prismatic loop 3=8434
 dislocation vel. depend. on stress 3=13341
 dislocations in material, cross-section bounded by concentric ellipses 2=17383
 elastic wave generation by transient surface heating stresses 4=5275
 f. c. c. metal rel. to point defects 1=17523
 f. c. c. substitutional mixed crystals, rel. to deformation 4=10359
 ferromagnet, elastic, rel. to Barkhausen noise 3=3104
 ferromagnetic films, rel. to orientation 3=20598

Stress effects—contd

- fibres, energy storage, flexural and tensile 4=15681
 films bulged over circular openings 1=11728
 geological shear folding laminar models 4=23711
 glass, internal friction 2=23739
 glass, micropore growth 3=18365
 glass, silica, high-pressure densification, effects of shear 3=8919
 granular structure porosity, as for most random config. 4=17831
 graphite, pyrolytic, graphitization 4=20704
 graphite, on radiation-induced dimensional changes 4=25464
 graphite suspension, elec. noise spectrum shear rate, conc., particle size effect, time dependence 4=26765
 ice crystal etching 4=23317
 ice, effect on subsequent thermoluminesc. 3=13649
 on magnetic domain structure in Si steel 4=7256
 magnetic films, ripple origin in ferromag. films 4=26300
 magnetic hysteresis loops, asymm., creep 3=6705
 magnetic materials, for force meas. 4=7361
 magnetization, thermomagnetic, direction effects 2=4704
 metal crystals, vacancies, interactions with stress fields, theory 4=12728
 metal films, resistance—strain characteristics 3=22902
 metals, cold-worked, particle size and strain broadening separation, X-ray profiles 3=25754
 metals, cyclic, effect on internal stresses 3=13345
 metals, dislocations and fatigue crack propagation 4=13382
 metals, grain size effects 2=19000
 metals, pure, high-stress fatigue, initial stages of damage 4=7394
 metals, quenching stresses on vacancies 4=1462
 metals, vibratory 3=13377
 multidomain partially magnetized systems, susceptibility and magnetization effects 2=4705
 Nicaloi, ferromagnetic permeability, angle effects 4=13185
 nuclear spin diffusion, strain interruption 3=3186
 ordering alloys, strain ageing 3=8775
 oxide crystals, symm. splitting 3=25614
 paper, surface structure under rolling pressure 3=13553
 Permalloy, mag. initial susceptibility and elec. cond. 4=7282
 Permalloy magnetic films 4=13211
 plastic materials, strain rate rel. to temp., eqns 4=28918
 plastics, impact ductility 4=28919
 point defects, ordering, thermodynamic theory 4=6824
 polycaprolactam fibre film long range order 4=23618
 polycaprolactam, mol. mobility, n.m.r. obs. 4=23617
 polyethylene terephthalate, mol. mobility, n.m.r. obs. 4=23617
 polymer spherulites, lamellar twist 4=26581
 polymethyl methacrylate, β-relax., stress relax. and creep, activation energies, theory 4=28922
 polymethylmethacrylate in diphenyl solution, shear rel. to viscosity 3=16619
 polymethyl methacrylate, stretching, 100°-200°C rel. to birefringence 3=17982
 quartz, high transient stress, dielec. breakdown 2=12574
 in real (inhomogeneous) solids rel. to eqn. of state 2=3851, 8178
 relaxation estimation from creep 4=13376
 remanent magnetization 2=4706
 rock-salt struct. crystals, rel. to slip effect on strain-hardening 4=23105
 ruby, e.s.r., and spin-lattice interaction 4=23055
 rupture, apparatus for stress-rupture testing of filaments 4=17719
 rupture mechanics, conference, Southampton (April, 1961) 2=8745
 semiconductors, kink nucleation theory 3=17730
 semiconductors, many-valley, elastocaloric effect 3=4832
 shear, on viscosity, lubricating oils 3=9422
 silicate glass, static stress fatigue and strength 4=13446
 soil deformation by beam resting on it 3=5144
 solid solns., strain ageing, solute atom segreg. 3=5139-40
 solids, effects of ultrasound 4=10463
 solids, mechanical response to extreme e.m. radiation 2=11398
 steel, austenitic, stainless, Ti-stabilized; rel. to weld corrosion 3=3337
 steel, fatigue damage 3=25643

Stress effects—contd

- steel, mild, explosively loaded, Bauschinger effect 4=23215
 steel, Ni—Cr—Mo alloy, rel. to martensite transformation 3=3323
 steel, X-ray line profiles 4=23143
 steels, elastic consts. depend. on tensile stresses 3=3210
 strain-hardening debris mechanism 2=21010
 stress relaxation, activation energy, theory and expt. 4=28922
 on supercond. transitions of Ta, Sn 2=7518
 surface topography meas., use of Moiré patterns for isopachics 4=14007
 thermoelastic, in initially stressed bodies 2=4324
 tunnel diode, on excess current 4=11749
 water surfaces, wind-induced stresses 4=8155
 waves in solids, review 4=11279
 Ag—In, directional ordering, anelastic piezo-resistance 4=12847
 β -AgMg, low temp. flow-stress behaviour 4=23205
 Ag—Zn, directional ordering, anelastic piezo-resistance 4=12847
 Al, absorption, acoustic waves, u.s., time var., 15-200 Mc/s 3=22648
 Al, absorption, u.s., second harmonic, due to dislocations 4=9842
 Al alloy, X-ray line profiles 4=23143
 Al crystal surf. patterns, rel. to cyclic stresses 2=10785
 Al, cyclic, effect on internal stresses 3=13345
 Al, conductivity, elec., low temp. 4=22667
 Al, density change rel. to thermal fatigue 2=10772
 Al, fatigue investigation 3=18213
 Al, polycrystalline, crystal orientation under axial strain 2=6741
 Al, polycrystalline, and recovery effect on creep 4=13391
 Al, stress relax., creep and internal friction, activation energies 4=28922
 Al substructures, creep-resistant, recovery 4=23122
 Al superconducting film transition temp. 4=14517
 Al, tensile, dislocation arrangements 3=20754
 Al—Cu, Al—Mg, Al—Si alloys, hardening, strain-age 4=17722
 Al—Cu, deformation, ductile fracture 2=6750
 (Al, Cu, Mg) system, rel. to ductility 4=23129
 Al—Mg alloy, fatigue, superimposed at 1% of static, rel. to creep. 3=13365
 (Al, Mg) system, rel. to ductility 4=23129
 Au, fatigue investigation 3=18213
 Au, pure, void formation 3=13364
 BaTiO₃, dislocations under mechanical impulses 4=1495
 BaTiO₃, domain orientation, rel. to mechanical load 3=22995
 BaTiO₃, structure rel. to hydrostatic pressure up to 600 kg cm⁻² 3=3302
 Be—Cu (97.5%), hardening rate 4=23148
 C, elementary atomic layer diameter, 1000°—2000°C 4=29103
 CaCO₃, twinning dislocation movement 2=4364, 8769
 CaCO₃, twinning kinetics 3=3260
 CaF₂(Eu²⁺), uniaxial stress spectra 3=10943
 CaF₂, "piezospectroscopic" effect in optical spectra 2=23559
 CaF₂:Eu, piezospectroscopic splitting of 5735 Å band 2=16847
 CaF₂ (Sm²⁺) absorpt. spectrum 2=18830
 Cd, ductility, cyclic stress induced, and dislocation 4=10372
 Cd, polycryst., flow under simple shear 4=23130
 CdSe, exciton lines 3=6652
 Co, deformation twins, by tensile loading, -196°C 3=8800
 Co, magnetization 4=17647
 CoFe₂, antiferromagnetic reson., far i.r. 4=13302
 CsI crystals, kinking 2=6723
 Cu alloys, on precipitation 4=20701
 Cu, cold-drawn, tension effect on room-temp. creep 4=28945
 Cu, Cu¹, dislocations from cyclic strains 3=12984
 Cu, dislocation loops, prismatic 3=10671
 Cu, fatigue investigation 3=18213
 Cu, hardening of fractured specimen 4=28940
 Cu, internal energy increase 4=23144
 Cu, long-range back, nature 4=26505
 Cu, precipitation and dissolution, from cell interface migration 4=26549

Stress effects—contd

- Cu, recovery after unidirectional and reverse straining 4=28944
 Cu single crystals, neutron irradiated, effect of prestressing 4=13398
 Cu, work hardening under cyclic straining 3=20737
 Cu, X-ray line profiles 4=23143
 (Cu, Al) system, rel. to ductility 4=23129
 Cu₃Au crystals, strained, frictional stress on dislocations 4=26507
 Cu₃Au, ordered, strain hardening 3=16001
 Cu—Mn, directional ordering, anelastic piezo-resistance 4=12847
 Cu—Ni films, submicroporosity 3=23510
 CuO, absorption spectrum, blue region 3=4971
 Cu₂O, "piezospectroscopic" effect in long wave absorption edge 2=23559
 (Cu, Sn) system, rel. to ductility 4=23129
 Cu—Zn, directional ordering, anelastic piezo-resistance 4=12847
 Fe, b.c.c., ageing and fatigue limit 4=13417
 Fe, crystal dislocation substructure, effect of N, Mn 4=23161
 Fe, ferromagnetic permeability, angle effects 4=13185
 Fe, technical, strain-ageing meas. 4=13415
 Fe wires, small torsion, mag. anisotropy 3=20577
 Fe²⁺ e. s. r. in MgO 4=30736
 Fe—Ni alloys, on magnetic domains 4=10280
 Fe—3%Si, mag. domain structure, effect of compression 3=13263
 GaAs, piezoresistance coeffs. 2=23394
 Ge, acceptor binding energy, strain dependence 2=23343
 Ge, bond bending 4=28305
 p-Ge, breakdown characts. depend. at low temps. 4=22710
 Ge, breakdown, elec., 5.2°K 4=20365
 Ge donor spin-resonance lines 3=10792
 Ge, donor wave-functions 2=8340
 Ge, doped with P, e.s.r. line splitting 3=18131
 Ge, doped with Sb and Ga, piezothermal cond., liq. He temp. 3=10766
 Ge, elastocaloric effect, calc. 3=4832
 Ge, elec. conductivity changes 4=4150
 Ge, impurity cond. in n-type 2=8339
 Ge, magneto-optical effect rel. to strain, 77°K 2=23528
 Ge, magnetoresistance, p-type 4=10053
 Ge, n-type, degenerate, piezoresistance, valley splitting 3=10787
 Ge, n-type, effect of tension on impurity conduction 2=23341
 Ge, p—n junc., on characts. 4=22739
 Ge, p—n juncs., on I—V charact. 4=26072
 Ge p—n junctions, excess current 3=25378
 Ge, piezorefectance 2=18799
 Ge, Sb- and As-doped, conductivity, 1° to 300°K 3=22931
 Ge, Sb-doped, interband tunnelling 3=13095
 Ge, shallow donors, e. s. r. meas. 4=13318
 Ge, thermal cond. increase, 1.5-4.2°K 2=3854
 LiF: hexavalent U, spectral line, splitting 3=8619
 LiF, "piezospectroscopic" effect in optical spectra 2=23559
 LiF, piezospectroscopic splitting of 5698 Å bands 2=16847
 Mg grain boundary cavities, nucleation 3=17773
 Mg single crystals, prestrained, critical stress τ rel. to temp. in 82° to 320°K range 4=30780^B
 MgO, dislocations, rel. to neutron-irrad. 3=18185
 MgO, ²E state of V³⁺, splitting 3=23108
 MgO, rolling contact stresses, plastic deformation 3=23321
 Mn ferrites, effect on hysteresis loop 3=23189
 Mn²⁺ e. s. r. in MgO 4=30736
 Mo, grain boundary cavitation 4=20671
 Mo, stress state type, effect on ductile-to-brittle transition temp. 4=13427
 NaCl, absorption of u.s. 3=15491
 NaCl, CdCl₂-doped, strain ageing 3=16062
 NaCl—BaCl system, disloc. loops 3=17720
 Nb, on Lüders band velocity 4=23193
 Nb, point defects, tensile deform. 2=23151
 Nb₃Sn on Ni superconducting transition temps. 4=11476
 Nb₃Sn, thin surf. layers, rel. to superconductivity 3=1903
 Ni alloys, anhysteretic curves after demag. 3=11061

Stress effects—contd

- Ni containing Pb particles, dihedral angle 4=23533
 Ni, ferromagnetic permeability, angle effects 4=13185
 Ni, rate, effect on yield stress 4=4481
 Ni-steel, u.s. wave velocity 3=6471
 Ni, time decrease of reversible permeability 4=26318
 Ni wires, small torsion, mag. anisotropy 3=20577
 Ni—Cr films, strain sensitivity 3=23514
 Ni—Cr, on type of rupture 3=3239
 Ni—Fe alloys, ordering, strain ageing 3=8775
 Ni(79%)—Fe(17%)—Mo(4%), ferromagnetic permeability, angle effects 4=13185
 Pb, 1.4—77°K 1=12594
 PbS, rel. to electrical conductivity 3=10833
 PbSe, rel. to electrical conductivity 3=10833
 PbTe, rel. to electrical conductivity 3=10833
 SbSn system, rel. to ductility 4=23129
 Si, cond. and valence levels, general strain effects 4=4020
 Si-iron, magnetic texture 3=8663
 Si iron, tension, grain yielding 2=6724
 Si plate, X-ray transmitted diffraction intensity 3=23525
 Si, p—n junction, anisotropic 4=26074
 Si p—n jn., anisotropic, effect on current 4=28584
 Si, p—n junc., on characts. 4=22739
 Si, p—n junc., voltage breakdown lowered 4=22742
 Si reflection peak shift 4=20471
 Si transistor, current gain change 4=28603
 Si, uniaxial strain, on $J = \frac{1}{2}$ valence-band edge 3=4797
 Si, valence band structure and cyclotron res. 3=8414-15
 Si, X-ray diffr. intensity rel. to stress direction 2=21503
 3% Si—Fe, initial mag. curve, tension effects 3=25527
 Si—Fe, on mag. domain struct. 4=22994
 β -Sn, resistive stress for twin thickening 3=25659
 T(Al, Mg, Zn) system, rel. to ductility 4=23129
 Ta, point defects, tensile deform. 2=23151
 Ta—O, directional ordering, anelastic piezo-resistance 4=12847
 Ti alloys, β , phase transform., to martensitic α 4=17771
 W—Co alloys, brittle fracture and surface micro-hardness 2=23780
 Zn, cyclic, ductility and fracture 2=21428
 Zn, discontinuous yielding after prestrain 2=6738
 Zn, fatigued by direct stress 4=7466
 Zn, size effects and microstructure changes 4=13657
 Zn, work hardening and fracture 3=18200

Stress measurement

See Dynamometers; Strain gauges

Stress/strain relations

See also Elastic constants

- aeolotropic circular disk 0=19008
 alkali halide crystals, rel. to annealing, plastic deformation and γ -irradiation 3=22649
 alkali halides, Young's modulus, rel. to plastic deformation 4=1923
 alkali metals, deformation at low temps. 0=16215
 alloys, on structural hardening, theory 4=17714
 anelasticity, formal theory 2=12846
 anisotropic bodies, formulation 0=4560
 anisotropic materials, plastic-elastic correl. 2=14885
 Armco iron, after plastic deformation 2=23743
 axially symmetric body, plastic deformation 2=10751
 b. c. c. polycrystals 4=13374
 bending, beams with non-linear strain function 2=15507
 bending of thin, semi-infinite plate 0=54
 block copolymers 4=13395
 Bordoni peak rel. to Peierls stress 2=16947
 brass, elastic, anelastic and plastic components of uniaxial tensile strain 0=18239
 α -brass, shear, and work hardening, 4.2—500°K 3=20725
 brittle solid, anisotropy due to microcracks 2=14903
 cantilever cylindrical shell, stability under external pressure 0=12387
 condensed thermodynamic theory of linear elasticity 0=4542
 convex shells, elastic deformation, buckling load 0=19012
 crystal, ultrasonic stress/strain wave 2nd harmonic due to dislocation glide 4=28915
 deformation tensor for simple loadings 0=6711
 diamond structure, stability under pressure 2=14873
 discontinuous nature 4=10355
 dislocation hysteresis, theory 3=23306

Stress/strain relations—contd

- elastic, anelastic and plastic components of uniaxial tensile strain 0=18238
 elastic anisotropic, half space, discontinuous temp. field 2=9212
 elastic anisotropic half-space, nucleus of temp. 2=9211
 elastic cylinder strain rel. to thermal effects in plane theory 2=4302
 elasto-plastic body 2=15512
 elasto-plastic deformation of metals 2=4321
 elasto-plasticity, non-linear boundary value problem 3=7154
 epoxy resin in compression up to 6 ton in⁻¹ 3=25440
 extensometer, elongation of elastomers 2=7163
 f. c. c. polycrystalline metals hardening according to Taylor's rule 4=13370
 f. c. c. and rocksalt type, thermal expn. theory, finite strain approach 4=28375
 films, evap., stress meas., apparatus 2=2422
 films, rel. to substrate properties 3=15980
 force nuclei, in elastic solid, internally bounded by spherical hollow 0=19022
 general, in var. strain measures 4=14097
 graphite, during thermal cycling 3=23308
 graphite, irradi. under stress 2=23742
 graphite, pyrolytic, Young's modulus 2=14874
 graphite, reactor grade 2=4316
 graphite, Young's modulus by flexural sonic waves 4=28954
 graphite, Young's modulus, neutron-irradiation effects 4=30599
 rel. to hardening, isotropic, by plastic flow 0=1854
 hysteresis and residual stresses, design of mechanical vibrations 4=7376
 inelastic material behaviour 3=14076
 inside earth, finite deformations 3=13644
 isentropic changes 4=20629
 isotropic nonhomogeneous medium, concentrated time-varying force 2=15519
 linear tensor law, rel. to first-order dislocations 2=21011
 Maxwell 3-D model, rel. to non-linear visco-elasticity 4=23096
 Maxwellian medium, nonlinear boundary value problems 1=15759
 Maxwellian medium, nonlinear boundary value problems 2=1088
 mean deviation of elongation, formula 1=14872
 measures of finite strain, Reiner's equation 1=9088
 measuring system, using shock loading producing uniaxial strain 4=20632
 metal crystals, f.c.c., var. with temp. 0=3144
 metal, f.c.c., plastic deformation 3=11158
 metal foils from rolled material, testing procedure 3=5073
 metal tubes, apparatus with programme facilities 3=18188
 metals and alloys, review 2=8732
 metals, after fast neutron doses 3=20717
 metals, b.c.c., friction-stress and yield point 3=8765
 metals, b. c. c., vector eqns. 4=13377
 metals, couple on cylinder for strains beyond elastic limit 4=13375
 metals, f.c.c., zone refining effect 4=26495
 metals, hardening, contrib. of jogs 2=6337
 metals, irradi., rel. to hardening 4=30587
 metals, at liquid helium temperatures 0=6293
 metals, at low-temps. 0=19577
 metals, mechanical model 2=12839
 metals, in plastic extension, exponential eqn. 2=21425
 metals, polycrystalline b.c.c., temp. effects on curves 1=10209
 metals, polycrystalline f.c.c., temp. effects on curves 1=10209
 metals, strain-rate sensitivity from conical indentation 1=14925
 metals, temp. and strain rate depend. 4=13369
 metals, yield plateau, deformation processes 3=5062
 metals, Young's modulus, meas. method, 100°-430°K 4=30746
 microscopic specimens 0=4548
 moduli, u. s. meas. to 1000°K 4=30745
 nonlinear bodies, eqns. in tensor-invariant form 1=3966
 nonlinear theory for dislocations 2=14875
 oxide films on metals, meas. method 4=23128
 p. v. c., high sine deformation freq. and temp. var. 4=17741

Stress/strain relations—contd

particle assemblies, stress—dilatancy relation 3=1363
 plane frame, rigid-plastic deformation 3=21272
 plane stress, theory 2=2661
 plastic bending plane in tensile deformation of metallic single crystals 1=10217
 plastic deformation, stress relaxation times 0=698
 plastic strain, plane, perturbation analysis 2=6734
 polycrystals, microstrains, use of coordinates 4=15687
 polyisobutylene, dynamic shear behaviour, effect of pressure 0=18249
 polyisobutylene, thixotropy, 4=23197
 polymers, amorphous, network structure model 1=7823
 polymers, effect of second-order transition 1=7879
 polymers, liquid 3=21351
 polymethylmethacrylate 0=8117
 polymethyl methacrylate, theory 4=13439
 polyvinylacetate 0=8117
 powders, liquid filled 3=11737
 Prandtl-Reuss plastic and Maxwell viscoelastic bodies 4=23095
 pseudoplastic flow region 3=18198
 pure shear stress and strain states in second-order thermoelasticity 4=26462
 rare earth ferromagnets, Young's modulus anomalies 4.2°-300°K 4=23200
 residual, photoelastic study method 1=11724
 rigid/plastic solids, constitutive laws 2=10741
 rock-salt struct. crystals, rel. to slip effect strain-hardening 4=23105
 rubber 0=3160
 rubbers, filled and unfilled 0=8108
 rubber, high sine deformation, freq. and temp. var. 4=17741
 rubber hydrochloride, crvst., stress relax. 3=1133
 rubber, natural, application of three-parameter stress function 1=14866
 rubber, in simple two-dim. shear, meas. 4=7451
 rubber-strip bending, force—displacement curve 4=7368
 rubber vulcanizates, during aging 1=2505
 SBR rubber, stress relaxation, at large strains 0=18244
 SRB rubber, ultimate props., time and temp. depend. 0=21123
 Schwartz's algorithm, use in calcs. 1=10456
 Schwartz's algorithm, use in calcs. 1=5240
 semi-rigid materials, extensometer meas. 0=8584
 shell with double curvature, Green's tensor for equb. problem 0=12388
 shells of medium thickness 0=3472
 shells, nonlinear theory under Kirchoff hypothesis 3=21270
 and shock wave plane propagation 4=21223
 single crystals, yield points and delay times 2=18994
 solid, with dislocations, rel. to elastic wave decay 4=23092
 solid, isotropic incompressible elastic 3=9378
 solid solns., ferromag. cubic, ΔE effect, weak field behaviour 2=12786
 solid surface, analysis by differential geometry 3=21271
 solids, finite strain, theory 3=20705
 solids, models, wide class, determination 3=18173
 stability in linear visco-elastic region 0=8576-7
 steel beams, cyclic overloading 0=14563
 steel, hard, stress—strain curve derivation, theory 4=23100
 steel, low C, strain ageing 0=16345
 steel, low C, stress induced ordering and strain ageing 0=16220
 steel, low-cycle fatigue behaviour 3=20753
 steel, mild, rel. to delay time and yield stress 3=1221
 steel, polycrystalline, contraction-ratio curves 4=7458
 steel, torsional pre-strain effects 4=7459
 steels, low-C, Lüders front propag. meas. 3=1225
 strain meas., optical diff. method 4=15690
 strain rate, neutron irradi. effects 3=13018
 stress depend. of dislocation vel. 3=13341
 stress dependence of dislocation velocity 4=28457
 stress and elastic and plastic strains under impulsive loading 4=24125
 stress—strain curve derivation, theory 4=23100
 string, large amplitude motion 0=116
 strip, infinite 3=5393
 suspensions, max. shear stress for particles with dipole moment 2=15164
 system of interacting particles, concept definitions 2=17388

Stress/strain relations—contd

tensile, rel. to Bauschinger effect, Taylor's model 1=20320
 tensile testing machine adapted for strain birefringence meas. 1=7703
 tensor in deformation region 4=27128
 tensor, invariant parameters 3=13324
 thermal stress analysis 0=8574
 thermodynamic theory, nonhydrostatically stressed solids 2=6719
 thermoelastic bodies, uneven temp. distrib. terms 0=4970
 thermoelastic, nonlinear 2=11308
 time-dependent tensile strength of solids 0=11983
 tin bronze alloys, repeated yielding 3=23327
 tube, thin-walled, with residual stresses 1=3976
 uniqueness in general boundary-value problems 1=15758
 viscoelastic model for dynamic problems 2=19484
 wedge with given boundary stresses, elasticity theory 0=12386
 in work hardening of isotropic media 0=6321
 work-softening, crystals of Zn, Al 2=2328
 yarns, fine, stress—strain curve, determ. by machine 4=15688
 zinc blende structure, stability under pressure 2=14873
 Ag, films, 35-50 μ , 100-300°C 3=6783
 Ag, polycrystalline, rel. to flow stress law validity 4=23203
 Ag single crystals 4=28921
 Ag single crystals, (111) and (100), curves 4=30764
 Ag, in torsional deform., work-hardening data 4=7389
 Ag, Young's modulus change and recovery at low temp. 2=10744
 Ag-Al alloy, single crystals, temp. depend. 0=21133
 Ag-10% Au alloy, (111) and (100) crystals, curves 4=30764
 Ag-Zn alloy, in tension and shear 3=15986
 Al 4=1926
 Al and Al alloy V-95, 1.6-300°K 0=1867
 Al and Al alloys, rel. to deformation resist. 4=28931
 Al alloy, plastic deformation, effect on yield condition 4=26490
 Al alloys, with Cu, Ag, Zn, solute clustering effects 0=16347
 Al alloys, low-cycle fatigue behaviour 3=20753
 Al, rel. to Bauschinger effect and dislocation arrangements 3=17746
 Al, cyclic work hardening, Bauschinger effect 3=20738
 Al, discontinuities rel. to grain size and surf. conditions 4=23118
 Al, dynamic, meas. 2=21416
 Al, dynamic, up to 22 kb 4=15700
 Al, effect of torsion 0=16201
 Al, fatigue, tension—compression 3=11139
 Al, hysteresis loop, torsional fatigue 3=25609
 Al, macrocrystalline 0=1867
 Al mono- and polycrystals, comparison 1=3975
 Al, 1.3°K, more discontinuities at higher rates 4=20640
 Al, 1.4°-77°K 1=12594
 Al+1.7% Cu alloy 1=20602
 Al, polycrystalline, 90-300°K 3=3230
 Al, polycrystalline, work-softening effect 0=4562
 Al, from propagation of compression waves 0=5076
 Al, quench hardened 0=4570
 Al, at room and low temp. 0=13915
 Al, single crystal and polycrystalline 0=4556
 Al single crystals, shear stress, up to m.p. 4=1924
 Al single crystals, (111) and (100), curves 4=30764
 Al(6061-T6), rel. to unloading behaviour 4=23119
 Al, strain-cycled, hysteresis 3=20752
 Al, 24°C 3=13340
 Al wires, tensile, and recrystallization and polygonization 4=1925
 Al and work hardening mechanisms, dislocations 4=7408
 Al, Cu, Ni at high temp., rel. to structural changes 2=2320
 Al-(4%)Cu, rel. to dislocation—decomposition product interaction 3=23305
 Al-Mg and work hardening mechanisms, dislocations 4=7408
 Al₂O₃ films on Al, 1500 Å thick 4=23128
 Au, evap. thin films 0=10331
 Au films, rel. to internal state 4=23577
 Au films, vac. deposited, 2000-50 000 Å 4=23575
 Au single crystals, (111) and (100), curves 4=30764
 Be, ductility, improvement, above 300°C, and crack-growth 4=10371

Stress/strain relations

- Be sheet, variation of results 2=12845
 Be, tensile, neutron effects at high temps. 4=4092
 BeO, fracture stress/lattice strain, radiation effects 4=13394
 Cd, after plastic deformation 2=23743
 Cd, hardening by strain cycling 3=13372
 Cd, polycryst., strength and ductility 3=15994
 Co, shear 4=7426
 Cr, ductility transition temp., impurity effects 4=7424
 Cr, Young's modulus and damping, 90° to 480°K 3=25604
 Cs, 1.4-77°K 1=12594
 CsI crystals, kinking rel. to temp. 2=6723
 Cu, annealed, plastic wave theory 2=18988
 Cu, rel. to dislocations 3=22788
 Cu, dynamic, meas. 2=21416
 Cu, elastic, anelastic and plastic components of uniaxial tensile strain 0=18238
 Cu, rel. to elongated dislocation loops 3=2805
 Cu, films, 35-50μ, 100-300°C 3=6783
 Cu foil crystals 4=1936-7
 Cu foils, from rolled Cu 3=5073
 Cu, high press., effect of pores 4=23146
 Cu, latent hardening of cross-slip system 4=26503
 Cu, rel. to low-temp. twinning 2=8772
 Cu, n-irrad, microstrain yield stress 4=28942
 Cu, neutron irrad., strain rate depend. of flow stress 3=20719
 Cu, polycryst., torsion studies 4=28943
 Cu, polycrystalline, rel. to flow stress law validity 4=23203
 Cu, polycrystalline, 90-300°K 3=3230
 Cu, serrations and bump on curve, rel. to irrad. recovery 3=22751
 Cu, shear, and work hardening, 4.2-500°K 3=20725
 Cu, and strain distrib. in neck of tensile specimen, expt. analysis 4=23142
 Cu, using strain resolution of order 10⁻⁹ 4=10375
 Cu, rel. to work hardening 3=23344
 Cu, yield stress, vacancy cluster effects 3=25618
 Cu, Young's modulus change and recovery at low temp. 2=10744
 Cu-4% Ag alloy, Hg-embrittled, equivalent roles of precipitate and grain boundary in fracture process 4=30774
 Cu(78)-Al(14)-Ni(8), increased strain on martensitic transforms. 4=20702
 Cu-Au single crystals, stress-corrosion cracking 4=28949
 Cu₃Au, plastically deformed, rel. to dislocation configurations 4=17729
 Cu-Si-(Mn) alloys, yield stress rel. to deformation and annealing 3=22701
 Cu-Sn solids solns., strain ageing 3=23346
 Cu-Zn, low-temp., rel. to twinning 2=8772
 Fe, α-phase, effect of sudden change of strain rate 4=13414
 Fe, diagrams, rel. to grain size 4=20661
 Fe, effect of neutron irrad. and temp. 3=11168
 Fe, rel. to fast neutron irrad., 4⁰-300°K 3=8759
 Fe, low C content, time-depend. props. 3=15992
 Fe, polycrystalline, upper yield stress 4=10383
 Fe, thermal activation of yielding 2=10743
 α-Fe, yield plateau on addition of B 3=13357
 Fe-Ni alloys, Invar type, ΔE-effect, rel. to structure and third alloying element 4=23166
 Fe, 1.4-77°K 1=12594
 Fe (0.017% Ni, 0.004% C, 0.005% N) H yield point 2=21420
 Fe-Co alloys, Young's modulus rel. to magnetization and composition 1=20302
 Fe-Si(3.25%), and fracture, dislocation movement 4=20664
 Ge, compression of monocrystals rel. to dislocations 2=21031
 Ge, compression of monocrystals, rel. to dislocations 3=6516
 Ge monocrystals, rel. to temp. and strain rate 1=14864
 Ge monocrystals, rel. to temp. and strain rate 1=20319
 Hg, 1.4-77°K 1=12594
 K, 4.2-195°K 0=1850
 Li, 1.4-77°K 1=12594
 LiF 2=2317
 LiF, effect of surface condition 0=21096

Stress/strain relations — contd

- LiF, polycryst., meas. up to 500°C 4=23172
 Mg monocrystals, at low temps. 1=1314
 MgO, single crystals 0=8119
 Mo polycrystals under ultra-high vacuum, tensile behaviour 4=20672
 Mo, yield stress parameters det. 3=6782
 Na, 4.2-195°K 0=1850
 Na, 1.4-77°K 1=12594
 NaCl 3=17762
 NaCl, rel. to dislocation density, bulk density and deformation 4=30786
 Nb, polycrystalline, and microstraining 4=23192
 Ni, cube-texture 4=26521
 Ni, discontinuities, temp. rate, var. 4=20675
 Ni, macroscopic strength inhomogeneity 0=6307
 Ni, 1.4-77°K 1=12594
 Ni, polycrystalline, rel. to flow stress law validity 4=23203
 Ni, strain-ageing meas. 4=13433
 Ni, stress-strain curves, strain-ageing meas. 4=13433
 Ni, in torsional deform., work-hardening data 4=7389
 Ni, yield point rel. to strain ageing 3=13350
 Ni-Cr base-alloy, heat treatment effect 3=18351
 Pb, rel. to deformation resist. 4=28931
 Si, moduli rel. to hydrostatic press., 25.0° and -195.8°K 4=23202
 SiO films, stress anisotropy rel. to prep. 3=11144
 Sn, polycrystalline, diagram, position of jumps 3=3218
 Ta, after plastic deformation 2=23743
 Ta, and dislocation var. with plastic deform., effects of temp., struct. 4=28985
 Te, single crystals 1=20365
 TiC-WC-Co alloys, rel. to structure 3=18184
 U, 1.4-77°K 1=12594
 α-U, tensile, brittle-ductile transition temp., effect of grain shape 4=7463
 W, heat treatment temp. effects 3=23307
 W, Young's modulus rel. to recovery after work hardening 3=11174
 Zn, crit. resolved shear stress, rel. to impurities 2=2318
 Zn, rel. to irradiations 3=18174
 Zn, nonelastic strain recovery 3=8776
 Zn, and recrystallization, polygonization 4=7519
 Zn single crystals 4=28991

Stresses, internal

- alkali halide crystals, reversible plastic-flow stress changes on illumination 4=13392
 alloys, ordering, strengthening mechanisms, dislocation movement 4=22582
 alloys, relaxation stability, binding forces and lattice distortions 2=23744
 anisotropic bodies, due to dislocations 3=5063
 Armco iron, oriented microstresses, X-ray study 4=23213
 axially symmetric, due to penny-shaped cracks 2=6726
 bar, vibrating, probability distribution of extrema 1=1778
 brass, α-, microscopic strain distrib. 3=6799
 α-brass, creep and stress relaxation 1=6463
 carbides, sintered, x-ray meas. 3=25619
 concentrations, dynamic 1=8176
 corundum, annealing boules 1=20324
 corundum crystals, acting perp. to optic axes 0=13543
 crystalline overgrowths, residual strains 3=3278
 crystals, anisotropic defects, stress-induced alignment 2=3914
 crystals, fluctuation of parameters 0=4957
 crystals, formation during growth 4=30815
 crystals, rel. to n.q.r., tensors 3=3206
 crystals, thermal strain 1=17427
 about cut, in elastic body 3=18216
 cylinder, circular, under torsion, stresses around spherical inclusion on axis 0=19020
 cylinder, thermoelastic stresses 2=1095
 cylindrical clad fuel elements, thermal stresses 0=12989
 diamond, rel. to birefringence 4=10213
 diamond, due to crystal distortion during growth 3=25285
 digenite (Cu₂-S), due to crystal distortion during growth 3=25285
 dislocation kinks and jogs, dilatational stress field 2=23188
 dislocation multipoles and strain-hardening 4=25936
 dislocation stress fields due to elastic anisotropy 3=10661

Stresses, internal—contd

dislocation wall, compound tilt, rel. to elastic props. 4=20633
 dislocations, moving, continuous distrib. 3=15492
 due to dislocations, periodic distrib., use for stress field calc. 4=25931
 due to interactions between particles of a solid, calc. 4=17716
 domains, maze-like structure 2=18906
 edge dislocation, surrounding elastic field 4=9958
 around edge dislocations 1=3664
 effect on domain structure 2=741
 effect on elastic stiffness 3=7157
 elastic body, with cylindrical hole at const. temp. 0=6706
 elastic body, with uneven temp. distrib. 0=4970
 elastic inclusions, diffraction contrast theory 4=4643
 elastic layer with varying Young's modulus 2=1090
 elastic stress around linear dislocation 1=17530
 electrolytic coatings 1=20323
 electrolytic coating, meas. of residual stresses 3=15983
 electron diffr. contrast by coherency strains 4=7661
 ellipsoidal inclusion in elastic solid, elastic field outside 0=10625
 elliptical rigid inclusion in elastic solid, theory 0=8125
 ferromagnetic films, rel. to mag. anisotropy 2=12778
 ferromagnetic films, planar stress determ. 2=12680
 field caused by slid crystal at free surface 4=1918
 films, solid, vacuum deposition control 3=13566
 films, study of stresses of second type 1=1451
 films, vac. deposited, meas. probe 3=16142
 friction-induced shear, pressure influence 1=9098
 glass, infinite plate, tempering stresses 2=793
 glass to metal tube seals 0=19006
 glass plate, photoelastic meas. 1=11725
 glass, quenched in liquids 3=15984
 glass, relaxation during stabilization 4=4679
 glass, relaxation, effect in viscosity meas. 4=4681
 glass, spiral defects at torque stresses 2=2418
 graphite, during thermal cycling 3=23308
 h.c.p. crystals, subsidiary glide systems, stress distrib. 4=1919
 impacted notched beams, dynamic stress conditions 1=11720
 inclusion, elliptic, in orthotropic medium 4=18131
 laminated inf. elastic media, applic. to magnetostriction 0=8046
 materials during ultrasonic machining 4=2756
 measurement using X-ray back-reflection technique 2=4318
 measurement using X-rays, error sources 4=23098
 mechanical resonance dispersion, plastic flow in crystalline solids 0=18252
 mechanism, in soft mechanical testing machines 1=14892
 metal foils, electron diffr. contrast microscopy 3=20702
 metals, b.c.c., yield and flow stress, temp. effect 0=21109
 metals, effect of cyclic strain 3=13345
 metals, at initial stage of plastic deformation 1=14875
 metals, non-uniformity, effect on slow fracture 1=14912
 metals, due to plastic deformation 0=10263
 metals and plastics, creep and rupture, parameters 3=8761
 metals, relaxation stability, binding forces and lattice distortions 2=23744
 moon, theory rel. to surface obs. 2=4739
 noble metals, stack fault tetrahedra, effects 3=12994
 nonlinear theory for dislocations 2=14875
 nonuniform stress fields, rel. to linear dislocations 3=795
 Peierls stress, rel. to slowly moving dislocations, velocity 1=19774
 Permalloy films, isotropic stress meas. 2=12679
 piezoelectric rotating disk 2=16795
 planet, gravitating, non-hydrostatic stresses 1=18037
 plastic flow, crystals, ionic, effect of metal impurity distrib., heat treatment 4=4486
 plate, thick, with rigidity varying exponentially with depth, torsional stresses 0=19021
 polycrystalline aggregate, distorted, strain determ. from X-ray line broadening 4=26685
 polycrystalline materials, microstructural strains due to thermal anisotropy 2=2088
 polymer solutions, in steady flow 0=3497
 polyvinyl chloride, appearance of surface cracks 0=10273
 porcelain, arising during cooling 4=26699

Stresses, internal—contd

with precipitates growth, dislocation formation 0=20825
 quartz crystals, vibrating internal displacements, by X-ray diffr. 3=15982
 reactor fuel elements, thermoelastic dynamics 2=8049
 reactor fuel rod in elastic-plastic deformation 1=1310
 relaxation, in crystallization of very viscous liquids 1=11535
 relaxation, in crystallization of very viscous liquids 1=14962
 residual, coherence length, calc. from X-ray interf. data 4=30749
 residual, in electrodeposited coatings, X-ray determ. 4=23181
 rocks, in wave attenuation, analysis 3=14254
 rocksalt, plastically deformed, residual stress distrib. 1=12396
 rubber, stresses at cracks 1=6479
 screw dislocations in cylind. specimens, theory 4=6844
 semi-infinite solid, plastically deformed by circular punch 1=6459
 shaft with transverse hole, bending stresses 1=11721
 shear, meas. at high pressure 4=17717
 silicide layers on Mo, cracks due to stresses 4=7704
 single crystals, residual stress distrib., rel. to heat treatment 4=10358
 soda-lime-silica glass torsional, relaxation 4=4680
 solids, cooling processes 2=6296
 solids, strain amplitude of Mc/s u.s. waves 4=26466
 sphalerite, due to crystal distortion during growth 3=25285
 spinodal decomposition, due to 4=7395
 steel, on diffusion of Al, Cr, Ti, B or C, tensile and compressive 4=1952
 steel, hair-line crack formation 3=3241
 steel lattice, residual, on plastic deformation, X-ray diffr. meas. 3=18180
 steel, macrostructure meas. 1=3967
 steel, mild, relation to mag. permeability and hysteresis 3=23301
 steel, notched rods, rel. to creep and fracture 1=12589
 steel, oriented microstresses, X-ray study 4=23213
 steel, plastically deformed, very large stresses 4=23143
 steel, residual stresses, after deformation in yield plateau region 3=20712
 steel, X-ray studies 1=1306
 steels, 0.01-1.25%C, Cr K α X-ray meas., reliability 3=13346
 strain ageing, rel. to impurity precip. at dislocations 2=6339-40
 stress tensor, relaxation, thermodynamic calc. 1=7818
 superconducting films, effect on transition temp. 1=18715
 thermal, in crystallizing ingot 4=115
 thermal, in metallic crystals, cubic symmetry 3=20112
 thermal stresses in crystals 0=17889
 thermal stresses, graphitization in polycrystalline C 1=11202
 thermal stresses, hollow cylinders of finite length 0=14561
 due to thermoelastic strain in elastic solid 3=23809
 III-V cpds., rel. to bonding on A surfaces 3=3219
 total rupture of elastic medium 0=699
 transparent objects, instantaneous or cyclic, meas. method 4=10357
 transverse crack, due to 3=21275
 tubes, elastic-plastic thermal stresses under heat generation 1=20341
 two-phase systems, from transition temp. change 4=23099
 uniform biaxial tensile stress field, prod. of 4=1911
 Vicalloy II, rel. to mag. hardness 3=1139
 X-ray diffraction line shift determination 1=11556
 X-ray meas., interference line analysis 3=20704
 AgCl, at kink bands 2=23762
 Ag and Fe effect on self-diffusion 1=10J12
 Al alloy, plastically deformed, very large stresses 4=23143
 Al, bending stresses at grain boundaries 3=18177
 Al, effect of cyclic strain 3=13345
 Al single crystals, yield stress var. with specimen dia. 4=30762
 Al₂O₃ films on Al, 1500 Å thick 4=23128
 Al-Zn alloys, stress relaxation induced by phase transformations 4=17725
 BaNb₂O₈-PbNb₂O₈ 4=1909
 BaTiO₃ 4=1909

Stresses, internal—contd

- BaTiO₃—CaTiO₃ 4=1909
 BaTiO₃—CaTiO₃—CoCO₃ 4=1909
 Be, asterism in Laue photographs, glide elements 2=4317
 Be bronze, abnormal stress relaxation 4=7413
 CdTe rel. to excitons and band splitting 1=17724
 Co, polycryst., stored energy and dislocations 3=11159
 Cu crystals, flow stress after neutron irradiation 3=20719
 Cu, plastically deformed, very large stresses 4=23143
 Cu, tension strain, rel. to wide stacking faults 2=599
 Cu, yield stress 4=23142
 Cu, yield stress rel. to microstresses 4=23138
 Cu₃Au crystals, strained, frictional stress on dislocations 4=26507
 Cu—Co alloy, coherency strains around precipitates 3=1222
 Cu—Sn alloy, relax., in reverse martensite transition 4=7491
 Fe, films, microstresses 4=26696
 Fe, lattice, residual, on plastic deformation, X-ray diffraction meas. 3=18180
 Fe; plastically deformed, temp. depend. 4=17734
 Fe powder, effect on Fe⁵⁷ n.m.r. resonance 2=2307
 Fe—Al alloy, yield and critical shear stress rel. to quenching 2=6715
 Fe—Si single crystals, crack propagation 3=13379
 GaAs doped with Se, Te, Zn and Cd 4=26045
 Ge, dislocation distribution, photoelastic study 1=20321
 Ge, microhardness meas., indentation microstructure 1=20362
 Ge, microhardness meas., indentation microstructure 2=8737
 Ge, rel. to photoelastic consts. 2=8483
 Ge, screw dislocation, electron states produced 2=14538
 Ge, vacancies, theory 3=22754
 In films, effect on superconduct. transition temp. 1=18715
 InSb, elastic strain energy 3=3219
 KCl crystals, reversible plastic-flow stress changes on illumination 4=13392
 KCl, due to X-rays, rel. to intensity 3=6545
 LiF films, meas. during deposition 3=16142
 LiF, relaxation during annealing 4=23173
 LiF, slip planes, intersecting, surrounding strain fields 4=9972
 Mg, relaxation, dislocation processes 3=23310
 Mg, Cd, flow stress 4=23176
 MgO:Cr, strain effects on fluorescence line 1=9007
 Mo, plastically deformed, temp. depend. 4=17734
 NaCl, growth stresses, generation and removal 0=16366
 Nb, polycrystalline, yield stress 4=23192
 Nb, yield and flow stress meas., 4.2 — 373°K, and thermally activated flow mechanism 4=28970-1
 Ni, drawn, stress in surface layer, X-ray study 1=9089
 Ni and ferromagnetic remanence/saturation mag. ratio, wire, —180 to +100°C 3=23160
 Ni, films, evaporated, single-crystal, effect on magnetic props. 3=13344
 Ni, films, microstresses 4=26696
 Ni, residual, in electrodeposited coatings, X-ray determination 4=23181
 Ni—liquid Pb system, interfacial tensions, effect of temp. and pressure 4=15724
 Ni—Co alloys, rel. to ferromagnetic domain patterns 3=18079
 Ni—Fe films, rel. to magnetization direction 3=20595
 Pb, deformed, analysis by X-ray diffraction 3=20704
 Pb films on substrates with low thermal expansion 4=4669
 Pb_{0.95}Sr_{0.05}(Zr_{0.83}Ti_{0.17})O₃—Ta₂O₅ 4=1909
 Sb films, evaporated 3=20701
 Si, around dislocations, observations 2=6725
 Si bonded wafers, residual thermoelastic stresses 1=5085
 Si, discrete stresses around dislocations 2=23177
 Si, discrete stresses around dislocations 3=6518
 Si iron, slip system critical shear stress 4=23169
 Si, microstrains at B impurities, in dislocation-free crystals 3=15486
 Si, rel. to photoelastic consts. 2=8483
 SiO₂ evap. films, effect of exposure to air 3=1365
 SiO₂ sublimated films, residual stresses 3=11146
 SiO₂, vitreous, due to neutron irradiation 3=4899
 Sn—Te—Al ternary alloys, effect of additives 0=18261
 Sn—Te—Zn ternary alloys, effect of additives 0=18261
 Ta; plastically deformed, temp. depend. 4=17734
 Ta, yield and flow stress meas., 4.2 — 373°K, and thermally activated flow mechanism 4=28970-1

Stresses, internal—contd

- UO₂, due to crystal distortion during growth 3=25285
 V, yield and flow stress meas., 4.2 — 373°K, and thermally activated flow mechanism 4=28970-1
 YFe garnet, strain in crystals, resonance and optical study 1=14865
 Zn, critical resolved shear stress, rel. to impurities 2=23745
- Stroboscopes**
 for electronic circuits, using Hall effect generators 2=2967
 light source, stroboscopic 3=18976
 measurement of small-amplitude mechanical vibrations 2=2803
 ripple tank 1=4231
 stroboscopic photography with linear accelerator 0=6958
 tachometers, for strobe photography 3=3905
 variable phase, with light modulation by u.s. diffraction 0=5181
 velocity meas., bullet, teaching demonstration 3=21286
- Strontium**
 adsorption, atomic, in polycrystalline W 1=20694
 adsorption on W, effect on work function 2=1478
 atom, first excited state, oscillation strength from lifetime 4=6469
 atom, first ¹P₁ state lifetime meas. 4=19968
 atom, h.f.s., splitting of 5s5p³P₁ state 3=24842
 atom, ¹S—¹P excitation, correlation effects calc. 4=9624
 atom, spectrum, resonance lines, oscillator strengths meas. 2=10209
 atomic beams, surface ionization, from W 3=24226
 atoms, principal spectrum, oscillator strengths 2=14200
 atoms, u.v. absorption spectrum 2=14190
 compressed, interatomic separation 0=20721
 crystal structure, above 35 kbar, rel. to Yb 4=4624
 damping capacity, shear modulus of elasticity 3=1216
 deuteron scattering, 11.8 MeV, elastic and inelastic 3=17490
 electrical resist., effect of temp. and pressure 3=25323
 enamel (Sr⁹⁰) source of bremsstrahlung 1=16742
 excitation and ionization in solar flares and prominences 2=15355
 film on W, Mo, Ta, work function variation 2=1474
 flame resonance lines, optical cross-sections 1=8815
 impurity in KCl, effect on dielectric losses 1=1128
 isotopic composition, spectral determination 0=13418
 lattice parameters, 10°–300°K, rel. to mag. structure 4=4626
 phase diagram, molten—b.c.c.—f.c.c. 4=4505
 positive ions, 5–25 keV, sputtering of Cu 1=8363
 resonance lines, broadening, by various perturbing gases under flame conditions 4=12375
 in stars, high abundance 3=18641
 uptake by glass and polythene 4=2154
 vapour pressure and heat of sublimation 4=8523
 Sr²⁺ influence on NO₂ u.v. spectrum in ionic melts 2=15593
 Sr II spectral lines, oscillator strengths 1=13954
 Sr⁸⁷/Sr⁸⁶ isotope ratio from limestone 2=20761
 Sr^{88,90}, yield from neutron fission of U²³⁵ 2=3635
 Sr⁹⁰, in milk and rainwater, Mexico 4=25347
 Sr⁹⁰, in oceans, vertical distribution 4=2183
 Sr⁹⁰—Y⁹⁰ beta sources 2=5620
 on W, adsorbed layer migration 4=23611
- Strontium compounds**
 acetate, in solution, dissociation rate, from u.s. absorption errata 3=5439
 binary phosphate glasses, properties 0=21216
 effect of compounds on Sr line intensities of flame spectra 0=4174
 extraction from reactor fission products 0=4719
 ferrite, temp. dependence of magnetization 1=11449
 ferrites, Ba and Sr mixed, magnetic energy, magnetization and coercive forces 3=13279
 fluoride, Mn-activated, correlation of luminescence with e.s.r. 4=26411
 oxide, as cathode coating, emission properties 1=18911
 Ba—Sr titanate, use for dielectric bolometers 1=4499
 SF₆ formation by inelastically scattered electrons 3=12068
 Sr acetate, aq., dissociation on u.s. absorption 2=13334
 Sr borates, atomic crystal structures 4=15787
 Sr cyanoplatinate, as γ -scintillator 3=6668
 Sr ferrite, modified, new permanent magnet material 3=15881

Strontium compounds—contd

- Sr ferrite, powder, single-domain magnetic props. 3=15880
- Sr ferrite, susceptibility, temp. -depend., above Curie pt. 4=15656
- Sr formate, simple and dihydrate, elastic and thermo-elastic props. 3=23281
- Sr, i.r. reflection and transmission spectra 4=26184
- Sr magnesium phosphate: Sn, luminescence 2=14713
- Sr metaniobate in Na niobate, dielec. and piezoelec. props. 0=630
- Sr meta-antimonate luminescence rel. to impurities 2=8558
- Sr molybdate crystals, refractive index 3=13150
- Sr nitrate, infrared spectra 2=6580
- Sr nitrate, photoelastic consts. in presence of axial tilt det. 1=19953
- Sr perovskites, complex, small distortions, X-ray study 4=9963
- Sr sulphate, surface energy of 100 faces, calc. 4=20178
- Sr titanate, rel. to use in dielec. parametric amplifier 4=24828
- Sr titanate, i.r. transmittance, -187°C to 26°C 1=14571
- Sr titanates, dielectric properties rel. to neutron irradiation 1=12475
- SrAl₃, hot-hardness 2=2337
- Sr-B phosphors, luminescence kinetics 3=10993
- SrB₆, semiconducting props. and electron requirements 3=8330
- Sr(B_{0.33}Nb_{0.67})O₃, B' any divalent metal, crystal structure 4=4619
- SrB₂O₄·4H₂O, crystal structure, atomic 4=29141
- (Sr, Ba)Nb₂O₆, ferroelec. props. rel. to structure 0=8217
- (Sr-Ba) TiO₃ ceramics, permittivity and field factor 2=670
- Sr-Bi titanates, complex permittivity, temp. depend. 0=16025
- Sr-Bi titanates, ferroelec. props. 1=3802
- Sr-Bi titanates, phase transformations, rel. to ferroelec. props 3=25653
- SrBi₃, superconducting, crystal structure 2=10905
- SrBr₂, crystal structure, atomic 4=13604
- SrCl₂, aq., Soret effect at 25°C 2=7200
- SrCl₂ ionic melt, electromigration 790° - 1060°C 2=15144
- SrCO₃, aragonite structure, out-of-plane bending of the CO₃ ion 3=25189
- SrCO₃, crystal structure, effect of neutron irradiation 4=26564
- Sr(CO)₃, Raman spectrum 0=2946
- (Sr_{0.76}Ca_{0.24})(Ti_{0.76}Sn_{0.24})O₃, anomalous polarization and discharge currents 3=13120
- SrCl₂, e.s.r. of Mn²⁺ 1=14802
- SrCl₂, e.s.r. of Mn²⁺, Gd³⁺, and Eu²⁺ 0=3132
- SrCl₂, optical pumping of Eu²⁺ 0=1829
- SrCl₂, phase transformations, heat of fusion 4=8501
- SrCl₂·6H₂O, Mn²⁺ impurities 4=1467
- SrCl₂·Mn²⁺ e.s.r. line intensities ang. depend. 4=26410
- SrCl₂:Sm²⁺, absorpt. and fluoresc. spectra 3=13204
- SrD, near u.v. absorption bands 3=25106
- SrF₂, capture levels and recomb. nature of thermoluminesc. 4=28728
- SrF₂, cohesive and surface energies calc. 2=6245
- SrF₂, coloration spectra 3=2837
- SrF₂, colour centres 2=3958
- SrF₂, coloured and uncoloured, absorption bands, model 2=3957
- SrF₂, crystal growth, Czochralski method 1=14990
- SrF₂, crystal internal charge compensation by interstitial F⁻, e.s.r. obs. 4=22460
- SrF₂ crystals, transparency 2=6555
- SrF₂, decomposition, electron irradiation, in micro-scope 3=21004
- SrF₂ doped with 1% Dy³⁺, fluorescence excitation by two-photon absorpt. 4=17599
- SrF₂, e.s.r. of Gd³⁺, effects of heat treatment, hydrolysis 4=1877
- SrF₂, e.s.r. of Gd³⁺, meas. analysis 4=4407
- SrF₂, e.s.r. of U⁴⁺, charge compensation 3=3180
- SrF₂, electrolytic colouring, colour centres 2=21078
- SrF₂, Er³⁺ and Yb³⁺ absorption and luminescence spectra 3=3000
- SrF₂, Eu²⁺ e.s.r. 4=1874
- SrF₂, Eu²⁺, Sm³⁺ impurities, electron phototransfer 3=951
- SrF₂, fusion, heat and entropy meas. 2=9463

Strontium compounds—contd

- SrF₂, growth of highly-perfect single crystals for masers, 3=23397
- SrF₂, i.r. reflectivity and transmission 2=21236
- SrF₂, luminescence spectra 0=10066
- SrF₂, luminescence spectra 1=2455
- SrF₂, Mn diffusion, by e.s.r. 2=10409
- SrF₂ photoelectric emission yield for 1.54-13.3 Å X-rays 1=13109
- SrF₂, photoelectron emission 1=13108
- SrF₂, photoelectron yield from soft X-rays 1=2990
- SrF₂, pure, annealed in O₂ and air, optical absorption 4=12787
- SrF₂, refl. coeff. rel. to refr. index and absorpt. coeff., 23.6-113 Å 4=22846
- SrF₂, Raman, fluorescence and absorption spectra 4=17582
- SrF₂, single crystals, coloration spectra 1=19808
- SrF₂, surface energy of {110} face 3=22632
- SrF₂, U-activated, luminescence; "relaxation spectra" 3=3035
- SrF₂, U^{3+,4+} e.s.r. 4=26438
- SrF₂, U⁴⁺ e.s.r. and charge compensation 4=26439
- SrF₂·BaF₂ single crystals, optical transmission 2=690
- SrF₂:Er, i.r. quantum counter action 4=22872
- SrF₂:Ho, Er, absorption and emission spectra of Ho²⁺ and Er²⁺ 4=13038
- Sr₂FeNbO₆, phase transitions 3=20773
- SrF₂:Nd, absorption spectra, luminescence, 77°K, optical maser 3=20482
- SrF₂:Sm²⁺, absorpt., luminescence spectra 2=21242
- SrF₂:Sm²⁺, absorption and luminescence spectra, Zeeman effect 3=18026
- SrF₂:Sm²⁺, fluoresc. selection rules 3=13204
- SrF₂:Sm²⁺, luminesc. and absorpt. 2=14717
- SrF₂:Sm²⁺, luminescence kinetics 3=4986
- SrF₂:Sm²⁺, spectra and optical maser action 2=16815
- SrF₂:Sm²⁺, vibronic spectra model 4=13085
- SrF₂:U⁴⁺, e.s.r. and optical spectra 2=23708
- SrF₂:Y, X-irrad., colouration spectrum 3=8593
- Sr(Fe_xNb_{2-x})O₆, crystal structure 4=10549
- Sr₂FeO₄F, prep. and props. 4=1623
- Sr₂FeTaO₆, phase transform. at 250°C , X-ray study 3=18226
- Sr(GeO₃) crystal symmetry and structure as model for Ca(SiO₃) 3=18316
- SrGeO₃, electron density projection plot 3=23456
- SrH, near u.v. absorption bands 3=25106
- SrI, spectrum 4=25637
- Sr-K Fe garnet, magnetic exchange anisotropy 4=13230
- Sr-La perovskites, magnetic properties 1=14678
- Sr₂Li₂ and Sr₃Li₂, crystal structure 3=11266
- SrLiPO₄:Cu, luminesc. and crystal structure 2=8578
- Sr(MRE)₂O₆, M = Mn, Fe or Co, preparation and mag. props. 1=6376
- Sr₂Mg₁₇, crystal structure 3=20837
- Sr₂Mg₁₇, crystal structure, atomic 3=20838
- SrMoO₄:Nd, optical maser behaviour 2=8509
- SrN₂, u.v. spectral and photoelec. props. 3=25450
- Sr(NO₃)₂, aqueous soln., compressibility 0=14640
- Sr(NO₃)₂, elastic const. meas. 1=20284
- Sr(NO₃)₂, elastic and thermoelastic props. 3=18161
- Sr(NO₃)₂, γ -irrad., e.s.r. of spin $\frac{1}{2}$ centres meas. 4=20602
- Sr(NO₃)₂, heat of fusion 2=17689
- SrNO₃ lattice frequencies, rotational barriers 2=16835
- Sr(NO₃)₂, magneto-optic studies 0=2934
- Sr(NO₃)₂, NO₃-vibrations rel. to overtone and combination bands 4=10163
- SrNb₂O₆-0.5YbFeO₃, ferroelectricity 3=23003
- Sr(NiW)_{0.5}O₃, phase transitions 3=8864
- SrO, absorption edge, relationship with lattice energy 1=3836
- SrO cathodes, on O-Ni base, emissivity, var. with thickness 3=20440
- SrO coatings on BaO cathodes, Ba diffusion 2=9616
- SrO, dissociation energy, meas. 4=28267
- SrO, e.s.r. data, weak cubic crystal field evidence 4=28886
- SrO, e.s.r. of Eu²⁺, exchange interactions 4=13315
- SrO, e.s.r. of Mn²⁺, g factor 4=10328
- SrO, elastic moduli, calc. from lattice vibration theory 1=2370
- SrO, electrical conductivity as function of applied field and temp. 0=20873
- SrO molecule, Franck-Condon factors, calc. 2=16521

Strontium compounds—contd

- SrO, nature of elec. cond. at high temps. 2=18643, 21107
 SrO on nickel core, thermoelec. power 3=25426
 SrO, reaction kinetics on W 0=3308
 SrO, thermionic emission on doping with rare earths 3=422
 SrO, (BaSr)O, cathodes, thermoelectric power, and conductivities 3=17969
 SrO.2BaO₃ and SrO.4BaO₃, lead-activated, luminescence and dark elec. cond. 3=2925
 SrO: 3BaO₃, Cu and Pb activated, luminescence 2=12623
 2SrO.3BaO, crystal structure 2=17020
 SrO-CeO₂, luminescence 3=6672
 SrO: CeO₂, luminesc. rel. to Ce valency 4=28737
 SrO.4.4Fe₂O₃.1.6Cr₂O₃, ferrite magnetization anomalies -95° to 330.5°C 4=23022
 SrO.nSrTiO₃, perovskite-like structure and ferroelectricity 4=23487
 Sr(OH)₂, Raman and i.r. spectra 1=1171
 Sr(OH)₂.8H₂O, neutron diff. crystal structure meas. 4=29147
 Sr(OH)₂.8H₂O, O-H bond 1=7717
 Sr(OH)₂.8H₂O, OH bond orientation 3=4968
 SrO.2Ta₂O₅, lattice structure 4=13607
 Sr₃(PO₄)₂, Cu activated 0=4441
 Sr₃(PO₄)₂(Cl,F):Sb, Mn, luminesc. 3=10991
 Sr(PO₃)₂:Eu, cathodoluminescence 2=23617
 α -Sr₂P₂O₇:Eu, cathodoluminescence 2=23617
 β -Sr₂P₂O₇:Eu, cathodoluminescence 2=23617
 Sr₃(PO₄)₂:Eu, cathodoluminescence 2=23617
 Sr₃(PO₄)₂, phase equilibria and luminescence 2=4177
 β -Sr₃P₂P₇, crystallographic data 1=1403
 (Sr, Pb)(Ti, Zr)O₃, phase diagram, dielec. and piezoelec. props. 0=21236
 SrS, dielec. props at 7.25 Mc/s 3=17932
 SrS, dissociation energy D₀ = 80 kcal/mole 3=25806
 SrS phosphors, rare-earth activated, electron paramagnetic reson. investigation 2=14730
 SrS phosphors, trapping-level investig. by exoelectronic emission 2=16846
 SrS, spin-lattice relax. theory of Mn²⁺ 3=25562
 SrS, thermodynamic props. rel. to vaporization 4=16301
 SrS:Ce,Sm i.r. detector 1=16153
 SrS, Cu-, Sm- or Ag-activated, electroluminescence 1=6240
 SrS:Eu phosphors, e.s.r. study 1=3858
 SrS:Eu,Sm, e.s.r. of Eu²⁺, detection of optical excitation 0=682
 SrS:Eu,Sm phosphor, Eu²⁺ → Eu³⁺ ionization 0=13713
 SrS:Eu:Sm phosphor, light and γ -excited, light-sums 0=10074-5
 SrS:Eu:Sm flux-prepared phosphors, e.s.r. study of activator state 1=14636
 SrS:Eu:Sm phosphor, e.s.r. study of activator-valence change on excitation 1=3857
 SrS, Mn activator incorporation 3=12965
 SrS, Mn²⁺ e.s.r. 2=771
 SrS, Mn²⁺ e.s.r. 3=5042
 SrS:Mn²⁺, e.s.r. spectrum, relaxation effects 2=781, 23701
 SrS:Mn²⁺, paramag. relax. time 4=1867
 SrS₂, Ni-activated luminescence 2=4170
 SrSO₄, crystal growth, spherulitic, in presence of EDTA 4=7563
 SrSO₄, crystallization and crystal habit, effect of phosphate additions 2=10794
 SrSO₄, spherulitic cryst. aggregates, growth 0=3180
 SrSb₂O₆, Mn activated, luminescence 2=14729
 SrSnO₃, γ -reson. absorption, lattice structure, 78-1020°K 4=1350
 SrSnO₃, puckering phase transitions 0=13654
 SrSnO₃-PbTiO₃, solid solutions, crystal structure and diel. props. 1=20575
 SrTa₂O₆, X-ray structure study 0=14035
 SrTiO₃, axial Fe³⁺ e.s.r., due to nearest-neighbour charge compensation 4=23047
 SrTiO₃, crystal electron bands calc. 4=28414
 SrTiO₃, crystal interstitials, split, due to neutrons 4=20272
 SrTiO₃, crystal lattice vibr. temp. var., polarizable ion model unsuitability 4=6717
 SrTiO₃, cubic, microwave losses analysis 2=8469
 SrTiO₃, dielec. const., field depend. 15°-80°K 4=28632
 SrTiO₃, dielec. const. at low temps. 3=4946
 SrTiO₃, dielec. and electrocaloric props. 3=2957
 SrTiO₃, dielec. and electrostrict. 3=8562
 SrTiO₃, dielectric breakdown, -195° to 100°C 4=20422

Strontium compounds—contd

- SrTiO₃, dielectric loss, u.h.f., defect theory for var. with freq. and temp. 3=17933
 SrTiO₃, e.s.r. of Cr³⁺, Mn⁴⁺, Co³⁺ 4=26383
 SrTiO₃, e.s.r. of Fe³⁺, Gd³⁺, Eu²⁺ and Cr³⁺ 4=10325
 SrTiO₃, e.s.r. of Fe³⁺, test of spin Hamiltonian 0=3133
 SrTiO₃, e.s.r. of Ni³⁺, Jahn-Teller splitting 4=28879
 SrTiO₃, e.s.r. of Ni³⁺, Ce³⁺, Nd³⁺ 4=26417
 SrTiO₃, e.s.r. of Yb³⁺, Nd³⁺, Eu²⁺ 4=26441
 SrTiO₃, elastic constants, from sound vel. meas. 3=13332
 SrTiO₃, elastic consts. under phase transition 3=5055
 SrTiO₃, electret, lattice distortions after electrification 3=10652
 SrTiO₃, electrets, internal fields 4=22780
 SrTiO₃, electronic transport, 4.2°-300°K 4=15559
 SrTiO₃, far i.r. dispersion 2=14643
 SrTiO₃, far-i.r. ferroelec. vibration mode 2=6524
 SrTiO₃, ferroelec. props., nonlinearity and microwave losses 1=11342
 SrTiO₃, force consts. from i.r. spectrum 3=25180
 SrTiO₃, Gd³⁺ e.s.r. in 2=18945
 SrTiO₃-(0.04%)CdO₃, Gd³⁺ e.s.r. 2=12824
 SrTiO₃, i. r. dispersion, coupled optical-phonon mode model 4=28670
 SrTiO₃, lattice dynamics and force constants 2=16589
 SrTiO₃, lattice dynamics and phase transitions 4=17348
 SrTiO₃, microwave losses above phase transition 2=8468
 SrTiO₃, monocrystals, prep. and dielec. props. 2=4097
 SrTiO₃, oscill. spectrum, 45°-140°C, rel. to dielec. permeability 4=30677
 SrTiO₃, Raman spectrum, i.r. active modes 2=2242
 SrTiO₃, i.r. reflection spectra, 2=1000 μ , 45° to 140°C 4=1722
 SrTiO₃, paraelec., freq. spectrum, temp. depend. 4=28344
 SrTiO₃, paraelectric, microwave dielec. const. 4=26121
 SrTiO₃, paramag. particles, e.s.r. 3=15935
 SrTiO₃, phase transition, n.m.r. study 3=8791
 SrTiO₃, puckering phase transitions 0=13654
 SrTiO₃, Raman spectrum, deviations from ideal symmetry 1=12500
 SrTiO₃, spectrum, i.r., 670-15 cm⁻¹, absorpt. 3=23064
 SrTiO₃, superconductivity, semiconducting 4=18603
 SrTiO₃, thin sections, microscopic examination, low-temp. 3=17940
 SrTiO₃, transverse optic mode, temp. depend. 2=23496
 SrTiO₃, X-ray diff., rel. to phase transforms., 4.2°-300°K 4=23293
 SrTiO₃ in BaTiO₃, solid solutions, ferroelectric meas. 1=17843
 SrTiO₃-Bi₂O₃.3TiO₂, dielec. props. 3=15620
 SrTiO₃-Bi₂O₃.3TiO₂, dielec. props. 4=26129
 SrTiO₃-Bi₂O₃.3TiO₂, dielectric permittivity (-250° to 0°C) 1=12474
 SrTiO₃-Bi₂O₃.nTiO₂, relaxation polarization and phase composition 1=14538
 SrTiO₃-Bi₂O₃.3TiO₂, solid solutions, crystal structure, 77° and 300°K 4=10548
 SrTiO₃, with La, Ce, and Bi impurities, semicond. props. 4=26030
 SrTiO₃.nMnO, relaxation polarization 1=14539
 SrTiO₃-PbTiO₃-Bi₂TiO₃, solid soln., ferroelec. polarization 2=12568
 SrWO₄, growth of single crystals for e.s.r. studies 0=6265
 Sr₃WO₆, work function 0=19707
 SrZn₂, crystal structure and symmetry group 4=13602
 Sr₂ZrAs₂O₈, luminesc. and crystal structure 3=10982
 SrZrO₃, puckering phase transitions 0=13654
 Sr₂ZrP₂O₈, luminesc. and crystal structure 3=10982
 SrZrS₂, synthesis and crystal structure 3=8850

Sublimation

- See also Heat of sublimation; Vaporization
 alkali halides, effect of gases on layer structure 2=23819
 ammonium halides, rates 3=1874
 beryllium chloride, mass-spectroscopic study 1=5378
 desublimation of steam in rarefied medium 2=7475
 evaporation intensity, in vacuum 2=9327
 film deposition in vacuum 1=12665
 film growth, possible temp. rise 1=5103
 glassy materials, under supersonic flow 4=27371
 graphite, under H₂ laminar boundary layer 4=14464
 ice, at low temp. 2=5219

Sublimation—contd

- ice, props. of artificial nuclei 0=10281
 isotope effects on equilibria 3=21611
 laminar boundary layer flow at sublimating body 4=14464
 "lattice" (Ising) model for gases 0=6992-3
 metals, purification methods 1=4071
 naphthalene crystals, etch-pit formation 3=3934
 obtuse bodies near crit. point in gas mixture flows 4=14465
 plate, with porous feeding, turbulent heat and mass transfer 4=21333
 solid, near critical point in gas flows 2=15813
 and thermodynamic third law 4=14463
 and third law of thermodynamics 0=7015
 transfer between two surfaces, kinetic theory 3=14427
 vacuum, heat exchange, rel. to radiation 3=16841
 in vacuum with solids motion 2=9459
 vapour transport of solids, use of diffusion eqn. 2=15823
 Ag in oxygen, heat of 4=5471
 B, pressure meas., Langmuir, 1781-2152°K 4=5468
 Ba cathodes, meas. technique and results 3=9830
 BaO cathodes, meas. techniques and results 3=9830
 BaO, and W, work function, changes 3=19294
 CaF₂, pressures meas. 1242°-1669°K 3=21638
 CdS crystal growth, hollow, at high pressures and temps. 4=7548
 CdS, growth of large single crystals 4=10469
 CdTe crystal growth 4=7547
 CdTe, under pressure 4=15785
 CdTe, solid-vapour equil., ΔH° and ΔS° 3=1877
 Eu, cohesive energy det. 1=14143
 Gd, cohesive energy det. 1=14143
 HgTe, phase diagram, rel. to extrinsic carrier conc. 4=13497
 Ho, cohesive energy det. 1=14143
 MoO₃, mass spectra 0=10697
 NH₄ClO₄ 1=8261
 NaCl, crystal growth 0=711
 NaCl, preparation of high reactivity specimens 4=7761
 NaCl spheres into A, rate, 726-770°C 0=16921
 O-H system, solid-gas equil. meas. 2=11541
 Pd-H, energy determ. 2=9458
 S, sublimated, e.s.r. 3=1191
 Si, formation of whiskers on surface 4=4558
 Si, rate, 10⁻⁸ mm Hg 4=5476
 SiC, in Ar gas, single-crystal growth 3=5085
 SiC, whisker growth 4=20739
 Ti, in getter-ion pumps 4=18270
 UO₂, crystal growth 2=12890
 W, shadowing of electron-microscope specimens 3=11329
 ZnO 4=29811
 ZnO films, luminescent, prep. 3=16144
 ZnS crystal growth 2=10789
 ZnS crystal growth, Cu and Cl activated 2=16987
 ZnS crystal growth, polygonization 2=6777
 ZnS films, luminescent, prep. 3=16144
 ZnS single crystals grown 2=4384

Sulphur

- absorpt. and i.r. emission spectra of amorphous and liq. S. 4=15600
 absorption edges, temp. and press. depend. 0=8798
 amorphous and liquid, i.r. absorpt. spectrum 2=2235
 atomic distributions in liquid, plastic and crystalline state 0=3517
 atoms, aspherical scatt. factors in sp³, sp² and sp valence state 4=26626
 atoms, electron scatt., Thomas-Fermi approx. 1=19605
 atoms, gaseous, transport coeffs., calc., at low temp. and press. 0=3565
 atoms, struct., d orbit calc., contraction unnecc. in mols 4=25682
 chemisorption on Ag (111), (110) and (100) faces 4=26724
 conductivity, elec., β ray induced, temp. var., rhombic S 4=7036
 crystal, energy gap 4=28416
 crystals, natural, spiral formation on screw dislocations 1=9112
 determination in low-alloy steels using VC1 vacuum quantometer 4=7795
 diffusion in GaAs, n-p junction formation 4=17441
 diffusion in Ni, effect of plastic deformation 1=983
 dissociation energy meas. 4=16301

Sulphur—contd

- dissociation energy of S₂ 0=2735-6
 elec. cond. due to α -bomb. and photocond. 0=7918
 electret, monocrystal, photodepolarizing, kinetics 4=4220
 electrets, simultaneous β -ray and elec. field induced, rhombic S 4=7036
 electric current meas. for high-voltage polarization 4=10098
 electric resistivity under high-pressure pulses 4=2515
 electrical conductivity, effect of γ -irradiation 2=3996
 electron affinity, calc. 0=9745
 electronic structure, in ground state, universal potl. field 1=2279
 emission spectrum of S₂ in vac. u.v. 2=6177
 fibrous, structure, atomic 3=18371
 films, on glass, photocond., effect of Hg vapour 0=18073
 formation of electrets, effect of alternating fields 0=635
 graphitization effects on cast iron 3=11300
 green and purple, e.s.r., trapped radicals 0=16175
 i.r. reflectance standard 3=11882
 ion trapping on surface, water vapour effect 4=23604
 ionic radius, calculation 1=11562
 ionization potential-refractivity relation 0=2321
 ions, forbidden transition probabs. calc. 3=25055
 ions, S²⁻ soln., u.v. absorpt. spectrum in soln. 4=16117
 laser action in atoms from mol. dissociation 4=11828
 liquid, magnetic susceptibility 2=15616
 liquid, polymer chains, length, by e.s.r. and mag. susceptibility 3=14155
 liquid, specific heat, pure and containing iodine 2=2711
 liquid, u.s. absorpt. meas. 4=2677
 liquid, viscosity, effect of impurities, 120-160°C 1=1726
 magnetic anisotropy, exptl. study 4=7212
 melting point, 20-60 kbars 4=24437
 metallic state, due to fusion by shock waves 0=15806
 molecular force consts. 0=13429
 molecule, emission band system 3=12833
 molecule, S₂, three u.v. bands, rotational analysis 4=9728
 molecules, S₈, S₆, S₄, torsion energy and dihedral angles, MO-LCAO calc. 1=9938
 molecules, S₂, trapped at 20°K, vibration spectra 3=2624
 mols., dissociation, effect of Xe addition 4=3922
 orthorhombic, crystal structure 2=15013
 orthorhombic crystals, charge transport, 180°-370°K 4=30541
 orthorhombic, lattice constants, precise values 2=15014
 orthorhombic, scale and form factors and bond lengths 2=8823
 paramagnetic resonance of sublimated state 3=1191
 peak electron density, curvature 1=15064
 phase transformation, β - γ , -88.5°C, solubility obs. 4=23288
 photoconductivity, up to 10 000 atm 4=10136
 photoelectret polarization in darkness, initial elec. field effects 3=25411
 photoelectret props. 1=1935
 photoelectret props. 2=4103
 photoelectrets, effects of γ , β -rays 3=15622
 polymerization, equilibrium, under pressure 4=2152
 positive ions, 5-25 keV, sputtering of Cu 1=8363
 positron annihilation in, ang. distrib. of γ -rays 1=19755
 positron annihilation in, γ -ray ang. correl. 0=15336
 powders, dielectric const., density var., 9200 Mc/s 4=22758
 purple, annealing, e.s.r. study 3=20655
 Raman spectrum, Stokes and anti-Stokes lines, laser stimulated 4=7105
 reactions with oxygen in h.f. discharge 2=23958
 reversible poisoning of oxide-coated cathode 0=5333
 rhombic, i.r. absorpt. 3=3021
 rhombic, i.r. spectrum 1=19990
 rhombic, i.r. transmittance 3=8603
 rhombic polycrystalline, mech. props. 0=1862
 self-diffusion in NiS, expt. and theory 4=12798-9
 as semiconductor, intrinsic and extrinsic, polycrystalline 3=10839
 solid, evaporation, rel. to vapour pressure 2=7477
 specific heat of liquid containing P, Se or Te 3=5430
 spectrochemical analysis, impurity effects, arcs. 3=25847
 spectrum, S₂ 4=25663
 spectrum, S₂, ground state X³ Σ^-_g , triplet splitting 3=10525

Sulphur — contd

- Stark effect in ionic gaseous H_2S and crystalline CaSO_4 ,
X-ray K absorpt. spectrum and excitons 3=23097
structure of S-Se mixtures 1=6514
"sulphur point", reproducibility 0=16923
traps, shallow in monocrystalline S, nature 4=25889
vapour, partial pressure of S_2 3=13587
vapour, reaction with Ni, diffusion process 3=1387
vapour, S_2 partial pressure from mag. meas. 2=7474
vapourization, various allotropes 4=8516
X-ray spectra, K absorpt. in covalent gaseous SO_2 , SOCl_2 ,
 SO_2Cl_2 , ionic gaseous H_2O and crystalline CaSO_4 , K
spectrum 3=23097
X-ray spectrum, emission, in PbS , L_{23} 3=23096
as AgBr emulsion sensitizer 4=14413
as AgBr emulsion sensitizer 4=14414
in Cr, effect on ductile-brittle fracture temp. 4=30770
P impurity paramag. relax., meas. 4=28882
 S_2 , crystal chemistry 2=8825
 S_2 , unit cell 2=21513
S vapour, equilibrium composition 3=25805
 S^- , photodetachment spectrum 3=4003
 S_2 , $\text{B}^2\Sigma_u^- \leftarrow \text{X}^2\Sigma_g^-$ perturbations 3=12831
 S_2 , molecular spectrum 2=10264
 S_2 , rotational structure and band spectrum 2=6154
 S_2 , u. v. spectrum fine structure 4=28201
 S_8 , bond energy and next-nearest neighbour inter-
actions 0=1512
 S_8 , vibrational assignment, force constants 1=13985
 S_8 , vibrational assignment and force consts. from
normal-coordinate treatment 4=28225
 $\text{S}^{33,34,36}$, relative abundance from diff. sources 4=19997
S I, vacuum u.v. spectrum 1=13950
S- P_4S_{10} amorphous solid solutions, effect of P on S
chain stabilization 3=20916
S and S^- , X-ray scattering factors 1=17285
 S^{32}/S abundance, det. using liquid scintillation
counter 1=20778
 S^{35} isotope concentration in rain water 1=13680
- Sulphur compounds**
energy levels, from normal co-ordinate analysis 4=17297
halides, mol. structure 3=4759
methyl isothiocyanate, molal thermodynamic props.,
ideal gas state, 273-1000°K 3=14210
molecular refractivities 3=15332
molecules, bonding, d orbit construction
unnec. 4=25682
polysulphur nitride, electronic props. 2=14509
positron annihilation in, γ -ray ang. correl., similarity of
 S^{2-} and Cl^- ions 0=15336
radiation-induced free radicals, e.s.r. in polycryst.
state 3=3413
semiconducting sulphides, preparation in porous plug
reactor 4=22723
use in sensitization of photog. emulsions 0=12745
sulphamic acid ($\text{NH}_2\text{SO}_3\text{H}$), crystal structure 0=8228
sulphate, anhydrous, Raman spectra, comparison,
and crystal forces 3=13186
sulphate film-gas phase, high-temp. exchange, internal
source effects 3=6896
sulphate radicals, conc. meas. by oxidation
chemiluminescence 4=2151
sulphates, 18, i. r. spectra meas. 4=13059
sulphates, photoconductivity meas. 3=8570
sulphide phosphors, photocond. and luminescence,
model 1=19910
sulphide phosphors, photocond. relax. theory 3=4953
sulphides, α -scintillations, effect of elec. field 0=16105
sulphides, with S vapour in equilibrium, composition of
vapour 3=25805
sulphur hexafluoride, compressibility, theory and
expt. 2=19605
sulphuryl chloride, rot. spectrum meas. 4=20071
sulphuryl fluoride, thermodynamic props. 0=5016
thiolacetic acid, molal thermodynamic props., ideal gas
state, 273-1000°K 3=14210
thiourea, molal isothiocyanate, model thermodynamic
props., ideal gas state, 273-1000°K 3=14210
 D_2SO_4 , molecules, normal vibr. freqs. and thermodyn.
props. 3=12842
 H_2S_2 , molal thermodynamic props., ideal gas state,
273-1000°K 3=14210
 H_2SO_4 , drop growth in humid air stream 1=11746

Sulphur compounds—contd

- H_2SO_4 , electrolysis, induced e.m.f. 0=12107
 H_2SO_4 , γ -ray irradi. at 77°K, atomic H and H_2 yields 0=14137
 H_2SO_4 , molar sound velocity 0=19133
 H_2SO_4 , molecules, normal vibr. freqs. and thermodyn.
props. 3=12842
 H_2SO_4 - H_2O systems, self-nucleation 1=20771
S chloride liquid state, u.s. velocity and
compressibility 1=18406
S cpds., outer shell, data from K α transitions 3=19997
 S^{2-} , reactions with PO_3^{3-} , B_2O_3 , TiO_2 , MoO_3 , WO_3 , in
molten NaF and NaCl, by cryometry 3=8967
S-As-Tl glass, i.r. optical constants 2=8479
 SCCl_4 , force consts., in plane vibrations, compared
with OCCl_4 3=19998
 S_2Cl_2 , flash photolysis 0=16382
 SCL_2 , molal thermodynamic props., ideal gas state,
273-1000°K 3=14210
 S_2Cl_2 , molal thermodynamic props., ideal gas state,
273-1000°K 3=14210
 $\text{SD}(\Pi)$ radical, $J = \frac{3}{2}$ state, e. s. r. 4=3905
 SF_4 , bond length differences, theory 3=10497
 SF_6 , for calibration of electron energy scale 0=10952
 SF_6 , mol. structure, by electron diff. 3=25113
 SF_6 , molecular vibrations 2=16533
 SF_6 , n.m.r. 3=17613
 SF_6 , structure and dipole moment 2=6125
 SF_6 , thermodynamic properties, 100° to 1500°K 3=21445
 SF_6 , Urey-Bradley force field 3=19989
 SF_6 -air mixtures, electrical breakdown, time
lag 4=16455
 SF_6 , bubble chamber appl., bubble density 2=248-9
 SF_6 , compression and solid state phase transitions 2=4357
 SF_6 , d-orbitals 2=20839
 SF_6 , dielec. const., 800 Mc/s, 295° to 630°K 4=14220
 SF_6 , diffusion, in binary mixtures with N_2 , CO, Ar,
290-470°K 4=27216
 SF_6 , dissociation energy of F bond 1=8858
 SF_6 , ion formation by capture of electrons 2=22178
 SF_6 , ioniz. and attachment cross-sections meas. 4=16436
 SF_6 , ionization, electron avalanches analysis 2=3003
 SF_6 , ionization by electron impact 1=8309
 SF_6 , ionization of gas and breakdown 2=17784
 SF_6 , ionization by H^- and O^- 1=16269
 SF_6 , liquid, n. m. r. and diffusion meas. 4=2715
 SF_6 , microwave absorption in compressed gas 2=13380
 SF_6 , mol. structure, by electron diff. 3=25113
 SF_6 , molecular vibrations 2=16533
 SF_6 , n. m. r. of F^{19} , isotope effect of $\text{S}^{33,34}$ 4=3911
 SF_6 , Raman intensities for $\nu_1(a_1)$ modes 3=22559
 SF_6 spheres and SF_6 -air mixtures, breakdown volt-
age 3=4095
 SF_6 , Townsend discharge, ion identification and mobility,
by time-of-flight mass spectrometry 3=16905
 SF_6 , trace detection in air, by electron attachment 1=12684
 SF_6 , transport props. meas., rotational
relax. 4=5241
 SF_6 , vibr. energy transfer with methyl ether, C_2F_4
and ethylene 3=6434
 S_2F_2 , existence of non-planar FSSF isomer 4=6604
 S_2F_2 molecule, microwave and mass spectra 4=3879
 SF_3BF_4 , unit cell and space group 4=26675
 SF_3Br , microwave spectrum and structure 3=22572
 SF_6 - CF_4 mixtures, viscosity and diffusion coeffs. 4=2725
 SF_4 and SOF_4 , molecular structures 4=6603
SH transition probabilities 0=11518
 $\text{SH}(\Pi)$ radical, $J = \frac{3}{2}$ state, e. s. r. 4=3905
 SF^+ , emission spectrum meas. 4=12474
[SN] $_x$ polymer, semiconducting and spectra 4=15545
 S_2N_4 , "electron-on-sphere", molecular-orbital
model 3=727
SO, absorption spectrum 0=8318
SO, dissociation energy meas. 4=16301
SO, dissociation energy 0=2736
SO, dissociation energy 4=12488
SO, dissociation energy from vac. u. v. spectrum 4=17861
SO, e.s.r., and molecular rot. 4=17309
SO, emission spectrum, rotational perturbations 4=12469
SO, evolution from Ni at 800-900°K 0=12120
SO, millimeter wave spectroscopy 4=28202
SO radical, absorpt. spectrum and dissoc. 3=2625
SO radical, dissociation limits, u. v. band
interpretation 4=6655

Sulphur compounds—contd

- SO(³Σ) radical, rotational states, e. s. r. 4=3905
 SO₂, absorption coeffs., vac. u. v. 2=6179
 SO₂, absorption profiles in far i. r., interpretation 4=28224
 SO₂, absorption radio waves, 100-117 Gc/s 1=4380
 SO₂, absorption spectrum, 2500-2000 Å 4=12489
 SO₂, aq., u. s. absorpt. rel. to ionic dissociation 2=5012
 SO₂-argon, free radicals in shock waves, flash-absorption spectroscopy 0=17760
 SO₂, diffusion in N₂-SO₂, 300-480°K 1=15946
 SO₂, dissociation, rel. to absorpt. and emission spectra 2=20878
 SO₂, energy transfer to different vibrations 1=19676
 SO₂, estimation in air, continuous, extraction, gas-liquid impinger 1=20782
 SO₂, evolution from Ni at 800-900°C 0=12120
 SO₂, excitation, 4 mm, double pumping 4=28226
 SO₂, excited states electron structure 2=14298
 SO₂, force const. determ. by isotopic mol. freqs. 2=18431
 SO₂, formation, by charge transfer from CS⁻ and NH₂⁻ 2=11616
 SO₃ gas, i. r. spectrum and thermodynamic props. 2=6161
 SO₂, i. r. spectral intensities, theory 0=4203
 SO₂, ion formation, negative, by electron resonance capture 2=7559
 SO₂, ionization, electron avalanches analysis 2=3003
 SO₂, mm radiowave absorption 2=7261
 SO₂-methyl iodide, SF₆ "indicator-cpds", ionization by electron bombardment 4=29868
 SO₂, millimeter wave spectrum 4=15356
 SO₂ mol., rotation spectrum, 1st vib. state 3=12840
 SO₂, mol. structure det. from moments of inertia 3=2597
 SO₂, molecular interaction with N₂ 2=14340
 SO₂ molecules, Stark effect calc. 3=8231
 SO₂, as possible molecular beam frequency standard 3=12882
 SO₂, potential function and equilibrium structure from microwave spectrum in excited vibr. state 4=22382
 SO₂, recorder for atmosphere 4=30928
 SO₂, refractivity, press. depend. 0=6839
 SO₂, rotation spectrum 1300-25 500 Mc/s 3=4763
 SO₂, rotational analysis of bands of 3800 Å system 4=6602
 SO₂, SO₃ photolysis 0=8318
 SO₂, solns., u. s. absorpt., 2-15 Mc/s, errata 3=5439
 SO₂ solution, in water, Raman spectrum, var. with conc. 4=14169
 SO₂, spectral line breadth and molecular interaction 3=12841
 SO₂, spectral linewidth and molecular interaction 3=17621
 SO₂, spectrum, absorpt. α₂ system, isotope effect, force const. 4=25683
 SO₂, spectrum, ~4, 8 mm 4=9748
 SO₂, spectrum line broadening by N₂ 3=8279
 SO₂, spectrum, rot., mm 4=28227
 SO₂, thermal cond., press. and temp. depend. 0=19202
 SO₂, u. v. absorption and dissociation energy 4=12488
 SO₂, ultrasonic relaxation 1=8162
 SO₂, vibration-rotation spontaneous emission probability 4=20070
 SO₂, X-ray spectrum, K absorpt. 3=23097
 SO₃, aq. soln., D substitution, effect on glass transform. temp. 3=23492
 SO₃, force constants 0=17723
 SO₃, Raman spectra, liquid and in solution 2=1154
 SO₃, refractivities 0=8777
 SO₃, vapour pressure 3=9663
 SO₂ ions, prodn. by charge exchange with primary negative ions 3=7444
 SO₃²⁻ molecules, normal coord. analysis 4=15357
 SO₃²⁻, S-O bond, stretching frequency 4=28231
 SO₄²⁻, adsorption on Zr, Zr surface treatment effects 4=13696
 SO₄²⁻ impurity, vibration in KCl crystals 1=12497
 SO₄²⁻ ion in CuSO₄ crystals, molecular structure 1=17895
 SO₃²⁻ molecule, normal coord. analysis 4=15357
 SO₄²⁻ and SO₃²⁻ energy levels, from normal co-ordinate analysis 4=17297
 SO₂^{16,18}, absorption spectra in vac. u. v. 4=6601
 S₂O, heat of formation det. 3=1385
 S₂O₇²⁻, vibrational frequencies, from oleum studies 4=18206

Sulphur compounds—contd

- S₂O₈²⁻, electrolytic, reaction with I⁻, specific cationic effects 4=13730
 SO₂ in Ar, shock excited, thermochemical radiation 4=26747
 SOCl₂, AlCl₃, SOCl₂, 2AlCl₃ complexes, Raman spectra 3=14170
 SOCl₂ X-ray spectrum, K absorpt. 3=23097
 SO₂Cl₂ X-ray spectrum, K absorpt. 3=23097
 SOF₄, thermodynamic properties, 100° to 1500°K 3=21445
 SOF₄, vibrational constants calc. 4=25686
 SO₂F₂, residual entropy at 0°K 2=20935
 SO₂-H₂, thermal diffusion, 300-480°K 0=959
 S³²O¹⁸O¹⁶, spectrum, rot., (0, 0, 0) 4=28229
 S³²O₂, S³³O₂, rotational spectra 4=1279
 S³², ³³O₂, spectrum, 25-27.5 Gc/s 3=15351
 S³²O₂, rotational spectrum, 12770-25640 Mc/s 2=20841
 S³⁴O₂, rot. spectrum in first vibr. excited state 3=15351
 S³⁴O¹⁶O¹⁸, S³⁴O¹⁸O¹⁸, spectra, ground state, rotational 4=28230
 S³²O¹⁸, S³²O¹⁸O¹⁶, spectra, rot., (0, 1, 0) 4=28228
 S³²O¹⁶O¹⁸S³²O¹⁸O¹⁸, spectrum, rot. 4=9747
 S³⁶O¹⁶O¹⁶, rot. spectrum 8000-38 000 Mc/s const. coeffs. of distortion, calc. 4=30445
 SO_a, molecular vibrations, isotope effects, rel. to force const. 4=25685
 SO₂Cl₂, mol. vibr. and force const. calc. 4=25684
 SP(C₂H₅)₃, structure 0=3254
 S-S bonds, structure and reactivity 2=6207
 ScL₂, molec. force const. 2=22957
 SnS, spectrum 2=6167
 Si₂C, mean ampl. of vibr. and thermodyn. props. 4=15348
- Sun**
- See also Sunspots
 acoustic noise generation in turbulent atmosphere 3=11540
 active regions, longitudinal distrib., and earth magnetic storms 3=23689
 activity, correl. with cosmic-ray variations, cosmic-ray equator 0=20776
 activity, correl. with F₂ region asymmetry in N and S hemispheres 0=14253
 activity, correl. with high-altitude cosmic-ray meas. 0=9485
 activity, correl. with primary cosmic-rays, balloon flight study 0=9480
 activity, correl. with radio star scintillation 0=12210
 activity, correl. with satellite ionization phenomenon 0=12338
 activity, cosmic-ray diurnal variation (1954-8) 0=20290
 activity rel. to cosmic ray intensity 2=338
 activity, cosmic-ray meson intensity correl., Chacaltaya meas. 0=15485
 activity, rel. to cosmic-ray variations 0=9481
 activity, during 1958 0=12278
 activity, and earth pulsations, vertical 3=16190
 activity, effect on cometary tail activity 1=7981
 activity, effect on earth's rotation 1=18027
 activity, effect on earth's upper atmosphere 4=29310
 activity, effect on geomagnetic, ionospheric, auroral and cosmic ray disturbances 1=15250
 activity, 11-yr. cycle, circulatory nature 1=18074
 activity and f_oF₂ variation 1=15292
 activity, four-century cycle 3=9202
 activity, as function of rise time 0=18734
 activity, and geomag. K-index at sunspot minimum 0=14419
 activity, high, F₂-layer critical frequency variation, correl. 0=14254
 activity, in IGY Kelvin lecture 0=754
 activity indices 4=26945
 activity, and ionosphere E-region 0=8380
 activity, rel. to ionospheric absorpt. 1=20915
 activity, life of M-regions correl. 0=14420
 activity, monthly ionospheric index 0=18500
 activity, 1963, photospheric, spectroscopic 4=20925
 activity, possible 11-13 yr. periodicity 1=18073
 activity, previous to 1750 0=12279
 activity, structure and properties of sources 0=4852
 activity, study of, combined optical and radio techniques 0=18732
 activity, transient decreases in cosmic-ray intensity 0=9478
 activity, two daily indices, short-term differences 0=18646
 atmosphere, rel. abundance of isotopes, lecture 2=24111

Sun—contd

- atmosphere and ambium dynamical aspects 2=4715
 atmosphere, composition, abundance of Be 3=13881
 atmosphere, departures from local thermodynamic equilib. 3=7029
 atmosphere, departures from local thermodynamic equilibrium 4=29451
 atmosphere, electron accel. rel. to type IV bursts 3=11548
 atmosphere, Fraunhofer vel. displacements 2=15332
 atmosphere, gravitational oscill. of ionized gas 2=22316
 atmosphere, hydromagnetic wave fronts 1=6710
 atmosphere, isotope abundances 4=2417
 atmosphere, isotopes, spectral study, review 2=4801
 atmosphere, mechanical energy 3=3572
 atmosphere, models, comparison by Stark effect in $H\gamma$ 0=18746
 atmosphere, oscillatory velocity fields 4=10900
 atmosphere, outer, gas-dynamic model 4=20927
 atmosphere, response to radiative perturbations 4=2423
 atmosphere, sound wave trapping 1=15444
 atmosphere, structure, effect of blanketing 0=18745
 atmosphere, structure, in active and undisturbed regions, H and He ionization 4=2435
 atmosphere, study using CaII K_{85} line 4=2436
 atmosphere, temps. in elec. discharges 0=18748
 atmosphere, thermal conductivity 1=11677
 atmosphere, time variations of macroscopic inhomogeneities 4=2437
 atmosphere, trapping of sound waves 2=15331
 and atmosphere, upper, density, effects on 3=18523
 atmosphere, velocity fields 2=15330
 atmosphere, wave generation and propag. 4=10822
 atmospheric abundances, determination 0=18744
 atmospheric model, rel. to u.v. spectrum 3=23685
 atmospheric models, validity, rel. to O line profile 4=4912
 atmospheric oxygen abundance 2=17273
 atmospheric phenomenon 0=18743
 brightness, distribution at 88 cm 0=18632
 brightness, during eclipse 0=842
 brightness, non-uniformity 0=838
 bursts, type III, correl. with flares 0=2084
 calcium flocculi, areas and positions in 1659, tables 1=2616
 capture of absorbing particles by radiation field 3=9188
 catalogue of disturbances, 10-19 July 1959 1=15251
 catalogue of disturbances, 29 March-5 April (1960) 1=15252
 centre-limb effect, existence of polarization effect 1=22
 centre-to-limb observations, information limit 1=11678
 charge, space vehicle magnetometer meas. 4=15937
 charged-sun theory for magnetic and cosmic-ray phenomena 0=18473
 chromosphere, acoustic wave propag. 4=26950
 chromosphere, convection, rel. to mag. field structure 3=9209
 chromosphere, depth of spicule structure 2=19304
 chromosphere, dynamical features 0=3418
 chromosphere, flocculi lifetimes 2=17278
 chromosphere, heating by turbulent flow 1=18101
 chromosphere height, 1958 observations 0=18756
 chromosphere, hydrodynamic oscillations 3=13887
 chromosphere, hydrogen Balmer: Paschen ratio 1=5155
 chromosphere, identification of spicules from H_{α} disk filtergrams 4=4908
 chromosphere, ion granulation 4=2285
 chromosphere, ionized helium excitation 0=6596
 chromosphere, MgI excitation 3=11543
 chromosphere, mean height, eleven-year variation 0=8505
 chromosphere, model 4=13893
 chromosphere, model from continuous spectrum 4=2434
 chromosphere, model for temp. distribution 0=18629
 chromosphere, movements and temp. distrib. 2=9081
 chromosphere, "mushroom" structures 0=16543
 chromosphere near sunspots, motions 3=3575
 chromosphere, new model and excitation of HeI 3=13889
 chromosphere, 1957 data, Istanbul Obs. 1=24
 chromosphere, obs. in K-line radiation of Ca 0=2081
 chromosphere, obs. at total eclipse, summary 2=13121
 chromosphere, plage, and corona heating by magnetohydrodynamic waves 1=15492
 chromosphere, review 3=1523
 chromosphere and spicules 1=4201

Sun—contd

- chromosphere, rel. to spots, flares and prominences 4=26948
 chromosphere, structure from optical and radio data 4=4909
 chromosphere, temp. and density model 0=18630
 chromosphere velocity near quiescent filaments 4=29450
 chromosphere, vertical velocities 1=15491
 circulation, variations of characteristic dimensions 4=4903
 composition of photosphere and corona 4=23914
 connection with cosmic ray activity index 1=3356
 convection and magnetic flux tubes 4=29446
 convection, manifestation in solar granulation 4=23907
 convection zones, outer, mixing length theory 4=20924
 corona, expansion, generalized interplanetary gas model 0=6591
 coronal mass motions and solar wind, radar evidence 4=29479
 corpuscular streams, origin, cone of avoidance hypothesis 2=21714
 and cosmic rays, primary heavy nuclei, 200-300 km, short, and solar activity 4=6153
 and cosmic ray var., early obs. 4=15120
 cycle, and ionosphere, I.G.Y., crit. freqs. and virtual heights, Morocco 3=16266
 cyclic activity, dynamical props., differential eqns., calc. 4=29437
 data tables, Kodaikanal (April-June 1961) 2=7000
 diffusion of heavier ions 0=18766
 disk, darkening, curvature effects 0=4890
 disc edge spreading function, from turbulence theory 4=13982
 disturbances, and ionosphere and geomag., Nov. 1960 3=18527
 early history, rel. to formation of planets 3=13880
 and earth, elec. var., daily, seasonal, 11 year 4=29258
 and earth, mag. field var., sunrise effect 4=29342
 eclipses, isomorphic regions 3=1517
 effect on earth, magnetic field, annual vars. 3=16300
 effect on satellite orbits 0=2090
 effect on Vanguard motion 0=20
 electric charge, from interplanetary mag. field meas. 4=23905
 electric charge, space-probe evidence 1=5147-8
 electron density, flare-surge depend. 1=1644
 Ellerman's "H bomb" observations 0=8496
 equator-polar temperature difference 3=3571
 eruptions, rel. to geomag. and ionospheric disturbances 0=18474-5
 evolution, high luminosity phase due to convective transport 4=7964
 evolution models rel. to grav. const. variation 4=17997
 excitation temp., centre-limb variation, from Ti I lines 1=15472
 facula, average model 4=29447
 facula model for 5 wavelengths 4=23915
 faculae-photosphere contrast for 6700-21 000 Å 4=10894
 faculae in photosphere, model for 3=11535
 faculae, polar, number var. during Sunspot cycle 4=29448
 faculae, spectral contrast with photosphere 3=9194
 filaments, active dark, and type III bursts 4=23943
 flocculi and atmospheric pressure increases 3=23589
 flocculi, restriction of meaning to bright granulation zones 4=7985
 granulation 0=837, 6585
 granulation, brightness fluctuation 0=18741
 granulation, brightness fluctuation 3=1520
 granulation changes, brightness, size and shape 0=6586
 granulation data, interpret. 3=11533
 granulation, H_2 convection zone 0=2078
 granulation, interpretation 0=18740
 granulations near solar limb 1=11679
 granulation, temp. fluctuations 1=15467
 granulation, temp. variations, spectrum calc. 2=11123
 granulation, transfer eqn. appl. 2=9076
 granulation, turbulence 1=15514
 granules, and transitory movements of unstable systems 3=18630
 gravitational contraction, early phases, Hayashi effect 3=21104
 gravitational sphere, radius 4=10876
 hydrogen convection zone, higher modes 3=21105

Sun--contd

hydromagnetic phenomena, observability 0=3416
 impulsive phenomena of atmosphere 1=7989
 influence on earth satellite orbit 0=16
 inhomogeneities in atmosphere 4=2420
 intensity and limb darkening between 8-6 and 13 μ 1=12749
 interior model, revised, neutrino spectrum 4=17998
 internal chemical element occurrence 1=15411
 and interplanetary mag. field, Pioneer V meas. 3=16329
 ionization equilibrium eqn. of state 3=16401
 ionizing radiation, E-region, and 20cm radiation 3=16271
 and ionosphere F region, electron density 4=10750
 limb darkening, at 5400A 0=10510
 limb darkening, and rotation 2=13125
 limb image motion, method and preliminary meas. 4=26944
 limb intensity decrease 0=12284
 limb readings, using photoelectric spiral micro-
 meter 4=26943
 Lindholm effect, depth of formation 1=15449
 line profile determination of abundances 0=18859
 luminescence in thoria 2=14733
 Lyman- α results of NRL observations 1=5154
 M regions, long-lived, theory rel. to geomag.
 disturbance 2=4766
 magnetic cloud rel. to cosmic-ray storms and type
 IV radio outbursts 2=12037
 magnetic storms on earth and M regions 4=26946
 magnetosphere boundary shape 4=26939
 magnitude, apparent, meas., reversed telescope 4=2415
 model series 4=29435
 model, three-zone, energy prod. by p-p reactions
 and C-cycle 2=956
 models, evolutionary sequences 1=18070
 motion, secular terms and fluctuations 1=6692
 net electric charge measurement, hypothesis 1=10386
 neutral hydrogen in model corona 1=5158
 neutrino reactions, Cl³⁷(ν ,e)Ar³⁷, and beta-
 decay 4=22100
 neutrinos and He content 4=29436
 non-stable processes, leading to neutron
 eruption 0=18767
 observations 1959-60, conference 3=9139
 observation of solar phenomena in daytime 1=15443
 observations, space vehicle contributions
 needed 4=4960
 observation, visual photometer 3=9140
 observatory, Long Island, equipment 3=7016
 opaque atmospheres, energy balance 0=12248
 optical activity, correl. with radio burst data 0=4857
 outbursts causing disturbances of ionosphere 1=6632
 outer atmosphere, thermodynamic structure 0=14417
 outer layer, convection, recurrence and Ice Ages 0=4889
 outer layer, diffusion and chemical stratification 0=4888
 outer layer, rotation, meridional currents,
 activity 0=4887
 P₁ type peaks, type I bursts, prodn. mechanism 3=11544
 perihelion rotation relativistic effect 4=23904
 periodic activity, analysis and empirical eqns. 3=5258
 periodicities 0=18731
 phenomena, catalogue of disturbances 0=21343
 phenomena, survey 1=18149
 photophase, temp. fluctuations 3=16370
 photosphere, abundances determination 1=18082
 photosphere, atom with 2 levels plus continuum, source
 function calc. 4=4901-2
 photosphere, balance and abundances 0=14414-15
 photosphere, composition compared to that of
 meteorites 4=26952
 photosphere, departures from LTE, rel. to Fe lines 3=5253
 photosphere, depth depend. of turbulence 4=4900
 photosphere, fine structure, photographic observation
 from manned balloon 0=16540
 photosphere, hydromag. turbulence growth 2=19308
 photosphere, large-scale motions 3=9196
 photosphere, large-scale motions 3=11536
 photosphere, local brightness, vel. variations 3=1520
 photosphere mag. fields and chromospheric
 features 4=23313
 photosphere, NaI equilb., obs. rel. to abundance 2=9074
 photosphere, outer, temp. distrib., from
 thermodynamics 3=16374
 photosphere, photographic observations 0=14412-13

Sun--contd

photosphere, source function and temp. fluctuation 4=23912
 photosphere, temp. and pressure distribution 2=15350
 photosphere, upper, large-scale motion 0=14431
 photospheric activity, thread-shaped loops, vortex
 structure 0=3420
 photospheric faculae on solar limb 1=15477
 photospheric inhomogeneity, from Fraunhofer
 spectra 1=15450
 photospheric intensity variations 3=3568
 plages, active, in 1959, tables 1=2616
 plages, correl. geomag. disturbances 1=1590
 plasma radiation, and atmosphere, upper, hydromagnetic
 waves, freq. cut-off 3=16304
 polarization of light at edge of disk 0=4894
 proton sputtering, etching of Sikhote-Alin
 meteorite 0=10497
 protoplanetary cloud, temp. 2=24084
 quiet state, empirical model for chromosphere 2=17279
 radar echoes 0=4871
 radar studies, symposium 0=14382
 "red noise" power spectrum 3=16539
 rotation and photospheric circulation 0=18733
 rotation variation with latitude, consequences 2=24110
 self-reversed emission cores of Ca⁺, H and K 0=12249
 shock wave propagation in chromosphere 1=10774
 solar activity correl. with arctic ionosphere
 conditions 1=1536
 solar activity effect on whistlers 2=15201
 solar cycle and behaviour of sunspots and
 prominences 1=15464
 solar granules, lifetime 1=15468
 solar limb darkening, influence of chromosphere 1=2619
 solar limb temperature distribution 1=7984
 solar parallax determination 1=10395
 solar parallax determination by radar echoes from
 Venus 1=10394
 solar parallax measurement by Venus radar
 echoes 1=10374
 solar physics, review 0=14407
 solar wind, evidence from comet tails 3=18625
 solar wind flow, direction, effect on magnetic
 activity 3=7003
 source function in non-equilibrium atmosphere 1=4206-7
 as source of intermediate energy cosmic-rays 0=1325
 spicules, H α line 0=14421
 spicules, heating of solar outer atmosphere 0=18762
 Stanford microwave spectroheliograph and pencil
 beam interferometer 1=8016
 structure, e.m. and hydromagnetic waves 1=5156
 structure, model, comparison with other models 1=21
 sunrise, effects on ionosphere, at Brisbane, 3.84 Mc/s
 transmission study 0=14202
 suntracker for balloon applications 0=10399
 surface activity, kinematics 1=15466
 surface photometry, correction for scatt. light 2=7004
 surface temperature, from sunspot observations 1=6708
 surges, filaments and chromospheric structure, white
 light study 0=2083
 surges, 1959 observations, at Stockholm and
 Anacapri 1=4200
 surges, Swedish observations in 1958 0=6599
 temp. distrib. in outer solar atmosphere 0=6590
 temp., spectrophotometric determ. 4=2430
 temperature corresponding to X-ray emission 1=15273
 temperature diff. between poles and equator,
 search 2=2535
 temperature meas. at 2 mm wavelength 3=5271
 thermodyn. equilibrium, rel. to continuous
 emission 1=15447
 3.2 cm radio picture 0=18637
 time-dependent model 1=18069
 tracking head 2=17597
 various disturbances, origin of type II radio bursts,
 optical study 0=4900
 velocity fields, localized 2=11097
 water heating using plastic materials 0=19500
 wind, boundary with geomagnetic field, location
 convection 3=16307
 150 major radio events (1952-60) spectral
 components 2=2559
 Bi abundance from BiI lines 3=9195

Sun--contd

- C abundance, automatic computation 3=13884
 Ca⁺ plages, Mar.-Dec. 1950, correl. with geomag. disturbances 1=1589
 Fe abundance in photosphere 4=29445
 Fe and Si abundance 4=29441
 Fe X u.v. resonance line study 0=14436
 H α activity, short wave fadeout correl. 0=12285
 H convection zone, unstable modes 3=13882
 H convective layer, circulation 1=18076
 H⁻ ion in solar atmos., collisional dissociation 0=18747
 H level populations in chromosphere, electron collision effects 4=29449
 H II region and galactic radio cut off near 1 Mc/s 4=29422
 H₂, ionized, thermal cond. tensors in external mag. field 4=458
 H₂, ionized, thermal cond. in mag. field, collisional effects 4=459
 H/He relative abundances 1=15518
 He abundance, from cosmic ray primaries 4=15938
 NaI equilibrium in solar atmosphere 2=2533
 Pb abundance 1=5970
 Tc formation, possibility 2=9071
 Ti abundance 1=15451
 Ti abundances from Ti I multiplet study 1=15452

corona

- active and quiescent prominences, comparison 0=12281
 in active regions 1=7994
 activity, 5 Apr. 1960, weak emission and low density 1=1646
 activity indices 4=26945
 airborne obs. at 20 July 1963 eclipse 4=26955
 balloon observations (20 July 1963) 4=26956
 bright emission regions, prominence characteristics 0=14423
 brightness distrib. meas. at eclipse 3=18637
 brightness distrib. in solar eclipse 2=19305
 brightness distrib. for 20 July 1963 eclipse 4=29460
 brightness distribution, 1954 eclipse 1=15490
 Chapman corona, test for existence 1=15535
 charged-particle capture by Mercury, effect on 4=2402
 chemical composition 4=29456
 chromosphere, absolute spectrophotometry during eclipse, June 1954 2=4788
 chromospheric continuous emission beyond Balmer limit 2=982
 chromospheric disk surge trajectories 1=15493
 chromospheric He(D₃) emission shell 4=10902
 chromosphere, lower, structure rel. to He excitation 2=981
 chromosphere, review 4=29454
 chromosphere spicules 2=19312
 chromospheric spicules, line broadening 2=4768
 chromosphere transition $n_{\infty}^{2.5}T = \text{const.}$ law 4=13935
 corona-chromosphere transition layer, rel. to u.v. radiation 2=978
 class 3 flare 1=12752
 composition, and photosphere 4=23914
 compression of coronal material 0=11
 condensations above active regions 2=973
 condensation, abundances of Fe and Ni rel. to H 4=29458
 condensations over Ca plages 1=15489
 condensation model, core and surroundings 3=16385
 condensation, model, electron density and temp. 2=13134
 condensation, obs. in eclipse, model 3=9219
 condensations, obs. using local radiation only 4=2439
 condensation, polarized light obs. 4=29457
 condensations, prominence formation, mag. field 0=6592
 condensations, structure 0=18742
 condensations, 169 Mc/s thermal emission 1=15540
 conductive heating for solar wind near earth 4=10903
 coronagraph, effect of boundary diffraction wave 4=29461
 coronagraph, externally occulted, scatt. light 4=23926
 coronagraph, reflecting, feasibility 4=2445
 coronagraph, scattered light reduction 3=9142
 coronal condensation study, eclipse of 28 Feb. 1952 1=28
 coronal emission near quiescent prominences 1=7993
 coronal jets, evolution, rel. to solar activity 0=18750
 coronal rays, rel. to magnetic field regions 1=18075
 coronameter, photoelec., automatic 3=9216
 corpuscular streams above active region 2=966

Sun--contd

corona--contd

- correlation with geomagnetic variations 0=8359
 cosmic ray variation relationship 1=3355
 Crab nebula, r.f. occultations (June 1957 and 1958) 0=4863
 diamagnetic effect of charged particles 3=16392
 dimensions and solar activity 2=9080
 distribution of matter, with temperature 0=10503
 disturbances, propag. speed, type III radio bursts 0=4855
 during eclipse (15 Feb. 1961) 2=4783
 e.m. wave propag. in over sunspot, with strong mag. field 0=2080
 e.m. waves and momentum flux 1=5156
 eclipse of Crab Nebula 1=15537
 eclipse, Feb. 25, 1952; intensities, polarization, electron density 0=18755
 eclipse, Khartoum (28 Feb. 1952), coronal condensation 1=28
 solar eclipse, 12 Oct. 1958, emission line interferometry 1=9272
 eclipse, 1958, polarizing spectrograph obs. 2=7010
 eclipse, October 1959, polarization and intensity studies 1=5152
 eclipse, Feb. 1961, obs. summary 2=13121
 eclipse observations (Feb. 1961) 1=15483
 eclipse, total 20/7/63 4=26954
 effect on earth's atmosphere 0=8484
 electron accel., type IV radio outbursts 2=17274
 electron density, intensity, polarization 3=9218
 electron density, model, from radio observations 1=2647
 electron density, radial distrib. 3=18651
 electron density, from radio emission 2=1008
 electron density, solution of van de Hulst's integral equations 3=18635
 electron temperature 4=4951
 electron temp., calc. from emission-line intensities, effect of coronal expansion 4=23924
 electron temperature, from X-ray emission 2=19300-1
 corona, emission intensities during eclipse (Oct. 1959) 1=2618
 emission line observation without eclipses, 5303A 4=26953
 emission lines, polarization 1=18088
 emission near quiescent prominences 1=7993
 energy balance 1=5150
 energy balance in transition region between chromosphere and corona 4=26949
 equatorial coronal streamers 0=6594
 eruptions, spectroscopy and H α photography 0=18768-9
 excitation of coronal ions, effect of self-emission 3=13891
 corona, excitation of 6374 Å 1=4199
 expanding, hydrodynamic treatment 0=14424
 expansion, and corpuscular radiation 4=26936
 expansion, generalized interplanetary gas model 0=6591
 expansion, hydrodynamic, solar wind 2=7008
 extension and form, 1939-59 data analysis 0=12283
 solar corona extension, hydrodynamic model 1=5157
 extension into interplanetary space 0=10504
 extension to outer ionosphere 0=8397
 F-, rel. to light scattering by particles 4=15936
 faculae, i.r. lines, profiles 2=4762
 Faraday rotation measurements 1=2658
 five activity cycles, geomagnetic disturb., statistical survey 2=961
 corona, five ionization stages of Fe 2=4782
 corona, forbidden lines in ground configurations 2=15336
 forbidden lines, intensity and polarization formulae 4=15945
 Fraunhofer lines, Doppler cores 2=4763
 green coronal line and sunspot groups 2=15358
 green line λ 5303, intensity gradients 3=13892
 green line intensity and geomagnetism 0=8503
 green, regular structures 4=2440
 heat flow eqn. assuming conduction only 4=10821
 heating, by gravity waves 3=13888
 heating by magnetohydrodynamic waves 1=15492
 heating mechanisms from spectroscopic obs. 3=11542
 high Balmer lines, Stark profiles 0=12286
 hydrodynamic model 1=5157
 hydrodynamic models, and solar wind 3=16390-91
 hydrodynamic momentum and mass flow eqn. 4=10820
 hydromagnetic waves, viscous damping 1=12753

Sun—contd

corona—contd

inner corona (June, 1959), electron density 0=4897
 inner, eclipse observation 1=18095
 inner, spectrum meas. at eclipse 3=18636
 intensity of 5303A line and 11-year cycle of activity 4=2438
 corona, intensity ratio of 5303 and 6374 Å lines, theory 1=15486
 intensity, polarization and electron density, eclipse of 15/2/61 4=7986
 ionization cross-sections calc. 0=18751
 ionization, two-step collision process 3=9211
 irregular structure 0=18749
 jets, latitude distrib. during cycle 4=2442
 jets, white light observations 0=4895
 Kellogg-Ney model 0=8504
 limb condensations, 10.7 cm obs., eclipse of 5/2/62 4=10917
 limb flares, line and continuous emission 1=1649
 line profiles, distorting factors 4=20929
 line-widths and "solar wind" 2=7009
 corona, line-width, rel. to temperature 2=24122
 corona, line-width temps. 2=19313
 lower, Fe abundance 3=21112
 M-disturbances rel. to general solar corpuscular field 2=965
 magnetic fields, microwave polarization 1=8023
 magnetic field and particle emission 2=13914-15
 mag. field region, radio waves, polarization 4=4899
 magnetic field var. and electron concn. 3=9212
 and magnetic poles position, from eclipse obs. 4=20917
 magnetism of emitted cloud, rel. to geomag. storms 2=17276
 mass loss, evaporation, for complete ionization 4=2444
 mass motions, coronal, radar evidence 4=29479
 mechanical energy 3=3572
 metal line profiles, rel. to H and He lines 2=972
 microphotogram study, theory 1=15485
 model from radio data 21-145 cm 0=18631
 models, hydrodynamic 3=9217
 monochromatic emission, characteristics 3=9215
 monochromatic line profiles during eclipse (Oct. 1959) 1=2618
 monochromatic rays, 1957-58 list 2=11131
 monochromatic studies 3=16387
 neutral hydrogen in model corona 1=5158
 and novae spectra 4=29395
 observation without eclipse, Lyot coronagraph use review 4=23928
 observation methods 1=1645
 observations out to 100 solar radii 2=4781
 occultation of Crab Nebula, June 1962 3=13936
 optical and r.f. emissions, relationship 1=18087
 optical thickness 4=2441
 oscillations, rel. to sonic disturbance transient phase 4=10901
 outer, shape and solar wind, radio scatt. meas. 4=10904
 persistent jet observations 0=14425
 phenomena 0=18743
 photographs from balloons during eclipse 3=1518
 photography during total eclipses 1=9271
 photometry, during 15 Feb. 1961 eclipse 1=12751
 plasma oscillations 3=23704
 plasma oscillations, l.f., propagation 2=22238
 plasma theory 4=20922
 plasma waves, origin of type II bursts 4=10916
 polar faculae, distrib. and visibility function 2=11133
 polar rays, photometry, during 1954 eclipse 1=6714
 polar region, rotation rate analysis 2=13132
 polar zone behaviour, two-zone picture 4=23922
 polarigraphic obs. during 12 Oct. 1958 eclipse 3=1519
 polarization, study 1=15484
 prominence condensation, in strong mag. field 0=6593
 and prominences, rising 3=16375
 r.f. emission, noise on passage of solar particles 2=4834
 r.f. emission and propagation, mechanisms 2=2558
 radar reflections, 38.25 Mc/s 2=9113
 radiation bursts at 340 Mc/s 1=15543
 radio brightness distrib. at 21 cm 1=18165
 radio data for two component structure 4=30983
 radio obs., and 2 dimensional model 4=26967

Sun—contd

corona—contd

radio occultation of Crab nebula, 18 cm 4=23950
 radio and optical studies, radiation sources 0=2082
 radioheliograms and optical observations 0=18634
 radio-wave scatt. props. 4=23927
 red and green lines, excitation 2=15352
 reddening meas. rel. to interplanetary dust radiation 4=10889
 refraction effect during solar radio noise storm 0=14422
 regions of Fe, Si emission, structure 2=17280
 scattering of radio waves 1=1661
 scattering of solar and other r.f. radiation 0=18648
 corona, due to self-ionization of light atoms and Fe ions 0=846
 shock wave heating theory, mag. field effect 4=13936
 shock wave propagation, rel. to spicules and flare-surges 2=2537
 solar atmosphere, macroscopic inhomogeneities 3=3565-6
 solar wind, data from lunar atmosph. obs. 2=17243
 solar wind, props. during sunspot minimum 0=14418
 solar wind velocity, rel. to cosmic-ray effects 2=16278
 sources of radio bursts at 200 Mc/s 2=2561
 sources of radio emission types III and IV 2=2560
 spatial structure 2=24120
 spatial structure 3=3578
 spectra, forbidden, mag, dipole transitions, theory 4=2363
 spectra of ions connection with sp^3 configurations 4=26958
 spectra, three emission ratios and different temps., corona 3=18638
 spectral radiation flux at <10Å, calc. 4=23925
 spectrum, in eclipse (Feb. 1961) 2=4783
 spectrum excitation, Fe^{+13} , $3p^{1/2} \rightarrow 3p^{3/2}$, by protons, calc. 4=15944
 spectrum Fe XIII lines, relative intensities 3=23687
 spectrum interpret. review 4=15943
 spectrum, multiplet strengths for transitions in Fe XVI and Fe XV 4=25500
 spectrum, sp^2 config. forbidden lines, calc. 4=26959
 spectrum, at 20 July 1963 eclipse 4=29459
 spectrum, u.v. to i.r., review 4=13928
 spectrum, ultraviolet, in lower corona 3=13890
 spicules, kinematics 3=9214
 sporadic radio emission, noncoherent emission 2=1007
 rel. to spots, flares and prominences 4=26948
 spray-type event, interpretation 1=7990
 streamer pattern in solar mag. field, 23-year cycle 1=9267
 streamers and gegenschein 2=15357
 streamers, idealized dynamics, rel. to solar wind 4=20928
 streamers, plasma levels, correl. with radio burst data 0=4857
 streamers, polarization 2=969
 structure 0=18629
 structure, rel. to Athay-Thomas model 2=7011
 structure (15 Feb. 1961) 2=24118
 structure, 15 Feb. 1961, at Dzankoy 2=24119
 structure and mag. field 0=14430
 structure, mechanism of cm-wave emission variations 0=14427
 studies during total eclipse of Feb., 1961 4=4913
 sunspot umbras, rel. to gas pressure 2=19310
 supercorona, data 1=15536
 supercorona, moving plasma clouds, radio observation 2=1005
 supercorona, radio emission, average props., electron density 0=18754
 supercorona, two-component model, optical versus radio data 4=29455
 supercoronal non-uniformities, structure 0=18752
 temperature, calc. increase due to dielectronic recomb. 4=20930
 temperature from electrohydromagnetic considerations 1=7087
 temperature, rel. to electron radiation and shock waves 2=13131
 temperature grad. rel. to solar wind 3=9210
 temp., meas. methods and results 0=14426
 temperature rise, gas-dynamic model 4=20927
 temperature, spectral and ionization data 2=24122
 temperature, from X-ray emission data 0=18779
 thermoelectric phenomena 2=971
 theory, appl. of formula for mean free path in plasma 1=9539

Sun—contd

corona—contd

- transition layer with chromosphere, models 3=16386
 turbulent vel., spicules and K profile
 mechanism 4=13934
 u.v. and soft X-rays 3=16389
 weak lines, identification 4=2443
 corona, X-ray continuous emission, Gaunt factor 0=18779
 X-ray distribution 0=836
 X-ray emission by condensations 3=9206
 X-ray emission of Fe XV and XVI, rel. to temp. 4=29462
 X-ray soft emission study 4=26957
 X-ray spectra, meas. 4=29463
 yellow, extent, freqn. and interpretation 4=4914
 zodiacal light observations 1=12745-8
 5694 Å, origin 0=18776
 6374 Å line, intensity gradient 2=19315
 corona, 7800-12000 Å during eclipse 15 Feb.
 1961 2=24121
 corona, 1939-59 data, rel. to sunspot cycle 0=14437
 corona, 5 Apr., 1960, anomalously weak emission 1=1646
 Ca II, ionization and equilb. 2=19311
 Ca XV lines 0=18777
 Fe, ionization equilibrium 4=23923
 Fe and Si lines, structure of emitting regions 2=17280
 H, pressure and positive Joshi effect 3=19207
 H, u.v. spectra 0=12280
 H⁺-like ions, excitation and ionization 2=15346
 He I and II, u.v. spectra 0=12280
 N VII, h.f.s. transitions, frequency and aerial
 temperature 4=2462

eclipses

(subheading introduced in 1964, for earlier entries see Eclipses)

- airglow, visual and i.r. 4=13822
 and earth mag. field var. 4=26875
 rel. to earth mag. field variation, n.m.r. meas. 4=2316
 and ionosphere E-F intermediate region reflection
 disappearance 4=26859
 effect on ionosphere F1 cusp and F1_{1/2} layer 4=2301
 fleeting shadows obs., 15 Feb. 1961 4=29299
 and ionosphere, E-region recomb. and ionising
 radiation, calc. 4=30960
 and ionosphere F2 h⁺-f ionograms, electron attachment,
 density, scale height 4=7930
 Mercury study time 4=2402
 shadow bands, determ. of characts., 15 Feb. 1961 4=29298
 15 Feb., 3 and 20 cm wavelength obs. 4=4946-7
 Feb., 1961, corona studies 4=4913
 15 Feb. 1961, corpuscular effects and E night layer
 ionization 4=26857
 15 Feb. 1961, F-region of ionosphere 4=10764
 15 Feb. 1961, ionospheric absorpt. during 4=2286
 15 Feb. 1961, quiescent prominence, spectrum 4=10909
 15 Feb. 1961, spectrophotometry of
 chromospheric lines 4=911
 5 Feb. 1962, ionospheric obs. in East New Guinea 4=7918
 total, 20/7/63, corona, 9.1 cm obs. 4=26954
 20 July 1963, airborne obs. of coronal spectrum 4=26955
 20 July 1963, airglow obs. 4=29312
 20th July 1963, corona brightness distrib. 4=29460
 20 July 1963, corona spectrum 4=29459
 20 July 1963, 3.2 mm radiation 4=26968

flares

- active regions rel. to cosmic rays 2=13136
 activity indices 4=26945
 activity rel. to PCA 2=17277
 Anacapri observations 2=9078
 area in H light, correction factors 1=7998
 area-intensity integrator 1=2621
 associated 18 Mc/s bursts 1=6728-9
 associated microwave bursts 1=6733
 associated optical phenomena 1=7989
 associated optical phenomena, H_α spectroheliogram
 obs. 4=4916
 association with geomag. disturbances, 1949-61 3=21110
 association with mag. changes 2=17272
 atmospheric radio noise, 2.5 and 5.0 Mc/s, effects on 2=4605
 rel. to atmospheric sudden enhancements (at 27 kc/s) 2=6920
 and aurora 4=17927

Sun—contd

flares—contd

- rel. to auroral radio echoes, Stanford, Nov 12,
 1960 1=21062
 bremsstrahlung burst from class 2⁺ flare, obs. 1=18094
 bursts, type IV, freq., and mag. storms 4=20879
 chromospheric, active regions rel. to Forbush
 effect 2=13137
 chromospheric, charged particle flux meas. 2=20474
 chromospheric, correl. with radio emission 3=1522
 chromospheric, of 11 and 14 July (1959) 2=976
 chromospheric eruptions rel. to m-wavelength
 emission 2=21715
 chromospheric limb flare, 11 Oct. 1957,
 spectrophotometry 1=18091
 chromospheric, rel. to type IV radio bursts 2=15399
 class 3+, effects on ionosphere 3=16264
 class 3⁺, 18, 20 July 1961, rel. to electron flux in
 atmosphere 2=13925
 class 3+, 12 Nov. 1960, effect on l.f. propag. 1=16589
 and comet luminosity 4=29431
 concurrent cosmic-ray bursts and subsequent mag.
 storms 0=8497
 corona expansion following flare, mag. field and cosmic
 ray effects 1=7995
 corpuscular clouds, observation by direct continuous-wave
 reflection 0=4896
 corpuscular emission rel. to magnetic distrib. 1=18093
 corpuscular radiation rel. to ionospheric polar
 disturbances 1=15494
 corpuscular radiation, modulation by solar mag.
 field 2=13914-15
 corpuscular streams 2=964
 corpuscular streams and cosmic-ray storms 0=11251
 corpuscular streams and primary cosmic rays 0=10507
 correl. with cm-wave bursts 0=14214
 correl. with cosmic-ray diurnal variations 0=11257
 correl. with cosmic-ray intensity inc. (17 Jul.
 1959) 0=11274-5
 correl. with cosmic-ray intensity, Prague data 0=20275
 correl. with cosmic-ray low-energy
 events 0=9479
 correl. with cosmic-ray low-energy particles 0=20278
 correl. with cosmic-ray neutron variations 0=10502
 correlation with cosmic ray protons (July 1961) 2=23126
 correl. with cosmic-ray storms 0=11253
 correl. with cosmic-rays, artificial satellite
 observation 0=1323
 correl. with geomag. horiz. field fluctuations 0=14167
 correl. with geomagnetic storms 0=18470
 correl. with optical and radio phenomena 0=3417
 correl. with radio bursts 0=12255
 correl. with radio bursts, distrib. on solar disk 0=4898-9
 correl. with radio bursts, at metre and cm wave-
 lengths 0=4856
 correlation with sudden enhancement of
 atmospherics 2=9077
 correl. with type II radio bursts 0=4853
 correl. with type III radio bursts 0=2084
 correl. with type IV radio bursts 0=8475
 correl. with type IV radio bursts, geomagnetic
 effects 0=18760
 cosmic-ray correlations, neutron intensity maxima 1=9794
 cosmic ray effects, derivation of interplanetary
 magnetic fields 1=18017
 cosmic-ray effects, IGY 2=12022
 rel. to cosmic ray flares on Nov. 12, 1960 1=9788
 cosmic rays following flares of Nov. 12 and 16,
 1960, obs. 1=16934
 cosmic ray generation 1=18089
 and cosmic-ray generation (1942-60) 2=9962
 cosmic ray increase during May 4th, 1960 flare 1=7300
 and cosmic rays, increase, mechanism 4=3517
 cosmic-ray neutron increase due to a flare on sun's
 far side 1=3363
 cosmic-ray neutron intensity increases 2=12023
 cosmic-ray nuclei, increases correl. 2=16273
 cosmic-rays, polar cap absorption (July 1959) 2=886
 cosmic ray prod. by plasma pinch effect 1=26
 cosmic rays and 7-stage, (18 July 1961) 3=12527
 cosmic rays, spectra and diffusion model 4=3515
 cosmic-rays and sub-cosmic rays effects 2=12059
 dark filament, activation 3=16379

Sun—contd

flares—contd

description in terms of chromosphere and corona 4=26948
 development, rel. to sunspot mag. field 0=14411
 dimensions in H-light, statistical study of
 2500 flares 1=2622
 disk and limb flares, structure from spectra 2=13135
 e.m. continuum radiation 3=11549
 earth-current activity (July 1959) 2=870
 and earth mag. crotchets and ionosphere
 S_q currents 4=10776
 and earth, mag. field, var., X-ray effects 4=10775
 earth's electromagnetic field, pulsations during July
 1959 solar events 1=20800
 effect on cosmic-ray intensity 0=13093
 effect on cosmic-rays 2=337
 effect on f_oF 4=29332
 effects on F-layer in ionosphere 1=20997
 effect on F-region of ionosphere 2=4653
 effect on F2 ionospheric ionization 2=15242
 effect on geomag. field, rel. to e.m. induction in
 ionosphere 2=9043
 effect on ionization of lower ionosphere 0=2007
 effects on ionosphere 3=13704
 effect on ionosphere, E-layer 0=767
 effect on ionosphere F2-region 3=13757
 effect of neutron component of cosmic rays 1=16943
 effect on [OI] green line of nightglow 4=29315
 effect on variation of cosmic-ray primaries 0=11248
 electron density, from cosmic ray proton
 interactions 3=11546
 electron emission, cosmic ray data 2=20447
 energetic solar particle existence 0=16435
 energy release mechanisms 3=16381
 energy spectrum of particle emissions 1=9191
 enhanced ionization in polar ionosphere, correl. 0=14223
 enhancement of ionization in E-layer of ionosphere 1=7937
 eruption on 1 June 1960 1=6713
 eruptive active regions rel. to Type III absorption 2=4789
 explosive phase, rel. to ionospheric sudden
 disturbances 3=13703
 filaments, correl. with geomag. activity 3=11467
 and filament disappearances, cine obs. 4=29466
 filament expansion 4=10907
 flares, class 2 (19 Sep. 1957) 1=1647
 flare cosmic ray increase, May 4 (1960) 1=16930
 flare on 1 June 1960 1=6713
 flares, H α profiles 2=4780
 flare nimbus phenomenon, Nov. 1960 1=15479
 flares and prominences, excit. and ionization of
 elements 2=15355
 flare-surges, formation 2=2537
 flare surges, puffs and type III bursts 0=3419
 flares, X-ray 2=15338
 flares, X-ray and Lyman- α , meas. by NRC SR-1
 satellite 2=19314
 flares, X-ray, rel. to radio emission 2=24124
 γ -emission and cosmic-ray particle formation 1=18090
 γ -radiation, "radiating" electron theory 4=2450
 γ -ray burst 0=8399
 generation by solar magnetic field variation 1=18092
 and geomagnetic activity 2=4701
 rel. to geomagnetic crochets of 15th Nov. 1960 1=21094
 geomagnetic effect, ionosphere currents 0=2005
 geomagnetic impulse correlations, periodicities 2=4702
 geomagnetic pulsations associated 0=1997
 geomagnetic storms, relation with 2=17218
 and geophysical disturbances, review 4=26935
 halo and type IV radio emission 4=26961
 high-energy particle emission, from IGY solar 2=970
 I.G.Y. and later studies 1=7987
 I.G.Y. survey 0=10505
 incidence rel. to interplanetary magnetic
 transients 2=24125
 rel. to induced ionization in D-region, model 1=20968
 inner radiation belt, proton content correl. 0=14268
 intensity, statistical reln. to sunspot data 4=2447
 and ionosphere e.m. activities, particular associated
 flare type 4=15946
 and ionosphere electron density (July 1959) 2=887
 ionosphere, F-region effects 2=13036
 ionosphere, F2 region ionization 2=9007

Sun—contd

flares—contd

ionosphere, ionizing effects by short radio wave
 absorption 2=11054
 rel. to ionospheric corpuscular emissions 1=21001
 rel. to ionospheric current systems 1=20905
 rel. to ionospheric disturbances, Sept. 12-15, 1957 1=15270
 ionospheric effects, polar absorption, S and N
 hemispheres 2=15230
 ionospheric effects, polar cap absorption 2=15228
 ionospheric F region, electron density effects 1=20995
 rel. to ionospheric hydromagnetic emissions, Nov.
 18-21, 1960 1=20924
 ionospheric responses 3=23612
 ionospheric sudden disturbances, 2.28 Mc/s
 reflection 0=4800
 and ionospheric storms, 1960-62 U.S.
 work review 4=30949
 limb flares, October 13 (1958) 1=1648
 limb, physical structure eval. 3=11545
 limb, selective excitation conditions 3=9207
 line and continuous emission from limb flares 1=1649
 loop model, Balmer line broadening and
 asymmetry 4=13937
 luminosity mechanism 4=2448
 Lyot heliograph results from Cape, relation with
 SID 1=7996
 magnetic activity non-correlation 0=755
 magnetic clouds, diffusion of cosmic rays 0=11255
 magnetic crotchets and solar flares 2=11128
 magnetic field meas., from Zeeman splitting and spot
 field observ. 0=18759
 magnetic fields, transversal, correl. 3=9208
 magnetic storm forecasting 0=14181
 magnetic storm time delays, effect of pre-storm
 conditions 3=7002
 and magnetic storms 4=13865
 major flares, rel. to sunspot area changes 4=10905
 major radio events (1952-60) spectral components 2=2559
 measurements by third Soviet cosmic rocket 1=4815
 measurements by third Soviet cosmic rocket 1=10939
 min. activity, cosmic-ray variations 0=9464
 min. solar activity and cosmic-ray 27 day recur-
 rences 0=11259
 modulation of cosmic-ray primaries 0=11252
 and moon luminescence excitation 4=23891
 net electric charge on stars, theory 0=10512
 new class, correl. with ionospheric absorpt.,
 polar 3=16376
 noise bursts and short-wave fadeouts correl. 4=10913
 rel. to noise storms, during IGY 2=13167
 north-south asymmetry, long-term 3=18631
 observations at Stockholm and Anacapri (1960) 2=9079
 occurrence, rel. to N night sky emission 1=10329
 origin 0=18763
 origin and evolution, cosmic-ray generation 2=24109
 origin, from oxidation of H in solar wind 1=11651
 origin, role of plasma instabilities 4=2449
 origin, terrestrial particles 0=6583
 origin of X-rays, cm-wave emission 2=7007
 rel. to outer radiation belt var. 2=15267
 and p bursts, 1956-1961 4=10906
 particle emission and radio effects 2=13916-18
 photometer 1=15400
 photometry of region prod. 10.7 cm bursts 3=23706
 plasma cloud, internal structure 2=13099
 plasma and cosmic-ray ejection (1957-60) 2=12053
 plasma instability 0=6600
 polar faculae, distrib. and visibility function 2=11133
 polar radiowave blackouts due to solar flares 1=20944
 positions relative to sunspots 4=7983
 and prominences 3=23688
 and prominences, loop 4=29467
 proton bursts, energies and time depend. 2=13903
 proton emission, cosmic-ray "flares" in
 stratosphere 0=20277
 proton release mechanism 4=29465
 protons from July 10, 1959 flare 1=20948
 protons, producing C¹⁴ and tritons in terrestrial
 atmosphere 0=18525
 protons, rel. to v.l.f. absorption in ionosphere 1=20953
 "puffs", and associated with radio bursts 1=6731

Sun--contd

flares--contd

- "puffs", type III radio bursts 0=4854
 radiation observation, July (1959) 1=13583
 radio-burst event selection, rel. to polar-cap absorption 3=13920
 radio bursts and flare importance 200-9400Mc/s 3=16377
 radio burst generation by class 3 flare 3=25978
 radio bursts, type IV, associated 21 cm radiation 2=11157
 radio emission 2=13165
 radio emission by bursts 2=2558
 radio noise study at 25 Mc/s 1=15551
 radio outbursts, props. of flares 2=21716
 and radio storms, 169 Mc/s 3=18650
 resulting geomagnetic activity 0=6434
 retardation of earth's rotation 2=872
 review of work since beginning of IGY 4=2446
 S-shaped, mag. field (16 July 1959) 0=9
 and S.I.D. 2=4633
 S.I.D., class 2*, accompanied by high-energy X-rays, rocket meas. 0=16539
 S.I.D., effect on u.h.f. scatter propagation 0=21346
 SIL radio detect. method 4=20931
 shape, correl. with mag. field zero-line 2=15359
 shock front velocities 2=13133
 short-wave fadeouts without reported flares 0=12285
 short-wave fadeouts rel. to solar flares 2=11128
 small, assoc. cosmic-ray increase 0=15482
 Solar activity, 1959 1=1643
 solar corpuscular streams and geomagnetic field, July (1959) 1=18084
 solar disturbances and cosmic-ray equator 0=11260
 solar event observation in white light 1=2617
 solar physics review 0=14407
 solar plasma rel. to geomagnetic storm commencement 1=15348
 solar protons, α -particles (Nov. 1960) 2=20460
 solar radio emission, polar cap cosmic noise absorption, correl. 0=12257
 solar radio noise storm correl. 0=14422
 solar wind, rel. to corona temp. grad. 3=9210
 solar wind and gegenschein 1=10336
 source, complex fields in and below photosphere 3=3582
 space effects, dosimetry, due to particles 4=20958
 spectroscopy, with echelette grating and tower telescope 0=18771
 spectroscopy, and H α photography 0=18768-9
 strong-explosion theory, energy emission and temp. 2=24123
 structure and Balmer series lines 0=6605
 sudden cosmic noise absorpt. correl. 2=11150
 sudden frequency deviations, induced 4=2270
 on sun's hidden face, association with radio noise burst 1=4217
 from sunspot group, (July 1961) 3=11539
 superflares and H α striation pattern 3=16378
 surge events (7 Sept. 1958) 1=1644
 surges, formation theory 0=11
 Swedish observations, during 1958 0=6599
 Swedish observations, during 1959, at Stockholm and Anacapri 1=4200
 and 10-7 cm noise bursts, coincidence 1=18088
 theory, rel. to plasma stability theory 3=7515
 thermonuclear assembly simulation, noise emission 2=1579
 time intervals rel. to earth mag. field var. 2=13067
 total energy, and rel. to magnetic field and sunspots 2=975
 triton flux, trapped in satellite 1=12754
 rel. to type II radio bursts 1=2655
 type II radio bursts, optical study 0=4900
 type III burst correl., metre wave data 2=11156
 rel. to type III bursts 2=13173
 rel. to type IV bursts 1=18159
 Type IV burst, moving, dm observation 4=15957
 type IV bursts, and synchrotron radio emission 2=2557
 type IV, relation with SC-geomag. storms 2=15277
 type IV radiation, covering sunspots 3=21126
 rel. to type V bursts 3=11590
 unusual cosmic-ray increases rel. to solar cycle 2=13931
 unusual element probability in very large flares 1=18086
 rel. to VLF diurnal phase changes 1=19044
 VLF diurnal phase changes and solar flare effects 2=13032

Sun--contd

flares--contd

- white light correl. with cosmic-ray emission 0=392
 white-light flare explained as loop prominence 2=974
 white light flare, observation 1=18099
 X-radiation, inverse Compton effect 4=29464
 and X-radiation, by rockets and satellite 3=11481
 X-ray emission 2=15338
 X-ray emission, balloon studies 1=9270
 X-ray spectra rel. to non-flare and flare-active conditions 4=29463
 Feb. 1956 and July 1959 effect on earth's rotation 1=18021-2
 31 Aug 1956, cosmic-rays produced 0=391
 1957 data, Istanbul Obs. 1=24
 3 July 1957, photometric study 2=7006
 19 Sep. 1957, spectrum 1=1647
 16 Dec. 1957, ionospheric and geomagnetic effects 1=20942
 20 March 1958, associated r.f. burst 1=6735
 23 March 1958, effects, current system 0=14428
 July 1958, energetic proton flux 2=16256
 7 July 1958, changed particle flux, Sputnik III results 2=11129
 7 July 58, effect in auroral zone 0=2036
 7 July 1958, 3', followed by polar cap absorption 0=16430
 7 Aug. 1958 0=840
 22 Aug. 58, low-energy cosmic-ray observations 0=9483
 22 August 1958, radio emission 0=8474
 1959 events, Helsinki symposium 1=7988
 1959, 1961, rel. to protons and α -particles 3=17362
 10 May 1959, prod. of cosmic-ray protons 0=13094
 July 1959, with cosmic ray, mag. storm data 2=17224
 July 1959, cosmic ray modulation effects 1=19309
 July 1959, cosmic-ray observations 0=1339, 17450
 July 1959, cosmic and solar particle radn. at balloon altitudes 1=19310
 July 1959 events and associated phenomena 1=18085
 July 1959 events, aurora and geomagnetic disturbances 1=21104
 July 1959 events, auroral data 1=21040
 July 1959 event, cosmic ray neutrons 1=19307
 July 1959 events, summary 1=18083
 July 1959 events, unusual cosmic ray variations 1=19308
 July 1959, and magnetic storms 2=921
 July 1959, rel. to magnetic storm and cosmic-ray variations 1=13585
 July 1959, radio emission, spectral observations 1=18146
 10 July 1959, associated ionospheric effects 0=12181
 10 July 1959, rel. to cosmic heavy nuclei flux 2=22670
 10 July 1959, rel. to cosmic proton and α -part. cut-off rigidity 2=22671
 10 and 14 July 1959, two 3* flares 0=10506
 16 July 1959, assoc. mag. fields 0=14429
 July 16, 1959, rel. to cosmic ray activity 1=13581
 16 July 1959, polar-cap absorption 2=4640
 July 17, 1959 and May 4, 1960, rel. to cosmic ray variations 1=13582
 July 17-18, 1959, relativistic particles spectrum and propagation 1=16929
 17 August 1959, emission spectrum, catalogue 0=18771
 November 30, 1959, associated microwave emission decrease 1=6742
 April, 1960, unusual feature 0=18765
 May 1960, cosmic-ray increases at Bergen 1=9789
 May 1960, cosmic-ray intensity 1=19633
 4 May 1960, visual obs. and cosmic-ray neutron correl. 1=7999
 June 1960 flare, Lyot heliograph results 1=7997
 1 June 1960, H α observations 0=18764
 Sept. 2, 1960, spectrum of flash-phase 3=11541
 3 Sept 1960 rel. to cosmic-ray protons and α -parts. 2=7913
 3 Sept. 1960, cosmic-rays delayed propagation due to solar cloud interaction 1=10936-8
 27 Sept. 1960, rel. to type IV cosmic-ray burst 3=10189
 Nov. 1960, rel. to cosmic-ray neutron increases 1=13587
 12, 15 Nov. 1960, cosmic-ray correlations 1=9794
 12 Nov. 1960, cosmic-ray emission 1=12134
 12 Nov 1960, He³ in satellite materials 2=15360
 Nov. 15 1960, white-light and H α obs. 1=15478
 20 Nov 1960, rel. to cosmic ray increase 2=12026

Sun—contd

flares—contd

- 20 Nov. 1960, visual obs. and cosmic-ray neutron correl. 1=7999
 1961, obs. in Stockholm and Anacapri 3=9221
 20 July 1961, Western Limb, rel. to radio and corpuscular emission 3=10191
 28 Sept 1961, associated ionospheric effects 2=19221
 28 Sept 1961, rel. to ionospheric disturbs. 2=19219
 28 Sept. 1961, proton and energetic storm particles meas. 3=7953
 28 Sept. 1961, X-ray burst 3=9220
 15 April 1963, ionospheric absorption obs. 4=13844
 Sept. 1963, optical, ionosphere and geomag. obs. 4=23929
 C nuclei, emission 2=13901
 H α , differentiation by ionospheric disturbances and mag. storms 4=26960
 H α emission line, broadening and asymmetry 4=4915
 H α , inclination 3=13893
 H α profiles 2=4780
 H α spectroheliogram, photometric evaluation 2=7005
 H α and X-ray surges from limb, as causes of atmospherics 0=16542
 and O $_3$, lack of connection 4=7823

magnetism

- active region mechanism rel. to faculae, flocculi, coronal rays 1=18075
 Babcock's theory 2=15348
 calculation, computer program 4=13929
 centre of activity, magnetic fields 1=15476
 chromospheric motions near sunspots, correl. 3=3575
 cis-lunar mag. field, contrib. 2=19277
 corona, emitted cloud, rel. to geomag. storm 2=17276
 corona, variations meas. 3=9212
 coronal field, mapping by disk surges 1=15493
 coronal magnetic fields 1=8023
 cosmic rays, variations, short term, and magnetic clouds 3=12534
 direction and irregularities, from scatt. of cosmic r.f. radiations 0=14430
 distinction from interplanetary and earth 4=13854
 effect of corona hydrodynamic blast wave 1=7995
 field variation, rel. to flare generation 1=18092
 fields responsible for cosmic-ray variations 0=14182
 flare, assoc. mag. fields 0=14429
 flare (16 July 1959), assoc. mag. field 0=9
 flare of 16 July, 1959, magnetism in active region 3=16380
 flares, from Zeeman splitting and spot field study 0=18759
 flocculi, mag. field, corpuscular stream ejection 0=3422
 hydromagnetic model of field 1=18068
 interaction with solar wind 3=16368
 magnetic flux tubes and convection 4=29446
 magnetic tube, corpuscular flow 2=967
 magnetograph obs. with small apertures 2=19294
 magnetohydrodynamic stability of sub-photospheric tube of force 3=18629
 magnetopause, review 4=4958
 meas., general field, by magnetograph 4=15940
 modulation of cosmic rays 2=13914-5
 motion of solar cosmic rays 0=14408
 network, rel. to chromospheric convection 3=9209
 photosphere fields 4=23313
 photosphere, low, kinematical hydromag. theory 4=2419
 photospheric turbulent hydromag. fields 4=2418
 polar field, origin 1=18067
 polar zones, rel. to sunspots and prominences 0=6601
 poles position, from corona eclipse obs. 4=20917
 in prominence and corona formation 0=6592
 prominences, field strength, rel. to prominence lifetime 0=18758
 radial component of solar field 1=7983
 review 2=15349
 role in propagation of solar particles to earth 2=13916-8
 solar granules, mag. field 2=19306
 in sunspot cycle 0=16541
 sunspot field component meas. methods 4=20926
 sunspots field, correl. Mt. Wilson, Potsdam and Crimea data 0=6588
 sunspots, field pattern meas. 4=2428
 sunspot formation by magnetic fields 4=2432
 sunspots, longitudinal field, for September 1963 group 4=23918

Sun—contd

magnetism—contd

- sunspots magnetic fields rel. to areas (1917-56) 2=2536
 sunspots, rel. to polarization of light 2=17272
 sunspots, simultaneous observation of magnetic and velocity fields 1=2614
 sunspot umbral model in quasistatic equil. 4=10898
 thermocurrents in central region, local fields 4=4898
 topology of field, 22-year cycle 1=5149
 transversal fields, rel. to flares 3=9208
 23-year cycle for field distrib. and coronal streamer pattern 1=9267
 zero-line of horizontal component, correl. with flares 2=15359
- prominences**
 activation meas., rel. to moving disturbances 3=9222
 active selective excitation conditions 3=9207
 activity indices 4=26945
 artificial, caused by aircraft crossing sun 3=11547
 description in terms of chromosphere and corona 4=26948
 electron conc. (Oct. 2, 1959, lat + 37°) 3=16382
 eruptive motions, general pattern, mag. field effects 4=4917
 faculae contrast, rel. to wavelength 4=2430
 and flares 3=23688
 formation, rel. to effect of charged particles on corona 3=16392
 large, April 12-14, 1963, H α emission surges 4=13939
 limb, rel. between apparent and true elements 4=13938
 long-lived filaments, lack of correl. with mag. storms 3=16305
 loop, and flares 4=29467
 loop, and sprays, (July 1, 1960), spectrum 3=11550
 1960 observations 3=9223
 prominence activity, 1944-54 3=3583
 prominences, Balmer and Paschen continua 2=4784
 prominences, quiescent, interpretation 2=4785
 prominences, rel. to temperature conditions 1=15482
 quiescent, model, and u.v. radiation effect 4=2452
 quiescent prominences, model and temperatures 3=16384
 quiescent, stability from H α -line data 3=16383
 radio obs., 10.7 cm, eclipse of 5/2/62 4=10917
 rising, and corona 3=16375
 spectra, reduced half-widths, turbulence and temp. data 4=10908
 spectrum of quiescent prominence, obs. at solar eclipse 15 Feb. 1961 4=10909
 from sunspot group, (July 1961) 3=11539
 and X-radiation, by rockets and satellite 3=11481
 254 prominences, classification on b-line data 1=15480
 H excitation and ionization processes 4=23931
- radiation**
 See also Sunlight
 absolute intensity at centre of disk in near i.r. 3=21106
 absolute intensity at centre in 4010-6569 Å 2=21711
 absorption by atmospheric water vapour 0=14409
 absorption by atmospheric water vapour 2=2481
 absorption at snow surface 0=14301
 actinometers, effect of aperture conditions 2=2485
 activity centres, optical phenomena 1=18071
 activity, rel. to decrease in F-region ionization 2=4649
 activity indices based on meas. of atmospherics 0=6452
 air density correlated to solar radiation 2=6931
 apparatus used for investigation 4=26893
 and atmosphere, stratosphere equatorial wind, 26-month osc. 4=10701
 atmospheric effects, book 4=10695
 atmospheric radiometer for ingoing and outgoing radiation flux measurements 1=15221
 atmospheric transmission, near i.r. 1=1510
 battery, Pb-acid storage, apparent control, in 11 yr cycle 3=1927
 biological effects on man 1=1598
 bursts, associated with chromospheric flares 3=1522
 bursts, type II, from shock fronts in corona 2=13133
 centre of disc, 4500-8600 Å, comparison of results 4=23909
 centre-to-limb wavelength increase 0=18774
 chromosphere, neutral He 2=4771
 chromosphere, radiation temp. 2=4769

Sun—contd

radiation—contd

- chromosphere, thermal equilb. of electrons 3=3581
 chromospheric spicules, H β , H γ and K profiles 0=18761
 contours of solar lines near extreme limb 0=18773
 contra-streaming hydrogen plasmas 0=3777
 cooling of coronal matter 0=11
 corpuscular, acceleration by class 3 flare 3=25978
 corpuscular, after July 7, 1958 flare, Sputnik III
 results 2=11129
 corpuscular, Alfvén waves 2=20002
 corpuscular, in Arctic, rel. to mag. storms 2=15281
 corpuscular clouds, observation by direct continuous-wave
 reflection 0=4896
 corpuscular and e.m. of all wavelengths 2=15302
 corpuscular, earth mag. field interaction 2=9042
 corpuscular, rel. to earth radiation belt 2=11082
 corpuscular, effect of earth's mag. field 1=6656
 corpuscular, effect of earth's mag. field 1=11654
 corpuscular, effect on interplanetary matter,
 investigation 2=4728
 corpuscular emissions 1=9191
 corpuscular emission from active regions 1=18093
 corpuscular emission rel. to enhanced ionospheric
 ionization 2=8996
 corpuscular emissions, enhanced ionization in polar
 ionosphere 0=14223
 corpuscular, energies above 1.5 GeV determ. 2=16273
 corpuscular flow in magnetic tubes 2=967
 corpuscular, Forbush decreases 2=13907
 corpuscular, rel. to geomag. activity semiannual
 variation 2=15287
 corpuscular, geomag. hollow at earth 3=9120
 corpuscular, rel. to geomagnetic storms 1=6652
 corpuscular, geomag. trapping, rel. to auroral
 H lines 2=4676
 corpuscular, geophysical effects 0=21313
 corpuscular, during IGY, study based on geomagnetic
 disturbances 1=1591
 corpuscular influence on large-scale circulation at
 300 mb 0=14187
 corpuscular, interaction with earth's magnetic field,
 dipole 3=24288
 corpuscular, interaction with geomagnetic field 1=10705
 corpuscular, interaction with geomag. field in
 magnetosphere 2=15262
 corpuscular, at interplanetary distances 2=15301
 corpuscular, rel. to interplanetary mag. field 2=13916-8
 corpuscular, ionization effect in lower ionosphere 2=15216
 corpuscular, rel. to ionospheric disturbances 2=2500
 corpuscular, mag. clouds, rel. to cosmic-ray
 storm 2=22674
 corpuscular, medium nuclei, ratio to protons 1=10938
 corpuscular, magnetohydrodyn. instability 3=9213
 corpuscular, modulation by solar mag. field 2=13914-5
 corpuscular, optical evidence in eclipse 2=15356
 corpuscular, as origin of Jupiter's decimeter
 radiation 1=1658
 corpuscular, plasma and magnetic fields in solar
 system 0=10487
 corpuscular, polar atmosph. heating 3=13796
 corpuscular, polar cap absorption date 2=21644
 corpuscular radiation, rocket study 0=14381
 corpuscular, satellite obs. 1=3305
 corpuscular, shock wave excitation in comets 3=9181
 corpuscular (solar wind), review 2=7008
 corpuscular, space-rocket obs. and plasma 2=9070
 corpuscular, and stellar winds, hydrodynamic
 theory 1=2611
 corpuscular streams, ejection, effect of fluculi mag.
 field 0=3422
 corpuscular stream, interaction with earth's field 1=15353
 corpuscular streams, rel. to ionospheric plasma wave
 generation 2=884
 corpuscular streams, 1950-3, origin 0=8359
 corpuscular streams, non-uniformity 1=6646
 corpuscular streams as origin of magnetic
 storms 1=15351-6
 corpuscular streams from plages, radiality 2=963
 corpuscular stream, stability, origin of mag.
 storms 1=15352
 corpuscular stream, stationary hollow, rel. to
 geomagnetic field 1=15257

Sun—contd

radiation—contd

- corpuscular streams, total energy 2=964
 corpuscular, terrestrial and cometary
 manifestations 1=2610
 corpuscular, at top of earth's atmosphere 2=16255
 corpuscular velocities in streams, rel. to M-
 disturbances 2=968
 corpuscular wind, interaction with solar mag. field 3=16368
 cosmic rays, backscatter by H II sphere 0=20279
 cosmic-rays, balloon observations
 (26th March, 1958) 0=9482
 cosmic ray increase, July 16-17, 1959 1=19306
 cosmic rays from July 1959 events 1=19305
 cosmic rays, intensity decrease in storms, correl. 2=3438
 Cosmic rays, intensity, energy spectra 3=24751
 cosmic-rays, intensity and solar activity 0=11249
 cosmic rays, latitude dependence rel. to solar
 activity 2=5768
 cosmic ray modulation, theory 1=3362
 cosmic rays, propagation through interplanetary
 magnetic field 2=3429
 cosmic rays, propag. through interstellar mag.
 field 1=20956
 cosmic rays and soft radiation, obs. at 5×10^6 km
 from earth 1=20949
 cosmic ray solar outburst of May 4, 1960 1=13557
 daily index based on E-layer ionization 0=14230
 direct conversion to electrical energy by CdTe
 photocell 2=8444
 e.m. radiation, from rotating electrons, in mag.
 field 0=5316
 earth heat-balance, meas. by satellite, discussion 2=2458
 effect on atmospheric temperature 1=15224
 effect on lower ionosphere 0=2008
 effect on meteorological parameters 1=10305
 effect on Sputnik III signals 0=18
 electron emission in solar atmosphere 1=15445
 emission intensity at 11 μ 0=18770
 energy, absolute, 6000-8600 Å, from centre of
 disk 1=6711
 energy conversion, photocell efficiencies 0=9987
 energy conversion, photovoltaic cells, temp.
 considerations 0=7967
 energy at focus of parabolic mirror 2=11472
 energy meas., absolute, in 3382-10 000 Å 4=10893
 equilibrium, radiative, solar atmosphere 4=2344
 far u.v. emission, effects on earth and planets 2=15347
 fluctuation data, interpretation methods 4=23908
 flux meas. below 110 Å by spaceship 2=19297
 γ -emission from flares, "radiating" electron theory 4=2450
 γ , energetic, γ -ray telescope detection 0=16460
 γ -rays, prod. of neutrons in atmos. 1=21081
 general corpuscular field due to sun, existence,
 theory 2=965
 geophysical effects 0=21314
 heating of upper atmosphere, rel. to density
 variations 1=2570
 high-energy particle emission, from IGY data 2=970
 for high temp. prod. by mirror conc. 4=21347
 historical past manifestations 4=26932
 integrator 0=14952
 interplanetary space radiation environment 2=9053
 ionizing radiation sources, investigation during
 eclipse 2=21649
 ionosphere, D region, photoionization 1=11649
 limb darkening near H α 0=10509
 limb emission between Balmer and Paschen
 limits 4=29452
 Lyman- α emission line 1=5153
 Lyman- α emission region, origin 2=15345
 Lyman- α obs. of solar disk 2=15343
 Lyman- α radiation 1=21018
 M corpuscles and atmospheric pressure increases 3=23589
 M corpuscular streams, latit. and height depend. of
 atmospheric disturbances 4=4790
 M regions, long-lived, theory rel. to geomag.
 disturb. 2=4766
 magnetohydrodynamic, effect on earth's mag.
 field 2=13077
 Mariner II, solar plasma expt. 3=7028
 neutrino radiation 0=5631
 neutrino spectrum, from revised model 4=17998

Sun—contd

radiation—contd

- observations of near i. r. radiation using coronagraph and spectrometer 4=10899
- origin of terrestrial particles from solar flares 0=6583
- particles, air fluorescence detect. possibility, O^+ , N_2^+ 3=25931
- plasma, interaction with earth's field 0=18468
- polarization of light from sunspots 1=2615
- polarization, rel. to sunspots and mag. fields 2=17272
- pressure, artificial satellite perturbations 0=10530
- pressure, effect on artificial satellite orbit 2=24189
- pressure, effect on artificial satellites 1=18214
- pr. effect on Echo balloon 1=50-1
- pressure, effect of perigee ht. of Vanguard I 0=8531
- pressure, effect on satellite orbits 0=8530
- pressure, forces and moments on body 4=2475
- pressure, influence on artificial satellite motion 0=14472
- pressure, propulsion of space vehicles 0=12334
- protons, as cause of geomagnetic variations 0=1989
- protons, during Nov. 12 1960 event 2=13900
- proton and electron stream interaction with terrestrial magnetic field 1=15358
- proton emission, geophysical effects, review 4=29442
- protons of energy <500 MeV 2=3430
- protons, entry into ionosphere and its effects 1=20957
- protons in inner van Allen belt 1=15335
- protons, interplanetary, long-lived, >3MeV, and mag. storms 4=2413
- protons, ionization of ionosphere and its effects 1=20958
- protons from July 10, 1959 flare 1=20948
- proton streams, balloon study 1=2147
- pyrheliometer, bolometric, as standardization instrument for absolute meas. 4=24428
- radioastronomy developments in USA 2=9108
- reflected solar energy and energy received at ground, satellite meas. 4=23752
- review, effects on earth 4=20850
- review, ionizing 4=30936
- rocket astronomy data 0=16538
- rocket meas., rel. to X-ray absorpt. of Al 2=13127
- satellite study, Earth-orientation 4=15968
- and satellites, artificial non-spherical, pressure effects, orbital 3=23715
- scattered sky radiation in presence of O_3 absorpt., effect of ground reflection 4=23753
- short-wave, filter apparatus 3=9151
- short-wave, flux meas. with photon-counters 3=9189
- short-wave, suitable photocathodes 3=9150
- solar bundles, observations in Norway 0=8415
- solar corpuscular stream boundary by interaction with dipole field 2=6965
- solar cosmic ray propagation through interplanetary magnetic field 1=13541
- solar neutrino flux 3=13879
- solar particles, acceleration mechanism 1=3331
- solar wind, coupling with exosphere 0=16456
- solar wind, effect on earth's magnetic field 1=21101
- solar wind and gegenschein 1=10336
- solar wind-geomag. fld. interaction 3=25958
- solar "wind", rel. to origin of atmospheric oxygen 1=20811
- solar wind, as origin of seawater on earth 2=15181
- solar wind, stability with geomag. field 2=4693
- solar wind, terrestrial accretion 1=11651
- solar wind, unifying hypothesis with aurora and Van Allen radiation belt 0=4813
- use for space navigation 0=12690
- spectrometer for far u.v. 3=23682
- streams rel. to hollow in earth's magnetic field 1=21095
- Swan bands of comets, excitation mechanism 0=14406
- triton flux from flare 1=12754
- u.s. research programme, for space stations 2=13122
- Uccle, 1954, tables 4=7843
- Uccle observatory 1959 report 1=15231
- u.v., atmospheric effects, satellite obs., non-Russian 3=18492
- ultraviolet, atm. reflection, rel. to ozone distrib. 2=4591
- ultra violet, atmosphere, upper, photoelectrons and N day glow prod. 4=17922
- ultraviolet rel. to chromosphere-corona transition layer 2=978

Sun—contd

radiation—contd

- ultraviolet, effect on cometary phenomena 2=15323
- u.v. continuum study 3=3885
- u. v. limit, daily var. 4=26794
- u.v. and radio, and atmospheric structure 3=23686
- ultraviolet, review 4=17999
- ultraviolet, sources 1=15487
- u.v., transmission by atmosphere 1=15273
- ultraviolet and X-rays, historical survey 2=15337
- upper atmosphere, solar extreme u.v. radiation 1=20891
- wind, solar, effect on atmospheric density above 200 km 3=9068
- wind velo., non-uniformity, and cosmic-ray variations 3=21111
- X-radiation monitor, rocket-borne 2=9034
- X-rays 1=20878
- X-rays, accompanying three S.I.D. flares, rocket meas. 0=16539
- X-rays, bursts, origin 2=17281
- X-ray burst, rel. to flare, 28 Sept. 1961 3=9220
- X-rays, centre-limb variation of slowly varying radiation 0=18742
- X-rays, coronal effect on aurorae 2=21665
- X-ray emission of Fe XV and XVI, rel. to coronal temp. 4=29462
- X-rays, emission, free neutron decay 0=18767
- X-ray emission, photon energy distrib. 2=19300-1
- X-ray emission, theory 1=15488
- X-rays, Feb. 15, 1961, studied during eclipse 2=9069
- X-rays in flares, and earth, mag. field, var. 4=10775
- X-rays, from flares, ionospheric effect 2=17164
- X-rays, high-energy, during flares 1=9270
- X-rays, ionization of E-layer 1=15273
- X-rays rel. to ionosphere D-region sudden disturbances 3=6981
- X-ray, 1-400A, satellite obs. 4=26934
- X-ray photograph interpret. 3=9206
- X-ray, photon energy distrib. meas. 3=9190
- X-rays, rocket and satellite obs. 2=4760
- X-rays, satellite obs., signal reception instrument 4=29495
- X-ray, space satellite meas. 3=23681
- X-ray, and sunspot activity, solar flares and prominences 3=11481
- X-rays and u.v., eclipse obs. 2=15339
- X-ray and u.v. intensity meas. at 60-96 km altitude 4=7880-1
- X-ray and u.v., ionospheric effects 3=13739-40
- 0.2 to 6 μ , reflections, meas. by Tiros II 2=8950
- 1-12 μ region, meas. programme 2=8973
- 3 cm activity centre passages, rel. to geomagnetic storms 4=7938
- C nuclei, in solar flare 2=13901
- H α and X-ray surges, as cause of atmospherics 0=16542
- He emission, far u.v., space vehicle meas. 3=23683
- radiation, corpuscular**
(subheading introduced in 1964)
- and atmosphere radiation belt electron component 4=26834
- Cherenkov radiation in exosphere 4=4791
- conference, Varena (1961) 4=20883
- and cosmic ray daily var. calc., coordinate transform. 4=19623
- and cosmic ray 27-day var. 4=30291
- cosmic rays, book 4=26884
- cosmic rays, nuclear composition and rigidity spectra 4=25228
- cosmic rays, soft, enhancement of high energy (> 35 keV) radiation meas. by Sputnik III 4=29443
- direction of incidence, effect of magnetosphere rotation 4=7933
- effect on polar glow aurora intensity ratio 4=30941
- interaction with earth's magnetosphere, viscous 4=15897
- and ionosphere polar cap absorpt., review 4=26845
- low-rigidity, anomalous entry into geomag. field 4=3516
- and magnetic storms, mag. field focussing 4=7939
- neutrino intensity calc. on p-p cycles 4=26942
- neutrinos, detection by $Cl^{37}(\nu, e^-)Ar^{37}$ 4=20918-19
- p bursts and flares, 1956-1961 4=10906
- p, spectrum, 0.5-6 MeV, rocket obs. 4=6154

Sun--contd

radiation, corpuscular--contd

- primary cosmic rays, momentary increase meas. 4=15117
- production of high energy particles, acceleration mechanisms and Alfvén's magnetic pumping theory 4=26940
- protons, propag. in interstellar mag. field 4=26938
- protons, 1961 data 4=26937
- radio evidence of violent ejection and quiet streaming 4=23930
- review 4=26935
- rocket meas. at 1.9×10^6 km, rel. to geomag. field 4=13931
- solar, protons, long-lived, >3 MeV, and mag. storms 4=2413
- solar wind, conductive heating of corona 4=10903
- solar wind, effects on lunar surface, simulation expts. 4=7975
- solar wind interaction with cometary head plasma 4=29430
- solar wind interact. with galactic mag. fld, investig. as lab. plasma source in mag. fld. 4=18820
- solar wind, rel. to coronal streamers 4=20928
- solar wind, rel. to geomag. field boundary 4=23819
- solar wind, injection into magnetosphere 4=20857
- solar wind interaction with earth's magnetosphere, viscous 4=15897
- solar wind, rel. to recurrent geomag. storms 4=15896
- solar wind and magnetosphere, hydromagnetic coupling 4=20858
- source of energy of geomag. storms and auroras 4=29338
- and r.f. radiation, slow var. 4=29478
- stream and solar wind evidence 4=26939
- stream detection at 1.9×10^6 km from earth 4=7982
- sunspot group, associated, geometrical parameter 4=15955
- and wind, solar 4=26936
- wind velocity, Mariner 2 obs., rel. to cosmic-rays, solar and geomag. activity 4=13930
- X-rays, soft, coronal emission study 4=26957
- radiation, radiofrequency**
- active-region emission, $\lambda = 3-21$ cm 3=16424
- active regions, 8 mm region meas. 4=23941
- activity centres, 3.23 cm study, with 2-aerial interferometer 0=4852
- activity indices 4=26945
- after flare (22 Aug. 1958) 0=8474
- anomalous scintillation in earth's troposphere 2=2562
- atmospheric scintillations, observed with centimetric waves 0=16474
- bright spots, at 88 cm, apparent temp., bursts 1=2644
- brightness distrib., at 60 cm, localized regions 0=4851
- brightness distrib. at 21 cm 1=18165
- brightness and polarization measurement 2=7036
- burst generation by class 3 flare 3=25978
- burst, Nov. 1960, at 10.7 cm, association with flare on sun's hidden face 1=4217
- bursts, associated with flare "puffs" 1=6731
- bursts, association with flares 0=4898-9
- bursts, cm-wave, correlation with flares 0=14214
- bursts, cm wavelength, rel. to cosmic and X-rays 2=13166
- bursts, cm wavelength, origin 2=7007
- bursts of continuum on 87 and 340 Mc/s 1=15543
- bursts and coronal streamers 2=4836
- bursts, correlated with magnetic and cosmic-ray storms 0=20280
- bursts, correlation with mag. activity and cosmic rays 1=6730
- bursts, rel. to cosmic-ray emission 0=4858
- bursts, dynamic spectra at 100-580 Mc/s 1=2653
- bursts at 18 Mc/s associated with flares 1=6728-9
- bursts, 500-25000 Mc/s spectrum 1=8026
- bursts, 5-210 Mc/s, cut-offs due to ionosphere 3=1538
- bursts (4 Nov., 1957) 0=18643
- bursts at 40-70 Mc/s, transverse motions 1=2651
- bursts at 49 and 60 Mc/s, source sizes 2=13162
- bursts, freq. analysis in cm and lower dm 2=15401
- bursts, frequency drift with time 0=4859
- bursts, $\lambda = 3$ cm, interferometric study 1=6734
- bursts, localization, on 8 mm 2=1006
- bursts, magnetic storm forecasting 0=14181
- bursts, at metre and cm wavelengths 0=4856

Sun--contd

radiation, radiofrequency--contd

- bursts at metre wavelengths, investigation techniques 4=4945
- bursts, microwave, associated with solar flares 1=6733
- bursts, microwave, rel. to cosmic-ray inc. 2=13159
- bursts, 19 Mc/s, source location, correl. optical activity 0=4857
- bursts at 1m, origin 2=17281
- bursts, at 1000-9400 Mc/s, polarization 1=6732
- bursts, polarized and noise storms 0=6560-1
- bursts, power spectra, rel. to geomag. and ionospheric disturbances 0=18474-5
- bursts, and S.I.D. effect on u.h.f. scatter propagation 0=21346
- bursts, short-duration 0=18641
- bursts, short-duration, positions and diameters 1=6739
- bursts, short-lived, at 400 Mc/s 1=6737
- bursts, slow-drift type 1=18164
- bursts, slow drift, velocity 0=6562
- bursts, 10.7 cm, from flare region 3=23706
- bursts, 20 March 1958, correl. with cosmic rays and flare 1=6735
- bursts, at 200 Mc/s, frequency drift and fine structure 1=6738
- bursts, 200 Mc/s, source height 2=2561
- bursts, 200 Mc/s, source height and motion 2=13161
- bursts, type I, characteristics 2=19348
- bursts, type I theory 4=13964
- bursts, type II, dynamic spectra, correl. mag. storms 1=2654
- bursts, type II, optical observations of associated disturbances 1=2655
- bursts, type II and III, exciters 2=13163
- bursts, type III 2=19346
- burst, type III, and active dark filaments 4=23943
- bursts, type III and charge motion in mag. neutral planes 4=30030
- bursts, type III, 15-38 Mc/s, noise storms 0=6556
- bursts, type III, rel. to flares 2=13173
- bursts, type III and IV, motion and height 2=2560
- bursts, type III, polarization characts at 74 Mc/s 4=23942
- bursts, type IV, analysis 1=15544
- bursts, type IV, rel. to cosmic rays 2=13158
- bursts, type IV, and mag. storms 4=20879
- bursts, type IV, at metre wavelengths 4=10914
- bursts, type IV, rel. to solar mag. cloud 2=12037
- bursts, type IV, study at 169 Mc/s 1=2652
- bursts, type IV, 25-580 Mc/s, two distinct phases 2=13160
- bursts, type IV, 25-580 and 2100-3900 Mc/s 2=12021
- bursts, types II and III, excitation mechanism 1=15554
- bursts of types II and IV rel. to sunspot data 4=4949
- bursts, v.l.f. modulation 1=15549
- bursts, very intense, 10-25 Mc/s 2=24169
- chromosphere-corona transition layer 2=4835
- chromosphere temp. and density model 0=18630
- classification and origin 4=26948
- cm and lower dm range, emission bursts 3=25977
- cm wave bursts rel. to metre wave bursts 3=1540
- cm wave emission and ionosphere E layer ionization 1=15274
- c.m. wave emissions, detection and observation 1=18151
- cm-wave solar bursts and associated effects 1=8025
- conference, Kyoto, 1961 3=15054
- continuum emission, relationship with type I bursts 1=15539
- from corona, 4.3 mm, slowly varying component 2=13172
- corona intensity, comparison with optical studies 0=2082
- corona, radioheliograms 0=18634
- from corona, slow variation, mechanism 0=14427
- corona, spectrum interpret., review 4=15943
- corona study 0=3407-8
- corona, and 2 dimensional model, ~ 3.6 m 4=26967
- coronal condensations, 169 Mc/s thermal radiation 1=15540
- coronal electron density meas. 1=2647
- coronal mass motions and solar wind, radar evidence 4=29479
- from corona, passage of particles, noise meas. 2=4834

Sun—contd

radiation, radiofrequency—contd

coronal plasma, sporadic emission, noncoherent mechanism 2=1007
 corpuscle transfer following burst 2=9112
 corpuscular emission, violent and quiet, radio evidence 4=23930
 and corpuscular protons, slow var. r.f. 4=29478
 correlation with geomagnetic storms 1=10341
 correlation with ionospheric electron collision freq. 4=29326
 and cosmic-ray storms 01=11235
 decimetre, associated with type IV radio bursts 2=11157
 decimetre radio bursts 3=11589
 detection of coherent harmonics 0=833
 developments and techniques 1=44
 dimensions of quiet sun on 169 Mc/s 2=9080
 distance from earth var. effects 4=20943
 disturbances, catalogue, July 1961 3=18529
 during eclipse, 15 Feb. 1961, 1.5-4m 3=1539
 during eclipse, 19 April 1958, microwave brightness distrib. and polarization 0=18647
 during total eclipse, Feb. 1961, obs. 2=4838
 dynamic spectra of bursts, comparison between decimeter and meter wave ranges 1=2657
 e.m. wave propag., by plasma oscillations 0=3766
 earth's mag. field micropulsations 27 day solar depend. 0=10395
 eclipse, 9.1 cm obs. 4=26954
 eclipse observations, April 1958, at 0.8-50 cm 1=2650
 eclipse (Oct. 1960), riometer observations 2=1004
 electrons, gyro-resonance radiation, transfer equations 4=29476
 emission centre model, relation to sunspots and plages 1=2646
 emission at millimetre wavelengths 1=11683
 emission region dimensions 0=12262
 enhanced emission, high-resolution spectrometry 2=2564
 fast-drift bursts, excitation 3=23704
 flare radio-burst event selection, rel. to polar-cap absorption 3=13920
 and flare (Sept. 1963) 4=23929
 flare surges (7 Sept. 1958) 1=1644
 from flare, ZETA simulation, noise emission 2=1579
 flares, e.m. continuum 3=11549
 from flares, origin near active spot 2=21716
 from flares, review 2=13165
 from flares, rel. to X-ray emission 2=24124
 inner corona model 0=18631
 interferometry 1=18152
 and ionizing radiation, E-region 3=16271
 ionospheric disturbances, geomag. storms, relations with 2=17218
 July 1957 to July 1958, effects on cosmic rays and magnetic storms 1=16926
 July 1959 emissions 1=18148
 July 1959, rel. to mag. storms 1=18167
 July 1959, spectral observations 1=18146
 July 1959, type IV bursts and magnetic field disturbance 1=18147
 limb coronal condensations, eclipse of 5/2/62, 10.7 cm 4=10917
 local emission regions, identification 4=13965
 local source spectrum, during eclipse 2=24167
 local sources, 4 and 8 mm identic. 3=13921
 rel. to low-energy solar cosmic rays 1=18168
 major events, 1952-60, spectral components 2=2559
 meter wave bursts, directivities 3=16425
 metre wave emission, rel. to type III bursts 2=11156
 metre-wavelength bursts, classification 1=18153
 metre wavelength centre-limb variations of quiet sun 1=1661
 microwave bursts 1=6741
 microwave bursts, synchrotron radiation theory 1=15552-3
 microwave, decrease during November 30, 1959 flare 1=6742
 microwave polarization 1=8023
 microwave (1000-9400 Mc/s) emission 1=18160
 microwaves, limiting polarization 2=2563
 multiphase interferometer for source location 0=6567
 narrow-band bursts, plasma osc. theory 4=554
 1957 Nov. 4 event 1=18163

Sun—contd

radiation, radiofrequency—contd

noise bursts correl. with short-wave fadeouts and flares 4=10913
 noise bursts of 12 Nov. 1960 1=10392
 noise emission periodicities 0=6557
 noise fluctuations 0=3407
 noise flux rel. to atmospheric density >200 km 2=15260
 noise storm, correl. with solar flares 0=14422
 noise storm at 201 Mc/s 2=11158
 noise storms 1=18157
 noise storms, origin and decay 1=15546
 noise storms, rel. to solar flares, IGY 2=13167
 noise storms, rel. to sunspot parameters 1=15548
 noise, 26.3 Mc/s, Aug. 1959 1=15545
 non-thermal, induced cyclotron model 1=6740
 nonthermal, plasma shock wave theory 4=8761
 Nov. 15 1960 flare obs. 1=15478
 obscuration 0=8483
 observations with crossed-grating interferometer 4=4944
 observations, interpretation 1=18154
 outer corona, radio emission 0=4
 from plasma shock waves, theory 2=20137
 polar cap cosmic noise absorption correl. 0=12257
 polarimeter 0=16524
 polarization, during April 1958 eclipse 2=4837
 polarization by solar corona 4=4899
 post-burst increases and S. I. D. 2=4633
 progress of study in Italy, review 2=13169
 quiet sun, 8 mm emission, brightness temp. distrib. 2=24168
 quiet sun at 88 cm 0=18632
 quiet sun radio brightness at 21 cm 1=8024
 R-regions, interferometric study at 169 Mc/s 1=6736
 radioastronomy conference 1=15532
 radioastronomy conference 3=13916
 radio-burst localization, on 8 mm wavelength 2=1006
 radiobursts, correlation with cosmic ray variations 1=6743
 radio bursts, general discussion 1=18161
 radio bursts, receiving equipment 1=5167
 radio bursts at sunspot maxima 1=15547
 radio bursts at 200 Mc/s height 2=2561
 radioheliograph, with 100, 42 ft parabolooids, Australia 3=5270
 radio storms, relation between position and sense of polarization 0=6559
 review 0=14407
 review 1=18150
 rocket and satellite observations 0=14434
 S-component of bursts, rel. to coronal condensation 1=15489
 s-component in current spot cycle, time and spectral depend. 4=20942
 satellite observations 0=10543
 scattering on coronal irregularities 0=18648
 scintillation at 169 Mc/s 1=15541
 scintillations, anomalous, troposphere origin 2=7038
 short bursts, confusion with meteor trail reflections 2=13179
 short-lived bursts, dynamic spectra and characteristics 1=18166
 slow component at 327 Mc/s 2=17303
 slowly-varying component 0=18633
 slowly varying component, correlation with coronal electron density 1=2647
 slowly-varying component, rel. optical phenomena, active centre model 0=4850
 slowly-varying component, 327 Mc/s 2=13168
 slowly varying component, 470-28000 Mc/s 3=9262
 slowly varying component, freqn. spectrum, bremsstrahlung origins 4=10915
 slowly varying component, observations at 600-10⁵ Mc/s 1=2646
 slowly-varying component at 160 Mc/s, bright centres, dimens. 1=2645
 slowly-varying component, origin 2=21736
 slowly varying component, thermal origin 1=7994
 slowly varying, and sunspots 4=20941
 solar, coronal plasma, sporadic emission, noncoherent mechanism 2=1007

Sun—contd

radiation, radiofrequency—contd

- solar cycle, radiation at different phases 0=6555
- solar radio bursts associated with auroral streams 1=6641
- solar spectrum analyser, swept-frequency receiver 1=8021
- sources, location, interferometric technique 2=7034
- sources of radio emission 0=18628
- sources of slowly varying component, model 3=3618
- space effects, dosimetry, due to flares 4=20958
- use for space navigation 0=12690
- spectral study, fluctuations due to ionosphere 2=15400
- spectrometer, 60 channel, 160-320 Mc/s 4=23934
- spectroscopy, narrow-band, fast-response 1=18155
- sporadic emission, in corona, mechanisms 2=2558
- Stanford observations 0=6552
- storm bursts, polarization statistics, 200 Mc/s 4=13963
- storms, 169 Mc/s and chromosphere, flares 3=18650
- strip scans at 10.7 cm 2=13170
- sunspot group, associated, geometrical parameter, metre waves 4=15955
- sunspot regions, 2.0, 3.3, 5.1 cm 0=18636
- sunspot umbra intensity—200 Mc/s enhancement, correlation 0=4892
- sunspots, bipolar, polarized source, bipolar struct. 4=15956
- super-corona, moving plasma clouds 2=1005
- super-corona, properties study, electron density and plasma ejection 0=18754
- survey at Bangalore (India) 1=18137
- synchrotron, rel. to type IV bursts 2=2557
- telescope, for 3 cm radiation 2=7035
- and temp., 1.2 cm 4=13959
- theory, rel. to other solar emissions 2=15302
- thermal base level, 200 Mc/s emission, variations 0=12256
- thermal radio emission 2=11159
- type I bursts, P₁ type peaks, prodn. mechanism 3=11544
- type II bursts 0=10480
- type II bursts, origin, optical study 0=4900
- type II bursts, plasma wave mechanism 4=10916
- type II bursts, positions, movements 3=18651
- type II bursts, and solar disturbances 0=3408
- type II bursts, structure 0=4853
- type II radio bursts, spectral characteristics 1=18169
- type II and III, harmonics 2=19347
- type II and III radio bursts 4=20944
- type II and IV bursts, catalogue 3=13919
- type III and IV, motion and height 2=2560
- type III bursts 0=2084
- type III bursts, decametric wavelength 4=4948
- type III bursts, flare-puffs 0=4854
- type III burst, meas. by interferometer 4=26964
- type III bursts, polarization measurements 1=2658
- type III bursts, propag. speed of coronal disturbances 0=4855
- type III bursts, 200 Mc/s, frequency drift and time profile 4=4951
- type IV burst, moving, dm observation 4=15957
- type IV burst, rel. to solar flare of 27 Sept. 1960 3=10189
- type IV bursts, continuum storms 0=10478
- type IV bursts, correl. with geomag. storms 0=8475
- type IV bursts, cosmic-ray correl. 0=6558
- type IV bursts, evolution, associated phenomena 1=15542
- type IV bursts, rel. to electron accel. in atmosph. 3=11548
- type IV bursts, rel. to flares 1=18159
- type IV bursts, polar cap ionospheric blackout 0=14222
- type IV bursts, spectra 4=2461
- type IV bursts, synchrotron radiation approach 4=30982
- type IV, rel. to concurrent dm radio bursts 1=18170
- type IV (continuum) 2=12021
- type IV events, 24-hr patrol results 1=20951
- type IV, and flare halo 4=26961
- type IV, linear polarization 3=23707
- type IV outburst, rel. to cosmic-ray diurnal variation 3=24827
- type IV outburst, electron acceleration 2=17274
- type IV outbursts, rel. to low-energy cosmic rays 3=23705
- type IV outburst, rel. to solar mag. clouds 2=20478
- type IV radio bursts and chromospheric flares 2=15399
- type IV solar bursts, occurrence 1=11684

Sun—contd

radiation, radiofrequency—contd

- type V bursts, rel. to flares 3=11590
 - and u.v., and atmospheric structure 3=23686
 - unusual 80 Mc/s noise emission during solar activity 0=14316
 - visibility of 10 cm emissive region, appl. to finding 10cm quiet sun 0=18642
 - and "whistler" production 0=21395
 - wide-band long duration spectra 2=13164
 - 1.5 m emission, polarization 1=15533
 - 2 mm, apparent temperature meas. 3=5271
 - 3 cm interferometer with 8 elements, results 0=18635
 - 3 cm sources, polarization 1=45
 - 3.03 cm from H line in chromosphere 0=18629
 - 3.2 cm, active regions, rel. to sunspots 1=2649
 - 3.2 mm, during 20 July 1963, eclipse 4=26968
 - 3 and 20 cm wavelengths, during eclipse, 15 Feb. 1961 4=4946
 - 4.3 mm, during 15 Feb. 1961 eclipse 2=13171
 - 9.4 Gc/s emission 2=7036
 - 10 cm emission, 1947-1960 period 1=15550
 - 10 cm, mean monthly flux from 1947, analysis of bursts active area resolution 1=2648
 - 10.7 cm, rel. to coronal X-ray emission 4=29462
 - 10.7 cm noise bursts, coincidence with solar flares 1=18098
 - 10.7 cm, similarities with far u.v. 1=1660
 - 20 cm flux, correl. with Venus obs. at 440 Mc/s 3=5276
 - 20 July 1961, rel. to flare 3=10191
 - 25 Mc/s, at Ahmedabad, flare attenuations 1=15551
 - 169 Mc/s (4 Nov., 1957) 0=4848
 - 169 Mc/s, with Nançay grating interferometer 0=4849
 - 169 Mc/s, type IV emission study 1=2652
 - 186 Mc/s, Arcetri programme 2=7037
 - 200 Mc/s enhanced emission, polarization behaviour 1=18156
 - 200 Mc/s, polarization 1=18162
 - 200 Mc/s, slowly varying, directional effect 4=4950
 - 225 Mc/s fluctuations, rel. to 27 kc/s atmospherics noise level, on aerial temperatures 4=2460
 - 500-950 Mc/s bursts, dynamic spectra 1=2656
 - 500-1000 Mc/s, spectral charact. of continuum 3=11588
 - 4700 Mc/s travelling wave tube radiometer measurements 1=6595
 - at 9500 Mc/s 0=18644
 - 53 070 Mc/s, atmospheric O₂ absorption 2=21640
- spectra**
- See also Sun, corona; Sun, flares; Sun, prominences.
 - absorptance by atmosph. gases, calc. 3=18551
 - absorption, displacement towards red, effects contrib. 2=15329
 - absorption - line profiles, probability method appl. 2=957
 - absorptivity calc., ordinates selection 3=7031
 - acoustic wave effects 4=20923
 - apparatus used for investigation 4=26893
 - atlas, Jungfraujoch spectrograph 4=2424
 - atmosphere, continuous absorpt. by quasi-H₂ mol. 3=5257
 - atmosphere, Fraunhofer vel. displacements 2=15332
 - atmosphere, isotopes study, review 2=4801
 - Balmer H α -H δ lines, centre-limb variation 1=15470
 - Balmer lines, in flares 0=6605
 - Balmer lines, pressure broadening 0=16546
 - centre-limb effect, existence of polarization effect 1=22
 - centre-to-limb line meas., effect of light scatt. 2=7004
 - centre-limb variation of central intensities of some metallic lines 1=15453
 - centre-to-limb wavelength increase 0=18774
 - chromosphere, Ca II K-line excitation 2=977
 - chromosphere, continuous emission beyond Balmer limit 2=982
 - chromosphere, continuous spectrum 4=2434
 - chromosphere, Cu u.v. lines, rel. to radiation temp. 2=4769
 - chromosphere, eclipse observations (15 Feb. 1961) 4=4911
 - chromosphere, excit. of oxygen lines 0=8507
 - chromosphere, H α line 0=14421
 - chromosphere, He emission, level occupations 2=24127
 - chromosphere, hydrogen Balmer: Paschen ratio 1=5155
 - chromosphere, LTE departures in higher levels of H 2=4770
 - chromosphere, line profiles 2=980
 - chromosphere, neutral Mg, Ca and O intensities 2=15353

Sun—contd

spectra—contd

chromosphere of sunspots, rel. to height 3=3574
 chromospheric He(D_3) emission shell 4=10902
 chromospheric limb flare, 11 Oct. 1957, spectrophotometry 1=18091
 continuous background 1=15448
 continuous energy distrib. 3400-8500 Å meas. 4=23919
 continuous spectrum, rel. to thermodyn. equilibrium 1=15447
 continuum λ =5893 Å, centre—limb variation 1=15471
 contours of lines near extreme limb 0=18773
 corona, condensation, three emission ratios and different temps. 3=18638
 corona, inner, meas. at eclipse 3=18636
 corona interpret., review 4=15943
 corona, radiation flux at <10 Å, calc. 4=23925
 corona, sp² config. forbidden lines, calc. 4=26959
 corona, studies during total eclipse of Feb., 1961 4=4913
 corona, at 20 July 1963 eclipse 4=29459
 corona, u.v. radiation theory 3=9187
 coronal condensation, line and continuous, rel. to Fe and Ni abundances 4=29458
 coronal ions connected with sp³ configurations 4=26958
 coronal line, profiles, distortion 4=20929
 correlations bet. vel. and brightness time vars. for different regions 3=11532
 curve of growth 4=29438
 depth of formation, Laplace relation inversion 0=14432
 depth of formation, tables and curves 2=17271
 eclipse, Feb. 1952, Khartoum 0=14433
 eclipse observations (Oct. 1959) 1=5151
 emission-line intensities, electron temp. calc., effect of coronal expansion 4=23924
 emission waves of growth, Fe I and Ti II, in lower chromosphere 0=6584
 energy meas., absolute, in 3382-10000 Å 4=10893
 Evershed-type lines, at limb 2=24115
 expts. from rockets and satellites 0=14434, 14469
 extreme u.v., rel. to chromosphere—corona transition layer 3=16386
 extreme u.v. emission lines, rocket meas. 0=10508
 extreme u.v., from space vehicles, review 3=14337
 facula model for 5 wavelengths 4=23915
 faculae, contrast with photosphere 3=9194
 far u.v. 1=6707
 flares, 17 Aug. 1959, emission catalogue 0=18771
 flash-spectra, H β and K(Ca II) wing profiles 2=4778
 flash spectrum by grazing incidence method 0=6604
 flash spectrum, meas. at total eclipse 2=19304
 forbidden [Fe II] lines search 4=29440
 formation of absorption lines in sunspot 0=14410
 4.75 μ , absorption by atmosph. O₂ 3=18549
 Fraunhofer Fe lines, atomic abundance values 1=18082
 Fraunhofer line profiles, anomalous 2=17177
 Fraunhofer lines, central intensity, effect of inhomogeneities 2=4776
 Fraunhofer lines, Doppler widths, empirical inference 3=9224
 Fraunhofer lines, formation in mag. field 2=13124
 Fraunhofer lines, general red shift, theory 2=11130
 Fraunhofer lines, growth curves 0=12289
 Fraunhofer lines, local Doppler shift meas. 0=14431
 Fraunhofer lines, profiles, applic. of Voigt functions 0=16547
 Fraunhofer lines, radial velocity fluctuations 4=2437
 Fraunhofer lines, small-scale structure 4=2421
 Fraunhofer lines, strong, centre-to-limb intensity variation 1=18077
 Fraunhofer H- and K-lines of Ca II, emission reversals, origin 4=29389
 Fraunhofer, local brightness fluctuations, photospheric inhomogeneity 1=15450
 Fraunhofer Ti lines, central intensity, temp. inhomog. 0=12288
 granulation, temp. variations, calc. 2=11123
 granules, mag. field det. from Zeeman effect 2=19306
 infrared, atmospheric absorpt., altitude depend. 4=10721
 i.r., extreme, giving solar temp. 4=17896
 i.r., high altitude obs., sunseeker system 2=9073
 infrared, introductory report 4=29453
 i.r., at Jungfraujoch 1=27

Sun—contd

spectra—contd

i.r. lines, wavelength displacements between limb and centre 0=10511
 i.r. observations from 40 000 ft 1=9268
 infrared (1-6.5 μ), aircraft obs. 1=18079
 instruments and techniques in rockets, review 3=11531
 intensities of centre of solar disk, 6389-12480 Å 4=2422
 investigation of i.r. absorption in atmosphere 0=2025
 limb darkening 0=10509-10
 limb effect meas. for Fe I, O I, Ni I 3=9199
 limb emission between Balmer and Paschen limits 4=29452
 limb, weak lines, equivalent width, photosphere—chromosphere 4=2433
 Lindholm effect, collisional damping factor 1=15449
 Lindholm effect, depth of formation 4=15939
 line intensity, dependence on phase of activity 2=958
 line profiles, influence of thermal non-coherent scattering 2=4772
 lines and colour temp., photometry 3=18627
 loop prominence event, spectra interpretation 1=7991
 low chromosphere, CN emission, excitation temperature 0=18775
 Lyman- α emission 2=4779, 15334, 15345
 Lyman- α emission line 1=5153
 Lyman- α photographs 0=841
 Lyman- α results of NRL observations 1=5154
 monochromator for high order isolation 3=7345
 oscillatory motions in strong and medium strong lines 4=10900
 from photosphere and atmosphere, comparison 4=10899
 photosphere, chromosphere, corona u.v. to i.r., review 4=13928
 photosphere and sunspots, band spectra 1=15454
 plages, Ca II lines, emission cores 0=14435
 prominence, quiescent, obs. at solar eclipse 15 Feb. 1961 4=10909
 prominences, bright, reduced Doppler half-widths 4=10908
 quantitative spectrography, automation 2=11124
 rare-earth line 3=19946
 red shift of solar lines 0=18778
 red shifts, Freundlich's empirical formula 3=5254
 research programme, for US space stations 2=13122
 resonance, He II 304 Å and He I 584 Å, by rocket 3=11534
 rocket observations 0=16538
 rocket observations, review 1=15442
 rocket spectroscopy, photography 2=13126
 rotation and photospheric circulation 0=18733
 satellite-borne spectrometer, Lyman- α , dissecting 4=10939
 simulation with filtered Xe lamp 3=5523
 solar disk, obs. in Lyman- α 2=15343
 "solar hydrogen bombs", features 0=8496
 solar red-shift 1=12750
 source function in non-equilibrium atmos. 0=6606
 spectrophotometric temp. determ. 4=2430
 spicules, Doppler effect 1=4201
 spiralling ions, cyclic Doppler shifts 0=12287
 Stark effect in H γ , comparison of atmosphere models 0=18746
 sun, centre of disk, brightness fluctuations 3=1520
 sun, corona, inner, continuum and 17 emission lines, photometric study 3=3577
 sun, corona, 7800-12 000 Å during eclipse Feb. 15, 1961 3=3580
 sun, flare, Nov. 12, 1960, H α line 3=3576
 sun, flares, X-ray, rel. to radio emission 3=3579
 sun, Fraunhofer lines and continuum, brightness fluctuations 3=3565
 sun, line asymmetries 3=3568
 sun, photosphere, spectrogram Doppler displacements, rel. to vertical oscillatory motions 3=3566
 sun, spectrophotometric gradient "break" at 4800 Å 3=1528
 sun, u.v. radiation, filter for study 3=1502
 sun, YII, calc. growth curve 3=2551
 sunspot Fraunhofer line wing strengths, determination of gas pressure 1=15460
 sunspots, rel. to sun's surface temp. 1=6708
 sunspots, velocity gradient effect 0=8506
 3.5-5.5 μ , altitude 0-15 km, expt. 4=20920

Sun—contd

spectra—contd

- 3.5-5.5 μ , altitude 15-30 km, theory 4=20921
 ultra-violet 4=23906
 u.v., extreme, photoelec. spectrophotometry 3=9198
 u.v., extreme, recent progress 2=15341
 u.v., identification with θ -pinch and Zeta discharge 4=29439
 u.v., intensity distrib. at earth's atmosphere 2=2480
 ultraviolet, microphotometer study 1=7973
 use of u.v., mm. and 10830 data for deduction of
 chromospheric structure 4=4909
 u.v., permitted lines 2=15342
 u.v., rel. to quiet sun model 2=17279
 u.v. rocket lines, transfer problems 4=2441
 u.v. rocket and satellite observations 0=16545
 u.v., satellite meas. apparatus, spectrophotometer 2=13123
 u.v. and soft X-rays 2=15340
 u.v., theoretical prediction 2=17294
 u.v., 20-2000 Å, 480 line intensities 2=24116
 u.v., two lines of neutral Si 3=9200
 u.v. and X-ray, rocket meas. 3=23685
 u.v. and X-rays, eclipse obs. 2=15339
 u.v. and X-rays, historical survey 2=15337
 u.v. and X-rays, review of satellite expts. 2=13128
 unidentified lines, tables 1=15501
 vertical sounding, review of obs. 2=13129
 visible range, absolute intensities meas. 2=15333
 X-ray emission, 8 to 20 Å 4=2451
 X-ray emission, 4-14 Å, UK1 (Ariel) satellite
 results 3=16388
 X-ray, soft, satellite obs. 3=9152
 X-ray spectra rel. to non-flare and flare-active
 conditions 4=29463
 X-rays 2=15334
 XUV, rocket obs., 310 to 55 Å 4=26933
 150 major events (1952-60), spectral components 2=2559
 6162 Å, absorption coeff. of wing and damping
 const. 4=10895
 Bi I lines, u.v., rel. to abundance 3=9195
 C abundance, automatic computation 3=13884
 C-multiplet, near 10700 Å, centre-to-limb var. 4=29444
 C, u.v. lines, oscillator strengths 2=19307
 CH, 4300 band, local thermodynamic equilibrium 0=14416
 CN red system, (2.0) and (3.1) bands 3=21107
 CN, rel. to rot. temps. 4=26951
 CN, violet system study 4=23921
 Ca I and II resonance lines, polarization 4=4907
 Ca II, in flare spectra, Zeeman splitting 0=18759
 Ca II K_{333} line profile and solar atmosphere 4=2436
 Ca²⁺, K-line study, using birefringent filter 2=928
 Cr, neutral atoms 0=14435
 Cu I, resonance u.v. lines on surface, photometry 2=4769
 Fe⁺, λ 6238 and λ 6248, Doppler widths 0=14
 Fe, line-profile asymmetry, rel. to limb effect 2=17275
 Fe lines at centre, rel. to departures from LTE 3=5253
 Fe X, u.v. resonance line 0=14436
 Fe I, 8514 Å, acoustic waves effects 4=23910
 Fe I, equivalent width variation towards limb, growth
 curves 0=18772
 Fe I lines, growth curves, in solar spectrum 4=23911
 Fe I, sunspot growth curves, mag. field effects 0=18738
 Fe I and II lines, centre-to-limb variation 2=4777
 Fe II, gf values 3=9201
 Fe II lines 2=22904
 H⁺, continuous absorption due to free-free transitions
 calc. 1=2277
 H, α , β and γ lines, centre-to-limb variations 3=16371
 H α and H β line profiles, facula and photosphere 4=2431
 H, α -line profile, photoelec. observation 4=23920
 H α line, rel. to quiescent prominences stability 3=16383
 H β , H γ and K profiles of chromospheric
 spicules 0=18761
 H, i.r. transitions observed at 40 000 ft 1=9268
 H, Lyman- α , line profiles from rocket-borne spectro-
 graph 0=12277
 H, Lyman- α profile, high-altitude meas. 2=15344
 H profiles at limb 1=2620
 H and He⁺, Lyman series, by telemetering mono-
 chromators 2=15335
 He, in chromosphere, singlet and triplet lines 2=4771
 He lines, at extreme limb of solar disk 1=15473
 He I, excitation 0=6602
 He I, i.r. triplet line emission 3=5256

Sun—contd

spectra—contd

- He II, λ 303.8 line 2=19302-3
 K-line obs., study of inhomog. in atmosphere 4=2420
 K line profile in chromosphere 4=13893
 K, and H, type absorption components 3=9197
 Mg b-lines, source functions 3=16369
 Mg, triplet lines, intensity distrib. 2=4774
 Mg I lines, depth of formation 4=4910
 N I, i.r., forbidden lines 2=4768
 Na D-lines, centre-to-limb obs. 2=4775, 19295-6
 Na D-lines, intensity distribution 2=4773-4
 Na, D₁ line, centre-limb variations 1=15446
 Na I, in flare spectra, Zeeman splitting 0=18759
 Na I, in solar atmosphere 2=2533
 Ne VII and VIII, vacuum u.v., rel. to theta-pinch 4=15283
 O line profile, asymmetry and shift 4=4912
 OH lines, laboratory anal. of A² Σ^+ -X² Π bands 0=6603
 Si I lines, PbS region, identification 4=28136
 Si X emission 1=6712
 Sr, Fraunhofer resonance line, rel. to gravitational red
 shift 2=11125
 Sr line profile, λ =4607.3 Å, high-resolution study and
 wavelength meas. 4=18000
 Ti, balance and abundance in solar
 photosphere 0=14414-15
 Ti I, equivalent width variation towards limb, growth
 curves 0=18772
 Ti I, revised term values 0=13410
 V, neutral atoms 0=14415
 VI, sunspot growth curves, mag. field effects 0=18738

Sunlight

- See also Sky brightness
 absorption, direct, by atmospheric water vapour 0=14409
 absorptivity, 0.3-3.0 μ , selected ordinates 3=7031
 absorptivity, ratio to thermal emissivity 0=19345
 actinometric methods, review 0=4780
 altitude and humidity effects, theory 4=4769
 anomalous Fraunhofer line profiles 2=17177
 atmospheric absorption by H₂O, CO₂, O₂ 2=17143
 atmospheric turbidity meas. 2=2488
 attenuation by atmospheric aerosols, meas. 3=5202
 Campbell-Stokes recorder, use as integrating
 actinometer 1=15220
 cloud effects, sea surface, short waves, empirical
 reln. 4=10723
 comet scattering, appl. to space rocket obs. 2=9123
 continuous recorder for six spectral areas 3=1446
 daylight colour from north sky 3=11407
 daylight, spectral energy distribution 4=23754
 direct, diffuse and total, duration and energy, at
 Uccle 2=8971
 direct rel. to scattered, O₂ and water vapour absorption
 bands 3=9513
 earth surface temp., variation correl. 3=16189
 eclipse of Feb. 1961, ionospheric effects 2=2503
 elliptical polarization 2=876
 extreme u.v., analysis of photoelectrons 0=10451
 extreme u.v., use of 10.7 cm flux as index,
 inexactness 4=17914
 fluxes in atmosphere, aircraft obs. 2=2483
 global radiation, correl. with cloudiness 2=17142
 green flash at sunrise and sunset, review 2=15199
 Gunn-Bellani radiation integrator 1=15219
 ice layer, attenuation, effect of inclusions 3=3439
 insolation, Uccle observatory 1959 report 1=15231
 King Baudouin base, (1958-60) 3=11404
 measurement, simultaneous recording in different spectral
 regions 4=15870
 needle satellites, radiation pressure effects on
 orbits 2=15414
 Planck function for earth temps. 3=18511
 polarization, by air aerosols 1=20839
 polarization, characteristic anomalies 2=8970
 polarization at 4600 Å 2=877
 polarization, reflected from sea surface 3=9626
 polarization, rel. to transparency of atmosphere 1=6589
 pyranometer, Bellani 2=11024
 radiation from sky up to 80 000 ft 2=15195
 Rayleigh atmosphere, radiation emerging from
 top 1=6587-8
 Rayleigh atmosphere, radiation emerging from top,
 apparent contrast of objects on earth's surface 4=17892

Sunlight—contd

- recording thermistor radiometer 3=11408
- reflected from clouds, rel. to altitude profiles 2=11022
- review, distrib. over earth and night 4=20850
- satellites, artificial, illumination period calc. 2=9122
- scattered by earth's atmospere, rocket meas. 2=11023
- scattered spectrum, at 5 and 16 km in atmosphere 2=6913
- and scotopic sensitivity 0=3382
- shortwave radiation, radiometer calibration 2=19672
- with sky light, spectral distrib. rel. to correlated colour temp. 4=29294
- solar cell, Si 2=9522
- solar cells, GaAs, characteristics 2=11603
- solar cells, photovoltaic, review 2=19889
- solar cells, Si, review 2=11602
- solar const. 0=21389
- solar energy converters, thermoelectric 2=19888
- solar-energy convertors, maximum efficiency 0=19601
- stratosphere, lower, radiative transfer due to ozone 2=2484
- 3.5-5.5 μ , altitude 0.15 km, expt. 4=20920
- 3.5-5.5 μ , altitude 15-30 km, theory 4=20921
- total and diffuse, Halley Bay (Antarctica) observations 1=1497
- total radiation meas. during IGY 3=9042
- transmission coeffs. of coloured glass filters 0=16825
- u.v. distrib., comparison with test sources 0=10769
- u. v. radiation from zenith sky 4=4772
- u.v. spectrum, intensity distrib. 2=2480
- Uccle (Belgium) 1953, each hour 3=16221
- Uccle, 1954, tables 4=7843
- Uccle, 1957, tables 4=17891
- at Uccle (1958) 2=19201
- Uccle (1961) 3=11405
- upwelling natural light from ocean 1=20804
- H₂O and CO₂ in cloudless atm. absorpt. 2=2482
- Na layer absorpt., rel. to atm. obs. 2=4625

Sunspots

- absorption line equiv. width increase, in magnetic field 2=984
- active region formation rel. to magnetic fields 1=18075
- active regions, 8 mm region meas. 4=23941
- activity rel. to C¹⁴ concentration 1=15465
- activity, four-century cycle 3=9202
- activity indices 4=26945
- activity and M.U.F. for 3000 Kc/s transmission in F₂ layer 1=8394
- activity maxima 2=2534
- activity in 1960 1=18080
- and airglow, night, O green line 4=13827
- anomalous group, Mar.-Apr. 1960, development 1=7985
- area and mag. flux, statistical reln. to flare intensity 4=2447
- area changes, rel. to major flares 4=10905
- areas, rel. to magnetic fields (1917-56) 2=2536
- areas and Wolf numbers, analytical relations 3=13885
- and atmospheric O₂, comments on Willett 3=13659-60
- band spectra 1=15454
- chromosphere nearby, Evershed velocities 3=3575
- chromosphere, rel. to pressure in sunspot 3=3574
- corpuscular streams above active region 2=966
- correl. between umbra intensity and r.f. radiation emitted 0=4892
- correl. with cosmic-ray diurnal variation (1954-8) 0=20290
- correl. with I_{F2}, variation between cycles 3=3503
- correl. with prominence activity 3=3583
- correl. with speed-F, 1954-7, over Ahmedabad 0=21364
- correl. with tropopause altitude near equator 0=18481
- correlation with neutron monitor pressure coeff. 4=9335
- correlations, radioelec. whistler dispersion 2=11036
- cosmic ray intensity correl., 1958-60 3=22245
- cosmic-ray intensity correlations 0=20292
- cosmic ray variation relationship 1=3355
- cosmic rays, daily variation correl. 2=13911
- cosmic rays, nuclear component correl. 2=7917
- and cosmic rays, semidiurnal amplitude and phase 3=17374
- cycle of activity, magnetohydrodynamic theory 2=7003
- cycle, neglected?, from zonal wind osc., in equatorial stratosphere 3=8204
- cycle, rapid estimation of stage 2=6941

Sunspots—contd

- cycle, rel. to v.h.f. backscatt. data 3=8080
- cycles, rel. to atmospheric ozone 2=8953
- cycles, M-region life correl. 0=14420
- depths, observed, calc. by Wilson effect 2=24114
- depths, observed, calc. by Wilson effect 3=3570
- description in terms of chromosphere and corona 4=26948
- distribution, axis of symmetry between two "royal zones" 3=16373
- distribution in heliographic longitude 2=4765
- disturbances, catalogue, July 1961 3=18529
- E₂ occurrences, effect on 4=2298
- E-W asymmetry, in spot-group formation 0=18736
- and earth mag. field, variations, lack of relation with N-S difference 3=18575
- earth mag. fld., quiet day solar variations 4=20880
- and earth mag. field var., high lats. 4=13866
- east-west asymmetry, nature 2=959
- east-west asymmetry, theoretical considerations 2=21713
- effect on delay time of geomagnetic disturbances 1=4136
- effective numbers, Jan. 1961-July 1962 3=9205
- effects on electron-density profiles 4=2259
- eighty-year cycles, longer cyclic changes 2=19309
- 11-yr. cycle, circulatory nature 1=18074
- eleven year cycle model, interaction between mag. field and spot field 0=16541
- 11-13 yr. cycle, possible periodicity 1=18073
- energy transfer, convection inhibition by mag. braking 4=2426
- events of Jan. - March 1960 observed from Spain 1=10387
- Evershed effect interpretation on Mattigs model 4=13933
- Evershed effect observations 1=15458
- Evershed effect at outer edge of penumbras 4=2427
- Evershed effect, scattered light corrections 4=4906
- faculae bordering spots near limb 0=6587
- facular granule lifetimes by seeing-monitored photoheliograph 1=7986
- filament areas rel. to prominence areas 2=4790
- filamentary structure 0=6589
- five activity cycles, geomagnetic disturbance, statistical survey 2=961
- flare X-rays and collapsing mag. field of group 1=18094
- flocculi, Ca bright and H α bright and dark (in 1960) 2=11122
- flocculi and geomagnetic disturbances 0=21315
- flow outwards, vel. (Evershed effect) 4=10897
- formation of absorption lines 0=14410
- formation by magnetic flux concentration 4=29446
- formation, mechanism of non-stable processes 0=18767
- formation by solar magnetic fields 4=2432
- formation zones, fine structure 2=24112
- future cycle predictions 4=4905
- gas condensation, diamagnetic ejection 4=26947
- gas pressure from Fraunhofer line wing strengths 1=15460
- gas pressures and temps., from spectra 2=19310
- Geiger-Müller fluctuation (July 18, 1961) 2=5770
- generation, positions and layers on sun 2=15351
- geomagnetic disturbance, influence 1=15359
- geometrical parameter associated with corpuscular and metre radiation 4=15955
- granulation, transfer eqn. appl. 2=9076
- granulation of umbrae 0=18739
- granule contrast, centre-limb variation 1=15469
- granules, temp. fluctuations 1=15467
- green coronal line and sunspot groups 2=15358
- group of high activity, (July 1961) 3=11539
- growth curves, for 14 July 1953, mag. field effects, V I and Fe I data 0=18738
- hydromagnetic waves between spot pair 3=17034
- inclined lines of activity, anal. of 803 spots 1=15456
- index time series, decomposition and comparison 2=9075
- influence of magnetic fields 1=5150
- influence on spread-F in Baguio 0=21365
- ionospheric electron density, rel. to solar activity 2=2506
- and ionospheric F-region ionization 2=17170
- intermittent and revival groups, secular variations 4=4904
- and ionosphere, F-region, ionization, diurnal variation peculiarities 3=18545
- kinematics 1=15466

Sunspots—contd

- L_0 dependence on sunspots, and atmospheric ozone meas. 2=11010
 latitude drift, short-lived groups 1=1642
 latitude, effect on area during growth 3=21109
 latitudinal 0=18735
 longitudinal distrib., 1889-1954 3=11537
 M-disturbances rel. to corpuscular streams, total energy 2=964
 M-disturbances rel. to general solar corpuscular field 2=965
 mag. field, intensity and orientation from Zeeman effect, Fe I, $\lambda 6302$ 3=18628
 magnetic field structure, obs. 3=11538
 magnetic class and N-S asym., rel. to type II and IV bursts 4=4949
 magnetic field component meas. methods 4=20926
 magnetic field, rel. to flare development 0=14411
 magnetic field, longitudinal, for September 1963 group 4=23918
 magnetic field model 4=15941
 magnetic field pattern, meas. 4=2428
 magnetic field, polar zones 0=6601
 magnetic field studies, corel. of Mt. Wilson, Potsdam and Crimea data 0=6588
 magnetic field variation, rel. to flare generation 1=18092
 magnetic fields, spatial analysis 0=18737
 and magnetic storms 4=13865
 magnetic and velocity fields, observations 1=2614
 magnetohydrodynamic stability of sub-photospheric tube of force 3=18629
 magnetohydrodynamic theory 1=18209
 maxima, prediction, from probability study 0=2079
 maxima and solar radio burst intensities 1=15547
 meridional drift, hydromagnetic discussion 1=25
 microwave emission, limiting polarization 2=2563
 minimum, 1963-4 forecast 3=9203
 minimum, props. of solar wind during 0=14418
 model 1=15457
 model, new 4=2425
 monochromatic polarization of light 1=2615
 N-S asymmetry 0=8
 1939-59 data, rel. to coronal emission 0=14437
 1953-60 cycle, effect on F-region in ionosphere 3=13755
 1958 records 0=3421, 12278
 1959 observations 1=4197
 1959, solar activity, Mt. Wilson observations 1=1640
 1961 obs. in Turkey 4=7984
 1968 peak number estimate 1=15455
 non-recurrent, latitudinal motion as members of single aggregate 2=960
 non-recurring, velocity field structure 0=8498
 north-south asym. rel. to mag. storm sources 3=18633
 north-south asymmetry, long-term 3=18631
 north-south symmetry, rel. to hydrogen vortices 3=1521
 number, F_2 -layer maximum usable frequency predictions 0=14252
 number of groups, analytic relations 3=5255
 number relation to E-region character figures, long-term variation 1=20974
 numbers, correl. with geomag. fluctuations 0=14168
 observations, Jan.-June 1957, Istanbul 0=8501
 observations at Istanbul (1957) 1=2613
 observations, 1959 1=1643
 rel. to ozone in atmosphere 3=13658
 parameters of spots, rel. to radio noise storms 1=15548
 peak number estimate for 1968 0=10501
 penumbra structure, observations 1=15462
 penumbra structure, theory 1=15463
 penumbrae and effect of mag. field on granulation 3=3573
 photographic observations of solar photosphere 0=14412
 photometry 3=18627
 photometry, 4000-8600 Å 1=15459
 photospheric granules, size near and away from penumbra of sunspots 3=5259
 physical states, two-component model 3=23684
 plages, corpuscular streams, radiality 2=963
 plages and M-disturbances statistical relations analysis 2=962
 and polar faculae number 4=29448
 polarization of light 0=4893
 polarization of light, rel. to mag. fields 2=17272
 polarization observations at 2, 0, 3, 3, 5, 1 cm 0=18636

Sunspots—contd

- polarization tests 1=1639
 pores, birth, accompanying phenomena 1=18072
 positions relative to flares 4=7983
 prediction of next sunspot minimum 1=9269
 prediction (1959-1966) 0=839
 present cycle of activity, preliminary study 1=18081
 and radiation, r.f., slowly varying 4=20941
 radiative transfer, theoret. calc. 3=1641
 radio-emission, scan at 3.2 cm 1=2649
 radio-emission at 10 cm, rel. to visibility 0=18642
 radio obs., 10.7 cm, eclipse of 5/2/62 4=10917
 radio source, polarized, bipolar struct. above bipolar spot 4=15956
 radio-star scintillation correl. 0=16475
 as radio-storm sources 0=18645
 radiofrequency (3-21 cm) emission 3=16424
 region of enhanced microwave emission, polarization observations during eclipse 2=4837
 relationship with ionospheric F-region electron density 2=15241
 remarks on research methods into periodicity 1=15461
 review 0=14407
 rotation and isorotation 0=10500
 secondary zone, butterfly diagram (1879-1950) 0=10
 secular variations, rel. to cosmic ray intensity 2=13921
 secular variations in short-lived spots 3=9193
 short-lived, secular variations 1=18078
 solar activity and geomag. K-index at sunspot minimum 0=14419
 solar activity rel. to tropospheric pressure 4=2192
 solar atmosphere, sound wave trapping 1=15444
 and solar cycle 1=15464
 solar granules, lifetime 1=15468
 as sources of 3.2 cm emission 0=18637
 spectra, photoelec. study, rel. to sun's surface temp. 1=6708
 structure from absorpt. lines wings 3=16372
 subdivision, anomalous 3=18634
 sun-earth relations rel. to mag. field variations 2=13067
 sunspot number, correlation with alpha particle cosmic ray flux 1=3315
 surrounding photospheric brightness 0=8500
 survey (Oct.-Dec. 1960) 2=11126
 telescope for correlation with loop prominences 1=9277
 theory 1=1641
 umbrae, isophotal contour maps 3=13883
 umbral area and new model 3=21108
 umbral granulation, high resolution photogr. 0=4891
 umbral structure in quasistatic equil., theory 4=10898
 umbras, structure obs. 4=10896
 unequal spottedness of two hemispheres 3=18632
 unusual cosmic-ray increases rel. to solar cycle 2=13931
 variations rel. to flares 2=975
 variations, secular, for lifetimes of 2-8 days 4=23916
 velocity field 4=23917
 velocity field, umbral and penumbral, meas. 4=2429
 velocity fields, study using magnetically undisturbed line 1=10385
 velocity variation of 365 leader sunspots in the solar cycle 1=4198
 visibility on disk and E-W asymmetry of activity 3=3569
 visibility on disk and East-West asymmetry of activity 2=21712, 24113
 whistlers correl. in winter 2=11037
 Wilson effect 0=8499
 Wilson effect, study 2=4764
 Wilson umbra displacement effect, spot height or depth 4=15942
 and X-radiation, by rockets and satellite 3=11481
 zone of activity, longitudinal variation 3=7030
 zone, structure 1=6709
 Ca-flocculi rel. to magnetic storms (1919-54) 2=9041
 Ca plages, areas and positions (in 1961) 2=7002
 Na D-lines, wing-strength centre-limb variation 1=15471
Superconductivity
 See also Quantum theory, many-particle systems. For superconducting magnets, see Magnets
 absorption of ultrasound, theory 3=14444
 acoustic absorption and thermal cond., electron-phonon interaction 0=13500
 actinides, Hamilton-Jensen theory of superconductivity and magnetism modified 4=29832

Superconductivity—contd

- alloy, impurity effects and critical current 3=9679
- alloy, persistent currents theory 3=16870
- alloy with transition metal, influence of exchange 0=8959
- alloys, crit. field limit estimate 4=2918
- alloys, dilute, thermodynamic treatment 0=12556
- alloys, dilute, transition temp., concn. depend. 4=5498
- alloys, effects of transition metal atoms in dilute solution on Te 1=3882
- alloys, magnetization curve, near 2nd critical field 3=24141
- alloys, mech. 2=15849
- alloys, with paramag. impurities, ferro-magnetism 4=20530
- alloys with paramagnetic impurities, theory 1=18706
- alloys, resist. anomaly near crit. point 4=11464
- alloys, sound absorption 3=1899
- alloys, in strong mag. field near T_c 0=8927
- alloys, superconducting, electrodynamics, lower critical field and nonlinear effects 4=27417
- alloys, transition temps., empirical prediction method 4=11470
- alloys, upper critical field 1=18710
- alloys, upper critical field 3=329
- angular momentum of circulating supercurrent 1=5401
- anisotropic bodies, thermodyn. 2=19813
- anisotropic bodies, thermodynamics 3=7402
- anisotropic, effect of nonmagnetic impurities, theory 4=5511
- anisotropic, Ginsburg—Landau eqn., microscopic deduction 4=5513
- anisotropic model, energy gap, thermodynamic props. 1=18701
- anisotropy effect on props. 4=24485
- antiferromagnetic, BCS electron pairs 3=9681
- in antiferromagnetics, possibility 3=16857
- in antiferromagnetics, theory 1=9512
- anomalous resistive transitions 2=1337
- appl. to cryogenic engineering, conference papers (1962) 4=8533
- appl. of theory to nuclear pairing forces, accuracy 1=16954
- applications and devices, review 2=15858
- applications, survey 4=18624
- asymptotic behaviour of perturb. expansions 3=7141
- Auger electron ejection by atom on superconducting target 3=9826
- Bardeen model, Hartree—Fock solution 4=8097
- Bardeen's theory, comment 0=10832
- BCS energy-gap region, one-electron states existence 4=8558
- BCS eqn., convergence of successive approx. 4=2524
- BCS gap function integral solns. existence 4=24486
- BCS integral eqn., law of corresponding states 2=7498
- BCS model, gauge property, Haag's theory 4=27739
- BCS model Hamiltonian, asymptotically exact soln. 0=19550
- BCS model, math. struct. of soln. 2=17723
- BCS partition function, expansion 2=13505
- BCS repulsive pair-interaction 4=11463
- BCS state, current-carrying, Byers—Yang method 3=24137
- BCS theory anomaly corrections for infinite size 4=27418
- BCS theory, appl. to nuclear matter and liquid He^3 0=11124
- BCS theory, case of overlapping bands 0=3703
- BCS theory, connection with perturbation theory 0=16942
- BCS theory, criticism 0=10831
- BCS theory, electron-pair model in configuration space 0=16637
- BCS theory, exact treatment of strong coupling approximation 0=19548
- BCS theory, experimental criteria, penetration depth and scatt. 0=10834
- BCS theory, experimental foundations 2=13504
- BCS theory extension with singlet and triplet states 4=18538
- BCS theory, gauge invariant formulation 0=12555
- BCS theory, ground-state energy and Green's function for reduced Hamiltonian 0=10838
- BCS theory, interaction in 0=8943
- BCS theory, mathematical aspects 0=14536
- BCS theory, new Tamm—Dancoff approx. 2=9476
- BCS theory, plasma frequency dispersion 0=14929

Superconductivity—contd

- BCS theory, quasi-particles and gauge invariance in 0=5234
- BCS theory, review 3=12025
- BCS theory review and criticism 4=29828
- BCS theory, with retarded electron-phonon interaction 2=5235
- BCS theory, in strong-coupling limit 0=7025, 14925
- behaviour in static mag. field in local limit 4=393
- Bethe—Goldstone approximation method 0=14924
- Bogolyubov interaction Hamiltonian, appl. of Tamm—Dancoff approx. 1=11873
- Bogolyubov method for collective excitations, plasma freq. 0=19554
- Bogolyubov mode, Meissner—Ochsenfeld effect, calc. 0=1076
- Bogolyubov quasiparticle, self-energy 4=27409
- Bogolyubov theory, appl. to moment of inertia of superfluid fermion systems 0=12375
- Bogolyubov theory, energy gap 0=16946
- Bogolyubov—Valatin transform., use of canonical form of antisymmetric tensor 3=3947
- Bogolyubov—Valatin transformation 3=19097
- Bolometer, nonisothermal, 3=11997
- bolometer and spectrometer for far i.r. 0=8837
- bolometers, criteria of choice 0=12528
- book 3=325
- Bose condensate detection of Cooper pairs 3=1637
- Bose gas, non-ideal, excitation spectrum 0=901
- Bose gas, ring currents, persistent 1=13047
- boson gas, interact. with foreign particle 2=19463
- boson gas, phase transitions 0=3462
- boson-like behaviour of fermion pairs 3=14061-2
- boson system, simple model, Bogolyubov method analysis 4=8105
- bosons, interacting, microscopic approach 3=11730
- cavities, high Q, for use at microwave freqs. 4=16379
- circuitry, thin-film strips and persistatron study 2=1341
- circuits 0=19573
- coexistence with ferromagnetism 3=16856
- coherence length effect on transitions 3=9673
- collective excitations 2=2952, 19805
- collective excitations, Bogolyubov method, plasma freq. 0=19554
- collective excitations in Fermi system, temp. branch of acoustic type 2=19802
- collective excitations, theory 3=5579
- collective excitations, theory of dielec. const. 0=230
- collective excitations, transverse, i.r. absorption, theory 0=10842
- compensation principle, self-consistent field method, gauge invariance 1=2714
- compensation equation, with Coulomb interaction 0=10837
- compressibility, temp. dependence 1=6998
- computer elements 0=8932
- computer elements 1=6690
- computers, superconductivity, review 2=15859
- conduction, a.c., lack of, theory 3=19102
- conduction electron interactions, spin-wave induced 2=578
- conduction electron spins, effect of uniform exchange field 3=24134
- conference, Cambridge (1959) 0=19547
- conference, Hamilton (1963) 4=14507
- conference, Kharkov (July 1960) 2=5223
- conference, London, 1962 4=11428
- conference, Sverdlovsk (1959) 1=2916
- contacts with interposed barriers 0=5235
- contacts, theory 0=10851
- Cooper pairs with 1 ± 0 and isotropic energy gap 2=13509
- creep of flux, second kind 4=21400
- criteria for supercond. 60 elements 2=13512, 19814
- criterion 3=5578
- critical conditions for thin films in Ginzberg—Landau theory 4=18550
- critical current distrib. and crit. mag. field 4=8561
- critical current/mag. field, second kind 3=19112
- critical currents, 50 c/s 3=21661
- critical currents, second kind superconductor 4=21428
- critical field of films, thickness effects, theory 2=19810
- critical field meas. analysis 2=7517
- critical field of thin shapes, calc. 2=19811

Superconductivity—contd

- critical field, upper, temp. var., paramagnetic effect 4=11472
critical fields and currents 3=5584
critical mag. fields due to supercurrents 0=14930
critical supercooling field 0=8941
critical surface field, confirmation of Ginzburg—Landau equation 4=11474
critical temp. and alloy conc. 2=7494
critical temperature detm. 3=19095
critical temperature, rel. to impurities 3=19100
critical temperature, volume depend. 1=5398
Crowe cell device as computer store 3=340
cryotron config. parallel 2=22125
cryotron, crossed-film, obs. by amplifier, low noise, valve 3=21671
cryotron as ionizing-particle detector 2=11837
cryotron, parallel film 4=16380
cryotron, recent developments 1=16220
cryotrons, film type, static characteristics 4=415
cryotrons, survey 2=7526
cryotrons, thin films, review 4=21431
cryotrons, thin film, Sn and In 4=24516
crystal surface electron states, poss. 4=14516
current-carrying ring, in liq. He, phase-transition meas. 0=10829
current density eqn., gradient-invariant 3=19096
current fluctuations, space-time correl. functions 4=398
current generation in supercond. loop 2=22126
current, metastability, temp. effects 3=21656
cyclic refrigerator 0=8952
cylinder, flux quantization 2=7505
cylinder, flux quantization and current-carrying state 2=9477
cylinder, hollow, crit. field 4=11457
cylinder, hollow, magnetic shielding 4=2921
cylinder, magnetic flux quantization 3=5585
cylinder, thin hollow, Ginzburg—Landau theory 4=391
cylinder, transition temp., quantum efficiency obs. 2=22124
cylinders, persistent currents and angular momentum 4=5509
cylindrical films as computer memory elements 2=5246
D-band superconductors, orbital paramagnetism and Knight shift 3=336
dangerous electron diagrams, Coulomb effects, using S-matrix 0=8929
density fluctuations, space-time correl. functions 4=398
density fluctuations in subvolume 2=9478
density matrix-pairing tensor eqns., soln. 3=16868
density of states in tunnel effect 1=10646
destruction, effect of Joule heating 3=24140
devices, review 2=16586
devices for use in computers, conference 1=16219-21
dielectric const., by BCS model 3=9676
diffusion of supercond. backing into film 3=22805
dirty, coherence length and penetration depth 3=12028
dispersion relations, e. m. 2=5236
dispersion relations for response of superconductor to e. m. field 4=16329
dynamo, d. c., driven by rotating mag. field 4=14562
e. m. absorption, anisotropy effects, near threshold freq. 2=138
e. m. absorption, anisotropy effects, near threshold freq. 3=3944
e. m. field response, many-particle theory 2=2953
e. m. resonators, influences on Q , meas. 4=30046
electric current decay, BCS theory 3=1892
electrodynamics of superconductors, effect of collective excitations 4=27415
electrodynamics of superconductors, nonlinear effects 4=27416
electromagnet 3=14726
electromagnet with supercond. wiring 3=2084
electromagnetic cavity Q , 2856 Mc/s 3=19443
electromagnetic response, relation between diamagnetism and longit. and transverse conductivity 0=19557
electromagnets, field collapse 3=19409
electromagnets, high field, prod. and uses 2=11554
electromagnets, with supercond. solenoid, for > 15 kG 1=3037
electromagnets, superconducting, Joule heating effects 3=12037

Superconductivity—contd

- electron beam studies apparatus, 6°-77°K 4=27400
electron Coulomb interaction effect 3=21652
electron gases 0=10839
electron interaction 0=16943
electron-lattice interactions, perturbation 0=12558
electron-lattice interaction theory 2=15844
electron-lattice states of low energy props. 3=332
electron level density, volume depend. 1=5398
electron-microscope study using bright field shadow technique 4=8579
electron-pair correl. as "inner field" in second order transitions 4=21395
electron pairs, Bose—Einstein condensation 1=4278
electron pairs in theory 2=11560
electron pairs, theory, correspondence between Bogolyubov's and quasichemical equilibrium theory 1=2920
electron-phonon interaction influence 4=12678
electron-phonon interactions, review 2=3835
electron-phonon interaction, theory 0=1073
electron-phonon resonance, theories 0=527
electron system, with singlet or triplet pairs, symmetry effects 4=18534
electron tunnelling 2=2955, 9480
electron tunnelling between two superconductors (Giaever effect) 1=1860
electron tunnelling, conference report 2=12412
electron tunnelling at junctions, excess currents 3=7408
electronic thermal cond., phenomenological model 4=21406
electronic thermal cond. with strong electron-phonon coupling 4=16328
elementary excitations, decay thresholds, u. s. absorption 1=16194
elementary excitations in fermion system 2=11555, 17722
elementary particles, models 4=3282
elements with extremely low transition temp. 0=5236
ellipsoids, in mag. field, mag. moment and critical field 4=11466
energy convector, thermodyn. 2=7523
energy gap in Bogolyubov theory 0=16946
energy gap and density of states, by electron tunnelling through thin films 3=16869
energy gap det. from electron tunnelling 1=8284
energy gap, effect of phonon pulse, theory 4=11459
energy gap eqn. 2=15848
energy gap existence, exptl. evidence 2=5232
energy gap, mag. field depend., calc. 1=1859
energy gap, mag. field depend., Ginzburg—Landau theory 1=8282
energy gap, mag. field depend., theory rel. to expt. 3=3945
energy gap, mag. field var. 4=18546
energy gap, meaning, with paramag. impurities 3=14439
energy gap meas. by electron tunnelling (Giaever effect) 1=1860
energy gap, partially ineffective, in high mag. fields 4=11471
energy gap, reconstruction, sound attenuation meas. 1=18703
energy gap reduction in static mag. field 3=3948
energy gap rel. to paramag. impurities 3=3953
energy gap, review 3=10594
energy gap in superconductors, apparent disappearance 4=24495
energy gap, temp. depend., validity 3=21657
enhancement by normal carrier extraction 1=18700
exact eqns. for spectral functions of simplest correl. functions 4=18533
exchange interaction bet. mag. ions and cond. electron 4=22522
excitation spectrum in normal and supercond. metals, theory 1=5394
excitons, effects of impurity scatt. 2=19804
excitons and plasmons, Anderson—Rickayzen eqns. 1=4530
experimental data, existence of ferromagnetism 0=8946
Fermi fluid 3=23795
Fermi gas, degenerate, acoustic excitations 0=1071
Fermi surface anisotropy, effects 2=1335
fermion system, with BCS interaction, modified Bethe—Goldstone eqn. 0=17271
fermion system, density modulated 4=27111
fermion system, quantum vortices 3=16556
fermion system with simple attractive interaction 1=18699

Superconductivity—contd

fermions, infinite system, energy gap, reaction matrix singularities 0=17270
 fermions, response functions theory 4=27105
 ferromag. metals 0=14932
 ferromag. superconductors, intermediate state 0=7031
 ferromagnetics, effect of electron-spin wave scattering 1=11876
 ferromagnetics, effect of (s-d) exchange 0=19560
 ferromagnetics, ground state 3=19094
 ferromagnets, heat capacity 1=1863
 ferromagnetics, inhomogeneous, electron pairing theory 4=16334
 ferromagnets, theory 4=2915
 and ferromagnetism 3=9672
 filamentary structures 3=16855
 filaments in imperfect crystals, elastic energy 3=5582
 film, e.m. non-linearities 4=21648
 film, mag. suscept., microscopic theory 4=24496
 film, solid, mag. moment 3=6688
 films, ang. var. of crit. field, interpolation formula 4=21408
 films, in contact with normal conductors, behaviour 2=11553
 films, crit. current temp. var. 4=21411
 films, critical current and electron depairing 3=24136
 films, critical fields, calc. 0=16954
 films, critical fields, thickness effects, theory 2=19810
 films, energy gap variation, rel. to mag. fld. 4=16339
 films, evap., engineering and phys. appl. 2=7525
 films, geometry with strong critical current asymmetry 2=7503
 films, Ginzburg-Landau theory, longitudinal effects 4=21398
 films, Landau-Ginzburg theory review 4=8554
 films, mag. effects, theories 3=14443
 films, mag. field depend. of energy gap, theory 4=8555
 films, mag. field effects on thermal cond. and energy gap 1=13041
 films, mag. shielding 2=1336
 films, magnetic field attenuation, meas. 0=10853
 films, max. average energy density, phase transition criterion 4=14512
 films, phase transition to normal, var. field, temp. 4=21396
 films, radiation induced transport of max. flux 2=22115
 films, Sn and Ag superposed, contact depression of transition temp. 4=24514
 films, solid, mag. moment 2=16884
 films, susceptibilities and critical fields 3=9680
 films, susceptibilities and critical fields calc. 4=5500
 films, switching time 3=5587
 films, thermal propag. of normal region 0=12564
 films, thickness reson. 4=397
 films, thin solid, crit. fields 4=22660
 films, thin, of superconducting substances, getter sputtering for prep. 4=14231
 films in transverse mag. field, transition meas. 4=29841
 films, vapour sources for vacuum deposition 3=9525
 fluctuation compressibility theorem 3=7136
 flux lines filamentary structure, rel. to props. of superconductors 4=5496
 flux pump, for intense mag. field generation using induction 4=16620
 flux quantization, in microscopic theory 2=11557
 flux quantization, rel. to quantum single-valuedness 2=9188
 flux quantization, theory 4=16330
 flux trapping 2=22114
 fluxoid conservation 4=21404
 fluxoid quantization in thin-walled cylinder 4=8556
 free fermions and bosons, linear response function 3=1628
 functional integral represent., by perturb. theory 4=16327
 fundamental particles, Nambu model, analogy 2=1703
 γ -ray resonant absorption, no change at T_c 1=18713
 gap eqn. and current density in slowly varying mag. field 4=392
 gauge invariance 0=16947
 general account 0=1072
 generalized self-consistent field and collective excitations 4=2916

Superconductivity—contd

Glauber's tunnelling effect between two superconductors 1=1860
 Ginzburg-Landau eqns. solns. for slabs in tangential mag. field, stability 4=18551
 Ginzburg-Landau macroscopic theory, comparison with expt. 0=14931
 Ginzburg-Landau theory, lower critical field 4=11460
 Ginzburg-Landau theory, mag. field depend. of energy gap 2=7499
 Ginzburg-Landau theory, review 0=8942
 GLAG parameters from nonlocal nonlinear model 4=11461
 Gor'kov's method, generalization for electron-phonon interaction 0=14922
 Gorkov's model, field-theoretic treatment 4=5510
 Green's function analysis 3=21651
 Green's function, iteration, functional deriv. tech. 2=13506
 ground state, alternative models 0=19551
 ground state, BCS Hamiltonian with improved eigenfunctions 0=229
 ground-state energy and Green's function for reduced Hamiltonian 0=10838
 ground state, kinematic analysis using expectation values 2=7504
 ground state for the reduced Hamiltonian, asymptotically exact 1=6997
 ground state, theory 1=11875
 Hall effect, frequency-dependent, calc. 1=1011
 Hall effect, r.f., calc. 1=260
 Hamiltonian formalism 2=23121
 Hamiltonian, for $l=2$, asymptotic soln. 4=24489
 hard, Abrikosov flux line motion theory 4=21389
 hard, flux creep, by tube mag. and resist. meas. 3=24133
 hard, magnetization process, theory 4=18554
 hard, resistive state flux line creep rate 4=21410
 hard sphere Bose system, pair distribution form 0=16627-8
 hard superconductors, crit. persistent currents and flux creep theory 3=3951-2
 hard superconductors, critical field, upper limit 3=337
 hard superconductors, intermediate state, study of large domains 0=2293
 hard superconductors, pulse meas., heating effects 4=11488
 hard superconductors (2nd kind), physical and chemical props., review 4=8564
 hard superconductors, volume changes 0=8956
 heat conduction in films in mag. fields, calc. 4=18555
 heat conduction, macroscopic theory 4=18557
 high current densities, extension of BCS theory 0=3702
 high-current theory 4=385
 high-field alloys, max. critical field 3=1890
 high-field generation, review 2=13628
 high-field, at high current densities 2=5231
 high-field, review 3=12021
 high-field supercond. props. and applic. 2=15857
 high mag. field prod. using supercond. 4=652
 high mag. fields, upper critical field 3=16879
 high T_c and H_c materials, phonon contrib. calc. 4=29842
 highly compressed matter, electron-ion interaction 1=17435
 highly compressed matter, electron-ion interaction 2=23096
 hollow cylinders, magnetic flux quantization 3=16859-60
 hollow superconductors, in mag. field, crit. field 4=390
 hydrodynamical theory, equivalence to Schrödinger-Maxwell eqns. 3=1612
 hysteresis, size effects, hard supercond. and crystal imperfections theory 3=19099
 hysteresis in hard superconductors, momentum vortices as possible mechanism 4=18553
 hysteresis losses, a.c., solenoids, second kind 4=384
 I_c degradation due to temp. cycling 4=29840
 i.r. absorption, energy gap mechanism 0=10845
 ideal mag. cct., appl. 2=7709
 impure superconductors, BCS-type theory 0=3704
 impurities effect 2=19812
 impurities, non-mag., mean free path 3=7401
 impurity effect, theory 0=14927
 impurity effects in alloys 4=18565
 impurity-metal effects 4=24504
 inequivalent representations for quantized field 4=24483
 influence of quasiparticle damping 1=16195

Superconductivity—contd

instruments for meas. of v. low voltages 2=5247
 interacting fermions, as fermion-pair bosons 0=10835
 interband transitions, optical props., calc. 2=5233
 intermediate state, fluctuation of resistance and resistance levels 3=1889
 intermediate state, study 0=10848
 intermetallic cpds., incomplete d-shell transition metals 2=7522
 interphase boundaries, thermal cond. and electron scatt. 3=24139
 interphase surface energy meas. 0=7028
 isotope effect in BCS and Bogolyubov theories 0=1077
 isotope effect and gap 1=6996
 isotope, press. effects, hard and soft supercond. 2=7495
 Josephson tunnel current, periodicity with junction field 4=16333
 Kapitza resist. of metals 2=8165
 Knight shift 0=19552
 Knight shift, calc. 1=18711
 Knight shift, non-disappearance 0=231
 Knight shift, rel. to spin-orbit interaction 2=13503
 Knight shift, rel. to spin-orbit interaction 3=5576
 Knight shift, theory 2=13508
 Knight shift theory with $l \neq 0$ pairing 4=8560
 λ -transition, 2-fluid model, thermodynamic props. 0=8928
 lanthanides, Hamilton-Jensen theory of superconductivity and magnetism modified 4=29832
 lattice gas, multi-component, 1-parameter theory 0=6009
 lattice specific heat anomaly, phonon self-energy theory 1=10645
 law of corresponding states, expt. and theory compared 0=1074
 layer, magnetic field sign reversal 3=16862
 layers of dirty and normal superconductors, review 4=18544
 lifetime effects in condensed fermi systems 1=13037
 limiting critical field, Ginzburg-Landau theory 3=16866
 liquid He-metal contact, thermal (Kapitza) resistance 1=10618
 local model in mag. field, extension to lower temps. 4=21397
 logarithmic criterion 2=139, 9475
 London equations, derivation from Maxwell equations 0=16944
 London-Maxwell eqn., 2-dimensions, soln. uniqueness existence 3=7400
 long hollow cylinder, persistent currents, energetic stability 3=1891
 long range correlation, and cylinder trans. temp./field var. 4=18540
 low-temp. conference, Kiev, Oct. 1961, papers included 3=24124
 mag. behaviour of materials of negative surface energy, model 1=13040
 mag. field meas., in superconductors, γ - γ ang. correl. 0=5232
 mag. field penetration depth, rel. to field strength 1=18708
 mag. field penetration through superconducting hollow cylinder 1=9510
 magnet coils, force-free designs 2=7524
 magnet, Nb rings round Armco core 3=19410
 magnet, for travelling-wave maser 2=20142
 magnetic aspects, magnetism conference, Atlantic city (1962) 4=13104
 magnetic behaviour, high field 4=11468
 magnetic behaviour, negative surface energy superconductors 2=7501
 magnetic, calorimetric meas., thermodyn. consistency 2=7516
 magnetic field, critical, of Pippard superconductor, theory 4=8563
 magnetic field depend. of energy gap and current density 4=18547
 magnetic field effect on energy gap, finite temp. calc. 4=14510
 magnetic field osc. meas. using Mössbauer effect 4=16332
 for magnetic field prod., homogeneous, stable, using cylinder 4=19156
 magnetic field trapped in hollow Pb cylinder 4=389
 magnetic flux, microscopic quantization theory 4=5512
 magnetic flux quantization 2=1334, 19806

Superconductivity—contd

magnetic flux quantization, Gorkov model 3=1896
 magnetic flux quantization in supercond. cylinder 2=11559
 magnetic flux trapping by supercond. toroids 2=13510
 magnetic hysteresis, Abrikosov fluxoid struct. calc. 4=21391
 magnetic moment of a hollow thin sphere 4=11458
 magnetic props. of fibre struct. 4=21402
 magnetic superconductors, T_c rel. to Curie point 0=16956
 magnetization in critical supercond., meas. 3=5575
 magnetization of "hard" supercond. 2=13507
 magnets, coils, electrical flux-pump power source 3=14463
 magnets, current prod., flux pump 3=17027
 magnets, degradation factor and diamag. currents 4=3093
 magnets, electro. high-field, current carrying capacity 3=16881
 magnets, high field, review 4=19158
 magnets, Nb₃Sn, stabilization by mag. field 4=21627
 magnets, protection against overheating 3=14728
 magnets, review 2=19809
 magnets, review 3=17028
 magnets, review 3=24428
 magnets, review 4=8896
 magnets, review 4=30021
 magnets, short wire tests 3=19407
 magnets, superconducting, review 3=339
 magnets, supercond., inductive behaviour 4=3091
 magnet, superconducting, insulation, role 4=21628
 many-body problem, review 0=3448
 many-fermion theory, Green's function method 1=11874
 meas. of a.c. resistance, induction method 3=19126
 mechanical props. rel. to high-field supercond., review 4=29826
 Meissner effect, BCS and Bogolyubov's theory 0=5233
 Meissner effect, Bogolyubov theory 0=16945
 Meissner effect, effect of strong coupling between electrons 0=19458
 Meissner effect, gauge invariance 1=6996
 Meissner effect, gauge invariance of many-electron system 0=14926
 Meissner effect, influence of free path 2=7497, 22111
 Meissner effect, mag. field reversal, specular electron scatt. 1=8283
 Meissner effect in many-fermion systems 1=4531
 Meissner effect, notes on theory 1=8281
 Meissner effect, photon self-energy analogy 4=866
 Meissner effect and quantized flux, simple theory 2=17721
 Meissner effect, quasi-chemical equilib. theory 2=11298
 Meissner effect, quasi-chemical equilibrium theory 1=10644
 Meissner effect, Tomonaga's gauge-invariant theory 0=14928
 memory, quantized trapped flux applic. 3=24149
 metal films, rel. to defects 3=16133
 metal films, mag. meas. of transition 2=13515
 metal films, normal and supercond., superimposed 2=22112
 metal films, quench-condensing, effect 2=23242
 metal films, superposed, transition temp. and energy gap 4=5501
 metal-liquid He II boundary, Kapitza resist. 2=22123
 metallic films, props. 4=8553
 metals, antiferromagnetic, explanation of non-existence 1=9511
 metals, change of transition temp. with press. 3=14461
 metals, effect on thermal expansion 4=22503
 metals, by n.m.r., review 2=8681
 metals, photocond. effects 2=8402
 metals, polyvalent, transition temp. calc., pressure depend 0=3705
 metals, with quasi-boson excitations 0=10830
 metals, superimposed, hard 4=16336
 metastable resist. states 4=24492
 microwave surface impedance of hard supercond. 4=27641
 model with pairs in p-states 4=11456
 moving phase boundaries, kinetics 1=7875
 multiphonon effects in tunnelling between metals and superconductors 3=326
 multiply-connected, flux conservation expts. 2=15850
 multiply-connected, transition temp. periodicity for mag. field var. 4=18542

Superconductivity—contd

n.m.r., near 2nd critical field, signal shape 4=17687
 necessary condition: electron energy as function of wave-number, $\partial^2 E / \partial k^2 = 0$ 4=27413
 Nernst heat theorem, Fermi-Dirac statistics 3=1626
 new cpds., structures and transition temps. 1=18712
 nonlocal theory, integrodifferential eqns. 4=27410
 non-magnetic alloys, electron scatt. by impurities 3=9674
 normal metal film on supercond. films 3=5583
 normal metal-supercond. metal contact, elementary excitations in vicinity 3=12027
 normal regions in mixed state from type II microwave surface resistance 4=24500
 nuclear particle detn. by supercond. film 2=22366
 nuclear spectrum, pairing interact., analogy 3=10215
 nuclear spin relaxation, theory, and calc. of R_n/R_0 0=1078
 ohmic transport currents 4=16331
 onset in decreasing fields 4=8559
 onset, from "large" eigenvalue of second-order reduced density matrix 4=11465
 onset of transition to normal under supercritical mag. field 1=9515
 organic polymers, possible, BCS theory 4=18541
 oscillator, frequency-stabilized, cavity, study at 3160 Mc/s 4=27439
 overlapping bands, energy gap and transition temp. 3=1893
 pair correlation function spatial var. in non-homogeneous bodies 4=18539
 pairs in a relative p wave 3=21655
 pairing correlation theory reformulation 4=24487
 pairing interaction, second order correction 4=5504
 paramagnetic effect in superconductors 0=8961
 paramagnetics inhomogeneous, and critical fields of alloys, high values 4=16335
 partial persistence at high mag. fields and current densities 2=19808
 particle accelerators, linear, cavities, high power 4=14778
 partition function near transition point, analytical props. 4=2917
 patterns 4=2913
 Pauli paramagnetism effect 4=27412
 penetration depth in films, mag. field depend., theory 1=18704
 phase transition in absence of external field 4=388
 phase transition, cylindrical superconductor, theory 3=9677
 phase transition, extended Hamiltonian 2nd order perturbations 1=5397
 phase transitions 4=27414
 phenomenological electrodynamics 0=9148
 phenomenological theory, Ginzburg-Landau eqns., microscopic derivation 0=10836
 phonon freq. and dielec. const. 3=19098
 photocurrent, rel. to frequency and temperature 4=5497
 Pippard and London superconductors, i.r. threshold absorption 3=1898
 plane boundaries, pair wave functions, by Gor'kov eqns. 4=2919
 plasma frequency dispersion, screened exchange energy, on BCS theory 0=14929
 plastic deformation and annealing temp. effects 2=2960
 plates, intermediate states 0=10840
 position-dependent, generalized BCS theory 4=5502
 power switches, using superconducting-to-normal transition 4=18627
 press. var. of crit. temp. and isotope effect 4=21420
 proton linear accelerator, feasibility 1=18955
 pure superconductor, Ginzburg-Landau-Gor'kov general eqn., magnitudes calc. 4=29830
 quantization of flux 1=16196-7
 and quantization of flux 4=18535
 quantization of flux, theory 4=18536
 quantization, fluxoid, in films, Ginzburg-Landau theory 4=18549
 quantization and stability of currents, theory 2=2954
 quantized flux, Abrikosov struct. detection by tunnelling interference 4=21403
 quantized flux detection, static, using switch 4=16382
 quantized mag. flux in cylinders 1=13042-5
 quantized mag. flux "lines", motion 3=16861

Superconductivity—contd

quantized vortex obs. in Sn film 4=18610
 quantized vortices, obs. in Sn strip, from osc. in resistance/mag. field 4=5529
 quantum effect of a static vector potential in a field-free region 4=18531
 quantum interference effect obs. by 20 μ bridge between two films 4=24498
 quantum phases, off-diagonal long range order 3=14436
 quasi-chem. equil. theory, self-consistency 3=14440
 quasichemical equilibrium approach, pair correlations 0=19555
 quasichemical equilibrium theory 0=12383
 quasi-particle approximation theory 1=5396
 quasi-particle lifetime at finite temp., thermal cond. ratio 3=331
 quasi-particle and phonon lifetime at 0°K 2=17724
 quasiparticle picture, Meissner effect and flux quantization 4=8557
 quasi-particle recomb. time, effect of electron m.f.p. 3=14441
 quasi-particle recombination time 2=15845-6
 quasi-particles and gauge invariance in theory of 0=5234
 r.f. detection by electron tunnelling between superconductors 4=18625
 radiation bulk absorption in superconductors 4=24494
 Raman scattering in reflection from superconductors 1=14614
 rare earth alloys, ferromagnetic, theory 0=7030
 rare earth ferromagnetic metals, ultra-high field 3=3964
 rare earths, in superconductor, solid soln., ferromag. props. 0=6217
 rectifier, flat-film, possible design 2=7503
 relation to ferromagnetism for AB_2 , (A = Nd, Y; B = Re, Os, Ir, or Pt) 0=13753
 relation to ferromagnetic interaction phenomena 0=10111
 relation to magnetic props. 3=14442
 resistance, a.c., nonideal superconductors 4=18599
 resistance fluctuations in intermediate state 3=1889
 resistance in superconductor 2=11562
 Resource Letter Scy-1 4=11455
 review 4=8552
 review 4=27407
 review of evidence for two types, sponge model 4=18528
 Righi-Leduc effect 0=19558
 ring currents, persistent, in ideal Bose gas 2=2951
 ring supercond. flux quantization and time-reversal degeneracy 2=19807
 rotating film, persistent current and energy gap 4=21407
 s-d interaction as possible mechanism 1=8285
 second kind, current flow, force-free, simple model 4=383
 second kind, layer model 3=24138
 and second-kind phase transformations, pressure effects 4=1976
 second kind, two-fluid model, and microwave surface impedance anisotropy 4=27419
 second kind, vortex lines, collective mech. modes 4=21390
 second quantization, approx. method 1=4532
 second random-phase approx. 3=12024
 second sound, thermal conductivity mechanism, exciton excitations 1=18709
 second sound, thermal conductivity mechanism, exciton excitations 3=328
 second-type, rel. to large mag. fields and elec. currents 3=5577
 semiconductors, necessary conditions 2=11552, 13502
 semiconductors, possibilities 4=18568
 semiconductors and semimetals, many-valley 4=14513
 sheets, current and field distrib. and magnetization curves 4=22942
 shell configurations for uniform fields 2=11556
 σ and α -Mn alloys, type A_2B_{1-x} 2=5237
 σ and α -Mn structures 1=18718
 single or triple pairs, BCS to Bogolyubov's transition 4=21405
 single layer coils and hollow cylinders 0=5238
 slots in surface of superconductor 0=8953
 small superconductors, mag. moments 4=11467
 solenoid, current behaviour before and after breakdown 4=11489
 solenoid, field energy removal 4=24791

Superconductivity—contd

solenoid, Nb—Zr, high field 3=3971
 solenoid, 100 000 G 4=11746
 solenoid for magnetic field stabilization 4=3088
 solenoids, control of d.c. mag. fields 3=14723
 solenoids, fluctuations in critical current/external field relation 3=1889
 solenoids, for use in mag. refrigerators 2=9470
 solenoids, Nb—Zr, performance 4=27611
 solenoids, supercond., for homog. mag. fields 4=3095
 solenoids, superconducting, for high mag. field production 4=16619
 solid soln. alloys, effect of electron conc., mean free path 2=8864
 solid solns., metallic, conference 4=10407
 solid state physics conference 0=6002
 specific heat, anomaly at supercond. transition 3=14445
 specific heat, temp. dependence 1=6998
 specific heat, type II, mixed state, temp. var. 4=11471
 specific heats, rel. to electron—phonon interact. 3=3950
 spin alignment, theory 0=2286
 spin effects, treatment of non-mag. impurities 3=3946
 spin—electron interactions, experiments 0=12557
 spin exchange in superconductors 0=8964
 spin ordering in ferromag. supercond. 3=12023
 spin ordering near crit. temp. review 4=17614
 spin—spin interaction of impurities 0=19556
 spin susceptibility, short range, calc., and transitions 4=18552
 stabilization by dislocation stress fields 4=5503
 static London eqns., analogue soln. 0=19549
 stellar matter 2=21725
 stress effects on transition temp., film technique 1=18715
 stress effects on transitions in Ta and Sn 1=11885
 stress field pinning by localized composition fluctuations 4=14508
 strip conductors with rt.-angle bend 3=9712
 strip transmission line of superconducting thin film 1=4726
 strong coupling, critical field and specific heat 4=27411
 strong spin-exchange field, theory 4=24493
 summation of ladder diagrams 2=1332
 superconducting electromagnets 0=7029
 superconducting electrons, range of order in normal conducting barriers 0=8962
 superconducting motor, three-phase 4=18626
 superconducting—normal transition time 2=140
 superconductive radio frequency mixer, equivalent circuit 1=16193
 superconductive-state degeneracy in many-fermion system 1=16192
 superconductor—barrier—lead tunnelling junction, density of states, anomaly 4=404
 superconductor, in contact with normal cond., T_c 2=9485
 superconductor, pure, thermal cond. and sound absorption 2=141
 superconductors in instrumentation, review 4=8577
 superconductors, n.m.r., Knight shift, theory 0=1075
 superconductors as permanent magnets 3=338
 superconductors as permanent magnets 3=14464
 superconductors pure thermal conductivity and sound absorption 3=330
 supercurrent destruction by α -particles, qualitative mechanism 3=12026
 supercurrent maximum for particular value of energy gap 0=16948
 superimposed metal films 1=11886-7
 superimposed metallic films, microscopic theory 2=7502
 superimposed metals, transition temp. 1=18722
 surface elec. cond. of Au, Cu films on supercond. Sn 4=22672
 surface energies 0=8942
 surface energy, phenomenological theory, supercond.—normal phase transition 1=6995
 surface impedance, calc. 0=10841
 surface impedance, frequency depend., exper. data 0=8930
 surface impedance in mag. field, theory 0=8926
 surface losses at low frequencies 4=2914
 surface, in mag. fields $>H_c$, calc. 4=29829

Superconductivity—contd

surface, type I, above thermodynamic crit. field 4=21409
 survey over last 5 yrs. 2=2950
 susceptibility of supercond. spheres 0=5375
 switching devices in electronic computers 2=13518
 synthesis and props. of Nb_3Sn , Nb_3Sn_3 2=19815
 Tamm—Dancoff approx. applied to Bogolyubov's interaction Hamiltonian 1=11873
 Tamm—Dancoff approximation for superconductivity Hamiltonian 1=5694
 temperature controller, below $1^\circ K$ 3=1880
 temperature Green's function for electrons 1=18705
 theoretical equations, coordinate dependent energy gap 4=386
 theories of Eliashberg and BCS compared 2=5234
 theory, adiabatic approx. methods 3=5580
 theory, book 4=24481
 theory, collective modes 1=10643
 theory without electron—phonon interaction 4=18537
 theory, micro, reprint of nineteen basic articles 4=18532
 theory, props. of modified electron—lattice states of low energy 3=332
 theory, quantum attracting fermions 4=24484
 theory, review 0=10833
 theory, review 2=7496
 theory, symmetry props. of Nogami's modified pairing Hamiltonian 4=24488
 theory used as analogy for dynamical model of fundamental particles 1=7193
 thermal cond. 2=7515
 thermal cond., lattice, reduction by crystal point defects 4=18556
 thermal conduction, intrinsic electronic theory 3=5581
 thermal conductivity 3=21650
 thermal conductivity, electronic component, anisotropy effects 0=10844
 thermal conductivity of pure Pb and Hg near T_c 4=6765
 thermal conductivity, superconductors in intermediate state 4=18558
 thermal conductivity, thermoelectricity, Landau laminae theory 4=5499
 thermal switch, anisotropic 3=16882
 thermal wire, var. with dia., and m.f.p. 3=22672
 thermodynamics 0=14923
 thermodynamics, Coulomb interaction calc. 3=21653
 thermodynamics of dirty semiconductors 1=11883
 thermoelectric cooling in intermediate state of cylinder 4=14509
 thin film rings, fluxoid conservation meas. 4=27408
 thin films, behaviour in mag. fields and currents 4=24497
 thin films, magnetic field and phase transition 4=396
 thin films, magnetic moments and critical fields 3=24142
 thin films, of second group, lower crit. field 4=18548
 thin films, shape resonances 3=19101
 thin films, transition temp. lowering 2=22116
 thin shapes, critical field, calc. 2=19811
 thin superconductors, quantized flux penetration 4=394
 transformer with superconductive windings, construction 4=16381
 transient effect on supercond. sphere in mag. field 3=16865
 transients and losses on going normal without protective circuitry 4=11483
 transition, elastic moduli changes 2=7508
 transition element complex phases 2=2961
 transition element solid solns., survey 1=11882
 transition elements, contrast with non-transition, isotope effects, mag. mechanism 4=16376
 transition of films, fluxoid quantiz. effects 3=9675
 transition, mech. effects, critical temp. 2=7507
 transition metal alloys, critical fields rel. to high and low current densities 4=16337
 transition metal alloys, cold-rolled, high-field critical currents, giant anisotropy 4=16338
 transition metal alloys, H_{c2} temp. var. 4=18617
 transition metal alloys, transition temps., specific heats 4=18616
 transition metal alloys, upper crit. fields 3=3949
 transition metal binary alloys, T_c and electronic state densities 4=16352
 transition metal borides 4=14525
 transition metal solid solns., peak effect 4=18563

Superconductivity—contd

- transition-metal solid solutions, magnetic props. 3=15747
 transition metal solns., size factor 3=16871
 transition metals and alloys, and crystal electron struct., review 4=20229
 transition metals, binary phases, specific heat and mag. props. 4=16340
 transition metals, rel. to densities of states and localized moments 4=399
 transition metals, rel. to electron density 2=7197
 transition metals, Hamilton-Jensen theory of superconductivity and magnetism modified 4=29832
 transition metals, isotope effect 4=395
 transition metals, mechanisms 4=400
 transition metals under pressure 4=16366
 transition metals, review 4=18615
 transition metals, s-d interaction 3=5593
 transition metals, specific heats meas. 3=7405
 transition metals, theory 4=29831
 transition metals, two-band model 3=9678
 transition to normal state, boundary layer behaviour 1=10637
 transition, phase boundary model 4=18543
 transition region hysteresis loop props., tin 0=2287
 transitions, resistive, and surface effects in type II sheets 4=14515
 transition in supercond. strip 2=15843
 transition, Ta, Sn, 1st, 2nd order stress effects 2=7518
 transition temp., BCS parameter $N(O)V$ rel. to theoret. parameter of liq. metal 2=11558
 transition temp., effect of exchange interaction 0=12560
 transition temp., impurities effect 2=13511
 transition temperatures rel. to specific electron volumes 4=24482
 transition, in thin films, thermal and elec. description 2=1333
 transition temperature, rel. to isotopic composition 3=24135
 transition temps. and abs. boiling points, empirical laws 3=24132
 transition temps., structures, of metals, alloys 3=14438
 transitions, transmission line structures 4=18545
 transport processes, Hamiltonian operators and relaxation 4=14494
 transverse acoustic wave attenuation, calc. 4=29827
 tunnel effect, appl. to microwave detection 1=5400
 tunnel effect in metal films 1=18707
 tunnel junctions, apparatus for characteristics meas. 4=8578
 tunnel junctions, distributed device applications 4=11487
 tunnel junctions, phonon-assisted tunnelling, theory 4=5508
 tunnelling charact., phonon critical points 4=8562
 tunnelling characteristics, second derivative fine structure 4=21393
 tunneling current, calc. 3=16858
 tunnelling current calc. 4=11473
 tunnelling current, Josephson, self-consistent calc. 4=5507
 tunneling current, microwave effects, width of flat V-1 curve regions 4=18562
 tunnelling current theory 4=21394
 tunnelling effect 3=1894
 tunnelling, effect of microwave field, multiphonon process 3=5595
 tunnelling, electron, theory, phonon fine struct. effects 4=21392
 tunnelling, by electron pairs, new effects 3=1895
 tunnelling, through films between supercond. metals 2=12414, 22110
 tunneling, Hamiltonian theory term separation 4=18560
 tunnelling, independent-particle viewpoint 1=10639
 tunnelling, Josephson effect 4=14511
 tunnelling, Josephson, self-consistent calc. 4=5507
 tunnelling, Josephson, self-field limiting, electron pairs 3=21659
 tunnelling, mag. controlled, 3-terminal superconductor-insulator-metal device 3=24151
 tunnelling, many-particle viewpoint 1=5395
 tunnelling between normal metal and superconductor, function tables 3=16863
 tunnelling, normal metal to supercond. 2=15847
 tunnelling process, two-particle 3=7409
 tunnelling in sandwich junctions, temp., mag. field var. 4=18561
 tunnelling study, energy gap det. 1=8284

Superconductivity—contd

- tunnelling between superconductors 4=5505
 tunnelling, thin dielectric layer separation, temp. depend. 3=19103
 two-component atomic volume model 0=8945
 two-component theory 0=8925
 two-particle tunnelling processes 3=16864
 type II, Ginzburg-Landau eqns., bulk soln. 4=11462
 type II, GL eqns., periodic soln., Abrikosov's theory 4=24490
 type II, low field hysteresis, surface barrier theory 4=11469
 type II, in mag. field and transverse current, paramag. effect, calc. 4=29843
 type II, mag. hysteresis and defects 4=18583
 type II, quantum interference effects 4=24499
 type II, review 4=18529
 type 2 superconductor, current distrib., Ginzburg-Landau theory 4=14514
 type II superconductor, semi-reversible, mag. behaviour 4=16353
 type II, theory, models, review 4=18530
 type II, thermodynamic props. 4=18559
 type II, vortex wave spectrum peaks 4=24491
 u.s. absorption, anisotropy 2=9479
 u.s. absorption anisotropy 3=5586
 u.s. absorption, anisotropy effects, near threshold freq. 2=238
 u.s. absorption, anisotropy effects, near threshold freq. 3=3944
 u.s. attenuation in metals 2=7506
 u.s. attenuation for $q\ell < 1$, calc. 3=21654
 u.s. attenuation, theory 1=1862
 u.s. investigation 1=3595
 ultrasonic absorption, anisotropy 1=18702
 ultrasound absorption, eqn. 4=387
 unsolved problems 4=18527
 use of double-time Green functions 1=5212
 use in elastic limit meas. of metals 4=15685
 use in magnetic field production 4=14859
 variation of elastic moduli at superconducting transition 1=11884
 virtual interaction among electrons, parallel permutation 0=8944
 vortex line in type II, bound fermion states 4=21401
 vortex lines, energy, stability, elastic moduli 4=21399
 wave-functions, exact calculation 1=10638
 wave-functions, particles of parallel spin paired 2=19803
 wires, critical alternating current 4=8580
 X-ray spectra of substs. rel. to supercond. props. 2=21258
 zero-point energy, temp. dependence 1=6998
 $\text{Ag}_{0.43}\text{Hg}_{0.57}$, superconductive Hume-Rothery phase 4=18601
 Ag-Sn films, edge effect suppression 4=27433
 Ag tellurides 4=29833
 Ag tellurides, metastable phases, supercond. props. meas. 4=29833
 AgTe, 1.3° to 20° K 3=16873
 Al, absorption, u.s., long. and shear 4=16341
 Al alloy, sp. ht. down to 1.8° K 2=6281
 Al, attenuation of u.s. shear waves 3=14446
 Al-clad Pb wire, magnetic transitions 3=9682
 Al, crit. temp. decrease by Cr, Mn, Fe impurities 4=18566
 Al, critical temp., containing Cr, Mn, Fe impurities 3=19105
 Al, critical temp., effect of impurities 0=8957
 Al, density of states from tunnelling meas. 2=11572
 Al, electron tunnelling, energy gap det. 1=8284
 Al, energy gap, mag. field depend., calc. 1=1859
 Al, energy gap, magnetic field dependence 1=11888
 Al film, n.m.r. Knight shift, relax., elec. cond. 4=20608
 Al film, transition temp., stress var. 4=14517
 Al films 3=14447
 Al films, rel. to adsorbed O 3=16872
 Al films, energy gap, mag. field depend., tunnelling meas. 4=21414
 Al films, energy gap temp. depend., tunnelling meas. 4=21413
 Al films, pulse-induced destruction 4=21412
 Al, interphase surface energy 0=7028
 Al, law of corresponding states, expt. and theory compared 0=1074

Superconductivity—contd

- Al, mm wave absorption, temp. depend. of energy gap and skin depth calc. 0=2288-9
 Al, nuclear spin-lattice relax. 2=2957, 7509
 Al, nuclear spin relax., size effect meas. 4=8565
 Al, up to 1 at.% impurities, forbidden band anisotropy, from specific heat, temp. var. 3=19106
 Al, penetration depth meas. at 175 Mc/s 2=9481
 Al, precipitation hardening effect 2=2956
 Al, pressure and volume effects, critical mag. field, Fermi surface 1=258
 Al, specific heat near transition point 3=12029
 Al, spin-lattice relaxation time 0=8950
 Al, superconducting state, structure at critical temp. 0=18337
 Al, supercooling at transition, anomalous spec. ht discontinuity 1=4533
 Al, surface impedance 4=24511
 Al, surface impedance, calc. 0=10841
 Al, surface impedance at 3 Gc/s 2=9482
 Al, thermal conductivity 2=3853
 Al, thermodynamics 1=11883
 Al, transition temp. 2=6280
 Al, u.s. measurements 0=233
 Al-Al₂O₃-Sn junctions, tunneling currents, zero voltage, microwave effects 3=21660
 Al-Al₂O₃-X (X = Pb, In, Sn) layers, tunnelling-microwaves quantum interact. 2=11571
 Al₂Ca, 1.3° to 20°K 3=16873
 Al₂Ca, 1.3° to 20°K 3=16873
 Al-Ca-Si, 1.3° to 20°K 3=16873
 Al-Fe, and transition temp., small amounts of Fe 4=8566
 Al-Ge alloys, nuclear spin-lattice relax. 2=12827
 Al-Ge, 1.3° to 20°K 3=16873
 Al-In films, crit. temp. increase on exposure to water vapour 3=19107
 Al-Mg alloys, transition temps. 2=6280
 Al-Pb tunnelling characteristic, phonon spectrum image 3=24146
 Al-Pd-Mo, 1.3° to 20°K 3=16873
 Al₂Y₂, 1.3° to 20°K 3=16873
 Al-Zn alloys, nuclear spin-lattice relax. 2=12827
 As₂Pd₃, 1.3° to 20°K 3=16873
 AsW, 1.3° to 20°K 3=16873
 AsZn, 1.3° to 20°K 3=16873
 Au films, critical temperature rel. to electrostatic charging 3=75545
 Au germanide, metastable phases, supercond. props. meas. 4=29833
 Au telluride, metastable phases, supercond. props. meas. 4=29833
 Au, transition temp. calc., from Au₅Ba transition temp. var. with structure 4=5515
 Au wires, Sn-plated, contact supercond. 0=5235
 Au₅Ba, transition temp., var. with structure 4=5515
 AuBe 0=5237
 Au₂Bi, γ -ray resonant absorption by Au¹⁹⁷ 1=18713
 AuNb₃, γ -ray resonant absorption by Au¹⁹⁷ 1=18713
 AuSb₂, 1.3° to 20°K 3=16873
 AuTe₂, 1.3° to 20°K 3=16873
 BCS-Bogolyubov theory, stability condition 1=15731
 BCS theory, classical derivation of matrix element 1=17409
 BCS theory generalized to fermion and boson systems 1=75
 BaBi₃, cryst. struct. 2=10905
 Be films, condensed on cold substrate 1=15179
 Be films, critical field, var. with temp., anomaly 4=5514
 Be films, polymorphism 0=10846
 BeCr₂, 1.3° to 20°K 3=16873
 Be₂Mo, 1.3° to 20°K 3=16873
 Be₁₃Mo, 1.3° to 20°K 3=16873
 Be₂Re, 1.3° to 20°K 3=16873
 Be₂W, 1.3° to 20°K 3=16873
 Be₂Zr, 1.3° to 20°K 3=16873
 Be₁₃Zr, 1.3° to 20°K 3=16873
 Bi, crystalline modifications 1=20220
 Bi II and III modifications, critical fields 3=21662
 Bi, transitions under high press. low temp. 2=7482, 9483
 Bi-type metals, absence of supercond. 4=2920
 Bi, work-hardened 0=18379
 BiPb alloy film, current-voltage curve 4=14530
 BiPt 0=10847

Superconductivity—contd

- Ca₃Ge, 1.3° to 20°K 3=16873
 CaSi, 1.3° to 20°K 3=16873
 CaSi₂, 1.3° to 20°K 3=16873
 Ca₂Si, 1.3° to 20°K 3=16873
 Cd, isotopes 3=12030
 Cd, nuclear spin relax. 2=7509
 Cd, pressure depend., up to 27000 atm 4=401
 Cd, pressure and volume effects, critical mag. field, Fermi surface 1=258
 Cd, thermal cond., anisotropy 1=18724
 Cd, transition temp. 2=6279
 CeRu₂-GdRu₂ (7.3%), incipient 4=13172
 Cr alloys with Ru, Rh, Ir 3=1900
 Cr-Ir alloys, and ferromagnetism 4=16342
 Cr-Re system, transition from antiferromag. 4=25853
 Cr-Rh alloys and ferromagnetism 4=16342
 Cu wires, Sn-plated, contact supercond. 0=5235
 CuAl₂(C16) crystal class 2=13514
 Cu-Bi alloys 0=10849
 Cu and Pb films superimposed 4=16348
 Cu-Pb, thermal boundary resistance 3=19108
 Cu-Pb-Cu sandwiches, thermal cond. at liq. He temp. 3=24150
 Cu-Pb-Cu sandwiches, thermal cond., 1.3°-4.0°K 4=9873
 CuS, X-ray spectra 0=14934
 Cu-Sn, thermal boundary resistance 3=19108
 Fe films, on glass 0=2290
 Fe, films, no evidence 3=19109
 FeSb₃, 1.3° to 20°K 3=16873
 Ga, high-pressure modification meas. 4=8567
 Ga, intermediate state, thermal conductivity 1=4973
 Ga, nucl. quadrupole resonance, 0.8-4.2°K 0=19562
 Ga, plastically deformed 0=16955
 Ga, press. var. of crit. temp. 4=21420
 Ga, sp. ht. in normal and supercond. states 0=8947
 Ga, supercooling at transition, anomalous spec. ht. discontinuity 1=4533
 Ga, thermal cond. in supercond. and normal states 0=7026
 GaN, var. with mag. field 4=402
 Ga-Pt, 1.3° to 20°K 3=16873
 Ga₂Zr, 1.3° to 20°K 3=16873
 Gd-La, magnetic alloying, latent heat at critical temp. 0=19553
 GdOs₂-LaOs₂, solid solns., T_c rel. to Curie point 0=16956
 GdRu₂ in CeRu₂, solid soln., mag. props. 0=11844
 GdRu₂-CeRu₂ solid soln., T_c rel. to Curie point 0=16956
 Gd₂Th₂Ru₂ and ferromag. 4=18567
 Ge₂Pd, 1.3° to 20°K 3=16873
 GeTe 4=18569
 He, liq., uses in industrial labs. 2=19794
 for He liquid level indicator 4=18519
 He³, 1 \pm 0 coupling 2=22113
 Hf-Nb alloy, high mag. field transitions 3=16879
 Hf-Ta alloy, high mag. field transitions 3=16879
 Hg, α - and β -phases, critical field 1=11880
 Hg, apparent structure on far i.r. energy gap 0=1083
 Hg, critical field curve 0=8935
 Hg, energy gap, from far-i.r. absorption 0=14933
 Hg, energy-gap functions, theory 3=16867
 Hg films, electron tunnelling 4=24507
 Hg films, freshly deposited 3=327
 Hg films, freshly deposited, at liq. He temp. 1=18719
 Hg, in glass capillary, high-field props. 2=22119
 Hg, i.r. absorption due to transverse collective excitations, theory 0=10842
 Hg, i.r. transmission, 0.1-1.1 mm, of films 0=10852
 Hg, law of corresponding states, expt. and theory compared 0=1074
 Hg, pressure and volume effects, critical mag. field, Fermi surface 1=258
 Hg, specific heat, and normal, equal lattice T³ term 4=18585
 Hg, superconducting state, structure at critical temp. 0=18337
 Hg, u.s. absorption 0=8954
 Hg, u.s. attenuation 0=232
 Hg-In alloys, transition temp. 3=14453
 In alloys, ideal transition, concn. limits 3=7403
 In-based alloys, high mag. field superconductivity onset 4=16344
 In below 1°K, thermal conductivity 0=8937

Superconductivity—contd

In, critical field curves 0=16951
 In, critical field, pressure depend. 0=19563
 In, critical temp., change due to electrostatic charging 0=19559
 In, critical temp., effect of impurities 0=8957
 In cylinder, mag. fld. penetration, rel. to ohmic dissipation 3=24144
 In, density of states from tunnelling meas. 2=11572
 In, elastic const. and Debye temp., identity with normal In 1=2923
 In, elastic const., no change in supercond. state 1=20295
 In, electron tunnelling, energy gap det. 1=8284
 In, energy gap, from far-i.r. absorption 0=14933
 In, Fe impurities decrease gap and transition temp. 4=18574
 In film, thermal cond. and energy gap, mag. field effect 4=18608
 In films 1=10641
 In films, rel. to adsorbed O 3=16872
 In films, crit. field temp. var., discrepancy removal 4=18570
 In films, critical fields, calc. 2=19810
 In, films, critical temperature rel. to electrostatic charging 3=15545
 In films, edge effect elimination 4=24502
 In films, e. m. microwave absorption, energy gap var., mag. field effect 4=29835
 In films, mag. props. 1=16202
 In films, pulse-induced destruction 4=21412
 In films, rel. to residual gases 3=16878
 In films, residual gases effect 2=1339
 In films, stress effects on transition temp. 1=18715
 In films, structure in density of states 3=24143
 In, i.r. transmission, 0.1-1.1 mm, of films 0=10852
 In, interphase surface energy 0=7028
 In, Kapitza resistance 3=311
 In, m.f.p. of electrons, temp. var., and normal 4=21415
 In, mag. and sp. ht. data, thermodyn. correl. 2=15852
 In, Mössbauer effect measurements 1=19693
 In, 0-1730 kg/cm², T_c shift 1=18723
 In, nuclear quadrupole resonance study 1=5077
 In, pressure and volume effects, critical mag. field, Fermi surface 1=258
 In, pure and Mn doped, critical temp. var., 3rd element effect 4=29834
 In and Sn thin films, current-induced switching 2=5238
 In, sound velocity at 1.0°K 1=9974
 In, specific heat, isotope effect on crit. field 4=16343
 In, specific heat below 1°K, lattice contribution in supercond. state 0=13489
 In, specific heat in supercond. state 1=11162
 In, supercond. —normal transit, current-induced, switching times 4=24512
 In, superconducting state, structure at critical temp. 0=18337
 In, surface impedance at 3000 Mc/s 1=14361
 In, surface tension meas., at boundary with normal phase 0=8934
 In, thermal cond., 1.3-4.2°K 0=20755
 In, rel. to thermal resist. at sapphire boundary 4=28385
 In, thermodynamics 1=11883
 In, transition temp., boundary scatt. effects 2=9484
 In, variation with frequency 0=8936
 In-Bi alloys, microwave surface impedance 4=14521
 In-2½% Bi, magnetization rel. to field strength 3=3954
 In-Bi (1.5-4 at. %), magnetization temp. var., crit. fields 4=18571
 In-Bi, mixed, thermal cond., var. mag. field 4=18572
 In-Bi (3 at. %), thermal cond., 2.16°K, var. mag. field 3=12032
 In-Hg alloys 0=7032
 In-Hg, crit. temp. —composition discontinuities 4=18577
 In-Hg dilute alloys, thermal cond. 2=7510
 In-Hg, thermal cond., phonon conduction 2=11561
 In-Mg alloys, dilute, critical temp. 4=403
 In-Pb alloys 0=8960
 In-Pb alloys, dilute, critical temp. 4=403
 In-Pb alloys, magnetic field penetration 3=9683
 In-Pb, crit. temp. —composition discontinuities 4=18577
 In-Pb, four critical fields, surface effects 4=14520
 In-Pb, He-temp. d. c. amplifier 2=5245

Superconductivity—contd

In-Pb(6%), nucleation field reduction by plating 4=18575
 In-Pb, transition, time delays in 500-1000A films 0=1082
 InSb, InSbSn, InSbSn₂, InSbSn₄ 4=27420
 InSb, metallic form 3=12031
 InSb, metallic phase, meas. 4=14519
 InSb, transformation temperature 3=19110
 InSb-β-Sn system at high press. 4=16345
 In-Sn alloy films, critical mag. field 3=14448
 In-Sn alloys, magnetic field penetration 3=9683
 In-Sn alloys, magnetization and transition order 4=18576
 In-Sn alloys, transition temperature discontinuity 4=6798
 In-Sn, crit. temp. —composition discontinuities 4=18577
 In-Sn films, crit. field temp. var., discrepancy removal 4=18570
 In-Sn system 1=11877
 In-Sn system 3=19111
 InTe 4=27420
 InTe, metallic, metal 4=8568
 In_{1-x}Te_x (x < 0.18), NaCl type, transition temps., and vacancies 4=14518
 In-Tl alloys, magnetic field penetration 3=9683
 Ir 2=17727
 K₂Te₃, 1.3° to 20°K 3=16873
 La, far i. r. absorption, gap width 4=14522
 La, foils and evap. films 2=22118
 La hydrides, search, at various ratios 4=5517
 La, mechanism, rel. to low-lying virtual f-shell 4=5516
 La, model with f band above Fermi surface 4=14523
 La, pressure and volume effects, critical mag. field, Fermi surface 1=258
 La with rare earth additives 0=12557
 La, spin-spin interaction of impurities, transition temp. lowering 0=19556
 La, transition at 5.8°K 1=5003
 La_{1-x}Gd_x, ferromagnetic, heat capacity 1=1863
 La-Gd films 2=22118
 La and La-rare earth alloys, transition temp. 0=12560
 La-Lu alloys, and electron-electron interaction, var. composition 4=16346
 La-Y alloys, and electron-electron interaction, var. composition 4=16346
 Mg, transition temp. 2=6279
 Mo 2=17726
 Mo, critical mag. fields 3=3959
 Mo, energy gap and critical field, by u.s. meas. 3=3958
 Mo, isotope effect on transition temp. 3=7404
 Mo, isotope effects 4=14524
 Mo, press. var. of crit. temp. 4=21420
 Mo, Ir, isotope effect on transition temp. 3=7404
 Mo₃Ir, isotope effects 4=14524
 Mo-Re alloys, anisotropy w.r.t. mag. field 3=14452
 Mo-Re alloys, type, mag. and resistive transitions 4=18586
 Mo-Re, anomalous resistive transitions 2=1337
 Mo-Re, critical current-critical field values 2=7513
 Mo-Re, critical current rel. to field direction 2=17725
 Mo-Re, in mixed state, vortex rather than laminar struct. 4=24508
 Mo-Re wires, critical currents 3=14454
 Mo_{0.8}Re_{0.2}, effect of Fe in dilute solution on T_c 1=3882
 Mo₃Re single crystal, critical field 2=2958
 Mo-Tc alloys 2=2959
 Mo-Tc alloys, transition temp., use as supercond. magnet 1=11881
 Mo-Tc system, phases 3=19113
 Mo-Ti alloy b.c.c. 2=2115
 Mo-U, alloys, 0=4320
 Na₃Sb, 1.3° to 20°K 3=16873
 NaTe, 1.3° to 20°K 3=16873
 Nb, absorption, u.s., shear, 75-225 Mc/s, and 2ε₀ 4=16355
 Nb, a.c. losses 4=11485
 Nb, anomalous resistive transitions 2=1337
 Nb carbide, transition temp. rel. to comp. 2=2962
 Nb containing dissolved gases, resistive transitions and current density charact. 4=18592
 Nb, critical current, a.c., freq. var., in wires 4=11478
 Nb, critical current-critical field values 2=7513
 Nb, effect of dissolved gases 4=408
 Nb, effect of Fe in dilute solution on T_c 1=3882
 Nb, effects of dislocation config. 4=27426

Superconductivity—contd

- Nb, electron tunnelling study 1=16199
 Nb, electronic sp. het. 0=8948
 Nb, energy gap, by electron tunnelling 3=333
 Nb, energy gap, from far-i.r. absorption 0=14933
 Nb, energy gap, ultrasonic determ. 4=14526
 Nb, field emission, calc. 1=18910
 Nb films, energy gaps 4=14530
 Nb films, critical fields, transition temps., meas. deposition method effect 4=29838
 Nb, films, critical mag. fields 4=16354
 Nb films, critical temp. variation 4=5523
 Nb films, hard supercond., prep. and props. 4=24501
 Nb films, prep. by "protected sputtering" 4=18587
 Nb films, prod. by protected sputtering 2=17720
 Nb films, size effects and coherence length 4=14538
 Nb films, temp.-thickness depend. and aging 4=5522
 Nb films, vacuum-arc deposition 2=19816
 Nb, H_{c2}/H_{c1} ratio, Saint-James-de Gennes calc. 4=29839
 Nb, high field transition 3=19114
 Nb, lattice spc. heat, difference from normal-state value 0=19565
 Nb magnet, from nuclear orientation studies 0=11299
 Nb, magnetization curve, crit. field 4=18589
 Nb, magnetization curve meas. 3=11066
 Nb, n.m.r. Knight shift component separation 4=20625
 Nb, negative surface free-energy effects 3=3961
 Nb, plastic deformation and annealing temp. effect 2=2960
 Nb, shot noise in circulating current 4=21416
 Nb single crystal, mag., thermal props. 3=5589
 Nb, single crystal, specific heat meas. 4=18593
 Nb, thermal cond., 0.2-4.2°K 2=8183
 Nb, thermal cond. in supercond. state, effect of plastic deformation 0=8938
 Nb, tunnelling in Nb-NbO-Pb sandwich, energy gap 1=9514
 Nb, ultrasonic meas. rel. to temp. 4=11480
 Nb, upper crit. field, temp. var., cond. 4=18590
 Nb, upper critical field 4=27425
 Nb, vapour-deposited superconductive films, use as getter 4=11481
 Nb, very pure, transition temp. 3=22662
 Nb wire, Nb₃Sn-coated 2=13516
 Nb wires, critical current var. with polarity 4=14527
 Nb wires, mag. behaviour, study by heat pulse ballistic technique 4=16353
 Nb wires, magnetic and thermal effect 4=27423
 Nb wires and ribbons, Nb₃Sn coated, critical currents 4=27431
 Nb-Al system 2=22120
 Nb₃Al, evidence for negative surface energy models 3=5591
 Nb₃Al, negative surface energy, rel. to mag. props. 3=14455
 Nb₃Au-V₃Au, transition temp., diff. for two crystal struct. 4=14528
 Nb₂C, establishment, down to 1.98°K 3=7406
 Nb(Ga, In, Sb)₂Sn_{1-x} zero field transition curves 3=3960
 Nb₃In, with β -tungsten struct. 2=17729
 Nb-Mo alloys, low T_C and min. in electronic specific heat 4=16356
 Nb-Mo, T_0 B-C-S var. 4=18594
 Nb_{0.30}Mo_{0.70} alloy, 0.016°K zero field transition 3=21665
 NbN films, critical fields, transition temps., meas. deposition method effect 4=29838
 Nb and Nb-25% Zr films, from exploding wires 4=8570
 Nb-O interstitial solid sol. H_{c2}/H_{c1} ratio, Saint-James-de Gennes calc. 4=29839
 Nb_{0.903}O_{0.097}, surface barrier, image 4=18595
 Nb-Ru alloys, transition temp. 3=22662
 Nb-Ru, T_C and electronic specific heat, var. composition 4=16357
 NbSe₁₋₉₀₋₂₋₂₅, layer struct. 4=27429
 Nb-Sn 1=6999
 Nb-Sn alloys, intermediate phases 2=21536
 Nb-Sn, critical current, var. with mag. field and composition 4=11484
 Nb-Sn, critical field 0=19564
 Nb-Sn diffusion specimens 4=27430
 Nb-Sn films, crit. currents, var. with diffusion conditions 4=8571
 Nb-Sn films, diffusion, prep. and props. 3=19118
 Nb-Sn films, hard superconds., prep. and props. 4=24501
 Nb-Sn-Ge, 1.3° to 20°K 3=16873

Superconductivity—contd

- Nb-Sn, mag. field, heat treatment effect 4=27438
 Nb-Sn 101000 G solenoid 4=3092
 Nb-Sn solenoids, rel. to 69 kG mag. field prod. 2=22296
 Nb-Sn type II, sintered samples, prep. and props. 4=5525
 Nb-Sn, var. of crit. temp. with composition, and lattice disorder 4=16359
 Nb-Sn wire, microstructure exam. 3=13586
 NbSn₂ 3=5592
 Nb₃Sn 3=14458
 Nb₃Sn, a.c. expts. 4=16362
 Nb₃Sn, crit. current, field and ang. var. 4=18596
 Nb₃Sn, critical current, a.c., freq. var., in wires 4=11478
 Nb₃Sn, critical, current density meas. 3=5575
 Nb₃Sn, critical current, neutron irradiation effects 4=11475
 Nb₃Sn, critical currents, field and ang. depend. 4=407
 Nb₃Sn, effect of adding Ag on crit. parameters 3=19117
 Nb₃Sn, effect of neutron-induced defects 4=18597
 Nb₃Sn, effect of pressure and transition temp. 4=5526
 Nb₃Sn, energy gap anomalies, tunnelling obs. 4=21424
 Nb₃Sn, energy gap, tunnelling meas. 4=16361
 Nb₃Sn, evidence for negative surface energy models 3=5591
 Nb₃Sn film, mag. field penetration, 4.2-18.2°K 4=16360
 Nb₃Sn, films, critical current, mag. field var. 4=412
 Nb₃Sn films, critical current, temp. and mag. field var. 3=19120
 Nb₃Sn films, and metallurgical struct. obs. 4=16358
 Nb₃Sn, flux compression with tube and piston 4=27424
 Nb₃Sn, high current density in field of 88 kG 1=5399
 Nb₃Sn, high mag. field generation 2=13628
 Nb₃Sn hollow cylinder in pulsed mag. fields, up to 8.2 kG 3=19116
 Nb₃Sn, isotope effect on transition, using Sn¹¹⁶ and Sn¹²⁴ 1=255
 Nb₃Sn, jump of thermal expansion at transition 3=16875
 Nb₃Sn, magnetization 2=13507
 Nb₃Sn magnets, short wire tests 3=19408
 Nb₃Sn, rel. to methods of prep. 1=18720-1
 Nb₃Sn, negative surface energy, rel. to mag. props. 3=14455
 Nb₃Sn, prep. 2=7514
 Nb₃Sn, prep. 3=5590
 Nb₃Sn, prep. frozen in fields 2=5239
 Nb₃Sn, press. var. 4=18619
 Nb₃Sn, in pulsed mag. fields to 185 kG 1=9513
 Nb₃Sn, quantized flux in hollow cylinder 2=11564
 Nb₃Sn, sintered, rel. to sintering temp. 2=9486
 Nb₃Sn, solenoids, critical current rel. to mag. field 2=5240
 Nb₃Sn solenoids, critical current rel. to magnetic field 3=3968
 Nb₃Sn strip 3=21664
 Nb₃Sn, theory of tunnelling expts. 3=12027
 Nb₃Sn, thermal cond., temp. var. 4=21423
 Nb₃Sn, thin surf. layer, mechanical stress effects 3=1903
 Nb₃Sn, transition temp., compression and isotope effects 3=16874
 Nb₃Sn, transition temp., high pressure effect, meas. 4=27432
 Nb₂Sn₃, Nb₂Sn₃ + α Nb, crit. currents, 2°-6°K 4=406
 Nb₃Sn₂, Nb₂Sn₂, synthesis, props. 2=19815
 Nb₃Sn on Ni, transition temp., stress effect 4=11476
 Nb₃Sn_{1-x}M_{1-x} type alloys 4=5524
 Nb₃Sn_{1-x}M_x, M=various elements 4=18598
 Nb₃Sn-Ta₃Sn 1=6999
 Nb-Ta alloys, upper crit. field, temp. depend. 3=19119
 Nb_{0.33}Ta_{0.67}, surface barrier, image 4=18595
 NbTe_x, transition temp. 1=11881
 Nb-Th alloy, as high-field high-current superconductor 3=14457
 Nb-Ti alloys, upper crit. field, temp. depend. 3=19119
 Nb-Ti, crit. field calc., from elec. cond. and specific heat 4=5521
 Nb-Ti, critical current, a.c., freq. var., in wires 4=11478
 Nb-Ti, critical current, var. with mag. field and composition 4=11484
 Nb-Ti films, hard supercond., prep. and props. 4=24501
 Nb-Ti(66 at. %), high critical values, layered-filamentary struct. 4=13649
 Nb-U alloys 0=4320
 Nb-25%Zn, in mag. field and transverse current, paramag. effect, calc. 4=29843
 Nb-Zn-Sn, 1.3° to 20°K 3=16873
 Nb-Zr, a.c. losses 4=11485

Superconductivity—contd

- Nb-25 at % Zr alloy, critical current 2=15851
 Nb-Zr alloy, h. f. energy absorption 4=27428
 Nb-Zr alloy at 9250 Mc/s 3=21666
 Nb-Zr alloy, Hall coefft. 3=13043
 Nb-Zr alloys 3=19115
 Nb-Zr alloys, a. c. power losses 4=27427
 Nb-Zr alloys, anisotropy w.r.t. mag. field 3=14452
 Nb-Zr alloys, critical current density 4=16363
 Nb-Zr alloys, critical currents in mag. field 3=21667
 Nb-Zr alloys, effect of pressure and transition temp. 4=5526
 Nb-Zr alloys, at high mag. fields and current densities 1=11878
 Nb-Zr alloys, u.s. absorption model 4=411
 Nb-Zr alloys, u.s. attenuation, oscillatory behaviour 3=12035
 Nb-Zr, anomalous resistive transitions 2=1337
 Nb-Zr, b.c.c., high mag. field 2=7519
 Nb-Zr, b.c.c. phases, equilibrium 2=21535
 Nb-Zr, cold worked, magnetization, 4.2°K, transport current effect 4=409
 Nb-Zr(25%), critical current, a.c., freq. var., in wires 4=11478
 Nb-Zr, critical current-critical field values 2=7513
 Nb_{0.75}Zr_{0.25}, critical current decrease by pulsed fields 4=14529
 3Nb-Zr, critical, current density meas. 3=5575
 NbZr, critical current depend. on dI/dt 3=12034
 Nb-Zr (25%), crit. current—mag. field var., deformation and heat treatment effects 4=27612
 NbZr, critical current, neutron irradi. effects 4=11475
 Nb-Zr, crit. field calc., from elec. cond. and specific heat 4=5521
 Nb-25% Zr, I_c degradation due to temp. cycling 4=29840
 Nb-Zr(25%), electrical losses, a.c., d.c. field effect 4=11482
 NbZr electromagnet 3=19409
 NbZr, energy gap, tunnelling meas. 4=21425
 Nb-Zr films, hard supercond., prep. and props. 4=24501
 Nb-Zr(25%), flux jumping, wire, and solenoid degradation 4=11477
 Nb-Zr, heat treated 2=11563
 Nb-Zr(25 at. %), high critical values, layered-filamentary struct. 4=13649
 Nb-Zr, high mag. field generation 2=13628
 Nb-Zr, mag. behaviour 4=16365
 Nb-Zr(25%), magnetization, cold work effects 4=11479
 NbZr wire, magnetization and transport current 4=410
 Nb-Zr-In, 1.3° to 20°K 3=16873
 Nb-Zr ribbons, critical current in external mag. field, anisotropy 4=16364
 Nb-Zr, Nb-Ti solenoids, "training" and flux jumping 4=24509
 Nb-Zr solenoid, current before and after breakdown 4=11489
 Nb-Zr solenoid, operation in 400 MeV proton flux 3=3970
 Nb-Zr solenoid, persistent current obs. 3=9685
 Nb-Zr solenoids, current-carrying capacity 3=3969
 Nb-Zr solenoids, remanent mag. fields 3=14459
 Nb-Zr solenoids, transition to normal state 3=21670
 Nb-Zr superconducting alloy, magnetization rel. to mag. field of solenoid of this alloy 4=11748
 Nb-Zr(25%), superconducting, critical current degradation 4=405
 Nb-Zr(25%), transients and losses on going normal without protective circuitry 4=11483
 Nb-Zr wires, critical currents 3=14454
 Nb-25% Zr wire, normal region propag., effect of Cu plating 3=14456
 Nb-Zr (25%) wires, trained, axial torque 4=18600
 Nb-Zr-Ta alloy 2=17728
 Ni, energy gap, tunnelling meas. 4=16374
 Ni, energy gap, u.s. meas. 4=18588
 Ni films, crit. current, var. temp., mag. field 4=21422
 Ni, periodic struct., neutron diff. obs. 4=18591
 Ni, specific heat 2=19817
 Ni, specific heat, at upper crit. field, discrepancy 4=18573
 Ni, surface electrical losses, in l.f. fields 3=12033
 Ni wires, quantum interference effects 4=24499
 Ni-Mo alloys below 1°K rel. to Mo conc. 2=1338
 NiP, 1.3° to 20°K 3=16873

Superconductivity—contd

- NiSb₃, 1.3° to 20°K 3=16873
 Ni-Zr, crit. current, effect of annealing temp. 3=14460
 Ni-Zr solenoid, 8.8 kG 3=7678
 Ni-Zr solenoid, 10 kG, design 4=8897
 Np, search using He-3 cryostat 4=21421
 Os, isotope effect meas. 3=19121
 Os-Ir solid solns. 3=3962
 Pb alloy, critical current/mag. field, imperfection effects 3=19112
 Pb alloys, absorpt., far i.r., and sharp edge gap, 4=24505
 Pb alloys, binary and isoelectronic 4=24504
 Pb alloys, far i.r. absorption, sharp edge gap 4=8569
 Pb alloys, with In or Bi, thermal cond. 1=12360
 Pb, apparent structure on far i.r. energy gap 0=1083
 Pb-base alloys, magnetic properties 3=9684
 Pb-base solid solutions 3=14449
 Pb cavity, high Q, for use at microwave freqs. 4=16379
 Pb, crit. fields, effect of cold working at 78°K 3=5588
 Pb, crit. field, effect of neutron irradiation, at 78°K 3=14451
 Pb, crit. fields var. with residual cond. 4=18579
 Pb, critical field curve, comparison with Hg 0=8935
 Pb, density of states, max. near Fermi level 0=20772
 Pb, density of states from tunnelling meas. 2=11572
 Pb, density of states var., tunnelling meas. 4=21417
 Pb domains, intermediate state, detection by electron beam 4=5518
 Pb, electron tunnelling, energy gap det. 1=8284
 Pb, energy gap, from far i.r. absorption 0=14933
 Pb, energy-gap functions, theory 3=16867
 Pb, energy gap, by penetration depth meas. 0=7034
 Pb, energy gap, u.s. meas. 4=18580
 Pb, energy gaps, by electron tunnelling 3=333
 Pb, energy, meas. by electron tunneling in Al/Al₂O₃/Pb sandwich 0=16949
 Pb film, thermal cond. and energy gap, mag. field effect 4=18608
 Pb films, critical mag. field 1=18716
 Pb films, current distrib. 2=22117
 Pb films, domain struct. and current flow, opt. study 2=7512
 Pb films, e. m. microwave absorption, energy gap var., mag. field effect 4=29835
 Pb films, energy gap, mag. field depend., tunnelling meas. 4=21414
 Pb films, energy gap, tunneling meas. 4=16347
 Pb films, pulse-induced destruction 4=21412
 Pb films, rel. to adsorbed O 3=16872
 Pb films, rel. to residual gases 3=16878
 Pb films separated by insulating layer, Josephson tunnel current, rel. to magnetic field 4=5506
 Pb films, vapour sources for vacuum deposition 3=9525
 Pb hollow cylinder, frozen-in mag. flux 3=12022
 Pb, hollow cylinder, normal transitions 0=8951
 Pb, i.r. absorption due to transverse collective excitations, theory 0=10842
 Pb, i.r. transmission, 0.1-1.1 mm, of films 0=10852
 Pb, injected electron capture lifetime 3=14450
 Pb, intermediate state, thermal conductivity 1=4973
 Pb, interphase surface energy parameter at 4.2°K 3=1902
 Pb, irreversibility in supercond. transition 0=12559
 Pb, isotope effect on critical field 1=1858
 Pb, law of corresponding states, expt. and theory compared 0=1074
 Pb, rel. to low-temp. props. of Pb thermal switches 2=2942
 Pb, magnetic field noise, Barkhausen type 3=24147
 Pb, pressure depend. of critical temp., up to 10⁴ atm. 0=8939
 Pb, pressure effect on critical field, up to 350 atm. 1=7001
 Pb, pressure and volume effects, critical mag. field, Fermi surface 1=258
 Pb ring, trapped-flux decay, rel. to irradi. 3=3955
 Pb, shot noise in circulating current 4=21416
 Pb, specific heat jump at critical temp. 4=5519
 Pb, specific heat, and normal, equal lattice T³ term 4=18585
 Pb, specific heat, 0.3°-4°K 3=10601
 Pb spheres, gyromagnetic effect 0=8949
 Pb superconducting state, structure at critical temp. 0=18337
 Pb, superconductive storage elements, relaxation times 0=7035

Superconductivity—contd

- Pb, surface electrical losses, in l.f. fields 3=12033
 Pb, temp. dependence of mag. field penetration 1=16198
 Pb, thermal cond. in supercond. state, effect of plastic deformation 0=8938
 Pb, thermal expansion and critical field 2=6286
 Pb, transition temp./gap ratio, effect of quasi-particle damping 4=18578
 Pb, transition temperature 1=18717
 Pb, transition, time delays in 500-1000A films 0=1082
 Pb, tunneling current, calc. 3=16858
 Pb wires, Al, Ag, Au covered, free energy change 4=18581
 Pb-Au film sandwiches, intermetallic cpd. effects 4=27422
 Pb-Bi, a.c. loss 3=3956
 Pb-Bi, crit. fields, parallel and perpend. 4=18582
 Pb-Bi, critical current rel. to field direction 2=17725
 Pb/Bi double layers, diffusion and contact effect 4=24513
 Pb-Bi (88:12) films, var., and metastable phase 4=23274
 Pb-Bi, thermal cond. in supercond. state, effect of plastic deformation 0=8938
 Pb-Bi wires, Al covered, free energy change 4=18581
 Pb and Cu films superimposed 4=16348
 Pb-Gd, Ga depend. 0=8933
 PbIn alloy film, current-voltage curve 4=14530
 Pb-n-Ge junction, tunnelling characts. for supercond. Pb 4=20382
 Pb-normal metal superimposed films, meas. 4=24503
 Pb-Pb contact resistance, motion effects 4=16349
 Pb-Pb tunnelling, multi-particle temp. independent 4=21419
 Pb-Pb tunnelling, phonon-assisted 4=21418
 Pb-PbO-Pb jns., Josephson a. c. current, tunnelling calc. 4=29837
 Pb-Sb alloy, normal-superconducting transition, decomposition effect 4=29836
 Pb-Sb, tunnelling characteristic, phonon spectrum image 3=24146
 Pb-Sb(2.45 wt. %), critical field var. with aging, and precipitation 4=5520
 PbSn alloy film, current-voltage curve 4=14530
 Pb-Sn cavity, high Q, for use at microwave freqs. 4=16379
 Pb and Sn films, intermediate state study 2=9487
 Pb-Sn and Pb-Cd, effects of pptn. 3=24145
 Pb-Te films, persistence beyond H_{c2} tunneling obs. 4=18584
 PdTe, and mixed crystals with Ni, Rh, Pt 2=5241
 $Pb_{0.5}Ti_{0.5}$, above upper crit. field, microwave obs. 4=16351
 Pb-Tl alloy, far i.r. absorpt. 2=7511
 Pb-Tl crystals, quasi-reversible mag. behaviour 3=3957
 Pb-Tl delayed flux entry 4=24506
 Pb-Tl films, crit. field anisotropy 4=16350
 Pb-Tl, critical surface field 4=11474
 Pb-Tl system, surface, ang. var. 4=27421
 Pd cobaltite- and pyrite-type compounds, $> 1^\circ K$ 3=21663
 Pu, search using He-3 cryostat 4=21421
 Pt cobaltite- and pyrite-type compounds, $> 1^\circ K$ 3=21663
 Pt-metal compounds, new superconductors discovered 3=24148
 Re, change of transition temp. with press. 3=14461
 Re, deformed crystals, anisotropy 2=22121
 Re, domains, effect of cold-working 0=2293
 Re, neutron irradiat. 0=3706
 Re, plastic deformation and annealing temp., effect 2=2960
 Rh, absence of isotope effect 3=3963
 Rh, critical mag. field, down to $0.3^\circ K$ 0=12561
 Rh_1S_{16} , crystal structure 3=8841
 Rh-Ti alloys, transition temp. 3=21669
 Rh-Zr alloys, transition temp. 3=21669
 Ru, critical temp., no isotope effect 1=8285
 Sb, pressure and volume effects, critical mag. field, Fermi surface 1=258
 Si two-component diffusion films into V 4=5527
 Sn 4=17583
 Sn, absorption, u.s., osc., models 4=14536
 Sn alloys, binary and isoelectronic 4=24504
 Sn alloys, a.c. mag. transition hysteresis 4=18611
 Sn alloys, first and second kind, meas. 4=8574
 Sn alloys, transition temp. rel. to specific heats 2=10330
 Sn, below $1^\circ K$, thermal conductivity 0=8937

Superconductivity — contd

- Sn, bulk, tunnel effect $1.36^\circ-3.6^\circ K$ 3=1901
 Sn, crit. fields and hysteresis 4=18609
 Sn, critical field curves 0=16951
 Sn, critical field, press. depend. 2=15853
 Sn, critical persistent current rel. to temp. 4=16370
 Sn, critical temp., change due to electrostatic charging 0=19559
 Sn, current transitions in films 0=1081
 Sn cylinder in mag. field, resistant/current var. 3=21658
 Sn cylinder, persistent curv. stability 4=18606
 Sn, density of states from tunnelling meas. 2=11572
 Sn, density of states var., tunnelling meas. 4=21417
 Sn, destruction, critical resistance 0=12563
 Sn, effect of residual gases 1=2921
 Sn, electron tunnelling, energy gap det. 1=8284
 Sn, energy gap 2=5243
 Sn, energy gap anisotropy, from absorpt., u.s., 100-250 Mc/s 4=14537
 Sn, energy gap anisotropy, in binary axes plane, u.s. absorption data 1=1861
 Sn, energy gap anisotropy, u.s. absorption study, temp. depend. Q=19567
 Sn, energy gap rel. to cryst. orientation 2=15855
 Sn, energy gap, by electron tunnelling 3=333
 Sn, energy gap, from far-i.r. absorption 0=14933
 Sn, energy gap, mag. field depend., calc. 1=1859
 Sn, energy gap, tunnel effect study 4=8573
 Sn, Fe impurities decrease gap and transition temp. 4=18574
 Sn film boundary effects, crit. temp. and field 4=16373
 Sn film, microwave impedance rel. to direct current 4=16371
 Sn film, microwave non-linearities 4=21429
 Sn film, normal-superconducting phase boundary, thermal propagation 3=16877
 Sn, film, Silsbee crit. currents 4=24510
 Sn film, thermal cond. and energy gap, mag. field effect 4=18608
 Sn films, a.c. field 180° phase shift across 4=14533
 Sn films, rel. to adsorbed O 3=16872
 Sn films, Ag and Co coatings, effect on transition 2=22122
 Sn films, crit. field meas., rel. to theory 2=13517
 Sn films, crit. fld. meas., London limit 2=19820
 Sn films, crit. temp., rel. to elastic strain 2=1340
 Sn films, critical currents 0=12562
 Sn films, critical fields, calc. 0=16954
 Sn, films, critical temperature rel. to electrostatic charging 3=15545
 Sn films, cylindrical, critical mag. fields and currents 0=8940
 Sn films, destruction by current pulses 2=142
 Sn films, destruction by current pulses 3=3966
 Sn, films, e. m. microwave absorption, energy gap var., mag. field effect 4=19835
 Sn films, edge effect elimination 4=24502
 Sn films, edge effects 2=11567
 Sn films, energy gap temp. depend., tunnelling meas. 4=21413
 Sn films, high freq. behaviour and crit. temp. changes 2=2963
 Sn films, hysteresis in phase transitions 3=9687
 Sn films, as i.r. bolometers, 50-1000 μ 0=19495
 Sn films, low residual resistivity 0=10854
 Sn films, mag. moment 2=16883
 Sn films, mag. moment. 3=6687
 Sn films, mag. phase transition, influence of aggregation 0=10855
 Sn films, mag. props. 1=16202
 Sn films, mag. transitions 3=19124
 Sn films, on normal metal, surface energy effects 2=9488
 Sn films with paramag. additions, transition temp. 4=14532
 Sn films, penetration depth 0=8931
 Sn films, pulse-induced destruction 4=21412
 Sn films, quantized vortex obs. 4=18610
 Sn films, rel. to residual gases 3=16878
 Sn films, supercond.-normal cond. transition 0=16950
 Sn films, surface charge, effect on transition temp. 2=17730
 Sn films, as switching elements 2=5244
 Sn films, transition properties meas. 1=16193
 Sn films, transitions in mag. fields 2=11566
 Sn films, vapour sources for vacuum deposition 3=9525

Superconductivity—contd

- Sn, γ -ray resonance absorption rel. to Debye Θ 2=19819
 Sn, h.f. surface impedance 0=10850
 Sn, Hall effect, r.f., calc. 1=260
 Sn, hard, upper critical mag. fld, rel. to electron mean free path 4=11486
 Sn, i.r. transmission, 0.1-1.1 mm, of films 0=10852
 Sn, intermediate state, thermal conductivity 1=4973
 Sn, interphase surface energy 0=7028
 Sn, Kapitza resistance 3=311
 Sn, law of corresponding states, expt. and theory compared 0=1074
 Sn, mag. field sign reversal 2=17731
 Sn, mag. field sign reversal 4=16372
 Sn, mag. moment and susceptibility 1=10640
 Sn, mag. and sp. ht. data, thermodyn. correl. 2=15852
 Sn, meas. 1=17433
 Sn, microwave effects, nonlinear, and switching speed 3=19123
 Sn, microwave magneto-impedance meas. 4=14535
 Sn, Mössbauer effect 4=16368
 Sn, n.m.r., 1.5-4.2°K 1=2922
 Sn—normal metal superimposed films, meas. 4=24503
 Sn, 0-1730 kg/cm², T_c shift 1=18723
 Sn oxide, tunneling, anomalous d.c. 3=14462
 Sn, paramag. sign effect in transverse field 4=27434
 Sn, pressure depend. of critical temp., up to 10⁴ atm. 0=8939
 Sn, rel. to Sn¹¹⁹ Mössbauer quanta 2=3817
 Sn, specific heat, λ -type singularity 2=19818
 Sn, specific heat in supercond. state 1=11162
 Sn, specific heat temp. var., quantized flux 4=21370
 Sn strips, quantized vortices, from osc. in resistance/mag. field 4=5529
 Sn, supercond.—normal transit, current-induced, switching times 4=24512
 Sn, surface impedance, calc. 0=10841
 Sn, surface impedance changes 4=16369
 Sn, surface impedance, mag. field depend 2=11565
 Sn, surface impedance, with modified BSC gap, temp. var. 4=18607
 Sn, surface impedance, theory and expt. 4=24511
 Sn, surface resistance, 17-77 kMc/s and 1.5-3.0°K 0=1080
 Sn, surface tension between normal and supercond. phases 2=15856
 Sn, surface tension between normal and supercond. phases 3=5594
 Sn, surface tension at supercond.—normal phase boundary 0=19566
 Sn, thermodynamics 1=11883
 Sn thin film rings 200-700 Å, trapped flux and crit. currents 2=13513
 Sn thin films, crit. current density rel. to temp. 3=3965
 Sn, transition, no time delay detected 0=1082
 Sn, transition temp., effect of nonmag. impurities 3=16876
 Sn, transition temp., effect of quenched-in defects 1=17507
 Sn, transition temp., effect of Sb impurities and plastic deform. 3=19125
 Sn, transition temp., impurity effect, theory 0=14927
 Sn, tunnel effect, 1.36°K 4=14534
 Sn two-component diffusion films into Ni 4=5527
 Sn, u.s. absorption, anisotropy 0=13501
 Sn, u.s. attenuation, 1.5°-4.2°K 1=14173
 Sn, u.s. shear wave attenuation meas. 4=9845
 Sn, variation with frequency 0=8936
 Sn, wires, metal plated, contact supercond. 0=5235
 Sn—Al, In, Pb or Bi diffusion layers on Ni, crit. currents 4=21430
 Sn—Cu alloy films, transition temp., Cu conc. depend. 1=3725
 Sn—In alloys, energy gap 2=15855
 Sn—In alloys, surface impedance, theory and expt. 4=24511
 Sn—In alloys, thermal resistance in intermediate state 0=7033
 Sn/In double layers, diffusion and contact effect, 4=24513
 Sn and In, thermal conductivity 1=16201
 Sn—Pb detector, for mag. field meas. 3=468
 Sn—Pb eutectic layers, proximity effect, from specific heat 4=18612
 Sn—Pb(0.87%), phase transformation, filamentary, complex susceptibility detection 4=414

Superconductivity—contd

- Sn—Ta, Sn—In films, crit. current temp. var., > Sn 4=21426
 SrBi₃, cryst. struct. 2=10905
 SrTiO₃, semiconducting 4=18602
 Ta 2=6292
 Ta, absorption, u.s., long., 45-340 Mc/s, and 2 ϵ_0 4=16355
 Ta carbide, transition temp. rel. to composition 2=2962
 in Ta coil, use in He level indicator 4=16320
 Ta, critical field curves 0=16951
 Ta, critical field, effect of temp. and press. 1=11879
 Ta, defects 2=9489
 Ta, effect of imperfections 1=16200
 Ta, energy gap, by electron tunnelling 3=333
 Ta, energy gap, from far-i.r. absorption 0=14933
 Ta, energy gap meas. by tunnel effect 2=11569
 Ta, energy gap, temp. depend., ultrasonic meas. 4=2922
 Ta, energy gap, tunnelling meas. 4=16374
 Ta films 0=2291
 Ta films, critical fields, transition temps. meas. deposition method effect 4=29838
 Ta films, energy gaps 4=14530
 Ta films, prod. by protected sputtering 2=17720
 Ta films, size effects and coherence length 4=14538
 Ta films, var. substrate temp., annealing 4=18603
 Ta, mag. field penetration depth 4=27437
 Ta, mag. moment and susceptibility 1=10640
 Ta, pair correlations 4=413
 Ta, pressure and volume effects, critical mag. field, Fermi surface 1=258
 Ta, resistance transition induced by mag. field 0=2292
 Ta, single crystals, energy gap meas. 4=14531
 Ta, single crystals, prep. for critical field meas. 0=8955
 Ta, specific heat, λ -type singularity 2=19818
 Ta, thermal cond., 0.2-1.2°K 2=8183
 Ta, transition, liq. He level indicator 2=7487
 Ta, transition temp. in high-purity metal 1=7000
 Ta, transition temp. for purified specimens 0=16952
 Ta, type change with temp., and purity 4=18604
 Ta, vapour-deposited superconductive films, use as getter 4=11481
 Ta wires, quantum interference effects 4=24499
 TaC films, critical fields, transition temps., meas. deposition method effect 4=29838
 TaC, pure and with 1% Co 2=11568
 TaC—NbC, crit. temp. composition var. 4=21427
 TaN films, critical fields, transition temps., meas. deposition method effect 4=29838
 Ta⁴⁵—Nb⁵⁵, crit. current, long. mag. field effects 4=18605
 Ta—Nb crystal, time effects 4=16375
 Ta—Nb mixed single crystals, thermal cond. 4=15438
 Ta—(55 at.%)Nb, second kind, current capacity 3=19122
 Ta—Nb single mixed crystals, trapped magnetic flux in 0=7027
 Ta—Ni, wire, critical currents and magnetization 4=21428
 Ta—Ti, critical current, var. with mag. field and composition 4=11484
 Ta—Ti wires, critical currents 3=14454
 Ta₂C, establishment, down to 1.98°K 3=7406
 Tc alloys and cpds., transition temps. 1=11881
 Tc, transition temperature 3=334
 Th, press. var. of crit. temp. 4=21420
 ThC, at 9°K 4=28416
 Ti alloys, dilute hexagonal, meas. 4=18613
 Ti alloys, dilute, resistivity and magnetoelec. props. 2=15854
 β -Ti alloys, ternary 4=18614
 Ti, effect of Fe in dilute solution on T_c 1=3882
 Ti films, prep. by "protected sputtering" 4=18587
 Ti solid solns. with Co, Rh and Ir 4=8575
 Ti, transition temp., effect of Cr, Mn, Fe, or Co in solid solution 0=1079
 Ti—Mn alloys, rel. to localized mag. states 4=2923
 Ti, Mn impurity effects on crit. temp. 4=5528
 Ti—Mo alloy, high mag. field transitions 3=16879
 Ti—Mo alloys, specific heat 1=13046
 Ti—Mo, b.c.c., high mag. field 2=7519
 Ti—Mo, high-field props. 3=9686
 Ti—Mo, T. rel. to composition 2=7520
 Ti—Nb alloy, high mag. field transitions 3=16879

Superconductivity — contd

- Ti—Rh alloys, crit. temp., influence of lattice structure 3=7407
 Ti—Rh alloys, transition temp. 3=21669
 Ti—Ta alloy, high mag. field transitions 3=16879
 Ti, Ti—Mn, Ti—Co, specific heat search 4=27436
 Ti—V alloy, high mag. field transitions 3=16879
 Ti—V alloys, rel. to electronic sp. ht. 2=16609
 Ti—V films, hard supercond., prep. and props. 4=24501
 Ti—V, Ti—Nb alloys, hexagonal 2=5242
 Tl, energy gap, u. s. absorpt. obs., ang. var. 4=27435
 Tl films, rel. to adsorbed O 3=16872
 Tl films, effect of H₂, N₂, A and O₂ adsorption, thickness depend. 0=16953
 Tl, films, influence of adsorbed gases 0=5329
 Tl, meas. 1=17433
 Tl, pressure depend. of critical temp., up to 10⁴ atm. 0=8939
 Tl, pressure and volume effects, critical mag. field, Fermi surface 1=258
 Tl solid solutions with In, Bi or Pb 1=10642
 Tl, superconducting state, structure at critical temp. 0=18337
 Tl, transition temp., effect of impurities 4=16367
 Tl, transition temp., pressure depend. 3=21668
 Tl, transition temp., rel. to lattice defects 3=12036
 U, mechanism, rel. to low-lying virtual f-shell 4=5516
 U—Mo alloy, high mag. field transitions 3=16879
 U, model with f band above Fermi surface 4=14523
 U—Nb alloy, high mag. field transitions 3=16879
 V, absorption, u.s., and 2 ϵ_0 4=16377
 V, absorption, u.s., shear, 75–225 Mc/s, and 2 ϵ_0 4=16355
 V alloys 0=8958
 V, effect of Fe in dilute solution on T_c 1=3884
 V, effects of dislocation config. 4=27426
 V, energy gap, from far i.r. absorption 0=14933
 V, energy gap, temp. depend., ultrasonic meas. 4=2924
 V, films 3=19109
 V films, props. rel. to impurities 2=4494
 V, pressure and volume effects, critical mag. field, Fermi surface 1=258
 V, thermal conductivity 3=1904
 V films, energy gaps 4=14530
 V films, prep. by "protected sputtering" 4=18587
 V, n.m.r. 4=20627
 V, n.m.r. Knight shift component separation 4=20625
 V, shot noise in circulating current 4=21416
 V thin films, residual resistivity and critical current 4=18618
 V or tinned constantan elements, use in He liquid level gauges 4=24471
 V, vapour-deposited superconductive films, use as getter 4=11481
 V wires, quantum interference effects 4=24499
 V₂C, establishment, down to 1.98°K 3=7406
 V—Ga, diffusion films, mag. field and heat treatment effects 4=27438
 V₃Ga, evidence for negative surface energy models 3=5591
 V₃Ga, in high mag. fields 2=11570
 V₃Ga, mag. field penetration depth 4=27437
 V₃Ga, negative surface energy, rel. to mag. props. 3=14455
 V₃Ga, phonon contrib. calc. of high T_c and H_c 4=29842
 V₃Ga, press. var. 4=18619
 V₃(Ga, Si, Ge, As, etc.), n.m.r. Knight shift, temp. var., component separation 4=20625
 V₃Ga solenoids, 1°K rel. to 500 kG mag. field prod. 2=22296
 V₃Ga, thermodyn. props. 2=17732
 V₃Ge films, size effects and coherence length 4=14538
 V₃Ge, mag. field penetration depth 4=27437
 V₃Pt, mag. field penetration depth 4=27437
 V—Si, diffusion films, mag. field and heat treatment effects 4=27438
 V—Si films, hard supercond., prep. and props. 4=24501
 V—Si, V—Ga films, diffusion, transition temp. 3=16880
 V₃Si, effect of elements replacing V 3=335
 V₃Si, evidence for negative surface energy models 3=5591
 V₃Si films, rel. to filamentary theory 3=3967
 V₃Si, mag. field penetration depth 4=27437
 V₃Si, negative surface energy, rel. to mag. props. 3=14455

Superconductivity — contd

- V₃Si, phonon contrib. calc. of high T_c and H_c 4=29842
 V₃Si, press. var. 4=18619
 V₃Si, V₃Ga wires, transition temp. 3=16880
 V—Ta alloy, specific heat in high mag. field 4=8576
 V—Ta (5 at. %), thermodynamic props., magnetization 4=18620
 V—Ti, crit. current and field 4=18621
 V₃X (X = As, Au, Co, Ga, Ge, Ic, Pt, Sb, Si), β -W structure, n.m.r. properties 0=19561
 W 4=24515
 β -W structures 0=6358
 W—Be, 1.3° to 20°K 3=16873
 WC, transition, temp. spread 2=7521
 W₂C, transition, temp. spread and Meissner effect 2=7521
 W—Pt solid solns 3=3962
 Y_{1-x}Gd_xOs₂, ferromagnetic, heat capacity 1=1863
 Y—Ir 4=18622
 Y—Rh 4=18622
 Zn, absorption, u.s., and 2 ϵ_0 4=16377
 Zn, crit. temp. decrease by Mn impurity 4=18566
 Zn, sp. ht. in normal and supercond. states 0=8947
 Zn, superconducting state, structure at critical temp. 0=18337
 Zn, supercooling at transition, anomalous spec. ht. discontinuity 1=4533
 Zn, thermal cond., anisotropy 1=18724
 Zr, critical field and temp., effect of press. 4=18623
 Zr, press. induced polymorph 4=16378
 Zr solid solns. with Co, Rh and Ir 4=8575
 Zr, effect of Fe in dilute solution on T_c 1=3882
 Zr—Nb alloy, high mag. field transitions 3=16879
 Zr—Re, 1.3° to 20°K 3=16873
 Zr—Rh alloys, transition temp. 3=9688
 Zr—Rh alloys, transition temp. 3=21669
 ZrTe₂, transition temp. 1=11881

Supercooling

- alkali halides, molten, cloud chamber measurement 1=8266
 alloys, crystallization 3=21624
 clouds, ice formation by accretion 2=12892
 constitutional, function in crystal growth 0=1881
 freezing, finite cond. and different densities of phases 4=2887
 glass formation, suitable liquid structures 3=9443
 ice frazil, disk-like, heat emission coefficient 4=11407
 kinetics of homogeneous nucleation 1=16176-7
 liquids, by dispersion as emulsion, small volumes 3=16837
 melts, nonadiabatic crystallization, one-dim. analysis 3=21625
 nucleation, at reduced temp. 0=16267
 organic compounds, dielectric spectra, two dispersion regions 4=14178
 organic materials, differential thermal analysis, apparatus 0=3687
 salt solutions, dispersion as emulsion, small volumes 3=16837
 water, dispersed as emulsion, small volumes 3=16837
 water drops, elec. fld effect on freezing 4=11403
 water drops in clouds, effect of elec. field 4=368
 water, effect of solutes, rel. to structure 4=157
 water, enhancement by dissolved substances, filtering effects 4=5456
 water, viscosity meas. to -23.8°C 4=5162
 Ga droplets 2=7465
 GeAs, Te-doped, rel. to facet formation 3=12980
 Ge, irregular crystal growth 4=4547
 H₂O, ice crystal growth, disc like, relations between temp. thickness and dia. 4=10474
 He⁴ supersaturated vapour, condensation in cloud chamber 0=7018
 K films, evidence from optical props. 3=25437
 Pb—Sn eutectic, undercooling at solid/liq. interface, expt. investigation 4=4550
 Si, irregular crystal growth 4=4547
 Sn, decrease by impurities 4=16295
 Sn, nucleation catalysis, statistics to be used 3=21621-2
 Sn, nucleation, inapplicability of Boltzmann statistics theory 4=363
 Sn, nuclei number, effect of e. m. stirring, var. with mag. field 4=5455

Supercooling—contd

Sn-Pb, nuclei number, effect of e. m. stirring, var. with mag. field 4=5455

Superfluidity

See also Helium, liquid; Quantum theory, many-particle systems

Bose-Einstein particles, mixtures, Bogolyubov method 4=16054

Bose gas, with weak repulsion, vortex lines 1=18696

Bose system, imperfect 1=5224

Bose systems, dilute 0=3461

Bose system, with repulsive delta function potential 3=14059

boson system, impurity particle motion 1=4281

bosons, interacting, microscopic approach 3=11730

calc., hydrodynamic and collisionless domains 4=14081

collective rotation theory 1=12824

condensate of weakly interacting bosons 3=11729

condensed systems, functional methods 3=14054

Cooper effect in low-density Fermi gas 1=18698

Cooper effect in low-density Fermi gas 3=3940

destruction, rel. to critical velocities 2=2946

electron gases 0=10839

Fermi fluid, bound pair states, hard-core effects 0=222

Fermi system, Cooper pairs with nonzero ang. momentum 1=18697

Fermi system, elementary excitations, spectrum 1=12823

Fermi systems, absence of zero sound 4=16056

Fermi systems, anisotropic, theoret. description 2=13499

Fermi systems, with arbitrary interaction 2=7827

Fermi systems, rel. to He³ low-temp.

phase 1=5392

large Fermi system, perturbation expansion 1=12822

fermion systems, moment of inertia 0=12375

fermion systems, moment of inertia at finite temp. 2=2647

fermions, strongly interacting, appl. to liquid He³, nuclear matter 4=8109

flow in capillaries, friction 2=5229

flow mechanism 0=8866-7

fountain effect below 1°K 1=5393

heavy nuclei, effect on decay 1=4845

helium II, entropy under pressure from meas. of fountain effect 1=8278

hydrodynamic stability of He II between rotating cylinders 0=1070

ion drift velocity study 0=14913

kinetics of destruction in He 3=1884

Landau theory, rel. to system-wall interact. 3=9668

lifetime effects in condensed fermi systems 1=13037

liquid He II, detection of single quanta

circulation 1=13031

London theory interpret. 2=17717

mechanocaloric effect 1=5386

nuclear matter 0=1348

nuclear matter 1=13610

nuclear matter 1=13611

nuclear matter 3=19742

nuclear matter, collective excitations 1=8536

nuclear matter, single-particle energies, reference

spectrum method 3=24831

nuclear matter, theory 0=11124

nuclear surface layer, pairing correl. 4=19635

in nuclei 0=9505, 20330

of nuclei, rel. to moments of inertia 0=4011

nuclei, at non-zero temp., phase transition 0=15499

nucleus model, partially projected functions 4=19634

pair distribution near a wall, asymptotic value 0=3510

pressure diffs., He II, eddy viscosity 2=5227

quantization of circulation 0=7023

quantum theory, density operator separation by Bose amplitude effect 4=14503

renormalization techniques and stationary entropy principle 4=8100-1

review 2=15837

review 4=24477

Rollin film critical velocity 2=15836

rotating liquid, stability 4=379

statistical theory for imperfect Bose gases 2=2651

use in studies of nuclei 0=13110

superfluid Fermi system, with isotopic spin 1=10436

superleaks and He films, props. 0=8868

systems of fermions 1=5235

Superfluidity—contd

t theory 0=8892

theory, collective modes and second sound 1=10643

theory, use in models of nuclei 0=2616

torque exerted by pure superflow, obs. 2=2947

turbulence and internal friction meas. 2=17710

turbulent flow, mobility of electric charges 1=5390

variational theory in terms of "observables" 3=11719

vortices in finite channel, motion and stability 4=5493

vorticity in superflow 0=8922

H, D, T, in mag. field, critical temp. and

pressures 0=19531

He, as Bose-Einstein gas 0=10817

He, creation and motion of quantized vortex rings 4=2909

He, crit. vel. in rotating annulus, 1.3°K 2=19799

He, excitations, Feynman theory 0=8875

He, film flow at low pressure heads 3=313

He, kinetics of destruction 2=2948

He λ -transition study from sp.ht. of irradiated BeO 1=18693

He, liquid, critical velocities 1=16190

He, in narrow channels, electrohydrodynamics 3=312

He, rotation, review 0=11916

He, vortex lines 0=8874

He II, in annular geometry, hydrodynamics 1=6993

He II, Bose-Einstein theory and crit. velocity 2=17716

He II, critical heat flow and quantized vortices, var. tube dia. 4=16322

He II, critical velocity, rel. to vortex ring energy 3=3938

He II, flow in capillaries 2=5228

He II, flow instability, theory 2=19798

He II, fountain press. 2=1330

He II, friction with normal component 3=21645

He II, isothermal flow, critical velocities and boundary interactions 2=19797

He II, linear flow velocity meas., 1.5° to 2.13°K 4=2910

He II, liq., near λ point, rotation eddy lines 4=18511

He II, liq., vortex lines near a wire, theory and expt. 4=8548

He II and luminescence, due to α 's, inhibition below λ point 3=21644

He II, motion in rotating bucket 1=4528

He II, persistent currents 4=16323

He II, quantized vortices collective oscills. 4=21381

He II, review 4=24473

He II, rotating in ring channel 4=18513

He II, study by ion motion 1=10634

He II, temp. discontinuity at metal boundary 2=15838

He II, temp. discontinuity at metal boundary 3=5570

He II, through narrow channels 4=24479

He II, two-fluid model, critical velocity and mutual friction 1=5388

He II, u.s. atten., quantum hydrodyn. 3=7399

He II, vortex meas. 4=16324

He³ 0=7020, 8924

He³ 1=13610

He³ 2=19801

He³, Cooper effect 2=9473

He³, Cooper effect 3=5569

He³, low-temp. phase, spin-waves 1=5391

He³, possible phase, thermodyn. props., calc. 2=7490

He³, review 4=14476

He³, from specific heat temp. var. peak 4=21385

He³, theory 0=11124

He³, at 2000 p.s.i., 0.003°K, no evidence 4=14479

He⁴, critical vel. through 260 micron glass capillary 0=8912

He³-He⁴ mixtures, low density, hard sphere Bose and Fermi gases theory 4=14502

He³-He⁴ solution, fourth sound 4=16326

Supersonic flow

See also Shock waves

adiabatic, transonic, entropy method. 3=163

aerodynamic two-dim. problems, finite difference system 4=14255

air, elec. discharge 4=470

air, electric breakdown in hypersonic flows 1=2958

air, equilibrium, shock front, plasma data 2=3032

air, heat transfer, circular pipe with large temp. differences 3=14193

air, pulsed elec. discharge 4=2959

air stream, transition boundary-layer processes, optical study 0=16727

Supersonic flow—contd

application to pneumatic pivot design 0=16729
 around bodies of revolution, variational problems 3=1717
 around thin blunted power-law shapes 3=16644
 around thin bodies, at high attack angles 0=12430
 behind shock wave, steady, 2-dimensional 1=18453
 blunt bodies, separated shock wave, digital calcs. 4=18331
 boundary layer transition on cooled rough sphere meas. 4=29658
 boundary value problem, nonlinear 1=10529
 collision-free shock thickness, Alfvén Mach number depend. 0=10904
 combustion in 0=2270
 conical gas flow, shock-wave analysis 3=159
 conical, shock-wave higher-order approx. 3=159
 cooling of water injected into supersonic flow 1=11774
 critical viscous sub-layer in boundary layer interaction 1=10533
 delta wing, flow past 3=162
 density measurement, interferometric, effect of high gradients 4=214
 density measurements using flash X-ray tube 0=19188
 density and temp. meas. in highly rarefied medium 0=951
 dissociated, local atom concn., probe theory 3=9487
 dissociating diatomic gas 3=18854
 duration in l.p. shock tubes 1=165
 ejectors, theory 4=18233
 entropy and velocity 0=2203
 flat plate, resist. in highly rarefied gas 4=14200
 fluctuating wall pressure 4=14195
 fluid, past slender cone 4=18228
 gas, conducting, in crossed fields, transition 2=3146
 gas stream, cold, uniform, past cone 2=3142
 gases, viscous and heat-conducting, hypersonic flow. 3=160
 generalized axially symm. potential theory, Bergman's integral operator method 4=24018
 glassy materials, heating, melting, evap. and subliming 4=27371
 heat exchange and gas dynamics, conference 4=8230
 high altitude flight problem, reaction rate studies 2=2746
 hydraulic analogue 0=16725
 hypersonic blunt body problem 2=2749
 hypersonic, interact. with mag. field 3=18901
 hypersonic, at leading edge of flat plate 0=5045
 hypersonic, past wedges 0=19187
 hypersonic shock tunnel, low density research 2=2745
 hypersonic wakes in atmos., density and temp. profiles, calc. 0=14679
 inviscid, flow similarity near stagnation point of blunt obstacles 1=9413
 for isotope separation 3=5459
 jet injection, two-phase turbulent, stagnation temp. 4=14127
 in jets and cylindrical tubes 1=4312
 jets, separation of gas mixtures 4=5222
 magnetogasdynamic, post mag. dipole 2=5453
 magnetohydrodynamic flow past wedge 3=24451
 magnetohydrodynamic, transonic flow 2=20123
 meas., pitot tube, performance, rarified flow 3=14197
 molecular, sharp leading edge interaction 2=2744
 non-viscous, non-conducting perf. gas past object with radius a pwr of distance 4=24255
 nozzle flows, coupled chem. reacts 2=11395
 nozzles, near transition line 4=18231
 in nozzles, super- to subsonic transitions, evolutionality conditions 1=18444
 nozzles, super- to subsonic transitions, evolutionary conditions 2=21928
 over delta-shaped body, computation 0=6539
 over slender bodies, laminar boundary layers 1=2773
 past wedge, shock-wave detachment, Hugoniot curve 1=5293
 past wedges, Mach's lines, structure, relaxation effects 1=1762
 piston movement in ideal heat-conducting gas 4=16139
 plasma, microwave study 1=289
 plasma sheath, e.m. absorpt. study with wind tunnel 2=3166

Supersonic flow—contd

plasma, under piston action 0=9170
 point-fronted bodies, numerical calc. 4=14256
 rarefied gas, compressible viscous layer 2=2743
 rarefied gases, boundary-layer eqns. boundary conditions 1=2772
 rarefied gases, near free-molecular condition 4=219
 rarefied, pitot tube performance 3=14197
 reaction between NO and O₂ in nozzle 4=7752
 reflectn. from sonic line, shock wave formatn. 3=196
 reflectn. from sonic line, shock wave formatn. 3=5489
 rotational hypersonic flow, 3-dimens., Cauchy problem soln. 3=16645
 rotation-symmetric, Prandtl-Meyer expansion 4=5132
 sharp leading edge problem 2=2742
 shock tube study 1=8150
 shock waves in plastic medium 0=993
 similarity parameters, at high speeds 3=16643
 singularities, past bodies of revolution 3=18778
 singularities in trans-sonic streams around symmetrical aerofoils 4=21168
 sphere drag meas. 2=2747
 sphere, shock layer about stagnation region 0=14671
 stationary, non-perfect gases, due to shock waves, calc. 4=18229
 sublimating surface, laminar boundary layer 4=14464
 supersonic gas, rarefied, sphere drag meas. 2=2748
 supersonic stream—transverse sonic jet interaction 3=7229
 tail shock formation in supersonic flight 4=29659
 through nozzles, variational problems 3=1717
 transonic flow, expansion procedures and similarity laws 1=6885
 in transonic flow, with curved shock wave 1=6886
 transonic flow past a wavy wall 1=12909
 transonic flow in throat or nozzle. 3=158
 transonic gas flow, plane, with singularities on sonic line 3=161
 transonic, inviscid flow, normal shock waves from convex body 0=19185
 transonic pressure fluctuations 3=23923
 turbulence behind projectiles, behaviour meas. 2=15627
 turbulent boundary layer meas. at Mach numbers 8-10 0=952
 turbulent, radiated pressure field 4=29657
 turbulent trail behind hypervelocity sphere 1=15923
 viscid—inviscid interaction, boundary layer, computer calc. 4=11225
 wakes, cross temp.—elec. effect, 4=24254
 water, supersonic, wall friction meas. from temp. rise 0=12404
 wave height in hydraulic models by stereoscopy 1=18381
 weak interaction region 4=216
 Ar-He, recovery factor in jets, > either pure gas 4=27206
 N₂, nozzle flows, vibrational nonequilib., spectroscopic studies 4=18232

Supersonics

See Ultrasonics

Surface energy

and adsorption 3=23517-18
 alkali halide crystals 2=4486
 alkali halide crystals, (100) faces, calc. 3=20073
 alkali halides, distortion correction 1=3589
 atomic collisions, lattice waves, impurity effects 3=25766
 binary metal solns., statistical electron theory 3=23485
 cohesion and adhesion, rel. to wettability 4=16099
 criterion for crack propagation behaviour after fracture by thermal shock 4=13385
 crystal interface, energy states 4=22541
 crystal interfaces, variational calc. 4=6697
 crystallization, "shock wave" steps, formation 1=4025
 crystals, cubic, dynamics of surface atoms 4=9823
 crystals, direct measurement 1=2367
 crystals of fluorite structure, calc. 2=6245
 crystals, orientation dependence 0=17865
 determination, and surface processes in solid bodies, review 2=12368
 dislocation ribbons, widening at surface 2=6336
 distributions, from Ar adsorption isotherms 4=23550
 effect on diffusion-controlled particle growth 1=11582
 elastic solid, from beam theory 4=13386

Surface energy—contd

Eötvös constant, rel. to molecular dimensions 1=18387
 fluorite-structure crystals, {110} face 3=22632
 and fracture velocity, max. 4=4453
 for free electrons, external and internal 1=8873
 free energy of a dilute gas 1=12818
 germanium surfaces, energy level diagrams 1=1062
 graphite, calc. from dislocation ribbon widening 2=6336
 half-crystal energy constants 1=8872
 ice, effect of water film 2=5001
 inert gas crystals 1=7519-20
 inert gas crystals, calc. 4=17336
 influence on friction and wear 1=11524
 liquid in contact with solid surface in absence of gravity,
 meas. for Hg 4=8156
 liquid metal, and thermal expansion, plasma model 4=18174
 liquid sessile drops, minimum energy 0=6772
 Madelung calc. for ionic solid 0=7836
 metal carbides, calc., NaCl type 4=13669
 metal films, growth, effect of energy on crystallite
 size 3=16134
 metal foils, electron theory, thickness depend. 3=10573
 metal nitrides, calc., NaCl type 4=13669
 metals, on crystal-melt boundary 2=23909
 metals, effect on grain size, growth and recrystallization,
 review 4=13622
 metals, exchange corr. 4=20791
 metals, f. c. c. and b. c. c., anisotropy determ. 4=10600
 metals, free surface energy, statistical electron
 theory 2=20912
 monolayers, ionized, surf. press. 2=17429
 one-dimensional crystals, surface states 1=7521-3
 use of $1/\gamma$ plot in thermal etching theory 3=23384
 quartz, effect of surface finish, energy loss
 reduction 1=15172
 salts, molten, near freezing pt. 0=13466
 semiconductors, with diamond and zinc blende
 structures 0=13467
 silicon surfaces, energy level diagrams 1=1062
 solid solns., normal and supercond. regions 2=8864
 solids, meas. method for lamellar solids 1=6559
 stressed surface, tensor props. and rel. to linear
 force 4=5121
 subsurface states in one-dimensional crystals 1=7555
 superconductors of negative surface energy, mag.
 behaviour, model 1=13040
 Tamm surface states 1=7546
 transition metals, temp. depend. 4=27339
 water drops striking water surface, energy
 dissipation 4=21086
 Ag, rel. to crystallographic orientation 4=15816
 Ag, heated to 900°C in oxygen 2=21470
 Ag, solid 4=10601
 Au, heated, impurity effects 2=6845
 Ba sulphate, of 100 faces, calc. 4=20178
 Bi melt, nucleus-liquid interface 2=4447
 CdS, variations under different conditions, meas. 1=15180
 Cu-base alloys containing liquid phase 1=6522
 Fe crystals 0=4258
 Fe, γ and δ , meas. above 1350°C 4=9988
 Fe-Si alloy, effect of impurity atoms on surface
 energies 1=3661
 Ge, surface potl., temp. depend. 1=14433
 Ge, for various planes, cleavage meas. 3=25177
 Ge, and wetting by In, var. planes 4=13672
 KCl cubic crystals, small, calc. 4=7703
 KCl, defect formation, high temp. processes 3=20214
 KCl, {100} planes 3=25178
 LiF, defect formation, high temp. processes 3=20214
 LiF films 0=21182
 NH₄Cl 0=12096
 NaCl, defect formation, high temp. processes 3=20214
 Ni, rel. to crystallographic orientation 2=4485
 Ni metal 1=15171
 MgO, {100}, cleavage surface energy 4=4556
 Pb sulphate, of 100 faces, calc. 4=20178
 Pt, multiple scratch study 2=15087
 Si surface states, elec. field effects 4=1620
 Si, for various planes, cleavage meas. 3=25177
 Si-Fe, differences for diff. planes 4=4649
 Si-Fe, effect on grain size, growth and recrystallization,
 review 4=13622

Surface energy—contd

Si-Fe, orientation depend. 4=28338
 Sn film, supercond., on normal metal 2=9488
 Sr sulphate, of 100 faces, calc. 4=20178
 W crystal faces 4=2016

Surface ionization

See Ionization, surface

Surface measurement

See also Area measurement
 use of adsorbed Kr films 2=2429-30
 adsorbent surface 2=6854
 Brunauer-Emmett-Teller area, using adsorption 3=5145
 chromia-alumina catalysts, optical meas. of specific
 chromia area 4=29174
 cleaved (110), III-V compounds, electron-diffraction
 obs. 4=23555
 distortions, Moiré fringe method, errors 3=1829
 elect. conductivity, electrode configs. 2=9490
 ellipsometry, fundamental eqn. 4=18345
 flatness testing, using air gauging 3=7164
 flatness, using optical spherical aberr. 3=16566
 in gas-solid interactions 0=14147
 grain size, by scattered laser light analysis 4=8407
 granular materials, by small-angle X-ray
 scattering 0=21222
 graphite, using Kr⁸⁵ γ -radiation 4=23554
 heat conduction between two rough surfaces 3=16821
 height differences, viscous liquid layer 4=18150
 interference microscopy for surface finish studies 1=9360
 irregularities meas., optical procedure 2=19690
 irregularities, plane, spherical and aspherical surfaces,
 photographic recording 4=8398
 isopachics, obs. by Moiré patterns in plane-stress
 problems 4=14007
 low-angle scatt. method, high-angle limit 2=11795
 metal films, by adsorption of Xe monolayer 2=15092
 metal films, meas., and adsorption of Kr, Xe 4=13692
 metals, surface resistance, frequency modulation
 method 2=21100
 microtopography, gelatine model 2=4483
 molten alkali metals, level meas. 4=8892
 monomolecular films, surface potential,
 potentiometer 2=5251
 non-destructive technique for examining surfaces 0=2064
 optical flats by interferometry 1=12980
 paper, depression distrib. 2=7160
 porous materials, specific, by mol. gas flow 4=7696
 powders, specific, by mol. gas flow 4=7696
 radioactive powders, area meas. 1=20645
 semiconductors, surface cond., potl. 2=21116
 specific area by heat of adsorption determ. 0=8264
 specific surface area, continuous flow method 2=12942
 surface area of solids, det. 2=21572
 surface deformation, study methods 1=6564
 surface potl., electrostatic voltmeter 3=7419
 topography, optical method 2=9378
 whisker crystals, review 2=18974
 C, area, effect of capillary condensation 4=23552
 C, surface area, effect of activated diffusion 4=23551
 Kr⁸⁵ adsorption method 1=5246
 Si p-n junctions, freshly cleaved 1=1362

Surface phenomena

See also Adsorption; Capillarity; Catalysis; Electron
 emission; Films; Ionization, surface; Liquid waves,
 surface
 absorption capacity meas. for solids 0=8264
 accommodation coeff. meas., gas on heated solid, thermal
 balance 4=4660
 accommodation coefficient, rel. to adsorption 2=21573
 acrylonitrile, knitted, triboelectric properties 1=17859
 adhesion, effect of electrical layers at interface 0=4574
 alkali halide crystals, gases evolved on cleavage 2=18105
 alkali halides, distortion at surface, and within first
 5 layers 3=25768
 alkali halides, exo-electron emission 1=16357
 alloys, binary 4=13670
 alloys, conference 4=7690
 aluminized ground glass, irregularities, height distribution
 from specular reflectance data 4=8384
 anthracene, photocond., rel. to surface cleanliness 2=4059
 anthracene, photocond., and surface currents in
 various gases 2=6494

Surface phenomena—contd

- anthracene, semiconductivity, H₂O vapour effects 4=12921
 apparatus, for ultra-high vacuum work 0=14699
 atom recombination 0=510
 atom recombination on solids, luminescence
 excitation 2=18854
 atomic roughening on surface melting 0=21213
 boiling of water and alcohol from Hg surface 4=24447
 bonds broken at atomically flat cryst. surfs. 2=14931
 boundary surface activity, associated liquids 2=23962
 breakdown at metal surfaces in vacuo 1=10689
 carbons, high temp. polymer, pore structure and surface
 area 4=23543
 carbon-tantalum system, migration 3=14622
 catalysis, i.r. spectroscopy of chemisorbed
 molecules 1=4102
 catalysts, conductivity, electrical, from dielectric
 dispersion 4=2155
 cetyl alcohol film, reduction of water evaporation 0=14890
 charge, on deformation, LiF crystals 3=6773
 charge generation by liquids flowing in tubes 2=1164
 charge on separation, metal-polymer, meas. 4=7695
 charge in space-charge region of semicond. 3=22913
 clean surf. contamination by org. materials in vacuum
 systems 4=21566
 conducting, roughness and effect on backscattering of
 microwaves 1=7150
 conference, Moscow (1960) 3=23498
 contact, theory 0=6718
 contact thermal resistance, reduction of 3=24083
 counter-ion penetration in ionized monolayers 4=18186
 counters, semiconductor, surface-barrier, protection,
 against Hg vapour in vac. pumps 3=22043
 covalent materials, rel. to atom cryst. struct. 2=21559
 cracks, in glass, prod. by Na or Li treatment 1=1347
 crystal dislocation nucleation 4=26484
 crystal electron states, superconductivity poss. 4=14516
 crystal excitons, "mechanical", optically active crystals,
 e.m. excitation 3=20140
 crystal, one-dimensional semi-infinite 1=7548
 crystal plasticity, effect of solid and liquid films 1=14898
 crystal structure, rel. to adsorption thermo-
 dynamics 4=7719
 crystals, dehydrated layer in liq. He, phonon refl. 4=9834
 crystals, layer, dislocation behaviour 2=14427
 crystals, wave functions 2=18563
 crystallography, 80 diperiodic groups in three-dim.,
 tabulation 4=15812
 crystallography, terminology 4=15813
 defect self-healing at high temp., mechanism and
 kinetics 4=12744
 deformation and frictional forces, relationship 0=4571
 deformation, using photoelastic coatings 3=13320
 deformation, by surface tension of liquid drop 2=1124
 diamond on glass, surface flow and wear 0=8140
 diamond, surface states, MO-LCAO treatment 0=20719
 diamond, Shockley states, in MO method 2=23381
 dielectric, interaction with neutral mol., theory 4=3927
 diffusion of Ag in Ag, Ni, Au 3=20232
 diffusion, review 3=17780
 diffusional phoresis effect near liquid interface 4=5163
 discharge, electric, on dielectric, critical field
 intensity 3=24265
 discharges, neutralization and de-activation near
 metal surfaces 4=8642
 drops, movement in liquids, due to 3=5426
 elastic waves, Rayleigh, propag. 4=18319
 electrical double layer, mech. vibr. effects 3=12065
 electron diffraction obs., low-energy, improved resolu-
 tion and background 4=7663
 electron ejection, Auger from solid surfaces, apparatus for
 studying 3=14619
 electron props., meas. after adsorpt. of low-pressure
 gas 2=1215
 electron reflection and transmission through surface pot.
 barriers 4=29960
 explosive crystal, slow decomposition 2=19144
 f. c. c. metals, grooves, polarized light
 exam. 4=30813
 ferroelectric electron states 4=10108
 ferromagnets, magnetostatic modes and spin waves 0=11817
 fibre replication, by rolling 0=8263
 films, adsorbed coverage-potential relation 2=21560

Surface phenomena—contd

- and flow, water, in canals 3=9431
 fluorescein, adsorbed, luminescence centres 1=20022
 forces in films separating solid media, survey 4=7692
 fracture, brittle bodies, time depend., in surface
 active media 3=25642
 gas, dilute, in vessel, statistical mechanics 1=12820
 gas sorption on clean surfaces 1=18493
 glass, elec. conductivity 0=11651
 glass, etched, defects development 3=11314
 glass, increase of Si content on polishing 2=4477
 glass, inert gas re-emission by bombard. 2=3091
 glass-metal surfaces, bonds, rel. to elec. props. 4=10594
 glass, surface attack by pos. ion bomb. 2=4487
 glass, surface crack distribution, Na vapour etching
 study 0=10274-5
 glass, rel. to toughening by heat treatment 3=3229
 graphite, mobility of metal particles, atmos. and metal
 effects 4=29176
 graphite, neutron irradiation, smoothing effect 4=10013
 graphite, surface states, MO-LCAO treatment 0=20719
 grey plate surfaces, neutron transport flux and
 current 1=18325
 h.f. electromagnetic examination without contact 0=6530
 heat conduction, at bonds, between sheet materials, use
 in testing 3=13984
 heat transfer, rough 3=16817
 hydrostatic, graphical solution 4=131
 ice, structure, criticism 3=14139
 ice, thermoelectricity 4=20436
 impurities in surface layers of ionic crystal 4=28449
 inert gas release from surfaces during hydration and
 dehydration 1=15184
 interaction of inert gases on semiconductors 1=20686
 interface between condensed phases, thermo-
 dynamics 2=10969
 interfacial, thermodynamic treatment 4=13667
 iso-amylol-water, hydrodynamic stability
 effects 4=24193
 Kovar alloy, effect of surface martensite on plastic
 deform. 1=20364
 liquid, condensation nuclei dimensions, rel. to
 adsorption 4=27163
 liquid contact with solid boundary, wedge penetra-
 tion 4=11169
 liquid drop-solid interface, sliding 2=11343
 liquid film forces, review 4=2648
 liquid-gas interface, instability on adsorption and
 desorption 4=21083
 liquid (Hg), spreading on Zn effect of surface texture 3=5427
 liquid interfaces, eruptions interpret. 3=1671
 liquid-liquid phase boundaries, rel. to coalescence
 of 2 Hg hemisphere 3=23865-6
 liquid phase boundary, mass transport, hydrodynamic
 stability effects 4=24193
 liquid solns., two-dim. soln. model for adsorpt. 2=9270
 liquid, surface profile when rotating 3=23845
 liquids, ion adsorption, study using α active
 recoils 4=8192
 local props., cluster expansion by statist. mech. 2=17064
 magnetic gradient at surface of ferromagnetic
 substance 0=13751
 magnetoplumbite, magnetic domain structure rel. to
 surface orientation 4=15650
 mapping of semicond. surfaces by electron
 'mirror' 1=17668
 metal bombard. by inert gas ions and atoms, energy
 transfer 3=22511
 metal-semiconductor contact effects, Johnson-
 Rahbek 4=12877
 metal surfaces, atomic cleaning 0=8726
 metal surfaces, scattering of ions, theory 0=19801
 metals and alloys, rel. to volume props. 4=13668
 metals, cohesion knots rel. to friction coeff. 4=28928
 metals, colour measurement 1=7706
 metals, contamination, effect on junction growth in
 friction 0=8136
 metals, diffusion, self, mechanisms review 4=9982
 metal, double layer, dipole moment 3=15470
 metals, effect of inert-gas ion bomb. 0=19803
 metals, electron emission during oxidation 0=260
 metals, electron energy levels, surface effects 1=939
 metals, impurity phase depletion during arcing 1=16293

Surface phenomena—contd

- metals, interaction forces with inert gases 4=26717
 metals, liquid, clean surface maintenance 2=7093
 metals, mag. props., from ortho-para H conversion 3=1128
 metals, mechanically worked, elec. charging 2=5292
 metals, metastable ion contamination, electron emission 0=8983
 metals, nearly perfect, preparation methods review 3=23500
 metals, oxidation 1=2546
 metals, oxide films, phys. and chem. props. 2=23912
 metals, photoelec. mixing theory rel. to roughness 4=26138
 metals, plasmon oscills., foil, dispersion calc., semi-classical hydrodynamic 3=22690
 metals, and semiconductors, Y_e elec. long-time changes 2=21132
 metals, surfaces in contact, rel. to sliding 4=23115
 metals, surface purification, in vacuo, review 4=7699
 mica crystals, water adsorption, effect on crystal props. 4=7693
 mica, thin layers as capacitors, surface cond. 4=22787
 microscopic cracks in drawn glass 0=3261
 microstructure examination by multiple beam interferometry 4=10599
 migration of Ag on surface of ceramic dielectrics 1=6187
 mineral grains, elec. cond. rel. to humidity 2=21111
 molecular beam deposition on to cold target surfaces, theory 0=14888
 molecular beams on solid surfaces, thermal accommodation coeffs. 2=5068
 molecular crystals, surface effects, penetration depth 0=11555
 molecular dissociation and reconstitution on solids 0=1968
 monolayer evaporation, theory 2=15088
 monomolecular films, compression props., automatic recording technique 0=16394
 Mössbauer resonance, second-order Doppler shift, surface effects, calc. 2=23047
 nuclear matter, calc. 2=20493
 nucleate boiling, heat transfer correlation 1=18676
 p-n junctions 0=15915
 particle adhesion on solid bodies 4=10597
 perovskite ferroelectrics, acoustic and X-ray excitation of anomalous layers 3=22993
 photographic emulsion and glass in contact with quartz, resensitization 1=18632
 plastic deformation stresses, micro rather than macro 4=7691
 polymer chains at interface, configurational props. 3=15404
 polymethylmethacrylate, surface degradation 0=3309
 polyvinyl chloride, crack appearance 0=10273
 polyvinylchloride, knitted, triboelectric properties 1=17859
 porcelain, thermal diffusion of Fe_2O_3 4=30577
 quadrupole relaxation of Hg^{201} on quartz 4=6493
 quartz, amorphous layer on particles prod. by milling 0=12058
 quartz, highly dispersed, surface props. 0=12114
 quartz and vitreous silica, refractive index changes on ion beam irradiat. 0=13569
 reactive diffusion, structure of surface scale 1=14291
 recombination in cathodoluminescence and electron bombard. induced conductivity 1=20028
 residual gas reactions in high-vacuum apparatus 1=18490
 Rock salt defect self-healing at high temp., mechanism and kinetics 4=12744
 rough surface, reflectance at normal incidence rel. to height distribution 4=8385
 rough surface, specular reflection 4=18381
 rutile powders, polarity rel. to adsorption 2=2433
 scattering, Ar ions, 30 keV, ang. distrib., on graphite Cu, W 3=5720
 scattering by nearly-polished surface 3=21568
 scratches, decay to flatness 2=15089
 Semenchko molecular theory, ternary metal solutions 4=8184
 semiconducting filaments, transport props., theory 1=17647
 semiconducting filaments, transport props., theory 2=4001
 semiconductor, preparation and properties 4=4136

Surface phenomena—contd

- semiconductor surfaces, purification methods 4=29173
 semiconductors, adsorption rel. to other props. 1=2549
 semiconductors, carrier mobility, calc. 2=2134-5
 semiconductors, charge density at contact due to acceptor-donor bonds 4=7694
 semiconductors, charge and potential 3=13049
 semiconductors, conference, Moscow (1961) 4=15528
 semiconductors, diamond-structure type, surface structure and props. 1=4078
 semiconductors, diamond-type, clean (111), free bonds 3=10748
 semiconductors, diamond-type struct. surf. states, theory 2=23306
 semiconductors, electron-hole plasma, magneto-surf. props. 2=23282
 semiconductors, equilib. pot. distrib. in presence of fixed surface charge, theory 4=28550
 semiconductors, etching effects 0=590
 semiconductors, free-radical recomb. rel. to luminesc. 4=20476
 semiconductors, i.r. transmittance meas. 3=13557
 semiconductors, ideal gas adsorption 1=15181
 semiconductors, incremental elec. conductivity, space-charge induced 4=20347
 semiconductors, mobility calc. at surface 2=2136
 semiconductors, noise from carrier diffusion and surface recomb. 4=22691
 semiconductors, non-degenerate, potential distrib. calc. 4=10039
 semiconductors, potential under metal contact, det. 1=8938
 semiconductors, power 3=2858
 semiconductors, props. meas. in waveguides 3=19454
 semiconductors, recombination at higher injection levels 4=30616
 semiconductors, review 1=6138
 semiconductors, surf. props. present status 2=23328
 semiconductors, surface cond., variation by adsorption, transverse elec. fields and irradiation 1=3738
 in semiconductors, study by field effect 1=8931
 semiconductors, surface recombination effects on minority carrier decay 1=17655
 semiconductors, surface state-majority carrier exchange kinetics 4=20348
 semiconductors, zinc-blende type, barriers Fermi level rel. to band gap 3=20134
 II-VI semiconductors 1=14461
 serum albumin 0=15970
 Shockley surface states in linear chain, conditions 1=17465
 silica-alumina, i.r. study 3=11313
 small particles in vacuo, surface temperature versus particle size 0=1962
 snow, plane crystals, coalescence 0=14324
 solid bodies, review 2=12368
 solid-gas energy exchange, collisional, accommodation coeff. 4=7698
 solid, surface energy, effect of surface-active medium 3=6879
 solids, initial contact slip, nature 4=10368
 solids, stress analysis by differential geometry 3=21271
 solids in vacuo and various vapours 0=4573
 specific heat of solids 3=6475
 spectrochemical analysis, metals, by spark, h.f. 3=25844
 statistical mechanics, cluster expansion 2=12940
 steel, austenitic, macro-surface stresses 0=10254
 steel, wear, rel. to oxidation 2=4349
 study by frustrated total internal reflection spectra 0=10030
 supercond., second kind, microwave impedance anisotropy 4=27419
 superconductive crit. surface field, confirmation of Ginzburg-Landau equation 4=11474
 superconductivity, type I, above thermodynamic crit. field 4=21409
 superconductors, type II 4=14515
 surface ageing at liquid-liquid interfaces 0=2158-9
 surface analysis by charged particle spectroscopy 0=18457
 surface charge, effect in electrification meas. 1=13059
 surface deformation, study methods 1=6564
 surface re-orientation on metals due to abrasion 0=704
 surface sp. ht. of isotropic solid at low temp. 0=20748

Surface phenomena—contd

- surface states in finite crystal 1=14156
 surface states, theory 2=8203
 surface waves, in anisotropic elastic media 1=16008
 suspensions, colloidal, lamellar, ion exchange 3=11364
 temp. distrib. at solid surface with const. heat flux 1=18654-6
 temperature, meas. by molecular beam technique 0=19521
 tetracene microcrystals, surface excitons, from visible absorption 1=6090
 thermal accommodation, classical perturbation theory 4=15814
 thermal accommodation coeffs., theory 2=23043
 thermal accommodation coeff. theory 3=6882
 thickness meas. of diffused layers in Si and Ge 2=12941
 thin films on Pt, incidence and behaviour 2=4489
 transmission of optical energy along surfaces 4=27324-5
 trapping in atomic collisions with crystal surface 3=8923
 III-V compounds, surface states 4=15460
 Van der Waals forces between and atom and solid surface 4=12411
 water/air interface, effects of monomolecular layers 2=22096
 water, coalescence with drops 1=11745
 water jet striking surface, molecular kinematics 0=6737
 water, structure, criticism 3=14139
 wave, m.h.d., attenuation bet. fluid and solid with normal field 4=24807
 waves on square lattice, effect of impurity layer 2=6267
 Ag crystals heated in air, striation formation 0=18328
 Ag cyanamide explosive, slow decomposition 2=19144
 Ag, effect of AgS growths on electron diff. 4=2090
 Ag films, nucleation of sulphide patches, role of defects 2=6846
 Ag films, transition radiation energy loss 3=10633
 Ag mobility on MoS₂ and graphite, mechanism 4=10602
 Ag, self-diffusion 3=22821
 Ag, self diffusion and faceting 3=25292
 Ag, spreading of Hg, capillarity 2=7187
 AgBr, surface potential, temp. depend. 0=20961
 Al, abraded, photo-stimulated exo-emission of electrons 1=16356
 Al, adhesion on soda lime glass 4=10596
 Al, bombard. by Zr ions at ~ 10 keV 3=4219
 Al, discharges, effect of various substances on breakdown voltage 4=2962
 Al, electron energy loss spectrum, effect of oxidation 0=9880
 Al, fatigue, surface deformation 0=11976
 Al, plastic flow and surface removal 4=7430
 Al, plastically deformed, effect on activation energy and activated vol. 4=30763
 Al single crystals, preferential plastic deformation in surface region 1=14878
 Al-9.5% Zn-2.5% Mg alloy, cleavage facets 2=12869
 Au, diffusion of Ag 4=10603
 Au films, elec. cond. on supercond. Sn 4=22672
 Au, heated, impurity effects 2=6845
 Au, plastic flow and surface removal 4=7430
 Au, self-diffusion study, 272°-950°C 4=25963
 Au single crystals, plastically deformed, effect on activation energy and activated vol. 4=30763
 Au single crystals, surface effect on recrystallization 4=29055
 Au, vapour deposited on glass, with adsorbed O₂, surface potential 4=23598
 BaTiO₃, effect on 180° switching 4=12968
 BaTiO₃, electrode materials and atmospheres on elec. props. 2=16793
 BaTiO₃, surface layer thickness rel. to permittivity 4=10109
 Be, elastic limit for microstrain, effects of damaged surface 4=7412
 Bi, surf. resist. and Fermi surf. 2=2071
 Bi-Cs, photoemission rel. to temp. 1=10732
 Bi₂Te₃, cleavage surfaces, adsorption and bonding props. 0=14151
 Bi₂Te₃, structures produced by cleaving and by ion bombard. and annealing 0=14047
 C, activation process 4=23553
 C, alkyl iodide vapours interaction, desorption and activation energy 0=3304
 C, amorphous, e.s.r. line-widths, rel. to O 3=3168

Surface phenomena—contd

- CO formation, on incandescent W 2=8911
 CaCO₃ (calcite) and electrode potential 3=8968
 CaF₂, films, mobility, during growth, from optical props. 4=2120
 Cd, fracture mech., effect on metal films 2=6751
 Cd, fracture mechanism, effect of metal films 1=20383
 CdS, electrical conductivity by field-effect 1=17799
 CdS, photovoltage meas. 2=21190
 CdS single cryst., evaporation mechanism 4=27388-9
 CdS single crystal, fast recomb. mechanism 4=26144
 CdS single crystals, surface contact 4=22707
 CdS, trapping and diffusion 0=13631
 CdS_xSe_{1-x}, photo-e.m.f., vert. illum., spectrum, var. with x 3=23015
 CeO₂, heat treated, composition 0=606
 Cu, bombard. by Sn, Zr and Mg ions at ~ 10 keV 3=4219
 Cu, contact area, effect of appl. press. 2=14914
 Cu contamination in vacuum, from optical, dielec. props. 4=20452
 Cu defect self-healing at high temp., mechanism and kinetics 4=12744
 Cu films, elec. cond. on supercond. Sn 4=22672
 Cu, impurity adsorption, crystallography 4=4671
 Cu, oxidation, dislocations, effects 3=16130
 Cu, self-diffusion, oxygen pressure, impurity effects 4=28487
 Cu single crystals, plastically deformed, effect on activation energy and activated vol. 4=30763
 Cu, stresses in sheets, X-ray refl. obs. 4=28499
 Cu, surface diffusion of Au and Cu 4=15487
 Cu₂O, surface mobility of Cu⁺ ion vacancies 1=3765
 Fe, effect on surface oxidation 1=4077
 Fe, ionic bombardment 0=7902
 α-Fe single crystals, preferential plastic deformation in surface region 1=14878
 Fe, vacuum annealed, self-diffusion 3=13003
 Fe⁵⁷ at η-Al₂O₃ surface, Mössbauer effect 4=25816
 Fe-Cr alloys, dislocation study, by ion bombard. 0=1927
 Ga, liquid on Zn, Cd, Sn crystals, rel. to mech. and structural props. 4=10353
 GaAs [III], characteristics 1=20657
 GaAs, semiconducting, from photo, field effects 4=1602
 GaSb, structure and props. 1=4078
 GaSb [III], characteristics 1=20657
 Ge, adsorbed O influence on free charge carriers 1=17684
 Ge, carrier mobility 1=1050
 Ge cathode in 2 mol HCl electrolyte, surface states 3=17689
 Ge, changes in elec. props. on etching in H₂O₂ 2=21135
 Ge, changes in elec. props. on etching in H₂O₂ 3=2899
 Ge, cleaned, elec. cond., anomalous, at low-temp. 2=23333
 Ge, cleaned; gas evolution, conductivity, and V-I characteristics 3=10782
 Ge, cleaved surfaces 3=23383
 Ge, cond., elec., relax., slow temp., press., H₂O vapour var. 4=20358
 Ge, conductivity, effect of various treatments 0=15929
 Ge, conductivity, and oxygen adsorption 1=8943
 Ge, conductivity, slow changes 1=14430
 Ge crystal defect recomb. with adsorpt. of polar liquid mols. 3=22709
 Ge crystals oxidation 4=30896
 Ge, dendrites, central twin plane confirmed by optical studies 1=6503
 Ge diodes, ambient atmosphere and reverse current 0=9981
 Ge, effect of electron bomb. in surface potential 1=17690
 Ge, effect of etching on recombination velocity 0=13601
 Ge, elec. conductivity, fast changes in a.c. field 4=6956
 Ge, elec. props. rel. to humidity 2=23331
 Ge, elec. props., slow effect of corona discharge in air 2=2152
 Ge-electrolyte interface, fast surface states, formation by cupric ions 4=6973
 Ge-electrolyte interface, surface states 3=10780
 Ge, electron microscope exam. of cleavage and growth by replica 4=13646
 Ge, electron states, field effect 2=23351
 Ge, energy levels, optical study 3=2989
 Ge, exo-electron emission, effect of N 1=16358
 Ge, fast states, effect of water mols. 3=20138
 Ge, fast surface states, effect of wet and dry ambients 1=11295

Surface phenomena—contd

- Ge, fast surface states at low temp. 1=1051
 Ge, field effect and cond., cleaned surfaces 0=4344
 Ge, gas evolution, effect of heat treatment 2=8875
 Ge, grain boundary breakdown surface field effect 4=4155
 Ge, investigation by magnetoconcentration effect 0=2861
 Ge, n-type, fast-states structure 3=6584
 Ge, n-type, with p-type channel, free-carrier scatt. 2=23334
 Ge, n-type, surface potl., action of light 1=3788
 Ge, (100) surf. bonding, model 2=23911
 Ge oscillations, relaxation, high resistivity rod 4=4156
 Ge, oxidation kinetics, prep. of stable surfaces 1=5102
 Ge, p-type film formation and removal 2=23203
 Ge, p-type, recombination rel. to excess carrier conc. and surf. potl. 2=23332
 Ge props., chemical treatment effects 4=20794
 Ge, props. of Hf-H₂O₂ treated surfaces 4=9910
 Ge props., O₂ and water vapour effects 4=20795
 Ge reactions with O and I 3=13555
 Ge, recombination, air/vacuum cycling at high temps. 4=6974
 Ge, recombination velocity and minority-carrier diffusion length in HNO₃ 4=6959
 Ge, relaxation effects 1=1052
 Ge, search for H/D exchange 2=10962
 Ge, semicond. props., from slow relax. of cond. and work function in gases 4=22715
 Ge, semicond. recombination velo. validity criteria 4=22695
 Ge, semiconductor recomb. velo., var. e.s. pot., in vacuo 4=20363
 Ge, Si, surface migration 1=18908
 Ge, slow relaxation effects in a.c. field effect 1=17683
 Ge, slow surface relaxation 4=4149
 Ge, spreading of molten In over 4=4656
 Ge, study by frustrated total internal reflection spectra 0=10030
 Ge, surf. Ag diffusion 2=8246
 Ge, surf. energy levels, low-temp. 2=23329
 Ge, surf. stabilization by ethylation 2=8335-7
 Ge, surf. states rel. to heating 2=23339
 Ge, surface cond. after exposure to oxygen 3=4174
 Ge, surface cond., p-type, and field-induced surface cond., of cleaned surface 0=2878
 Ge, surface conductivity, influence of humidity 1=14431
 Ge, surface damage, effect on reflectance in 2650-10 000 Å region 4=7133
 Ge, surface levels 1=17496
 Ge, surface migration, study by ion and electron microscopy 4=29175
 Ge, surface potential inhomogeneities; electron mirror obs. 3=10783
 Ge, surface states, cleaned and oxidized 3=17856-7
 Ge surfaces, Ag diffusion 1=19805
 Ge, thermal regeneration temp. of oxygenated surface 1=11597
 Ge transistors, effects of vacuum drying 3=2942
 Ge-Al₂O₃ interface, elec. relax., slow 4=25994
 Ge-NaOH solution interface, conductance 3=10781
 Ge, O₂ adsorption 2=23918
 Ge and Si, electrical conductivity 1=14454
 H atom recombination on Al surfaces 4=13721
 H, atomic, recombination on Pt 3=20987
 H₂O, shallow, wave effects on acoustic absorpt. 4=14276
 Hg and metal surface, thermal contact resistance 1=18646
 InAs [III], characteristics 1=20657
 In-Pb(6%), superconductivity, nucleation field reduction by plating 4=18575
 InSb, conductance, photocontrolled 4=20371
 InSb, structure and props. 1=4078
 InSb, surface conductance meas. for p-type crystal in heptane and heptane-ethanol mixtures 4=28564
 InSb surfaces, O₂ association, rel. to yield drop 3=13353
 InSb [III], characteristics 1=20657
 K, adsorption, desorption, ionization and diffusion on W, var. temp., K flux 4=23610
 LiF, effect of surface cond. and mech. props. 0=21096
 LiF, structure changes due to bombardment with alumina particles, annealing study 4=4044
 Mg, electron energy loss spectrum, effect of oxidation 0=9880

Surface phenomena—contd

- Mg, oxide film formation 3=23512-13
 MgO, interaction with electron beams 2=6394
 MgO, interaction with various gases at high temp., etch patterns 1=20661
 MnO₂, apparent contact ferroelec. effect 2=14607
 MnO₂, γ-phase samples with various specific surfaces 4=7701
 N migration on W 0=7838
 NH₃, adsorption on Vycor glass 2=6858
 Na, cond., elec., in mag. field, and cyclotron reson. with helicon waves 4=22554
 Na₃AlF₆, films, mobility, during growth, from optical props. 4=2120
 NaCl, cleaved, evaporation decoration by Ni, Permalloy films 3=20931
 NaCl, crystal growth patterns, on heating, impurity effects 4=4553
 NaCl crystals, plastic deformation at high temp. 2=4323
 NaCl, Ca²⁺ doped, indentation hardness meas. 4=23208
 NaCl, effects of elec. discharge 3=13558
 NaCl, evaporated films, sintering, surface smoothing, loss of surface area 3=25777
 NaCl, exchange of Cl³⁶ with halogen gases 1=4076
 NaCl, healing of indentations, kinetics 2=2420
 NaCl, n.m.r. dipolar line broadening surface effects 1=20266
 NaCl, X-ray induced surface hardening 1=2398
 Nb, stress effect on Lüders band velocity 4=23193
 Ni, accommodation, effect of surface texture 4=2126
 Ni, atomic vibrations, rel. to electron diff. 2=19127
 Ni, clear surfs. catalysis of H₂-D₂ exchange 2=6871
 Ni, interaction with N 2=8894
 Ni, O₂ interaction with clean (111) surface 4=7702
 Ni, O₂ interaction with (110) face, struct. 4=23556
 Ni, (110) surface, clean and slightly contaminated, study 1=20658
 Ni oxidation temp. effects on water boiling on wire 4=11423
 Ni oxides, layers on Ni at 900°C in air, X-ray diff. exam. 3=16129
 Ni, reconstruction rel. to foreign atom adsorption 2=21558
 Ni, superconducting, surface electrical losses, in l.f. fields 3=12033
 Ni, (2 × 1) struct. on H adsorption on (110) surf. 2=23922
 Ni-Br reaction, mass-spectrometric obs. 4=10636
 O atom recombination 0=511-12
 O atom recombination on metal 0=6405
 P, red, interaction with alkyl iodide vapours, desorption 0=3305
 Pb, superconducting, surface electrical losses, in l.f. fields 3=12033
 Pb-Bi, supercond. crit. field 4=18582
 PbO, photoconductivity, in n-PbS-p-PbO films, in Resistor charge-storage tubes 3=25419
 PbS, rel. to photoconductivity 1=17802
 PbS, sensitized, photoeffects model 2=6499
 PbS, potential, changes on illumination 3=20414
 Pb-Te supercond., persistence beyond H_{c2}, tunneling obs. 4=18584
 Pb-Tl, superconductive, crit. surface field 4=11474
 Pb-Tl system, supercond., ang. var. 4=27421
 Pd, surface mag. states 2=4208
 Pt in air, accommodation coeff. rel. to pressure 4=27218
 Pt, self-diffusion, multiple scratch study 2=15087
 Rb atoms on paraffin covered walls, mag. relaxation 4=6492
 S electret, photodepolarizing kinetics, monocrystal 4=4220
 Sb, diffusion on Ge, 250-650°C 3=20223
 Se films containing S, photoelectrets, depolarization 3=23006
 Si, cleaved crystals, surface states 1=6157
 Si, cleaved surfaces 3=23383
 Si, by d.c., a.c. and pulsed field meas. 2=8349
 Si, damage annealing and Cu precipitation 4=7705
 Si, diffusion in Ni 3=6539
 Si, diffusion of Ga, B, conc. 4=4077
 Si, elec. effect of oxidation and etching 2=16712
 Si-electrolyte barrier layer 0=13649
 Si-electrolyte boundaries, surface conductivity and recombination 1=17715
 Si, electron microscope exam. of cleavage and growth by replica 4=13646

Surface phenomena — contd

- Si, electron states, field effect 2=23351
 Si, gas evolution 4=20796
 Si, mobility of electrons in p inversion layer, scatt. effect 4=20401
 Si, n-type conversion of thermally oxidized surf. 2=21164
 Si, n-type single crystals, field-effect meas. for cleaved surfaces 4=28573
 Si, n-type, surface energy levels 0=15938
 Si, (100) surf. bonding, model 2=23911
 Si p-n junctions, effects on reverse current and drift 4=20386
 Si, p-type film formation and removal 2=23203
 Si, p-type layer due to boron 2=16711
 Si, p-type, p-n junct. formation rel. to Li-ion irradi. 2=21146
 Si, photoelectric emission and work function 3=9833
 Si props., O₂ and water vapour effects 4=20795
 Si, recombination velocity, direct meas. 2=8347
 Si rectifiers, in various ambients, surface break-down 0=11702
 Si, semicond. diodes, p-n diffused, oxidized charges 4=10079
 Si, semiconducting, field effect, var. freq., amp. 4=20378
 Si semiconducting rectifiers, reverse current 4=4185
 Si semiconductor junctions, improvement by As-S-I glass coating 4=20387
 Si semiconductor reverse biased junctions, gamma ray effect reduction by passivation 4=20388
 Si, surf. treatment rel. to photocond. 2=10538
 Si, surface potential 1=11303
 Si, surfaces potential inhomogeneities; electron mirror obs. 3=10783
 Si, thermal regeneration temp. of oxygenated surface 1=11597
 Si: Au, chemical potl., temp. depend. 0=11699
 Si, C¹⁴ diffusivity, surface conc. 2=3939
 Si(3.25%)—Fe, and crystal structure, cubic 4=10582
 SiO₂, adsorption of hydroxyl groups, spectrum and heat vars. 3=8922
 SiO₂, elec. conductivity, due to adsorbed molecules 3=25318
 Sn atoms, mobility, influence of O₂ 4=13684
 Sn, diffusion in Ni 2=21068
 Ta crystals, degassing and deformation under heat and electric field 1=20662
 Ta, superconductivity type change 4=18604
 Ti and TiC, at interphase boundary with Ni and Co 4=8190
 W, accommodation coeff., He, Ar, N, 2800°K 4=4660
 W, adsorption, desorption, ionization and diffusion of K, var. temp., K flux 4=23610
 W carbide, Co-bonded, wear of hard and soft phases 0=18285
 W, reflection and dissociation of H₂ 2=20876
 W, self-desorption of residual gases, autoionic projector 2=8887
 W, surface migration in high electric field, activation energy 0=11646
 W, Th adsorption 2=10948
 Zn, coated with Hg, strength and plasticity, rel. to irradi. 4=10404
 Zn exchange from vapour with polycrystalline ZnO 1=9166
 Zn, fracture mech., effect of metal films 2=6751
 Zn, fracture mechanism, effect of metal films 1=20383
 Zn, plastic flow and surface removal 4=7430
 Zn silicate phosphors, in fluorescent lamps 0=11779
 Zn—(0 to 0.5%)Cd, effect on brittle fracture, -200°C to +200°C 4=10363
 ZnO—electrolyte interface, charge distribution 1=1484
 ZnO, electrophotographic, charging in discharge 4=18443
 ZnO, photocond. 2=8415
 ZnTe, asymmetries for (111) and ($\bar{1}\bar{1}\bar{1}$) faces 2=7644
 Zr, and adsorption of Br⁻ and SO₄²⁻ 4=13696

Surface tension

- See also Capillarity
 and absorption, acoustic waves, u.s., liquids containing glass "microballs" 3=16621
 acetone—isopropanol mixtures 1=15858
 adsorption systems, three-phase, contact angle 3=23519
 alkali halides, molten, and hard sphere dia. 4=18173
 alloys, binary 4=13670
 alloys, molten, conference 4=7690
 aq. electrolytic solns., depend. on ions present 1=18384

Surface tension—contd

- balance, adsorbed films on gas—liquid interface 4=5149
 benzene, bubble meas., rotation effect 0=19087
 benzene, solid—liquid interface tension 0=3505
 boundary, associated liquids 2=23962
 calc. from liquid density and vapour pressure 0=5004
 calculation by sessile-drop method 2=17428
 capillary instability of liq. jet carrying current, with and without mag. field 4=14126
 caprylic acid in HCl 0=71
 cetyl alcohol, on water, damping out ripples 0=12411
 conducting droplet under action of surface tension and e.s. forces 3=14503
 conference, Moscow (1960) 3=23498
 contact angle rel. to cohesion and adhesion energies 4=16099
 contact angle, cohesion, adhesion, wetting 4=18167
 and contact angle, computation by sessile drop method 4=2645
 contact angle—critical wetting tension plot 4=24147
 contact angle and spreading phenomena, simplified thermodynamic approach 0=2516
 decanoic acid, aqueous soln. 2=1123
 decyl alcohol, aqueous soln. 2=1123
 difference between dynamic and static 0=70
 as double-layer phenomenon 3=23854
 drops, rel. to sliding on solid surfaces 2=11343
 effect on stability of two rotating fluids 1=15821
 effect on stability of two superposed fluids 1=15779
 electrolytes, conc. depend., limiting law 4=16097
 ethyl alcohol 0=14613
 films, rel. to thickness after pull-out 2=7189
 fluorescent solns., quenching effect of interfacial tension 2=9283
 free energy of a dilute gas 1=12818
 gas-phase nucleation, Becker-Doering theory 0=6425
 glycerol, from drop curvature, using interferometer 4=16098
 glycol, benzene, bubble meas., rotation effect 0=19087
 glycol—water, anomalous variation 2=2691
 higher alcohols in H₂O 0=71
 hydrocarbon acid and alcohols, straight-chain, study adsorption in water surface 0=14615
 interfacial, between mercury and water 2=11342
 interfacial, of binary liquid systems 2=1115
 interfacial solns. of Poisson-Boltzmann eqn. 1=20749
 iron, and contact angle, var. with P, S content, 1560°C 3=11775
 liquid boundary, electrostatic deformation 4=18166
 liquid boundary surfs., rel. to adsorption 2=15142
 liquid contact with solid boundary, wedge penetration 4=11169
 liquid drop, dielectric, flattening, in electric field 1=132
 liquid lamellae, formation in liquids 0=8661
 liquid layer between sphere and plane surface 3=23860
 liquid—liquid interfaces, surface ageing 0=2158-9
 liquid metals 4=8188
 liquid metals at boiling points 1=18386
 liquid, rotating, effect on surface profile 3=23845
 liquids, dispersion forces contrib. to surface and interfacial tensions 4=8191
 liquids, metallic and polar 2=11342
 liquids, in rotation 1=15822
 Marangoni effects 0=19081
 mechanical working of a liquid, influence 0=72
 metals and alloys, molten 3=121
 metals and alloys, rel. to volume props. 4=13668
 metals, rel. to deformability during creep and sintering 4=10361
 metals and heat of vapourization 3=21602
 metals, liquid, depend. on temp., calc. 3=7194
 metals, liquid, ionic-salt and monatomic models 1=18385
 metals, liquid, rel. to temp. 2=4996
 metals, liquid, rel. to thermal cond., spec. heat and diffusivity 2=17445
 metals, statistical electron theory 2=20912
 metals, temp. var., formula 4=142
 methanol, effect of Ar adsorption, 1-120 atm 3=18795
 molecular parameter relationship with liq. compressibility 4=2664
 molten salts, theory 1=9374
 molten zones, shape equations 4=14130

Surface tension—contd

n-hexane, effect of N_2 and Ar, 1-120 atm 3=18795
 n-octane, effect of Ar adsorption, 1-120 atm 3=18795
 non-electrolytic solns., rel. to temp. 2=21883
 nonpolar liquids on metals, surface potentials 4=29191
 organic liqs. in steel Berthelot tube, maximum tension 4=11167
 periodicity, Mendeleevian 4=8189
 and phase transform. nucleus growth 4=18488
 platinum, liquid, at 1800°C 2=2692
 polymethyl- and polyethylsiloxanes 1=20642
 polysiloxanes 2=11351
 relaxation, surface viscosity relation 0=3504
 rotating liquids, effect of temperature 1=6846
 rotating liquids, freq. and temp. depend. 0=73
 rotating liquids, meniscus growth, kinetics 4=18512
 rotational kinetic effect 0=8640
 salts, fused, appl. of Lennard-Jones-Devonshire theory 4=143
 siloxanes, intermolecular interaction 2=23016
 small spheres in metal vapour, formation of surface film 0=5213
 soap films, damping of oscillatory motion 1=4318
 soap films, rel. to elasticity 2=15561
 soap-solution films, rel. to their elasticity 1=15828
 solids, rel. to that of adjacent liq. 4=17835
 solids, interphase surface 3=11198
 solids and liquids, rel. to bond energy 4=10595
 solution, aqueous, rel. to density 2=7165
 solutions, aqueous, dynamic props., standing h.f. capillary waves 1=130
 solutions, binary, isotherms of surface tension 4=8183
 solutions, partially miscible, interface mixing zone, non-stationary effects 0=19085
 statistical mechanics, cluster expansion 2=12940
 statistical mechanics, rel. to curvature 3=14052
 sucrose soln., rel. to temp. 2=21883
 teaching 1=129
 temperature dependence 3=14129
 two fluids between parallel plates, dynamic contact angle meas. 3=1672
 2 ionic liquid layers, in proximity, rel. to repulsion 4=24228
 rel. to v.p. and compressibility 4=141
 virtual work, method, problems 0=5006
 water, calc., 0° to 340°C 4=10595
 water droplets, at critical points 4=8159
 water, dynamic props., standing h.f. capillary waves 1=130
 water, effect of N_2 and Ar, 1=120 atm 3=18795
 water film, vertical jet directed onto horizontal plate 0=5005
 water, pendent drop, equilibrium theory 1=15825
 water in steel Berthelot tube, maximum tension 4=11167
 water, theory, motion of surface molecules 1=15818
 A- N_2 , and A- CH_4 , liq. solns. 2=1125
 Ag, effects in small crystals 3=16062
 Ag, liquid, O effect, oxide layers 4=11190
 Ag, solid 4=10601
 Al, liquid, effect of 0.12 Na 4=14152
 Al, orifice discharge meas. 4=24149
 Al-Si alloy, liquid, effect of 0.12 Na 4=14152
 Al-Si eutectic, orifice discharge meas. 4=24149
 B, molten 4=132
 Bi, 300-500°C 0=19088
 Bi-U, 300-500°C 0=19088
 CH_4 , liq., theory and meas. 2=1125
 CH_4 - N_2 liq. soln., theory and meas. 2=1125
 C_2H_4 -He gas interface at high press. 1=4317
 Co, effect of Ti and TiC 4=8190
 Co, liq., rel. to atomic vol. 2=2692
 Cu, rel. to defect self-healing 4=12744
 Cu, sessile drop, optical meas. 3=16598
 Cu, temperature variation, 1100°-1500°C 4=8187
 Cu-Ni alloys, molten, 1550°C 4=8185
 F_2 , liq., coeff. calc. using significant structure theory 4=8166
 Fe, f. c. c., var. angle 4=13673
 Fe, liq., rel. to atomic vol. 2=2692
 Fe, molten, effect of N_2 4=21111
 Fe, temperature variation, 1550-1800°C 4=8188
 Fe, 1550°C 4=8186

Surface tension—contd

Fe-C alloys, approximate equation, 1550°C 4=8186
 Fe-N alloys, temperature effect 4=21111
 Ge, temp. depend. 0=19089
 H, para- 4=29605
 HD, liquid, 16.7-20.5°K 4=2644
 H_2 , D_2 , HD and H_2 - D_2 solns., rel. to temp., expt. 4=27164
 He II, temp. depend., theory 2=2943
 He³ liquid 0=8861
 He³-He⁴ liquid mixtures 3=24131
 Hg 1=15819-20
 Hg, contact angle 1=15819-20
 Hg, effect of various gases 2=1126
 Hg, orifice discharge meas. 4=24149
 Hg solutions, temp. depend. 3=21340
 Hg-H₂O-benzene, interfacial tensions, meas. by pendent drop method 4=144
 Hg-In amalgam, by sessile drop method 4=8158
 Hg/Na-decane sulphonate/ H_2 system 2=4995
 Hg-Tl amalgam, rel. to Tl content, by sessile drop method 4=8158
 In, at boundary between superconducting and normal phases 0=8934
 In, temp. var. and agreement with Mendeleevian periodicity 4=8189
 In-Ge alloys, molten, rel. to content 3=21335
 Mo, liquid, by electron beam heating 4=2643
 NaCl soln., effect of electrostatic fields 2=11347
 Nd, by bubble pressure, 1030-1186°C 3=5425
 Ni, rel. to crystallographic orientation 2=4485
 Ni, effect of Ti and TiC 4=8190
 Ni, liq., rel. to atomic vol. 2=2692
 Ni-liquid Pb system, interfacial tensions, effect of temp. and press. 4=15724
 Ni-C-S alloys 1=5265
 Pb solutions, temp. depend. 3=21340
 Sn, anisotropy at supercond.-normal phase boundary 0=19566
 Sn, molten, effect of impurities 4=7515
 Sn solutions, temp. depend. 3=21340
 Sn, 300-500°C 0=19088
 Sn-Bi, temp. var., in liquid, eutectic anomaly 4=21112
 Sn-Tl, 300-500°C 0=19088
 Ta, liquid, by electron beam heating 4=2643
 Te-Tl alloys, molten, rel. to electrochem. props. 0=10355
 Ti, liquid, by electron beam heating 4=2643
 W, solid phase 0=7839
 Zr, liquid, by electron beam heating 4=2643

Surface tension measurement
 adherent drop method, data analysis 3=23852
 automatic recording film balance system 0=2162
 bubble max. press., non-wetting systems 4=11168
 bubble pr. method, for solns. of slowly diffusing mols. 2=1123
 coacervates, interfacial tension by stirrup method 0=14614
 contact angle, 4=29606
 contact angles, solid-liquid, meas. 3=11774
 and density meas., in one apparatus 0=2161
 dilute electrolyte solutions, Jones-Ray effect 0=2160
 from drop curvature, using interferometer 4=16098
 drop-out method, effect of viscosity 0=19082
 du Notty method, using load cell, automatic recording 0=14607
 du Notty ring, profiles and areas of interfaces 0=2163
 epitaximeter, process control of chemical concentration 0=5002
 falling meniscus method, factors affecting 0=3503
 liquid interfacial tension, meas. 2=17427
 liquid-liquid interfaces, calibration of contracting jet method 0=2158
 liquid mixtures, avoidance of errors due to evaporation 0=71
 liquids wetting and not wetting glass, large temp. and press. range 4=8157
 metals, liquid, electron beam heating method 4=2643
 metals, molten, by "large-drop" method 2=7188
 micro-method, theory 4=21085
 molten metals, stationary drop method 2=19532
 monolayer compression props., automatic recording 0=16394
 orifice discharge 4=24149
 oscillating jet method, corrections 2=21884
 photoelectric method, tensiograph 0=10644

Surface tension measurement—contd

- pure liquids and solutions, comparison of methods 1=6847
- sessile drop method 1=15819-20
- solids, from liquid contact angles 4=24148
- surface and interfacial, techniques 3=11776
- volatile tensio active substances, by torsion balance 4=14129
- wetting liquids, using hanging rod 4=18168
- Al, molten, stationary drop method 2=19532
- Ar liquid, by microbalance, simultaneous with viscosity meas. 4=24188
- Cu, molten, stationary drop method 2=19532
- H₂O, interfacial, hydrophobic ring use in zero contact angle methods 4=14128
- Sn between supercond. and normal phases 2=15856
- Sn, between supercond. and normal phases 3=5594
- Te 2=17427
- Ti, liquid, electron bombardment drop wt. method 3=23853

Surface texture

- alloys, rolling texture rel. to stacking fault energy 4=10565
- brass, rolling texture rel. to rigidity modulus 1=20298
- brass, roughness, meas. by adsorption of I¹³¹ 3=13556
- carbon black, graphitized, absorption data 2=10944-5
- clean surfaces prod. in high vacuum 3=23499
- compression, rocksalt type materials 1=20700
- condensation of water vapour, effect on 3=21635
- contact error between repeatedly wrung surfaces 3=25770
- cracks, geometry 0=14045
- cracks on transparent plastics 0=6315
- and crystal epitaxial growth 4=26612
- crystal, study by Berg-Barrett method 3=25660
- crystalline powder specimens, crushed, coarse 4=10573
- crystals, interference microscope for surface examination 0=16828
- crystals, levelling of defects, mech. 2=4484
- crystals, nearly perfect, examination methods review 3=23500
- damage in intermetallic compounds 0=13941
- diamond faces, natural and artificial 4=2015
- diamond, semiconducting, low-energy electron diffraction 4=30877
- diamond, semiconducting, (100) and (111) electron diffr. meas. 4=26704
- dried skim-milk particles 4=2117
- effect on spreading of liquid Hg, for Zn 3=5427
- electrodes, in pulsed discharge, pitting 3=21722
- electron microscope exam., by incineration 4=2105
- electron microscopy, height det. method 0=16368
- electron microscope study 1=2554
- electropolishing unit for electron microscopy 4=29162
- examination technique using friction meas. 4=4657
- Fabry-Perot interferometer, surf. defects invest. 2=5181
- films, ferromag., rel. to mag. anisotropy 2=12778
- films, irregularity effect on optical props. 4=22819
- films, surf. relief meas. by frustrated total internal reflection 2=19493
- fluoride films on UO₂ substrate, roughness, rel. to refractive index 4=11350
- friction, dependence on roughness 0=10277
- glass, rel. to attack by ionic bombardment 3=17810
- glass, effect of intense ultrasound 0=21215
- glass, electron microscope study 0=16339
- glass, electron microscope study 2=849
- glass, polishing effect 3=18373
- glass, polishing processes 1=9160
- glass, residual contaminants 4=13647
- glass, soda-lime-silica, effect of polishing 2=2417
- glass substrates, effect on mag. props. of permalloy films 1=20672
- graphite, cleaved surfaces 3=3261
- graphite and non-graphitic carbon 1=11528
- graphite, orientations due to sliding on Cu 4=17836
- graphitic materials, neutron irradi. 4=29177
- heavy metals, rel. to electron diffraction by reflection 3=18403
- highly plane surfaces, topography, interferometric survey 2=2872
- ice 3=21307
- ice crystals, surface structure 3=18260
- irradi. solids, heterogeneity 1=20660
- imaging and examination, with slow electrons 4=10570

Surface texture—contd

- and iodoform crystal epitaxial growth 4=26612
- isotope layers on cold backing, rel. to structure 4=13682
- longitudinal settings meas., precise method 4=30875
- metal, cavitation effects 4=26705
- metal cold cathodes, effect on emission 0=7150
- metals, effect on ferromagnetic resonance 0=13857
- metals, f.c.c., reorientation by abrasion 2=21453
- metals, grain orientation, Kossel line tech. 2=6863
- metals, rel. to heat radiation 3=7385
- metals, rolled, f. c. c. and b. c. c., slip effect 4=30753
- metals, roughness meas. by adsorption of I¹³¹ 3=13556
- metals, rel. to struct. 2=19074
- microtopography, study using friction technique 4=23549
- mirrors, polishing, for Newtonian telescope 0=165
- metal, heated in air 0=18394
- observation by interference microscopy 1=9360
- ordered structures formed by chemisorption 4=30886
- paper, under rolling pressure 3=13553
- Permalloy films, evap., roughness 2=12658
- pipe roughness, rel. to liquid flow resistance 4=11159
- polishing, electrolytic, Cu in H₃PO₄, diffusion phenomena 3=11351
- polishing imperfections, effect on X-ray specular reflection 4=30007
- polishing machine, acid, for dislocation free surface 4=4992
- polishing, Si, Ge, specimens, for electron microscopy 2=21577
- polishing of small spheres 1=21160
- polyethylene, detachment replica 1=20407
- quartz, defect structures on polished surfaces 4=17837
- quartz, etched and ground 1=20659
- quartz, as freq. standard, energy loss reduction 1=15172
- quartz powders, disturbed surface layers 3=16128
- quartz, prism faces, micro-disk patterns 4=30878
- radiation focusing, by random surface 0=8769
- radioactive solids, electron microscope study 1=20656
- replicas, stripping from metals, Victawet and Na metaphosphate as parting agents 1=7896
- rocksalt, effect of polishing (100) faces 0=8213
- rocksalt, healing of scratches 2=4484
- rough, analysis by Doppler-scattering 3=18374
- roughened spheres, back-scatter light photo 4=30874
- roughness, electrolytic meas. 2=10933
- roughness equilibrium on surface melting crystal 0=21214
- roughness, relationship with specular reflectance at normal incidence 1=4471
- scratches, self-healing, by diffusion and condensation 1=8158
- semiconductors, Group III-V cpds., {111} damaged layers rel. to cold-working 2=23764
- semireflecting, prep. by evaporation, assessment of reflectivity 4=2813
- shadow-casting for electron microscopy 2=23943
- silvered glass, microstructure obs. by multiple reflection interferometry 4=10598
- soda-lime glass, lines, rel. to etching 3=18375
- specimen current image examination 3=23531
- steel, finishing techniques for high-speed mirrors 0=2235
- steel, low-C, during small deformation, effect on X-ray diffraction line intensity 4=17744
- steel, rolling resistance 0=8131-2
- steel, white layers 4=13653
- rel. to surface diffusion of chemisorbed gases 1=2545
- theory using orientation density 0=8146
- topography, interference microscopy meas. 3=14324
- topography obs. by frustrated total internal refl. and interference 4=30876
- vitreous silica, crazing, by He or proton irradi. 4=15507
- water 3=21307
- water, molec. orientation 2=5001
- X-ray diffraction topography of single crystals 4=7659
- X-ray exam. of electrodeposits, diffr. pattern elimination 4=29154
- Ag crystals, effect of annealing, Ar-ion bombard. 3=20435
- Ag, polishing, chemical using Cr₂O₃ in HCl 4=20797
- Ag rel. to stacking faults 1=10279
- Ag, temp. dependence of rolling textures 1=7873
- Ag₂Te evap. films 3=833
- Al, effect on retention of vacancies 1=3660

Surface texture—contd

- Al, evaporated films, specific area 2=15090
 Al, fatigue cracks, slip lines 2=19015
 Al, patterns rel. to cyclic stresses 2=10785
 Al, rel. to stress/strain discontinuities 4=23118
 Al, roughness, meas. by adsorption of I^{131} 3=13556
 Al sheet, cold- and warm-rolled 4=13638
 Al-6% Ag alloy, effect on retention of vacancies 1=3660
 Al_2O_3 anodic layers grown on (100) Al face 4=23565
 Al_2O_3 films, on Al 4=15815
 Al_2O_3 , neutron-irrad., heterogeneity, effects on Kr adsorption 1=20660
 Au, electrolytic polishing and thinning 4=29185
 Au, roughness, meas. by adsorption of I^{131} 3=13556
 Ba, getter film, struct. 2=839-40
 Be, condensed on Mo sheets 1=12593
 BeO, hot pressed, pressure-dependent basal plane texture 3=25648
 Cd single crystals, shaping and polishing 4=30812
 CdS crystals, effect of mech. treatment on absorption spectrum 2=6571
 CdS, electron micr. study 3=8924
 Ce, rolling texture rel. to stacking-fault energy 4=13656
 Co, electrodeposited 4=23346
 Co-CW alloy, abrasion, surface fracture 3=5075
 Cu, acid saw and acid polisher 1=9107
 Cu, effect on contact area under press. 2=14914
 Cu and electrographite, changed during friction 3=6807
 Cu, ion bombarded 4=13671
 Cu sheet, warm-rolled 4=13638
 Cu, stretches, self-healing, temp. depend. 1=9159
 Fe, cold-rolled, primary recryst. texture 3=18353
 Fe whiskers, growth pyramid form. 4=29064
 Fe, white layers 4=13653
 Fe-Ni alloys, corrosion layers 3=20913
 Fe-3% Si, complex recrystallization texture 0=18291
 Ga, strain-free, construction method 3=25772
 Ga(As_{1-x}P_x) single crystal, spiral patterns in {100}, dislocn. in {111}, appl. to lasers 4=29051
 GaSb, (111) and (11 $\bar{1}$) struct. 2=23908
 Ge, clean (100) and (111) surfaces 3=13554
 Ge, electrolytic polishing, optimum conds. 0=21177
 Ge, electropolishing technique 3=23501
 Ge, for epitaxial substrates 3=6880
 Ge films 1=7886
 Ge films, roughness 3=25771
 Ge films, triangular patterns 3=20925
 Ge, study by ion and electron microscopy 4=29175
 Ge and Si, polarization in photoelectric emission, as perfection test 4=14748
 In-Pb alloys, corrosion layers 3=20913
 InSb surfaces cleaned by bombardment and annealing 1=1447
 KBr, melt grown ingots 3=23502
 LiF crystals, etching study 1=9131
 LiF, effect of scratching 0=10278
 LiF, fission fragment damage, surface structures 3=22863
 Mg evap. films, structure determination, ultra-high vacuum technique 0=14046
 MgAl₂O₄, electron microscope study 1=10286
 Mo, ion microscope study at 20°K 4=29178
 MoO₃ crystals, electron micrograph interpretation 0=3286
 NaCl single crystals, surface structure 1=10278
 NaCl, struct. 2=21579
 Ni, rel. to CO and CO₂ chemisorption 2=10980
 Ni, effect on ferromag. reson. line width 3=1172
 Ni, electrodeposited 4=23346
 Ni, electrodeposited, electron micr. study 2=17063
 Ni, effect on emissivity, thermal, and accommodation 4=2126
 Ni films, electroplated, brightness 0=4393
 Ni films, rel. to evaporation and annealing 4=10612-13
 Ni polycrystalline thin-drawn specimens 1=9089
 Ni-Cu mixture, sintering, effect of grain surfaces 4=10593
 Pb, friction, wear rate and polishing 2=23795
 PbS, oxidized films 2=4491
 PbTe, chemical polish 3=6881
 Pt-Al₂O₃ catalyst, 300° 1300°C 3=18367
 Pt-C films, by electron diffraction 3=1370
 Sb vacuum-deposited films 4=10609
 Si abraded surfaces, electron microscope study 3=3353
 Si, clean (100) and {111} surfaces 3=13554

Surface texture—contd

- Si cleaved crystals, electron microscope study 4=7676
 Si, electropolishing technique 3=23501
 Si, examination by C-replica method 4=26706
 Si, low-energy electron diffraction study 2=19106
 Si overgrowths, topography 4=23357
 Si, rel. to abrasion 3=18219
 3% Si-Fe, cold-rolled and annealed 1=1423-4
 Sn, crystallographic features 3=18341
 Sn, friction, wear rate and polishing 2=23795
 Th, rolling texture rel. to stacking-fault energy 4=13656
 Th-Ce alloys, rolling texture rel. to stacking-fault energy 4=13656
 U, UO₂, U alloys, new polishing reagent 2=4441
 UO₂, cleavage surface 1=20385
 W carbide, bonded, pick-up of Cu and duralumin 0=6322
 W, ion microscope study at 20°K 4=29178
 W microcrystals, up to 60 Å diam. 3=3296
 W, ordered surface, thermal rearrangement 3=18376
 W-Mo, 25, 50, 75 at. %, ion microscope study at 20°K, conc. effect 4=29178
 Zn, friction, wear rate, and polishing 2=23795
 Zn monocrystals, surface features 1=15173
 Zn, thermally evaporated cleavage surfaces 4=29179
 (ZnY) (Ba₂Zn₂Fe₁₂O₂₂) ferrite, polishing effects on line-width and high-power props. 4=7316

Suspensions

- See also Aerosols; Sedimentation; Sols
 algae in water, u.s. absorption 0=8750
 attapulgite in water, theory of flow props. 3=11362
 attenuation of sound in suspensions, effect of heat losses 0=19294
 axial migration of spheres in Poiseuille flow 1=15791
 barytes, rheological props. 0=8596
 brine shrimp in water, u.s. attenuation 1=9449
 clay, rheological consts. and flow schemes 4=15854
 clay, yield stress 0=16391
 coagulation in acoustic field 2=7302, 1238
 collodion-water, with air bubbles, u.s. absorpt. 3=14262
 colloidal, lamellar, ion exchange on 3=11364
 concentration meas., optical 4=13746
 diffusion and viscous flow, thermodynamics 3=8984
 disperse systems, ionization equilibrium 3=21696
 drop production for electron microscopy and assay 4=30909
 drop production of suspensions 4=30909
 electrospheric mobilities and surface-charge densities of particles 0=19605
 elutriator for ferrimag. mineral sands 0=10326
 ferromag. particles, characteristics in mag. field 0=21047
 fibrous and coarse, torsional pendulum viscometer 1=107
 flocculated kaolin, plastic flow 2=19521
 flow, capillary, axial migration mechanisms for suspended particles 4=5139
 flow, effect of presence of large sphere 4=5128
 flow, momentum, mechanical-energy balance eqns. 3=101
 fluid spheres in liq. under shear, coalescence 2=12984
 fluidized beds, multistage, particle residence times 3=16585
 fluidized beds, structure det. 3=16586
 gas bubbles in liquid in acoustic field, coagulation 0=4738
 gas-solid, particle potential 4=27470
 in gas, thermal forces, for high Knudsen numbers 1=1767
 glass beads, in electrolytes 0=3330
 graphite, elec. noise spectrum shear rate, conc., particle size effect, time dependence 4=26765
 graphite in N₂ in 1/4 in. tube, flow, heat transfer 4=27219
 kaolinite-water systems, stability to anion adsorption 2=12983
 laminar, orientation in Stokes' flow 3=9429
 light absorpt. and scatt. interaction, large coloured particles 3=9621
 light extinction by spherical particles 4=5397
 light reflections, Bragg, and crystallization 3=13622-3
 light scattering, haloes theory 3=21567
 liquid, heat transfer, critical eqn. 3=19039
 London-Var der Waals consts., det. 2=21596
 macromolecules in flow liquid, dumbell model 4=29235

Suspensions—contd

magnetic susceptibility meas. using modified Gouy method 4=28756
 magnetite-air fluidized bed in mag. field 2=20116
 mastic, light dispersion 0=16900
 measurement, continuous, optical method 2=2454
 mixtures, velocity of sound at any concn. 2=7293
 monodisperse, light scatt. 2=15162
 montmorillonite clay, small-angle X-ray scatt. 2=19167
 montmorillonite clay, X-ray study 1=6579
 multiple light scattering, exper. data for polymers 1=244
 in opaque liquids, vel. of falling particles 0=3491
 paint layers, optical props. meas. 2=10992
 particle behaviour in shear and elec. fields 2=9254
 particle interaction energies from rheoturbidity 2=19168
 particle size by Coulter coincidence counters 1=20769
 particle size distrib. and average, calc., by numerical integration 4=10653
 particle size meas., by resistance, elec. 4=10655
 particle size from turbidity 0=16390
 photoelectric counter for small particles 0=18447
 pigment, scattering of light 1=11845
 plankton in water, u. s. absorption 4=4747
 polydisperse macromolecules, sedimentation 0=16393
 polydisperse systems, ultracentrifuge centre-piece 3=3420
 polydispersions, particle size distrib. det. 2=10991
 polymers, in liquid dielectric, nonuniform elec. field effects 0=10665
 polyvinyl acetate, light scatt., absorpt. 3=11941
 reflectance of semi-infinite suspension 1=4476
 rigid spheres, Poiseuille flow rel. to particle rotation 2=21887
 rubber latex, particle size distrib. 3=6931
 sand in water, motion 0=6752
 scattering and polarization, particle size and ang. depend. 4=15867
 sedimentation, effect of fluid dielectric const. and powder conc. 4=10654
 shear stress for particles with rigid dipole moment 2=15164

Suspensions—contd

shock wave, prep. for electron microscope 2=21597
 silica, vitreous, water, sedimentation, mobilities 0=4744
 slurries, conc. det. by density meas. 2=4566
 slurries, density meas. 2=2668
 solid sphere, approach to rigid plane interface 2=4567
 sound attenuation and visco-inertial dispersion 0=6869
 spheres, polymethylmethacrylate, macroscopic, dilute, viscosity, non-Newtonian 3=18788
 spherical particles, viscosity meas. 0=4987
 spheroids, diel. constant 1=18744
 submicroscopic particles, precision counting 0=8331
 suspensoids, differential eqns. of behaviour 2=4565
 thermal-precipitator for air sampling 0=10362
 transport turbulence, in non-Newtonian suspension of metal oxides 4=15855
 turbulent eddy diffusion 2=15166
 Van der Waals attraction betw. uncharged particles 0=12113
 viscosity, aggreg. and liq. penetration effects 3=11360
 viscosity formula 0=14578
 viscosity of suspensions of spheres 0=6730
 viscous flow 2=11331
 viscous suspension, rheopectic flow 1=20340
 X-ray scatt., small-angle, rel. to size distrib. 3=18402
 Ag halide, particle size change with time. 3=25839
 AgBr, monodisperse, turbidity 2=17103
 Al flakes, orientation in electric field 0=10360
 Be, in alcohol, loading of emulsions 2=22373
 Fe₃O₄, in gel, ferrimag. props. 2=10994
 MgO smoke, grain size by X-ray-graphic methods 4=30911
 UO₂, aqueous slurries, study 1=4107
 UO₂-NaK, cold strap stabilization 0=14143
 ZnS:Cu:Mn, electroluminescence and electrical conductivity 1=10123

Symbols

See Nomenclature and symbols

Synchrotrons

See Particle accelerators, orbital

Tables, mathematical

Bessel, functions, modified, second kind 0=6541
 Coulomb wave-functions, irregular 0=6685
 crystal electric field angular momentum rotation matrix elements 4=12565
 films, supercond., prod. by protected sputtering 2=17720
 Fermi-Dirac functions 4=2597
 geometrical transformations, recursive function appl. 4=21010
 Green's functions for monatomic simple cubic lattices 1=2368
 Hermitian polynomials 0=14369
 integrals, for fundamental particle interactions 0=325
 integrals, two-centred 1=7451
 kinetic props. energized mols. 2=6234
 Legendre functions 1=4170
 matrix elements for operators $O_3^{\pm 1}$, $O_4^{\pm 2}$, $O_6^{\pm 1}$, $O_6^{\pm 5}$ 3=18691
 Mie scatt. functions for spheres 2=22061
 molecules, internal rotation matrix elements 1=19622
 nuclear resonance theory, $\psi(x,t)$, $\phi(x,t)$, $\Psi_n(t)$ 0=13216
 solid angles subtended by circular disks 0=3396
 spin-Hamiltonian eigenvalues 1=18281
 Weber parabolic cylinder functions 1=5
 Whittaker functions 3=13995

Tables, physical

See Collections of physical data.

Tachometers

See Angular velocity measurement

Tantalum

absorption, acoustic, peaks at var. temps., and dislocation relax. 4=15417
 adsorbed CO, dissociation, O_2 field emission patterns 4=26726-7
 anodic film, structure 3=23507
 anodization, radio tracer study by Cl^{36} and S^{35} 3=25830
 band structure from X-ray spectra 3=4979
 bombarded with Na^+ , K^+ , Rb^+ , Cs^+ , backscatter rel. to temp. 4=8854
 bremsstrahlung-isochromats, X-ray spectrum short-wave limit structure 1=6216
 brittleness, due to H, influence of absorbed N and rate of deformation 3=6804
 carbon-Ta system, field emission 3=14622
 charging of Al_2O_3 and NaCl by rubbing with Ta wire 3=2966
 cold worked, dislocation relaxation spectrum 1=7821
 conductivity, thermal and elec., 0° -1000°C 4=25869
 crystal structure and lattice parameters, temp. var. and heat treatment effects 4=23489
 crystal structure, to 2700°C 2=23847
 crystallization in Ge, distrib. coeff. 2=2356, 6770
 de Haas-van Alphen effect 1=17931
 deuterium ion introd. into metal 2=13606
 deuteron irradiation, D build-up, neutron yield 0=17979
 diffusion of Nb, obs. by submicron sectioning technique 4=12804
 doping of AlSb, high resistivity effect 3=13068
 elastic constants, for single crystals, 27°C 1=3954
 elastic consts., 4.2°-300°K 3=13325
 elastic moduli 4=28977
 elastic moduli, normal to supercond. transition 2=7508
 electrolytic capacitors, cell and thermoelec. voltage 2=11598
 electron emission due to Ar^+ bombardment 3=9843
 electron emission, secondary, energy distrib., on electron bombardment at 100-1000 eV 3=12240
 electron emission, secondary, with thermal emission current 3=24343
 use for electron-microscopic shadowing 2=15119
 electron secondary emission, by He^+ bombardment 3=21862
 emissivity, 0.65 μ , three types of surface 3=16285
 emissivity, spectral and total, and thermal cond. above 2300°K 0=14876
 energy band structure by isochromat meas. 3=15468
 equations of state, at high pressures 0=11549
 etching effects, dislocations 0=13969
 field emission cathode, use in microtron 4=8801
 films, anodic, dielectric characteristics 1=7685
 films, microstructure and electrical props. 4=20812
 films, props. rel. to deposition process 4=20811
 films, structure and elec. props., effect of O, N and methane 4=13685
 films, superconducting, size effects 4=14538

Tantalum-contd

films, superconductivity 0=2291
 films, tritiated water occlusion and absorption 4=7730
 films, vacuum deposition, using spring-loaded conductors 3=9524
 films, vapour-deposited, superconductive, use as getter 4=11481
 films, work function 2=9612
 hardness, effect of electrolytic H 3=3245
 heat capacity, at 1000-3000°K 2=2925
 internal friction, dislocation relax. 2=21412
 internal friction, high-temp. damping 0=3145
 internal friction, rel. to interstitial-dislocation interaction 3=23292
 internal friction peak, low-temp., amplitude-dependence 3=18167
 ion bombardment at oblique incidence, etch effects 1=4672
 ions, repulsion of energy levels 1=12237
 ions, spectrum of Ta II 2=14207
 ions, Ta^{181} , in H_2SO_4 soln., attenuation of ang. correl. of γ - γ cascade 2=20557
 isotopes 173-175, discovery 0=9605
 liquid, surface tension meas. 4=2643
 magnetoresistance, in high-field limit 2=3992
 mechanical props., effect of previous plastic deform. 2=23743
 monocrystal tip examination by field emission microscope 1=20662
 n.m.r. of Ta^{181} in tantalum metal 1=7802
 oxidation, 500-700°C 2=10970
 paramagnetic props. in normal and supercond. states 1=10640
 photoelectric yield for soft X-rays 2=208
 photo-emission, elec. field depend. 0=1148
 plastic deform., dislocation var., effects of temp., struct. 4=28985
 plastic flow transition temperature 3=11163
 plastically deformed, stresses, temp. depend. 4=17734
 point defects, recovery meas. 2=23151
 positive ion emission, secondary 4=11719
 reaction diffusion of Si 2=23205
 reflection, light, far u.v. 4=22877
 resistivity rel. to plastic deform 3=13037
 resolidified drops, voids 1=20631
 secondary electron emission, 1 MeV proton bombardment 3=24344
 secondary emission, during incandescence, under K ion bombard. 0=15059
 secondary emission, He, H and A ion bombard. 0=12632
 secondary emission, under ion bombardment 0=19806
 secondary emission, positive ion bombard. 0=9078
 secondary ion emission 4=8844
 single crystals, prep. for critical field meas. 0=8955
 sound velocity, effect of high mag. field 3=8356
 specific heat near supercond. critical temp. 2=19818
 specific heat, 1200°-2400°K 3=10596
 specific heats and frequency of lattice vibrations, theory 4=25843
 sputtering, under Cs ion bombard., cathode sputtering ratio 4=24753
 sputtering by 45 keV ions, collection formula 2=3096
 sputtering ratios for A^+ bombard. 0=9110
 sputtering and scattering on bomb. with Cs^+ 0=9107
 stacking faults, X-ray diffraction study 1=17547
 supercond. wires, quantum interference effects 4=24499
 superconducting, absorption, u.s., long., 45-340 Mc/s, and $2\epsilon_0$ 4=16355
 superconducting critical field 1=11879
 superconducting critical temp., effect of imperfections 1=16200
 superconducting rel. to defects 2=9489
 superconducting energy gap, by electron tunnelling 3=333
 superconducting, energy gap meas. 2=11569
 superconducting, energy gap meas. 4=14531
 superconducting energy gap, tunnelling meas. 4=16374
 superconducting energy gap, ultrasonic meas. 4=2922
 superconducting, far-i.r. absorption 0=14933
 superconducting films, critical fields transition temps., meas. deposition method effect 4=29838
 superconducting films, energy gaps 4=14530
 superconducting films, getter sputtering for prep. 4=14231
 superconducting, mag. field penetration depth 4=27437
 superconducting, pair correlations 4=413

Tantalum—contd

- superconducting, pressure and volume effects, crit. mag. field, Fermi surface 1=258
 superconducting Ta-Nb mixed crystals, trapped magnetic flux in 0=7027
 superconducting transition, induced by mag. field 0=2292
 superconducting, transition, liquid He level indicator 2=7487
 superconducting transition, purified specimens 0=16952
 superconducting transition, stress effects 2=7518
 superconducting transitions, stress effects 1=11885
 superconducting, transverse u. s. atten. for $q/\lambda < 1$ 4=6729
 superconductivity, critical field curves 0=16951
 superconductivity, films, var. substrate temp., annealing 4=18603
 superconductivity, intermediate state 0=10848
 superconductivity transition temp. in high-purity metal 1=7000
 superconductivity type change with temp., and purity 4=18604
 surface coated with Cs, Sr, Ba, Th, work function variation 2=1474
 tensile strength, 0°-2300°C 1=20378
 tensile yield stress, effect of strain-rate 3=1237
 thermal cond. normal and supercond. states 0=10843
 thermal cond., 0.2-1.2°K 2=8183
 thermal cond., normal, supercond. states 2=6292
 thermal diffusivity meas., 1300°-1650°C 4=6754
 thermal expansion, linear coeff. 2=23847
 thermal expansion, low temps. 2=7439
 thermal expansion at low temps., expt. 4=17369
 thermal expansion, 1.5-12°K, electronic and lattice contri., and Grüneisen parameters 4=17370
 thermal props., 1000°K to melting pt. 1=17416
 thermionic emission in Cs and Rb vapour 2=207
 thermionic emission, in Cs vapour, low coverage, discontinuity 3=14624-5
 thin foils domain patterns due to interstitial impurities 4=22567
 twinning, after impact deformation 0=18294
 vacuum-arc evaporation 1=6688
 welding 3=18685
 work function of electron emission during deformation 4=8796
 work function, photoelectric meas. 4=8794
 work function of (110) face of Ta in Cs vapour 4=11686
 X-ray diffr. from layer faults 2=23840
 X-ray L spectrum, emission 2=6588
 yield and flow stress meas., 4.2-373°K, and thermally activated flow mechanism 4=28970-1
 Young's modulus data, rel. to temp. 4=30788
 CO adsorbed, field emission 3=14623
 in Ge, diffusion and solubility, temp. and elec. cond. depend. 0=1599
 Ta-anodic oxide film-metal counter-electrode, dielec. props. 3=17930
 Ta atomic hyperfine struct. quadrupole coupling 2=16484
 Ta⁷⁷, X-ray spectra, L emission, quadrupole and forbidden lines 3=12766
 Ta/Rh-W thermocouple, up to 2800°C 0=7006

Tantalum compounds

- anodic oxide films, structure 3=3355
 anodic oxide films, p-i-n junction 0=15962
 borides and carbides, thermoelec. power with Cu 1=12465
 crystal structure comparison with corr. perovskite type cpds. 4=4619
 oxide anodic, films, as capacitors, review 4=2934
 oxide diodes, electrical properties 4=20395
 oxide films, anodic, dielec. props., effect of heat treatment 4=10099-100
 tantalates, of Mn, Co or Ni, solid solns. based on BaTiO₃ 0=7979
 (Fe,Mn)(Nb,Ta)₂O₆, crystal structure 1=11571
 M²⁺ tantalates, photoluminescence, self-activated 4=26244
 Ta arsenides and monophosphides, crystal structure, 4=4517
 Ta borides, carbides and nitrides, elec. props. 1=3707
 Ta carbide, mechanical, structural, electrical and magnetic props. rel. to C content 4=13448
 Ta oxide anodic films, absorption spectra 2=698
 Ta oxide films, anomalous capacitance 1=11335

Tantalum compounds—contd

- Ta oxide thin films, optical consts. and thickness meas. 2=21864
 TaB, crystal structure, rel. to similar types 3=18338
 Ta₂B_{1-x} (B = Re, Ru, Os, Rh, Ir, Pd, Pt) superconductivity and paramag. susceptibility 2=2961
 TaB₂, quadrupole bond, n.m.r. meas. and calc. 3=11121
 TaB₂, thermoelectron emission 3=7631
 Ta-C, electrical resistivity, rel. to composition 3=25368
 TaC films, critical fields, transition temps. meas. deposition method effect 4=29838
 TaC, heat content, 1296°-2843°K meas. 4=1397
 TaC, lattice parameter rel. to C content 2=2388
 TaC, prep. and props. 2=2448
 TaC, pure and with 1% Co, supercond. 2=11568
 TaC, supercond. transition, rel. to composition 2=2962
 Ta-C system, phase constituents rel. to composn. 4=13463
 TaC, thermal decomposition 0=10349
 TaC, thermionic emission, 1300°-1900°K 3=16974
 TaC, W diffusion 3=25295
 TaC, work function meas. 2=22160
 Ta₂C, supercond. invest. down to 1.98°K 3=7406
 TaC-NbC, supercond. crit. temp. composition var. 4=21427
 TaC-UC, thermionic emission 2=22249
 TaCl₅, mol. potential consts., calc. 4=9724
 TaCl₅, potential field and force constants 0=1501
 Ta₂Cl₁₀⁴⁺, bonding 3=8281
 Ta₂D, neutron diffr. data 2=4421
 Ta₂H, bonding, slow neutron scatt. study 2=547
 Ta₂H, heat capacity and residual entropy 2=2054
 Ta-H system, internal friction 3=18168
 Ta-H system, thermodynamics 2=19026
 Ta-Ir system, phase diagram 4=13502
 Ta₂M₄O₉ (M = Mg, Mn, Fe, Co or Ni), crystal and magnetic structure 1=2535
 Ta-N dilute solid soln., phase instability 2=2413
 TaN films, critical fields, transition temps., meas. deposition method effect 4=29838
 Ta-Nb crystal, superconducting, time effects 4=16375
 Ta-Nb mixed single crystals, thermal cond. normal and supercond. rel. to comp. 4=15438
 Ta-(55 at.%)Nb, superconductor, second kind 3=19122
 Ta⁴⁵-Nb⁵⁵, supercond. crit. current, long. mag. field effects 4=18605
 Ta-Ni, structure of W₂Fe₇ type 3=16093
 Ta-Ni supercond. wire, critical currents and magnetizations 4=21428
 Ta-O alloy, dilute, strain aging, dual process 4=7460
 Ta-O, anelastic piezoresistance, stress-induced ordering 4=12847
 Ta-O system, high-temp. study 0=12095
 Ta₂O₅, absorption spectrum and photocond. 1=12498
 Ta₂O₅, α and β forms, dielec. const. and dissipation factor, 77° to 373°K, 100 c/s to 100 kc/s 4=12964
 Ta₂O₅, anodic films, optical consts. meas. 4=22896
 Ta₂O₅, anodic films, photo-induced growth 0=10337
 Ta₂O₅, conductivity, elec., induced by γ-rays and neutrons, time var. 4=20402
 Ta₂O₅, crystalline film, structure 1=20674
 Ta₂O₅ film formation, effect of Frenkel defects 1=20675
 10 Ta₂O₅·90 M₂O₅ (M = Nb, Ta), tetragonal phase 4=26666
 Ta₂O₅, p-i-p junctions, rectification and e.m.f. 3=10849
 Ta₂O₅, Schumann u.v. absorption spectrum 1=17893
 Ta₂O₅, in Ta-Ta₂O₅-Au diodes, electron transport mechanisms 3=6611
 Ta₂O₅, use in tunnel-emission devices 1=8962
 Ta-Pd alloys, intermediate phases and solid solns. 4=7513
 Ta-Re alloy, paramag. susceptibility 2=4209
 Ta-Re, paramag. susceptibility, rel. to temp. 3=999
 Ta-Rh, constitution diagram 4=15744
 Ta-Rh [Ir, Pd, Pt], intermediate phases, structure 4=23280
 Ta-Sn-Nb₃Sn, superconductivity 1=6999
 Ta-Ta₂O₅ electrode, irradiated 2=3969
 Ta-Ta₂O₅-Al thin film cathodes, cold emission 4=11690
 Ta-Ti superconducting critical current, var. with mag. field and composition 4=11484
 Ta-Ti wires, supercond., critical currents 3=14454
 Ta-W alloy, paramag. susceptibility 2=4209
 Ta-W, paramag. susceptibility rel. to temp. 3=999
 Ta-Zr system, investigation 0=6384
 Ta_{0.8}Zr_{0.2}C, thermionic emission, 1300°-1900°K 3=16974

Teaching

AAPT -- AIP Regional Counselor Program (USA) 3=6
 AAPT annual citations 4=18008
 acceleration carts and track 1=5247
 acceleration of gravity apparatus 3=11658
 acoustic waves, teaching apparatus 2=11449
 acoustics, methods of attracting physics students 3=9319
 Advanced Placement Programme, in U.S.A. 0=4918
 air suspension apparatus for measuring resolution of forces 0=4965
 alternating current experiments 0=2294
 American Association of Physics Teachers, Oersted medalist's speech 4=18007
 analogue display of orbits 2=19373
 angular motion, large-scale demonstration 2=13292
 anisotropic defects in solids, stress effects 3=22695
 anthropological angle 3=23724
 apparatus for hexamethylenetetramine crystal growth 3=23400
 apparatus for three lecture demonstrations 3=3703
 architecture students, physics course 0=4920
 astronautics 3=11660
 atomic constants, laboratory experiment for measuring 0=860
 atomic electron-nucleus interaction, simple deviation 2=22889
 atoms and radiative processes, quantum-mech description 3=12747
 beginners physics, use of digital computer 4=16001
 β -spectrometer demonstration 0=1161
 for biologists, advanced physics courses 1=15589
 biophysics in medical curriculum 1=4139
 Bohr's atomic model, method of presentation 2=6082
 Bragg's law, optical demonstration 1=9484
 calculus, changes in undergraduate courses 3=5315
 calculus-physics course 0=26
 calculus, recent developments 2=13235
 Carnot cycles, diagram for 3=21639
 centripetal force apparatus 0=6725
 centripetal force apparatus 3=11655
 centripetal force, conical pendulum 2=7156
 centripetal force, student experiment 2=13289
 chain reactions, analogy with vibrating systems 3=4680
 circuitry and nonlinear elements 0=1094
 circuits for meas. of mag. fields, inductance and capacitance 2=13519
 citations for distinguished service 1=10403
 cognitive development and readiness for high school physics 2=2
 collision expts. in shadow projection 1=12835
 coma demonstration expt. 2=90
 commission of College Physics, progress report 4=18002
 Commission on College Physics, review conference 3=5314
 commission on College physics (USA), progress report 3=3
 Compton effect, simple demonstration expt. 4=11955
 conference on physical science courses 4=18001
 conference on physical science courses for non-science students, talk 4=18006
 conference on Physics education 1=4228
 conservation of momentum, demonstration expt. 2=13293
 cosmic-ray physics, coincidence telescope 0=11263
 covalently bonded atoms, forces between them, explanation for 6th form students 4=17276
 creative thinking and experimenting 0=6639
 cryophysics, textbook 0=14912
 current practices in general labs, in U.S.A. 1=1671
 curricula for undergraduates, conference 2=7096
 curve fitting by analogue computer 2=4916
 cyclotron, Iowa State Univ. exptl. programme 2=11741
 cyclotron, Iowa State Univ. 1.5 MeV, undergrad. 2=11740
 demonstration characteristics tracer for valves and transistors 1=5405
 demonstration lectures, conference 0=14483
 deuteron binding energy determination, student method 1=13523
 dielectric materials, basic aspects 4=12952
 dielectric and metal films, optical properties, demonstration 0=16868
 diffusing atom jump freqn., dynamical theory 4=4069

Teaching--contd

dispersion relations, introductory treatment 4=30175
 "dynamation", defin. and proposal of word 3=3775
 dynamic hard-sphere model 0=8690
 dynamics of impact ball apparatus 0=19031
 dynamics and kinematics, vertical circle apparatus 2=11310
 e/m for electron, determination, apparatus 1=10877
 e/m. for electrons, apparatus 1=484
 e.m. field of ferromagnetic transformer 0=17069
 educ. of 19th century scientist 0=856
 education, international conference(1960) 1=4228
 education of physicists in Austria and Israel 1=4229
 education of physicists in Sweden 1=4230
 electric displacement current, interpretation for students 4=3098
 electric field of charge moving in medium 3=21938
 electrical dust figure projection 2=9676
 electricity and magnetism, first-year 3=12038
 electrification of conductors 0=234
 electromagnet accessories for student experiments 2=13652
 electromagnetic induction 3=14737
 electromagnet for student's lab., construction 1=3038
 electromagnetic waves 0=17093
 electromagnetism for schools, MKSA units 2=20105
 electron diffraction, lecture demonstration 3=4201
 electron velocity distrib. in thermionic emission 4=11695
 electronic counting circuits, with electronic display 1=5406
 electrostatic and Fermi potentials, with applications 3=341
 electrostatic field bet. parallel plates, meas. 3=14502
 electrostatics, problems 0=19589
 element of discovery in lab. work 4=27008
 elementary school science 2=1038
 emission spectroscopy, as undergraduate subject 4=29751
 engineering curricula, revision 0=857
 errors in measurement, theory 4=2518
 exponential decay, by water column half-life 0=18897
 Fabry-Perot interferometer and its use 3=260
 Faraday's and Ampere's laws, rel. to Maxwell's eqns. 3=14738
 Feynman graphs method, introduction 4=11867
 films for demonstration expts. 2=17335
 films for physics students, list of 450 1=5184
 foreign lecture programme, Temple University (1960) 1=4227
 Foucault pendulum, suspension construction 1=12836
 in France, Argentina and England 0=3430
 friction, Resource Letter F-1 4=7397
 fundamental particles, intrinsic mag. moment 1=12045
 γ -ray attenuation, student expt. 1=5704
 general physics course, time distribution 1=5183
 graduate examinations 0=22
 graduate training of eminent physicists, top institutions 3=21190
 gyroscope, demonstration 3=11741
 gyroscope, elementary analysis 1=1719
 gyroscopic precession 4=27007
 Hall effect magnet 1=351
 high school physics courses, evaluations 0=24
 high-vacuum kits for students 0=19241
 history of physics 4=27005
 homopolar motor, construction and theory 1=13158
 hydrodynamic flow demonstration 0=917
 importance of correct questions 0=28
 independent study course with computer 3=11657
 institutions not granting Ph.D. (USA) 3=5
 instruction films, prod. at university 2=13233
 interference, from 2 slits, film and protractor model 0=174
 interrelationship of physical quantities 0=4924, 18899
 introductory laboratory experiments in physics 1=12792
 introductory laboratory practice 2=7105
 introductory physics lab, error analysis 1=1670
 ionization chamber for demonstration 0=1229
 ionization chamber for student use 2=243
 Kepler's third law, without calculus 3=13850
 Kepler's third law without calculus 4=29570
 kinetic energy demonstration 1=15766
 kinetic theory demonstration apparatus 0=16730
 kinetic theory of gases 3=14207
 Kundt's tube, new expts. 2=13414

Teaching—contd

LCR circuits 0=7049
 laboratory examinations, nonsecret 0=4922
 laboratory work, performance study at Montana State College, (1959) 1=15590
 Laplace operator, physical meaning 3=21192
 Laplace operator theorems proof 4=16010
 lasers, injection and optically pumped, power and energy output 4=11818
 launching tube for projectile motion expts 3=3777
 laws of classical motion 1=12833
 lecture demonstrations 0=4921
 lecture demonstrations 1=2673
 liberal arts colleges' production of doctoral candidates 2=17334
 liquids, magnetic susceptibilities, Quincke method 3=17016
 Lorentz transformation, deriv. in one dim. 4=5028
 Lorentz transformation in undergraduate curriculum 3=14004
 magnetic field measurement, low, by e.s.r. 3=5807
 magnetohydrodynamics, review lecture 4=30035
 masers and optical pumping, resource letter 4=27010
 mass spectrometer, simple type 0=5362
 mathematics, remedial programs for weaker students 4=18004
 matrix rotation derivation 4=2522
 Maxwell top, with air bearing 2=13291
 Maxwell's displacement current, symmetry arguments 4=656
 Maxwell's eqns., text-book derivations 3=471
 measurement of Fermi energy by positron annihilation 3=25263
 mechanical equivalent of heat apparatus 1=1852
 Mercury reservoir, demonstration of gas props. 3=151
 microscope, Abbe's theory, demonstration apparatus apparatus 2=9374
 modern physics, laboratory course 0=17129
 moiré patterns, demonstration 2=9404
 momentum experiments, air-suspended pucks 0=16656
 momentum expt., impact of trolleys 1=12834
 Mössbauer effect, resource letter 3=6143
 motional electric fields, demonstration 0=17067
 Mott scattering, classical approach 1=15698
 n.m.r. absorption apparatus 1=10794
 National Science Foundation, institutes 0=4919
 nature study in physics teaching 1=12790
 neutrons diffusion length in water, student meas. 2=22530
 Newtonian mechanics 1=11717
 nonlinear ruler 2=13298
 nuclear engineering 2=5993
 nuclear fission, with coloured lights analogue 1=3470
 nuclear laboratory 2=1616
 nuclear physics, ratemeter and valve voltmeter 0=17174
 nuclear reaction experiments 2=14129
 nuclear reactor, at Iowa State College 0=13346
 nuclear reactors, subcritical, as college facility 0=5814
 Oersted Medal (1962), presentation to F. W. Sears 2=13230
 Oersted medalist, 1962 3=21182-3
 "open-ended" expts. for physics majors 3=23725
 optical Doppler effect, lab. demonstration 2=19670
 optical image formation, Abbe theory 3=24009
 optical phenomena, photographic demonstration 3=257
 optical physics research in a small college 4=5351
 optical pumping apparatus 0=17693
 optical scientists training, and scientific manpower problem 4=14323
 optics, at École Supérieure d'Optique 1=1803
 orbital stability, demonstration 2=17389
 p-n junction detector, use 3=4298
 Pakistan summer institute 1=12789
 particle track visualization, dust-track model, with Pb and alnico slugs 0=5458
 permanent magnet field, meas. 1=13147
 Ph.D. physicists, baccalaureate origins 0=25
 Ph.D. physicists, undergraduate training 0=23
 philosophy of physics 0=6638
 philosophy of science, cooperative teaching in small colleges 1=2675
 photoelectric effect experiment for undergraduates 1=17788
 photon and electron high-energy physics, review lecture 3=14932

Teaching—contd

physics building for Univ. of California 3=13993
 physics course for students in humanities 3=4
 physics curriculum for schools, 3=11652
 physics education conference, Paris (1960) 1=5181
 physics instructional films, list 2=11238
 physics, lecture demonstrations 1=2673
 physics in a toy boat 3=9638
 physics, U.S. distinguished service citations 2=11239
 Pierre S. du Pont Building, Swarthmore College 1=15587
 plasma physics, bibliography for 2=9562
 plasma physics, outline of a course 4=11006
 Pohl, 1959 Oersted medalist 0=14482
 Poland, physics education 1=15588
 polymers, mech. props. rel. to structure 4=13698
 potential fields, demonstration expt. 0=1090
 power supply and amplifier for student lab. 3=346
 precession 0=4974-5
 prediction of success for high-ability physics students 4=11004
 pre-school physics 1=12788
 problems of four-year colleges 1=12791
 projectile eqns. in convenient form 1=11731
 projectiles, components of motion 3=14083
 proton e/m, student determination using omegatron apparatus 1=3187
 punched cards for personal ref. files 0=18896
 quantum-mechanical scatt. theory 3=3755
 quantum mechanics, intermediate textbook 4=16031
 quantum and statistical aspects of light, resource letter 3=11877
 quantum theory, Bohr orbital conditions rel. to Planck osc. levels 4=27056
 radiation, Pt wedge blackboard 2=5212
 radioactivity expt. using activities filtered from air 2=3493
 relativity and parallel wires 2=1560
 relativity, special, length contraction and time dilation 1=11699
 research programmes in U.S. non-Ph.D. granting institutions 1=2676
 research in U.S. undergraduate colleges and its sponsorship 1=2674
 ripple tank 2=2688
 ripple tank for wave phenomena demonstration 1=4231
 rubber membrane model, for demonstrations 0=16561
 satellite orbit dynamics, guide to literature 3=11610
 scattering of particles, Levinson's theorem 4=30183
 schlieren system 1=12998
 school auditorium, acoustics 3=14299
 school classrooms, acoustic problems 3=14298
 school music departments, acoustics 3=14300
 school sound installations 3=13994
 schools, acoustic problems 3=14296
 schools, acoustic problems, effect of changes 3=14297
 secondary school physics courses 0=6636
 semiconductor devices, lab. assembly and expts. 2=10498
 semiconductor physics, basic concepts 4=15526-7
 semiconductor, Resource Letter Scr-1 4=20340
 semiconductors, lab. meas. method 4=12878
 senior lab. course at Dartmouth college 2=17333
 simple harmonic motion, demonstration 2=13290
 spark chamber, for cosmic-ray demonstrations 3=22221
 special relativity 2=13250
 special relativity, bibliography and teaching aids 2=13251
 special relativity, force transformation laws 3=21217
 special relativity, geometrical introd. 3=34
 special relativity, problem 0=16573
 specific heat measurements, all-glass apparatus 1=2911
 specific heats ratio determination in gases 1=6987
 spectrum analysis, instruments for students 2=22038
 sphere collision demonstration 0=3475
 stroboscopic tachometer, uses 3=3905
 supercond. transition temps. of alloys and cpds. 1=11881
 superconductivity, Resource Letter Scy-1 4=11455
 superposition theorem, demonstration 2=17742
 surface tension 1=129
 teachers, college physics, study programs 4=18005
 teaching at nursery level 1=12788

Teaching—contd

- team approach to education 1=8034
- television courses 0=4916
- testing for physics achievement 0=4917
- Texas University building extension 1=54
- textbooks, British, on elec. and mag. 2=19821
- thermal diffusion in rod 3=11964
- thermal physics, student textbook 4=8084
- thermodynamic diagram 1=13028
- thermodynamics formulae derivation 0=16927
- thermoelectric generator for demonstration 1=7021
- through television 0=6637
- transition from student to research apprentice 3=23726
- 2-dimensional motion demonstration 3=9383
- Ukrainian higher educational institutions, physics research 3=18686
- uncertainty principle, new applications 2=9140
- undergraduate college research in U.S.A. and its sponsorship 1=2674
- undergraduate curricula for physics majors 3=11656
- undergraduate curricula for physics in sample of U.S.A. institutions 1=5182
- undergraduate curricula, Princeton conference 4=18003
- undergraduate recommended mathematics syllabus 2=19362
- undergraduate research projects 3=3702
- unit systems, graphical representation 1=10405
- vacuum techniques, diffusion-pumped system 1=2791
- vertical ballistic pendulum apparatus 3=23819
- virtual work, in soln. of problems 0=5006
- visiting foreign staff project, at Temple University 0=3429
- X-ray diffraction, light-optical analogues 1=7857
- X-ray diffraction, reciprocal lattice concept 3=5095
- X-ray goniometers, safe universal mounting system 1=20457
- X-ray physics, use of commercial spectrometer 1=1950
- X-ray spectroscopy 4=14845
- X-ray tube, lab. type, construction 1=10754
- X-Y projector plotter 2=13232
- Zacharias, Oersted metallist (1960) 1=8033
- H atom structure, Schrödinger eqn. solution 2=10195
- I^{128} , β -spectrum 2=1837

demonstrations

- (subheading introduced in 1963)
- air viscosity, sophomore-laboratory expt. 4=21161
- amplification, travelling wave, mechanical analogue 3=21191
- angular momentum conservation 3=5398
- beats, interference pattern 3=23985
- Berkeley Physics Laboratory 4=18009
- billiard-ball collisions 3=11654
- binding forces, demonstration model, using potential superposition 3=25036
- Brewster's angle determination apparatus 3=11942
- Brownian movement of galvanometer by optical lever 4=5369
- centre-of-mass, photographs 3=11739
- cohesion plates, correct description of principles 4=16002
- Compton effect 4=11956
- convection in free fall, correct description of principles 4=16002
- crystal structure, module building blocks 3=11653
- crystallography, molecular magnetic models 4=4513
- cubic crystal, spherical projection demonstration model 4=4566
- diffraction, Fresnel, using 3 cm e.m. waves 3=18687
- diffusion, H_2O , in air, meas. 3=21425
- Doppler effect, acoustic 4=8003
- e.m. oscillations, cavity resonance, geom. perturbation effects 4=19210
- elasticity, rubber 4=7367
- electrolytic conduction, large scale 4=29222
- electromagnetic fields, effects 3=5813
- electroscope, large, demonstration 3=12062
- exhibits in 1964 at Physical Society 4=21001
- ferromagnetic Curie temp., by e.m. induction 4=7225
- Fourier transform zeros, rectangular pulse 3=9320
- Fresnel diffraction 4=18420
- γ for various gases, temp. varn. 4=27217

Teaching—contd

demonstrations—contd

- Hall effect in metal films, lab. expts. 4=4112
- harmonic oscillations 4=8003
- harmonic oscillations, addition, simple demonstration 4=8283
- hollow spheres with conducting inner surfaces for e.s. experiments 4=21445
- ice, refractive index meas., from lens focal length 4=17567
- impact, with plastic croquet balls 3=95
- interference, two slit sources, using 3 cm e.m. waves 3=18687
- interferometric obs. of flat surfaces and Edser—Butler bands 4=27326
- interferometer, Fabry—Perot, Russian 4=8449
- kinetic theory of gases, thermal conductivity 4=5229
- laboratory techniques course, pass and Hons. degrees 4=14004
- lattice dynamics, use of linear air track 4=6698
- Lenz's law, electromagnetic levitator 4=5752
- light vel. meas. by μ_0 , ϵ_0 det. 3=5508
- liquids, dielec. meas., test cells 4=11490
- Lissajous figures 4=8003
- Lorentz transformation, illustration 3=23748
- magnetic resonance 4=19245
- magnetic resonance model 3=14736
- magnetism, inverse-square law 3=5803
- mass spectrometer, inexpensive laboratory construction 4=5723
- mechanics, motion of coupled systems, lab. exp. 4=11131
- Michelson and Jamin interferometers, suitability 3=19013
- moment-of-inertia apparatus, slow-motion 3=21282
- Mössbauer effect, demonstration apparatus 4=12576
- n.m.r. expts. on liquids and solids 3=25583
- neutron diffusion in polythene, meas. 4=3416
- nuclear chain reactions, mousetrap model 3=5316
- nuclear magnetic resonance, Co^{59} , by grid dip meter 3=6766
- nuclear reactor exponential column flux, radial mode separation 4=6446
- nuclear reactor, German 4=15252
- nuclear reactor, Scottish 4=15251
- optics, use of laser 4=18378
- particle mechanics, using simple spring gun 3=5399
- particle scattering expt. 4=2502
- particle \rightarrow wave approach transition 4=27006
- pendulum, physical, inexpensive construction 4=14006
- polarized light, refraction and reflection, experiments 3=19029
- ponderomotive forces, demonstration, using soap film 4=8598
- potential barriers, penetration 4=2503
- practical work, library of experiments 4=11005
- radiation pressure, by torsion pendulum resonance 4=5356
- radiotelescope, low-cost 4=23932
- relativistic electrons, speed and kinetic energy 4=21023
- relativity, Fitzgerald contraction model, stick drawn across elastic sheet 4=14036
- relativity, special, Fitzgerald contraction 4=5029
- scalar, mechanical binary 4=27009
- shock waves 3=9546
- significant figures, demonstration 4=14005
- soil, flow of water, Darcy's law 4=24002
- solder-glass techniques 4=18010, 23990
- Soviet lecture demonstrations, translation project 4=5003
- special relativity, vel. transformation, geometrical demonstration 3=23747
- thermodynamic partial derivatives, rubber-band expt. 4=2501
- time switch for corridor demonstration 3=7083
- ultrasonics, high-intensity, instruments 4=8318
- vacuum, practical course 4=18255
- vacuum technique, cheap construction methods 4=18256
- velocity, light, finite value 4=21470
- velocity meas., stroboscopic, bullet 3=21286
- viscosity, mean free path, air, meas. 3=21425
- wave effects, by microwaves 4=8004
- Young's modulus apparatus with hydraulic amplification 4=27011
- Ge conductivity expts., tension and illum. effects 4=4150
- K atoms in A, m.f.p. det. 3=6367

Technetium

- decay of Tc^{99m} , in Tc metal effect of compression, calc. 0=5718
 Knight shift and quadrupole interaction 2=6707
 melting point, determination 0=20725
 melting point, and periodicity for transition metals 3=7386
 in sun, possible formation 2=9071
 superconducting transition temperature 3=334
 Tc^{99} , n.m.r. and Knight shift 2=12836

Technetium compounds

- pertechnetates, $AgTcO_4$ and $NaTcO_4$, cryst. struct. 2=23854
 Tc hexafluoride, thermodynamic functions, mean vibration amplitudes 4=1280
 Tc , superconduct. transition temps. 1=11881
 $Tc-Al$ phase diagram 3=20882
 $TcAl_6$, unit cell meas. 3=5115
 $TcAl_{12}$, crystal structure 4=7627
 $Tc_2(CO)_{10}$ crystals, unit cell and space group 3=3299
 TcF_6 , mag. susceptibility 2=16889
 TcF_6 , vibr. spectra 2=14276
 TcO_4^- , aqueous, i. r. and Raman spectra 4=26213
 TcO_4^- , diffusion coeff., by conductivity, N/10 soln., 25°C 3=16609
 $Tc-V$, Tc^{99} and V^{51} n. m. r. 2=12836

Telescopes

- achromatic anamorphic, glass selection 4=21288
 adjustment to photodetector with lens combinations 4=16218
 alignment telescope 2=734
 anamorphic, achromatic design 4=8404
 anamorphic, four-lens, thin lens aberr. 3=7309
 anamorphic, four-lens, thin lens design 3=21529
 anamorphic, thin lens aberrations 2=7325
 anastigmatic, for exact meas. 2=9377
 angular magnification meas., interferometric method 2=13442
 binocular, parallelism tolerances 0=6921
 binoculars, contrast transfer function and other meas. 2=101
 binoculars, contrast transmission function meas. 1=6950
 Cassegrain, corrected, for use with vidicon tube 4=16220
 Cassegrain, new system, for Caracas observatory 1=17991
 contrast transfer function, meas. 1=1811
 correlation of loop prominences with sunspots 1=9277
 eye location for wide-field large-exit-pupil system 1=2849
 eyepiece with large field of view 1=18583
 eyepiece micrometer, screw value, temp. coeff. 2=24072
 Galilean, telephoto lens treatment 0=8778
 geodetic, effect of achromatism 3=14328
 image interpretation, enlarged retinal image, psychological approach 0=19383
 instrumental errors, in photographic zenith telescope 2=24071
 low light level, modification for high sensitivity 4=24341
 magnification, rigorous calc. 1=11832
 for mica optical angle meas. 1=10584
 Newtonian, cutting and polishing mirrors 0=165
 optical system for large telescopes 1=4445
 optical systems, moderate power, design 4=14342
 quartz-skeleton mirrors design 4=16219
 radio transit, steerable in azimuth 3=9260
 resolving power, rel. to 2 point sources of differing intensity 3=3873
 satellite telescope for soft X-ray astronomy 1=8
 setting-up on equatorial mounting 1=18584
 for vertical distance meas. 4=3
 wide-angle tracking device 0=19388

astronomical

- See also Radioastronomy
 astronomical, future design problems 1=15399
 balloon borne, Stratoscope II for planetary observation 3=16350
 Bergedorf Schmidt, as astrometric instrument 0=12241
 design, Schmidt camera, Baker type, and Cassegrain, glass 3=11487
 distortionless, aplanatic with concave primaries 4=13875
 double star meas., adaptation 2=13141
 for extragalactic surveys, design 3=7042-3
 for far i.r. spectral region observations 4=26893
 fork-mounted, flexure effects 2=21682
 use of Fresnel zone plate in far u.v. and X-ray region 1=4448

Telescopes—cont'd**astronomical—cont'd**

- γ -ray telescope, high energy 3=21146
 Hale 200 in., discrimination between world models 1=5127
 images of stars, detection limits rel. to image structure 4=10800
 Kitt Peak, auxiliary optical systems 3=9143
 large, limitations due to atmosph. turbulence 3=7012
 Lick 120 in. reflector, electronic camera 1=2591
 Maksutov-Cassegrain flat-field optical systems 1=4446
 Maksutov-type 4=2332
 mirror instrument at Caracas Observatory 2=13088
 mirror, parabolic, construction and examin. 2=9045
 mirrors, heat effects, and choice of material 4=13877
 objective, aplanatic 4=26892
 objective grating, use 4=23332
 optical surfaces, effect of irregularities 2=13090
 photoelec., rel. to search for ultra-short period variable stars 4=17980
 photometer, photoelec., with electronic refrigerator 2=11098
 polar axis adjustment 0=10470
 polarization meas. 3=7019
 polarization meas., errors, 4-parameter effects 3=7015
 quartz, mirrors, epoxy-resin bonded 4=5364
 radio telescope, theoretical limitation in sky brightness det. 1=18143
 radio telescope for 7.9 m wavelength 1=12782
 radiotelescope, 600 ft., West Virginia 2=15398
 radiotelescope, 22m, at Lebedev Phys. Inst., antenna parameters 2=1017-8
 reflecting, diffraction patterns due to obstructions 0=10471
 reflecting, Lick observatory, 120 in. mirror 0=14373
 reflector, astrometric, 152 cm 3=7009
 reflectors, instrumental polarization, meas. and corrections 0=18612
 refracting objectives design, review 3=9141
 Ritchie-Chrétien, primary focus corrector 4=23831
 Ritchey-Chrétien 4=13876
 satellite telescopes 0=14372
 satellite tracking, automatic, theory 1=18230
 Schmidt, convertible to Cassegrain type 1=2587
 Schmidt, photographic photometry 1=9280
 Schmidt telescope, 53 in. mirror 2=6970
 Schmidt telescope, spectrophotometric work 2=6968
 seeing-monitor triggering for facular granule life-times 1=7986
 solar, design and construction 3=7016
 space telescope, u.v., resolving power 2=4712
 Tauntenburg-Jena, 2m mirror universal apparatus 1=17992
 travelling filament control 2=21687
 Wollaston polarization photometer, for 82 in. McDonald telescope 0=16515
 193 cm C.N.R.S. telescope, Haute-Provence 1=7
 Se evaporated films for optical filters 1=9491

Tellurium

- absorption spectrum, u.v. 1=7709
 atomic beam mag. reson. nuclear spins 2=3461
 atomic spectrum, isotope shift and h.f.s. 1=19594
 atomic spectrum, isotope shifts in Te II 4049 A line 1=9909
 atomic structure, 3=12755
 atoms, structure and spectrum 1=4897
 atoms, $Te^{203-205}$ isotopic shift 4=12346
 band structure in hexagonal crystals, exptl. 4=4019
 band structure, rel. to transport phenomena 2=16628
 carrier lifetime and recombination processes 2=23409
 carrier mobility and elec. resistivity, effect of annealing 1=3773
 carrier recombination and trapping 0=6143
 crystallization and Peltier effect 1=20438
 crystals, electrical noise from thermal or optical excitation 4=12915
 crystals, method of growing by extraction from melt 2=21484
 density, temp. var., from lattice parameters, decrease on fusion 4=17819
 diffusion and elec. migration of Tl , meas. 3=17791
 diffusion in GaAs, n-p junction formation 4=17441
 diffusion in GaSb 0=4359
 diffusion in Ge 2=12453
 diffusion of Hg and Se in solid and liq. 2=18610

Tellurium—contd

- diffusion and solubility in Ge 2=12460, 21063
 diffusion and solubility in Ge 3=2825
 dislocation effects in single crystals 1=3666
 dislocations, etching, suitable etchants 0=17928
 effective mass of hole carriers, from thermoelec.
 data 3=23028
 elastic consts. meas. 4=4489
 elastic consts., 100°-300°K, u. s. echo meas. 4=10402
 elec. cond., l.f. fluctuations, temp. depend. 0=15963
 electric conductivity, effect of vacuum
 annealing 2=2133
 electric props. of films, crystallization 2=8284, 14500
 electrical conductivity, anisotropy investig. 3=17820
 electrical and optical props., theory 0=6127
 electrical props. after purification 3=17898
 electron characteristic energy loss 1=14241
 electron energy loss spectra 2=3890
 electron lifetime and surface recombination velocity 3=877
 electronic band structure 1=17448
 electronic structure, composite valence and cond.
 bands 0=6126
 electronic structure and lattice mechanics 4=12680
 energy states allowing spin-orbit interact. 2=18711
 etch pits, enantiomorphous character 1=11534
 field electron emission, rel. to V-I characteristics 0=1145
 films, conductivity and Hall effect in modulating electric
 field 4=28575
 films, elec. cond., -100° to +200°K 2=2172
 films, electron and hole mobilities, effect of
 defects 2=2172
 films, light absorption, reflectivity, in vacuo, 2-13 eV 4=1754
 films, optical constants 0=4396
 films, optical constants in vacuum u.v. 1=19940
 films, optical transmission and electron
 absorption 0=21247
 films, strain coeff. 0=16198
 films, unexposed to air, optical props. 4=22897
 fluorescent yield of L-shell 4=3774
 force constants and vibrational spectrum determ. 4=1367
 galvanomagnetic coeffs. at 4.2°K 3=835
 galvanomagnetic effects in pure and p-type 1=20050
 growing monocrystals by Czochralski method 2=4393
 Hall coeff., sign inversions 4=12916
 Hall effect and resistivity 1=8958
 i.r. absorption, hole band structure 1=5048
 i.r. absorption, in mag. field 1=12495
 ionic radius, calculation 1=11562
 ionization potential-refractivity relation 0=2321
 ions, Te⁺, thermodyn. props. 2=7561
 ions, TeII spectrum, energy levels 4=25512
 ions, valency 4=29225
 lattice vibrations 1=4964
 lattice vibrations, group theory study 0=20737
 liquid, density, up to 750°K 3=9436
 liquid, elec. cond. and Hall effect, up to 850°K 3=9474
 liquid, optical props. and elec. cond. 3=14168
 liquid, semiconducting solns with Se 3=3813
 liquid structure, by X-ray scattering and atomic
 distribution 1=15840
 magnetic suscept. and hole effective masses, 300° to
 4.2°K 2=23631
 magnetic susceptibility in pure and p-type 1=20050
 magnetic susceptibility, temp. var. 3=18063
 magnetoelec. effects, influence of annealing 1=17623
 magnetoelectric coeff. and electron energy
 bands 1=14374
 magnetoelectric effect, influence of annealing 2=3990
 magnetoelectric properties, valence band,
 structure 3=22953
 melting curve up to 23 000 kg/cm² 3=19066
 in meteorites, abundance 1=15440
 molten, elec. props., meas. and theory 4=2707
 molten, elec. resist. and Hall effect 3=9475
 Mössbauer effect, Te¹²⁵ 4=1347
 optical absorption, intrinsic, for polarized
 light 2=18805
 optical activity of single crystals, rel. to
 enantiomorphous symmetry 1=5044
 optical properties and band structure 3=13151
 oscillator strengths by first excited level lifetime
 meas. 1=17272
 p-type, electron-irrad., 25 MeV effects at 80°K 2=23349

Tellurium—contd

- paramag. reson., 1.5-60°K 3=13308
 path length of slow secondary electrons 2=594, 3891
 phase transform. up to 50 kbar and 500°K 4=26568
 phase transformations, high press. 4=13503
 photoconductive cells, for i.r. 0=8840
 photoconductivity, in radiation detector 2=7460
 photoelectromagnetic effect meas. 4=28652
 photoconductivity 4=12994
 piezoelectric crystals, reflection light, harmonic prod.
 obs. 3=18956
 piezoresistive effect 2=4105, 8473
 positive ions, 5-25 keV, sputtering of Cu 1=8363
 production and analysis to high purity 3=18684
 purification by distillation 2=12931
 resistivity rel. to pressure up to 3×10^5 kgm cm⁻² 3=2902
 screw direction, det. by etching 1=20413
 secondary electron emission, primary energy
 depend. 0=10942
 semiconducting charge-carrier scatt., containing
 dislocations 4=17397
 semiconducting props., review 2=16732
 semiconducting props., scattering mechanism 1=1085
 spark spectra 4=17251
 specific heat at low temp. 3=8362
 spectrochemical analysis, impurity effects, arcs 3=25847
 spectrum, f-values 3=17534
 spin-lattice relaxation, rel. to electronic wave
 functions 2=6694
 spin-spin coupling with protons 3=719
 surface elec. cond. oxygen influence 2=10436
 surface tension, meas. 2=17427
 thermal conducting, 80-650°K 2=20951
 thermal conductivity 80-650°K 3=6483
 thermoelectric power, effect of phonon drag 0=6149
 thermoelectric properties, effective mass of hole
 carriers 3=23028
 thermoelectric props. 2=16765, 18760
 thin film, absorption and reflectivity, u.v. 3=2995
 thin films, variation of Hall effect mobility 1=19885
 tracer, electrolytic purification 0=5680
 u.v. absorption and reflectivity 0=8004
 u.v. emission spectrum, use for analysis 0=16397
 valence band structure, from magnetoelec. data 3=22953
 vapour press. meas. by elec. discharge method 1=2913
 whiskers, mechanical strength 1=20371
 X-ray continuous spectrum, Ohlin structure meas. 4=4242
 zone refining, elec. resistance purity test 0=13963
 Te^{127,129} isomer separation in different chemical
 media 4=30915

Tellurium compounds

- group IV-A tellurides, phase studies 2=17055
 halides, mol. structure 3=4759
 perovskite of type A₂BTeO₆, crystal lattice struct. 4=26665
 post-transition metal tellurides, solid solns. 2=23858
 TeBr, local electron centres, optical
 absorption 1=11229
 TeCd, reflection spectra, 20-400μ, 90°-300°K 1=14578
 TeCl, local electron centres, optical
 absorption 1=11229
 TeCl₄, crystal struct., atomic 4=23469
 TeCl₄, nuclear quadrupole resonance, Cl³⁵, liquid air
 temp. 4=1310
 Te-CrO₂, magnetic properties 4=13174
 TeF₆, Raman intensities for ν₁(a₁) modes 3=22559
 Te-Ga, metastable amorphous phases 3=20877
 Te(50-80%)-Ga, phase diagram 3=11277
 Te-Ge amorphous alloy, dendritic crystallization 3=1266
 Te-Ge, metastable amorphous phases 3=20877
 TeI, conductivities, elec. and thermal, thermoelectricity,
 microhardness 4=1624
 TeI, local electron centres, optical absorption 1=11229
 Te-In, metastable amorphous phases 3=20877
 TeO₂, use in dielec. mirror systems 2=1251
 TeO₂, high-temp. heat content 3=770
 TeO₂, Mössbauer effect, Te¹²⁵ 4=1347
 TeO₂, vib. spectra and struct. in cryst. and glassy
 states 2=16819
 TeS, u.v. absorption spectrum 1=3841
 Te-Se alloys, mag. suscept. and hole effective masses,
 300° to 4.2°K 2=23631
 Te-Tl, molten, surface tension and electrochem.
 props. 0=10355

Temperature

See also High temperature production and effects
 absolute, definition 1=5383
 apparent, rel. to "true" in pyrometry 0=2273
 arbitrarily shaped body, av. temp. on warming 2=15783
 atmosphere and interplanetary space 0=8484
 behind shock waves 0=102
 black body and metals, "spectrally weighted" 2=11523, 13478
 Carathéodory's thermodynamics 3=9664
 changes, estimating conditional probabilities 0=14186
 chip-tool interface in machining 0=10461
 composite rectangle, steady temp. eval. 3=11963
 control circuit, for crystal growth 4=4534
 control unit, fast response 2=9442
 crystals isolated at low temp., oscillations with mag. field 3=2743
 definition from an eqn. of state, rel. to absolute scales 2=1297
 electric resistance abs. temp. from thermal noise 2=11526
 electron, in medium subject to synchrotron radiation 0=9042
 electron, in Sceptre IIIA plasma ($\sim 10^5$ deg K) 0=8857
 "electron" and "vibrational" temps., in l.p. N_2 discharges 3=9763
 emissivity meas. technique, temp. elimination 4=24426
 flames, Bunsen-type, electron and gas temp. 2=5206
 flames, in liquid-fuel jet engine, colour temp. 0=8852-3
 helical filament, colour temp. 1=6979
 high-temp. prod., in spark discharges in A, Xe, N_2 0=7105
 indication, thermal imaging paint, HgI_2 , $2AgI$ 2=9435
 kinetic definition, rationalization 4=348
 Lorentz transformation 3=24070
 metals, surface, laser heated 3=24333
 negative, absolute 2=11290
 negative, absolute, thermodyn. 2=13495
 negative absolute, thermodynamic potentials for equilibrium systems 0=16931
 negative, attainment by heating and cooling system 3=23782
 negative, in chemical reactions 4=4689
 negative, possible prod. in gas discharges 0=1109
 negative, prod. at p-n junction of degenerate semiconds. 3=4928
 negative and upper limits of positive temperatures 1=4519
 1958 He^+ scale, using international vapour pressure data 0=7036
 nuclear reactor fuels, graphical calc. 2=3646
 precision control below ambient 1=16161
 programme control device 3=5552
 proposed internat. temp. scale down to 20°K, Pt thermometer 0=214
 regulator for liquid-H bubble chamber 4=16770
 semiconductors, surface, laser heated 3=24333
 shock waves, behind front, third-order eqn. 4=11289
 spark discharge channel temp., in air 0=14996
 sparks, electric, peak, 4500-3000 A 3=4053
 standards, freezing pt. of tin 0=2271
 stars, by electric discharge theory 3=16405-6
 thermodynamic and International practical scales 4=27360
 thermometric fixed points, establishing 0=3685
 three-layered strip, steady temp. 1=16142
 Cu arc 2=7584
 He, 20 000° K production by shock waves 1=18764

Temperature distribution

air above sea surface 2=24005
 analogue methods of solution 1=6970
 bar undergoing zone refining 1=10613
 between centre and surface of Ni cylinder cooled by tempering 3=9641
 brake drum, bimetallic 0=16915
 breakdown, dielectric, time var., a.c. field 3=25407
 buried cable, temp. rise at surface 0=5197
 cell with vertical gradient, interferometric meas. 2=7440
 circle sector, composite, steady field 3=24086
 composite media, of homog. isotropic parts 0=6974
 composite rectangular corner with one heated face 4=16275

Temperature distribution—contd

in compressible 2-dimens. flow, with steady disturbs. 0=8612
 concentric cylinders, dielectric filled 0=8819
 in cooled electrode of an arc heater 3=24087
 contacting solids, heat conduction 4=29788
 convection in anisotropic layer 1=10619
 convection in anisotropic layer 1=4495
 crystallizing rod, at liquid interface 2=805
 cup, hollow cylindrical, with a stem 2=7443
 cylinder, composite elliptic 1=18638
 cylinder, infinite, non-monochromatic radiative equilib. 4=18479
 cylinders, finite unsheathed 0=1460
 in Dewar flasks, for liquid He 0=7039
 dielectric in a.c. field, soln. of eqn. in terms of simple tabular functions 4=8020
 dielectrics solid, near thermal breakdown 2=4099
 in diffusion cloud chamber, thermistor meas. 2=3222
 elastic bodies, with cylindrical hole at const. temp., thermal stresses 0=6706
 in elastic bodies, dynamic stress production 0=4970
 elastic rod, thin, semi-infinite, when free end is subjected to instantaneous temp. rise or transient temp. distrib. 3=14082
 elastic wedges 1=1716
 in electrically heated plate 0=5195-6
 electron gas, classical, in positive ion distrib., thermal equilibrium 0=15019
 electron-tube anodes, radiation in vacuum 0=10944
 elliptical cylinder, in periodically fluctuating temperature field 4=349
 fins, triangular 3=3908
 flat wall, elec. heated, linear temp. var. of thermal and elec. cond. 3=21596
 flow, approx. calc. by finite differences 4=5427
 furnaces, tubular, temp. profile control 4=2878
 furnace, 4-component formulae 1=13005
 gas discharge, constricted between electrodes 1=8332
 gas, jet, in arc electric, equilib., meas., spectra 3=21754
 gas mixtures, temp. discontinuity, at boundary 0=10691
 in glow discharges, thermally inhomog. 0=1120
 infinite plate, variable transfer coeff. and environment temp. 0=16905
 in stratified media, calc. on electronic analogue computers 0=14864
 interface between growing crystal and parent medium 2=4374
 ionosphere, F2-region over Kadaikanal, June and December 0=18499
 Laplace eqn., boundary value problem 2=2912, 9434
 in liquid drawing of wire 0=12534
 liquid flow in capillaries, temp. generated 4=5138
 lubricant films, hydrodynamic theory 0=8611
 lumina, in chemically reacting gas flow 0=14674
 meas., in microstructures, by i.r. 3=14400
 meas. over cathodes of 1 mm size 1=16366
 meas., thermistor probe, fast response, for microstructures, at sea, 3=14402
 metal rod with electron field-emission at one end 2=7556
 multilayered tube wall 0=19473
 needle, sewing, during operation, by i.r. pyrometry 3=14403
 nuclear reactor coolant channels, vector diagram 0=5830
 nuclear reactor shells, γ -irrad. 0=7671
 plasma, effect of electrostatic instabilities 2=11668
 in plate, piece-wise continuous, semi-infinite 1=18637
 plate, semi-infinite, piece-wise continuous 2=11518
 in positive column 1=16283
 positive column of static arc 0=7098
 radiation effects, theory 4=4087
 reactor fuel element, cylindrical 2=6031
 reactor fuel elements, analytic solutions for transients 1=773
 reactor shielding, thermal neutron capture 1=777
 rectangular plates, radiation cooled, constant edge temp. 3=19049
 in rod, fluctuating temp. applied, teaching expt. 3=11964
 rods, semi-infinite, side heat loss effects 4=5425
 rotating sphere in fluid flow, thermal boundary layer 3=11766
 round plates, radiation cooled, constant edge temp. 3=19049

Temperature distribution—contd

- sea, effect on acoustic intensity fluctuations 0=2213
 in semi-infinite medium, with time-dependent
 conduction 0=1052
 semi-space, uniform 4=5426
 in slabs, cylinders and spheres, tables 1=15763
 solar atmosphere 0=6590
 solid block, with one or more tubular heaters 0=12511
 solids, during change of property 0=6961
 solids, isotropic, homog., and semi-inf. 3=19040
 soot flames, colour dependence 0=1059
 space vehicle, rotating, solar heating 3=7056
 standards, sulphur point reproducibility 0=16923
 steady temperature field in composite doubly
 infinite strip 1=9499
 Stefan boundary value problems, soln., geophysical
 appl. 4=26778
 Stephan's problem, moving interface 0=208
 stellar atmospheres 3=13904-5
 surface layers of a solid with const. heat
 flux 1=18654-6
 thermal stresses, in semi-infinite elastic solid 0=10626
 tubes and coils, elec. heated 0=19474
 turbulent convection, between parallel planes 0=8620
 two plates, one heated over whole surface other cooled
 over part 4=5416
 under floors, steadily heated 1=10623
 Venus, brightness temp. map 3=18360
 Au, marker movements, diffusion det. 2=7444
 Cu, marker movements, diffusion det. 2=7444
 He³, thermal discontinuity with solid body, Kapitza
 theory 1=18692
 O liquid, boiling, in Dewar flask 1=16144

Temperature measurement

- See also Pyrometers; Thermocouples; Thermometers
 absolute, noise thermometer 0=5400
 air, at various pressures, radiosonde 4=7832
 arcs, using shock waves and spectroscopy 3=19225
 automatic system, with Wheatstone bridge, d.c. amplifier
 and recorder 1=1844
 bibliography (1953-June 1960) 1=16159
 body temp. close to ambient, bolometer-modulator
 unit 2=17686
 in borehole, lightweight equipment 3=21023
 brightness temp., 1500°-6000°K, using photo-
 multiplier 2=11522
 brightness temp., of shielded radiating surface 2=7442
 calorimetric probe for up to 15 000°K 2=17680
 cathodes, techniques, review 0=3684
 cell with vertical gradient, interferometric meas. 2=7440
 between centre and surface of Ni cylinder cooled by
 tempering 3=9641
 by chemical indicators 3=9640
 chemical relaxations, temp. jump apparatus 3=5158
 contact temp. meters, effect on accuracy of det. 4=5428
 control methods, 4.2°-77°K 0=19522
 in cryogenics, review 4=14429
 deviations of 10⁻³ to 10⁻⁶ deg C 3=11986
 differences, bridge circuit 1=11855
 differences, digital computer calc. from resistance
 thermometer meas. 2=5207
 diodes and transistors as elec. thermometers 2=9438
 distribution over cathodes of 1 mm size 1=16366
 during crystal growth, from melt 2=21472
 in electric arc 3=16920
 electron microscope object, evap. film indicator 2=10956
 electron microscope object stage, using electron
 diffraction 1=10741
 electron microscope, specimen temp. inside,
 -150° to 2200°C 3=25787
 errors, introduced by probes 0=5128
 flame—high-freq.-torch combination 3=3913
 flame spectral sources, from alkali indicator partial
 pressure 3=19051
 flames, electron, by refrigerated Langmuir probe,
 errors 4=18934
 flames, from double probe ion current 4=18460
 flames, sooty luminous, var. optical methods 0=19515
 from fluctuations, elec., of resistor 4=24411
 gas const. elimination 4=18461
 gas thermometric, fixed points, 419° to 1065°C 4=351
 gas-viscosity thermometer using Wheatstone-bridge
 capillary network, for 1-1500°K 1=2908
 gases high temp, kinetic meth. 2=11524

Temperature measurement—contd

- gases, high vel., industrial meas. 4=27360
 glass, industrial meas. 4=27360
 h-hexane—air flame, from double probe ion
 current 4=18460
 high, gas thermometer, const. bulb temp. 2=1299
 high-speed recording method 2=13479
 high temp., by low-energy particle scatt., calc. of target
 temp. effect on scatt. cross-section 1=471
 hydraulic bridge, for small temp. diff. 4=29795
 interferometric (Fabry—Perot), P I G reflex pulse
 discharge 3=24229
 international practical scale above 1063°C,
 realization 2=15791
 International Practical Temperature Scale 1=18666
 international scale, realization above 1063°C 1=16158
 international scale, role of Pt resist. thermometer 3=21598
 interpolation technique, for C resist. thermo-
 meters 0=215
 liquids, gradient, from thermal diffusion study 2=17592
 low, from acoustic velo. in He gas, 4-14°K 4=16308
 low temp., using aligned Ce¹⁴¹ γ -ray anisotropy temp.
 var. 4=16307
 low temperatures, by sonic velocity meas. 1=4522
 low temps., with acoustical thermometer 0=216
 from luminescence, (Zn:Cd)S:Ag, (75:25) 3=8622
 in metal cutting, by i.r. photography 1=6969
 metallic foils in electron microscope, heating by
 bombardment 1=4088
 metals, glowing, using optical pyrometer 1=18667
 microwave diodes, low-temp. range 4=2869
 from n.q.r. of Cl³⁵ in NaClO₃ 4=21340
 new scales 3=9315
 non-linear resistors 2=8392
 nuclear quadrupole reson., appl. 3=14401
 nuclear reactor fuel elements, wall temp. meas. 2=3675
 oceans, bathythermograph 4=2184
 optical, review 4=18462
 oxygen point, calibration bath 2=15792
 pair ratio method, of differential resistance
 thermometry 4=29794
 phase transformations, magnetometer 2=1554
 phase transitions in incandescent materials 4=2872
 photodiode as probe, sensitive to ± 0.005 deg F 3=24088
 photoelectric method, for high temp. pulsations, applic.
 sp. ht. meas. 4=29793
 planetary bodies, effective greysphere temp., and effective
 bolometric albedo 0=8489
 plasma, direct c.r.t. display of electron temp. 0=19688
 plasma, by meas. particle velocities 2=5356
 plasma, in theta pinch, electron temp. meas. 3=12142
 plasmas, radiation temp. 1=2978
 plasmas, spectroscopic 3=9806
 plate, two-layer, fields, non-stationary, calc. 3=16828
 probe for flowing polymer melts 3=19052
 pyrometry, optical, numerical eval. 3=3914
 radiation pyrometry, diff. between true and equiv.
 temps. of metallic surf. 2=126, 9439
 radiators, thermal, outer surface meas. 3=11998
 by radio telemetering, of mag. suspended rotors 3=7374
 rapidly changing, radiation pyrometer 2=9436
 reaction temp., behind shock wave 0=16377
 recorder, multipoint digital, with punched tape
 output 0=14897
 recording, unattended long period operation 0=3436
 rise due to electron bombardment, magnetic
 method 1=332
 rocket-grenade expt., correction 0=14197
 running thread-line 0=3683
 scale, 1948 international practical scale 2=2916
 scales, Celsius versus centigrade 2=11520
 scales, He⁴ vapour pressure proposal, 0.5-5.20°K 0=8878
 scales, Kelvin and perfect gas compared 2=1298
 scales, liq. He⁴ region 0=8876-7
 scales, 1958 international scale for liq. He⁴
 region 1=4519
 scales, restriction due to zeroth law of thermodyn. 2=9466
 scales, 600-3500°C, of various national
 laboratories 1=2906
 scales, 10°-90°K, accurate estab. 2=11519
 seawater, thermistor bridge apparatus 0=16765
 by semiconductor diode leakage current 4=18463
 shock-tube end-plate heat gauge 2=21934

Temperature measurement—contd

- shock tubes, electron, double-probe 4=2773
- by shock waves, arcs, C 3=19225
- shock waves, using metal films as resist. thermometers 2=7242
- simult. with vapour press. meas., in cloud chambers 2=5538
- within solid body, special thermocouple 0=7068
- standard, high intensity, pulsed Xe source 3=24000
- standard ice point, thermoelectrically maintained for thermocouples 3=19050
- standardization, 10-90°K scale 0=19513
- standards, freezing pts., high purity Pb 0=10803
- standards, Pt resist.-temp. relationship at low temp. 0=7002
- star scales, bolometric corr. 4=4857
- steel, liquid, industrial meas. 4=27360
- in studies using solar furnaces 0=14896
- substrate surface temp. meas. with thermocouple 4=2874
- at supersonic speeds, theory 0=951
- surface temp. of evaporating water 2=22095
- surface of textile fabrics under intense thermal irradi. 3=11982
- surface, with thermocouples; attachment and radiation effects 3=281
- surfaces, by molecular beam technique 0=19521
- techniques, survey 0=2272
- temp. disturbances by large thermocouple 2=9524
- temp. profiles for heat pipe, using chromel-alumel thermocouples 4=27349
- temp. standard below liquid oxygen b. pt. 2=15793
- temp.-weight simultaneous recording, automatic set-up 2=9231
- temperature diffs. in metals, using Hall generator 3=14404
- thermistor cryometer 0=3676
- thermistor probe, fast response, for microstructures, at sea 3=14402
- thermistor probe, Pb—compensated, for deep bore-holes 4=24415
- thermistor thermometer data, non-linearity corrections 1=16168
- thermocouple, multipoint reference junction 3=7375
- thermocouples, materials, review 2=11611
- thermocouples, use for rapid changes meas. 2=1300
- thermodynamic and international practical scales 3=11981
- time var. recording 4=5430
- tubes, wall temp., thermocouple device 3=11983
- under floors, steadily heated 1=10623
- units and scales 3=21599
- using Ce magnesium nitrate 4=14430
- of vacuum C arc, mag. confined 3=19930
- from velocity, acoustic waves, high temps. 4=8482
- very low temp. in adiabatic demagnetization 0=10857
- wall, surface, error, in thermocouple wire loss 3=16827
- 1958 He⁴ scale, vapour press. tables 1=16183
- C arcs, using shock waves and spectroscopy 3=19225
- Co⁶⁰ nuclear thermometer 1=13684
- Cu, strongly shocked, residual temp. 3=21597
- GaAs junction diodes, wide range thermometry 4=2870
- Ge appl., treatment by doping 2=2918
- Hg arc, Maecker's meth. 2=17811
- Pt resistance thermometry review 2=9437
- ZnS:Cu, u.v. excited, from luminescence meas. 0=16095

spectral methods

- alkaline metal resonance lines 3=16829
- arc discharges 0=19520
- arc discharges, excitational, vibrational and rotational temps. 0=3749
- arc, electric, by Fe lines 4=485
- arc plasma flame jet, in terms of Fe spectrum 3=16921
- arcs in liq. hydrocarbons, rel. to acetylene formation 3=7484
- arcs, and by shock waves 3=19225
- black bodies, U—B and B—V colours 1=8002
- black radiator, 4000°K, and spectrophotometric apparatus 0=204
- blackbody, practical realization 0=19488
- cathodes, opt. pyrometer evaluation and comparison 0=3684
- colour densitometry 4=8481
- colour temp. diagram 1=13014
- detonation front, from luminescence 0=10814
- (disappearing filament) in vacuum 1=11856

Temperature measurement—contd**spectral methods—contd**

- electron temp., in high temp. plasma 0=8857
- flames 0=217
- flames, etalon filter apparatus 0=1039
- flames, hydrocarbon—air, fuel suppression tech. 2=2915
- flames, laws of temperature emission 0=10810
- flames, spectral radiance and temp. determination 1=1842
- gases, 1000°-5000° C, survey 4=11395
- graphite jet, maser-induced, observations 4=5881
- high temps., review 1=16160
- i.r. reference sources for high temp. 4=24412
- instrumental effects 1=4378
- intensity distrib. in blue-green bands of BeO 2=7441
- jet-engine flames 0=8852-3
- line form, rel. to contour of self-reversing lines 2=7364
- from line profiles 0=12483
- line-reversal method appl. to shock waves and detonations 1=15943
- Mars, radiometric observations 0=6572
- metals, in near i.r. 0=8855
- in nuclear physics 0=3336
- particle and gas temperatures in sooty flame 1=9169
- plasma 0=19686
- plasma, argon 3=7502
- plasma electrons, by Stark effect 4=21515
- plasma, errors, superiority of "normalized" over "two-line" method 4=5633
- plasma, high-temp. 0=19687
- plasma jets 3=4151
- plasma, optically thin 3=7577
- plasmas, H and He 0=19689
- pyrometry method 2=11538, 13478
- reflectivity and temp. of radiating surface 0=6903
- review 2=15790
- review, 1000-5000° C 4=2871
- "rotational" temp., interaction effects 0=15695
- in shock tubes 0=12455
- in shock tubes, using OH band system 4=2770
- shock tubes, OH²TI band system, calc. 3=7281
- shock wave gas temp., meas. by Na D-lines 0=10727
- shock waves 0=102
- shock waves 4=2831
- behind shock waves, rel. intensities of spectral lines 0=973
- shock waves, by spectrum-line reversal 0=8744, 14732
- source temp. by rel. spectrum line intensities 2=11521
- spark discharges 0=5287
- spark discharges, electrode vapour temp. 0=3747
- spectropyrometer, 400°-1000° C, using i.r. monochromator 4=16277
- time resolution, photoelectric 4=11340
- Venus 0=6573
- wind tunnel stagnation temp. by Na line reversal 1=13015
- CO in hollow cathode, rotational temp. 0=7753
- Cs plasma 2=1447
- Hg lines, self-reversal, in arc tubes 3=21595
- use of NO γ_{00} band 3=10516
- Ne plasma 1=513
- O₂, shock-heated, u.v. absorption 2=2917
- Xe gas discharge tubes, by line self reversal 4=18783-7

Tensors

- angular momentum of continua, antisymmetric tensor treatment 2=1087
- angular momentum, irreducible tensors 2=15448
- anisotropic, in crystallographic symmetry 1=6490
- anisotropic, used in crystallography 0=16247
- antisymmetric, canonical form 3=3947
- antitensors, definition and symmetry 4=21013
- asymmetry, for continuous medium in e.m. and mech. field 2=21800
- boundary-perturbation method for tensor fields 3=7087
- calculus, book 3=5318
- calculus and relativity, book 3=31
- Cartesian, book 0=18568
- Cartesian, reduction, appl. to stochastic dynamics 2=21785
- compatibility eqns., variational principle 1=1
- conductivity of hot plasma 1=16308
- conformal tensor calculus, review 3=5317
- constraint and deformation laws independent of observer, analysis 4=27127

Tensors—contd

- coordinate conditions from variational principles 2=15452
 crystallographic, of given symmetry, plotting 1=20401
 Einstein's four-tensor 3=21223
 Einstein's identities 1=4251
 elastic tensor of given symmetry nearest an anisotropic elastic tensor 3=23812
 field dependent, symmetry restrictions 3=11
 5-dimensional, in Jordan-Thiry theory 1=9321
 gravitational field, impulse-energy 2=13246
 hyperspherical, and harmonics 4=21016
 irreducible tensorial sets, theory of coupling of angular momenta 0=16610
 magnetic spatial symmetry 4=4320
 magnetic, symmetry, 4 kinds, and anisotropy energy 3=13223
 metric, non-static cylindrically symmetric, solutions for Einstein-Maxwell field eqns. 4=14017
 metric tensor signature 2=3250
 module of holomorphic tensor fields 3=22053
 moving coordinate system, density, local derivative 3=23728
 non-analytical manifold, conformal Minkowski space-time 0=6536
 operator for electron polarization 1=19097
 pseudo-Hermitian space, self-adjoint operators 0=10464
 Raman tensor, form, 32 point groups 4=29752
 rank 2, complete symmetry 1=4008
 Ricci, for moving radiating particles in general relativity 2=2614
 Schwarzschild metric, empty-space generalization 3=18716
 skew-symmetric, real, algebraic props. appls. 2=15989-90
 stress, in Gibb's capillarity theory 1=10493
 super-energy, in relativity 0=6646
 super-energy and Riemann, in general relativity 0=2110
 super-potentials in Newtonian gravitation 2=2604
 symmetric and antisymmetric of second order 1=9243
 symmetrical, second-order, oblique coord. anal. 4=16012
 tensor isotensors 1=9720
 Weyl and metric, in asympt. flat empty spaces 2=21809

Terbium

- atom, ground state as $^6G_{13/2}$ 4=28138
 atom, $\Delta F = 0$ transitions in h.f.s. levels 4=19966
 atomic spectrum 0=17714
 compression behaviour 4=17767
 crystal line compounds, electronic structure, Tb^{+3} in cubic potentials and exchange field, calc. 4=6695
 elec. resistivity, 1.3-300°K 0=18002
 electron config., and B cpds 0=1502
 ferro and antiferromag. props. 3=15742
 ferromagnetic-antiferromag. transition, hysteresis props. 4=15646
 films, resistance, spin-ordering effects 3=15547
 galvanomag. props. 2=21106
 heat capacity of metal below 1°K, and h.f.s. parameters 4=856
 heat capacity of metal, nuclear contribution 1=17423
 heat capacity, 1.4-4.0°K 0=6016
 hyperfine coupling, expt. det. 0=2991
 ionization potential, study on W surface 1=18758
 lattice parameters, 77°-300°K, rel. to mag. structure 4=4626
 luminescence in thoria 2=14733
 mag. susceptibility, 300°-1500°K 3=11033
 magnetic and elec. props., 1.4°-500°K 3=18113
 magnetic props., 1.25-295°K 0=2986
 magnetic structure detm. by neutron diffraction 3=1108
 magnetoelastic properties 3=11091
 magnetostriction in fields up to 15 000 Oe 2=21331
 magnetostriction in flds, up to 15 000 Oe 3=8680
 magnetostriction, X-ray diffr. meas. 4=1831
 nuclear orientation, from γ -ray anisotropy 4=17332
 paramag. susceptibility 1=6259
 sp.ht. hyperfine structure 1=17422
 specific heat anomaly rel. to mag. transition in Tb_2O_3 2=21346
 specific heat, 0.37-4.2°K 3=771
 Tb^{+3} , electronic struct. in cryst. and mag. fields 2=3861
 Tb^{+3} , energy levels in $LaCl_3$ 3=15689
 Tb^{+3} , fluorescence in $KLaW_2O_6$ crystals 2=23602
 Tb^{+3} , in crystalline salts, spectra, electron terms 2=6574
 Tb^{+3+} , ionic distrib. coefficient in CaF_2 1=14990
 Tb^{+3+} in soln., near i.r. transitions 3=23885
 Tb^{+4} tungstates and molybdates, luminesc. 3=10987

Terbium compounds

- luminescence, Tb^{+3} in complex cpds. 0=6196
 luminescence, Tb^{+3} in soln., quantum yield 0=943
 Tb ethyl sulphate, Tb^{+3} hyperfine coupling 0=2991
 Tb hexa-antipyrene tri-iodide, fluorescence, rel. to rare-earth ion substit. 2=10629
 Tb hexa-antipyrene tri-iodide, fluorescent lifetime of Tb 3=13205
 Tb hexa-antipyrene tri-iodide, luminescence 0=4452
 Tb hexa-antipyrene tri-iodide, paramag. susceptibility 3=1125
 Tb oxides, reflectance spectra 1=7705
 Tb(III) aqua ions absorption bands, with sulphate ligands 4=2685
 Tb(III) dipyriddy complexes, fluorescence spectra 4=20501
 Tb^{+4} , ketone solns., fluorescence 4=188
 $TbAl_2$, mag. moment and Curie pt. 3=991
 $TbAs$, struct. and mag. props. 2=8827
 TbB_{12} , crystal prep. and structure 4=7649
 TbB_4 , formation, structure 0=14020
 TbB_3 , formation, structure 0=14020
 $TbBi$, struct. and mag. props. 2=8827
 TbC_2 , neutron diffract. & paramag. scatt. analyses 3=1328
 TbC_2 , struct. 2=4419
 Tb_2C_3 , neutron diffract. and paramag. scatt. analyses 3=1328
 Tb_2C_3 , struct. 2=4420
 $TbCl_3$, solvated with H_2O and D_2O , luminescence decay times 4=30698
 0-9 $TbCl_3$, 0-1 XCl_3 , $6H_2O$, X=rare earth ion luminescence lifetime 3=8620
 TbD_2 , magnetic structure 3=15911
 $(Tb_{(1-x)}Eu_x)_2(WO_4)_2$, luminescence, transfer of excitation energy from Tb to Eu 4=10219
 TbF_3 , growth of highly-perfect single crystals for masers 3=23397
 TbFe garnet, magnetoelastic coupling 3=11043
 TbFe garnet, magnetoelastic coupling constants 3=15886
 TbFe garnet, magnetostriction, anomalous 4=1845
 $TbIr_2$, mag. structure, by neutron diffr. 3=23185
 $TbIr_2$, molecular moments, neutron diffr. meas. 4=28829
 Tb-Lu, elec. cond. and mag. phenomena 3=13033
 TbM_2 , magnetic characteristics 1=9024
 $TbMn_2$, antiferromagnetic props. 3=15910
 $TbMn_2$, ferrimagnetic struct., 4.2°K, neutron diffr. exam. 4=13251
 TbN, mag. ordering, neutron diffraction study 0=11849
 TbN, N^{14} n.m.r. shift and mag. props. 2=12835
 Tb_2O_3 , mag. transition rel. to sp. ht. anomaly in Tb 2=21346
 Tb_2O_3 , neutron scatt., energy distrib. 3=743
 TbP, magnetic props. 4=28773
 TbP, struct. and mag. props. 2=8827
 $Tb_{5.1}Pd_{1.9}$, magnetic transition, para- to ferro-, below 62°K 4=13220
 TbS, struct. and mag. props. 2=8827
 TbSb, struct. and mag. props. 2=6327
 TbSe, struct. and mag. props. 2=8827
 TbTe, structure and mag. props. 2=8827
 Tb-Y alloys, antiferromag. props. 3=15742
 Tb-Y, mag. props., 4.2-300°K meas. 4=1808

Terrestrial electricity

- (Heading abolished in 1963; for later entries see Earth, electricity)
 auroral zone currents, magnetic time dependence 1=1594
 conductivity of deep strata, e.m. probing 1=20798
 current-system of geomagnetic variations 0=21341
 earth-current recordings, Alaska (July, 1959) 2=870
 earth-current recordings, Nagycenk (1959) 2=4587
 earth currents, deep internal origin 1=20803
 earth currents at equator, diurnal variation 1=15216
 earth currents induced by magnetic disturbances, Hall effect influence 1=1597
 earth's electric field during solar eclipse 1=15215
 earth's field, rel. to auroral effects 1=20846
 earth, internal electrical constitution 1=20801
 effect of solar eclipse (19 Apr. 1958) 0=18471-2
 electromagnetic field, pulsations during July 1959 solar events 1=20800
 explanation from charged particle capture in mag. field 1=4699

Terrestrial electricity—contd

- l.f. ground conductivity det. by sferic analysis of thunderstorms 2=2459
- linear polarization during electromag. storm 2=6905
- radiowave propagation in earth's crust, communication with submarine on seabed 1=5602
- short-period oscillations, correl. with aurora 2=19235
- telluric current, land and sea based stations 2=17117
- telluric fields, power spectra, and elec. resistivity of earth 2=15274-5

Terrestrial heat

See Earth, heat

Terrestrial magnetism

- (Heading abolished in 1962; for later entries see Earth, magnetic field; Magnetic storms)
- "Argus experiment" nuclear explosions, magnetic effects 1=1582
- Argus experiment, trapping electrons in geomag. field 0=10427-30
- astatic magnetometer for geomag. investigations 0=9133
- audio frequency fluctuation spectrum 1=1593
- auroral isochasms 0=793
- auroral zone currents, magnetic time dependence 1=1594
- bays, rel. to aurora, obs. and theory 1=1586-8
- bays, morphology 0=2001
- bays, relation between auroras 0=8403
- calculation from Vanguard I rotational damping 0=4910
- chronic drag over geologic time 0=14163
- comparison with cosmic-ray neutron distrib. 0=11262
- correl. with aurora borealis, southern limit, 1957-9 observations 1=1564
- correlation with solar Ca^+ plages, (Mar.-Dec. 1950) 1=1589
- correlation with solar plages 1=1590
- cosmic ray equator and geomagnetism 1=563
- cosmic ray effects, critical B-values 0=20304
- current systems in vertigial geomag. field 0=10394
- detection, range 5-50 c/s 1=4135
- disk dynamo model, equilibrium stability 0=11023
- distant geomag. field, radial rocket survey 0=12133
- diurnal, quiet days, ionospheric drifts 1=1527
- dynamo theory, review 0=19890
- earth's field, and galactic cosmic-ray decreases, no association 0=20295
- earth's field, horizontal component variations and solar radio emission 0=18469
- earth's field, geometry at ionospheric heights 0=8358
- earth's field, interaction with satellites 0=10538
- earth's field, local distribution, effect of v.h.f. echoes 0=18490
- earth's motions in magnetosphere 0=10405
- eccentric dipoles and spherical harmonic analysis 0=21308
- effect on ionospheric turbulence 0=12172
- effects on cosmic radiation, for observation pts. above earth 0=11278
- effect of Van Allen radiation belt 1=1569
- extraterrestrial current system, satellite information 0=21318
- fast changes, equipment for measuring, at Nivernais 1=1581
- field lines, conjugate points for auroral and whistler stations 0=10435
- field lines, motion 0=12137
- field measurement, to give earth radii 0=3340
- field in space, ring currents and auroral isochasms 0=16410
- geocentric axial multipole hypothesis 0=6433
- geomagnetic dynamics 0=18458
- green coronal line intensity 0=8503
- Halley Bay Expedition, results 0=18476
- Halley Bay (Antarctica) observations 1=1572
- IGY Kelvin Lecture 0=754
- induced mag. field growth, through core 0=5390
- induction of electric currents in spherical shells 0=19885
- interaction of polar plasma with earth's field 0=18468
- ionospheric forward scatter mode, 200 Mc/s, assoc. with mag. field 0=10413
- magnetic disturbances and influence of Hall effect on earth currents 1=1597
- magnetite, magnetic viscosity 0=18184
- magnetohydrodynamic theories, review 0=19890
- main field, 152 km above Fort Churchill 0=14170

Terrestrial magnetism—contd

- measurement, proton precession magnetometer, accuracy, comparison with observatory data 1=1576-7
 - measurement, vector field proton magnetometer 0=14161
 - micropulsation and pulsating aurora, correlation 1=1585
 - observations, Prince Harald Coast, Antarctica 0=14179
 - origin, charged-sun theory 0=18473
 - outer atmos. field, distortion due to earth's rotation 0=14180
 - palaeomagnetism of British carboniferous system 0=21307
 - Palaeozoic slate, deformation effect on susceptibility anisotropy 0=14162
 - pulsatory perturbations, amplitude 1=1584
 - remanent magnetism, late secondary and early tertiary British rocks 0=21305
 - residual magnetization of rocks 0=1972
 - reverse thermo-remanent magnetism, exchange interaction as cause 0=4773
 - rocket-borne magnetometer 0=5372
 - rocks, anisotropic 0=6431
 - rocks, domain theory of magnetic grains 0=21042
 - rocks, exchange anisotropy 0=8041, 10388
 - rocks and geological bodies 0=8355
 - rock magnetism, long-term variations, rel. to continental drift 1=1578
 - rocks, normal and thermo-magnetization 0=1973
 - rocks, remanence formation, opp. polarity 0=6432
 - rocks, stability, coercive force depend. 0=4774
 - rocks, statistical methods 0=21306
 - rotational retardation of Vanguard II 0=4911
 - sediments, water-laid, remanent magnetism 1=1579
 - space research possibilities 0=3433
 - stability of the plasma surrounding the earth 0=19676
 - Tamanrasset records of "Experiment Argus" effects due to nuclear explosions 1=1583
 - two-dimensional mag. fields, analyt. continuation 0=1180
 - Western Canada, and elec. field study 0=12132
- variations**
- (heading abolished in 1961; for later entries see Earth, magnetic field, variations)
 - Antarctica, observations 0=4814
 - due to Argus detonations, world-wide effects 0=16411
 - due to changing ring current 0=14263
 - circulation at 100 mb correlation 0=10393
 - correlation with atmospheric ozone layer depth changes 0=14192
 - correlation with solar activity, review 0=6442-3
 - correlation with solar corona intensities 0=8359
 - correlation with solar eruptions and radio bursts 0=18474-5
 - correlation with spread-F 0=14246
 - correlation with whistler occurrence 0=12209
 - cosmic-ray distribution, latitude surveys, 1956-7 and 1958-9 Japan-Antarctic 0=20302
 - dawn chorus correl., diurnal max. 0=10447
 - dip, rel. to ionospheric electron density 0=16425
 - distant geomag. field, directional instability, Pioneer I investigations 0=10390
 - disturbances, and 5 kc/s electromag. radiation 0=14174
 - on earth's surface, due to external phenomena 0=1990
 - "eddy model" of non-dipole field and secular variation 0=18459
 - effects of high-altitude nuclear explosions 0=12142
 - effects of meteors 0=16407
 - effects of solar flares associated with type IV radio bursts 0=18760
 - effects of spread-F in Baguio 0=21365
 - electrojet model fitting observations 0=6445
 - electromagnetic induction in hemi-spherical ocean by Sq 0=14173
 - external influences 0=1990
 - Fermi collisions with magnetohydrodynamic waves 0=21313
 - 5 kc/s, from outer atmosphere, directional observations 0=14315
 - geomagnetic noise at 230 kc/s 0=21396
 - global hydromagnetic wave ducts in exosphere 0=8369
 - horiz. field, effect of solar-caused ionization at equator 0=6444
 - horiz. field, fluctuations near mag. equator 0=14167
 - horiz. intensity, lunar daily variation, at Alibag 0=12136
 - hydromagnetic oscillations and earth's outer atmosphere 0=18502

Terrestrial magnetism—contd**variations—contd**

- Ibadan, lunar and luni-solar variations in H and Z 0=14176
 Ibadan, solar variations 0=14175
 and ionospheric disturbances, polar auroral freq. and intensity 0=12166
 ionospheric and geomagnetic phenomena correlations in auroral zone 0=18497
 K-index, correlation with ionosphere drift velocity 0=14221
 K-index and solar activity, at sunspot minimum 0=14419
 magnetic and earth current disturbances, correl. with auroral activity 0=10438
 micropulsations 0=4772
 micropulsations, accompanying meteor activity 0=16409
 micropulsations, aural zone, correl. with l.f. e.m. radiation 0=10437
 micropulsations, e.l.f. atmospherics 0=12213
 micropulsations, at equator 0=14178
 micropulsations, 5 to 30 periods 0=10395
 micropulsations, hydromag. wave correl., ionospheric heating 0=16439
 micropulsations, occurrence frequency 0=12135
 micropulsations, rare hiss and earth currents 0=10448
 micropulsations, short and long period, mechanism 0=21311
 micropulsations, short period 0=16408
 micropulsations, simultaneous with pulsating aurora 0=6435
 micropulsations, world-wide characteristics 0=21310
 non-correlation with solar flares 0=755
 due to nuclear explosions, at high altitudes 0=4770-1, 12141, 16412
 oscillations, at middle latitudes 0=10391-2
 oscillations, 10-1 sec decrement, relation to ionosphere phenomena 0=6436
 period range 0.3-120 sec 0=14168
 pulsations 0=1993-2000
 pulsations, giant 0=18461-2
 pulsations, review, and earth currents 0=10389
 rapid fluctuations, during magnetic disturbance 0=14177
 relation between first impulses, horiz. and vert. magnetograms 0=8356
 S_q current system, focus position 0=14172
 S_q tidal theory 0=14171
 secular, theory, core and mantle rotation model 0=4775
 due to solar eclipse (19 Apr. 1958) 0=18471-2
 solar eclipse effect, fine structure 0=1991
 due to solar flares 0=6434
 due to solar protons 0=1989
 variance (power) spectra of C_K and A_q 0=16413
 vertical intensity, at mag. equator 0=2002
 C_1 , international mag. character figure, daily normals catalogue of disturbances 0=21343
 F and F_2 ionization correl. 0=16433
 F2 region distortion, on magnetic equator 0=14256
 H, Sq diurnal variation, Indian peninsula 0=16405
 H and Z variations, near equatorial electrojet, relationship 0=14164

Thallium

- as alkali halide luminescent activator 0=4431
 atom, L-shell fluorescence meas. 3=4711
 atom, μ -mesic, effect of nuclear shell structure 4=17268
 atom, μ -mesonic, X-ray transition energies 3=6370
 atomic osc. strengths 4=30384
 atomic spectrum, collision induced satellite bands 1=19591
 atoms, h.f.s. separations and isotope shifts for $Tl^{199-202,204}$ 1=8567
 atoms, sensitized fluorescence of Hg-Tl mixtures, effect of added A and He 0=15660
 Auger effect, K-LL calc. 3=8198
 chalcogenide systems, optical props. 0=13609
 diffusion in Cu, 785°-996°C 3=22826
 diffusion and elec. migration in Te, meas. 3=17791
 diffusion in polycryst. Se as Tl^{3+} 2=18611
 diffusion and solubility in Ge 2=14465
 elastic constants and compressibility of hexag. single crystals 3=11134
 electrochemical material loss in dil. solns. 2=12977
 electron energy loss spectra 2=3890
 electron exchange between Tl(I) and Tl(III) 1=1476
 Fermi surface dimens., from magnetoacoustic effects 2=23116
 Fermi surface, by magnetoacoustic meas. 3=20132
 Fermi surface, open cross-sections 3=17687
 films, reflectivity, trans. var. λ , thickness 4=26221
 films, superconductivity, influence of adsorbed gases 0=5239

Thallium—contd

- films, supercond. and normal cond., effect of H_2, N_2, A, O_2 adsorption, thickness depend. 0=16953
 films superconductivity and normal cond. rel. to adsorbed O 3=16872
 fusion curve and polymorphic transition 3=6814
 high press. X-ray crystallography 2=23834
 impurity in Se polycrystals, rel. to thermal conductivity 1=9989
 impurity in Se polycrystals, rel. to thermal conductivity 1=11170
 ions, diffusion in fused TlCl, temp. depend. 3=5433
 ions, Tl^+ , formation in electron interaction with InBr with Tl halides 4=18674
 light source colour temperature measurement 3=9587
 liquid, Hall effect, meas. 3=7218
 luminescence activation, in group II element borates 2=6596
 magnetic susceptibility temp. depend. 2=18886
 magneto-acoustic oscill., and Fermi surface, erratum 3=10629
 magnetoresistance, anisotropy, Fermi surface 0=9939
 magnetoresistance and Fermi surface topology 3=17826
 metallic, n.m.r., at liq. He temp. 2=787, 23721
 phase transforms. rel. to press. 2=10777
 resistance, elec., 4-lead meas. system 4=30612
 self-diffusion in Pb-Tl solid soln. 2=3941
 solid, press.-temp. diagram 4=30806
 solid solutions with In, Bi or Pb, superconductivity 1=10642
 specific heat, 0.35°-4.2°K, meas. analysis 4=25859
 spectrum line at 5350Å for excitation of Raman spectra 4=5388
 spectrum of vapour under pressure 0=5888
 spin-orbit coupling in electron band structure 3=10626
 spin-spin coupling with protons 3=719
 supercond. energy gap, u. s. absorpt. obs., ang. var. 4=27435
 superconducting, effect of lattice defects 3=12036
 superconducting, pressure and volume effects, crit. mag. field, Fermi surface 1=258
 superconducting state, structure at critical temp. 0=18337
 superconducting transition temp., press. depend. 3=21668
 superconducting transition temp., pressure depend., up to 10^4 atm. 0=8939
 superconducting transition temperature, effect of impurities 4=16367
 surface ionization on W 1=4568
 thermal conductivity in normal and superconducting states, meas. 1=17433
 thermal expansion, anisotropic, below 0°C 2=2056
 vapour, in flames and inorganic cpd. vapours, anomalous excitation 4=9658
 X-ray L spectrum, emission 2=6588
 Zeeman effect h.f.s., by atomic beam mag. reson. 4=12378
 in K halides, effect on colour centres 0=16065
 in NaI, distribution during growth 1=14976
 $7^2S_{1/2}$ - $6^2P_{1/2}$ transition, hyperfine struct. and isotope shift 2=10206
 Se, diffusion in, optical obs. 3=15512
 in Se, effect on elec. conductivity 0=7966
 Ti II-Ti III phase transition 0=14041
 Tl^+ , in alkali halide cryst. luminesc. 2=8561
 Tl^+ , diffusion in KBr, absorpt. band meas. 2=3946
 Tl^+ , diffusion in KBr meas. 3=6536
 Tl^+ , diffusion in KCl 1=19806
 Tl^+ , electrochem. system, kinetic study 2=12976
 Tl^+ , energy levels in alkali halides 1=3621
 Tl isotopic composition in meteorites 1=15438
 Tl^{205} atomic beam frequency standard 3=13990
 Tl(Br, I) photoconductivity, 21° to 90°K 1=19911
 Tl-Hg collision cross., optical meas. 4=28156
 Tl I, h.f.s., isotopic shift 1=2295
- Thallium compounds**
 halides, dissociation energies 1=17365
 halides, effect of press. on elec. resist. 2=18651
 halides, polymorphism 1=6516
 halides, polymorphism of thin layers 1=1559
 KRS5, in i.r. optics 1=1814
 nitrate, ht. of mixing with liq. alkali nitrates 2=2710
 nuclear mag. resonance in solids and aq. solns., chemical shifts 1=155
 salt solutions, with alkali halides, luminescence 3=5446

Thallium compounds—contd

- solutions, with excess Br⁻ and Cl⁻, luminesc. and absorpt. temp. depend. 2=7220
- thallium chloride, luminescence 1=3856
- Tutton's salts, water of cryst., proton-proton vector orientations 4=10450
- Sb₂Se₃, saturated vapour press. and heat of sublimation 3=24116
- Tl amalgams, interdiffusion meas. 3=21332
- Tl azide, crystal particle size changes and lattice expansion on X-irradiation 3=22873
- Tl halide films, rapid prep. 0=14081
- Tl halides, absorption edge, pressure depend. 0=4406
- Tl halides, elastic moduli, calc. from lattice vibration theory 1=2370
- Tl halides, electron interaction Tl⁺ formation 4=18674
- Tl halides, evap. films, polymorphy 3=11261
- Tl halides, h.f. paramagnetism, theory 3=20560
- Tl halides, u.v. absorption 0=11766
- Tl salts, molten and crystalline, n.m.r., chemical shift 4=18218
- Tl salts (thallous), in soln., Tl n.m.r., chemical shifts 1=154
- Tl salts (thallous) in soln., Tl n.m.r., chemical shifts, ion-pair formation 1=156
- Tl selenides, vapour state, temperature-pressure relations 0=19201
- Tl tetrahalide ions, mean ampl. of vibr. 4=15358
- Tl⁺, 3⁺ halide solns., absorption and luminescence spectra 2=17468
- Tl-As-S glass, i.r. optical const. 2=8479
- TlAsS₂ (lorandite), crystal structure 0=3236
- TlAsSe₃, glassy, photocond. and other props., effect of I and Ge 3=15635
- TlEX₃, B = V, Nb, Ta; X = S, Se, crystal structure 4=23490
- TlBiSe₃, films, hexagonal structure 3=20850
- TlBr, absorpt. and luminesc. of sols. 2=15599
- TlBr crystals, Debye Θ and compressibility 1=9980
- TlBr, electronic and total cond. 2=18650
- TlBr, reflectivity, restrahlen bands 2=2218
- TlBr, thin films on NaCl, KCl, KBr, KI, cleavage faces 2=21561
- TlBr, vapour, spectrum and dissociation of molecules 1=15959
- TlBr-NH₄Br, crystal growth, reflection and luminescent spectra 0=13714
- TlBr-TlI, mixed crystals, i.r. optical use 0=5155
- TlBr-TlI, single crystals, kinking limit, orientation 0=13542
- TlBr₃, aq. soln., Tl n.m.r., chemical shifts due to added halides 1=155
- TlBr₃²⁻, Urey-Bradley and orbital valency force field appls. 2=3722
- TlCl, absorpt. and reflectivity spectra 3=3023
- TlCl, absorption spectra 0=1729
- TlCl-alkali chloride, aq. solns., spectra 2=21911
- TlCl crystals, Debye Θ and compressibility 1=9980
- TlCl crystals, thermal expansion 1=918
- TlCl, with CsCl and NaCl struts., binding energy 2=2038
- TlCl, electron diffraction measurement by CdS single crystals 1=11606
- TlCl, fused, refractive index rel. to temperature 3=11796
- TlCl, heat capacity and entropy, 15-310°K 0=1066
- TlCl, heat of sublimation and energy of dissociation 0=19511
- TlCl, ionic conductivity 1=19838
- TlCl, ionic melt, transport numbers and temp. depend. 2=15144
- TlCl, ionic motion mech. 2=3931
- TlCl, low temp. photocond. 3=10891
- TlCl, luminescence 4=17609
- TlCl, luminescence, build-up, in absorpt. and exciton bands 4=10220
- TlCl, luminescence rel. to defects, dislocations and plastic deformation 3=952
- TlCl, luminescence and exciton behaviour 4=22924
- TlCl, reflectivity, restrahlen bands 2=2218
- TlCl, re-orientation, rel. to unidimen. abrasion 2=19034
- TlCl single crystals, preparation and luminescence 3=20799
- TlCl, texture after compression 2=14928
- TlCl, thin films on NaCl, KCl, KBr, KI, cleavage faces 2=21561
- TlCl, vapour pressure of liquid 4=24448

Thallium compounds—contd

- TlCl₃, aq. soln., Tl n.m.r., chemical shifts due to added halides 1=155
- TlCl-KCl, films, optical absorption 1=14583
- TlCl-KCl mixed phosphors, spectra rel. to composition 2=6612
- TlCuF₃, cryst. struct. and mag. props. 2=23853
- Tl₂CuF₄, cryst. struct. and mag. props. 2=23853
- TlF-atom collision, rotational transition (2, 0) → (3, 0) excitation 4=25769
- TlF, magnetic double resonance 0=13883
- TlF, mol. moments and nuclear coupling 4=22369
- TlF, mol. scatt. in definite quantum state, meas. 4=6664
- Tl²⁰⁵F¹⁹, molecular-beam Stark-Zeeman effect 1=12293
- Tl₄Fe(CN)₆·3H₂O ferroelectric properties 1=14558
- TlH, band spectrum, 4200-4300Å 3=8270
- Tl₂HPO₄, crystallographic basic parameters 1=20566
- Tl-Hg mixture, r.f. excited discharge 2=22907
- TlI, crystal structure, atomic 4=4627
- TlI, crystal structure, rel. to similar types 3=18338
- TlI, distrib. in KI during growth, temp. grad. 1=20421
- TlI, dye sensitized, photoconductivity, rel. to temp. 4=12993
- TlI, effect of light on contact potential 0=1626
- TlI, molec. vibrational freq. 0=9801
- TlI, thin films on NaCl, KCl, KBr, KI, cleavage faces 2=21561
- TlI₃, unit cell dimensions and isomorphism with NH₄I₃ and CsI₃ 3=11263
- TlI-TlBr (KRS-5), dielec. props., 500 c/s-Mc/s 0=16006
- (TlI)₂HgI₂, crystal structure, atomic, from X-ray diffr. powder 4=2082
- Tl_{1/2}La_{1/2}Fe₁₂O₁₀, prep., crystal structure and mag. props. 4=7292
- TlN₃, lattice const. changes by irradiation 4=1545
- Tl NO₃, dielectric const., microwave region 4=7026
- TlNO₃, fused, Raman spectra, vibr. analysis 4=181
- TlNO₃, fused, transport numbers 3=16172
- TlNO₃, molten, elec. cond. and viscosity melting study 0=13466
- TlNO₃, thermal etching of dislocations 2=21047
- TlNO₃, thermal phase transformations 3=1253
- TlNO₃, transition I → II, energy and temp. 3=11197
- TlNO₃-HgCl₂, Raman spectrum, molten, correspondence with HgCl₂, TlNO₃ 4=180
- Tl₂O + Tl₂O₃, electrodepos. films, comp. and elec. conds. 2=10935
- TlPb₂BiSe₄, ternary and quaternary systems as semiconductors 1=10040
- Tl₂S, collision recomb. in decay of photoconductivity 1=12463
- Tl₂S, impact recombination 1=6164
- Tl₂S, p-type, collision (Auger) recomb. 2=23411
- Tl₂S, polycrystalline photocells for i.r. 0=7962
- Tl₂SO₄, structure and density 1=1404
- Tl₂SO₄-H₂O system, sedimentation meas. 3=5172
- TlSbSe₂ and similar types, crystal structure of films 0=16330
- Tl-Sb liquid system, thermodynamic props. 4=29619
- TlSe, elec. cond. and Hall coeff., temp. depend. 2=644
- TlSe, elec. and thermoelec. props. 2=23410, 18712
- TlSe, photoconductivity kinetics 4=1689
- TlSe, saturated vapour press. and heat of sublimation 3=24116
- Tl₂Se, component diffusion, rel. to rectification 3=25293
- Tl₂Se, saturated vapour press. and heat of sublimation 3=24116
- Tl₂Se, saturated vapour press. and heat of sublimation 3=24116
- Tl₂Se-As₂Se₃ layers, photo- and cathodo-electret states 4=26133
- Tl₂Se-As₂(Se, Te)₃, Hall effect 0=15964
- Tl₂Se-As₂Te₃, conductivity fluctuation, excess noise meas. 0=615
- Tl₂Se + As₂Te₃ systems with Sb₂Te₃, Bi₂Te₃, Sb₂Se₃, thermoelec. 3=10893
- Tl₂SeO₄, structure and density 1=1404
- Tl₂Te₃-Bi₂Tl₃, phase diagram and properties 3=18343
- Tl₂WO₃ (metal tungsten bronze), n.m.r. 2=4287

Thermal conductivity

See Conductivity, thermal

Thermal diffusion

See Diffusion in gases, thermal; Diffusion in liquids, thermal

Thermal expansion

alkali fluorides, high temp. X-ray data 4=3996
 alkali halides, calc. 3=17627
 alkali halides, at low temp. 2=18534
 alkali halides, at low temp., expt. 4=17369
 alkali halides, molten, and hard sphere dia. 4=18173
 alkali halides, 0-500°K 4=1401
 alkali halides, room temp. -700°C 0=17900
 alkali halides, by X-ray diffr., to melting pt. 1=14185
 alkali metal halides, and temp. derivatives 3=13389
 alkaline earth hexaborides 3=20113
 alloys, binary, substit. point defects theory 4=28374
 Alnico 5, and phase transform., α - γ 4=23251
 anharmonic crystals, Debye-Waller factor interpretation 4=17366
 anthracene, 95° and 290°K, lattice mechanics 4=23501
 antiferromagnets, uniaxial magnetoelastic props. 4=26348
 Armco iron, 0-1000°C 0=13498
 β -brass, rel. to specific heat, Pippard reln. 4=28947
 bi-metal thermostats, elastic analysis 2=15515
 Bravais crystal, phonon frequ. shifts 3=2717
 ceramics, insulators, electrical, fracture, shock resistance 3=17675
 combined dilatometry and thermal analysis apparatus 0=3675
 crystalline medium, strains, elastic coeffs. 2=10334
 crystals, coeff., derivation 2=6288
 crystals, effect of point defects 4=9939
 crystals, Grüneisen parameter rel. to vibr. instability 4=9865
 crystals, Grüneisen's law rel. to potential energy 2=6289
 crystals, insulators, electrical, fracture, shock resistance 3=17675
 crystals, ionic, lattice vibration theory, eqn. of state 0=4270
 crystals, lattice vibrations relationship 0=13462
 crystals, low-symmetry, expansion tensor axes, from X-ray data 0=13492
 crystals, negative coeffs. 2=16611
 crystals, Pippard's relns. deriv. 3=8357
 crystals, thermal dilation 1=17427
 crystals, from X-ray data, techniques compared 2=572
 cylinder, thermoelastic stresses 2=1095
 diamond, anomalous negative low-temp. values 3=10603
 diamond, 25°-750°K 0=15816
 diamond-type crystals, low temps., small, from lattice vibr. 4=12652
 dielectrics, rel. to theory for temp. behaviour of permittivity 2=6512
 dilatometer, automatic recording 3=9639
 dilatometer, low temperature obs. 4=20218
 dilatometer, for -190°-700°C meas. 2=19494
 dilatometer, quartz, for 20-1000°C range 3=4825
 dilatometer, silica, for wide range of temps 3=7163
 dilatometer, vacuum, 500°-1500°C region 2=19495
 dilatometers, Leitz, Bollenrath type, calibration 3=14398
 dilatometers, for viscous systems, recording and non-recording 0=207
 di-p-xylylene 0=8248
 EI-437A alloy, 20-500°C, solid soln. and precipit. phase 3=2735
 elastic moduli and thermal expansion 1=1717
 elastomers, linear coeff., 76-300°K 4=12653
 f.c.c. and two-dim. square lattices, theory 3=25204
 ferromagnetic dielectrics, low-temp., effect 4=22963
 ferromagnets, rel. to magnetocrystalline anisotropy 4=1818
 finite strain rel. to lattice theory approach 4=28375
 Fluoroplast IV, -190° to 325°C 0=6376
 fluorspar 0=20751
 fuel elements, externally clad cylindrical, thermal stresses 0=12989
 gases, adiabatic, temp. change meas. 2=11422
 gases, calc. from pVT data, experimental review 0=5210
 gases, isothermal, during radiation absorption 0=12433
 glass, quartz, 0°-1060°C meas. 4=3998
 glass, structure depend. 1=2543-4
 glasses, at low temp., expt. 4=17369
 glasses, soda silicate 3=22668
 graphite 1=10255
 graphite, accommodation 3=8371

Thermal expansion—contd

graphite—Br residue cpds., pyrolytic, under different applied loads 4=20221
 graphite, rel. to crystallite orientation, at high temps. 2=10327
 graphite, deformation by thermal cycling 3=23308
 graphite, diff. temp. ranges 4=1402
 graphite, irradi. 4=20760
 graphite, irradi. at high temp. 4=20323
 graphite, neutron-irrad. effects 4=30599
 graphite, -196°C to 2500°C X-ray diffract. apparatus 2=14972
 graphite, 1000° C to sublimation temp. 1=17416
 graphite, pyrolytic, in a and c directions 3=774
 graphite salts (nitrates, perchlorates and bisulphates) 4=22506
 graphite, rel. to temp. and neutron-irradiation 3=2737
 graphite, within the layer planes, X-ray diffraction study 4=28377
 graphite, X-ray study, expansion coeff. variation 0=8291
 Grüneisen relation rel. to thermoelastic eqns. 1=13009
 Grüneisen const., free volume theory 3=25203
 Grüneisen rel. theory, anharmonicity 4=15432
 halides, rel. to cohesive strength 2=8144
 ice 0=8206
 ice 1=17426
 ice, H₂O and D₂O, temp. depend. 0=9869
 ice and heavy ice, melting point to 18°K 2=3847
 inert gas solids, Grüneisen parameters, γ (n), calc. for f.c.c. lattice 4=17379
 inert gas solids, in the harmonic approximation 4=22502
 infrared optical materials, forty-eight 4=2811
 Invar, down to 4°K, mag. contribution to linear expansion 4=17371
 Invar-type alloys meas., dispersion-hardened 4=13419
 ionic crystals 1=918
 ionic crystals, theory 4=22448
 irreversible, size effects 2=20939
 linear, temp. coeff. by non-stationary conditions method 2=2914
 liquid metal, and surface energy, plasma model 4=18174
 liquids, cell model theory, rel. to intermol. energy 4=151
 liquids, dislocation model 1=6851
 low temperature obs., use of variable trans-former 4=22500
 magnetothermomechanics, theory 3=5012
 measurement, differential transformer arrangement for elastomers 4=12653
 measurement by Fabry-Perot dilatometer 4=16003
 meas., at high temp. prod. by solar furnaces 0=14896
 measurement indicator 4=22501
 measurement, industrial materials 4=17367
 meas., at low temp., capacitance technique 0=17901
 meas., optical method 3=11147
 measurement, using suspension tension transducer 1=20109
 measurement, above 2000° C, in vacuo 3=20693
 meas., up to 3650°C 0=12531
 metallic crystals, cubic symmetry 3=20112
 metals, effect of elastic deformation 1=14186
 metals, after effects 4=23086
 metals, calc. using Morse-type interatomic potential function 1=9981
 metals, changes on neutron and deuteron irradi. 4=30587
 metals, electron gas contrib. 0=17902
 metals, 15, meas. 1.5°-12°K 4=22503
 metals, Grüneisen's const., low temp. var. 3=15446
 metals, incorrect derivation 0=18899
 metals at low temperatures 1=3609
 metals, method for low temp. 2=7439
 metals, pressure-dependence, theory 1=8883
 metals, rel. to structure 2=19074
 naphthalene, solid and liquid, with soluble impurities, near m.p. 3=21324
 near melting point, anomalies in liquid and solid phase 3=21324
 nuclear reactor shell, due to neutron irradiation 0=7672
 1:3:5-trichlorobenzene, -183 to 20°C 0=8246
 optical lever apparatus, for single crystals 0=11587
 phase transformations, magnetometer 2=1554
 phosphors, eight 4=22501

Thermal expansion—contd

plastics 2=23023
 polycrystalline materials, anisotropy, microstructural strains 2=2088
 polyethylene, crystalline, effect of imperfections 2=14430
 polymers, rel. to glass temp. 2=21557
 polytetrafluoroethylene, -100° - 180°C 4=28975
 polytetrafluoroethylene, rolled in one direction 0=10324
 pyrrhotite, 0-350°C 0=13818
 quartz strands 4=13447
 radiation detector principle 0=2266
 from Raman freq. shift, temp. var., crystals 3=10922
 rare earth hexaborides 3=20113
 rare earths, rel. to mag. ion ff interact. 2=15016
 real solid, as limiting case of eqn. of state 2=3851, 8178
 rocksalt 1=917
 rubber heated with dicumyl peroxide 1=20655
 Saran charcoal rods, rel. to water adsorption 4=30604
 semiconductors, effect of impurities 3=17664
 silica, at temps 2°-30°K 4=12656
 silica, vitreous, 4.2-140°K 0=12532
 solid model, one-dim., statist. mechanical theory 4=3995
 solids, anharmonicity, by many-particle perturbation theory 2=3844
 solids, anisotropic, cubical coeff. rel. to $(C_v - C_p)$ 2=6268
 solids, linear chain model, close-packed atoms 3=17665
 solids, at low temp., tables 1=13010
 solids, minute change measurement, volumometer 1=10465
 solids, nonlinearity with temp. 2=20940
 solids, pressure effect calc. 0=13495
 solids, relationship with elastic constants 3=11130
 solids, relationship with mech. and other thermal props. 0=9854
 solids, survey 2=14346
 solids, textured polycrystalline 3=2736
 solids, theory, using Mie-Grüneisen eqn. of state 4=1401
 solids, two-atom model 2=8176
 steam, eqns. of state 2=13366
 stearic acid, B- and C- forms, X-ray study 0=18368
 steel, Cr-Ni, effect of cold working, ageing 4=1951
 steel, plastically deformed, 22-50°C 0=19501
 stress analysis 0=8574
 study using Debye-Scherrer 19cm X-ray camera 4=27345
 theory, crystals, low temp. 4=17368
 thermoelasticity, plane dynamic problem 2=13287
 thermoelasticity, 3-dimens. steady state soln. 2=7154
 thiourea 2=12566
 III-V cpds. 3=2914
 III-V compound semiconductors, coeffs. 1=4970
 transition elements, at low temp., expt. 4=17369
 triglycine sulphate 0=7856
 triglycine sulphate, anomaly at Curie pt. 2=10335
 triglycine sulphate, rel. to temp., effect of X-rays 3=6481
 two-dimensional lattices 0=4271
 α -uranium, -196° to +100°C 1=19726
 uranium monocarbide 1=5953
 volumometer, for solids, by oil-filled bellows 1=10466
 X-ray diffractometer, d values 2=6796
 xenon, solid (20°-120°K) 1=9982
 A, solid, at low temp. 0=8844
 Ag, after cold working and annealing 2=20938
 Ag, Grüneisen γ , temp. depend. calc. 3=10607
 Ag, Grüneisen ratio rel. to volume, calc. 3=4828
 Ag halides up to melting points 4=3999
 Ag, lattice const. changes, from Bradburn-Fürth eqn. of state 4=20219
 Ag, lattice expansions and Debye temps. 0=1909
 Ag, lattice vacancy equil. conc. 0=13548
 Ag, liq. and solid, in terms of defect formation 0=9893
 Ag, at low temp., expt. 4=17369
 Ag, surface free energy, anisotropy, effect of impurities and temp. 4=17373
 Ag, 20°-1200°K 3=17663
 Ag-Cd α -phase alloys up to 500°C 2=12389
 AgCl, up to 878°C, X-ray meas. 4=20223
 AgCl, rel. to Frenkel defects 3=10604
 AgI, 4. 2°-300°K, rel. to structure and bonding 4=6751
 AgI, negative expansion and cation mobility 1=12357
 Ag₂O 1=12347
 Ag-Pb, surface free energy, anisotropy, effect of impurities and temp. 4=17373

Thermal expansion—contd

Al, after cold working and annealing 2=20938
 Al, detection of vacancy concentration 0=27092
 Al, (f. c. c.), at low temp., expt. 4=17369
 Al, Grüneisen γ , temp. depend. calc. 3=10607
 Al, lattice const. changes, from Bradburn-Fürth eqn. of state 4=20219
 Al, liq. and solid, in terms of defect formation 0=9893
 Al, at low temp. 0=8844
 Al, at low temps. rel. to lattice vibrations 1=4971
 Al, near 10°K 1=17428
 Al, pressure depend. 0=13495
 Al, room-temp., X-ray diffractometer determ. 4=3997
 Al, small crystals, ~ 0.025 μ diameter 4=9861
 Al, rel. to temp. 4=20220
 Al, rel. to thermal defects 1=14289
 Al, 20-30°K, departure from Grüneisen's theory explained 0=17902
 Al, 229-656°C, and lattice parameter temp. depend. 0=4294
 Al wires, by lattice const. meas. 1=20520
 Al-Ag alloys, rel. to equil. vacancy conc. 4=15469
 Al and Al-Cu, 30-500°C, nonlinearity with temp. 2=20940
 AlAs, 291-577°K 0=1563
 Al-Cr alloys, rel. to temp. 4=20220
 Al-Mn alloys, rel. to temp. 4=20220
 Al-Pu alloy, 5-phase stabilized, at < 300°K 1=17412
 AlSb, 20° to 340°K 4=1404
 Ar, solid 3=11147
 Ar, solid, linear chain model 3=17665
 Au, annealed, struct. expansion and thermal defect existence 4=30554
 Au, 15-1057°C, vacancy conc. 2=3903
 Au, to 878°C, X-ray meas. 3=10605
 Au, Grüneisen γ , temp. depend. calc. 3=10607
 Au, lattice const. changes, from Bradburn-Fürth eqn. of state 4=20219
 Au, liq. and solid, in terms of defect formation 0=9893
 Au, rel. to thermal defects 1=14289
 Au, 30-500°C, nonlinearity with temp. 2=20940
 Au, 20°-1200°K 3=17663
 Au-Ag, surface free energy, anisotropy, effect of impurities and temp. 4=17373
 BaTe 4=28372
 BaTiO₃, anisotropy 3=12929
 Be, anisotropic, below 0°C 2=2056
 Be, near 10°K 1=17428
 Be, temp. depend. 3=3297
 BeO, dense, up to 2000°C 2=3845
 Bi 4=12882
 Bi, 4°K to room temp. 4=15434
 Bi, linear coeff., 80-540°K 0=13493
 Bi₂Te₃, a and c directions 2=3846
 C and graphite, -196° to 2000°C 4=22505
 CaF₂, (cubic), at low temp., expt. 4=17369
 CaF₂, lattice dynamics 2=3820
 CaO 4=28372
 CaS 4=28372
 Cd, 1.5° to 12°K 4=9864
 Cd, from 1.5-12°K, electronic and lattice contribs., and Grüneisen parameters 4=17370
 Cd, (h. c. p.), at low temp., expt. 4=17369
 Cd, 10-300°K, negative below 20°K 4=12655
 Cd-Bi alloys, thermally cycled, dimens. growth coefficient 4=28376
 Cd-Pb alloy, irreversible thermally-induced shape changes 1=1440
 CdSb, anisotropy of linear expansion 3=25649
 CdTe 1=4969
 CdTe, anomalous negative low-temp. values 3=10603
 CdTe, linear coeff., temp. depend. 1=916
 Cd-Zn alloy, irreversible thermally-induced shape changes 1=1440
 Ce, giant coeffs., 1.5°-14°K 3=15442
 Ce, low temp. anomalies, and f electron states 4=15433
 CeO₂, X-ray diffr. meas. 3=8370
 CeS 4=6952
 CeS, X-ray determ. 4=30523
 CeS, Ce₂S₃, 20-1020°C, Debye temps 4=22508
 Ce₂S₃ 4=6952
 Ce₂S₄ 4=6952

Thermal expansion—contd

CoF₂, from crystal structure, atomic, temp. var. 4=9863
 CdHg(SeCN)₁ 3=16083
 CoSi, coeff. det. using X-rays 2=20942
 Cr, anomaly at Néel temp. 3=8753
 Cr, anomaly at 38°C 1=19725
 Cr ferrite, alloyed with various metals, temp. depend. 3=20900
 Cr ferrite, Grüneisen's const., X-ray meas. 4=1407
 Cr, near 10°K 1=17428
 Cr, no anomaly at 200°C phase transform., X-ray obs. 4=20700
 Cr, temp. depend. of coeff. 3=5100
 CrO₂, negative, c-axis, rel. to Jahn-Teller effect 2=23079
 CsBr, calc., Grüneisen approx., by sums in wave-vector space 3=20115
 CsBr, by X-ray diffr., to melting pt. 1=14185
 CsCl, polycryst. rods, up to 600°C 4=12654
 CsCl structure, Grüneisen parameters rel. to temp. 3=4826
 CsI, meas. by X-ray diffraction 0=6026
 CsI, quantum-mech. box model 3=4796
 Cu, Grüneisen constant 4=4000
 Cu, Grüneisen γ , temp. depend. calc. 3=10607
 Cu, Grüneisen parameter, temp. depend. calc. 4=12657
 Cu, high temps., Grüneisen relation form, from X-ray diffr. 4=10529
 Cu, lattice const. changes, from Bradburn-Fürth eqn. of state 4=20219
 Cu, liq. and solid, in terms of defect formation 0=9893
 Cu, liquid 2=19544
 Cu, low temp. electronic contribution 0=17901
 Cu, at low temp., expt. 4=17369
 Cu, at low temps., meas. using elec. capacitance technique 4=25862
 Cu, near 10°K 1=17428
 Cu, 100°-800°K meas. 2=12390
 Cu, -190°-700°C meas. 2=19494
 Cu, pressure depend. 0=13495
 Cu, surface free energy, anisotropy, effect of impurities and temp. 4=17373
 Cu, thermal expansion, low temp. meas. 4=20218
 Cu, 20°-1200°K 3=17663
 Cu-Ag, surface free energy, anisotropy, effect of impurities and temp. 4=17373
 Cu and Cu-Al, 30-500°C, nonlinearity with temp. 2=20940
 Cu-Mn alloys, at low temp., expt. 4=17369
 Cu-Mn dilute alloys, at low temps 2=14388
 Cu₂O 1=12347
 D₂O¹⁸, liquid, up to ~80°C 3=14144
 Dy, contraction and magnetostriction, large 3=20551
 Dy, lattice parameters rel. to mag. ordering 3=15444
 Dy, -64 $\times 10^{-6}$ (°C)⁻¹ change in linear expansion coeff. at 1 atm Néel point 4=30607
 F₂, liq., coeff. calc. using significant structure theory 4=8166
 Fe, low temp. electronic contribution 0=17901
 Fe, and mechanical prop. improvement by adding dispersing particles 4=17733
 Fe, near 10°K 1=17428
 Fe, pressure depend. 0=13495
 Fe-Cr alloys, rel. to magnetic props. 0=4480
 α Fe-Cu, surface free energy, anisotropy, effect of impurities and temp. 4=17373
 Fe-Ni, f.c.c., two structures, "Invar" effect 3=20114
 Fe-Ni-Mo alloys, coeff. re. to Mo content 4=17737
 Fe₂O₃, α -phase, rel. to mag. transitions 3=5029
 Fe-Pd alloys, γ -phase, Invar behaviour at 30 at.% 3=998
 Fe-Pd alloys with low exp. coeffs. 3=2734
 FeS, rel. to electrical conduction 1=12424
 Fe-Si alloys, up to 1200°C, rel. to Si content 3=10602
 GaAs, anomalous negative low-temp. values 3=10603
 GaAs, 78-680°K 0=1563
 GaAs, 20-360°K 1=8885
 GaP, rel. to anharmonic forces 0=10043
 GaSb, 20°-340°K 4=1404
 Ga₂Te₃ 1=17744
 Gd, anomalous expansion of single crystals 3=15851
 Gd, 80-750°K, anomaly at Curie pt. 0=7855
 Gd, giant coeffs., 1.5°-14°K 3=15442

Thermal expansion—contd

Gd, lattice parameters rel. to mag. ordering 3=15444
 Gd single crystals, anomalous 3=11092
 Gd single crystals, anomalous expn. 3=6715
 Gd single crystals, anomalous, theory 4=28409
 GdH₃, energy 4=13486
 Ge, anomalous negative low-temp. values 3=10603
 Ge, Grüneisen γ , temp. depend. calc. 3=10607
 Ge, Grüneisen parameter, temp. depend. calc. 4=12657
 Ge, Grüneisen parameters, lattice vibrations 4=22507
 Ge, Grüneisen's gamma, low temp. limit 2=8177
 Ge, at low temps. 0=7854
 Ge, p-type, rel. to impurities, 77° to 340°K 4=9862
 Ge, 30-500°C, nonlinearity with temp. 2=20940
 Ge, 2 - > 42°K 3=15443
 H₂ solid 4=22491
 H₂O, coeff., rel. to sound absorpt. 4=14159
 H₂O, temp. var. discontinuities, as for viscous flow 4=21124
 H₂O¹⁸, liquid, up to 80°C 3=14144
 He, liquid, phonon contribution 0=2281
 He³, liq., coeff. from 0.55 to 1°K 0=8881
 He³, liq., 0.015°-0.3°K meas. 3=12016
 He³, liquid 0=3701
 He³, liquid, below 0.1°K 1=18688
 He³, liquid, meas. 3=5563
 He³, liquid, at <0.1°K 3=5564
 He³, liquid, 0.14-1.1°K 0=225
 He³, liquid, 1-3°K 0=10821
 He³, liquid, under pressure below 1°K 0=224
 He³, solid, calc. 0=14921
 He³, solid, coeff. 0=19546
 He³, solid, rel. to magnetostriction 1=11872
 He³, 0.14-1°K, 0.2-30 atm 1=4524
 He³, 0.3-1.2°K 1=4526
 He⁴, liquid, meas. 4=11445
 He⁴, liquid, near λ -temp. 2=15830
 He⁴, solid, γ phase, meas. 4=21386
 He⁴, solid, negative value below 1.5°K 0=16941
 Hf carbide, 26° and -196°K 4=1406
 HfO₂, pure, and 10, 15 wt % Y₂O₃ stabilization, up to 4500°F, additions effect 4=30525
 Hg amalgams, rel. to composition 3=16604
 HgTe, 20°-340°K 4=1404
 Ho, lattice parameters rel. to mag. ordering 3=15444
 In oxide 3=20111
 In, press. var., and n, q, r., and elec. field 4=28313
 In, 10-300°K 4=12655
 InAs, 78-673°K 0=1563
 InAs-In₂Se₃ system 4=1611
 InSb 1=4969
 InSb, anomalous negative low-temp. values 3=10603
 InSb, linear coeff., temp. depend. 1=916
 InSe, (n = 1.25, 1.5, 1.75, 2.00), temp. variation 2=3840
 In₂Te₃ 1=17744
 KBr, calc., Grüneisen approx., by sums in wave-vector space 3=20115
 KBr, lattice dynamics, Green's function calc. 4=9824
 KBr, -180 to 400°C 0=15815
 KBr, by X-ray diffr., to melting pt. 1=14185
 KCl 2=16610
 KCl, analysis of meas. 4=20222
 KCl, calc., Grüneisen approx., by sums in wave-vector space 3=20115
 KCl, Grüneisen γ , temp. depend. calc. 3=10607
 KCl, linear, at low temps. 2=6285
 KCl, low temp., X-ray method 4=28378
 KCl, -180° to +400°C 0=15815
 KCl, rel. to proton-irrad. 4=6752
 KCl, 26-776°C range 2=14387
 KCl-KBr, solid solutions, -180° to +400°C 0=15815
 KI, anomalous, at low temps. 2=10337
 KI, by X-ray diffr., to melting pt. 1=14185
 KLiSO₄, near transition pt. 2=16770
 KLiSO₄, X-ray measurement 0=18361
 K₂Na(SO₄)₂, X-ray measurement 0=18361
 K₂NbO₃F 3=3306
 K₂SnBr₆, 26°-100°K meas. 4=23463
 Kr, 0-116°K 0=9839
 Kr, solid, at low temp. 0=8844
 La, giant coeffs., 1.5°-14°K 3=15442
 La₂O₃, X-ray diffr. meas., 20-1050°C 4=17372

Thermal expansion—contd

LaS, X-ray determ. 4=30523
 LaS, La_2S_3 , 20-1020°C, Debye temps 4=22508
 LiF, quantum-mech. box model 3=4796
 Mg, 4°K to room temp. 4=15434
 Mg, on fusion 2=15572
 MgF_2 2=14385
 MgO , Grüneisen parameter 2=6290
 MgO , high temp. X-ray data 4=3996
 MgO , at low temp., expt. 4=17369
 MgO 4=28372
 MgS 4=28372
 MnAs, lattice coefft. 3=13226
 MnF , from crystal structure, atomic, temp. var. 4=9863
 MnF_2 , anomaly at Néel temp. 0=1564
 MnO 2=17017
 $\beta\text{-MnO}_2$, directional coeffs. 2=20941
 MnSi, coeff. det. using X-rays 2=20942
 Mo, 1.5° to 12°K 4=9864
 Mo, rel. to thermal defects 1=14289
 Mo, 1000° C to melting pt. 1=17416
 NH, solid, vol. expansion coeff. 4=26497
 NH_4Br 1=19724
 NH_4Br , modifications II and III, X-ray meas. 4=23419
 NH_4Br , at 137.2°C 0=16335
 NH_4Cl , at 183.1°C 0=16335
 $\text{NH}_4\text{H}_2\text{PO}_4$ (ADP), 24°-134°C, X-ray det. 3=25202
 NH_4NO_3 , anomalous 0=17899
 Na cloud expansion in interplanetary space 1=18018
 NaBr 2=10338
 NaCl, analysis of meas. 4=20222
 NaCl, calc., Grüneisen approx., by sums in wave-vector space 3=20115
 NaCl, calc. by many-particle perturbation theory 2=3844
 NaCl, Grüneisen constant at high pressures 3=4827
 NaCl, Grüneisen γ , temp. depend. calc. 3=10607
 NaCl, Grüneisen rel. at high press., anharmonicities 4=15432
 NaCl, Grüneisen parameter 4=28378
 NaCl, high-temp., rel. to Schottky defects 2=3850
 NaCl, quantum-mech. box model 3=4796
 NaCl, theory 0=4270
 NaCl-type crystals 1=19690
 NaCl-type crystals 2=8151
 NaCl, X-ray irradi., enhancement 2=3849
 NaF 2=10338
 NaF, Verma-Dayal theory 4=25851
 NaI, lattice dynamics, Green's function calc. 4=9824
 NaNO_2 1=14181
 NaNO_3 , X-ray meas. 0=15814
 Nb, at low temp., expt. 4=17369
 Nb₃Sn, jump at supercond. transition 3=16875
 Nb₃Sn, lattice parameter meas. rel. to temp., 80° to 1290°K 4=30524
 Nd, giant coeffs., 1.5°-14°K 3=15442
 Nd_2O_3 , X-ray diffr. meas., 20-1050°C 4=17372
 NdS, X-ray determ. 4=30523
 NdS, Nd_2S_3 , 20-1020°C, Debye temps. 4=22508
 Ni, after cold working and annealing 2=20938
 Ni alloys, binary 1=20305
 Ni, demonstration apparatus 3=4825
 Ni, Grüneisen constant by X-ray methods 4=25866
 Ni, lattice const. changes, from Bradburn-Fürth eqn. of state 4=20219
 Ni lattice, isotopic effect, temp. depend. 2=16612
 Ni lattice, isotopic effect, temp. dependence 3=6482
 Ni, 20-500°C 3=2735
 Ni_3Al , effect of Cr, Ti, Mn, V, Zr and Ta additions, 300°, 600° and 900°C 4=25864
 Ni-Cr-Fe alloys, 20-900°C 4=15424
 $\text{NiO-Al}_2\text{O}_3$ system, rel. to structure 4=23242
 Ni-Zn mixed ferrite 2=12391
 Np, rel. to structure 3=10606
 Pb, Al, at low temps. 2=3848
 Pb chalcogenides, 20° to 340°K, rel. to Grüneisen const. 4=1403
 Pb, at low temp., expt. 4=17369
 Pb, normal and supercond. 2=6286
 Pb, pressure depend. 0=13495
 Pb, small crystals, and melting 4=24436
 Pb, 20°-300°K, meas. rel. to spec. heat 2=10339

Thermal expansion—contd

Pb-Bi alloys, thermally cycled, dimens. growth coefficient 4=28376
 PbTa_2O_6 0=2920
 Pb(Ti,Zr)O_3 , anisotropy 3=12929
 PbZrTiO_3 system, transition near 75°C 2=17039
 Pd, lattice const. changes, from Bradburn-Fürth eqn. of state 4=20219
 Pd, lattice consts. and coeffs., up to 878°C 4=6753
 Pd, near 10°K 1=17428
 PrS, X-ray determ. 4=30523
 PrS, Pr_2S_3 , 20-1020°C, Debye temps. 4=22508
 Pt, lattice const. changes, from Bradburn-Fürth eqn. of state 4=20219
 Pt, 1.5° to 12°K 4=9864
 Pt, from 1.5-12°K, electronic and lattice contribs., and Grüneisen parameters 4=17370
 Pu, δ and η 4=7638
 Pu and δ Pu-Al rel. to order-disorder change 1=20622
 α Pu, dilatation at low temp. 4=15435
 δ -Pu, negative exp., effect of alloying 3=22669
 PuC, 42-60 at.% C 3=10431
 Pu-O compounds 4=29016
 RbBr 1=19724
 RbCl 1=19724
 RbI, low temp., X-ray method 4=28378
 Re, 1.5° to 12°K 4=9864
 Re, from 1.5-12°K, electronic and lattice contribs., and Grüneisen parameters 4=17370
 Sb, temp. depend. 4=1588
 Se, amorphous, volume contraction, isothermal 2=6287
 Si 2=14386
 Si, anomalous negative low-temp. values 3=10603
 Si, 50-850°C, in argon 0=2799
 Si, Grüneisen's gamma, low temp. limit 2=8177
 Si, Grüneisen γ , temp. depend. calc. 3=10607
 Si, at low temp. 0=13494
 Si, negative, below 120°K 3=773
 Si, up to 900°C, X-ray study 2=18535
 Si, single crystals, -195° to +100°C 0=11587
 Si, thermoelastic residual stresses in bonded wafers 1=5085
 Si, 23°-530°C, X-ray meas. 3=4824
 SiO_2 glass, rel. to thermal history 2=14389
 SmB_6 0=13468
 α -Sn 1=4969
 α -Sn, anomalous negative low-temp. values 3=10603
 Sn, in α - β transition region 2=10336
 Sn, 4°K to room temp. 4=15434
 α -Sn, linear coeff., temp. depend. 1=916
 Sn, supercond. 2=15853
 Sn, supercond., negative vol. coeff. 2=7517
 Sn, tetragonal 1=19723
 SnSe, dilatometric measurement 1=14935
 $\text{Sr}_2\text{FeTaO}_6$, increase at phase transform. at 250°C 3=18226
 $\text{Sr}_2\text{FeO}_4\text{F}$, anisotropic 4=1623
 Ta, linear coeff. 2=23847
 Ta, at low temp., expt. 4=17369
 Ta, from 1.5-12°K, electronic and lattice contribs., and Grüneisen parameters 4=17370
 Ta, 1000° C to melting pt. 1=17416
 $\text{ThH}_{3.5}$, energy 4=13486
 ThO_2 , up to 4590°F, meas. 4=30525
 Ti carbide, 26° and -196°C 4=1405
 Ti, effect of alloying 4=17375
 Ti, from 1.5-12°K, electronic and lattice contribs., and Grüneisen parameters 4=17370
 Ti, lattice expansions and Debye temps. 0=1909
 TiC, rel. to at. vibr. amplitudes 4=17376
 TiN, rel. to at. vibr. amplitudes 4=17276
 TiO_2 , oxygen-deficient 2=6811
 Ti, anisotropic, below 0°C 2=2056
 U, α -phase, crystal structure near 43°K 3=6841
 U, anomalous below ~ 43°K, and conductivity, electrical 3=20270
 U-fission product alloys 0=14072
 U, phase transition in α -type at 42°K 1=15135
 α -U, single cryst. 2=2057
 U, rel. to structure 3=10606
 $\text{U}^{238, 235, 233}$, liquid 2=2700

Thermal expansion—contd

- UC 4=13611
 UC, 20°-1500°C 3=7079
 UC, var. composition, temp. 4=22509
 U₂O₈, up to 1026°, X-ray diffrn. study 3=15445
 V, at low temp., expt. 4=17369
 W, 1.5° to 12°K 4=9864
 W, lattice consts. and coeffs., up to 878°C 4=6753
 W, 24°-526°C 3=15441
 W, vacuum dilatometer, 500°-1500°C 2=19495
 W, rel. to at. vibr. amplitudes 4=17376
 Xe, solid 3=6480
 Y, anisotropic, below 0°C 2=2056
 Yb, giant coeffs., 1.5°-14°K 3=15442
 Zn, anisotropic, below 0°C 2=2056
 Zn, coeff., anisotropy, effect on strain due to temp. variation 4=10405
 Zn, 4°K to room temp. 4=15434
 Zn single crystals, rel. to crystal orientation 4=17377
 ZnF₂, from crystal structure, atomic, temp. var. 4=9863
 ZnSe, anomalous negative low-temp. values 3=10603
 ZnSe, 20-360°K 1=8885
 ZnTe, 20°-340°K 4=1404
 Zr carbide, 26° and -196°K 4=1405
 Zr hydrides, δ and ϵ phases, by X-ray diffr. 0=15817
 ZrC, rel. to at. vibr. amplitudes 4=17376
 ZrN, rel. to at. vibr. amplitudes 4=17376
 ZrO₂, Y stabilized 4=22510
 ZrP, β -form, unit cell expansion 4=2003

Thermal measurement

- See also Calorimetry; Conductivity, thermal, measurement; Temperature measurement; Vapour pressure measurement. Entries describing measurement methods for specific thermal quantities and effects may also be found listed under the various headings for the subjects concerned.
- arc image furnace, 150 cm double parabolic, flux meas. 2=17682
 binary cryogenic systems, solid-vapour equilibria 4=11424
 cellulosic materials, diffusivity, radiant heating method 0=10796
 compounds with high vapour press. components, differential thermal analysis 2=7087
 contact temp. meters, effect on accuracy of det. 4=5428
 critical state, bomb with windows and thermostat 1=13020
 differential thermal analysis apparatus 0=3675
 heat flow, using flux meters of various shapes, accuracy 3=9635
 solar furnaces 0=14896
 spectroscopy, dynamic refl., technique 3=16777
 "thermograph", for comparison meas. 0=2275
 Ukrainian clays 0=8823
 variable-state methods, for solids, appl. to building materials 4=14425
 BaTiO₃, grain size, effect on tetragonal to cubic transform. 3=8792

Thermal transformations

- See also Boiling; Heat of transformation; Melting; Phase transformations; Vaporization.
- α - β quartz inversion λ -point transition, cylindrical approx. calc. 2=14918
 anils, thermochromy, time constants 3=20979
 balance, thermo, Stanton, modifications, to record wt. change and rate of change against temp. 3=9398
 boiling liquids, bubble motion and growth, rel. to external fields 2=48
 chloroform, rel. to Raman spectrum 3=731
 cristobalite, inversion of micro-crystals 0=4582
 critical liq. systems, u.s. waves, rel. to fluctuations 2=2939
 critical pt. density fluctuations, theory 2=5218
 cryometry by method of complete melting 0=3676
 crystals, mixed organic, and surface films, rot. transits. 2=8765
 crystals, molecular rot. rel. to defects, suggested study 2=8148
 decomposition, along dislocations, kinetics 3=8958
 dimethyl ether, pyrolysis, HCl catalysis 4=2157
 formic acid, rel. to Raman spectrum 3=731
 germyl halides, gas-solid, rel. to frequency shifts 4=6593

Thermal transformations—contd

- heat conduction problems 4=29785
 high-temp. microscopy 3=18683
 law of corresponding states, appl. to A, Kr, Xe 2=5220
 law of corresponding states for fused salts 1=13026
 liquid drawing of wire, temp. distribution 0=12534
 martensitic, at low temps., volume change meas. 0=21243
 melting as an order-disorder change 1=18393
 methyl alcohol, rel. to Raman spectrum 3=731
 microscope for obs., high-temp. 3=18972
 mixture separation temp. calc., from lattice dynamics 4=17339
 molecular crystals, effects on n.m.r. line widths 2=783
 muscovite, 700-1200°C, dehydration and phase changes 4=7501
 polyethylene, evaporation, mass spectrometric study 1=13025
 polymers, fracture as thermal decomposition 3=18211
 propionitrile 2=5222
 steel, automatic calorimeter for 2=1303
 trifluorophosphine, 12°K to b.p. 2=13484
 symmetry principle, appl. 2=19770
 water, heat of vaporization, measuring instrument 1=16172
 BN, turbostratic to ordered-layer-lattice 3=11201
 B₂O₃, vaporization, mass-spectrometric study 3=25807
 Ba-Sr titanates, enthalpy of tetragonal-cubic transition 2=20933
 CD₄ 3=22658
 CH₄ 3=22658
 CH₄, solid, second transition 2=14379
 Ca, allotropic transition at 448°C 2=2405
 CaH₂, allotropic transformation at 780°C 2=2405
 Cd-Pb alloy, irreversible thermally-induced shape changes 1=1440
 Cd-Zn alloy, irreversible thermally-induced shape changes 1=1440
 Co(NO₃)₂·6H₂O, down to -180°C, rel. to thermal cycling 4=10424
 Co(NO₃)₂·6H₂O, effect of thermal cycling to 100°K 2=23094
 Fe, $\alpha \rightarrow \gamma$ transition, rel. to energy losses on electron bomb. 0=20763
 Fe, pure, dislocations rel. to allotropic transforms. 2=10398
 FeO, cryst. distortion on cooling past Néel temp. 2=2267
 HCl, critical temp. region u.s. vel. and absorption 2=13375
 HNO₃, \leftrightarrow NO + NO₂ + H₂O, vapour-phase equilibrium 3=25813
 He, solidification, observation 3=324
 He, solidification, visual obs. 2=137
 He³, liquid, P-V-T rels., 1-3°K 0=10821
 KNO₃, rel. to ferroelectric props. 0=639
 LiBO₂, vaporization, mass-spectrometric study 3=25807
 LiH₂(SeO₃)₂, ferroelec., p.m.r. study 1=19924
 Mn₃Li₂ZnO₈, 350°C 4=26656
 NH₄Cl, elastic constants near λ -point 4=7410
 NH₄NO₃, rel. to order-disorder and crystallization 2=6762
 N₂O, decomposition, by shock waves, 1500-2500°K 4=15834
 NaBO₂, vaporization, mass-spectrometric study 3=25807
 NaH₂(SeO₃)₂, ferroelec., p.m.r. study 1=19924
 S vapour, equilibrium composition 3=25805
 U, α - β thermal cycling 2=802
 V-Ca system, 3 new phases 4=10632
 Zn(NO₃)₂·6H₂O, down to -180°C, rel. to thermal cycling 4=10424

Thermionic emission

- See also Ionization, surface
- alloys, binary and ternary, semi-phenomenological theory 0=5357
 cathodes, oxide-coated, analysis of light 2=11689
 conversion of heat into elec. energy 3=9713
 conversion of heat into elec. energy, figure of merit 0=7137
 converters, low-pressure, space-charge theory 2=17777
 diode containing Kr⁸⁵, characteristics rel. to Rb⁸⁵ daughter effects 3=24335
 diodes, effect of radioactive Kr content 2=22257
 direct converter, effect of space charge 3=9718
 dispenser cathode, impregnated, activ. process 3=4178
 electrical generation methods, review 1=11894
 electricity direct conversion conference 4=14563
 energy conversion diode, film boiling liquid metal anode 2=17776

Thermionic emission—contd

energy converter, max. theoretical efficiency 2=19885
 generators, emission-limited, optimization 1=11967
 generators for heat-elec. conversion 2=11601
 germanium, surface energy level diagrams 1=1062
 heat converters, low-pressure, oscillations 2=19884
 heat-elec. direct conversion, appl. 2=11606
 heat-elec. direct conversion, conferences 2=1379
 heat-elec. direct conversion, review 2=9517
 i.r. image converter 1=4635
 metals, refractory, in Cs vapour, low coverage, discontinuity 3=14625
 nuclear thermionic emitter, search for materials 2=3069
 oxide cathodes, electron bombard. effects 1=13105
 oxide-coated cathodes, effect of charged particle bombardment 1=11963
 patches of variable work function 4=3025
 with secondary emission 0=7167
 semiconductors 0=15901
 semiconductors, theory 2=18660, 23289
 silicon, surface energy level diagrams 1=1062
 solar batteries 0=14950
 tests of eqns., effect of electron reflection 1=7099
 thermionic converter efficiency 1=8300
 thermionic converters, oscillation and saturation current measurements 1=8346
 transition from electron to ion emission, space-charge neutralization 1=5499
 Ag-Cs photocathodes, thermo- and photoemission maxima 0=5338
 Ca oxide coated cathodes, rel. to temp. 2=3073
 Cs diode convertor, l.f. oscillations 1=8347
 Cs thermionic converter, electron space-charge limited operation 2=9520
 Cs thermionic converters, characteristics 1=4641
 HfC 1300°-1900°K 3=16974
 LaB₆, appl. in energy converters 2=17863
 Mo, effect of Cs and CsF 2=13584
 MoC, 1300°-1900°K 3=16974
 Na₂CO₃ 3=19306
 Ni, in CCl₄ and Freon 0=10936
 Pt, in CCl₄ and Freon 0=10936
 TaC 1300°-1900°K 3=16974
 Ta_{0.8}Zr_{0.2}C, 1300°-1900°K 3=16974
 Th, monolayer density for max. emission 0=17026
 ThC, in direct conversion of heat 3=4000
 ThO₂, appl. in energy converters 2=17863
 TiC 1300°-1900°K 3=16974
 U, wire and films 0=3786
 UC, anomalously large constants 0=17027
 UC-Nb cathode, thermionic consts. 1=13102
 W, impregnated, metallic vapour poisoning 2=7642
 W, thoriated, rel. to carbonization 2=18992
 ZrC, appl. in energy converters 2=17863
 ZrC 1300°-1900°K 3=16974
 ZrC, UC, and ZrC-UC 1=11964
 (ZrC)_{0.8}(UC)_{0.2}, anomalously large constants 0=17027

electrons

See also Cathodes
 alkaline-earth tantalates 2=1481
 anodes, work function, of thermionic converter 2=22160
 borides and carbides of rare earth and transition elements, anomalous, theory 0=2377
 cathodes, effect of Cs 0=10934
 cathodes, oxide-coated, in N₂ atmosphere 0=15703
 cathodes, oxide-coated, surface charge localization 0=9071
 cathode, oxide-cored 3=9832
 from charged particles 3=9731
 contact ionization of alkali vapour 2=3010
 convertors for fission heat into electricity 0=264-5
 current transmission in strong mag. fields 2=1479
 use in direct heat-electricity conversion 1=18916
 by disperser cathodes, activated 3=12235
 by dust particles in a gas 3=14528
 emission constants, interpretation, critical review 1=2989
 energy distrib. of emitted beam, relax. 3=12247
 gas-solid suspension at high temp. 3=14527
 halides containing F-centres 0=5335
 heat-elec. direct conversion, efficiency 2=9619
 heat-to-electricity direct conversion, review 1=16371

**Thermionic emission—contd
electrons—contd**

hollow cathode, current density distrib. of electron beam 4=8803
 ionic crystals, work function calc. 3=12227
 laser induced, from conductors, semiconds., insulators 3=14626
 meas., in discharge tubes 0=5334
 metal films, connection between Richardson's consts. 4=24729
 metals, laser induced 3=24333
 from oxide cathode, rel. to strong electric field 1=13100
 Philips impregnated cathode emission charact. 2=11691
 planar diode flow, Langmuir limit 0=269
 in plasma, Ar 4=18665
 plasma surround effects 4=5697
 point tungsten cathodes, high brilliance 2=3067
 porous emitters, Richardson plots 4=5693
 Richardson eqn., and Richardson photoemission eqn. 1=18918
 rough emitters, anomalous radial velocity spectra 2=1480
 Schottky effect, periodic deviations, numerical analysis 3=424
 semiconducting cathode, non-stationary emission 0=17024-5
 semiconducting cathodes, time dependence 1=16370
 semiconductor, narrow energy band, beam characteristics 4=27563
 semiconductors, effect of electric field 1=14419-21
 semiconductors, ionic, in strong fields 2=21203
 semiconductors, ionic, in strong fields 3=2982
 semiconductors, laser induced 3=24333
 shallow-donor emitters 3=422
 spherical metallic particles, source 2=3066
 temperature of filament, general calc. 3=14629
 in thermal-electrical energy conversion 0=14935, 15051
 thermal electrification effects 4=19082
 thermionic converters, low-press., space-charge neutralization 4=5694
 thermostimulated emission, rel. to electron trap analysis 2=3892
 transition elements and cpds. 1=13103
 valves, millisecond current decay (grid-film effect) 2=3079
 velocity distrib. 4=11693
 Ba layers on W 1=16361
 BaO, doped with rare earths 3=422
 C, induced by laser beam 3=19304
 Cs-filled thermionic converter, low-freq. oscillations, expt. 4=11504
 Cs thermionic converter, effect of Hg and Xe 4=21450
 Cs vapour diode 3=14628
 Cs vapour valve, power variations 2=7553
 Cu-Cu₂O, low temp. into vacuum 1=4633
 Ge 0=17030
 Ge, Cs-vapour treated 0=7139
 HfC 4=3027
 HfC, work function meas. 2=3070
 KCl, In, Ga or Tl doped 4=13081
 LiF: Co, X-irrad. and non-irrad. 3=8598
 MgO, temp. depend. 1=2988
 Mo cathodes, vapour deposited 4=16520
 Mo, suppression of emission by carburization 2=15943
 NaCl, coloured 0=18072
 NaCl:Ca 4=12961
 NaCl:Ca, effect of Cu, Ag 2=8563
 NbC 4=3027
 NbC-UC, temp. depend. 2=22249
 NbN 4=3027
 NdS, 800°-1500° C meas. 4=14744
 Ni, Ba-coated, reversal phenomenon 3=21860
 Ni, Ba-coated, theory and expt. 3=21859
 PrS, 800°-1500° C meas. 4=14744
 Pr₂S₃, 800°-1500° C meas. 4=14744
 Re, and vacuum technique 4=18297
 Re-W, Re-Mo, and vacuum technique 4=18297
 Rh in Cs vapour, low coverage, discontinuity 3=14624-5
 ScB₂ 4=3027
 SrO, doped with rare earths 3=422
 Ta, in Cs and Rb vapour 2=207
 Ta, in Cs vapour, low coverage, discontinuity 3=14624-5
 TaB₂ 3=7631

Thermionic emission—contd
electrons—contd

- TaC—UC, temp. depend. 2=22249
 Th, filament temp. calc. 3=14629
 Th layers on W 1=16361
 Th monolayer on W, desorption effect 2=8896
 Th oxide films, with adsorbed Ba 2=9618
 Th—W, maser, optical, induced 3=19305
 Th—W, saturated emission at high currents, meas. 3=19307
 TiN 4=3027
 TmB₆ (+ TmB₈) 4=3027
 U, films and cpds., 1200-2400°K, U-activation 4=5695
 UC 4=13611
 UC cathode, collector electrode contamination 3=4179
 UC, on W, 1200-2100°K 0=12626
 W, Ba-activated, suppression of emission by carburization 2=15943
 W, Ba-coated, in O₂ atmos. 2=9617
 W cathode, laser-heated 4=18521
 W, cathode, laser induced 3=21857
 W cathode, use in microtron 4=8801
 W crystals, periodic Schottky deviations 3=21863
 W, in Cs vapour, low coverage, discontinuity 3=14624-5
 W, effect of adsorbed Ca 2=1477
 W, effect of adsorbed Sr 2=1478
 W, impurity effect 4=21555
 W, incandescent, H⁺ formation 0=8985
 W, induced by laser beam 3=19304
 W, points, laser induced 4=8811
 W, uniaxially oriented, emission uniformity 4=3026
 W wires, variation rel. to time of heating by d.c. and a.c. current 4=8804
 ZnS, effect of Cu and Pb activation 4=570
 ZnS, sorption layer origin 1=18917
 Zr, filament temp. calc. 3=14629
 ZrN, 4=3027

ions

- See also Ion emission
 cathodes, oxide-coated, surface charge localization 0=9071
 electron space charge, compensation 3=9867
 ions, positive, metals, semiconductors, laser induced 3=24333
 laser induced, from conductors, semiconds., insulators 3=14626
 oxygen negative ion emission from dispenser cathodes 1=7103-4
 vacuum distillation pinhole camera, using radioactive source 0=5358
 Cs, from various emitters, mass-spectrometer study 0=276
 Fe filaments in vacuum, positive molecular ions 2=3086
 Fe oxide catalysts, with alkali metals, positive-ion emission, mass-spectrometric study 3=21891
 K, ion current rel. to temp. 4=16546
 K, isotope effects meas. 4=24749
 LaB₆ 4=3050
 Li, isotope effects meas. 4=24749
 Ni, in vacuo 0=10972
 Ni, in various gas atmospheres 3=14663
 O⁻, during activation of oxide-coated cathodes 0=17042
 Pt, thermionic and activated emission of Na, K, Ca impurities, diffusion study 0=6061
 Pt, in various gas atmospheres 3=14663
 Rb, isotope effects meas. 4=24749
 W, clean and oxygenated, alkali pulse-emission 0=9093-4
 W, incandescent, H⁺ formation 0=8985
 W, positive pulses, correl. with flicker effect in space-charge limited diodes 0=9094
 W surface in vacuum, positive molecular ions 2=3086
 W, in vacuo 0=10972

Thermionic tubes

See Electron tubes

Thermochemistry

See Heat of reaction, etc

Thermocouples

- bonding into samples, use of hard Ga alloys 0=14360
 butt welding, 0.001-0.01 in. dia. 0=12576
 calibration to 2200°K, Ti-tube furnace 3=283
 cascade generators, optimal operation mode, efficiency 3=2985
 cascaded, calc. of overall efficiency 1=268

Thermocouples—contd

- chromel—alumel, for heat pipe temp. profiles meas. 4=27349
 cooling, rapid, thermo-couple solders on quenching in water 3=7371
 in cooling systems, regenerative 0=19602
 crystal-growth temp. meas. 2=21472
 deformed—undeformed metal, e.m.f. origin in lattice defects 1=14525
 differential sensing controlled 3=21600
 e.m.f., effect of pressure, for various metals and alloys 1=5035
 eutectic Sn—(alloy Sn—Bi), molten, thermo-e. m. f., 400°-800°C 4=8219
 fine wire probes of great strength, rapid response, and high spatial resolution 4=8486
 generator (150 couples) for teaching purposes 1=7021
 graphite, pyrolytic, output and sensitivity 4=21343
 graphite—Re, graphite—Ir, for use in C atmospheres at 2000°C 1=4502
 heat leaks, compensation through a multilayer stack 4=27468
 in HERO reactor, calibration by gas thermometer 3=284
 high-temp., stability in vacuum 0=19516
 ice-point junction for continuous use over long periods 1=8258
 immersed thermocouple, error analysis 1=8259
 junctions at 0°C with zero-thermostat 2=19757
 large couple for temp. disturbance location 2=9524
 in manometers, low-pressure measurement 1=5248
 materials for temp. meas., review 2=11611
 measurement errors, due to heat flow from thermal regions 0=5218
 microcalorimeter, calibration using Peltier effect 4=27367
 Moll thermopiles for high-intensity thermal radn. meas. 2=11535
 noble metal, for calorimetry 0=16925
 for nuclear reactor fuel cells, weakened 4=28095
 operation of general thermocouple 0=12575
 operation, under irradiation 4=29796
 Peltier cooler, heat transfer, under steady currents 1=2902
 Peltier juncns. fast transient behaviour 2=16762
 as piston, in automatic m.p. recorder 1=1846
 plasma, efficiency 0=9040
 plasma probes, for blob energy meas. 4=24669
 plasma thermocouple, dynamic behaviour 2=7658
 probe for sound intensity meas. in water 4=2796-7
 probes, pointed, design 1=13016
 probes, very fine, for temp. meas. in water flow 4=18465
 radiation thermocouple, response characteristics 1=11853
 radiation thermoelement, direct visual adjustment 0=6990
 for radio-frequency heating control 4=21344
 reference junction, multipoint, in temp. meas. 3=7375
 response of circuit to nonsteady current 1=8301
 review, theory, applications 1=4501
 standard ice point, thermoelectrically maintained 3=19050
 surface type, response rel. to size and junction 4=14567
 switch, Hg, for establishing true electrical zero 1=5366
 temperature changes, rapid meas., circuit 2=1300
 for temperature—time recording, automatic 4=5430
 theory; zero-, first-, and second-order 1=11902
 thermal conductivity gauge 1=16132
 thermal inertia, equations 3=11985
 thermodynamic props. 0=3693
 thermopile, B-coated, neutron sensitive 2=3362
 thermopile, i.r., solid backed, evaporated 4=18484
 thermopile + motor, thermal energy converted to motion 3=9717
 thermopiles, radiation, for precise photometric meas. 3=3862
 thermopile, ribbon, miniaturized version 3=290
 thermopile, ribbon type 2=2928
 thermopiles with ≥80 junctions, method of construction 1=7680
 time constant detm. method 4=350
 transient temp. meas. in solid body 0=7068
 vacuum-deposited thin-film type for meas. of substrate surface temp. 4=2874
 vacuum gauge, circuit diagram 3=5473

Thermocouples—contd

- vacuum gauge, const. temp., high-sensitivity probe 4=18287
 in vacuum system, Mo and Kovar fused to glass 3=24092
 Ag, bulk-film, thermoelec. power 2=14495
 Ag thread—Co film, power, rel. to temperature 3=15539
 Au, thermopower variation due to vacancies 4=10142
 Au—Co, low-temp behaviour 1=8889
 Au—Co, thermal cond., elec. res., Lorenz number, 4-100°K 0=7858
 Au—Fe alloy, for low temp. heat cond. meas. 4=8537
 Bi—Ag, free, preparation by vacuum evap. 4=2989
 Bi—Cu, mag. field effect 2=14504
 Bi—Sb junctions prod. and props. 3=15640
 Bi—Sb—Te alloys, as refrigerating elements 0=2915
 Bi₂Te₃, efficiency in cascade elements 3=2985
 Bi₂Te₃—Sb₂Te₃, thermoelec. power, elec. cond. depend. 0=2917
 for use in C atmospheres at > 2000°C 1=4502
 Cr—copel, for meas. of large neutron fluxes 2=3364
 Cs plasma, for 1600°–2600°K hot-junction 0=1139
 Cu—constantan, in low temp. thermostat, 4.2°–77°K 0=19522
 Cu—Pb, 77.4°–298°K 3=20425
 Ir—Rg alloys versus Ir, reference tables 4=16278
 Ir—Rh, use as micro furnace 4=18471
 NbC—graphite and NbC—ZrC, construction and calibration 4=18466
 Pb—Bi, molten, thermo-e. m. f., 400°–800°C 4=8219
 PbSe, efficiency in cascade elements 3=2985
 Pb—Sn, molten, thermo-e. m. f., 400°–800°C 4=8219
 Pt, in contact with Nb, diffusion 2=3954
 Pt, miniature, thermal and hydrostatic behaviour 4=8484
 Pt—Bi, e. m. f., pressure effect 1=18753
 Pt—PtRh, calibration over wide temp. range, reproducibility 4=18467
 Pt—Pt/Rh, effect of thermal neutron irradiat. 3=3915
 Pt and Rh mixtures, reference tables, 0°–1800°C 4=27363
 Re—W, in H₂ atmospheres, stability, thermal cycling 0=14955
 Sb—Bi, molten, thermo-e. m. f., 400°–800°C 4=8219
 Sn—Cd, molten, thermo-e. m. f., 400°–800°C 4=8219
 Ta/Rh—W, up to 2800°C 0=7006
 W—Re, for use in C atmospheres at > 2000°C 1=4502
 W—Re, thermoelectric stability at high temp. 4=24417
 W—Re, up to 2000°C, study 4=8485
 W/Rh—W, up to 2800°C 0=7006

Thermodynamic properties

- See also Critical constants, thermal; Entropy; Heat of reaction; Latent heat; Thermal transformations
 acetone—isoctane system, activation coeffs., from vapour press. 4=16143
 acetyl radical 4=25759
 activity meas., NiO—MgO and MnO systems 2=2414
 adsorption, thermodyn. quantities correl. 2=2432
 air plasma, equilibrium calc. at high temps. 3=24275
 alkali halides, Debye temps., temp. depend. 3=22667
 alkali metal vapours, rel. to dimerization 2=19620
 alkali pentaborate hydrates from 15° to 370°K 4=30517
 alkaline earth halides, enthalpies 4=8501
 n-alkane mixtures, V^E, H^E, G^E dependence on composition 4=24199
 alloys, antiferromag., ordering free energy 2=6818
 alloys, liquid metallic 0=1956
 alloys, molten, dilute, interaction parameters 3=16603
 alloys, triple, partition function, ordering processes 0=6378
 antiferromagnets, mag. field depend. 3=3143
 atoms, Thomas—Fermi, at low temp. and high press. 1=3501
 benzene, adsorbed on graphite, calc. 3=18398
 benzene vapour, isothermals 22–70°C 0=8698-9
 binary crystalline cpds., min. molar Gibbs free energy 0=4259
 boroxine, trifluoro, reaction with H₂ 2=19140
 bromodichlorofluoromethane (CBrCl₂F), calc. 0=4207
 chemical donor—acceptor complexes 2=10968
 chlorobenzene + bromobenzene mixtures 3=296
 coexistence of phases, strain terms, bulk free energies 0=220
 colloids, mixed micelles at equil. 2=4569
 condensed systems, statistical mechanics of isotope effects 1=8065
 corundum, enthalpy, 500–2000°C 3=20103
 corundum, enthalpy, 1123°–2103°K 2=20934

Thermodynamic properties—contd

- crystals, anharmonic free energy at high temps. 3=25163
 crystals, anisotropic, C_p—C_v 2=6268
 crystals, Ising model, matrix calc. 2=18506
 crystals, monatomic linear chain, rel. to sp. ht. 2=10332
 crystals, thermal free energy, at low temp. 2=20915
 crystals, vacancies, in melting theory 2=6291
 crystal with vacant lattice site 1=6104
 at Curie point, const.—coupling calc. 3=20108
 cyanogen halides 4=1274
 cyclohexane binary liquid mixtures 4=18191
 degenerate ionized gas 1=9340
 diatomic gas molecules, dissociating, at high temp. 0=962
 dibromochlorofluoromethane (CBr₂ClF), calc. 0=4207
 1, 2-difluorobenzene 3=8291
 3, 3-dimethyl-2-thiabutane, chem. props. 2=3732
 domain walls in ordered structures, free energy 2=10655
 elastic solids, inequalities 0=13906
 electron gas in metals, quantum oscillations 1=3643
 energy—temperature—volume surface for one-component system 2=15827
 enthalpy change when solid formed from gaseous, liquid components 2=17081
 enthalpy and flame stability 3=279
 enthalpy, of freezing, meas. 0=6994
 enthalpy of gases, calorimetric probe 3=21605
 enthalpy, in laminar flow, heat cond. and viscosity depend. 0=221
 enthalpy, metals, alloys and various organic and inorganic subst., 1-300°K 1=910
 entropy of paramag. salts at low temp., matrix calc. 2=4913
 ethylenediaminetetra-acid complex ions 0=21277
 f.c.c. crystals, Helmholtz free energy, anharmonic contrib. 2=569
 Fermi hard-sphere system near abs. zero 2=19466
 ferromagnetic crystals, imperfect, Ising approximation 0=13761
 ferromagnetic crystals, partition functions 0=8038
 ferromagnetic, isotropic, with arbitrary spin, Green's functions 3=8648
 five-membered heterocycles, calc. of thermodyn. functions from spectroscopic data 0=13433
 4-fluorotoluene 2=20847
 fluid in external potential field 0=14626
 free radicals, properties 1=15193-4
 fused salts, heats of mixing 2=1137
 fused salts, theory 2=19542
 gas hydrates, free energies of ice 4=28389
 gas, ideal, obeying "intermediate" statistics 3=18741
 gas mixtures, binary, rel. to thermal diffusion 2=21939
 gases, and compressibility factors, derivative, two new 3=11826
 gases, effect of centrifugal field 2=15645
 gases at extreme pressures 1=6903
 gases, harmonic oscill. vibr. contribs., tables 3=23926
 gases, imperfect, and liquids, theory 3=14208
 gases, real, theory, book 3=11816
 gases, in solution, partial molal volume 2=15578
 gases, two perfect, minimum separation work 2=2766
 graphical representation, 3-dimens, multiphase states 0=19529
 graphite, hexagonal and rhombohedral, enthalpy difference 4=30534
 graphite, rel. to irradiation energy release 4=12832
 halogen cyanides, calc. 4=25674
 hard sphere mol. mixtures, Monte Carlo calc. 3=23925
 heat contents, 1000–2500°C, drop calorimeter 2=15797
 Helmholtz free energy of crystals, anharmonic contrib. 2=568-9
 hydrocarbons, aq. sols. model for props. 2=17444
 hydrogen, liquid, quantum effects 3=21319
 ice, anomalous props. 0=11579
 ice, metastable structures I and II 4=28389
 ice, residual entropy 4=17330
 ideal gas and isotope exchange functions, tables 1=9418
 inert gas crystals 0=17869
 inert gas crystals, anharmonic free energy at low temps. and abs. zero 4=9851
 inert gases, zero-point energy 1=3603
 interstitial solid solns., ht. of transport 2=3932

Thermodynamic properties—contd

iodine-ethylene, propylene, and cyclopropane systems 2=17080
 ion hydration, rel. to effective dielec. props. of water 2=10982
 ionic melts 2=1132
 ionized gases, calc. 0=19606
 ions, gaseous elemental, unipositive 2=7561
 ions, unipositive gaseous elemental, 100-50 000°C, calc. 0=14972
 isotope effects, quantum statistics 1=10435
 isotopic mixed crystal 1=8878
 ketene 0=11524
 ketene 3=12854
 lattice with defects, appl. to linear chain 0=11569-70
 linear chain, vibrational props., anharmonic contrib. 2=568
 liquid at low temp., perturbation method 1=15736
 liquid-vapour transit. 2=17962
 liquids, classical 0=10649
 macromolecular crystals, chain oscillations, free energy density 0=14054
 of metallic solid solns. 3=8885
 metals, de Haas-van Alphen effect 3=8641
 metals, by functional variational princ. 3=752
 metals, grain growth and creep, activation energies 0=6041
 metals, modification due to electron-phonon interactions 4=12678
 metals, P, u, mirror image approx. 4=17358
 metals, thermoelectricity with melting 3=25423
 methane 2=9311
 methanes, isotopic, from force constants calc. 0=5898
 methyl isothiocyanate, molal, ideal gas state, 273-1000°C 3=14210
 methylacetylenes 2=20851
 methylphosphonyl dihalides from 15° to 335°K 4=30521
 mixing condensed systems, free enthalpy det. 2=7205
 molecular parameters of C/H fragments 2=12347
 molecules with square-well potential interaction, free volume theory 0=4242
 molten salt mixtures, excess free energies and heat of mixing 2=17452
 multicomponent systems, matrix representation 2=22103
 paraffins (normal), enthalpies of fusion 2=16978
 para-hydrogen, press-density-temp. (15-100°K, up to 350 atm) relations 3=14146
 perturbed crystal lattice, freq. spectrum moments 0=2785
 phosphoryl chloride, thiophosphoryl chloride, phosphoryl fluoride, from spectral data 1=6016
 plasma, application of modified Debye-Hückel theory 1=9543
 plasma, approach to equilibrium, irreversible processes 1=9541
 plasma and dense gases, theory 2=5330
 plasmas, electrostatic interactions, effects 2=3031
 plasmas, internal energy rel. to e.m. internal energy 2=9565
 plasma, at low temps. 1=4590
 plasma, partially ionized, equilibrium properties 1=9558
 plasmas, spark, equil. rel. to composition 2=11645
 polaron in uniform mag. field, free energy 3=2769
 polyatomic molecules, partition functions, centrifugal distortion corrections 3=22522
 polyelectrolytes, 2nd virial coeff. 4=161
 polymer crystals, stability, torsional vibrations of chain molecules 2=23801
 polymers, polar, in soln. 3=11790
 polymer solutions, light scatt. meas., differences from dense gases 4=2669
 polymer solutions, polar 3=14158
 polypropylene, atactic and isotactic, rel. to structure 3=10597
 polystyrene enthalpy, in vitrification zone 4=2139
 proton hydration enthalpy 3=21337
 Rochelle salt, ferroelec., electrocaloric effect 3=25403
 salts, fused, heats of mixing, perturbation theory 4=24198
 semiconductors, activity, and intrinsic ionization equilibrium 3=17836
 semiconductors, carriers with arb. energy bands 4=28394
 shock tubes, using equil.-interface technique 2=15631

Thermodynamic properties—contd

silicates, initial, from structure analogy 3=18269
 silyl halides, and potential constants 3=8280
 simple systems, at low temp. 0=8654
 solid solutions 0=731
 solid solns., interstitial, with b.c.c. lattice 2=23893
 solid solns., interstitial, statist. model 4=15440
 solids, with imperfections 0=4295
 solids, plastic flow 2=10753
 solids, vibrational, anharmonic contrib. 2=568-9
 solutions of liquified gases 3=14145
 spinels, binding energy, statistical theory 0=2772
 steam, enthalpy 0=10695
 steam, superheated, equations 0=14911
 steel, stainless, type 316, enthalpy at high temps. 2=4445
 substituted methanes 1=14008
 sulphuryl fluoride 0=5016
 supercond., type II 4=18559
 thiolacetic acid, molal, ideal gas state, 273-1000°K 3=14210
 thiophosphoryl halides, calc. 3=2634
 thiourea, molal, ideal gas state, 273-1000°C 3=14210
 toluene, solid and liquid 2=15822
 transition-metal compounds 2=10967
 transition metal oxides, free energy determ. 4=15840
 triatomic molecules in ideal gas state 2=1207
 trifluoroacetonitrile 1=11861
 trifluoromethanethiol 0=5017
 trifluorophosphine, 12°K to b.p. 2=13484
 tri-glycine sulphate, transition energy calc. 4=17523
 2-component 2-phase systems, use of Jacobians 0=10815
 ultrasonics at crit. state, effect on light diffr. 2=5188
 urania-thoria solid solns. 0=6382
 uranium monosulphide 1=11862
 urania-zirconia solid solns. 1=14193
 vapour, laser ejected from solids, mass spectrum, equilibrium 4=21361
 vapour-liquid equilib. in multicomponent systems 0=1064
 water, adsorption on quartz 2=2435
 water, comparison with 6 electrolytes 4=21126
 water, model for thermodyn. props. 2=17443-4
 water, rel. to Pauling's model 1=4326
 water, sorbed on zeolite 0=10376
 water vapour, at high temps. 4=16147
 A, isentropic pressure-density curves 1=11789
 A, liquid, density as function of pressure and temp. 1=8107
 A, solid 2=6270
 Ag-Bi alloys, activities of Ag and Bi 4=10437
 Ag + Bi alloys, liquid, 1000°K, from vapour pressure 3=14422
 Ag-Cd alloys, α, β, γ and ϵ phases 3=13522
 AgCl-Ag₂S molten mixtures 4=24235
 AgI, rel. to cation mobility and thermal contraction 1=12357
 AgNO₃, enthalpy, 300-438°K, 433°K transition 4=15430
 Ag-Pb alloys, liquid 1=8111
 Ag-Si system, liquid, at 1420°K 4=5445
 Al black, thermal props. 3=23369
 Al halides, gaseous, diatomic, calc., 0-6000°K 0=963
 Al-Ag, interaction energy 3=8886
 Al-Bi-Pb liq. system 4=21122
 Al-Cu alloys, liquid, 1000°C, Cu activity 3=14152
 α -Al₂O₃, enthalpy 3=25198
 α -Al₂O₃, enthalpy, 1200°-2500°K 2=18529
 Al₂O₃, vaporization 0=10698
 AlSb-GaSb 0=12079
 Al-Sn, electrode potl. study 4=29801
 Al-Zn, interaction energy 3=8886
 Ar, liquid, neutron scatt. meas. 4=27171
 Ar plasma 3=21819
 Ar-O, Ar-N, Ar-CO liq. systems 3=132
 AsH₃, AsD 0=4187
 AsT 0=17741
 AsYZ₂ (Y, Z = H, D, T), 100-1000°K 1=6000
 Au-Ni, interaction energy 3=8886
 Au-Ni system 2=23867
 B halides, gaseous, diatomic, calc., 0-6000°K 0=963
 B^{10,11}Cl₃, calc. 2=21940
 B^{10,11}F₃, calc. 2=21940
 B₂O₃ 0=4193
 B₂O₃, rigid rotator harmonic oscillator model 4=6584

Thermodynamic properties—cont'd

- B₂S₃, rigid rotator harmonic oscillator model 4=6584
 BaCl₂, enthalpy temp. var., and phase transformation 4=8501
 BaO, enthalpy of formation of oxygen vacancies 2=14431
 BaS, rel. to vaporization, by mass-spectrometry 4=16301
 Ba-Sr titanates, enthalpy of tetragonal-cubic transition 2=20933
 BeC₂ molecule 4=15348
 BeO, Wigner energy meas. 4=15439
 BeO, Wigner energy release, determ. by calorimetric method 4=18473
 BeO, 298-1200°K, enthalpy 3=25196
 Bi-Mg, liquid state 0=14644
 Bi₂Te₃, rel. to stability 4=27396
 Bi₂Te₃, 370-410°K, ΔZ, ΔS, ΔH 3=22657
 Br₂ oscillator, thermodynamic function 4=28177
 BrF₅ 2=16523
 BrF₃, calc. 3=2631
 C vapour, orbital theory calc. 0=509
 C₂ 0=6836
 C₃, enthalpy of sublimation 2=6166
 CD₄, liquid and solid 3=22658
 CH₄, liquid and solid 3=22658
 CH₄-Ar system, ~90°K 3=14145
 CH₄-CO system, ~90°K 3=14145
 CH₂Cl₂, CHDCl₂ and CD₂Cl₂, heat content and free energy functions 4=22396
 CH₄-Kr solid sols., excess free energy 2=574
 (CH₃)₄NBr, from specific heat 2=14381
 (CH₃)₄NCl, from specific heat 2=14381
 Cl₂, gaseous, 100-1000°K, calc., rigid rotator, simple osc. approx. 4=8247
 Cl₂ mol., from vibr. spectra 2=16541
 C₃O₂, 100°-2000°K, review 4=25668
 COCl₂, 100-1000°K 1=13986
 COD₂, 100-1000°K 1=13986
 COF₂, 100-1000°K 1=13986
 CO-N₂, CO-Ar liq. systems 3=132
 CO₂, P/T/Entropy diagrams 1=6989
 CSCl₃, 100-1000°K 1=13986
 CaCl₂, vaporization 4=5461
 Ca(NO₃)₂, soln. in water, at high temp., comparison with water 4=21126
 CaS, rel. to vaporization, by mass-spectrometry 4=16301
 Cd, alloying with Bi 3=23548
 Cd, enthalpy of freezing 0=6994
 Cd-Te system, phase equil. 2=19089
 Ce ethyl sulphate, 0.02-1°K 0=10102
 Cl and Cl₂, gaseous, 273-5000°K 0=964
 ClF, gaseous, 273-5000°K 0=964
 CoCl₂, soln. in water, at high temp., comparison with water 4=21126
 Co₃O₄-Mn₃O₄ system, activity-composition curves, free energy of mixing and of formation of CoMn₂O₄ 4=22517
 CoSO₄·7H₂O, magnetothermodynamic data, 0-100 kG 3=25504
 Co-Se and Co-Te systems 4=7480
 Cs, liquid and vapour, up to 1500°K and 22 bars, calc. 4=8246
 Cs plasma, chemical potential, rel. to work function of electrode in plasma 3=21820
 CsCl-type lattices 4=1382
 CsNO₃ transition energy at 153.8°K 0=18372
 CuII acetonylacetone 1-20°K 0=10093
 Cu-K sulphate, spin system, thermodynamic properties 3=20109
 D liquid state, thermodynamic props., reduced volume, quantum cell model 4=14134
 D, -175° to +150°K 0=14909
 D₂, calc. from H₂ eqn. of state 3=23929
 D₂ oscillator, thermodynamic function 4=28177
 DNCS gas 4=18246
 D₂O, liquid, statistical model 4=24200
 D₂SO₄ molecules 3=12842
 Dy₂O₃, enthalpy and entropy meas. 3=20106
 Er₂O₃, enthalpy and entropy meas. 3=20106
 F₂, liq., calc. using significant structure theory 4=8166
 Fe silicides, enthalpy, 55-1925°K 4=12647
 Fe-Al alloys 4=15441
 FeO, non-stoichiometry, excess O₂ 2=16999
 Fe₃O₄, chemical formation changes 4=26742

Thermodynamic properties—cont'd

- FeO-SiO₂-CaO melts, state diagram 0=18163
 Fe-Pt alloy, press. effect on Curie temp. 4=20711
 Ga II 1=11527
 Ga-Cd alloys, enthalpy of mixing 0=6994
 GaO, molecular, up to 3000°K 3=25093
 Gd₂O₃, entropy and enthalpy, 10°-350°K 3=20105
 Ge-Si 0=4685
 GeTe 3=295
 H, in benzene sols. 2=13327
 H gas, at 5000-20 000°K 2=13371
 H gas, monatomic, high temp. 3=18855
 H isotopes, including quantum effects 3=21321
 H, liquid isotopes, internal energies rel. to molar volumes, zero-point energy meas. 4=168
 H, liquid, low temp. effective mass concept 4=18175
 H liquid state, thermodynamic props., reduced volume, quantum cell model 4=14134
 H, -175° to +150°K 0=14909
 H, ortho and para solid sols., free energy 2=18541, 23095
 H, up to 100,000°K, partition function cut off effect calc. 4=16146
 H plasma, total Helmholtz free energy 4=8683
 H₂, on cell model, Lennard-Jones-Devonshire, six isotopes 3=21318
 H₂ and D₂, -175°C to 150°C, up to 2500 atm 3=23930
 H₂, liq., quantum effects, erratum 4=16105
 H₂ oscillator, thermodynamic function 4=28177
 H₂, para, 1-22°K 4=14451
 HBO₂ 0=4192
 HCOF, DCOF, calc. 4=12503
 HCl, gaseous, 273-5000°K 0=964
 HClO₄, anhydrous 4=9859
 HF, liquid 0=3524
 HNC 3=22584
 HNCO, and mols., Urey-Bradley force field 3=12799
 HNCS gas 4=18246
 HNCS, and mols., Urey-Bradley force field 3=12799
 H₂O, isothermal compressibility, rel. to sound absorpt. 4=14159
 H₂O + D₂O, isotope exchange reaction 4=29204
 H₂S₂, molal, ideal gas state, 273-1000°K 3=14210
 H₂SO₄ molecules 3=12842
 HT and D₂, rotational effects, perturbation calc. 0=20606
 He, fluid, 3-20°K, up to 100 atm. 0=19532
 He isotopes, including quantum effects 3=21321
 He, liquid, from dielec. const. meas. 0=8899
 He liquid, energy gap, temp. depend., effect on thermodynamic behaviour near λ point 4=8544
 He, liquid, near λ-curve 4=29822
 He, liquid, rel. to neutron inelastic scatt., theory 0=8872
 He, up to 100,000°K, partition function cut off effect calc. 4=16146
 He plasma, equilibrium, and parameter calc. 4=531
 HeII 4=24472
 He³, liq., near melting curve 2=15834
 He³, liq. in possible superfluid phase, calc. 2=7490
 He³, liquid, spin entropy near melting 4=8547
 He³, near melting curves up to 31°K 4=29821
 He³, 0.3-1.2°K 1=4526
 He³, phase diagrams 2=1331
 He³, Soviet and Western research 1=4523
 He³, liq. and solid, above 3°K, at high densities 4=29816
 He⁴, liquid, λ transformation 4=27405
 He⁴, near λ-point 0=16933
 He³-He⁴ mixtures, properties between 0.4°-2°K 1=8272
 He³-He⁴ solutions 0=14919
 He³-He⁴, superfluid solutions 0=8888
 He⁴-He³, liquid, dilute, calc. 4=21378
 HfC, high-temp. heat content 4=12650
 Hf-H system 2=23808
 Hf-O alloys 4=7471
 Hg vapour, at high temps. and low press. 2=2761
 HgBrI molecule 4=15348
 HgClBr molecule 4=15348
 Hg-Sn, partial molar enthalpies 3=5116
 Ho₂O₃, enthalpy and entropy meas. 3=20106
 IF₅, calc. 3=2631
 IF₅, mol., from Raman spectrum 3=2630
 I₃-N₃⁻ complex 3=21377
 InAs, from In + As → InAs electrochem. cell 4=25850

Thermodynamic properties—contd

In-Bi liquid alloys 1=143
 InSb 0=10354
 InSb, gaseous molecules in equilib. with solutions of In and Sb 0=965
 InSb, press.—temp. diagram 4=17758
 InSb-GaSb 0=4685
 In-Sb-Zn liquid solns., from mass spectrometry of Knudsen-cell effusates 4=24201
 K vapour, dissociation energy 2=1312
 K₂CO₃, enthalpy changes up to 975°C 3=22663
 K₂CO₃, soln. in water, at high temp., comparison with water 4=21126
 KCl, repulsive energy, calc. 2=2039
 KCl, soln. in water, at high temp., comparison with water 4=21126
 KCl-KBr, configurational free energy 0=12071
 K₂CrO₄, soln. in water, at high temp., comparison with water 4=21126
 KNO₃, soln. in water, at high temp., comparison with water 4=21126
 Kr, solid 2=6270
 LaC₂ molecule 4=15348
 La₂O₃, entropy, enthalpy, and Gibb's function 3=20104
 Li 2=2708
 Li halide dimers 0=17854
 Li halides, gaseous, diatomic, calc., 0-6000°K 0=963
 Li₂CO₃, enthalpy changes up to 975°C 3=22663
 LiF-KF molten system, molar mixing enthalpies 3=21338
 MgO, 298-1200°K, enthalpy 3=25196
 Mn-Ni 0=4688
 Mo, enthalpy, 0-2400°K 3=20102
 Mo, enthalpy up to 2337°C, meas. 2=8174
 Mo, W, and U oxides, gaseous 0=10699
 MoO₃, sublimed vapour 0=10697
 MoSi₂ and Mo₅Si₃, high temp. stability and behaviour 4=23279
 N, liquid, density as function of pressure and temp. 1=8107
 N₂, function $F = H - TS$, for $p < 900$ atm., $300^\circ \leq T \leq 800^\circ K$ 0=14910
 N₂ oscillator, thermodynamic function 4=28177
 N-Ar N-O, N-CO liq. systems 3=132
 NF₂ radical 2=20883
 NH₃, liquid 2=2707
 NH₃, ND₃ 0=4187
 (NH₄)₂Cd₂(SO₄)₃ 2=16604
 N₂H₄ and N₂D₄, 273°-1000°K calc. 4=1277
 (NH₄)₂SiF₆ 4=12645
 NO molecules, isotope effect 1=3581
 NO₂Cl, calc., 100-1000°K 1=13981
 NO₂Cl molecule 3=12797
 NO₂F, calc., 100-1000°K 1=13981
 NO₂F molecule 3=12797
 NP₃, and molcs., Urey-Bradley force field 3=12799
 NSF₃ 2=20838
 NT₃ 0=17741
 NYZ₂ (Y, Z = H, D, T), 100-1000°K 1=6000
 Na, neutral, partition function calc. 0=20551
 Na vapour, calc., criticism 3=21444
 Na vapour, rel. to dimerization 2=19620
 Na₂CO₃, enthalpy changes up to 975°C 3=22663
 NaCl, enthalpy 3=25198
 NaCl-NaNO₃ system 4=16282
 NaCl, repulsive energy, calc. 2=2039
 NaOH and monohydrate 3=7388
 Na₂TeO₄, high-temp. heat content 3=770
 NbB₁₋₉₉₃, 5 to 350°K 4=6746
 NbC, heat content, 1289°-2778°K meas. 4=1397
 α-Nb₂O₅, defect equilibrium 2=8205
 Nd₂O₃, entropy, enthalpy and Gibb's function 3=20104
 Ne isotopes, at low temps. 0=12416
 Ne, T-s, p-v-p diagrams 4=11231
 Ne-nD₂ liquid mixtures, excess free energy 4=2668
 Ni 99.95% pure, enthalpy, 1120°-1919°K 3=8359
 Ni, work function ψ , ferromagnetic anomaly 1=14693
 Ni-Cr, enthalpy at high temps. 2=4445
 NiH chemical desorption enthalpy of H 4=23649
 NiO 1=14474
 Ni-Zn alloys, α-f.c.c., at high and low temp 3=25746
 O₂, enthalpy at 1-30 atm., 1000-30000°K 0=7129
 O₂, 20-100°K 4=11431
 O₂, -200° to 3000°C and up to 500 bar 4=2723

Thermodynamic properties—contd

O₃ molecule, 200°-2000°K calc. 4=17296
 O-Ar O-N, liq. systems 3=132
 OsF₆ 0=4202
 P₄, gaseous, 1 atm., 10-1000°K 0=19200
 PCl₃ vapour, from far i.r. spectrum 2=12329
 PFCl₃, calc. 3=2626
 PH₃, PD₃ 0=4187
 P₂O₅, hexagonal 12-324°K, calc., from specific heat 4=9858
 PT₃ 0=17741
 PYZ₂ (Y, Z = H, D, T), 100-1000°K 1=6000
 Pb, Helmholtz free energy, anharmonic contrib. 2=569
 PbBr₂, activity coeffs., in reciprocal molten salt systems PbBr₂ + NaCl and PbCl₂ + NaBr 3=16155
 PbS, mass spectrometer study 2=20877
 Pd-Fe alloys, at 1200-1460°K 2=15140
 Pd₂H, energy evolution below 1°K 3=9665
 Pd and Pt chalcogenides 1=19717
 Pd and Pt chalcogenides 1=19718
 Pt-Co alloys, 1200-1400°K 4=23237
 PtF₆ 0=4202
 Pu, up to 300°K 2=23076
 PuC, enthalpy, 400°-1300°K, meas. using isothermal drop calorimeter 4=22495
 PuF₃, free energy of formation 0=12101
 ReO₃Cl and ReO₃Br, enthalpy, heat capacity, free energy and entropy 4=6600
 ReS₂ 2=17084
 Re₂S₇ 2=17084
 RuO₄ 1=4934
 SCl₂, molal, ideal gas state, 273-1000°K 3=14210
 S₂Cl₂, molal, ideal gas state, 273-1000°K 3=14210
 SO₃ gas 2=6161
 SbCl₃ vapour, from i.r. data 1=4936
 SbCl₅ vapour, from i.r. data 1=4936
 SbH₃ 1=7452
 Sb₂S₃, molten 4=8197
 Sb₂Te₃, rel. to stability 4=27396
 Sb₂Te₃, 380-420°K, ΔZ, ΔS, ΔH 3=22657
 Sc, high-temp. thermodynamic functions, estimation 3=24119
 Si, enthalpy meas., 1200-1900°K 2=6277
 Si₂C molecule 4=15348
 SiC₂ molecule 4=15348
 SiD₃NCS, calc. between 100°-1200°K 3=22573
 SiF₄, from 15°K to triple point 3=21636
 SiHBr, molecule 3=12798
 SiHCl, molecule 3=12798
 SiH₂NCS, calc. between 100°-1200°K 3=22573
 Sm 0=2788
 Sm₂O₃, entropy and enthalpy, 10°-350°K 3=20105
 SnBr₄, gas, calc. 2=11420
 SnCl₄, gas, calc. 2=11420
 SnH₄, calculated from i.r. spectrum 1=7471
 SnI₄, gas, calc. 2=11420
 SnS, mass spectrometer study 2=20877
 SrCl₂, enthalpy temp. var., and phase transformation 4=8501
 SrS, rel. to vaporization, by mass-spectrometry 4=16301
 T liquid state, thermodynamic props., reduced volume, quantum cell model 4=14134
 TaC, heat content, 1296°-2843°K meas. 4=1397
 Ta-H, 300°-700°K 2=19026
 Tc hexafluoride, thermodynamic functions 4=1280
 Te⁻ ions 2=7561
 TeO₂, high-temp. heat content 3=770
 ThO₂, 298-1200°K 1=14182
 TiO₂, defect equil. and O vacancies 3=2786
 Ti, alloying with Bi, Sb, oxidation effects 3=23548
 Ti, enthalpy calc. from press-temp. diagram 4=30806
 Ti-Sb liquid system 4=29619
 U carbides 4=13611
 U, γ-phase and molten, heat content meas. using drop calorimeter 4=21127
 UF₄, 1.3-300°K 0=15811
 U₃O₇, α- and β-phases, rel. to struct. 2=10329
 V monoxide, non-stoichiometric 4=28390
 VC 3=1386
 V-Cr alloys 4=22518
 V-Fe alloys, from v. p. meas. 4=10441
 V₃Ga, superconducting 2=17732

Thermodynamic properties —contd

- V-Ta (5 at. %), supercond. 4=18620
 VOCl₃ mol., calc. 2=14246
 W, enthalpy, 350-2000°C 3=8361
 W, enthalpy, 2400-2820°C 2=18528
 W oxides 0=1955
 WC, high-temp. heat content 4=12650
 Xe, enthalpy-entropy diagram 2=11421
 XeF₄, molar 4=25688
 YH₂ and YD₂, 5-350°K 2=6278
 YH₃ and YD₃, 15°-350°K 3=17658
 Y-Zn system compounds 4=5444
 Yb 4=25861
 YbFe garnet, low-temp. props., calc. 1=12541
 Yb₂O₃, entropy and enthalpy, 10°-350°K 3=20105
 Zn-Al alloys, activity free energy, enthalpy and entropy of mixing from v.p. meas. 4=11412
 Zn-Cu liquid alloys 4=24203
 Zn-In-Ga liquid system 2=15580
 ZnO 4=29811
 ZnS-CdS, Cu activated, reaction enthalpy 3=6678
 Zn-Sn-Bi system, miscibility gap, calc. from thermodynamic functions 1=142
 Zn-Sn-Pb alloys, miscibility gap calculation 1=6529
 Zr diboride 2=2936
 Zr, high temp. 4=3989
 Zr-H system, one and two-phase fields 4=3989
 ZrH₂ and ZrD₂ 1=7538
 XY₂ molecules, calc. 3=2626
 XYZ, planar type of molecules 3=12797
 XY₂Z type of molecule 3=12798

Thermodynamics

- See also Atmosphere, thermodynamics; Entropy;
 Equations of state
 activity, rel. to diffusion and evaporation rate 4=17851
 adiabatic invariance and Boltzmann's system 3=9361
 adiabatic and isolated susceptibilities, theory 1=12813
 adsorbed molecules, two-dimensional second virial coeff. 4=29190
 adsorption-extension phenomena 3=20937
 anisotropic system, at zero temp., calculation of properties 0=18980
 approach to equilibrium, general theory 0=16618
 approach to thermodynamic equilibrium 1=6793
 assembly in mass-motion 0=8571
 atom distrib., equil., emission of radn. effect 4=27368
 bilinear eqn. of state, rel. to Nernst princ. 2=11545, 17701
 binary gas mixtures, molar heats, choice of eqn. of state 4=14210
 boiling, singularity in potential 4=8514
 Boltzmann eqn. for dense systems 0=18426
 Boyle's-law gas, internal energy, sp. hts. 3=11831
 Buchdahl's treatment 1=1855
 caloric equations of state 4=14470
 canonical distribution, system in thermal contact with heat bath 1=11709
 Carathéodory, simplification 2=1319, 13494
 Carathéodory's local theorem, proof 0=12539
 Carathéodory's principle deduced from Kelvin's 4=27395
 Carathéodory's treatment, simplification 1=1853
 Carathéodory's treatment, simplification 3=24121
 Carnot cycles, system with density extremum 2=1320
 Carnot cycles, teaching diagram 3=21639
 Carnot engine with thermally ionized gas as working fluid, energy obtainable 3=5558
 chemical reactions, meas. by dielectrometric titration temp. var. 4=23626
 circuits, Onsager-Casimir relns. 3=12039
 classical concepts 0=3690
 classical, empirical logical foundation 2=1318
 classical, external reaction fluctuations 2=17703-4
 classical particle system, fugacity series, remainder 4=5090
 classification of states and entropy 4=5482
 closed systems, and infinite reservoir systems, equilib. and extreme value conditions 0=16928
 clouds, book 4=13789
 compression, limitation on modulus 3=21273
 condensed phases, excess free energy at max. and min. melting pts. 0=19502
 condensed systems, isotope effects 2=4949
 conference, foundations of mechanics and thermodynamics 0=14523

Thermodynamics—contd

- conference, Onsager, Providence (1962) 3=7131
 conventionally chosen origins and thermodynamic magnitudes 2=22104
 cooling by adiabatic removal of force 4=18502
 correlated interacting subsystems 3=7138
 correlated systems 3=18740
 Coulomb system, 1-dimensional, uniform charge background 4=77
 creep, thermally-activ. glide of disloc. segments 4=23104
 crystals, anharmonic free energy at low temps. and abs. zero 4=9851
 crystal, anharmonic, using thermodynamic Green's functions 4=9824
 crystals, imperfect rel. to lattice vibration theory 4=12608
 crystal lattice, thermodynam. potl. 4=1358
 density operators in quantum statistics 1=18294
 derivation of eqns. for generalized ensemble 1=66
 derivatives without tables 4=27391
 determination of certain quantities 0=10466
 diagram 1=13028
 distribution function for quasi-particles 0=12371
 dynamic susceptibility 0=7013
 efficiency, infinitesimal cycle 4=29814
 Ehrenfest relations for crystals 1=19727
 elasto-plastic media deformation 0=1852
 electrolyte solns., ion-solvent interactions 4=14149
 electro-thermodynamics, in low temp. range 0=9148
 endergonic photoprocesses, max. energy efficiency 4=18065
 energy equipartition, restatement with kinetic theory of gases 4=27093
 entropy concept and ordering of states 3=5559
 entropy, definition 2=11546
 entropy, prod., covariant principle, rel. to sound and light velocities 2=19389
 equation of state, bilinear, rel. to Nernst's theorem 2=11545, 17701
 equilibrium, of 2 macroscopic ensembles 0=6701
 equipartition of energy deviations with non-quadratic Hamiltonian 0=18962
 ergodic problem, alternative to "coarse-graining" 1=73
 evaporation, moisture, from capillaries of porous body 4=11414
 evolution criterion, macroscopic systems 4=14471
 explanation on quantum mechanics basis 3=11715
 Falk's formulation of third law, equivalent assertion 1=16180
 ferromagnet, Heisenberg, perturb. theory 3=11046
 ferromagnetic, Heisenberg, near Curie point 4=20529
 ferromagnets, magnetization fluctuations decay 4=15636
 ferromag. with spiral struct., temp. var. calc. 4=28784
 first law, new form of formulation 1=4515
 first and second laws, independence 3=307
 flow, gas, magnetohydrodynamic, with radiation 3=19425
 fluctuation thermodynamics of non-equilibrium processes 1=18293
 fluids, rel. to molec. distrib. functions 4=20125
 fluids, in terms of potential energy distribution 4=5122
 force stream function discontinuities 3=16845
 formulae derivation 0=16927
 free energy of system with random elements 3=23778
 freezing, using molecular field theory 4=2889
 fuel cell and Carnot cycle 0=3695
 functions, rel. to u.s. velocity and compressibility 3=7395
 fused salts, calc. from rigid-sphere eqn. of state 4=29621
 gases at high temp., corrections for thermodynamic functions and constants 4=24256
 gas mixtures, adiabatic or isothermal equilibrium, in constant vol. vessel 0=16929
 gas mixture, nonequil. dissoc. behind shock 2=14336
 gaseous mixtures, undergoing dissociation or ionization 4=21456
 gases, polyatomic, convex-core model 1=14142
 gases, from pseudopotentials, with Coulomb interaction 4=11226
 gases, real, theory, book 3=11816
 gases, three-particle scatt. operator 3=11827
 Gibbs free energy increase, bulk specific, rel. to nucleation of supercooled droplets 4=27376
 H-theorem and Markov processes 3=11709
 hard spheres, mixtures 4=24090
 heat engine, well-informed 0=5227

Thermodynamics—contd

heat-light conversion in phosphors, limitation 0=10049
 heat and mass transfer coupling 4=18447
 heterogeneous dissipative systems, by variational methods 0=19525-6
 high temps., isentropic exponent, reduction by electron pair prod. 4=14469
 historical sketch 1=5382
 information theory basis 1=15707
 information theory, quantum statistics 2=11291
 interfacial phenomena 4=13667
 ionic salt mixtures, reciprocal, molten, free energy 4=2655
 ionized gas, kinetic rel. to potential energy 4=14569
 ions in water, absolute 4=24197
 irreversibility, theory 0=6688
 irreversibility, geometrical representation 1=15717
 irreversible, antireciprocality and memory in statistical approach 4=11094
 irreversible, conference 3=9356
 irreversible, and continuum mechanics 0=6689
 irreversible cooperative phenomena 0=12369
 irreversible, Einstein's diffusion 4=27116
 irreversible, internal equilibrium and reciprocal relations 4=27087
 irreversible, inversion of linear laws 0=14904
 irreversible, macroscopic approach 4=11427
 irreversible, macroscopic approach 4=29541-3
 irreversible, macroscopic approach and cross phenomenological coeffs. 4=5481
 irreversible, Meixner's theorem, invalidity 3=63
 irreversible, memory effects 1=18291
 irreversible, nonlinear processes and noise in driven systems 0=902
 irreversible, Onsager's relations 0=4953
 irreversible phenomena with stationary constraints, non-linear law 1=15709
 irreversible processes 0=16640
 irreversible processes, and intrinsic angular momentum 1=15712
 irreversible processes, mech. and thermodyn. analogy 0=3465
 irreversible processes, motion equation of continua 4=24106
 irreversible processes, non-linear theory 1=4516
 irreversible processes and the Schlüter force equation 1=9542
 irreversible processes, theory 2=2643
 irreversible processes, time depend. 2=2642
 irreversible processes, variation principle 3=16541
 irreversible, relativistic theory 1=18998
 irreversible, steady-state processes 3=64
 Ising lattice, infinite plane, thermodynamic averages 4=27083
 Ising lattice, with strong interaction between atomic planes 4=28366
 Ising model, with weak interplane interact. 4=12637
 isochoric cycle, thermodynamic centre, significance and properties 4=2900
 isolated particle, quantum transitions 2=17369
 isomeric reaction calculations from ultrasonic relaxation 0=10662
 isothermal discontinuity, disappearance in dense radiation 0=906
 isotope systems, Gibb's statistic 4=2721
 Joule-Thomson effect theory 1=18681-2
 kinetics of small systems 3=8964
 Knudsen gas, irreversible processes 1=15711
 laws 0=16641
 law of corresponding states 1=18465
 linear passive systems, reversibility 1=18290
 liquid-gas-vapour system stability, 4=24150
 low-temp. gas refrigeration, McMahon-Gifford system 3=16848
 rel. to magnetic monopole, nonsymmetry prop. 4=27753
 Markov processes and Boltzmann's H-theorem 1=18292
 martensite-ferrite transformation 3=5120-3
 mathematics, appl. of partial differential, new definition 4=2901
 maximum dissipation rel. to structure eqns. 3=308
 measurements by simulated isothermal enclosure 4=18481
 mechanical equivalent of heat apparatus 1=1852
 mechanical theory 0=7012
 Mollier diagram, review 4=8530

Thermodynamics—contd

Mollier diagram, transformation for enthalpy-composition diagram 4=8531
 Morse and harmonic oscillators, classical and quantal, one-dimensional, thermodynamic functions 4=28177
 multicomponent systems, matrix represent. 2=9200
 negative absolute temps. 2=11290, 13495
 negative temperatures, by heating and cooling system 3=23782
 negative and upper limits of positive temperatures 1=4519
 Nernst's principle, validity for fluids 2=4977
 Nernst's theorem, deriv. of wave mechanics 3=47
 non-equilibrium 0=16643
 nonequilibrium, development 3=11711
 nonequilibrium, diagonalizing phenomenological matrices 3=23776
 nonequilibrium, macroscopic separability and thermokinetic potl. 2=7142
 non-equilibrium, quantum statistical basis 1=8073
 non-equilibrium, quantum-statistical basis 2=4956-7
 non-equilibrium, statistical basis 0=16645
 non-equilibrium, statistical mechanics 1=9334
 non-equilibrium processes, steady-state distribution 0=16617
 nonuniform systems 4=5087
 Onsager reciprocal principle, derivation, review 4=24107
 Onsager's reciprocal relations, forces and fluxes in irreversible thermodynamics 0=14906
 Onsager relations in intrinsic form 4=27086
 Onsager symmetry, proof 0=14544
 ordering of states and entropy concept. 2=15828
 paramagnetic crystal with strong spin-lattice coupling 4=6739
 paramagnetic crystals, higher-order dipole-dipole coupling effect calc. 4=15623
 partial derivative demonstration, rubber-band expt. 4=2501
 partition functions, const. press., quantum mech. formulation 4=2579
 perfect gas, definition 1=12921
 phase equilibrium 1=8269
 phenomenological eqns. near equilibrium in correlated systems 4=14065
 phenomenological theory of irreversible processes, interpretation 1=9338
 photovoltaic effect derived from Carnot cycle 0=16968
 Pippard equations, generalization 4=27392
 plasma, local thermal equil., validity 3=19233
 plasma, local thermodynamic equil., departures 4=11575
 polynomial representation of thermodynamic tables 0=2278
 potentials for irreversible processes 0=19528
 potentials for reacting gas mixtures, new classes of 4=7739
 potentials for systems at negative absolute temp. 0=16931
 pressure fluctuations for general systems 1=8068
 quantized system, in weakly dissipative medium 0=3459
 quantum cell model for hard spheres 4=18088
 quantum theory, basis 3=18739
 quantum theory, "hidden", free energy introduction 4=8060
 quasi-static processes and reversibility 0=14903
 Redfields' semiclassical relaxation theory 4=21053
 refrigeration by adiabatic demag. 3=14431
 relations for three-dimensional systems 0=19527
 relativistic 3=7094
 relativistic, wave-mech. approach 4=24082
 relaxation processes in systems with supplementary parameters 1=5209
 reversible changes, conformity with Le Chatelier-Braun principle 4=8529
 second law 1=8268
 second law 4=18080
 second law, asymptotic stability in sense of Liapounov 2=19787
 second law and causality principle 0=18966
 second law and causality principle 1=8088
 second law, causality, supervelocity signal propag. 1=5208
 second law rel. to mechanics and electromagnetism equations, review 4=27001
 second law, for negative and imaginary mass particles 3=7092
 second law, operational formulation 1=5383

Thermodynamics — contd

- 2nd law and perfect gas definition 1=1854
 second law, reformulation 4=21367
 second law $\oint dQ/T \leq 0$ 0=16926
 second virial coeff., general formula 2=36
 self-reproduction, information-theoretical approach 4=21020
 semiconductors, laser action 2=10590
 semipermeable membrane, use of concept in Gibbs paradox and other problems 4=11426
 signs of state functions rel. to absolute temp. 4=8086
 single particle, quantum mechanics, theory of double solution 1=18283
 singular self-interacting trajectories in phase space 1=18280
 small systems 2=17702
 solid binary and ternary systems, relative molar thermodynamic functions 1=15131
 solid solutions, interstitial, appl. of Green's functions 3=18362
 solids, book 4=27446
 solution evaporation 4=21357
 solutions, partial thermodynamic functions 1=18394
 sound absorption in a chemical medium 4=8339
 spin systems interactions via lattice, temp. evolution 4=26259
 splitting of entropy production terms into flux and force factors 2=7481
 stable equilibrium conditions, negative absolute temp. 4=2902
 stable equilibrium, necessary and sufficient conditions 1=16182
 statistical 0=2279
 statistical, deriv. from "phenomenological" princs. 4=11097
 statistical, elements of, book 3=7134
 statistical, of equilibrium, in terms of extensive variables 4=2577
 statistical, of incompletely specified systems 4=24080
 statistical, microcanonical ensemble 4=29540
 statistical, of nonuniform fluids 3=7135
 statistical, of real fluids 0=3507
 statistical, of spherical droplets 4=14151
 steady state, variational derivation 2=1076
 Stokes flow of sphere, soln. by minimization of energy dissipation 3=9424
 student textbook 4=8084
 sublimation and third law 0=7015
 summary of principles 1=5207
 superconducting dilute alloys, Gibbs free energy 0=12556
 superconductors, strong coupling 4=27411
 surface phases 0=5213
 susceptibilities, isolated and adiabatic 1=8069
 system with different orbital and spin temp. 1=15739
 system specified by three classes of states, interactions 2=15461
 temp. fluctuations in equilib. 0=7014
 temperature and Carathéodory's postulates 3=9664
 temperature Green's functions 0=3463
 thermal activation relations 4=16062
 thermal source, nonideal, power available 1=16181
 thermally activated processes, frequency factors 1=4266
 thermoelastic media, higher-order elastic consts 4=11145
 thermoelectricity, and Zener's max. efficiency 4=14566
 thermokinetic potential and Carathéodory's prime 2=19788
 third law, and sublimation 4=14463
 3 axioms, for generalized thermal systems 0=863
 time-dependent distributions of correlated systems 4=14064
 timewise progress of processes 0=7011
 transfer processes of systems connected by capillary 2=13280, 17380
 transition locus of fluids in hypercritical region 1=1769
 transitions, kinetic 3=16845
 transport processes, range of validity 3=7151
 triple point peculiarities 4=5477
 validity conditions of equations 4=7740
 vaporization and condensation, theory 3=19070
 vapour—solid nucleation kinetics, theory 3=16843
 variational princ. and entropy prod. 3=23780

Thermodynamics — contd

- vectorial phenomena, Onsager's relations 0=16644
 and viscoelastic free energy rel. to relax. mod. and strain rate history 4=26480
 of viscoelastic media, thermomechanical, fracture and birefringent phenomena 4=18130
 vitrification and crystallization, energy balance 0=12059
 zeroth law 3=60
 zeroth law, basis 1=2915
 zeroth law, reformulation and proof 2=9466
- applications**
 adiabatic invariant 1=9341
 adsorption 2=19118-19
 adsorption in capillary systems 4=20818-9
 adsorption, internal, in solids 3=1383
 adsorption of monatomic mols. on graphite 3=13572
 air-C mixture, 1-150 atm. 8000° to 30 000°C thermodyn. functs. 2=5069
 air, plasma, particle—radiation equil. 3=4118
 air, very rarefied, effects of cooling from 6000 to 5000°K 1=18470
 alloys, binary, phase transitions 2=12924
 alloys, isoactivity diagrams for components 3=5118
 alloys, ternary, phase transitions 2=17044
 antiferromagnetics, in mag. field 2=12800
 atmospheric gases, shock waves, relaxation 2=2756
 binary solid solutions, under strain, relaxation 1=11575
 biological systems 0=805
 Brønsted's principle of congruence, n-alkane mixtures 0=3518
 Casimir coeffs. and minimum entropy prod. 0=14643
 chem. reacting systems interacting with radiation 1=20752
 chemical reaction rates, theory of transpiration and diffusion 0=7016
 chemical reactions, non-linear irreversible processes 1=4516
 combustion chamber, unequal distrib. of mixture 2=15825
 compound semiconductors, point-defect equilibria 2=4006
 condensation, delayed, under extreme cleanliness 2=17698
 condensation, homogeneous nucleation 3=3931
 conductors in mag. field, potential and temp., eqns. 1=16246
 cooling props. for three principal cycles 2=19789
 cross-relaxation in spin systems 0=13884
 crystal etching, equil. by free energy theorems 2=16983
 crystals, Pippard's relns. deriv. 3=8357
 cycles, heat, resolution into simpler partial cycles 4=8528
 defect structure equilibrium 0=14902
 diabatic flow, stagnation conditions and energy function 1=16137
 diamond, 273°-1073°K 2=12382
 diffuse double layer, theory 0=19603
 diffusion in binary mixtures with volume change 2=17417
 diffusion, self, adsorbant medium, and kinetics 3=9376
 diffusion of weak electrolytes 0=19104
 discriminant for Lennard-Jones potential 0=20696
 elastic deformation, irreversible processes 3=3207
 elasticity, linear, theory 0=4542
 elec. and mag. response of thermodynamic systems 0=16638
 electric stationary flows, entropy production, extremal principles 1=18746
 electricity, direct conversion 4=27460
 electro-thermomag. generators, efficiency 3=9715
 electrochemical adsorption reactions 3=5168
 electrochemical moving boundary expt. 2=15146
 electrolysis, Soret effect, heat of transport 3=13615
 electron emitter, in gas discharges 0=3781
 entropy in gravitational field 2=9467
 excess functions for electrolytes 0=10656
 ferroelectricity, second-order transitions 2=16772
 ferromagnetic—paramag. Curie points diff. 3=1127
 ferromagnetics, in mag. field, near Curie point 0=1782
 films, surf. coverage—surf. potential relation—ship 2=21560
 fluids, non-Newtonian, second law appl. 2=9244
 fluids, one-component, free energy, by radial distribution function 1=8093
 foam layers, stability 2=17430
 fuel cells, thermally regenerated 1=8304

Thermodynamics—contd
applications—contd

gas, expansion, adiabatic temp. change meas. 2=11422
 gas flow, in cylindrical tubes, thermal choking 0=5044
 gas liquefaction, Linde process, air 4=11434
 gas, non-equilib. relaxation 2=11416
 gas props. behind shock waves 3=21493
 gas, at surf. of burning body, total energy local redistrib. 2=15647
 Gibb's theory, molecular hydrostatic analysis 1=10493
 heat and mass transfer in a boundary layer 2=7470
 heterotaxial nucleation 2=16997
 high pressure thermodynamic scale 0=16930
 ice, electrical properties 0=16652
 impurity doping in Ge vapour growth 4=1470
 inert gas solids, reduced equation of state at 0°K 1=8886
 intercrystalline sorption 0=8333-4
 interface between condensed phases 2=10969
 intermolecular forces, long-range, free energy and radial distrib. function 2=12352-3
 ion-exchange systems 1=11609
 iron alloys, α - γ transformations 2=6826
 irreversible heat and mass transfer 2=15824
 irreversible plastic deformation 0=6301
 Ising problem for rectangular lattice, new solution 0=20739
 Ising spin system, relax. kinetics 3=989
 Kelvin and perfect gas temps 2=17700
 λ -transformations 2=23871
 kinetics of isomeric reactions 1=1472
 liquid binary mixtures, law of corresponding states 3=21344
 liquid \rightarrow glass transformation 3=12003
 liquids, binary systems, corresp. states principle 2=15569
 liquids, binary systems, interfacial tension 2=1115
 liquids, hole theory, properties 1=9381
 liquids, strained, statistical theory 1=1737
 low-temp. prod. by adiabatic magnetization 0=1087
 m. h. d. system, striated-layer, analysis 4=5544
 magnetohydrodynamic generators 3=4001
 magnetothermal devices, figure of merit 3=358
 masers, pumping power systems 3=14333
 masers, three-level 1=16551
 mass-transfer potl. and chemical ptl. 3=24123
 measurement errors, Carnot's principle appl. to "lost" information 1=15592
 metal whiskers, growth from vapour 2=14964
 metals, cubic, Debye ϵ and compressibility 1=8884
 metals, effect of shock waves 3=9547
 metals, enthalpy rel. to vacancy formation 1=17502
 microphones, sensitivity thresholds 0=6888
 migrational equilibrium, in isothermal and monothermal fields 0=3691
 migrational equilibrium, in thermal fields 0=3692
 monolayers, ionized, surf. press. 2=17429
 nonhydrostatically stressed solids 2=6719
 nuclear power station, optimum cycle, approx. 3=6321
 nuclear reactor behaviour, mathematical theory 0=20529
 osmotic meas., with solute-permeable membranes 0=8659
 pair correlation functions 1=8064
 paramagnetic relaxation, in l.f. mag. fields 0=10217
 paramagnetic resonance, in systems with 2 kinds of mag. moments 0=10219
 photosynthesis and 2nd. law 1=12703
 plasma, ion velocity distrib., relaxation 3=4111
 plasmas, transport props. in strong magnetic fields 1=8325
 polyelectrolyte multicom. sols. 2=11366
 polymer sols., second osmotic virial coeffs. 3=3802
 polymer solutions, aggregation 1=9388
 RC circuit, nonlinear 0=12565
 radiating gas, irreversible energy exchange 3=14429
 radiative emission processes 0=12524
 rate processes in fluids 2=1133
 real gas model, n-molecule aggregates 0=19196
 real gases, collision lifetimes 3=9496
 relation between molecular pressure and internal pressure 1=1856
 relaxation phenomena 1=18329
 relaxation in solids, stress tensor 1=7818

Thermodynamics—contd
applications—contd

relaxation spectrometry, Meixner's theory of viscoelasticity 1=7819
 rheology of Maxwell and Kelvin bodies 2=16957
 rubber, natural, thermo-elasticity, energetic and entropic contrib. to elastic force 4=7455
 second law for system with different lattice and spin temperatures 1=11142
 semiconductors, electron chemical potential 3=2873
 semiconductors, impurity ionization 1=12430
 semiconductor-impurity systems 2=16687
 semiconductors, recomb.-generation noise theory 2=12509
 semiconductors, recombination at defects 1=19841
 small systems, press. depend. on N 2=1074
 solid solutions 0=731
 solid solutions, dilute ternary austenite 2=6840
 solid solutions, single-phase n-components, general relations 2=8857
 solids, with imperfections 0=4295
 solids, nonhydrostatically stressed, theory 1=20325
 sonic velocity jump, at boiling point, liquid-vapour phase ratio 0=5079
 statistical, gas with long and short-range forces 0=18965
 steady monothermal rate processes 0=3694
 steady states and steady-rate processes 0=3691-4, 14907-8
 steam-water globules interaction 3=297
 summation of ladder diagrams in superconductivity theory 2=1332
 superconducting energy convertor 2=7523
 superconductivity theory 0=14923
 superconductors entropy, specific heat 2=7516
 systems in electromag. field, non-equilibrium thermodynamics 1=9668
 thermoelastic Rayleigh waves in prestressed medium 2=15678
 thermoelasticity, non-stationary thermal gradients 0=5193
 thermoelectric generator, efficiency 2=19891
 thermoelectricity, figure of merit 1=5032
 thermosyphons 1=250
 transport processes, in liquid systems 0=14634
 turbulent systems 1=18680
 viscosity and plasticity theory 3=18766
 viscous gas flows with heat transfer 3=24122
 Volta effect, as non-stationary irreversible effect 0=5249
 vortex tube 1=163
 welding arcs, inert-gas-shielded, self-regulation 0=2343
 A, plasma, entropy-enthalpy diag. to 10⁶°K 2=9564
 A, plasma, flowing, phase changes theory 2=11637
 Ag-Cd α -phase alloys, Debye temp. 2=12389
 Au-Pt system 1=20580
 Bi-Pb alloys 2=2402
 Cu-Zn-Ni solid sols. 2=6837
 H plasma, isothermal, props. 1=18843
 H₂-D₂ liquid mixtures, excess properties, theory 1=10505
 He liquid mixtures 0=10823
 He³-He⁴ liquid mixtures, excess properties, theory 1=10505
 He³-He⁴ mixtures, stratification and lambda curves 1=8275
 In, supercond., mag. and sp. heat props. 2=15852
 O₂-A, liquid at 86°K, excess properties 1=8109
 O₂-N₂, liquid at 77°K, excess props. 1=8109
 Sn, supercond., mag. and sp. heat props. 2=15852
 W, enthalpy, 0°-2400°C 2=12386
 ZnS and ZnS:Se, lumin. activation 2=14734

Thermoelasticity

(Heading introduced in 1963)
 axisymmetric, variational solution 3=18765
 compression, limitation on modulus 3=21273
 coupled equations, approx. transient solutions 4=8305
 crack in elastic body, thermal stresses 3=9382
 direct conversion material quality control 4=7090
 dynamic, for conditions on circular cone 3=3774
 electromagnetic thermoelastic solids, static nonlinear theory 4=24118-9
 geodynamics, thermoelastic tensions due to thermal cond. difference 4=23699
 higher-order elastic consts., thermodynamic definition 4=11145
 isentropic motion, displacement equations, finite isothermal initial strain 3=14081

Thermoelectricity—contd

- isentropic motion of a medium, finite deform. 3=18883
 magneto-, general two-dimensional problem 3=18762
 magneto-, plane problem 3=23816
 Poisson's ratio, effect on thermal stress 4=2626
 second-order effects 4=26462
 stress distrib. inside earth 3=23563
 stress, temp. def., axisymmetric 4=24127
 stress and temp. distrib., with coupling 4=29577
 stresses in anisotropic planar symmetric bodies 4=11144
 variational principles in thermoelect. and heat cond. 4=109
 BaF₂ 3=18161
 Ba(NO₃)₂ 3=18161
 CaF₂ 3=18161
 Fe-Ni alloys, Invar type, variation rel. to mag. transformations 3=25607
 Mg(H₂O)₆(BrO₃)₂ 3=18161
 N₂H₄Cl₂ 3=18161
 Ni(NH₃)₆(NO₃)₂ 3=18161
 Pb(NO₃)₂ 3=18161
 Sr formate, simple dihydrate, u.s. meas. 3=23281
 Sr(NO₃)₂ 3=18161

Thermoelectricity

See also Thermocouples

- acids, strong, solutions, initial 3=14181
 acoustical scattering, max. figure of merit calc. 1=14522
 alkali metals, calc., phonon-drag term 0=17888
 alkali metals, at low temp. 0=1687
 alkali metals, at low temp., theory 1=17439
 alkali metals, 0.1-2°K 1=1114
 alkali metals, press. depend. 2=6507
 alkali metals, thermoelectric power, phonon drag component 0=20760
 alkali metals, 2-20°K 0=2916, 10003
 alkali and noble metals, below 1°K 0=10003
 alloys of β -brass type, rel. to ordering, theory 1=19913
 alloys, e.m.f. to 300°K 0=1686
 alloys, at low temp., theory of resonant scatt. of electrons from foreign atoms 0=6146
 alloys, rel. to temp. and composition, theory 3=4957
 alloys of transition elements in normal metals, low temp. anomalies 3=8496
 alloys, two-phase, Seebeck coeff. 2=14394
 anthracene crystals, and carrier trapping 4=20437
 antiferromagnetic semiconductors 2=18668
 apparatus to meas. up to 1000°C for semiconductors 3=24159
 Armco iron and Pt, comparison of thermoelec. power 0=13498
 basic concepts in teaching 3=341
 bibliography 0=19599
 binary alloys, short range order effects 3=8901
 γ -brasses, analysis, band-model approx. 1=19915
 calomel cell, nonisothermal, initial thermoelec. powers 0=4723
 caloelectric effect in flames 3=19184
 cascade thermogenerators, efficiency 1=268
 casting, continuous, of thermoelec. materials 2=2416
 cathodes, oxide, and conductivities, BaO, SrO, (BaSr)O 3=17969
 chalcocopyrite, e.m.f. to 400°C 0=15953
 chalcocopyrite, thermoelec. power, -140°C to +300°C 0=7938
 characteristic power of boundary atoms 3=17968
 coefficients calc., variational method 1=10449
 conference, Inst. of Phys. and Phys. Soc., July (1961) 1=18750
 contacts, small-area, det. of elec. and thermal cond. and Seebeck coeff. 1=11901
 convertors, performance under constant heat flux operation 0=14956
 cooler, thermoelec., performance, calc. and expt. 2=1380
 cooling effect in p-n junctions 2=14594
 cooling element, use for thermal cond. meas. 3=19044
 cooling, material charac. and appl. 3=19167
 cooling, minority-carrier thermoelectric, theory 3=15638
 cooling systems, for photomultipliers, to reduce noise 0=3731
 cooling systems, regenerative 0=19602
 cooling, unified performance calcs. 2=2996
 crystal lattice defects 1=14525

Thermoelectricity—contd

- crystals, ionic, thermoelec. power 0=7878
 crystals, semiconductor, in magnetic field, calc. 3=6565
 crystals, with strongly degenerate electron gas 0=15829
 crystals, tetragonal, ellipsoidal models 3=25317
 degenerate electron gas, calc. 4=25874
 devices from long-lifetime semiconductors, lifetime effects 1=8302
 devices, theoretical and practical aspects, review 1=11904
 dilute alloys, mech. at low temps. 2=654
 e.m.f. due to hot carriers, meas. 4=1696
 eddy currents thermoelec., in anisotropic medium 2=10546
 electric generators, efficiency, thermoelec. 2=19891
 electrical generation methods, review 1=11894
 emission in semiconductors, electric field influence 1=14420
 energy conversion, physical feature 2=7555
 energy converting devices, efficiency 1=16251
 Ettingshausen figures of merit reconciliation 4=12997
 Ettingshausen, Peltier cooling, ~100°K 2=21129
 evaporator of high thermal efficiency 0=5266
 ferromagnetic metals, electron scatt. on magnons 4=4238
 ferromagnetic metals, explanation from zone structure 1=19914
 ferromagnetic metals, explanation from zone structure 2=6506
 ferromagnets, effects of s-d interaction 0=20753
 field emission from metal rod, effects, "heat pump" working 2=7556
 figure of merit depend. on conduction band width 2=14589
 figure of merit meas. of materials and refrigerating junctions 1=13062
 figure of merit, upper bound, irreversible thermodynamics 1=5032
 films of evaporated alkali metals 2=6405
 freeze-drying thermoelec. unit for biological tissues 3=11619
 fused ionic materials, theory 3=9477
 galena, e.m.f. to 400°C 0=15953
 galvanothermoelectric energy conversion devices 3=9716
 galvanothermoelectric energy converters, anisotropic materials 3=21695
 general expression, "average energy gain", method 3=20258
 generator, using close W or Th-W electrodes in vacuo 3=14512
 generator design, perform. and appl. 2=11605
 generator devices, effect on surface heat transfer 2=19890
 generators and cooling devices, efficiency calc. 0=3734
 glass, irradi. by Co⁶⁰ source 3=2983
 glasses (VO_{2-x}-PO_{2-x}-RO_x type) thermoelec. power 1=10047
 graphite, anisotropy 0=7970
 graphite, band model 1=4975
 graphite crystal cpds., thermoelec. power 1=1015-16
 graphite, prepared by methane pyrolysis 1=17525
 graphite, pyrolytic, neutron irradi. 2=614
 graphite, pyrolytic, rel. to structure 3=826
 heat-elec. direct conversion, appl. 2=11604
 heat-elec. direct conversion, new methods 2=9518
 heat-elec. direct conversion, review 2=9517
 heat pump with surface heat transfer 3=8575
 heat pump in temp. chamber 4=27365
 heat pumps, thermoelectric, theory 4=7089
 ice, steady state theory 3=10899
 ice, surface effects 4=20436
 Inconel 702, thermoelectric power, high temp. 4=8473
 ionic crystals, thermoelectric power 4=25955
 ionic crystals, theory 1=1112-13
 ionic crystals, thermoelectric power 1=14527
 ionized fluid, theoretical analysis 3=24271
 Joule-heated plasma, thermo-electric effects 4=14628
 linear, Laplace transform appl. to initial and boundary problems 4=24023
 liquid metals, theory 1=18428
 low-temp. production 0=19569
 mag. generators, efficiency 3=9715
 magnetic field effects, det. of effective scattering mechanism parameters of electron transport 0=11730
 magnetite, e.m.f., at low-temp. transition 0=6148
 magnetothermoelectric generator 4=5546

Thermoelectricity—contd

materials, figure of merit meas. 1=18752
 maximum figure of merit, simple eval. 3=20423
 meas., effect of random inhomogeneities 0=17982
 meas. for good thermal conductors, systematic error avoidance 1=14530
 meas., of semiconductors 0=1688
 measurement, of semiconductors, 20 c/s - 20 kc/s app. 0=19586
 measurement, thermoelec. power, improved apparatus 0=8982
 metal films, thermoelec. power 1=14365
 metallic borides and carbides in contact with Cu 1=12465
 metals, and alloys, in impurity scattering region 0=9861
 metals, applications, review 1=2427
 metals and dilute alloys, relative effects at low temp., theory 0=13640
 metals, effect of lattice vibration spectrum 0=1554
 metals, Fermi liquid model 0=559
 metals, rel. to Fermi surface 1=17461
 metals of group I, props. at low temp., review 1=14526
 metals of group I, props. at low temp., review 1=17809
 metals, liquid 3=143
 metals, liquid (10 elements) 3=145
 metals, melting, thermodynamics 3=25423
 metals, monovalent, effect of phonon distribution 0=18077
 metals, monovalent, rel. to Fermi surface 1=17808
 metals, noble, electron-electron scatt. relax. effects 4=17541
 metals, power 3=20422
 metals, power, electron thermal diffusion rel. to phonon drag 1=17806
 metals, power, two theoretical points 4=20434
 metals, and semiconductors, below and above melting pt. 0=7909
 metals, and semiconductors, electron-phonon interaction 0=6013
 metals, in strong mag. fields, for various Fermi surfaces 0=10004
 metals, thermoelec. tensor, in strong mag. fields, phonon drag 0=10005
 metals, transport processes, review 0=9862
 meteorite currents 2=11118-9
 microphone for modulated u.s. waves 0=19321
 microwave power meas. by thermoelec. cooling 4=19216
 mild steel, e.m.f. prod. by plastic deformation 0=15999
 mixed oxides, props. 0=2914
 molecular weight osmometer 4=15831
 molybdenite, e.m.f. to 400°C 0=15953
 n-type Ge, Kelvin relations, study 1=1117
 nuclear energy-direct conversion 2=23489
 organic polymers 4=30631
 organic semiconductors, narrow-band, calc. 4=12920
 origin of giant powers, metals at low temps. 2=653
 oxide cathodes 1=6183
 oxide cathodes on nickel cores, thermoelec. power 3=25426
 oxide-coated cathodes 0=13641
 p-n junction, thermoelec., for periodic temp. vars. along Cu wire in thermal cond. meas. 4=30526
 p-n junctions, energy conversion efficiency 1=5033
 Peltier coeff., meas. apparatus 4=30668
 Peltier coefficient, noncalorimetric meas., for metal-metal, -semicond. 1=14533
 Peltier cooler, response to nonsteady current 1=8301
 Peltier coolers, transient effects 2=149
 Peltier cooling in crystal growth 1=14992
 Peltier effect, automatic dew-point hygrometer 0=14668
 Peltier effect, calibration of microcalorimeter 4=27367
 Peltier-effect devices, dynamic response calc. 3=23030
 Peltier effect, electrolytic 2=23484
 Peltier effect, at glass surface, hygrometry appt. 2=2750
 Peltier effect, method of measuring thermal conductivity 1=1838
 Peltier effect, for obs. of melting boundary motion on current heating 3=19064
 Peltier effect, use in growing Ge monocrystals 2=810
 Peltier effect, p-n junction, injection heat transfer 0=11731
 Peltier effect, rel. to resistance welding 0=7971
 Peltier effect, at solid-liquid boundary, obs. 2=19893
 Peltier junctions, pulsed with high currents, temp. drop 3=15639

Thermoelectricity—contd

Peltier junctions in semiconductors, ohmic contacts 1=14528
 Peltier refrigerators and thermoelectric generators, theory 1=16252
 phonon-drag Seebeck effect, rel. to transverse mag. field 4=26159
 photoconductors, thermally stimulated currents, theory and applic. 0=4368
 phthalocyanine, metal-free 4=12923
 plasma, low temp. 3=19277
 plasma thermocouple, open-circuit voltages 0=2311
 plasma, thermoelec. coeff. with arbitrary mag. field 2=13556
 plastic materials, strain rate rel. to temp., equations 4=28918
 polyacrylonitrile, pyrolyzed 4=22733
 polyacrylonitrile, thermoelec. power 1=7656
 polysulphur nitride, Seebeck coeff. 2=14509
 power generation applications, theory materials, evaluation 4=29860
 power generation, Ge-Si alloys 2=3855
 power generation, large-scale, prospects 2=9523
 power generation, materials selection criteria 4=27462
 power generation, semiconducting materials 1=8967
 power generation, survey 2=22159
 power generator, effect of Thomson effect on performance 4=22814
 power generators, efficiency calc. 3=14510
 powder metallurgy of materials, sintering 3=3346
 pressure theory 4=28654
 pyrites, thermo e.m.f. to 400°C 0=15953
 in quantum limit theory 4=6767
 quantum oscillations, in strong mag. field 4=26158
 rare earth cpds. and alloys, selected, thermoelectric power rel. to temp. and comp. 4=28566
 rare-earth manochalcogenides, thermo-e. m. f., 300°-1300°K 4=30613
 rare-earth metals, 7-300°K 2=2198
 refrigerating thermobattery cascades, efficiency 1=268
 refrigeration and generation 4=12996
 refrigeration at low temp. 2=8450, 22105
 refrigeration at low temp., theory 3=359
 refrigeration, suitable alloys, Bi₂Te₃-Sb₂Te₃ 3=913
 refrigeration technique 0=19574
 refrigerator, commercial, development and design 1=18751
 rutile, Al-doped, rel. to O₂ pressure 3=15586
 rutile (TiO₂), effect of O₂ pressure 1=19917
 Seebeck coeff., apparatus for rapid meas. 2=11610
 Seebeck coeff., meas. method as $\Delta T \rightarrow 0$ 2=23490
 Seebeck coeff., from 25° to 320°K, apparatus 4=14424
 Seebeck effect in p-n junction 2=14588
 semicond. generators and refrigerators, effect of temp. 0=13639
 semiconducting oxide glasses 0=15942
 semiconductor devices, review 0=10002
 semiconductor generators and refrigerators, review 2=23488
 semiconductor generators and refrigerators, figure of merit, theory 0=4375
 semiconductor heat pump, use for maintaining temp. difference 4=24418
 semiconductor, majority carrier sign determ., by hot-point probe 3=8498
 semiconductor thermoelements, thermal parameters meas. 0=12574
 semiconductors 4=22812
 semiconductors, anomalous Seebeck effect 2=16760
 semiconductors, applications, review 1=2427
 semiconductors, appls. review 2=5296
 semiconductors, carrier concn. optimization 4=10139
 semiconductors, cubic crystal 1=17645
 semiconductors, effect of edge dislocations, calc. 1=10070
 semiconductors, electron-electron scatt. effect 2=8316
 semiconductors, ferro- and antiferromag. 2=23303
 semiconductors, figure of merit, impurity scatt. effect 0=1689
 semiconductors, heat transfer scatt. 2=23483
 semiconductors, ionic, emission in strong fields 2=21203
 semiconductors, liquid, thermoelectric props., use in electricity direct conversion 4=27466
 semiconductors, low mobility 3=25425

Thermoelectricity—cont'd

- semiconductors, in mag. field, phonon relaxation 0=1692
 semiconductors, microwave detection and mixing 4=8924
 semiconductors, non-stationary meas. method 2=16693
 semiconductors, nonstoichiometric, thermoelec.
 power 2=4011
 semiconductors, phonon-drag Seebeck effect,
 longitudinal case 3=25424
 semiconductors, phonon-drag Seebeck effect in strong
 mag. fld. 3=25246
 semiconductors, plastically deformed, Seebeck effect,
 theory 1=17807
 semiconductors, polar, many-valley, variational
 calc. 3=2871
 semiconductors, polar, Seebeck coeff., polaron
 model 1=14523
 semiconductors, polar, theory 2=6439
 semiconductors, power 3=2858
 semiconductors, in quantizing mag. field,
 power 2=4078, 6505
 semiconductors, rhombohedral, electron-phonon
 theory 2=21202
 semiconductors, Seebeck coeff., rapid meas.
 method 2=2139
 semiconductors, sign, meas., liquid He temp. 3=16883
 semiconductors study 3=843
 semiconductors, theory for various carriers 2=10460
 semiconductors, thermoelec. efficiency
 determination 1=14524
 semiconductors, two-band, figure of merit 2=12549
 semiconductors, two-band, figure of merit,
 bound 3=17967
 semiconductors, volume gradient phenomena 1=17644
 semiconducting polymers derived from nitriles, thermo-
 electric power 4=20228
 semiconductors, Seebeck effect 0=20943
 semiconductors and semimetals, power, rel. to phonon
 drag 4=10138
 semiconductors, thermoelectric power, integral
 evaluation 0=1690
 semiconductors, 2-band model, inner elec. field 0=20942
 solar corona, thermoelec. phenomena 2=971
 solar-energy converters, max. efficiency 0=19601
 solar energy converters, planar, analysis 2=19888
 solid-liquid interface, Peltier coeff. 0=19600
 solid soln. alloys, correl. with elec. cond. 3=15534
 spinels, vanadium, rel. to interatomic distance 3=12934
 for standard temperature, ice point, for thermo-
 couples 3=19050
 steel, rel. to Cr content and heat treatment 1=10071
 steel, mild, rel. to plastic deformation 3=13141
 superconducting cylinder, cooling in intermediate
 state 4=14509
 superconductors, Landau laminae theory 4=5499
 theory, from Boltzmann-Lorentz eqn. solution 3=10892
 thermal diffusivity meas., appl. to 2=7420
 thermal insulation, improved, thermocouple on a
 multilayer stack 4=27468
 thermo e.m.f. rel. to resistivity 3=23025
 thermobatteries for refrigerators 1=11903
 thermo-battery, junctions with different thermal
 inertias, e.m.f. time depend. 1=2429
 thermocouples, effect of pressure on e.m.f., for
 various metals and alloys 1=5035
 thermoelec. power of Cs-filled thermionic
 tube 1=18474
 thermoelectric power, of crystal with tightly-bound
 carriers 1=2428
 thermoelectric power meas., rapid method for
 semicond. 0=18075
 thermoelement, convectively cooled, performance 2=11609
 thermoelements, effective masses and mobilities 0=3732
 thermostat operation to ± 0.006 deg C 3=285
 thickness gauge for Ni layers 1=12839
 thin layers, electrical properties, 100° to 500°K 4=6980
 transition metal alloys, at low temp. 2=6508
 transition metal cpds., thermo e.m.f. 4=1550
 transition-metal silicides 1=5004
 uniaxial crystals, direction of max. efficiency 2=8448
 uniaxial crystals, figure of merit, orient.
 depend. 3=2981
 vacancy study, quenching effects 1=14255

Thermoelectricity — cont'd

- vacuum meas. by thermoelec. method, to 5×10^{-6} mm
 Hg 2=19633
 vacuum sealing of leads to thermopile 1=10556
 Zener's max. efficiency derived from irreversible thermo-
 dynamics 4=14566
 $(A_{x/2}^I B_{1-x}^{IV} C_{x/2}^V) D^m$ semiconducting mixed
 crystals 1=19868
 $A_2^I B^I X_{x/2}^{VI}$ compounds 2=23370
 $A_2^I B^{IV} X_{x/2}^{VI}$ compounds 3=2881
 Ag alloys, dilute, thermoelectric power at
 8-350°K 1=1116
 Ag, annealed and cold-worked, thermoelec. power at low
 temp. 0=18081
 Ag antimony telluride, Seebeck coeff. 4=22722
 Ag azide 4=17493
 Ag binary terminal solid solns., props. 4=22685
 Ag, defects distrib. study 1=14247-8
 Ag halides 1=6185
 Ag at low temp., effect of dissolved Fe 1=17815
 Ag selenide powders, figure of merit 4=7088
 Ag, rel. to vacancies and dislocations, activation energy
 study 1=14254
 AgBr, theory rel. to defect mobility density 2=3952
 AgCl doped with CuCl, effect of Cu⁺ diffusion,
 calc. 1=1113
 AgCl, thermoelectric power 0=20949
 AgFeTe₃, thermoelec. power 0=15961
 AgIn₃Te₈, Seebeck coeff. meas. 4=26060
 AgNO₃, fused 3=9477
 AgNO₃, liquid cell, e.m.f. temp. var. 4=15846
 $(Ag_{x/2}Pb_{1-x}Bi_{x/2})Te$ 0=4646
 Ag₂S, thermoelectric power 1=12466
 AgSbTe₂ 0=11680
 AgSbTe₂, phase transform. at 410°K rel. to e.m.f. 4=25868
 AgSbTe₂, power, 80° to 300°K 3=13144
 AgSbTe₂-AgBiTe₂, thermoelec. power, rel. to
 constituent proportions 2=18759
 AgSbTe₂-AgBiTe₂, -PbTe, and -SnTe 3=10900
 AgSbTe₂-PbTe 0=2902
 AgSbTe₂-PbTe, thermoelec. power, rel. to constituent
 proportions 2=18759
 AgSbTe_{2-x}Se_x, e.m.f. 3=875
 Ag-Se layers, thermoelec. power 0=7968
 Ag₂Se, beta ray effects, 2 MeV 4=10070
 Ag₂Se, effect of doping 1=6186
 Ag₂Se, 80°-600°K 3=2926
 Ag₂Se, thermoelectric power 1=12466
 β -Ag₂Te, power meas., liq. N temp. to room
 temp. 3=837
 Ag₂Te, properties 1=3798
 Ag₂Te, Seebeck coeff., 55-300°K, degeneracy study 1=3772
 Ag₂Te, thermoelectric power 1=12466
 Ag₂TlTe, power meas. 3=874
 Ag-Zn, β , β' and ζ -phases 3=8396
 Al, e.m.f. prod. by plastic deformation 0=15999
 Al, thermoelec. power, phonon drag contrib. 0=18078
 Al and Al alloys, 4-120°K, thermoelec. power and thermo
 e.m.f. 0=7857
 Al-Mo solid solns., thermo e.m.f. 4=15722
 Al + 0.1% Mn, below 100°K 2=6510
 AlSb, n-type, thermoelec. powers, 80-1200°K 0=598
 AlSb-GaSb, 120-900°K 2=2196
 Al-V solid solns., thermo-e.m.f. 4=15722
 Al-W solid solns., thermo e.m.f. 4=15722
 As diffusion in Ge, determination 1=17553
 As-Te-I and As-Te-Br semiconducting glasses 4=26029
 As₂Te₃ + Tl₂Se systems with Sb₂Te₃, Bi₂Te₃,
 Sb₂Se₃ 3=10893
 As₂Te₃-Tl₂Te-As₂Se₃, Seebeck coeff. 2=21109
 Au alloys, thermoelec. power, effect of transition
 metals 3=13139
 Au, annealed and cold worked, thermoelec. power at low
 temp. 0=18081
 Au, crystal vacancies, 4.2-220°K 4=28657
 Au, effect of crystal imperfections 4=7086
 Au, power, effect of lattice defects 4=20435
 Au single crystal, homogeneous thermoelec. effect of
 third degree (1st Benedicks effect) 4=28655-6
 Au, thermal e.m.f., 2°-9°K 4=1698
 Au-transition metal alloys, at low temp. 2=6508
 AuAl₃, liq. He to room temp. meas. 3=10718
 Au-Cu and Au-Cu-Ni, thermoelec. power 0=4373-4

Thermoelectricity—contd

- AuGa₂, liq. He to room temp. meas. 3=10718
 AuIn₂, liq. He to room temp. meas. 3=10718
 AuSb₂, power, 2.5°-300°K meas. 4=15520
 AuSn, anisotropy and temp. depend. 3=17972
 AuSn, thermoelectric power 4=7619
 B, polycrystalline 2=21149
 BaO, (BaSr)O, cathodes, and conductivities 3=17969
 (Ba_xSr_{1-x})TiO₃, dielec. props. 3=2957
 BaTiO₃, anomaly at Curie temp. 1=7690
 BaTiO₃, thermoelec. power 1=1070
 BaTiO₃-AB₂O₆, solid sols. 2=14630
 Be reactor-grade, 4-120°K 0=11588
 Bi 3=10808
 Bi rel. to Bi-Te alloys 2=14590, 18755
 Bi, figure of merit 3=20424
 Bi, Kelvin reln. in mag. field, expt. 3=8573
 Bi, at liq. He temps. 3=25354
 Bi, use for low-temp. refrigeration 3=359
 Bi, Peltier effect, use in crystal growth 1=20438
 Bi single crystals, Seebeck coeff. 0=11734
 Bi telluride, p-type polycrystals, Bridgman effect 7=20944
 Bi, thermoelectric power 4=12882
 Bi₂O₃, solid and liquid phases, up to 1000°C 4=10043
 Bi₂S₃ 4=10140
 Bi₂S₃, power, rel. to semiconducting props. 0=6089
 Bi₂S₃, Seebeck coeff. 1=19871
 Bi-Sb alloys, concn. depend. 2=4030
 Bi-Sb alloys, rel. to mag. fld, 78°-295°K 3=4958
 Bi-Sb alloys, rel. to magnetic field, 77°-295°K 3=10894
 Bi-Sb alloys, magneto-Seebeck effect 3=10896
 Bi-Sb alloys, 20-300°K 2=8450
 Bi-Sb, 75-500°K 4=26034
 Bi₈₅Sb₁₅ 4=30618
 Bi_{0.92}Sb_{0.08}, temp. effect on power 4=26033
 Bi₈₉Sb₁₁+0.5% Pb, thermoelec. power meas. 4=14424
 Bi-Sb-Te alloys, thermoelec. power, applic. to refrigeration 0=2915
 BiSbTe₂, effect of freezing conditions during crystallization 1=8969
 Bi₂₄Sb_{60+x}Te_{150+x}Se₈, non-stoichiometric 3=13138
 (Bi_{1-x}Sb_{2-x}Te_x)₂(TeSe_{3-y}) 3=17869
 Bi₂Se₃, n-type 1=19870
 Bi₂Se₃, power rel. to semicond. props. 0=6089
 Bi₂Se₃, thermoelectromotive force, rel. to elastic strain 3=10832
 Bi₂₄Se₆₀Sb_(60+x)Te_(150-x) crystals, properties 4=29042
 Bi-0.2 at.% Sn, power 3=25355
 Bi-Sn, 75-500°K 4=26034
 Bi-Sn-Te (Sn + Te ≤ 0.3 at.%), 77-450°K 4=12884
 Bi-Te, 75-500°K 4=26034
 Bi-Te solid sols., thermoelec. power 0=4352
 BiTe, thermal conductivity rel. to Seebeck currents 1=14188
 Bi₂Te₃ 0=2915
 Bi₂Te₃ 4=13530
 BiTe alloys, power, 100° to 300°K 4=10141
 Bi₂Te₃, continuously cast rods 2=2416
 Bi₂Te₃, 4.2-300°K 2=657
 Bi₂Te₃, n-type, thermal diffusivity meas. 2=4080
 Bi₂Te₃, Peltier effect, use in crystal growth 1=20438
 Bi₂Te₃, power and efficiency 2=4079, 8449
 Bi₂Te₃, power, rel. to semicond. props. 0=6089
 Bi₂Te₃, thermoelec. power 1=1115
 Bi₂Te₃, var. with Ge, Pb doping, 100-400°K 4=15535
 Bi₂Te₃, variation of thermoelec. power with sintering temp. 0=7972
 Bi₂Te₃-Bi₂Se₃ system 2=16763, 18756
 Bi₂Te₃-Bi₂S₃, thermoelec. power 0=6387
 Bi₂Te₃-Bi₂Se₃, e.m.f., ageing effects 0=2889
 Bi₂Te₃S₅, Seebeck coeff, anisotropy 2=16717
 Bi₂Te₃-Sb₂Te₃ 0=16002
 Bi₂Te₃-Sb₂Te₃ with added Te and Se 3=913
 Bi₂Te₃-Sb₂Te₃, elec. cond. depend. 0=2917
 Bi₂Te₃-Sb₂Te₃, p-type, Seebeck coeffs. 2=23372
 Bi₂Te₃-Sb₂Te₃, solid sol. rel. to electron mobility 2=23161
 Bi₂Te₃-Se_{0.3}, doped with Cu and Bi cpds. 3=10895
 Bi₂Te₃Se_{0.9}, doping effects of Pb, I, and Ag 1=8968
 Bi₂Te₃-Se_x, effect of oxygen content 1=17603
 Bi₂Te₃-Se_x, rel. to halogen doping 2=12550
 Bi₂Te₃-Se_x, power, rel. to O content 3=860
 Bi₂Te₃-Se_x, temp var. and conductivity 4=1697

Thermoelectricity—contd

- CaO films, power, rel. to temp. 3=20471
 CaO, power and n-type elec. cond. 4=22705
 CaO, thermoelec. power 1=17725
 Cd oxide pressed powders, with excess Cd or O, 77-400°K 3=22940
 Cd, thermoelec. power 4=6793
 Cd₃As₂ 1=17811
 Cd₃As₂ 2=6266
 Cd₃As₂, n-type, power 95° to 700°K 2=23374
 CdGeAs₂ 3=8518
 CdGeAs₂, power 4=1593
 CdIn₂Te₄, n-type, temp. depend. 4=6949
 CdO 0=11752
 CdO 2=21150
 CdO, compressed powder, 80°-400°K 2=18698
 CdS, evap. films, effect of defect annealing 2=2160
 CdS after ionic bombardment, thermally stimulated current 1=17721
 CdS, thermocond., rel. to defect state meas. 2=8207
 CdSb, Ag-doped, meas. 4=20356
 CdSb, e.m.f., temp. depend. 0=1660
 CdSb, impurity effects 3=20325
 CdSb, monocrystals, thermoelectric power 0=15946
 CdSb, power, meas. 2=23415
 CdSb, power, variation with temp. 2=20949
 CdSb, pure and doped 3=17971
 CdSb, temp. depend. and anisotropy meas. 4=6948
 CdSb, thermoelec. power, variation with temp. 3=2740
 CdSb: In, e.m.f., temp. depend. 0=1660
 CdSb-ZnSb 0=18401
 CdSb-ZnSb, 90-400°K 4=1592
 Cd₄Sb₃ 2=16719, 18699
 CdSnAs₂ 1=8952
 CdSnAs₂ 3=8518
 CdSnAs₂, 100-600°K, and effective electron mass 3=17970
 CdSnAs₂-InAs solid solutions, 100-600°K, and effective electron mass 3=17970
 CdTe, figures of merit 2=23084
 CdTe-CdSe alloys, rel. to composition 4=22706
 Ce hydride, Seebeck coeff. 4=20328
 Ce sulphides, 4-1300°K 2=8451
 CeO₂, heat treated, thermoelec. power 0=606
 Ce₂S₃, 20-1000°C 4=4161
 Ce_{3-x}S₄, x > 0.3, analysis rel. to temp. 4=10048
 Ce_{3-x}S₄, x = 0-0.3, semimetallic, meas. rel. to theory 4=10047
 Co films, rel. to crystallinity 1=14366
 Co, thermoelectricity below 1°K 0=18076
 Co-Fe alloy, e.m.f. rel. to zone structure 1=19914
 Co-Fe alloy, e.m.f. rel. to zone structure 2=6506
 Co_{1-x}Fe_xSi, semimetal props. meas. 4=17486
 Co-Ni alloy, e.m.f. rel. to zone structure 1=19914
 Co-Ni alloy, e.m.f. rel. to zone structure 2=6506
 CoSb₃, with Sn, Te and Ni impurities 0=10006
 Co-Se and Co-Te systems 4=7480
 CoSe₂ 1=3769
 CoSi, -200°-+1200°C meas. 3=25427
 CoSn₂, thermoelec. power 0=13577
 Cr, anomaly at 35°C 3=10897
 Cr borides, carbides and nitrides 1=3707
 Cr, rel. to Cr carbides 2=23378
 Cr, 4.2°-340°K, rel. to antiferromag. 3=13140
 CrB 3=1124
 CrN, Seebeck coeff. 3=865
 CrO₂, near Curie temp. 1=14395
 Cr₂O₃, kinetics of Nb₂O₅, V₂O₅ donor addition 4=30535
 Cr₂O₃, thermal e.m.f., effect of impurities of equal or lower valency 4=28612
 CrS_(1.15-1.20), negative thermoelectric power 1=11250
 CrS_x (x = 0.95-1.20), power 1=14465
 CrSi₂, rel. to semicond. props. 4=20357
 CrSi₂, -200°-+1200°C meas. 3=25427
 CrSi₂-MnSi₂ 1=3797
 Cs, and alloys, low temps. mechanism 3=23027
 Cs, thermoelectricity below 1°K 0=18076
 Cs-Sb layers, var. with Cs content 3=8574
 Cu alloys, with Cr, Mn, Fe Co 2=4081
 Cu alloys, dilute, thermoelectric power at 8-350°K 1=1116

Thermoelectricity—contd

- Cu alloys, thermoelec. power, effect of transition metals 3=13139
 Cu, cold-rolled, thermoelec. power, 8-320°K, rel. to annealed Cu 0=1691
 Cu, cold-worked, relative effects at low temp., theory 0=13640
 Cu, defects distrib. study 1=14247-8
 Cu, dilute alloys, 4-120°K 0=9863
 Cu, dilute binary alloys, thermoelec. power, 8-320°K 0=13640
 Cu, effect of O₂ chemisorption 2=14591
 Cu, e.m.f. prod. by plastic deformation 0=15998-9
 Cu, Peltier coeff. meas., phonon drag 3=20425
 Cu, positive sign of power, explanation 2=656
 Cu, thermoelec. power, highly pure specimens, 0.1-350°K 0=20945
 Cu, rel. to vacancies and dislocations, activation energy study 1=14254
 Cu—Au alloys, with Co, Fe, Mn impurities, thermoelec. power 1=11254
 Cu₂Au, ordering meas. from thermoelec. data 3=25753
 Cu₂Au, thermo-e.m.f. calc. 3=4957
 CuCl containing CdCl₂ 4=7085
 CuFeS₂, power 3=1027
 Cu—Ge solid solns., supersaturated, decomposition 1=15159
 CuInTe₂, off. stoichiometric, peaks 4=26160
 Cu—Ni, thermoelec. power 0=4373-4
 Cu—Ni thermopile, and relax. time det. 2=10548
 CuO, effect of sintering 2=6465
 Cu₂O, 500-1130°C 3=25428
 CuO—CoO system 4=12890
 Cu₂O, 1000-1250°C 0=6147
 CuPt, thermo-e.m.f. calc. 3=4957
 CuSb₂, power 2.5°-300°K meas. 4=15520
 Cu—Zn, α -phase, 4.2°-300°K 3=20267
 Cu—Zn—Sb alloys 3=23466
 D, constricted elec. discharge, infl. of thermoelec. effects on max. temp. 1=18781
 Fe, cold-deformed, recovery kinetics 2=23485
 Fe oxides, rel. to FeO ratio, electron transfer model 2=10490
 Fe, thermoelectricity below 1°K 0=18076
 Fe—Al alloys, long-range order 1=20592
 FeB 3=1124
 Fe—Cr, during $\alpha \rightleftharpoons \gamma$ transformation 2=23234
 Fe and Fe alloys, lattice binding forces invest. 3=2984
 Fe—Ge alloys, β -phase 4=29118
 Fe—Ge alloys, heat treatment and temp. depend. 4=26010
 Fe_{1-x}Mn_xO₃, Seebeck coeff. rel. to temp., anomaly at Curie pt. 4=17491
 Fe—Ni alloy, e.m.f. rel. to zone structure 1=19914
 Fe—Ni, Ni conc. depend. 4=13184
 FeNi₃, change due to mag., and magnetostriction 3=13262
 Fe₂O₃, α -phase, Seebeck effect, impurity effects 4=1599
 Fe₂O₃, α -phase, Seebeck effect, charge carriers 4=1600
 FeSb₂ 1=3769
 FeSe₂ 1=3769
 Fe—Si, Si conc. depend. 4=13184
 Fe—Si, transverse thermo e.m.f. 0=11666
 FeSi₂, n and p-type meas. 4=12998
 FeSb₂, thermoelec. power 0=13577
 FeTe₂ 1=3769
 Ga arsenoselenides, 500-1000°K 1=3766
 Ga, arsenoselenides, thermoelec. power 0=15955
 Ga, liq., abs. power, meas. 3=1710
 Ga, liq., up to 160°C at const. volume 3=23902
 Ga, liquid, power 2=5027
 Ga, liquid, Seebeck coeff. 0=12419
 Ga single crystals, temp. depend. and anisotropy 1=14529
 GaAs diodes, recombination radiation 2=23393
 GaAs, n-type 4=1601
 GaAs, thermoelec. power and Nernst—Ettingshausen effect 3=10817
 GaAs, work function 2=11696, 13587
 GaAs—Ga₂Se₃ solid solutions 1=19877
 GaAs—Ga₂Se₃ system 0=11712
 GaSb, e.m.f., 200-400°K 0=6119
 GaSb, at m.p., and liquid state 0=624
 GaSb, n-type, Seebeck effect 3=10819
 GaSb, -190° to +600°K 0=623
 GaSb, p-type 2=18703
 GaSb, p-type, e.m.f., 150-950°K 0=15954

Thermoelectricity—contd

- (90%)Ga₂Se₃—(10%)GaSe, anomalies 1=10072
 Ga₂Te₃ (59.5-60.0 at.%) Te, power meas. 3=10815
 Gd hydride, Seebeck coeff. 4=20328
 Ge, bombarded by fast neutrons, meas. 3=10898
 Ge, bulk Peltier voltage, resistivity depend. 0=11733
 Ge, effects of strain 0=1643
 Ge, rel. to hot current carriers 3=10791
 Ge, magneto-Seebeck study in n-type, quantum transport 3=4914
 Ge, n- and p-type, carrier density depend. 2=2197
 Ge, n-type, effect of edge dislocations, calc. 1=10070
 Ge, n-type, heavily alloyed, e.m.f. 3=15631
 Ge, n-type, highly doped, thermal e. m. f., 100°-330°K 4=30669
 Ge, n-type, Seebeck effect, strain depend. 0=11735
 Ge, neutron irradi., thermoelectric power rel. to carrier conc. 4=12898
 Ge, phonon contrib. to thermoelec. power 0=2873
 Ge, properties in magnetic field 1=8932
 Ge, Seebeck coeff. on fast neutron bombard. 4=10012
 Ge, Seebeck effect meas. rel. to plastic bending 1=17692
 Ge selenides, thermoelec. power, temp. depend. 1=1043
 Ge tellurides, thermoelec. power, temp. depend. 1=1043
 Ge, temp. and carrier density var. 3=20426
 Ge, thermoelectric power of hot carriers in n- and p-type 4=12999
 Ge, thermoelectric power measurements 1=5753
 Ge, volume-gradient effects, impurity region 1=17812
 Ge, volume gradient phenomena 1=17644
 Ge, volume gradient thomson effect 0=11732
 Ge—Si alloys, for power generation 2=3855
 Ge—Si, in power generator 4=8607
 GeTe, carrier compensation for various solutes 3=25365
 Hf borides, carbides and nitrides 1=3707
 Hg, up to 160°C at const. volume 3=23902
 HgSe, mag. field effects, parameters of electron transport theory 0=11730
 HgSe—HgTe system 1=17813
 HgTe, power, 77°-400°K 4=10063
 HgTe, 100-320°K 4=7087
 HgTe—CdTe, power, rel. to composition 3=17890
 HgTe—MnTe alloys 3=20335
 InAs, at low temps. 2=23398
 InAs, at low temps 3=6596
 InAs, 100-600°K, and effective electron mass 3=17970
 InAs, p-type 2=16724, 18707
 InAs—CdSnAs₂ alloys 3=2915
 InAs—In₂Se₃ 1=19881
 (In, Ga)As, thermoelec. power, carrier conc. depend. 0=2897
 In₂O₃, power, 180°-460°K 3=2918
 InP, thermoelec. power, 90°-700°K, rel. to electron effective mass 4=30622
 InP, undoped, Seebeck effect meas. 4=12662
 In₂S₃, meas. 4=20374
 InSb 1=14530
 InSb, degenerate n-type, effective electron mass 4=1613
 InSb, electron effective mass det. 2=18757, 21204
 InSb, at m.p., and liquid state 0=624
 InSb, 195-715°K 1=7649
 InSb, p-type, rel. to valence band and hole scatt. 3=22947
 InSb, power, effect of mag. field, in n-type 4=1700
 InSb, rel. to pressure up to 18 000 atm. 4=1699
 InSb, review 0=13614
 InSb, thermo-e.m.f., 125 to 500°K 1=1074
 InSb, thermo e.m.f. theory 2=14556
 InSb—CdTe ($\leq 3\%$) 4=20373
 InSb, GaSb, equimolecular, temp. depend. 0=15959
 InSb—In₂Se₃ 1=19881
 InSb—Sb eutectic alloys 3=23401
 In₂Te₃, force and cond. 2=23399
 In₂Te₃, effect of pressure 0=13615
 In₂Te₃, thermoelec. power 1=2415
 K and alloys, at low temps., expt. and theory 1=17814
 K, characteristic power of boundary atoms 3=17968
 KCl 2=8455
 KCl, fused 3=9477
 La hexaboride, thermoelectric power, temp. depend. 1=5005

Thermoelectricity—contd

- LaCoO₃, doped with Sr or Th 2=23400
 LaCoO₃, Seebeck coeff., anomalous var. with temp. 4=28616
 La₂S₃, 20-1000°C 4=4161
 LaTe_{1.7-2.0} 4=4240
 Li alloys, with Mg, In, Al, at low temps. 2=6509
 Li₂Ni_{1-x}O, mixed-valence material 2=10547
 Mg—Cd, thermoelectric power 1=14531
 Mg₂Ge_xSi_{1-x}, 250°-600°K, meas. 3=13142
 MgMn₂O₄, cation migration process meas. 4=26052
 MgO, power and n-type elec. cond. 4=22705
 Mg + 0.1% Mn, below 100°K 2=6510
 Mg₂Si, Seebeck effect, phonon processes 2=16761
 Mg₂Si—Mg₂Sn, solid sols. props. 2=8453, 14593
 Mn ferrites, Seebeck, Verwey hopping mechanism 4=12905
 Mn ferrite, thermoelectric power near Curie pt., anomaly 4=17492
 α-Mn, mag. Brillouin zone effects 3=20555
 MnAl₃, thermoelec. power 0=20948
 MnB 3=1124
 Mn—Ni alloy, e.m.f. rel. to zone structure of Ni 1=19914
 Mn—Ni alloy, e.m.f. rel. to zone structure of Ni 2=6506
 MnO₂ (pyrolusite), anomaly at Curie temp. 1=7690
 MnP and MnP₂, temp. dependence 0=10008
 Mn—Si alloys, Seebeck effect 3=871
 MnSn₂, thermoelec. power 0=13577
 MnTe, magnon drag, contrib., errata 4=26161
 MnTe, thermoelectric power, magnon drag contribution 4=15576
 MnTe₃ 1=3769
 Mn—Zn ferrites 2=8454
 Mo borides, carbides and nitrides 1=3707
 Mo, reactor-grade, 4-120°K 0=11588
 MoSe₂—WSe₂ polycryst. system, Seebeck coeff. 4=22720
 MoTe₃—WSe₂ polycryst. system, Seebeck coeff. 4=22720
 Na, meas. rel. to martensitic transformation 2=12551
 Na—K alloys, liquid 3=145
 NaCl containing CdCl₂ 3=13143
 NaCl doped with CdCl₂ and Cl₂ gas electrodes, calc. 1=1112-13
 NaCl, fused 3=9477
 NaCl, X-ray coloured 3=813
 NaNO₂, rel. to ferroelec. theory 2=4091
 Na₂WO₃ 2=2116
 Nb borides, carbides and nitrides 1=3707
 α-Nb₂O₅, nonstoichiometric composition 3=23026
 Nb₂O₅, W-doped 2=16729
 Ni, defects distrib. study 1=14247-8
 Ni ferrites, with Mn impurity 2=6471
 Ni, thermoelectricity below 1°K 0=18076
 Ni, rel. to vacancies and dislocations, activation energy study 1=14254
 NiB 3=1124
 Ni₃Co, ordering detected at 773°C 0=16355
 Ni—Cr solid solutions, rel. to composition 1=5034
 Ni—Cu alloys, power variation in magnetic fields 3=20427
 Ni—Cu alloys, thermoelec. power variation with mag. field 1=9020
 Ni_{0.2}Cu_{0.8}Fe_{1.9}Mn_{0.2}O₄, Seebeck voltage 4=26055
 NiMn ferrite, 100-500°C 4=30670
 Ni_{1-x}Mn_{2+x}O₄, rel. to composition 3=13078
 NiO, thermoelectric measurements 1=17755
 NiO—CuO—Li₂O system, effect of sintering 2=6465
 Ni₂O₃·xH₂O and semiconducting type 4=4333
 Ni—Ti solid solutions, rel. to composition 1=5034
 Ni—V solid solutions, rel. to composition 1=5034
 Ni—Zn ferrites, power 3=20336
 Np, power, 20°K-room temp. 2=12552
 Np, temp. var. down to liquid He temps. 4=6918
 Np, thermoelectric power meas., 300-900°K 0=11657
 Np, thermoelectric power rel. to temp. 4=17542
 Os—As or Sb—S, Se or Te 4=26056
 Pb dilute alloys, at low temp., role of phonon drag 1=6070
 Pb oxide layers 2=6501
 PbBiSe₂ 2=21155
 PbBr₂, fused 3=9477
 PbCl₂, fused 3=9477
 PbS layers, mono- and polycryst., thermo-e.m.f. 4=26051
 PbS, n- and p-type, 4-100°K 0=18080
 PbS, p- and n-type, thermoelec. power, room temp. to 700°K 1=6184
 PbS photosensitive surface, thermoelectric power 1=7673

Thermoelectricity—contd

- PbS, pressure depend., up to 9000 kg cm⁻² 3=22948
 PbS, sensitized surface, majority carrier model 2=6499
 PbS, thermoelectromotive force, rel. to elastic strain 3=10832
 PbSe films, doped with Ag, thermoelectric power 1=8956
 PbSe, 4-100°K 0=18080
 PbSe, force rel. to impurities, 90° to 430°K 2=23401
 PbSe, thermoelec. power, effective mass of carriers 0=20947
 PbSe, thermoelectric power, temp. variation 0=20946
 PbSe, thermoelectromotive force, rel. to elastic strain 3=10832
 PbSe—Bi₂Se₃ system, thermal e.m.f., rel. to composition 3=25742
 PbSe—Sb₂Se₃ system, thermal e.m.f. rel. to composition 3=25741
 Pb—Sn liquid alloys, thermo-e.m.f. 4=21153
 PbTe 2=14592
 PbTe, e.m.f. rel. to temp., theory and expt. 1=19916
 PbTe, e.m.f. rel. to temp., theory and expt. 2=4082
 PbTe, 4-100°K 0=18080
 PbTe, impurity influence 2=3857
 PbTe, impurity influence on e.m.f. 1=19729
 PbTe, n-type, Seebeck coeff., 20°-550°K 4=22813
 PbTe, p-type 2=6467
 PbTe, rel. to Pb and Te precipitation 2=10491
 PbTe, power, rel. to semicond. props. 0=6089
 PbTe, pressure depend., up to 9000 kg cm⁻² 3=22948
 PbTe, rel. to temp. 77° to 900°K 1=17750
 PbTe, thermoelectromotive force, rel. to elastic strain 3=10832
 PbTe:AgSbTe₂, mixed crystals, superiority to PbTe 4=4239
 PbTe—SnTe system alloys, Seebeck coeff. 4=23275
 Pd, alloyed with Cu, Sn or Fe, at low temps. 1=3796
 Pd alloys, at low temp. 2=6508
 Pd, H-desorbed 2=14488
 Pd, thermoelectricity below 1°K 0=18076
 Pt, alloyed with Cu, Sn or Fe, at low temps. 1=3796
 Pt alloys, at low temp. 2=6508
 Pt, power, effect of lattice defects 4=20435
 Pt, power, effect of quenching and work hardening 2=23486
 Pt, thermoelectricity below 1°K 0=18076
 Pt—Mo alloys, thermo-e.m.f. 2=23880
 Pu and δ Pu—Al rel. to order-disorder change 1=20622
 Pu, power, 20°K-room temp. 2=12552
 Pu, temp. var. down to liquid He temps. 4=3918
 Pu, thermoelectric power determination 0=18082
 α Pu, thermoelectric power at low temp. 4=15435
 Pu, thermoelectric power rel. to temp. 4=17542
 PuC, thermoelectric power 4=4175
 PuC, thermoelectric power from 4.2°-1200°K 4=28416
 PuO_{1.7-2.0} 4=12938
 Rb, and alloys, low temps. mechanism 3=23027
 Rb, thermoelectricity below 1°K 0=18076
 Rb—K alloys, liquid 3=145
 ReSi₂, thermal e.m.f. 3=872
 Rh—Fe alloy, anomalous decrease, 1°-50°K 4=15525
 Ru—As or Sb—S, Se or Te 4=26056
 Sb₂Bi_{2-x}Te_{3-y}Se_y system 1=19867
 Sb—Cd, welded contact, thermoelec. inversion 0=16000
 SbI₃ 4=1624
 Sb—Mg, welded contact, thermoelec. inversion 0=16000
 Sb₂Se₃, thermoelec. power 0=620
 Sb₂Te₃ films, meas. 3=8514
 Sb₂Te₃, temp. depend. 2=8351
 Sb₂Te₃—Bi₂Te₃ solid sol., power and efficiency 2=4079, 8449
 Sb₂Te₃—Bi₂Te₃, thermoelec. power, composition depend. 0=16001
 Sb₂Te₃—Bi₂Te₃, thermoelec. power, temp. depend. 0=18079
 Sb₂Te₃:Bi₂Te₃, thermoelectric power, temp. variation 1=17810
 SbTeI 4=1624
 SbZn—SbCd 0=16002
 Sc against Cu, thermo e. m. f. meas., anisotropy of Sc single crystals 4=10143
 Se, with Br, Cl, I impurities, temp. depend. 0=1675
 Se, thermoelec. power 0=11717
 Se: Au, thermoelec. power 0=11717
 Se—Te solid solutions 3=22952
 Si, rel. to hot current carriers 3=10791

Thermoelectricity—contd

- Si, properties in magnetic field 1=8932
 Si-Co 0=13604
 Si-Cr alloys, composition depend. 1=3797
 α -SiC, effect of phonon drag 2=16764, 18758
 Si-Mn, temp. depend. 0=2884
 SmB₆ 0=13468
 SmS, thermo-e. m. f., 80°-1700°K 4=30626
 Sn anisotropy due to Brillouin zones 4=26015
 Sn selenide-Ge telluride, thermoelec. power, temp. depend. 1=1043
 Sn selenides, thermoelec. power, temp. depend. 1=1043
 Sn telluride-Ge selenide, thermoelec. power, temp. depend. 1=1043
 Sn tellurides, thermoelec. power, temp. depend. 1=1043
 Sn-In single crystals, anisotropy, low temp. 4=10144
 SnO₂ films, temp. depend. 1=10051
 SnO₂, 100°-900°C 4=6990
 Sn_{1-x}Se_x, max. figure of merit 3=20423
 SnSe₃ 1=14475
 SnTe, anomalous, rel. to band structure 3=17973
 SnTe, meas. rel. to stoichiometry 3=6604
 SnTe, and semicond. props. 4=15577
 Sr₂FeO₃F, Seebeck coeff. 4=1823
 SrO, (BaSr)O, cathodes, and conductivities 3=17969
 SrTiO₃, dielec. props. 3=2957
 SrTiO₃, 4.2°-300°K meas. 4=15559
 Ta borides, carbides and nitrides 1=3707
 Ta electrolytic capacitors 2=11598
 Te, rel. to band structure 2=16628
 Te, effect of phonon drag on current carriers 0=6149
 Te, effective mass of hole carriers 3=23028
 Te films, amorphous, pure 2=8284, 14500
 Te, at low temp. 2=16765, 18760
 Te, molten, meas. and charge-transfer model 4=2707
 Te, Peltier effect, use in crystal growth 1=20438
 Te, thermoelectric power, intrinsic and extrinsic regions 1=17448
 Te and Te-Se liquid solns. 3=3813
 TeI 4=1624
 Te-Mg, welded contact, thermoelec. inversion 0=16000
 Th, power, 20°K-room temp. 2=12552
 Th, temp. var. down to liquid He temps. 4=6918
 Th, thermoelectric power rel. to temp. 4=17542
 ThC, thermoelectric power 4=4175
 ThC, thermoelectric power from 4.2°-1200°K 4=28416
 ThS 4=26162
 ThSe, p-type single crystals 0=18054
 Ti borides, carbides and nitrides 1=3707
 Ti carbide 1=14532
 Ti silicides 2=8305
 TiC 2=8305
 TiC single crystals 1=11260
 TiC-TiN 2=18649
 TiO, power, 80°-400°K 3=17894
 TiO₂ (rutile) rel. to conduction mech. model 2=23413
 Ti₂O₃, thermoelectric power 1=11310
 TiSb₂, thermoelec. power 0=13577
 TiSe 2=18712, 23410
 Tl₂SeAs₂Te₃, vitreous 3=20418
 U, phase transition in α -type at 42°K 1=15135
 U, power, 20°K-room temp. 2=12552
 U, temp. var. down to liquid He temps. 4=6918
 U, thermoelectric power determination 0=18082
 U, thermoelectric power rel. to temp. 4=17542
 UC, thermoelectric power 4=4175
 UC thermoelectric power from 4.2°-1200°K 4=28416
 U-Mo alloy, γ -phase, rel. to Friedel band model 1=17450
 U-Mo alloys in γ -phase, thermoelectric power, 4°-40°K 4=28388
 UO₂, nonstoichiometric 1=17641
 US and US-ThS solid solns. 4=26162
 V borides, carbides and nitrides 1=3707
 V carbide 1=14532
 V, 4.2°-340°K, rel. to mag. transition 3=13140
 VO_x ($x=0.75-1.74$), composition depend. 0=18353
 V₂O₃, Seebeck effect 2=10496
 V₂O₃, power, rel. to nuclear irradi. 2=18761
 VSb₂, thermoelec. power 0=13577
 V₃X intermetallic cpds. 4=1701
 W borides, carbides and nitrides 1=3707
 W, reactor-grade, 4-120°K 0=11588
 WO₃ 3=13083

Thermoelectricity—contd

- W_xTa_{1-x}Se₂, Seebeck coeff. 3=23029
 Y hexaboride, e.m.f., against Cu 0=1879
 Zn antimonide 2=4042
 Zn, by He temps. meas. 3=8492
 Zn, at liquid He temp. 0=13581
 Zn thermo e.m.f. in circuit of deformed and undeformed regions 1=7679
 Zn_xCd_{1-x}Sb 4=12918
 Zn_xCd_{1-x}Sb, effects of Te, Cu, Sn doping 0=2903-4
 Zn_xCd_{1-x}Sb, Seebeck coeff. 2=23487
 Zn_xCd_{1-x}Sb solid solns., power, meas. 2=23415
 ZnGeAs₂ 3=8518
 Zn + 0.1% Mn, below 100°K 2=6510
 ZnSb, 4.2-300°K 2=657
 ZnSb, Seebeck coeff. 2=23487
 ZnSb, thermoelec. power 0=15967
 ZnSb-CdSb, solid solns. ordering 2=18762
 ϵ -Zn₃Sb₂, 20-470°K, discontinuities due to phase transformations 3=20346
 Zn₃Sb₂, rel. to semiconducting props. 3=15597
 β -Zn₃Sb₂, semiconducting temp. var. 3=22956
 ZnSnAs₂ 3=8518
 ZnSnAs₂, p-type, optical energy gap 2=23417
 Zn in Zn salt solns., and heat of reaction 4=7768
 Zr borides, carbides and nitrides 1=3707

Thermoluminescence

(Heading introduced in 1961)

- alkali halides, α -irradiated, kinetics 4=13084
 alkali halides, correl. with elec. cond. 2=23624
 alkali halides, efficiency 2=23625
 alkali halides, interactn. of activators 2=23626
 alkali halides, simple model 4=10210
 alkali halides, by spectrophotometer, rapid scanning, automatic 3=18992
 alkali halides, effect of TL glow curves and emitted spectra 4=10209
 alkali halides, after X-irrad., origin 3=3073
 anhydrite, effect of impurities 1=20035
 anhydrite, emission centres 4=4291
 anthracene, adsorbed and trapping 4=20497
 apparatus 3=3871
 aragonite, emission centres 4=4291
 biochemicals, after γ -irradiation 2=14758
 borax, fused, seeded with Ni, Mg, UO₃ 2=10634
 calcite, emission centres 4=4291
 calcite, trapping levels meas. from colour centres 4=28725
 diamond, semiconducting, type IIb 1=19993
 diamond, thermal rel. to optical activation 3=20547
 dolomite, emission centres 4=4291
 dosimetry of atomic bomb radiation 3=12611
 excitation mode effect on light output 2=23623
 glass, heating apparatus for meas. 3=6685
 glow curves, exper. study techniques 1=6243
 guanidine aluminium sulphate hexahydrate, γ -irrad. 2=14759
 hyperbolic glow curves, apparatus 3=3917
 ice, γ -irradiated, investigation 4=5196
 ice, rel. to stress and cryst. history 3=13649
 induced by annealing in crystals 1=7731
 magnesite, emission centres 4=4291
 measurement with double-beam spectrometer 4=16232
 platinocyanides, and non-monomolecular processes 3=18030
 polyethylene, γ -irrad., effect of oxygen 3=4995
 polyethylene, γ -irrad., glow peaks meas. 3=4994
 polymers, γ -irrad., glow peaks meas. 3=4994
 powder sample holder for uniform temp. 4=30694
 quartz 3=11020
 quartz, synthetic, sector distrib. of luminescence centres 4=20486
 reaction-kinetic evaluation of glow curves 1=6244
 Rochelle salt, γ -irrad. 2=14759
 ruby, γ -irradiated 3=23128
 sapphire, golden, after γ -irrad. 2=10634
 spectrophotometer, rapid scanning, automatic 3=18992
 theoretical models, appl. 2=8548
 trapping centres, capture cross-section 2=6299
 tyrosine, rel. to surface area and environmental gas press. 3=18052
 wolfram ate phosphors, decay obs. 2=6613
 Al₂O₃, α -phase, after γ -irrad. 3=3072

Thermoluminescence—contd

- Al₂O₃, sapphire, flash light excitation, colour centre decay process 4=30696
 α -Al₂O₃, γ -irrad. high pressure effect 3=23129
 α -Al₂O₃:Mn⁴⁺ 2=14712
 BaF₂, recomb. nature and capture levels 4=28728
 BaTiO₃, X-irrad. 3=968
 Ca carbonates and sulphates 2=8597
 CaCO₃, X-irrad. 2=4085
 CaF₂, natural, and synthetic doped or undoped 2=2264
 CaF₂, recomb. nature and capture levels 4=28728
 CaF₂:Mn, use in γ -ray dosimetry 1=1994
 CaF₂:Mn, temp., Mn, Cl ions, var. 3=23127
 CaF₂:Y and CaF₂, radiative recombination from electron-hole pairs, theory 4=17600
 CaO: Sm, impurity effects on glow peak 4=28729
 CaS, rel. to exoelectron emission and trapping levels 2=16877
 CaSO₄, hydrated and anhydrous phases 2=16876
 CaSO₄-Mn, thermoluminescence rel. to exo-electron emission 3=2013
 CaSO₄: Sm 4=28730
 CaSO₄, Sm-activated, appl. to dosimetry 1=16621
 CaSO₄-Sm, exoemission rel. to thermoluminescence 3=2013
 CdI, six maxima curve, 100°-180°K 2=12636
 CdS, Cu-doped, rel. to trapping maxima 2=4195
 CdS, rel. to defect states 2=8207
 CdS, reaction-kinetic evaluation of glow curves 1=6244
 CsBr, X-ray, u. v. excited 4=30697
 CsI: Cu, In, Ag or Tl, trapping levels are due to host 4=22917
 I crystals, after X-irrad. at low temps. 3=6653
 In₂S₃, mechanism 3=20515
 KBr, effect of F or V-band illumination 4=7176
 KBr, effect of plastic deformation 3=23130
 KBr phosphors with activators, recombination spectra 4=15615
 KBr, and plastic deformation 4=17588
 KBr, strained, pure or Tl doped 3=18054
 KCl, F colour-centres, effect of impurities 3=20246
 KCl, effect of F or V-band illumination 4=7176
 KCl, γ -irrad. 2=12638
 KCl, at low temp. 1=14663
 KCl, quenched, rel. to vacancy pairs process 4=17606
 KCl strained, pure or Tl doped 3=18054
 KCl rel. to surface area and environmental gas press. 3=18052
 KCl, u. v. and X-irrad. 2=12639
 KCl, In, Ga or Tl doped 4=13081
 KCl(Tl), u. s. and visible glows 2=8595
 KI, effect of F or V-band illumination 4=7176
 LiF, activated by uranyl nitrate 2=18861
 LiF, crystals and powders, meas. 2=20013
 LiF, for dosimetry 3=17116
 LiF, effect of X-irradiation 1=20051
 LiF, γ -irrad., low-temp. meas. 4=20482
 LiF, γ and neutron-irrad., impurity effects 3=11018
 LiF radiation dosimeter 3=19511
 LiF, rel. to thermal bleaching and colour centres 2=16668
 LiF, X- and γ -ray exposure, rel. to dosimetry 2=16097
 LiF, effect of X-ray irradi. and heating 3=8479
 Mg, fluorogermanate, with and without Mn 3=18053
 MgF₂: Mn, after X-ray stimulation 2=2265
 Mn⁴⁺ in α -Al₂O₃ 4=26236
 N, solid, after electron bombardment at 4.2°K 2=12637
 NaCl coloured crystals, spectral composition 1=14662
 NaCl, effect of annealing 1=17925
 NaCl, effect of F or V-band illumination 4=7176
 NaCl, on irradiation, rel. to mag. props. 2=6653
 NaCl, at low temp. 1=14663
 NaCl, shocked 4=22923
 NaCl, rel. to thermal bleaching and colour centres 2=16668
 NaCl, effect of X-ray irradi. and heating 3=8479
 NaCl, γ -irrad., effect of Ca doping 3=11017
 NaCl, rel. to surface area and environmental gas press. 3=18052
 NaCl, X-ray stimulated, imperfections mech. 2=6606
 NaCl:Ag, NaCl:Cu, effect of Ca, Sr, or Cd admixtures 1=20033

Thermoluminescence—contd

- NaCl:Ca 4=12961
 NaCl:Ca, influence of Cu, Ag 2=8563
 NaCl with Cd, Na addns., X-ray coloured 3=813
 NaCl: Cd, 300-700°K 1=4998
 NaCl:Co 2=6607
 NaF, crystals and powders, meas. 2=20013
 SO₂ in Ar, shock excited, chemi 4=26747
 SiO₂, doped, prod. by X-ray irradi., bleaching 4=15499
 SiO₂, silica with < 1% Al, rel. to heat treatment 4=4306
 SrF₂, recomb. nature and capture levels 4=28728
 ThO₂, effect of γ -irrad. 2=8596
 ZnO, characteristics, rel. to preparation 3=8633
 ZnO, rel. to Cu impurities 2=6648
 ZnS, electron trap depths rel. to activator conc. 1=14661
 ZnS, glow curves, rel. to trapping levels 3=11019
 ZnS, rel. to impurities 3=20528
 ZnS, origin 1=18917
 ZnS phosphor, neutron irradiation and ageing, effects 4=28741
 ZnS, reaction-kinetic evaluation of glow curves 1=6244
 ZnS, trap parameter determination 1=7732
 ZnS:Cl, cubic crystals 2=4178
 ZnS: Cu phosphor, neutron irradiation and ageing, effects 4=28741
 ZnS:Cu, Al luminor, light sums rel. to electroluminescence 3=3074
 ZnS:Cu, ZnS:CdScu, and dielectric props. 4=4284
 ZnS:Cu: Fe, photodielec. effect 2=21283
 ZnS:Ga phosphors 3=23131
 ZnS, Tl-, Cu- and Ag-activated 2=10623

Thermomagnetic effects

See Magnetothermal effects

Thermometers

- See also Pyrometers; Thermocouples.
 acoustic interferometer for 2°-20°K meas. 2=17559
 acoustic, by vel. of sound in gas 2=11525
 use below oxygen point, survey 2=15793
 bimetal, for chronometric radiosonde, lag-coeff. 2=8947
 borosilicate glass thermometers for high temperatures 1=6981
 calibration, fixed point, review 3=24089
 capacitor, for hydrological investigations 0=1061
 fixed points, establishment 0=3685
 gas, calibration of thermocouples used in HERO reactor 3=284
 gas, constant bulb temp. for high temps. 2=1299
 gas, use of large-bore precision manometer 2=5208
 gas, variable sensitivity for use at 300-4.2°K 0=1060
 mercury contact, constancy of contact temp. 3=7377
 mercury, emergent column correction 4=14431
 mercury, as γ -ray calorimeter 3=7820
 Mössbauer effect low temp. thermometer 4=16304
 0.1°-4°K, susceptibility type using paramag. salts 4=24465
 plate type 0=19514
 using quadruple resonance temp. depend., KClO₃ study 0=18232
 quartz crystal 2=7447
 quartz crystal, temp. deviations of 10⁻³ to 10⁻⁶ deg C 3=11986
 quartz, Gorini-Sartori 2=19756
 radiation, appl. to remote temp. meas. 2=127
 rain, thermistor 3=13656
 using saturated vap. pres. of two liquids 3=14405
 semiconductor thermoresistors, scale linearization 2=19752
 thermistor, const. sensitivity bridge 2=2968
 thermistor, digital display 3=24090
 thermistor, F-type 4=7376
 vibrating quartz crystal, as cryogenic thermometer 4=14473
 Ge, Ga-doped, mag field effects 2°-25°K 2=13480
 He gas, effect of mag. field 2=23069
 He³, T₉₀ temp. scale 4=16303
 He³, vapour pressure, very pure 4=16318
 He⁴ vapour pressure bulb, errors 3=19082
 Hg, for calorimetry 0=5220
 In-Ge diode, for 20-60°C 1=5367
- resistance**
 absolute temp. from thermal noise 2=11526
 bridge, direct reading 0=7003-4

Thermometers—contd
resistance—contd

carbon, interpolation technique for several thermometers, 1.5-30°K 0=215
carbon, at low temp., effect of stray h.f. fields 0=19517-18
classification, Klemens and Lowenthal, criticism 3=5551
dual-element type, with bridge circuit 3=282
film gauges, in shock tubes 0=2274
for helium temps., low-inertia resistor 4=2873
industrial applications, review 1=2907
interpolation, 20-273.15°K 0=12538
low noise, high accuracy, for use below 140°K 0=1086
low-temp. a.c. bridge for use with carbon resistor 1=10650
low temp., characteristics, design and calibration, review 1=4504
low temp., improved bridge 0=19519
metal, effect of thermal neutron irradiation 3=3915
metal-film, amplifier 2=5259
Meyers, Pt, long-term stability at high temp. 0=16923
oceanography, deep, Pt, short time const. 3=19053
radio frequency type 1=18668
rapid-response, hermetically sealed 1=4505
response time 4=24413
rotating wire, for atmospher. temp. meas. 2=21625
semiconducting, small, for up to 200°C 4=4194
semiconductor, for low-temp. meas. 3=11984
shock tubes meas., effect of surface backing 2=5049
spear for field meas., -30° to +70°F 0=5219
stability with time, Pt standard 2=22081
standardization, 10-90°K 0=19513
surface temp. meas. 0=7005
for $\approx 10^{-3}$ degree changes, thermistor bridge 4=18464
thermistor convection in liquids, Prandtl number effect 4=27356
thermistor type, temp. change meas. 3=24091
thermistors, design 1=4503
thermistors, heat transfer, natural and forced convection together 4=27355
thermistor-type, for temp. fluctuations 4=27364
thermometer-heater at low temp. in magnetic fields < 100 kG 1=10625
thin film, use as bolometer 3=3923
thin-film for heat transfer of fast processes invest. 2=19755
C, calc. of temp. diffs. with digital computer 2=5207
C, dep. on meas. current, liq. He temp. 4=26005
C, for low temps. 2=7446, 19754
C, miniature, for 0.1°-10°K, prep. 2=19753
C, > 1°K 4=18503
C resistors, use at 3-30°K 1=18717
C and Ge thermometers compared, 1.4-4.2°K 1=2909
Cu-resistance, for field use 4=21342
In resistance thermometry 0=3686
In thermometer for cryostats 1=6982
In, 3.4°-300°K 4=21341
In wire thermometers, mounting and performance 3=9645
Pb-brass, for below 6°K 3=14430
Pt, for calorimetric work, 100W at room temp. 1=10624
Pt, extension below 90.19°K, new interpolation method 3=17819
Pt film 4=24414
Pt, 4-90°K 0=213
Pt, linearization of out-of-balance output 4=8483
Pt, measurements at 4-90°K 0=213
Pt, miniature, thermal and hydrostatic behaviour 4=8484
Pt, with Mueller Wheatstone bridge, d.c. amplifier and recorder 1=1844
Pt, progress since 1880, review 2=9437
Pt, proposed international temp. scale, 90-20°K 0=214
Pt, role in international temp. scale 3=21598
Pt, 630.5°C-1,063°C, stability meas. 0=8856
Pt, temp. depend. of reduced resistance from 1.5°-90.2°K 4=27362
Pt, for temp. up to 1063°C 1=1843
SiC, 4-10°K 3=9666

Thermonuclear reactions

See also Elements, origin; Nuclear fusion.
atmosphere, effect on tritium content 2=2466-7
basic physics 0=5836
bibliography 3=12098

Thermonuclear reactions—contd

bibliography of current research 4=16458
book, investigations at U.S.S.R. Academy of Sciences 1=13077
book, investigations at U.S.S.R. Academy of Sciences 1=5439
carbon reactions in stars at 1.5 MeV c.m. 1=18116
conference, Salzburg, Sept. 1961 2=15908
conferences 0=1458, 5835
control problems 0=13384
controlled fusion, hot dense plasma containment 0=5322
controlled fusion, hypothetical devices based on shock heating 0=9724
controlled, in high current discharges 1=7032
controlled, research in U.S.S.R. 1=5949
controlled, review 3=22442
controlled, Russian research 0=7677
controlled, state of research 4=6404
cosmic electric discharges 0=2072, 6620
cross-sections and rates of various reactions 0=17638
cyclotron-radiation loss 0=3773
d-d fusion, centre-of-mass motion, from neutron spectra 2=20694
debris, 15 day old, airborne meas. of atmospheric conductivity 0=10402
deuterium pinches, study neutron production 1=749
dipole-field longitudinal invariant, effect of hydro-magnetic waves 1=21087
electron screening effect, calc. 2=5838
elementary review 2=10191
endoergic reaction rates, formula 0=7651
experimental system Ogra, report 2=7632, 8053
in exploding Li-LiD wires 2=7588
explosions at high altitude, rel. to radiation belt 3=9114
fusion and plasma, conference report 2=5326
 $\gamma + \gamma$ or $\gamma + (A, Z)$ neutretto prod. in stars, small calc. cross-section 4=7952
Harwell work since 1958, review 3=7597
heavy element production by neutron capture 1=18116
heavy element synthesis, neutron capture chains 1=7389
heavy particle detection 0=17639
helical three-path mag. field analysis 2=20098
high energy ion injection 3=15270
injection of high-energy charged particles 2=7727
macroscopic particle colls. to exceed KE, energy release conditions 4=12296
magnetic confinement 0=13383
magnetic fields for, production 0=17063
magnetic mirror system 1=7419
magnetohydrodynamic aspects 0=3757
"Mike" thermonuclear device (Nov. 1952), U isotope prod. 0=17512
 $n + d \rightarrow H^3 + \gamma$, catalytic action of μ^- 1=13873
neutrino and antineutrino losses 2=22485
neutron energy distrib. 1=17180
nuclear explosions in outer space, e.m. wave prod. 0=15136
nuclear power from fusion processes 0=1461
nucleogenesis; exclusion principle and photobeta reactions 3=3529
nucleosynthesis in supernovae 1=2638
Oak Ridge programme 1=4887
Ogra (U.S.S.R.) research machine, some results 2=7632, 8053
in plasma, fast ion thermalization 1=2960
plasma heating, in axial mag. field 0=10899
plasma heating, collision free 0=3758
plasma heating, of positive ions, by electron beam 0=15027
plasma, instabilities in mag. fields 2=19936
plasma, ion injection into magnetic field 0=3762
plasma, mass analysis of neutral flux 3=24996
plasma, noise radioemission rel. to temp. 2=1579
pynuclear and cyronuclear, classification 4=25450
rate increase by plasma shock waves, theory 4=18833
rate of reaction, effect of many-body collisions 1=3478
rates, < $\delta\nu$ > coefficients 1=7411
research in U.S.A. 0=4154
review 0=4153
rotating plasma expts., review 0=4156
stabilized pinch, direct energy conversion 0=7678
stable isotopes, production correl. with abundance data 2=6982
in stars 1=12759
in stars, evolution, H-He cycle 0=6609
stars, heavy ions, up to Fe formation 3=9232

Thermonuclear reactions—contd

- stars, massive, helium-burning 1=38
 stellar charge source 0=10512
 stellar, He burning, rel. to evolution 2=9086
 in stellar plasma 0=2361
 in supernovae explosions, rapid reactions 1=18122
 in sun, neutrino intensity calc. on p-p cycles 4=26942
 survey of early Russian work 0=7676
 time variation, energy balance 0=17637
 toroidal discharge, Sceptre IV, review 3=7596
 toroidal pulse discharge neutrons, recording device 2=19868
 transuranic element prod., review 1=8628
 in weapons, shielding against radiations 4=17078
 C, O, Ne, rates calc. rel. to astrophysics 2=14159
 C¹², prod. in stars, and γ -ray width of 9.63 MeV level 3=11568
 C¹² prodn. rate in the burning process 3=12581
 C¹³(p, γ)N¹⁴, and C¹³/C¹² ratio in stars, effect of possible N¹⁴ level \sim 7.60 MeV 3=11566
 D, confinement, neutron yield at 3 keV ion energy 1=5467
 D(d, n), rate and cross-section 2=12239
 D(d, p), rate and cross-section 2=12239
 D(d, p)T, determination of ion temp. in Scylla 0=462
 D fusion in cold gas, catalysis by μ -mesic atoms 1=8751
 D pinches, neutron emission mechanism, energy of accelerated deuterons 1=9582
 D pinches, theta-type, framing-camera evidence for confinement 1=5466
 D pinches, transverse, instability mechanisms 1=1903
 D plasma, fusion experiments 0=17645
 D, in Scylla, emission of neutrons, protons, tritons, light and X-rays 0=13385-7
 D, transverse pinch, neutron-producing mechanism 1=2976
 DD(n, He³) and DD(p, T), rates of reaction 2=1943
 (D, D) in solar flares, rel. to cosmic ray generation 1=18089
 D—D, yield, plasma parameters depend. 1=7410
 D and T plasmas, transient temp. variations during self-heating 0=3759
 D(d, p)T, at < 15 keV, cross-sections 1=7289
 DHe³ (p, He⁴), rates of reaction 2=1943
 DT(n, He⁴), rates of reaction 2=1943
 He burning, nuclear synthesis, reaction rates 4=3720
 He³(d, n), rate and cross-section 2=12239
 He³(d, p), rate and cross-section 2=12239
 Ne²⁰, prod. in stars, by O¹⁶(α , γ), γ -ray width of 7.20 MeV level 3=11568
 Ne²⁰(γ , α)O¹⁶, in hot stars 0=11430
 O¹⁶(O¹⁶, n)S³¹(β^+ , ν)P³¹, in hot stars 0=11430
 O¹⁶(O¹⁶, p, 2p or α)P³¹, Si³⁰ or Si²⁸, in hot stars 0=11430
 p + d \rightarrow He³ + γ , catalytic action of μ^- 1=13873

Thermostats

- See also Cryostats
 air temperature control, for biological research 0=5221
 automatic, for 5L. working space, for 0° to -40°C 4=27364
 automatic temp. equalization of 2 media 2=1302
 bi-metal, elastoplastic behaviour 2=15515
 const. temp. chamber for X-ray camera 1=1389
 for continuous precise control, theory and design 1=4506
 control system for spectrophotometer 1=233
 controller, electronic, for linear or hyperbolic temp. rise 3=14407
 controllers, based on rate-of-change temp. meas. 0=5222
 controllers, electronic, for analytical oven 0=14898
 controllers, for 4.2-77°K 0=19522
 cryostat for ferromagnetic meas. 1=18685
 field precision, using mercury contact thermometers 3=7377
 furnace control at 600°C 2=2920
 ignition source, temperature-regulated 0=3682
 image furnace radiant power control 3=9646
 improved sytem, overcoming line voltage change effects 1=5368
 for laboratory, small thermal inertia, range 196°-400°C 1=9503
 liquid-He temp. regulator, to $\pm 10\mu$ deg 3=24128
 low-temp., cooling unit 2=19758
 for manometers 1=4299

Thermostats—contd

- materials, review 4=5432
 metal bar with a set of cavities 4=352
 metal bar, set of cavities as thermostats 4=352
 using a millivoltmeter 4=16279
 multi-metal, calc. 3=14406
 oil baths for standard-voltage cells 3=19055
 on-off switching time recording 3=16889
 for oven control at 1400°C 4=16280
 Peltier refrigerator, control to ± 0.025 deg C 3=21601
 phototransistor temp. controller for diffractometer furnace 4=11396
 power control for high current furnaces 1=16164
 precision control below ambient 1=16161
 precision, for frequency standards 1=16162
 precision, with optically controlled thermometer and Peltier cooling 3=16830
 programme control device 3=5552
 programmed temp. regulation 1=11857
 with proportional control 2=1301
 for radio-frequency heating 4=21344
 regulator, down to 78°K, slow-neutron transmission expts. 3=12478
 response regulators, two-valued, applicable to adiabatic calorimeters 1=8260
 semiconductor precision zero-thermostat 2=19757
 stabilizer for ion source diffusion chamber 4=617
 strip bending formula correction 4=14432
 temp. difference maintenance across liquid film 4=24418
 temperature chamber, thermoelec., precision 4=27365
 temperature control in Co⁶⁰ hollow cylinder source 2=17681
 temperature control for electron microscope 3=25787
 temperature regulator, programmed 2=2919
 theoretical and practical aspects, review 1=11904
 thermistor-bridge unit for polarizing microscope 4=21345
 thermobimetallic strip, specific bending, formula revision 3=11987
 thermoelectric, to ± 0.006 deg C 3=285
 thermostat-stirring units, control improvement 3=19054
 thyristor and amplifier for proportional temp. control 4=18469
 -196 to + 300°C, double Dewar 4=18468
- Thickness measurement**
 See also Particle size
 absorbing specimens, using 3-beam interferometer 0=19431
 anodic films, by β -backscatt. 2=1102
 Canada balsam films on water, interferometric meas. 3=9395
 coatings, by β -ray back-scattering gauge 3=23827
 coatings, by electron probe microanalysis 4=2121
 collodion films on water, interferometric meas. 3=9395
 by convex lens and glass plate 3=16569
 crystal film thickness monitor 0=3481
 crystal oscillator film thickness monitor 4=29180
 dielectric layers, during evaporation 2=19107
 evaporated films, interferometric thickness control 0=3280
 evaporated films, using 3-beam interferometer 0=5174-5
 fibre diameter variation meas. 0=4978
 film on thick backing, using radioactive X-ray spectroscopy 1=20786
 film thickness by frustrated total reflection 1=15772
 films 0=1040
 films, activation method 3=23828
 films, celluloid, by photometry 1=9358
 films, changes, by electron microscope 2=11724
 films, conducting, during vacuum evap. 4=4662
 films, using Fraunhofer double-slit fringes 0=6941
 films, by frustrated total internal reflection 2=19493
 films, on glass, polarimetric meas. 2=15736
 films, inhomogeneous, Vašíček procedure 3=1826
 films, using interference microscope 3=11746
 films, by interferometer, reflectors, three layer, TiO₂, SiO 3=16793
 films, Michelson-type interferometer, high-precision pointing 4=24384
 films, optical meas., Vašíček procedure 3=1825
 films, optical method, non-destructive, 0.1-10 mils. 3=14087
 films, reflected light, fringe ang. var. 4=13678
 films, solid from light transmission and reflection 4=13679

Thickness measurement—contd

- films, using Tolansky's fringes 3=23826
- films, transparent, optical method 4=21004
- films on transparent substrate, optical 4=21305
- films, vacuum-depos., by electron microscopy 2=8881
- films, X-ray specular refl., from interference structure 4=3078
- foil windows, thin, for gas targets 1=9357
- foils, surface density mapping by Verni-Ray instrument 1=12840
- foils, thin bent, by electron micr. 3=13583
- gauge, bremsstrahlung sources 2=9227
- gauge, with two β -sources and ion chambers 2=15528
- inorganic crystals, thin, interferometric meas. 2=8515
- iron foils, by electron microscopy, using domain structure 3=5400
- layer, by X-ray emission spectrum distortion, due to reabsorption 3=6898
- liquid films, in annular two-phase flow 2=21888
- lubricant films, det. with scintillation counter 3=96
- metal films, optical and electrical methods 0=4979
- metal films, optical method 0=5170
- metal films, by radioisotope-induced X-fluorescence meas. 0=10630
- metal films, with refr. index 4=22823
- metal films, unbacked, determ. from transmission factor meas. 4=26164
- metal films, by X-ray interference method 1=2552
- metal foils, by electron microscope 4=13630
- metallic coating, using β -rays and X-rays 2=15527
- metallic film, thickness, Widmanstätten pattern method 4=4663
- microwave 0=6721
- oil film on metal, by Faraday effect ellipsometer 4=16087
- optical films, from var. of reflectance and trans. on incidence and polarization 4=16245
- optical gauge for Ge and Si wafers 0=6722
- optical lever gauge 3=14085
- organic monomolecular layers 4=1702
- oxide films, x-ray crystallographic method 1=20663
- portable gauge using γ -ray scatt. 3=14086
- by radioactive intensity, in Czechoslovakia 3=6874
- by radioactive isotopes, sensitivity and accuracy 3=9396
- radioactive method, using C^{14} source 2=14008
- radioactive methods 1=13676
- semiconducting films by interference method 1=11591
- semiconductor bicrystals, grain boundaries 3=2816
- small fibre diameters, interferometric method 1=4295
- solid films, mass-thickness meas., by electron scattering 3=21280
- solid thin films, rel. to reflectivity 4=13004
- thick layers, interferometric method, "vernier" effect 0=8805
- thin film, silver-modified Newton's rings 3=9394
- thin films, by alpha absorption 1=630
- thin films, by β -ray absorption method 2=19492
- thin films, to better than 1 Å by interference microscope 3=18772
- thin films, combined with saturation magnetization meas. 4=3084
- thin films, fluorescence method 1=5245
- thin films, oil coating, automatic ellipsometer 2=7161
- thin films, by X-ray fluorescence 2=7162
- thin-walled tubes, using β -rays, continuous 2=21865
- three-beam interference method, layers under $1\ \mu$ 0=12491
- tinplate, using X-ray fluorescence 0=8290
- u.s. meas. with Lamb waves 2=13300
- wedge-shaped layers 0=3483
- X-ray 4=8005
- by X-rays and bremsstrahlung, 0-18 keV source 4=6014
- by X and γ -rays, ionometric methods 3=21279
- Au films, by γ -ray spectroscopy 4=26710
- Ba stearate molecular films, interferometric method 2=17069
- $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$, 2-beam interference fringe method 2=18825
- Cu_2O films on Cu, x-ray crystallographic method 1=20663
- Fe films, by X-ray microanalysis 4=2122

Thickness measurement—contd

- GaAs, films, epitaxial 4=7707
- Ge oxide thin films, optical method 2=21864
- He II moving film 0=8913
- Ni films, by X-ray microanalysis 4=2122
- Ni layers, electrodeposited 1=12839
- Si films, epitaxial 2=17402
- Si and Ge diffused layers 2=12941
- Si oxide films 2=21583, 21863
- Si oxide thin films, optical method 2=21864
- SiO_2 films on Si, optical meas. 3=13149
- SiO_2 layers, thickness by u. v. visible interference 4=30882
- SiO_2 thin films, optical method 4=29187
- Ta oxide thin films, optical method 2=21864

Thixotropy

- butter 1=14889
- polyisobutylene 4=23197
- polymers, reversible transformations, theory 4=30754
- thixotropic liquids, time depend. of viscosity 0=6736
- thixotropic materials, viscous props. 0=6735

Thorium

- alloying with Bi, Sb, thermodynamic properties, oxidation effects 3=23548
- arc zone melting, purification 0=8169
- atom, 16 levels in L, M, N, O shells, meas. 4=17252
- atomic scatt. factor for X-rays 2=15010
- atomic spectrum, isotope shift for $\text{Th}^{229, 232}$ 1=4906
- atoms, adsorption on W-surface 2=10948
- atoms, L-spectrum, non-quadrupole transitions 2=20746
- atoms, Th I spectrum, even and odd levels, g-values 0=7733
- atoms, Th II, $f d^2$ configuration 0=20555
- atoms, Th^{90} , X-ray L-spectrum 3=8192
- in australites, by α -counting 3=7025
- conductivity, elec., temp. var. down to liquid He temps. 4=6918
- crystals, f.c.c. \rightarrow b.c.c. phase transform. 4=29020
- deformation stacking faults 2=6353
- deformation stacking faults 3=12990
- deposits on control grids, thermionic props. 0=7136
- desorption from W, due to electron emission 2=8896
- diffusion and desorption on W, field-emission microscope study 2=10947
- diffusion in graphite, pyrolytic C, activation energy 4=6869
- electrodeposition, molecular plating method 4=17866
- electrolytic deposition from nitrate 4=20836
- electron emission, filament temp. 3=14629
- electron emission of layers on W 1=16361
- emanation, in atmospheric radioactivity 2=8978
- evaporation 1=1851
- evaporation, from thoriated W cathodes 0=7135
- film on W, Mo, Ta, work function variation 2=1474
- films, sprayed, ultralow press. prod. by gas sorption 2=19628
- foils, stacking faults energy 3=12991
- Hall effect, room temp.—400C 0=7948
- high-temp. props. of carbide—iodide Th 3=23378
- ionization potential, study on W surface 1=18758
- lattice spacing, with ref. to contamination 0=10311
- mag. susceptibility, 130-300°K 0=669
- monolayer density for max. thermionic emission 0=17026
- monolayer films on W, evaporation 2=15088
- neutron absorpt., effective reson. integral 3=2544
- neutron diffraction, nuclear coherent scatt. 2=10832
- neutron irradiation, tensile props. 2=16965
- in ores, determination by γ -ray spectrometry 1=7926
- radioactivity, use in atmospheric aerosols invest. 2=6922
- radiometric determination in complex ores 0=18455
- reactivity changes after irradiation 2=3673
- reactor fuel, specific power and reactivity 2=6063
- resonance line hyperfine-structure intensity anomalies 0=4175
- in rocks, quantitative det. 2=17113
- rolling texture and stacking-fault energy 4=13656
- sintered, effect of O_2 , C and N_2 on properties 0=10462
- specific heat and elec. cond., 25-1000°C 0=17894
- specific heat, 0.38°-3.9°K, rel. to mag. and nuclear components 4=20216
- spectral data, 2000-11550 Å 0=15665
- spectrochemical analysis, by d.c. arc 0=21298

Thorium—contd

- spectrophotometry, with thoron, in presence of
Zr 0=12123
spectrum, atomic 4=22308
spectrum, isotope shifts 4=15291
stacking faults, energy calc. 4=12769
supercond., press. var. of crit. temp. 4=21420
in thermal reactor, Doppler effect 2=3676
thermo electric power rel. to temp. 4=17542
thermoelectric power, 20°K-room temp. 2=12552
thermoelectricity, temp. var. down to liquid He
temps. 4=6918
thoron escape from solids containing radiothorium 3=8475
wavelengths, interferometric, 2650-3400 Å 2=8064
work function, films and foil 2=17859
work function, wholly or partly covering Re 4=11685
L X-ray fluorescence yield meas. 4=15307
X-ray L intensities 1=13951
X-ray L spectrum emission 2=6588
Young's modulus, temp. variation 1=2504
on Re, thermal desorption 3=21856
Th²⁺, Slater-modified Hartree-Fock calc. 3=12767
Th-U separation, by ion exchange 0=21302
Th-W, thermionic emission, maser, optical,
induced 3=19305

Thorium compounds

- absorption spectra 0=20656
Ceto getter, crystal structure and phase
transformation 1=15124
hydrides, statistical treatment 4=13486
nitrides and sulphides, review of phys. chem.
props. 3=16473
Rn²²², diffusion in ThO₂ 0=15874
thoria-urania solid solns., thermodynamic props. 0=6382
Th, ageing and hot hardness characteristics 0=18284
Th alloys, various, f.c.c. → b.c.c. phase
transform. 4=29020
Th, with O₂, C and N₂ 0=10462
Th oxalate, coprecipitation with Ca 3=1275
Th glass, radioactivity 1=9820
Th-phosphate phosphors, Cu-activated, effect of Cu
concentration 4=26248
ThAl, crystal structure, rel. to similar types 3=18338
ThAl₂, hot-hardness 2=2337
Th₂Al, sorption of H₂, equil. pressure isotherms 3=20941
Th₂Al-H and -D, neutron diffr. and p.m.r. 3=20849
Th₂Al-H system, crystal structure 3=20848
Th₂Al₄H₃, order or disorder of H 3=20768
ThAl₂-ThMu₂ system, crystal struct., atomic 4=17820
ThBr, photoelectrochem. props., effect of green
pinacryptol 1=15201
ThC, magnetic susceptibility 4=17627
ThC, resistivity and thermoelectric power 4=4175
ThC, in thermionic conversion of heat 3=4000
ThC₂, powder indexing and lattice constants 4=23491
ThC₂, vaporization 4=24461
Th-Ce alloys, rolling texture and stacking-fault
energy 4=13656
Th-Ce, low-temp. lattice parameters 4=15796
Th-Ce-Al system, crystal structure and phase
transformation 1=15124
ThCl₄, infrared spectrum 1=11790
ThCl₄, solubility product 2=19554
ThCo, crystal structure, rel. to similar types 3=18338
ThF₄, evap. film, refractive index det. 2=682
ThF₄, fused bath, electronic and ionic
conductance, 1100° C 3=1394
ThF₄, infrared spectrum 1=11790
ThF₄-CaF₂ electrolyte, cathode process 2=15149
ThGe₂ 2=15048
Th_{0.9}Ge₂ 2=15048
Th-In phase diagram to 5.5 kbar 3=20886
ThIr, cryst. struct. 2=14962
Th-La, lattice spacings 1=20577
Th-Mo phase diagram 3=8896
Th(NO₃)₄, tetrahydrated, aq. soln., u. s. velocity 4=24207
ThO, spectrum, rot. analysis of two 7888 Å bands 4=22368
ThO₂, ads. of cations, anions, in dilute solns. 3=13608
ThO₂, adsorption study by n. m. r. 4=26728
ThO₂ coated filament emitters, poisoning and
activ. 4=21560
ThO₂, containing CaO, mechanical and dielectric
relaxation 3=20700

Thorium compounds—contd

- ThO₂, containing lanthanides, tertiary refl. spectra 4=20462
ThO₂, crystal structure, by neutron diffr. 3=20844
ThO₂, diffusion of Kr⁸⁵ 2=14461
ThO₂, diffusion of Rn 1=17563
ThO₂, diffusion of Xe¹³³, Rn²²² and I¹³¹ 0=15874
Th₂O, elastic consts, for varying porosity 3=23283
ThO₂, electrolytic deposition inside Al tubes 4=20837
ThO₂, electron and ion emission, applic. energy
converters 2=17863
ThO₂, films, with adsorbed Ba, thermionic
emission 2=9618
ThO₂ films optical props., 0.2-1.6 μ, rel. to appl. 4=22893
ThO₂ films, u.v. reflection filters 0=3640
ThO₂, heat capacity at high temp. 1=14182
ThO₂ polycrystals, elastic constants, effect of
porosity 3=13331
ThO₂, slurries, sedimentation at high temp. 0=12112
ThO₂, thermal atomic motions up to 1100° C 3=20845
ThO₂, thermal expansion, up to 4500°F, meas. 4=30525
ThO₂, in thermal reactor, Doppler effect 2=3676
ThO₂, thermoluminescence, effect of γ-irrad. 2=8596
ThO₂, Young's modulus, exponential temp. depend.,
77-850°K 1=10204
ThO₂, Gd³⁺ e.s.r. 1=20212
ThO₂-UO₂-ZrO₂, structures 0=8229
Th₃(PO₄)₄ phosphors, luminescence 3=20523
ThPd, crystal structure 4=10553
ThPd₃, crystal structure 4=10554
ThPd₄, crystal structure 4=10554
Th₃Pd₆, crystal structure 3=20878
Th₃Pt₃, crystal structure 3=20878
Th(IV) and Pt(IV) acetylacetonates, probable
isomerism 0=8239
ThRh₂, cryst. struct. 2=14962
ThS, thermoelec. props. 4=26162
ThSe, p-type single crystals, properties 0=18054
Th_{1-x}U_xAl₃, specific heat, 1.7-20°K, electronic contribu-
tion 4=12649
ThX (X = Pt, Rh, Co, Ru, Ir), crystal structure,
atomic 3=11279
Th-Y, lattice spacings 1=20578
Th-Zn, prod. by electrolysis 2=15149
Th-Zr, structure, heat treatment 2=4439
Th₂SeAs₂Te₃, vitreous, photoconductivity, thermo-
electricity 3=20418

Thulium

- arc spectrum, ionization potential 3=8193
atom, Kα X-rays from radioactive sources 4=9665
atoms, Tm I spectrum, hyperfine structure of
70 lines 4=15293
coherent scatt. amplitudes, thermal neutrons 2=19075
elec. resistivity, 1.3-300°K 0=18002
heat capacity, 15 to 360°K 1=11163
internal mag. field and elec. field gradient 3=8006
ions, Tm²⁺, in CaF₂, energy levels 2=18833
ions, Tm³⁺, electronic struct. in cryst. and mag.
fields 2=3861
isotopes, masses meas. 3=4727
luminescence in thoria 2=14733
magnetic ordering, neutron diffr. study 2=12663
magnetic props., 1.3-300°K 0=11881
magnetic structure detm. by neutron diffraction 3=1108
magnetic structures, neutron diffr. study 2=14810
magnetization, at low temps., in strong fields 0=11842
magnetization-temp. data 3=25507
paramagnetic susceptibility 0=8030
specific heat, at 0.5-4°K 2=2051
spectra of Tm³⁺, calc. 0=5886
Tm ethylsulphate, cryst. field splittings, thermal
Tm III in CaF₂, spectrum 4=12601
Tm²⁺, e.s.r. in CaF₂ 4=26433
Tm²⁺ impurity ions in CaF₂, valence control, electrolytic
method 4=23667
Tm³⁺, approx. excited eigenfunctions 3=2572
Tm³⁺ emission spectrum 1=3854
Tm³⁺, quadrupole antishielding factor calc. 4=3791
Tm³⁺, self-consistent fields, without exchange 0=5848
Tm³⁺ in soln., near i.r. transitions 3=23885

Thulium compounds

- crystalline compounds, electronic structure, Tm³⁺ in
cubic potentials and exchange field, calc. 4=6695
CaF₂: Tm, luminescence, on irradiation,
mechanism 4=22518

Thulium compounds—contd

- Fe garnet, Mössbauer effect Tm^{169} , 8.4 keV, nuclear h.f.s. 3=20061
 Tm bromide, electron transitions in far i.r. 4=1419
 Tm chloride, electron transitions in far i.r. 4=1419
 Tm ethyl sulphate, Mössbauer effect and electronic shielding 4=20171
 Tm ethyl sulfate, oxide, trifluoride, crystal electric field, electronic shielding 4=30497
 Tm ethyl sulphate, crystal field splitting of energy levels 0=11600
 Tm trisbenzoylacetate, luminescence 2=6611
 Tm trisdibenzoylmethide, luminescence 2=6611
 Tm^{3+} , chelates, fluorescence spectrum 0=16084
 Tm^{169} oxide crystals, nuclear hyperfine struct. 2=20910
 $TmAl_2$, mag. moment and Curie pt. 3=991
 $Tm(Al^{3+})_2$, large anisotropic Knight shift 1=9069
 TmB_9 , thermoemissive props. 4=3027
 $Tm^{2+}:CaF_2$, maser, optical, continuous, 1.116 μ , low temp. 3=22016
 TmFe garnet, ferrimag. resonance 2=18938
 TmFe garnet, Tm^{169} Mössbauer spectra, 90° and 300°K 4=3966
 $TmFeO_3$, magnetic torque curves, anisotropy 1=7770
 $Tm_3Fe_2O_{12}$, ferrimag. resonance 3=25557
 TmH_{2-3} , magnetization-temp. data 3=25507
 $TmMn_2$, crystallographic investigation 1=20542
 TmN, N^{14} n.m.r. shift and mag. props. 2=12835
 Tm_2O_3 , crystal structure 4=10535
 Tm_2O_3 , Mössbauer effect 2=12367
 Tm_2O_3 , Mössbauer effect, Er^{169} oxide source, h. f. s., 20°K 4=12589

Thunderstorms

- See also Lightning
 air conductivity 4=2207
 rel. to atmospheric elec. cond. 3=9034
 and atmospheric electricity, pot. gradient, Poona, IGY 3=18514
 and atmospheric elec. var., annual 4=29301
 and atmospheric, integrated field, times 3=23597
 atmospheric and thunderstorm electricity, symposium 0=16481
 cell number, lightning 3 Mc/s radiation meas. 4=23746
 charge generation in clouds 3=11401
 as chemical phenomenon 0=18526
 cloud electrification mech. 2=11028
 correlation with sporadic E maxima in India 1=6617
 criterion for theories 1=20861
 current jets from thunderclouds, hypothesis for whistler generation 1=10310
 currents, point-discharge, through living tree 3=9035
 data analysis, rel. to atmospheric 3=3470
 diurnal variation of frequency, world-wide 2=21632
 E_s ionospheric layers ionization, correl. 2=17168
 e.l.f. electric fields 1=20864
 effect of atmospheric blue haze 0=18520
 electric charge generation 1=20834-5
 electric charge, generation, mech. 2=2489
 electric charge, generation, process in ice crystals 2=13005
 electric field above, measurements 0=778
 electric field changes, slow, due to thunder clouds 2=21637
 electrical potl., build-up in ice crystals 2=13005
 electricity generation, review 3=1439
 electrification, ice crystal charge by rebound from hail 3=6957
 electrification theories 4=7559
 electrification of water droplets and ice particles 4=2202
 field strength increases beyond horizon 2=17969
 force of thunder, from hydrodynamic model 1=20866
 forecasting, rel. to divergence eqn. 2=11018
 freezing water drops, fragmentation and electrification 1=20832
 growth and decay, rel. to atmospheric 3=3473
 hail, elec. charging by impact, effect of elec. field 2=6912
 ice crystals, contact electrification 1=17861
 ice electrification in growth of soft hail pellets 2=19204
 and ionosphere, sporadic E 3=21059
 narrow-band atmospheric 1=20863

Thunderstorms—contd

- at Poona, radio-meteorological study on 85 kc/s band 1=20862
 quasi-static electric field 0=16481
 radar reflection, Mie scatt. from ice spheres calc. 2=2478
 radio-meteorological formations 2=17124
 rain drop size distrib. at Poona (India) 1=20830
 spheric analysis, rel. to l.f. radio ground-conductivity det. 2=2459
 showers, vertical cross-section, radar analysis 1=20833
 structure of electro-convective eddies 0=3354
 thunder, rolling, discharge mech. 2=13001
 tree as point discharge for electrical transfer 4=10725
 tropical, classification, and radar echoes 3=16214
 and whistlers of var. types 4=7851
 worldwide activity, rel. to earth-ionosphere cavity modes 2=9715

Tides

- (Heading abolished in 1963; for later entries see Atmosphere, movements; Ionosphere; Oceanography)
 atmospheric, lunar and solar 0=12136
 earth-tides, interpolation of records 1=20793
 gravitational, meas. 2=8941
 influence of earth's rotation 2=871
 ionospheric, oscillation 0=14219
 moon's tidal couple 0=18692
 oceanic, relaxation methods 0=8632
 stratified sphere model for secondary effects 2=15505
 tidal action between galaxies 0=18824
 tidal friction effects on satellite orbits 1=10376
 viscous liquid oscillations, with 2 superposed layers 1=10492
 wave recorder, long period 0=12410
 waves, long, sweep across Pacific 1=10304

Time interval measurement

- analysers, using crystal-controlled trochotron tube 0=14481
 atomic clocks, review 2=17409
 atomic time scale 3=11750
 cathode ray chronograph for short intervals 2=19511
 chronograph, automatic counter, for routine short time intervals 1=8092
 chronograph, photoelectric device 2=21866
 chronometry, high-frequency 0=10545
 counters, semiconductor, with transformer, for < 1 nsec 4=16747
 by counting radioactive disintegrations 0=18891
 definition of time interval, using Newton's 1st law 0=4985
 digital chronometer, for SF_6 -air time-lag to breakdown 4=16455
 digitrons, μ sec intervals 0=3487
 diurnal term in time service obs. 2=24068
 frequencies, fixed or varying, accurate meas., to 10 Mc/s 3=16573
 frequency comparison precision by $N^{14}H$, double-beam maser 3=12347
 frequency standard, beam, choice of molecule 3=12882
 frequency standard, Cs beam, operation and improvements 3=13992
 frequency standard, using Cs beam resonators, direct and servo methods, comparison 3=11749
 frequency standard, primary, $N^{15}H$, double-beam maser 3=12346
 frequency standard, Rb vapour, optically pumped 3=12991
 frequency standard, Tl^{203} atomic beam 3=13990
 frequency standards, use of solid-state masers 3=9989
 international coordination of time signals and standard freq. transmissions 0=18894
 lifetimes of nuclear rotational levels $\sim 10^{-10}$ sec, by microwave method 0=20397
 millimicrosec. pulses, shunt 2=19836
 millisecond vernier chronograph 4=16411
 $\sim \mu$ sec, accurate meas. 1=15777
 μ sec intervals, zig-zag oscilloscope presentation with μ sec accuracy 1=2727
 μ sec, transistorized counter chronograph 4=6
 nsec range, multichannel analysers 3=16574
 nsec region, using cathode-ray-tube E80T 3=9406
 nuclear lifetimes, sub- μ sec, survey 3=9706
 100 Mc/s digitron 3=9407
 one-time meas. in band 400-1.3 $\times 10^4$ micro-secs. 2=19510

Time interval measurement—contd

- organic scintillations, nanosec. meas. of individual photons 4=29638
- oscillograph time-base calibration 3=24171
- pendulum period vs amplitude 4=27124
- photoelectric trip for chronometer 1=18341
- photographic high-speed motion analysis 3=21291
- photomultiplier and coincidence system 0=19725
- printing chronograph, tape control mechanism 3=1909
- precision clock using 10 Mc/s pulses 1=18342
- using pulse-height analyser 0=2145
- pulses, 10^{-1} - 10^{-5} sec. range 2=17755
- satellite clock rate, rel. to earth clock 1=18219
- scaling circuits, intervals and resolving times meas. 3=7175
- short, coincidence circuits 1=18740
- standard frequency transmissions 0=18893
- standard frequency transmissions, check against caesium clock 1=4301
- standards, quartz cryst. 2=15531
- stroboscopic light source 3=18976
- sub-nsec lifetimes 3=19149
- superopticon, for time sweep of rapid events 3=24352
- 10^{-8} μ sec, instrument 3=14094
- between 10^{-9} and 10^{-7} sec 0=19991
- $< 10^{-10}$ sec, use of spark counters 4=14960
- time analyser, nsec range, amplitude corrected 2=19845
- time and frequency standards, at P.T.B. 0=2092
- ultra short processes investigation, review 1=10474
- unit, astronomical definition 3=11651

Time measurement

- absolute scale, using nonlinear clock, stochastic rectification 0=8533
- absolute scale, using 2 radioactive clocks 0=8532
- analyser circuit 2=1366
- arrow, appl. to cosmology of e.m. radiation absorber theory 4=7950
- astronomical time, nonuniformity, molecular standard 2=24069
- atomic clock 0=12344
- atomic clocks, double resonance principle, application 1=15776
- atomic clocks, resonance frequency shifts 3=10478-9
- atomic frequency standards, comparison 3=7173
- atomic frequency standards, long distance comparison 2=7172
- atomic standard clock 4=8012
- bodies, freely falling, electronic clock 1=1724
- calc., summation of divergent series 3=11668
- Canadian radio time-signal system 3=14093
- clock rate in satellite, rel. to clock on earth 2=17355
- clock rates at perihelion and aphelion 1=12799
- comparison of national atomic frequency standards 2=4976
- comparison of TA, and NBS-A atomic scales 4=24006
- conference 4=29509
- deviation of Universal Time from atomic (cs) time 1=18027
- direction, and equivalence of expanding and contracting universes 4=29350
- and earth rotation, comparison with atomic frequency standards 1=18022
- earth rotation inequalities 1=18025-6
- electric stop clock control system 1=10652
- electron-optical chronography 2=1501
- ephemeris time rel. to mean solar time 4=8012
- Ephemeris Time, effect on star catalogues and solar eclipse prediction 1=4202
- ephemeris—universal time difference, from moon position meas. 3=21093
- fast coincidence system 2=5277
- flow of time, direction, possibility of determination 4=1
- freq. variations of quartz oscillators and earth's rotation, in terms of caesium standard 0=21
- frequency comparison of atomic standards by radio links 4=2512
- frequency control symposium 1=104
- frequency control symposium, Atlantic City (1962) 3=7172
- frequency standards 0=855
- frequency standard, quartz, new comparison tech. 2=11320

Time measurement—contd

- frequency standard, quartz resonators U.S.S.R. 2=13301
 - geomagnetic, calc. formula 4=10768
 - gravitational effects on atomic clocks, noon—midnight red shift 1=1687
 - interplanetary correlation using asteroid impact 4=13917
 - magnetic dipole, eccentric, semi-graphical meas. 4=13855
 - maser frequency oscillator 2=45
 - nanosecond region 1=18738
 - nonuniform and uniform scales of time, review 4=8012
 - nuclear cosmochronology 0=14394
 - problems in accurate measurement, review 1=10474
 - quantum mechanical systems, correl. meas. 4=18069
 - quantum theory, Hermitian operator 4=18070
 - quantum theory and "minimal time" 3=21242
 - quantum theory, time symmetry 4=21035
 - quartz clock, solar-sidereal synchronous motor 2=44
 - quartz clocks, freq. divider, pulse-phasing device 1=105
 - quartz clocks, regulation 3=7174
 - quartz oscillator freq. and earth's rotation period, rel. to Cs time standard 0=10547
 - relativity and time, introduction 2=19401
 - second, redefinition 4=5007
 - second, redefinition as freq. of e.m. radn. corresp. to atomic energy level transit. 4=21006
 - solar flares, effect on earth's rotation 1=18021
 - solar time, mean, nonuniformity 4=8012
 - standard frequency transmissions, freq. rel. to Cs resonator 1=6819
 - standard freq. transmissions, Ottawa 1=2726
 - standard freq. transmissions Ottawa, freq. meas. 1=9364
 - standard frequency transmissions Ottawa, list 1=9363
 - standard, var. due to relativistic effect 4=16004
 - standards, comparison between N.P.L. and L.S.R.H. 3=9318
 - uncertainty relation for time and energy in quantum theory 1=8052
 - time-scale generator, logarithmic 3=9405
 - Cs atomic-beam freq. standards, comparison 1=1725
 - Cs atomic clocks 0=14480
 - Cs clock, in review 1=19046
 - Cs frequency standard 0=4915
 - Cs frequency standard, improved precision 0=6635
 - Cs standard frequency transmissions 0=10546
 - NH₃ atomic clock 1=18343
 - NH₃ beam 2-level maser 0=18892
- Tin**
- absorption edge, far u.v., assignment to d-band transitions 4=15446
 - acoustic wave atten. by conduction electrons 3=10593
 - adsorption on Fe and Co particles in Hg, mag. effects 2=15614
 - α - to β -type transformation, nucleation rates 4=15745
 - α -type, thermal expansion 1=4969
 - anisotropic Knight shift in mag. field, n.m.r. at liquid He temp. 4=28905
 - atom, electron Coulomb scatt. without excit., 50-400 keV 4=6502
 - atom, spectral lines, oscillator strengths 4=6487
 - atomic mass of Sn^{118-120, 122} and neutron separation energies 3=714
 - atoms, Compton scatt. by K-shell electrons 2=528, 20756
 - Azbel'-Kaner resonance 2=18561
 - band structure of α -form, model 4=6790
 - $\beta \rightarrow \alpha$ transformation, review 4=7514
 - β -Sn single crystal, Mössbauer effect 4=25818
 - coating on Cr-plated steel, bonding phase structure 3=5146
 - coating on steel, bonding phase structure 3=5146
 - compressibility, hardness, β form 4=29114
 - Compton scatt. by K-shell electrons 2=528, 20756
 - condensation, second boundary temp. 2=15811, 17696
 - condensation, in vacuum 0=1943
 - conductivity, electrical, 0-505°K, deviation from Matthiessen's rule 4=1568
 - in contact with In, Cd, Bi, melting 3=15525
 - cracks, development in presence of Ga 3=20757
 - creep, near melting point 1=1325
 - creep, pressure depend. 3=23334
 - critical temperature for condensation on to glass 1=5379

Tin—contd

cryotrons, thin film 4=24516
 crystal grain boundary migration, zone refined
 crystal growth, β -phase 0=3174
 crystal growth, effect of initial purity on preferred direction 0=18304
 crystal growth, electrolytic, white, current var. 4=26610
 crystal growth, kinetics, cinematographic study 1=4021
 crystal internal fields, from Mössbauer effect 4=20153
 crystal orientation of dendrites in high-purity ingot 4=20740
 crystal whisker growth 4=13553
 crystal whisker growth, press. induced, var. press. 4=13552
 crystallites on SiO films, size distribution 3=18380
 crystallization, lamellar character and sub-structure 0=18305
 crystallization in u.s. field, role of insoluble impurities 4=26603
 crystals, twinning behaviour rel. to strain rates and temperature 1=9103
 cyclotron resonance, mag. field and temp. depend. 0=1 7918
 cyclotron resonance, at 2.4°K and 9.4 Mc/s 0=1616
 Debye-Waller factor interpretation 4=3982
 Debye-Waller factor, 0°-300°K 3=20083
 defects, quenched-in, effect on supercond. transition 1=17507
 deformation twinning of single crystals under impact loading 0=21115
 deformation twins by tensile impact 1=14869
 diffusion in Ag liquid 4=24196
 diffusion in Au crystals in boiling HCl 3=4888
 diffusion in GaAs 1=12401
 diffusion in GaAs, radioactive and elec meas. 3=22809
 diffusion in InSb, single- and polycrystals 1=14308
 diffusion in Ni surface 2=21068
 diffusion in Ni surface 3=6539
 diffusion, self, high press., vacancy jump mechanisms 4=30580
 e.s.r., 10^{40} c/s, 2.3°K, orientation depend. 0=21079
 elastic constns. of β -Sn, 4.2-300°K, Debye temp. and low-temp. specific heat 1=1293
 elastic limit at low temp. 0=16214
 elastic moduli, effect of temp. 0=6295
 elastic moduli, single crystals, temp. depend. 0=10255
 elec. resistance, 4.2°-1.65°K, rel. to sample size 3=2851
 elec. resistance, liq. He temp. 0=9932
 elec. resistance, rel. to impurity 3=25324
 elec. resistance, 10°-14°K 3=2852
 electric field gradient, sign of conduction electron contrib. 4=20155
 electrical cond. and thermoelec. anisotropy due to Brillouin zones 4=26015
 electrical properties, 4.2-293°K 4=17583
 electrical resistance, high press. 2=618
 electrical resistance, rel. impurity content 2=12490
 electrical resistivity, 3.75°-4.22°K, and residual resistivity at 0°K 3=8491
 electrodiffusion 2=6374
 electrodiffusion of Sb¹²⁴, d.c.-induced, analysis 4=12785
 electron diffrn. examln., Kikuchi bands obs. 3=3293
 electron emission, photostimulated, on reaction with NaOH or KOH 1=16376
 electron momentum meas., He temps. 2=18554
 electron momentum meas., He temps. 3=6496
 electron pair production meas. at 90° 4=9181
 electron reflections, forbidden, by evap. films 1=20532
 electronegativity, from alkyl cpd. p.m.r. spectra 2=2024
 electronic structure, u.s. attenuation study in mag. field 0=9847
 equations of state, at high pressure 0=11549
 etch figures 0=18331
 exo-electron emission, photostimulation 0=10937
 exo- and photoemission of electrons 1=16374
 Fermi surf. cross-section shape 3=8403
 Fermi surface 2=584
 Fermi surface 4=25907
 Fermi surface, cross-section shape 2=22525
 Fermi surface, invest., by cyclotron reson. 2=8188
 Fermi surface invest., by cyclotron res. 3=6493
 Fermi surface from magnetoacoustic effect 1=17459
 Fermi surface from magnetoacoustic effect 1=19740

Tin—contd

Fermi surface from magnetoacoustic meas. 3=15469
 Fermi surface, model 2=3873, 23119
 Fermi surface, size effect study 3=25241
 Fermi surface of white Sn, perturb. calc. 3=10624
 film on Au base, superconductive transition temp. 1=18722
 film, crit. currents for supercond. 4=24510
 film normal—superconducting phase boundary, thermal propagation 3=16877
 film, with 10 atomic % Cu, amorphous 1=20597
 film, thermal conductance into liq. He 4=24470
 films, on amorphous support, microstructure examination 2=10952
 films, on collodion, nucleation texture 1=15176
 films, complex refr. index for 0.9-11 μ wavelengths 2=10570
 films conductance during vacuum deposition 3=25327
 films, conductivity and supercond critical temp. rel. to electrostatic charging 3=15545
 films, crit. temp., rel. to elastic strain 2=1340
 films, crystal imperfections, lattice, electron microscope obs. 4=4045
 films, deposited at 88°K, annealing kinetics 1=12663
 films, dislocations 3=17736
 films, disordered, annealing energy and resistivity decrease 1=20597
 films, elec. cond. rel. to thickness 2=18636
 films, elec. resist. rel. to thickness non-uniformity 2=12491
 films, evap., Kikuchi patterns 2=17015
 films, formation by electron effects on Sn-cpd. substrate 2=12943
 films, non-crystalline, electron diffrn. invest. 2=837
 films, optical density meas. 3=20934
 films, optical properties, effect of lattice defects 0=4391
 films, optical props., 0.9-11 μ 2=10571
 films, photoemission 0=9074
 films, quench-condensed, elec. props. 2=23242
 films, single-crystal, electron diffr. diffuse streaks 4=23492
 films, supercond., crit. field meas. in London limit 2=19820
 films, supercond., edge effect elimination 4=24502
 films, supercond., rel. to edge effects 2=11567
 films, supercond., high-freq. behaviour and crit. temp. changes 2=2963
 films, supercond., mag. moment 2=16883
 films, supercond.—normal cond. transition 0=16950
 films, supercond. pulse-destroyed 4=21412
 films, as supercond. switching elements 2=5244
 films, supercond. transition, effect of Ag and Co coatings 2=22122
 films, supercond. transitions in mag. fields 2=11566
 films, supercond., vapour sources for vacuum deposition 3=9525
 films, superconducting, mag. moment 3=6687
 films, superconducting phase transitions, hysteresis 3=9687
 films superconductivity and normal cond. rel. to adsorbed O 3=16872
 films, superconductivity, rel. to residual gases 3=16878
 films, superposed on Ag films, superconductivity transition temp. depression 4=24514
 films, surface mobility of atomics, influence of O₂ 4=13684
 films, thin, on crystal substrates, condensed, orientation 3=13562
 films, thin, supercond., crit. current density rel. to temp. 3=3965
 films, vacuum evap. from TiC 2=6850
 films, work function 2=9612
 filter, optical, films, for 600-1250 Å 4=21290
 foils, prep. as isotope targets 2=17978
 freezing pt. 0=2271
 friction with various materials, effect of adhesion 0=16245
 fusion boundary in Ge dislocation effect 4=25962
 fusion curves to 10⁵ atm 0=9840
 γ -ray backscattering, 0.2-2.0 MeV 0=7318
 gamma-ray scatt., ~1 MeV, elastic meas. 2=11920
 gas flow through orifices, unrecognized characteristics 3=11814
 grain growth, effect of small impurity additions 1=15152
 grain growth, in zone-refined specimens 0=16273
 gray tin, neutron irradiation of powder 1=7607
 grey, band struct. classification 2=8345

Tin—contd

grey, band structure and effective masses
calc. 4=6791
grey, charge carrier effective mass, from Knight
shift 1=1283
grey, dielec. const. det. from reflectance ratios 3=6640
grey, elec. resist., 0.1-283°K 0=9931
grey, electronic density distrib. and diamag.
susceptibility 3=16069
grey, i.r. optical consts. meas., 1-25 μ 4=22898
grey, lattice vibration spectrum 3=17642
grey, magnetoresistance of oriented single
crystals, 77-273°K 1=8960
grey, oscillatory magnetoresist. in n-type 4=20379
grey, prep. of single crystals from Sn-Hg
alloys 2=23827
grey, reflectivity in fundamental absorption
region 2=6539
grey, single crystals, transformation studies 0=18307
grey, valence band, l.c.b.o. method 3=779
grey and white, interreln. 3=11209
grey \rightleftharpoons white transition in Hg-Sn alloys 0=727
Hall effect, anisotropy, 4.2°K, up to
7kG 1=3717
Hall effect, in strong mag. fields 3=15555
hard superconducting, upper critical mag. fld, rel. to
electron mean free path 4=11486
hardness along tricrystal boundaries 2=4346
heats of solution of Al, Ga, In in Sn at 750°K, and
theories 4=24175
hole photoemission into GaAs 2=16723
impedance, surface, at 3 Mc/s in mag. field 4=6916
interaction with vacancies in Al-10 wt% Zn alloys, rel. to
clustering 4=28994
ions in metal, mobility effective charges 2=18609
isotope mass differences, meas. 2=20760
isotopes, mass spectra 3=8215
Kapitza resistance, 1.3-2°K 3=311
lattice vibration spectrum of white Sn 3=8346
lattice vibrations and Mössbauer effect 1=3604
lifetime, under load 0=16223
liquid, density, rel. to temp. 2=9255
liquid, electron mean free path, by positron annihil. 4=199
liquid flow, activation energy jumps and cluster
formation 4=5137
liquid, Hall effect 3=144
liquid, nucleation catalysis in supercooled state 3=1270
liquid, self-diffusion 2=13329
liquid, self-diffusion, det. using radioisotopes 2=21900
liquid self-diffusion in Sn plus Zn mixture 3=5432
liquid, solubility of Kr 2=52
liquid, solubility of Kr in 0=19120
liquid, structure rel. to temp. 2=15566
liquid, structure, X-ray determination 3=7197
liquid, supercooled and superheated, structure 3=9440
liquid, thermal props. 2=17445
liquid, viscosity 2=7182, 15542
luminescence activation, valence 2=14727
magnetic props. calc., from X-ray meas. of electron
density, grey tin 4=7216
magnetic susceptibility, room temp. to 20.4°K 0=21026
magnetoacoustic effects in longitud. fields 3=25192
magnetoelectric potential, even, rel. to mag.
field 2=624, 23252
magnetoplasma resonance, l.f., meas. 3=8409
magnetoresistance, anisotropy, Fermi surface 0=9939
magnetoresistance, dimensional and purity effects
at low temp. 3=15554
mechanical props., elec. cond., structure, effect of Ga
film 1=14910
melting curves to 10⁴ bar 2=19778
melting points of thin deposited films 0=19505
microhardness, effect of Na and Zn traces 3=3334
molten, structure analysis 1=12863
molten, viscous flow, activation energy increase 4=155
Mössbauer effect, rel. to supercond., in Sn¹¹⁹ 2=3817
Mössbauer effect in superconducting and normal
Sn 4=16368
n.m.r., electronic structure 0=4530
n.m.r., in Mn Sn(1.5 \leq x \leq 1.9) 4=17701
optical consts. in 0.9-12 μ range at 4.2°, 78° and
293°K 4=26222

Tin—contd

overstressed microregions, mech. props. 3=11142
paramagnetic props. in normal and supercond.
states 1=10640
phase transition, white-b.c.c. form 3=13452
phase transition in white Sn at 113-115 kbar 2=23877
photoelec. emission of highly disordered films 1=16383
photoemission, into Ge 2=7645
plastic deformation, initial 3=18181
plastic deformation, twin interactions 2=4334
plate thickness using X-ray fluorescence 0=8290
polycrystalline, grain boundary diffusion 3=2830
polycrystalline, stress/strain diagram, position of
jumps 3=3218
polymorphous transformations, effect of impurities 4=7515
powder, Mössbauer effect, doublet component
asymmetry 3=20059
powders, compacted, density 3=6875
pressure effect on friction and shear 1=9098
pure, preparation by multizone refining and vacuum heat
treatment 0=13962
recrystallized surface, microhardness and structure, effect
of Zn and Na impurities 3=20760
refractive index, 0.73-12 μ , 78° and 293°K 4=17583
resistance, elec., 4-lead meas. system 4=30612
self-diffusion in crystals, diffusion of Zn and Co 2=605
self-diffusion in polycrystals 2=3947
semiconducting, Hall mobilities, n-type, grey, grown in
Sn-Hg 3=17896
shock compression up to 9 \times 10⁶ atm 2=6728
shock compression up to 9 \times 10⁶ atm. 3=6786
shock wave propag. 0=12453
single-crystal films 1=11592
single crystal films, evaporated, dislocations, expt. and
theory 4=9962
single crystals, preparation for electron micro-
scopy 0=12090
size effect, 1-5 Mc/s 3=842
size effect, 1-5 Mc/s 3=8493
soldering of mercury telluride 0=8462
solubility in GaP, in growth 4=28999
solubility of Sb 1=15160
solute diffusion in liquid tin 1=141
solution rate in Hg 4=5156
spark cutting of crystals 1=11669
specific heat near supercond. critical temp. 2=19818
specific heat in normal and supercond.
states 1=11162
specific heat, 0.1-5°K 0=19580
spin-lattice relax. 2=18957
spin-spin coupling with protons 3=719
stability under press. 2=14873
structural and mech. props. rel. to liq. Ga coating 4=10353
structure, effect of Na and Zn traces 3=3334
supercond. cylinder, persistent curv.
stability 4=18606
supercond. density of states var., tunnelling
meas. 4=21417
supercond. film microwave non-linearities 4=21429
supercond. film, quantized, vortex obs. 4=18610
supercond. films, e. m. microwave absorption, energy
gap var., mag. field effect 4=29835
supercond. -normal transit, current induced, switching
times 4=24512
supercond., specific heat temp. var., quantized
flux 4=21370
supercond., surface impedance, with modified BCS gap.
temp. var. 4=18607
supercond. tunnelling study, energy gap det. 1=8284
superconducting, absorption, u.s., osc., models 4=14536
superconducting, critical field and thermal
expansion 2=7517, 15853
superconducting, current transitions in films 0=1081
superconducting, cylinder in mag. field, resistant/current
var. 3=21658
superconducting, density of states meas. 2=11572
superconducting double layer, with In, diffusion and contact
effect 4=24513
superconducting, electron tunnelling through dielec.
layer separating Sn-Pb 2=9480
superconducting, energy gap 2=5243
superconducting, energy gap anisotropy, from absorpt., u.s.,
100-250 Mc/s 4=14537

Tin—contd

- superconducting energy gap, anisotropy, in binary axes plane, u.s. absorption data 1=1861
 superconducting, energy gap anisotropy, u.s. absorption study, temp. depend. 0=19567
 superconducting, energy gap rel. to cryst. orientation 2=15855
 superconducting energy gap, by electron tunnelling 3=333
 superconducting, energy gap, mag. field depend., calc. 1=1859
 superconducting, energy gap, tunnel effect study 4=8573
 superconducting, far i.r. absorption 0=14933
 superconducting, Fe impurities decrease, gap > transition temp. 4=18574
 superconducting film boundary effects, crit. temp. and field 4=16373
 superconducting film superimposed on normal metal 4=24503
 superconducting film, thermal cond. and energy gap, mag. field effect 4=18608
 superconducting films, a.c. field, 180° phase shift across 4=14533
 superconducting films, crit. field meas. 2=13517
 superconducting films, critical current 0=12562
 superconducting films, critical mag. fields and currents 0=8940
 superconducting films, effect of residual gases 1=2921
 superconducting films, energy gap temp. depend., tunnelling meas. 4=21413
 superconducting films, use as i.r. bolometers, 50-1000 μ 0=19495
 superconducting films, intermediate state study 2=9487
 superconducting films, low residual resistivity 0=10854
 superconducting films, mag. props. 1=16202
 superconducting films, mag. transitions 3=19124
 superconducting films, mag. transitions, influence of aggregation 0=10855
 superconducting films, on normal metal, surface energy effects 2=9488
 superconducting films, with paramag. additions, transition temp. 4=14532
 superconducting films, penetration depth 0=8931
 superconducting films, surface charge rel. to transition temp. 2=17730
 superconducting films, switching 2=22115
 superconducting films, tunnel effect 2=22110
 superconducting, h.f. surface impedance 0=10850
 superconducting, Hall effect, r.f., calc. 1=260
 superconducting, interphase surface energy 0=7028
 superconducting, law of corresponding states, expt. and theory compared 0=1074
 superconducting, mag. field sign reversal 2=17731
 superconducting, mag. field sign reversal 4=16372
 superconducting, microwave magneto-impedance meas. 4=14535
 superconducting, microwave effects, nonlinear, and switching speed 3=19123
 superconducting, n.m.r., 1.5-4.2°K 1=2922
 superconducting and normal films, far i.r. transmission, 0.1-11.1 mm 0=10852
 superconducting and normal, γ -ray reson. absorption, 1.1°-373°K 2=19819
 superconducting, and normal, u.s. absorption 0=13501
 superconducting, paramag. sign effect in transverse field 4=27434
 superconducting, pressure and volume effects, crit. mag. field, Fermi surface 1=258
 superconducting, resistance, freq. depend. 0=8936
 superconducting, specific heat and entropy 2=7516
 superconducting strips, quantized vortices, from osc. in resistance/mag. field 4=5529
 superconducting, surface impedance, calc. 0=10841
 superconducting, surface impedance changes 4=16369
 superconducting, surface impedance, mag. field depend. 2=11565
 superconducting, surface impedance, theory and expt. 4=24511
 superconducting, surface resistance, 17-77 kMc/s and 1.5-3.0°K 0=1080
 superconducting, thermodynamic study 2=15852
 superconducting thin film rings 2=13513
 superconducting thin films, current-induced switching 2=5238

Tin—contd

- superconducting thin films, destruction of state by current pulses 2=142
 superconducting transition temp., effect of nonmag. impurities 3=16876
 superconducting transition temp., effect of Sb impurities and plastic deform. 3=19125
 superconducting transition, no time delay detected 0=1082
 superconducting transition, stress effects 2=7518
 superconducting transition temp., pressure depend., up to 10⁴ atm 0=8939
 superconducting transitions, stress effects 1=11885
 superconducting, tunnel effect in films 1=18707
 superconducting, tunnel effect, 1.36°K 4=14534
 superconducting, tunnelling through Sn-Al₂O₃-Al layers 2=11571
 superconducting, u.s. shear wave attenuation meas. 4=9845
 superconductive thermal boundary resistance, with Cu 3=19108
 superconductivity 0=2287
 superconductivity, contacts of plated wires 0=5235
 superconductivity, crit. fields and hysteresis 4=18609
 superconductivity, critical field curves 0=16951
 superconductivity, critical temp. change due to electrostatic charging 0=19559
 superconductivity, destruction, critical resistance 0=12563
 superconductivity, destruction by current pulses 3=3966
 superconductivity, films, critical fields, calc. 0=16954
 superconductivity, hollow cylinder with circular current 0=5238
 superconductivity, intermediate state 0=10848
 superconductivity, 0-1730 kg/cm², T_C shift 1=18723
 superconductivity, temp. dependence, u.s. investigation 1=3595
 superconductivity, thermodynamics 1=11883
 superconductivity, transition properties meas. 1=16193
 superconductor, microwave impedance rel. to direct current 4=16371
 superconductors, critical persistent current rel. to temp. 4=16370
 supercooled, nucleation, inapplicability of Boltzmann statistics theory 4=363
 supercooled, nucleation catalysis, statistics to be used 3=21621-2
 supercooling, decrease by impurities 4=16295
 supercooling, nuclei number, effect of e.m. stirring, var. with mag. field 4=5455
 surface activity, on Zn, internal friction study 2=21569
 surfaces features, crystallographic 3=18341
 surface friction, wear rate and polishing 2=23795
 surface impedance, 1.9 Mc/s, 4.2°K, mag. field depend. 0=20875
 surface resistance, oscillatory dependence on weakening field 0=20874
 surface tension at supercond.-normal phase boundary 0=19566
 surface tension between supercond. and normal phases 2=15856
 surface tension, 300-400°C 0=19088
 surf. tension between superconducting and normal phases 3=5594
 temp. change at boundary with superfluid He 3=5570
 temperature change at boundary with superfluid He 2=15838
 thermal cond., below 1°K 0=8937
 thermal conductivity, change on melting 1=9990
 thermal conductivity, change on melting 1=11171
 thermal conductivity in intermediate supercond. state 1=4973
 thermal conductivity, normal and superconducting 1=16201
 thermal conductivity in normal and superconducting states, meas. 1=17433
 thermal diffusivity, capacity and conductivity, meas. by flash method 1=13006
 thermal expansion, in α - β transition region 2=10336
 thermal expansion, 4°K to room temp. 4=15434
 thermal expansion of tetragonal form 1=19723
 thermal vacancies, formation energy, specific resist. 1=11192
 thermoelectric props., low temp., anisotropy 4=10144
 thin films, resistivity temperature coefficient 1=6127
 thin wires, resistance rel. to temp. and thickness 2=2114, 23240

Tin—contd

- twin, kink and deformation bands, interferometric study 1=1361
 twinned single crystals, recovery 2=21465
 u.s. absorption, in mag. field 0=20758
 u.s. absorption in magnetic field 1=17402
 u.s. absorption, 17-70 Mc/s, in mag. field, liq. He temp. 0=11576-7
 u.s. attenuation, at low temp., rel. to elec. cond. 0=1568
 u.s. attenuation at low temps. 1=14173
 u.v. emission spectrum, use for analysis 0=16397
 ultrasonic dispersion, in mag. field 0=1567
 vacancies, formation energy and conc. 1=7575
 vacuum u.v. reflectivity, transmission and photoelectricity, 6-30 eV 3=13145
 valence electrons, approx. wave-functions 0=469
 whiskers, growth, rel. to heating, u.s. irradiation, cooling, pressure 3=23414
 whiskers, mechanical strength 1=20371
 white, crystal space group 1=15023-5
 white, deformation twins 0=4585
 white, de Haas-van Alphen effect and Fermi surface 0=20765
 white, empty-lattice analysis of band structure 3=4836
 white to grey transformation, kinetics 2=21458
 white-grey transformation, kinetics volume pressure effects 1=14940
 white, lattice dynamics, modified axisymm. model 4=22482
 white, single crystals grown by Bridgman method 1=20444
 white, slip and twin bonds 1=14903
 white, space group, irreduc. reprod. at symmetry pts., basis functs. 2=16630
 white, space groups, irreducible representations 0=21178
 white tin, energy integrals, tight binding method 1=890
 wires, Ni- and Au-plated, disappearance of superconductivity, barrier thickness 0=8962
 X-ray continuous spectrum, Ohlin structure meas. 4=4242
 X-ray diffr. studies at high press. and temp. 4=10555
 zone refining, suitability of method, limitations and technique 4=29061
 CdTe, linear expansion coeff., temp. depend. 1=916
 Ga-coated single crystals, mech. props. 0=6313
 in Se, after zone refining, distrib. calc. 0=13942
 β -Sn crystals, Mössbauer effect anisotropy, 77°-293°K 3=2700
 Sn impure crystals under impact 1=3985
 Sn IV in plasma, spectral line width and location 4=18845
 Sn IV Stark broadening in fully ionized plasma 4=18853
 β -Sn lattice, $\text{Sn}^{119\text{m}}$ quadrupole interaction 3=17635
 β -Sn, resistive stress for twin thickening 3=25659
 β -Sn single crystals, Mössbauer effect, anisotropy 4=25819
 β -Sn, slip- and twin dislocations 3=25658
 α -Sn thermal expansion, anomalous negative low-temp. values 3=10603
 Sn^{119} , atoms, p electrons do not shield s, from Mössbauer isomer shifts 4=20164
 Sn^{119} , n.m.r., anisotropy 2=14854
 Sn^{119} n.m.r. in metallic tin 1=20268
 Sn^{119} n.m.r. in metallic tin 3=5052
 Sn^{119} , resonant and Rayleigh scatt. of photons 2=22783
 Sn^{119} in SnAs, SnSb, SnTe and SnPt, Mössbauer effect 4=25820
 Sn^{119*} , Mössbauer effect and crystal temp. 4=28334
 Sn_2 , dissociation energy 2=8127
 Sn I, electronic g factors and empirical intermediate coupling transformation 4=22303
 Sn-Pb supercond. mag. field detector 3=468
 in Zn, effect on creep and viscosity 0=6311

Tin compounds

- coordination number 6, Mössbauer effect 4=25821
 Mössbauer effect investigation, and appl. to chemistry 4=28331
 organic, Sn^{119} 23.8 keV Mössbauer spectra 3=15415
 oxide stabilizing of Si surface barrier detector 2=3217
 oxide, superconducting, tunneling, anomalous d.c. 3=14462
 stannates, dielectric props. 0=13645
 stannic halides, mol. vibr. calc., XY_4 tetrahydral 4=9734
 superconductivity of binary and isoelectronic alloys 4=24504
 ternary carbides with Ni, Co, Fe, Mn 0=16324
 tetrabutyltin, decompos. by electron bombard. 2=12943
 tin bronze alloys, vacancy conc. rel. to plastic strain 3=23327

Tin compounds—contd

- Wood's metal, surface activity on Zn, internal friction study 2=21569
 Sn alkyl cpds., proton reson. spectra 2=2024
 Sn alloys, crystal internal fields, from Mössbauer effect 4=20153
 Sn alloys, specific heats, theory and rel. to supercond. 2=10330
 Sn alloys, supercond. a. c. mag. transition hysteresis 4=18611
 Sn alloys, supercond. of first and second kind 4=8573
 Sn alloys, supercond. of first and second kind 4=8574
 Sn base cast alloys, elec. resist. rel. to composition 3=20262
 Sn, cell-to-dendrite transition 0=16338
 Sn, cellular crystal growth 0=4587
 Sn, elec. cond., 4.2-348°K, deviations from Matthiessen's rule 0=1613
 Sn halide films, rapid prep. 0=14081
 Sn hexahalide complexes, electron transfer spectra 0=20650
 Sn-organic cpds, Mössbauer spectra anomalies rel. to chemical bonds 3=744
 Sn oxide field-effect transistor 4=30641
 Sn oxide films, plasma oscillations 0=1623
 Sn selenides, semicond. props. 1=1043
 Sn solutions, surface tension, temp. depend. 3=21340
 Sn sulphide, struct., films heated at 425°C 3=1327
 Sn sulphoselenide dislocation ribbons, geometry, surface influence 3=17734
 Sn, supercond., a. c. mag. transition hysteresis 4=18611
 Sn telluride, thin films, orientation 2=8886
 Sn tellurides, semicond. props. 1=1043
 Sn tetrahalides, mean ampl. of vibr. 4=25673
 Sn-transition elements systems, mag. props. 2=10638
 Sn^{2+} , halide sols., absorption and luminescence spectra 2=17468
 Sn-Ag, dilute, Ag distrib. on zone melting 1=7852
 Sn-Ag, solidification, solute distrib. 3=16119
 Sn-Ag, Sn-Zn, Sn-Sb, elastic contents rel. to composition 4=23217
 Sn-Al, In, Pb or Bi diffusion layers on Ni, supercond. crit. currents 4=21430
 SnAs, Mössbauer effect 4=25820
 Sn-Bi alloys, thermally cycled, dimens. growth coefficient 4=28376
 Sn-Bi, liquid, viscosity 2=17421
 Sn-Bi, molten, ultrasound velocity 1=5276
 Sn-Bi, surface tension, temp. var., in liquid, eutectic anomaly 4=21112
 SnBr_6 , mol. vibr. calc., from Raman spectra 4=9738
 SnBr_4 , gas, thermodyn. props. calc. 2=11420
 SnBr_4 , Mössbauer effect 3=8340
 SnBr_4 , Raman spectra in crystalline state 3=15696
 SnBr_4 , SnCl_4 , absorption edge, press. depend. 0=4407
 SnBr_4 , Sn^{119} 23.8 keV Mössbauer spectra 3=15415
 $\text{Sn}(\text{C}_2\text{H}_5)_2\text{X}_{1\text{ or }2}$, SnX_4 , X = O, S, halogen, SO_4 or SO_3 , Mössbauer obs. 4=28332
 Sn-Cd alloy coatings, electrodeposited, struct. 2=2401
 Sn-Cd, crystal lattice spacing composition, lack of anomalies 4=7646
 Sn-Cd lattice parameters, effect of Al impurity 4=10556
 Sn-Cd, liquid, viscosity 2=17421
 Sn-Cd, molten, ultrasound velocity 1=5276
 Sn-Cd-Al, rel. to Sn-Cd, lattice parameters 4=10556
 SnCl_2 , absorption and luminescence of sols. 2=15599
 SnCl_2 , crystal structure 3=5103
 SnCl_2 , decomposition by electron bombard. 2=12943
 SnCl_2 , gamma-ray absorption transitions, energy shifts 2=554-5
 SnCl_2 , molecular vibr., mean ampl. 4=25665
 SnCl_4 , binary systems with SiCl_4 , CCl_4 , TiCl_4 dielec. props. 2=19578
 SnCl_4 -ester complexes, Raman spectra 2=18468
 SnCl_4 flame reactions, spectra, fluted bands 3=20990
 SnCl_4 , force consts. from vibr. data 3=6376
 SnCl_4 , gas thermodyn. props. calc. 2=11420
 SnCl_4 , gas, u.s. absorpt., dispersion 2=2772
 SnCl_4 , Mössbauer effect 3=8340
 SnCl_4 -nitrile complex, CN stretching freq. 2=14320
 SnCl_4 , 1 donor, molecular vibr., calc. 4=6606
 SnCl_4 , Raman spectra in crystalline state 3=15696
 SnCl_4 , Raman spectrum 1=847
 SnCl_4 , Sn^{119} 23.8 keV Mössbauer spectra 3=15415

Tin compounds—contd

- Sn-Cu alloy coatings, electrodeposited, struct. 2=2401
 Sn-Cu α solid soln., strain ageing 4=23346
 Sn-Cu, change of length due to a.c. electrolysis 0=4309
 Sn-Cu, resistance minimum 0=20861
 Sn-F complexes, vibration spectra and existence of some ions 1=833
 SnF, molec. rot. analysis 2=10244
 SnF₂, cryst. struct. 2=10884
 SnF₄, cryst. struct. 2=21519
 SnH₄, i.r. spectrum 1=7471
 SnH₄, indirect p-Sn spin coupling meas. 4=15382
 SnH₄, molecular vibrational consts. 4=28232
 SnH₄, proton mag. resonance 3=22602
 SnI₄, far i.r. absorpt. 3=8604
 SnI₄, gamma-ray absorption transitions, energy shifts 2=554-5
 SnI₄, gas, thermodyn. props. calc. 2=11420
 SnI₄, metallic state 3=17812
 SnI₄, Mössbauer effect 3=8340
 SnI₄, nuclear quadrupole resonance of I¹²⁷ 1=12576
 SnI₄-S₈, crystal structure 3=13475
 Sn-In alloys, superconducting, surface impedance, theory and expt. 4=24511
 Sn-In (≤ 5 at %), crystal lattice parameters, linear composition var., density 4=23493
 Sn-In, crystal lattice spacing composition, lack of anomalies 4=7646
 Sn-In, supercond., energy gap 2=15855
 Sn-Mg, new metastable phase 1=1453
 Sn-Mn systems, magnetic props. 1=20150
 Sn-Ni, solid sols., prep. 2=23890
 SnNiCu₂O₄, SnNiNa₂O₄, crystal structure, atomic 4=2079
 SnO, A¹¹ Π -X¹ Σ system, rotational anal. 0=9800
 SnO, refractory films on ceramics and quartz, applic. 1=20673
 SnO, Schumann u.v. absorption spectrum 1=17893
 SnO₂ (cassiterite), crystallization, hydrothermal 4=15766
 SnO₂, (cassiterite) single crystals, Mössbauer effect, anisotropy 4=25819
 SnO₂, crystal growth from SnO vapour and Sn 2=8792
 SnO₂, crystal melting 0=10321
 SnO₂, deposition and uses 0=21251
 SnO₂, dielectric props. 1=8974
 SnO₂, e.s.r. of Cr³⁺, spin Hamiltonian 3=20645
 SnO₂, e.s.r. of Mn, h.f.s. and s.h.f.s. 4=26412
 SnO₂, effect of covalent binding on permittivity 3=17931
 SnO₂, effect on dielec. props. of barium titanate 0=7982
 SnO₂, elec. and optical props. 3=2924
 SnO₂, elec. props. of films, temp. depend. 1=10051
 SnO₂ films, impurity-free, elec. props. 3=17897
 SnO₂ films, semicond., optical props., near i.r. 4=1755
 SnO₂, γ -ray absorpt. spectrum, resonance, temp. depend. 3=22628
 SnO₂, gamma-ray absorption transitions, energy shifts 2=554-5
 SnO₂, growth of single crystals from vapour 2=2358
 SnO₂, i.r. absorption, effect of illumination with u.v. 0=18118
 SnO₂, Mössbauer effect 3=8340
 SnO₂, n-type, films, refl. coeff., effect of free carriers 3=6642
 SnO₂, optical phonon branch, rel. to Mössbauer effect 1=19695
 SnO₂, optical phonon branch, rel. to Mössbauer effect 2=23045
 SnO₂, Sb-doped thin layers, opt. and elec. props. 0=16036
 SnO₂, Schumann u.v. absorption spectrum 1=17893
 SnO₂, semiconducting, conductivity, thermoelectricity, Sb doped, 100-900°C 4=6990
 SnO₂, semiconducting, opt. and elec. props. 0=15965
 Sn¹¹⁹O₂, splitting of Mössbauer line by u.s. vibrations 3=15426
 SnO₂ Cu preparation and crystal structure 3=8856
 [Sn(OH)₆]²⁻ M²⁺, (M=Zn, Cd, Co, Ni, Cu, Na), spectrum, i. r. and 2- ion structure 4=10196
 SnO₂ Na preparation and crystal structure 3=8856
 Sn-Pb alloy coatings, electrodeposited, struct. 2=2401
 Sn-Pb alloys, dendrite spacing 4=23355
 Sn-Pb alloys, 2-phase transition temperature 3=13540
 Sn-Pb alloys, X-ray fluorescent analysis 2=17035-6
 Sn-Pb, crystal whisker growth, press. induced, var. press. 4=13552

Tin compounds—contd

- Sn-Pb eutectic layers, specific heat, and supercond. proximity effect 4=18612
 Sn-Pb, molten, ultrasound velocity 1=5276
 Sn-Pb soft solders, specific heats 1.3°-20°K 4=6744
 Sn-Pb, striation and cellular substructures during solidification 2=23862
 Sn-Pb(0.87%), superconducting phase transformation, filamentary, complex susceptibility detection 4=414
 Sn-Pb supercooling, nuclei number, effect of e.m. stirring, var. with mag. field 4=5455
 Sn-Pb-Sb, X-ray fluorescent analysis 2=17035-6
 SnPt, Mössbauer effect 4=25820
 SnS, composition stability limits on anion rich side, quenching effects 4=13468
 SnS, evaporated films, electron diffr. study from 30°-450°C 4=29189
 SnS films, sputtered, resistivity, photoconductivity, transmittance, rel. to temp. 4=20810
 SnS, mass spectrometer study of thermodynamics 2=20877
 SnS, p-type, reflection spectrum analysis 2=2217
 SnS, prep., elec. and optical props. 1=17760
 SnS semiconducting properties 1=17759
 SnS₂, dislocation ribbons, geometry, surface influence 3=17734
 SnS₂, stacking faults, ribbons and extended jogs 4=9977
 Sn₂S₃, cryst. struct. 2=23848
 Sn_{1-x}Se_x, max. thermoelec. figure of merit 3=20423
 SnS_(1-x)Se_x, mixed crystals, prep., props. 2=14940
 SnSb, Mössbauer effect 4=25820
 Sn-Sb, striation and cellular substructures during solidification 2=23862
 SnSb₂Te₄, cryst. struct. 2=4426
 SnSe, composition stability limits on anion rich side, quenching effects 4=13468
 SnSe, elec. props. and effect of heat treatment 1=17761
 SnSe, thermal expansion, second order phase transition 1=14935
 SnSe, vapour pressure and heat of sublim. 3=21637
 SnSe₂, semicond. props., 2=2174
 SnSe₃, semiconducting props. 1=14475
 (SnSe)_{1-x}(SnTe)_x(PbTe)_y, crystal structure 0=18364
 Sn-Ta, Sn-In films, crit. current temp. var., > Sn 4=21426
 SnTe, anomalous thermoelec. power 3=17973
 SnTe band structure, exptl. investig. 3=10841
 SnTe, crystal structure and semiconducting props. 4=1622
 SnTe, elec. props. rel. to stoichiometry 3=6604
 SnTe, Hall coeff. and elec. cond., 4.2° to 295°K 3=10829
 SnTe, Mössbauer effect 4=25820
 SnTe, optical props. 0.5-25 eV meas. 4=13042
 SnTe, overlapping of valence and cond. bands 3=25233
 Sn-Te phase diagram near SnTe 3=6861
 SnTe, phase transformation, high press. 4=17770
 SnTe, solid sols., with GeTe and PbTe 2=17055
 SnTe, thermoelectricity, and semicond. props. 4=15577
 SnTe, vapour pressure and heat of sublim. 3=21637
 SnTe(g) and Te₂(g) in equilibrium with SnTe(c), partial press. 4=24462
 Sn-Te-Zn, effect of surface-active and surface-passive additives in Sn 0=18261
 Sn-Tl, electronic structure by X-ray diffraction 1=11578
 Sn-Tl, grain boundary segreg. of Tl 3=16118
 Sn-Tl, 300-500°C, surface tension 0=19088
 Sn-Zn, liquid, X-ray structure study 1=12861
 Sn-Zn alloy coatings, electrodeposited, struct. 2=2401
 Sn-Zn alloys, 2-phase transition temperature 3=13540
 Sn-Zn, liq., density rel. to temp. 2=9255
 Sn-Zn-Bi system, miscibility gap, calc. from thermodynamic functions 1=142
 Sn-Zr, structure 1=6528

Titanium

- adsorption of Cl₂ and TiCl₄ 2=19120
 adsorption of O₂, temp. var. 4=23612
 atom, μ -mesic, 2P \rightarrow 1S transitions, theory 4=3822
 atom, μ -mesic, X-ray transition energies 3=6370
 atoms, oscillator strengths 0=20590
 atoms, TiI, high-excitation relative f-values 0=15666
 atoms, 218 faint spectral lines, 3341-4186Å 4=15292
 $\beta \rightarrow \alpha$ phase transformation 4=26569
 bombarded with Na⁺, K⁺, Rb⁺, Cs⁺, backscatter rel. to temp. 4=8854

Titanium—contd

brittleness, due to H 2=8744
 cathode, fluorescence yield by X-ray photoeffect
 meas. 2=14704
 cathode, fluorescence yield by X-ray photoeffect
 meas. 3=6663
 cavitation fracture resistance, rel. to phase comp.
 and struct. 2=21441
 clean and contaminated surfaces, secondary electron
 emission 4=21566
 cold-shortness of technical purity Ti 4=10403
 condensation in vacuum, microheterogeneous 2=1308, 7468
 conductivity thermal, below 1°K 4=6757
 crystal structure, α and β -phases, rel. to oxide structures
 and ω -alloy phases 0=16310
 deuterium ion introdn. into metal 2=13606
 diffusion coefficient of He³ 1=10011
 diffusion, gaseous, in N₂ elec. arc 2=5319
 diffusion, in liquid cast Fe, by electrolysis 3=5431
 diffusion in liquid Cu, rel. to rate of soln., expt. 4=8194
 diffusion of metals, mechanisms 3=20233
 diffusion, self, thermal, high temps. 3=22828
 diffusion, of solute elements in b.c.c. phases 2=6375
 diffusion of substitutional elements 1=17552
 diffusion of Ti⁴⁺, activation energy, frequency factor,
 temp. effect 4=28492
 diffusion of V⁴⁺, activation energy, frequency factor,
 temp. effect 4=28492
 dispersions with enriched B for reactor use,
 charac. 0=14057
 e.s.r. of Ti³⁺ in TiO₂(rutile) 4=28887
 electric cond., 20-850°C 2=20952
 electrical resistivity rel. to 4 at.% Al, Mo, Cr, Re, Pd, Ta,
 La additions 4=22687
 electrodeposition from aqueous solns. 3=16176
 electron emission, secondary, effect of absorbed
 gases 3=4183
 electron emission, secondary, fine structure rel. to
 incident angle of primaries 1=4640
 as electron microscope replica of alloys, resolving
 power 0=3290
 electron secondary emission 2=3077
 electrophoretic deposition and fusion to substrate 4=7789
 emissivity meas., 100-900°C 0=8834
 evaporation by heat, in getter-ion pump 2=15656
 evaporation by ionic pump 2=7264
 films, activated gas sorption 0=10374
 films, electron emission, secondary 4=3037-8
 films, gas sorption characteristics 1=18480
 films, optical constants in vacuum u.v. 1=19940
 films, optical transmission and electron
 absorption 0=21247
 films, use in production of high vacua 4=16157
 films sprayed, ultralow press. prod. by gas
 sorption 2=19628
 films, sputtered, elec. props. and structure 3=25328
 films, for tritium targets 0=8280
 films, work function 2=9612
 foils, nuclear targets, reducing Mo impurity 4=3233
 foils prep., as isotope targets 2=17978
 getter 0=3573, 5059
 getter, in miniature vacuum pump 0=14700
 grain boundary absorption, superhigh plasticity 1=14883
 granular structure, after annealing 0=14055
 grid emitting properties 0=7134
 Hall effect, effect of preferred orientation 3=22906
 impurity in α -Fe₂O₃ (haematite), effect on mag.
 transition 2=16887
 i.r. properties, rel. to electron groups 3=17977
 internal friction, cold-worked metal 2=21407
 internal friction, recovery on annealing after cold
 working 4=7461
 ion pumps 1=18481
 ion-sorption vacuum pump, design 4=16156
 ionized gas, opacity calcs. 2=15651
 ions, polyatomic, up to Ti₅ rel. abundances 2=9533
 ions, Ti III, (3d)² config., multiplet, effect of electron
 correl. 4=15274
 ions, Ti³⁺, in corundum, e.s.r., theory 3=23237
 ions, Ti³⁺, in corundum, spectra 2=14677
 ions, Ti³⁺, e.s.r. in glasses 2=21376
 ions, Ti³⁺, e.s.r. in glasses 3=3179
 irradiation growth 2=20995

Titanium—contd

lattice const. of α -phase at high purity 2=21514
 lattice expansions, and Debye temps. 0=1909
 lattice stability, b.c.c. and h.c.p. modifications, free energy
 differences 0=15800
 layers, on Be and Ag bases, secondary electron
 emission 1=4637
 layers, on Be and Ag bases, secondary electron
 emission 1=10734
 liquid, surface tension meas. 4=2643
 μ^- -mesic atom, decay anomalies, search 3=2593
 optical absorbance and emittance, rel. to ion
 bombardment 4=20472
 optical const. and oxide film growth 2=7370
 optical emissivity, from 1100°K to melting point 4=28702
 ordering of α -phase containing O 3=6815
 oscillator strengths from vortex-stabilized
 arc 1=11072
 oxidation, in air and H₂O vapour, scale formation
 and structure 1=12661
 oxidation, effect of O₂ formed during TiO₂
 reduction 4=23643
 oxidation, 500°C, electron microscope study 3=18434
 paramagnetic susceptibility rel. to temp., theory 1=12520
 phase change, resistivity effect 2=4451
 phase transformation, calorimetric meas. 2=21548
 phase transformations, solid-solid, 0-90 kbar 3=20887
 photoelectric emission, by polarized X-rays 3=14630
 photoelectric emission, quantum yield 1=4634
 photoelectric emission, quantum yield 1=10730
 photoelectric emission yield for 1.54-13.3 Å
 X-rays 1=13109
 point defects, prod. by low-temp. plastic deformation,
 mobility 1=12380
 positron annihil., two-quantum, effect of adsorbed
 H 4=28433
 preparation and ductility, by iodide refining 2=21480
 recrystallization at 882°C 1=10227
 refl. coeff. rel. to refr. index and absorpt. coeff.,
 23.6-113 Å 4=22846
 refractive index and absorpt. coeff. in quantum-transitions
 range 4=15601
 sample containers for radioactivity meas. 3=19905
 scattering amplitudes for slow neutrons, for
 Ti⁴⁶⁻⁵⁰ 0=9684
 secondary electron emission, and inelastic electron
 scatt. 2=1492
 sheets for cathodes in sputtering-ion pumps 4=21191
 single crystal elastic moduli and h.c.p. \rightarrow b.c.c.
 transformation 4=26530
 solar and stellar abundances 1=15451
 solubility in Be, X-ray diffrac. study 3=20908
 sorption, photo, of H₂, methane, after adsorption of
 O₂ 4=23612
 specific heat, low temp., and supercond. search 4=27436
 specific heat, 1.1°-4.5°K 3=15437
 specific heat, 600-1345°K 3=22660
 spectra, balance and abundance in stellar and solar
 photosphere 0=14414
 spectra, in solar photosphere 0=14415
 spectrum, in CaF₂, SrF₂, BaF₂, after 2 MeV β irradi.,
 d¹ 4=10167
 sputtering, under Cs ion bombard., cathode sputtering
 ratio 4=24753
 Sputtering by D ions, 10 to 25 keV 3=449
 stacking faults 0=552
 sublimation and evaporation, getter-ion pumps 4=18270
 supercond. transition temp., effect of Fe in dilute
 solutions 1=3882
 superconducting films prep. by "protected
 sputtering" 4=18587
 superconducting transition temp., effect of Cr, Mn, Fe, or
 Co in solid solution 0=1079
 superconductivity, Mn impurity effects on crit.
 temp. 4=5528
 surface, catalytic action in atomic beam recomb. 2=4522
 surface phenomena at interphase boundary with Ni
 and Co 4=8190
 surface roughness, electrolytic meas. 2=10933
 thermal cond., 20-850°C 2=20952
 thermal expansion, effect of alloying 4=17375
 thermal expansion, 1.5-12°K, electronic and lattice
 contri., and Grüneisen parameters 4=17370

Titanium — contd

- thin film, gettering action for hydrogen 2=5078
 trace in Zr, spectrochem. det. 2=23983
 transformation, spurious 4=10440
 tritides, thermionic ideal gas functions and isotope exchange functions 1=9418
 u.v. spectrum 1=4905
 X-ray absorption, fine structure of fund. edge in BaTiO₃ 0=15809
 X-ray absorption spectrum 1=7720
 X-ray characteristic absorption 1=14621
 X-ray emission spectra, in several compounds 0=5889
 X-ray emission spectrum 0=20736
 X-ray K absorption edges, in Ba titanates, rel. to ferroelec. props. 0=1739
 X-ray spectra, emission and K-absorption 0=20595
 X-ray spectrum, emission 4=22899
 Young's modulus data, rel. to temp. 4=30788
 C in, diffusion, 1223-1923°K 4=1519
 use in H pressure regulator 4=14232
 H₂ sorption, at low pressures 0=6427
 α -Ti, self diffusion 4=1518
 Ti α , self-diffusion 4=30579
 α -Ti, thermal electron transitions, rel. to anomalous props. 3=20127
 Ti II, d² p config. 1=806
 Ti³⁺ e.s.r. and spin-lattice relax. in corundum 4=26436
 Ti³⁺, electron spin resonance and relax. in corundum 0=13873

Titanium compounds

- anatase, X-ray absorption spectrum 1=7720
 borides and carbides, thermoelec. power with Cu 1=12465
 brookite (TiO₃), phase transformation due to neutron irradiat. 4=26564
 carbide, thermoelectricity 1=14532
 ceramics, elec. breakdown 0=1713
 cermet, temperature dependence of elastic constants 1=10202
 complex ceramics, practical use as electrets 3=6622
 complex ferroelectric titanates 1=14560
 dielectric props. of non-stoichiometric rutile 3=2955
 mixed titanate system, piezoelectric props. 0=1714
 nitile, slightly reduced, Hall coeff. meas. 4=15541
 oxide films, p-n junction photovoltaic effect 4=4237
 oxides (lower), semicond. props. 2=23412
 oxides, X-ray spectra, emission bond type and K β , line changes 3=23092
 paramagnetic, Ti³⁺ cpds., moments and Weiss consts. 4=26274
 rutile ceramics, ageing, conductivity changes 1=17637
 rutile ceramics, ageing, defect concentration changes 1=17638
 rutile ceramics, dielec. props., current and temp. depend. 1=1138
 rutile, Cr³⁺ doped, maser, cross-relax 3=14798
 rutile, Cr³⁺ spin-lattice relaxation time 1=6422
 rutile, cross-doping agents for masers 1=7788
 rutile, effect of O₂ press. on thermoelec. and elec. props. 1=19917
 rutile, elec. props. rel. to O₂ pressure 3=15596
 rutile, far i.r. dielec. props. 3=15687
 rutile, i.r. absorption of single crystals 1=14602
 rutile, point-defect relaxation 3=25265
 rutile (TiO₂) polarization and space-charge-limited current 3=895
 rutile, X-ray absorption spectrum 1=7720
 sulphate, sol. for γ -ray dosimetry 2=20291
 titanate ceramic, electrical ageing study 1=12659
 titanates, absorption, light, with exponential var., multi-phonon process 4=22835
 titanates, crystal formation by vacuum evaporation 1=2526
 titanates, degradation, exo-emission study 0=10932
 titanates, dielectric properties rel. to neutron irradiation 1=12475
 titanates, dielectric props. 0=13645
 titanates, elec. breakdown strength 0=1709
 titanates, relaxation polarization 1=14520
 titanates, various, permittivity, variation with temp. 2=21219
 titanates, various, permittivity, variation with temp. 3=2953
 titanium carbide, etching, 'Mondrian' precipitation 1=7842

Titanium compounds—contd

- X-ray spectra, emission, bond type and K β , line changes 3=23092
 BaTiO₃, domain growth, kinematic theory 1=11344
 BaTiO₃, domain structure, interferometric study 1=11340
 BaTiO₃, lattice vibrations rel. to ferroelectric transition 1=19928
 BaTiO₃ type ferroelectrics, props. and use in dielectric resonance amplifiers 1=19925
 PbTiO₃ in BaTiO₃, ferroelectric meas. 1=17843
 SrTiO₃ in BaTiO₃, ferroelectric meas. 1=17843
 Ti acetyl-acetate, Ti³⁺ g-factor 2=18947
 Ti alloys, β - ω martensitic transformation 3=8892
 Ti alloys, β , phase transform. to martensitic α , stress induced 4=17771
 Ti alloys, cavitation fracture resistance, rel. to phase comp. and struct. 2=21441
 Ti alloys, dilute, bulk superconductivity meas. 4=18613
 Ti alloys, elec. cond., temp. depend. 4=28537
 Ti alloys, elec. and thermal cond., 20-850°C 2=20952
 Ti alloys, dilute, supercond. resistivity and magneto-elec. props. 2=15854
 Ti alloys, hardenability 4=23218
 Ti alloys, ω -phase 2=4440
 β -Ti alloys, ternary, superconductivity 4=18614
 Ti beryllide, X-ray emission spectrum 0=20736
 Ti boride, X-ray emission spectrum 0=20736
 Ti borides, carbides and nitrides, elec. props. 1=3707
 Ti caesium sulphate alum, mag. behaviour 0=16127
 Ti carbides, X-ray emission spectra 0=5889
 Ti ceramic, conductivity, electrical, var. during ageing 3=20380
 Ti dihalides, linear symmet. mean amplitudes of vibr. and Bastiansen-Morino shrinkage effect 4=30441
 Ti, 5- and 6-component, temp. — mech. props. relationship 0=4552
 Ti hydride, gas generator, gas evolution anal. 0=12440
 Ti hydride, nonstoichiometric, proton magnetic resonance 0=18230
 Ti hydrides, Hall effect, 77°-300°K 3=13026
 Ti hydrides, X-ray emission spectra 0=5889
 Ti, lattice stability, b.c.c. \rightleftharpoons h.c.p. reaction 0=15800
 Ti, mech. props. under hydrostatic pressure 0=18271
 Ti monoxide, structural and geometric relations with α and β -Ti and ω -alloy phases 0=16310
 Ti nitrides, X-ray emission spectra 0=5889
 Ti oxide anodic films, graded p-n junctions 3=4929
 Ti oxide film on metal, structure meas. 4=15808
 Ti oxide, in M-type stars 3=11574
 Ti oxide, thin film diodes 3=17915
 Ti oxides, elec. cond., composition depend. 0=6128
 Ti oxides, films, photovoltage 0=9998
 Ti oxides, films on Ti, composition and structure study, elec. methods 4=26714
 Ti oxides, physical props. 0=20967
 Ti oxides, scale on Ti, structure 1=12661
 Ti oxides, surface films, chemisorption and photo-desorption 0=6423
 Ti silicide, X-ray emission spectrum 0=20736
 Ti silicides, prod., Hall const., elec. cond., thermo-e. m. f. 2=8305
 Ti solid solns. with Co, Rh and Ir, superconductivity 4=8575
 Ti, structural and geometric relations with α and β -Ti, δ -Ti oxide and Ti monoxide 0=16310
 Ti tri-dipyridyl 3.5 tetrahydrofuran, space group 2=23859
 Ti tritide foils, H³ concn. depth variation, from H³(d,n)He⁴ reaction 1=5792
 Ti(III) complexes, e.s.r., h.f.s. of Ti^{47,49} 2=3775
 Ti³⁺ alum, susceptibility, theory, nature of crystalline fields 0=8034
 Ti³⁺ caesium alums, mag. susceptibility 0=18167
 Ti³⁺ hydrated salts, paramag. behaviour 3=6691
 Ti³⁺ ions in hydrated crystal, paramagnetic relaxation, effect of charge transfer 1=9061
 Ti³⁺ salt sols., paramag. reson., hyperfine struct. 2=21925
 Ti³⁺ salt solutions, paramagnetic resonance hyperfine structure 1=18434
 Ti³⁺ salts, e.s.r. of solns. in alcohol and glycerine 1=18433
 Ti-Al alloys, elec. cond., 20-1200°C 4=28536

Titanium compounds—contd

- Ti-Al alloys, three phases 3=13502
 TiAl, crystal lattice parameters 1=20465
 Ti-Al, three phases meas. 3=13502
 TiAl₃, hot-hardness 2=2337
 Ti-Al-Co, ageing and mech. props. 3=18354
 Ti-Al-Co, mech. props., precipitation effects 3=18204
 Ti-Al-Si, phase study 2=17045
 Ti-6 Al-4 V optical absorbance and emittance, rel. to ion bombardment 4=20472
 Ti₃Au crystal structure, atomic, change from Cr₃Si to Cu₃Au by O, N or C impurities 4=13606
 TiAu₂-Au system, phase diagram and cryst. struct. 2=17031
 TiB₂, anisotropic thermal vibrations 0=13488
 TiB₂, elastic constants 1=11501
 TiB₂, heat of formation, by calorimeter 1=16170
 TiB₂, "pest" degradation 4=29169
 TiB₂, quadrupole bond, n.m.r. meas. and calc. 3=11121
 Ti-B-Al, Young's modulus and tensile strength 3=11132
 Ti_xB_{1-x} (B = Re, Ru, Os, Rh, Ir, Pd, Pt) supercond. and paramag. suscept. 2=2961
 TiBO₃, with calcite structure, X-ray evidence 4=29105
 TiBaO₃, ferroelectric permittivity, during switching 1=17840
 TiC, elastic constants 1=11501
 TiC, elastic deformation, plastic flow, and dislocations 2=6731
 TiC, elec. cond. and thermoelectricity of single crystals 1=11260
 TiC, epitaxial growth of TiO₂ 3=5092
 TiC, Hall effect and resistivity 2=16684
 TiC, heat of formation, by calorimeter 1=16170
 TiC, use as heater for metal vacuum evap. 2=6850
 TiC, infiltration by liquid Cu-Ni alloys 4=8145
 TiC, plastic deformation, effect of temp., strain rate, surface and composition 4=15718
 TiC powder, emissivity 0=16919
 TiC, prod., Hall const., elec. cond., thermo e.m.f. 2=8305
 TiC, resistance, rel. to vacancy scattering of electrons 4=26017
 TiC, sintering by elec. resist. change 2=6842
 TiC, surface phenomena at interphase boundary with Ni and Co 4=8190
 TiC, temperature dependence of elastic constants 1=10202
 TiC, thermal conductivity, 200°-2000°C 4=20227
 TiC, thermal diffusivity meas., 1300°-1650°C 4=6754
 TiC, thermal expansion, 26° and -196°C 4=1405
 TiC, thermionic emission, 1300°-1900°K 3=16974
 TiC, X-ray characteristic absorption 1=14621
 TiC, X-ray reflection intensities, effect of heat treatment 2=823
 TiC₂, crystal structure 3=1321
 TiC_{Ni-x}, Hall effect, carrier density 4=17479
 TiC-TiN, elec. props. 2=18649
 TiC and TiN, expansion, thermal rel. to at. vibr. amplitudes 4=17376
 TiC-WC-Co alloys, compressive strength, effect of composition and structure 4=15720
 TiC-WC-Co alloys, ultimate tensile strength 4=26532
 TiC-WC-Co cermet alloys, strength and hardness 1=6468
 TiC-WC-Co, mech. props. and structure 3=18184
 TiC-WC-Co, structure, elec. and mech. props. 3=3316
 TiC-WC-(TaC), W diffusion 3=25295
 TiCl, vibrational struct., 4200 Å region 2=18459
 TiCl₂, crystal structure 3=16076
 TiCl₃-δ, X-ray diff. theory model 2=10837
 TiCl₃, magnetic transition 1=14671
 TiCl₃, monodimensional disorder 2=12904
 TiCl₄, binary systems with SnCl₄, CCl₄, SiCl₄, dielec. props. 2=19578
 TiCl₄, chemisorption on Ti, Pt and Ni 2=19120
 TiCl₄, Raman line intensity, temp. var. 1=15879
 TiCl₄, Raman spectra in crystalline state 3=15696
 TiCl₄, Raman spectrum, second-order 1=848
 TiCl₄-Ar mixtures, neutral Ti emission behind reflected shock waves 3=11836
 TiCl₃, 6H₂O, e.s.r. of Ti³⁺ 2=10706
 TiCl₃, 6H₂O, glycerine sol., spin-lattice relax. 2=15617, 17483

Titanium compounds—contd

- TiCo, magnetization 0=1788
 TiCo, ordering in intermediate phase 0=18352
 Ti-Co, specific heat, low temp., and supercond. search 4=27436
 Ti-Co-Ni, electronic specific heat 2=14382
 Ti-Cr alloy, hardness, effect of heat treatment 3=20879
 Ti-Cr alloys, elec. volume resistivity 3=22898
 Ti-Cr, atomic diffusion of Cr 0=20844
 Ti-Cr system, b.c.c., Kirkendall effect 3=4887
 Ti-Cr system, investigation of Cr-rich region 4=13504
 Ti-Cu, ageing 0=16353
 Ti₂Cu, Ti₃Cu₂O, crystal structure, atomic 4=7648
 TiF₄, molecular vibrational const. 4=28232
 TiFe, correl. of low-temp. caloric and magnetic effects 1=1198
 TiFe, magnetization and elec. cond., temp. depend. 0=1788
 TiFe, ordering in intermediate phase 0=18352
 Ti-Fe, oxidation 2=10975
 Ti-Fe-Co, electronic specific heat 2=14382
 TiFe₂-ZrFe₂ alloys, structure and mag. props. 3=20880
 TiH, proton resonance study of structure, diffusion 1=6437
 Ti-H systems, X-ray structural phase anal. 0=14024
 TiH, X-ray characteristic absorption 1=14621
 γ-TiH₂, diffusion of H 2=2097
 TiH₂-x, H₂ conc., temp. effect, neutron scatt. meas. 4=29146
 TiI₂, molecular vibr., mean ampl. 4=25665
 TiI₄, microhardness decrease in i.r. illum. 4=7396
 TiI₄, molecular vibrational const. 4=28232
 TiI₄, normal vibration frequencies and thermodynamic functions 0=1496
 Ti_mMg_nFe_{3-m-n}O₄, ferromagnetic resonance and magnetization, 78-300°K 1=3924
 Ti-Mn alloy, statically or dynamically deformed, UTS and ductility 4=15721
 Ti-(8%)Mn alloy, structural changes, rel. to wear 3=20890
 Ti-Mn alloys, deformation 4=4490
 Ti-Mn, negative magnetoresistivity at low temp. 2=18641
 Ti-Mn, specific heat, low temp., and supercond. search 4=27436
 Ti-Mn, supercond. rel. to localized mag. states 4=2923
 Ti-Mo, b.c.c., high field supercond. 2=7519
 Ti-Mo alloy, martensitic phases 3=23477
 Ti-Mo, magnetic susceptibility rel. to H solubility 1=10130
 Ti-Mo, normal and supercond., specific heat 1=13046
 Ti-Mo (0-35%), elastic const., density, and phase transforms. 4=1964
 Ti-Mo, recrystallization and grain growth 1=20610
 Ti-Mo, supercond., rel. to comp. 2=7520
 Ti-Mo, supercond. props., high-field 3=9686
 Ti-Mo, superconducting in high mag. fields 3=16879
 Ti-Mo, vapour press., 1600°-1800°K 4=8524
 Ti-Mo-Fe-Al alloys, dislocations 4=25948
 TiN, crystal growth from volatile cpds. on hot W wire 2=21487
 TiN, ionic binding, rel. to phys. props. 1=20353
 TiN, current carrier activation energy meas. 4=12906
 TiN, ionic binding, rel. to phys. props. 1=14870
 TiN, metallic bonding 2=14350
 TiN, metallic bonding 3=8331
 TiN, metallic bonding, and chemical reactions 4=22451-2
 TiN, thermal conductivity, 200°-2000°C 4=20227
 TiN, thermionic props. 4=3027
 TiN, whisker growth 1=20449
 TiN, X-ray characteristic absorption 1=14621
 TiN₄, absorption spectrum 3=19999
 Ti-Nb alloys, density and elastic const., composition depend. 4=26531
 Ti-Nb, magnetic susceptibility rel. to H solubility 1=10130
 Ti-Nb (0-60%), elastic const., density, and phase transforms. 4=1964
 Ti-Nb, superconducting in high mag. fields 3=16879
 TiNi, magnetization 0=1788
 TiNi, ordering in intermediate phase 0=18352
 Ti-Ni, phase diagram 4=10439
 TiNi, phase transformations and mech. props. at low temp. 3=13519
 Ti-Ni, precipitation of Ti rel. to ferromagnetic Curie temp. 3=25755

Titanium compounds—cont'd

- Ti-Ni system, crystal struct., atomic 4=23295
 Ti-Ni system, phase transforms., $\beta/\alpha + \beta$ boundary 4=23295
 Ti₂Ni, crystal structure 0=4648
 Ti₂Ni, crystal structure, correction 3=8845
 Ti₂Ni, Ti₂Ni₂O, crystal structure, atomic 4=7648
 TiNiCu₂O₄, TiNiNa₂O₄, crystal structure, atomic 4=2079
 Ti-O alloys, interaction of interstitial and subst. solutes 2=21002
 TiO band at 10025 Å 1=11098
 TiO, diffuse refl. spectra in visible and near u.v. 3=23040
 TiO, electrical and magnetic properties, 80°-400°K 3=17894
 TiO, electronic structure 3=25235
 TiO, Fe diffusion, 950°-1050°C 2=6369
 TiO, Franck-Condon factors, (0,0), (0,1) bands, calc. 3=15340
 TiO, i.r. band 11032 Å, rotational analysis 0=5936
 TiO, lattice parameters, X-ray study, absorption correction 0=1919
 TiO, molecular vibrational parameters 2=14253
 TiO, molecular wavefunctions and binding energies 4=28204
 TiO molecule, b¹Π-d³Σ transition rotational analysis 2=22975
 TiO molecule, molecular orbital calc. of low-lying electron states 4=9729
 TiO, ordering rel. to vacancy behaviour 3=6815
 TiO, spectrum, α-bands, intensity distrib. 1=3550
 Ti-O system, i.r. spectra 3=20491
 TiO, vacancy interaction energy 3=2785
 TiO_{0.102-0.451}, X-ray spectrum, emission, var. O content 4=22899
 TiO_{1.198-2}, elasticity 0=13901
 TiO₂ 0=519
 TiO₂, absorption, acoustic, 2.8 Gc/s 4=12628
 TiO₂, absorption edge 0=4405
 TiO₂, action of 2-10 kV electron irradi. 0=1162
 TiO₂, anatase-rutile phase transformations, impurity effects 0=7895
 TiO₂, brookite-rutile transform. 2=10779
 TiO₂, coating of Fe-Cr-Ni-Si alloy for grain-structure studies 1=1422
 TiO₂, Cr³⁺ doped, maser material 0=9196, 16180
 TiO₂, crystal melting 0=10321
 TiO₂, crystal structure 1=4047
 TiO₂ crystals, thermal expansion 1=918
 TiO₂, defect structure, thermograv. study 3=2786
 TiO₂, dielec. props., microwave freqs. 3=13112
 TiO₂, diffuse refl. spectra in visible and near u.v. 3=23040
 TiO₂, diffusion of O and anion vacancies 3=2831
 TiO₂, diffusion of Rn 1=17563
 TiO₂ diodes, compound barrier model 4=7015
 TiO₂ doped with Fe³⁺, maser action 3=523
 TiO₂, e.s.r. of Co²⁺ 4=26382
 TiO₂, e.s.r. of Cr³⁺ 3=14798
 TiO₂, e.s.r. of Gd³⁺, temp. var. and crystal field 4=10322
 TiO₂, e.s.r. of Mo⁵⁺ 2=23704
 TiO₂, effect on Bi₂O₃ polymorphism 4=23253
 TiO₂, effect of covalent binding on permittivity 3=17931
 TiO₂, elec. aging and regeneration 3=23000
 TiO₂, elec. cond., temp. depend., degree of reduction 1=1084
 TiO₂, elec. props. 0=1697
 TiO₂, electron oscillations and scatt., interminimum transitions 4=25887
 TiO₂, electron states, near defects, relaxation processes 0=9879
 TiO₂, electronic mobility, temp. var. at high temps. 4=28403
 TiO₂, epitaxy on TiC 3=5092
 TiO₂, etching rel. to dislocation motion 3=11219
 TiO₂, external stress effects on e.s.r. of Cr³⁺ 4=26435
 TiO₂, far i.r. dispersion 2=14643
 TiO₂, Fe³⁺ doped 0=9194
 TiO₂, film on Ti, optical thickness meas. 2=7370
 TiO₂ films, crystal dislocations and stacking faults 4=6862
 TiO₂ films, deposition for beam-splitters 1=4473
 TiO₂ films, heated, brookite, anatase formation conditions 4=13505
 TiO₂, films for light-beam splitting 1=16097
 TiO₂, fracture mechanism rel. to stoichiometry 4=13443

Titanium compounds—cont'd

- TiO₂, fracture, symmetrical fourfold, helical 0=18282
 TiO₂, hardness, micro, effect of non-stoichiometry 4=13441
 TiO₂, in interference light-filters 0=3639
 TiO₂ layers, optical properties 1=10091
 TiO₂, molecular vibr. and rot., calc. 4=28233
 TiO₂, Ni²⁺ and Ni³⁺ e.s.r., analysis 2=8672
 TiO₂, nonohmic behaviour 1=10035
 TiO₂, non-stoichiometric, spectrum, reflectance, and bandgap 4=10197
 TiO₂, $I \propto V^2$, polarization and space-charge effects 3=22954
 TiO₂, oxygen-deficient, lattice consts. and density 2=6811
 TiO₂ p-n junction films, piezoeffects 3=13127
 TiO₂, paint layers, refr. index and particle size 2=10993
 TiO₂, particles, forces between 0=1874
 TiO₂ particles, melting by electron irradi. 3=3925
 TiO₂, partly-reduced, Hall effect anisotropy 4=10072
 TiO₂, piezoresistivity 0=7949
 TiO₂, pigment, in linseed stand oils viscous props. 0=6735
 TiO₂, pigment, rutile and anatase content 0=4610
 TiO₂, plastic deform. 3=23328
 TiO₂, point-contact diodes 3=10854
 TiO₂ powders, u.v. absorption 4=26223
 TiO₂, Raman spectrum, at room and liq.-air temp. 2=16840
 TiO₂, rectifiers, I-V characteristics 2=10501
 TiO₂ rectifying barriers, current meas. 4=17525
 TiO₂, reduced, electronic cond. below 20°K, theory 2=2175
 TiO₂, reduced, Ti ions, elec. resist. data 4=9948
 TiO₂, refractivities, internal elec. fields 3=20052
 TiO₂, rutile, absorption centres, elec. and optical study 0=13552
 TiO₂ (rutile), ageing, elec. cond. and potential changes 2=18647, 21209
 TiO₂, rutile and anatase, mag. susceptibility 0=18165
 TiO₂ (rutile), anion vacancies, rel. to growth conditions 4=10462
 TiO₂ (rutile), ceramic, rectifiers, meas. 4=12979
 TiO₂ (rutile), ceramics, elec. ageing, defect theories 2=21215
 TiO₂ (rutile), chemisorbed O₂ effect on photo-cond. and -volt props. 4=22800
 TiO₂, rutile, Co²⁺ e.s.r. 3=1183
 TiO₂, (rutile), conductivity change during ageing 4=6984
 TiO₂ (rutile), Cr³⁺ doped, broadband maser using cross effect 4=24880
 TiO₂ (rutile), crystal space group repres. 2=2392
 TiO₂ (rutile), dielec. const. and loss at low freq. 1=1155
 TiO₂ (rutile), dielec. const. at microwave freqs., 4.2°-300°K 2=10558
 TiO₂ (rutile), dielectric const. at various field strengths 4=17522
 TiO₂, (rutile) diffusion anisotropy of O₂ and B 4=1505
 TiO₂ (rutile), e.s.r. of Co²⁺ 2=8668
 TiO₂ (rutile), e.s.r. of Fe³⁺ 4=20594
 TiO₂ (rutile), e.s.r. of iron group elements, h.f.s. interaction of Ti⁴⁺ 4=23057
 TiO₂ (rutile), e.s.r. of Mn³⁺, spin Hamlt. analysis 4=4411
 TiO₂, rutile, e.s.r. resonance of Fe³⁺ in, at low temp. 0=11951
 TiO₂ (rutile), e.s.r. of Ti³⁺, OH, colour centres 4=28887
 TiO₂ (rutile), e.s.r. of V⁴⁺ 2=2300, 6692
 TiO₂, rutile, elastic moduli, ultrasonic meas. 0=13902
 TiO₂, rutile, elec. cond. anisotropy, nonstoichiometric crystals 0=15966
 TiO₂ (rutile), elec. cond. rel. to cond. mech. model 2=23413
 TiO₂ (rutile), elec. cond. and Hall coeff., var. with doping and temp. 4=30628
 TiO₂ (rutile), electric strength of single crystals 1=11345
 TiO₂, rutile, electron energy levels, rel. to lattice defects 3=22955
 TiO₂, rutile, electron transfer in, onset of field emission 0=13579
 TiO₂ (rutile), electron traps, shallow, by X-ray diffraction 2=10374
 TiO₂, rutile, epitaxial growth 3=11241
 TiO₂ (rutile), Fe³⁺ reson., maser action 2=1583
 TiO₂ (rutile), i.r. birefringence and refractive index 2=2221

Titanium compounds — contd

- TiO₂ (rutile), increase in cond. due to electrolysis 4=6983
 TiO₂ (rutile), internal elec. field and refractivity 2=16585
 TiO₂ (rutile), internal friction, rel. to point defects 4=23219
 TiO₂, rutile, kc/s elastic consts. 3=6772
 TiO₂ (rutile), Lorentz corrections, calc. 2=2201
 TiO₂ (rutile), Mn ions in, e.s.r. spectrum at 9.505 kMc/s 1=1263
 TiO₂ (rutile), oxygen-deficient, defect struct. 2=8830
 TiO₂ (rutile), paramag. Ti³⁺ centres, prod. by various treatments 2=23633
 TiO₂ (rutile) partly reduced, carrier drift mobility anisotropy 4=4176
 TiO₂ (rutile), permittivity, effect of high press. 2=23494
 TiO₂, rutile, photoconductivity, polarization, and space-charge-limited currents 3=17963
 TiO₂ (rutile), polarization and space-charge-limited currents 1=17819
 TiO₂, rutile powder, electrification 0=13643
 TiO₂ (rutile), powders, adsorption rel. to surface polarity 2=2433
 TiO₂, (rutile) radiation induced cavitation and exfoliation 4=10008
 TiO₂, rutile, relaxational polarization 0=18098
 TiO₂ (rutile), relex. times of Cr³⁺ and Fe³⁺ ions 2=18941
 TiO₂, semicond., elec. conductivity 3=17895
 TiO₂ (rutile), semicond. low temp., 4 activation energies 4=22724
 TiO₂ (rutile), static dielec. const., 1.6-1060°K 2=2202
 TiO₂ (rutile), steady-state creep, 1050°-1325°K meas. 4=13442
 TiO₂ (rutile), stoichiometric, electronic suscept. theory 4=13123
 TiO₂ (rutile) transition metal ion e.s.r. 4=26432
 TiO₂ (rutile) u.v. photovolt. effects 4=22801
 TiO₂ (rutile), var. of elec. props. with doping 4=30627
 TiO₂ (rutile), vibr. spectrum and elec. props. 2=14359
 TiO₂, rutile, vibration spectrum 3=10583
 TiO₂, semiconducting band structure 1=17758
 TiO₂, sintering 4=23545
 TiO₂ suspension, light transmission meas. 2=10992
 TiO₂, V⁴⁺ e.s.r. in 0=13879
 TiO₂, vibrational spectra 4=1282
 TiO₂, vulcanization filler, dynamic elastic behaviour 2=5126
 TiO₂, work function 0=19707
 TiO₂, X-ray characteristic absorption 1=14621
 TiO₃, weak temp.-independ. paramag. 2=6655
 Ti₂O₃, antiferromagnetism 0=16148
 Ti₂O₃, cryst. struct. and imperfections 2=10375
 Ti₂O₃, diffuse refl. spectra in visible and near u.v. 3=23040
 Ti₂O₃, effect of V₂O₅ impurity on elec. cond. and crystal structure 1=17640
 Ti₂O₃, mag. structure, neutron diffr. meas. 3=15862
 Ti₂O₃, magnetic transitions 0=11799
 Ti₂O₃, magnetoelectric effect 3=25369
 Ti₂O₃, semicond. and metallic props. 1=11310
 Ti₂O₃, specific heat, 50°-250°K, at 10⁻⁴ mm Hg 1=14183
 TiOx (x = 1.5-2.0), e.s.r., temp. depend. 3=15949
 Ti_nO_{2n-1} (4 < n < 9), Ti_{n-2}Cr₂O_{2n-1} (6 < n < 9), crystal structure, atomic, calc. 4=7647
 TiO₂Cu preparation and crystal structure 3=8856
 Ti-O-Me alloys, interaction of interstitial and subst. solutes 2=21002
 TiO₂-MgF₂, films for light-beam splitting 1=16097
 TiO₂Na preparation and crystal structure 3=8856
 TiO₂-Na₂O-SiO₂, dielec. props. 2=674
 TiO₂-Nb₂O₅, anomalous dielec. polarization 3=22999
 TiO₂-Nb₂O₅, phase relationships, micro method 4=7507
 TiO₂-PbO-ZrO₂ system 3=3255
 TiO_{1.8}-TiO₂ system, e.s.r. 3=3178
 TiO_{1.5}-TiO₂ system, e.s.r. 2=21375
 TiO₂-Ti₂O₃, crystal formula, errors in using Ti₃O_{5n-3} 4=26659
 TiO₂:V⁴⁺, spin-lattice relaxation, 4.2-110°K 4=1891
 (Ti, Re)Si₂, stacking-type structure 4=26676
 Ti-Rh alloys, superconducting transition temp. 3=21669
 Ti-Rh alloys, superconductivity crit. temp., influence of lattice structure 3=7407

Titanium compounds — contd

- Ti₂(SO₄)₃.4H₂O, e.s.r. of Ti³⁺ 2=10706
 TiSb₂ elec. cond. theory 0=13577
 TiSe₄, crystal structure 3=1346
 Ti₃Se₈, face centred monoclinic, defect struct. formula representation Ti₄(□₃Ti)Se₈ 4=29142
 TiSi₂, crystal growth from volatile cpds. on hot W wire 2=21487
 Ti-Ta, superconducting in high mag. fields 3=16879
 Ti₃Te₄, crystal structure 3=1346
 Ti₃Te₄, cryst. struct. 2=15041
 Ti-U, diffusion, study techniques 1=982
 Ti-U-Zr system 0=8277
 Ti-V, electronic sp. heat rel. to supercond. 2=16609
 Ti-V films, hard supercond., prep. and props. 4=24501
 Ti-V (0-50%), elastic consts., density, and phase transforms. 4=1964
 Ti-V, 1.4-4.2°K, specific heat 0=17896
 Ti-V, paramag. susceptibility 2=4209
 Ti-V, paramag. susceptibility rel. to temp. 3=999
 Ti-V solid solutions, electronic specific heat 3=8367
 Ti-V, superconducting in high mag. fields 3=16879
 Ti-V, Ti-Nb alloys, supercond. 2=5242
 Ti_xV_{1-x}C, Hall effect, carrier density 4=17479
 Ti-Zr, β-α transformation 0=13972
 Ti(62%)-Zr(38%), disordered, neutron, scatt. 3=17644
 Ti-Zr, martensitic transformation 1=4064
 Ti-Zr, martensitic transformation 1=7874
 Ti-Zr, phase transform., calorimetric meas. 2=21548
 Zn and Mg titanates dielectric losses, under irradiation 1=19926

Torque meters

- mag. susceptibility meas., torsion balance 2=5431
 sensitive, mag. anisotropy torque meas. 4=3085
 torsion balance for anisotropy, magnetization meas. 3=19397
 transmission dynamometers 0=3489

Torsion

- See also Elastic constants; Stress analysis
 aeolotropic beam of curvate section 1=91
 beam, thin, of varying cross-section, torsional vibrations 1=12935
 beams, of sections bounded by quartic curves 0=12390
 bending and shortening effect of pure torque 0=14554
 crystal, rhombic, initially stressed 2=4324
 curved anisotropic rods, oval sections, stresses and displacements 0=19009
 curved rods, circular cross-section 0=16655
 cylinder with fixed end in resisting medium, twisting 1=6809
 cylinder, hollow, epitrochoidal cross-section 3=9379
 cylinders, circular, stress concentrations 0=19018
 cylinders, circular, transversely isotropic, stresses around axial spherical inclusion 0=19020
 cylindrical shells, anisotropic, stability 0=700
 cylindrical shells, elastic twisting 0=4969
 cylindrical shells, supercritical deform. 2=9218
 dynamic, use for meas. dislocation mobility in metals 4=30569
 elastic hysteresis meas. 1=20285
 elastic-plastic, circumferentially notched bar 0=12392
 electrical analogue apparatus 0=16654
 internal friction of torsional oscillation in ferromag. materials 1=17967
 metals, stress, effects 3=13377
 modulus, reduction after plastic deformation, models 2=18982
 notched rectangular bars, twisting theory 0=14556
 oscillations, principal, freqn. calc. 3=7086
 oscillations, in rods 2=15670
 plastic, solns of eqn 4=29575
 plates, thick, with rigidity varying exponentially with depth, stress distrib. 0=19021
 rod, metallic, high temp. prod. by internal friction 1=20311
 rod, metallic, high temp. prod. by internal friction 1=14852
 rubber two-ply cord, torsional behaviour 1=6450
 stresses in truncated core, due to surface friction 0=19015
 strips, in acoustic field 0=5097
 thin-wall cylinder, after plastic extension 1=1311
 torsion pendulum, equation of motion and complex modulus corrections 1=12837

Torsion—contd

- torsional vibrations, general eqn. 1=8170
 vibrations, damping capacity background 3=18171
 vibroscope, rotational for thin fibre properties 1=15775
 visco-elastic circular cylinder, forced torsional vibrations 0=19250
 wires, polycrystalline, strain calc. 0=4544
 Ag, deform., and change of elec. cond., law 3=8490
 Ag, torsional deformation, self-diffusion 4=9989
 Al, alternating, fatigue damage 0=21120
 Al, Barrett anomalous aftereffect 2=23748
 Al, effect on tensile stress-strain curve 0=16201
 Al, heat generation, theory and mech. 3=9380
 Al, oscillations, heat generation meas. 2=21417
 Al, solid rod 4=1926
 Cu, Al, Ni, hot-torsion, rel. to structural changes 2=2320
 Cu, cold-drawn, effect on room-temp. creep 4=28945
 Fe films, effect on Procopiu effect, "alternating magnetic induction" 4=4359
 Fe, 700°-1250°C, microstructural changes 3=6857
 Fe wires containing C, internal friction 1=20313
 UO_{2.11}, sintered, high temp., energy balance 3=6777
 Zn, polycrystalline, deformation by hot torsion 4=28990

Tracers

- See also Radioactive tracers; Radiochemistry
 and diffusion in alloys, under elec. field, meas. 3=20235
 water, tritiated, diffusion in silica glass 4=4078

Transducers

- See Acoustic transducers

Transformations

- See Phase transformations; Thermal transformations

Transformations, mathematical

- bi-orthogonal system of symmetric character 3=7
 brackets, symmetries and sum rules 2=1042
 canonical, in quantum mechanics 2=11278
 canonical, in theory of Fermi gas 0=14536
 Cayley, unifying Foldy-Wouthuysen and Cini-Touschek 2=19369
 conformal, by analogue computer 1=5117
 conformal, and space travel 2=7040
 conversion of flow eqn. to Laplace's eqn. 4=16011
 Coulomb field, transition matrix elements between states 0=4947
 Coulomb wave-functions, in terms of confluent Appel functions 0=4946
 decomposition of 4×4 similarity into 2×2 spinor 4=24019
 for Dirac wave function, linear and antilinear 4=14047
 evolution eqn. of physical system 2=1041
 Foldy-Wouthuysen, analogy with Lorentz 0=12840
 Foldy-Wouthuysen and Lorentz, relation between 2=16122
 Foldy-Wouthuysen, for particles of arbitrary spin 4=19358
 Foldy-Wouthuysen, for particles of spin $\frac{3}{2}$ 4=19357
 Foldy-Wouthuysen transformation, generalization to particles of any spin 1=13290
 Fourier, use in analysis of multicomponent exponential decay curves 0=821
 Fourier, rel. to Bergmann-Weil integral for 3-point function 3=5321
 Fourier, mathematical filtration in spectroscopy 1=16074
 Fourier, regular tetrahedron 4=29074
 Fourier, use with 3D data 4=26616
 Fourier transform techniques in optics and information theory 1=18553
 general Lorentz, reduction by matrix method 0=14367
 Hankel, perfect fluid 0=6741
 Hankel, in solution of Schrödinger's equation 1=2703
 harmonic oscillator states, transformation brackets 1=10949
 imaging of extended polychromatic sources, generalized transfer functions 1=4433
 inertial to accelerated reference frame 4=14034
 invariance, in extended functional variations 2=21783
 Laplace, book 1=5113
 Laplace, of empirical curves, rel. to differential eqns. 4=21017
 Laplace, partition function evaluation 1=18302
 Laplace, rel. to wave motions with strong discontinuities 4=24023
 Lorentz, derivation 4=14033
 Lorentz and Galilean 4=11037
 Lorentz, general transformations, axiomatic deduction 3=32
 Mellin transforms, appl. to problems of statistical mechanics 1=11715
 Mollier to enthalpy-composition diagram 4=8531
 optical functions 1=4432
 physical equations to non-dimensionally parametric form 1=5116
 Poisson transform. of

$$\sum_{j=1}^N F(\cos 2\pi j/N) \cos 2\pi j n/N$$
 3=21196
 polyphase systems invariant to transitions to symmetrical components 4=18027
 q-Laplace, q-difference eqns. 2=15450
 real massless scalar wave eqn. of second order 1=13313
 relativistic conformal, physical interpretation 2=15469
 rotational transforms in stellarator theory 2=13576
 scanning operators and generalization of Huygens' principle 2=21786
 shell-model calculations, tables of transformation brackets 1=13600
 similarity function for pattern recognition 1=15389
 Talmi, for particles with diff. masses 3=5972
 Taylor to Lagrange; rel. to pot. field continuation 4=27025
 theorem for estimating eigenvalues 0=2066
 two-fold spectral representation of $f(z_1, z_2)$ 0=6540

Transformations, mathematical—contd

- Mellin transforms, appl. to problems of statistical mechanics 1=11715
 Mollier to enthalpy-composition diagram 4=8531
 optical functions 1=4432
 physical equations to non-dimensionally parametric form 1=5116
 Poisson transform. of

$$\sum_{j=1}^N F(\cos 2\pi j/N) \cos 2\pi j n/N$$
 3=21196

- polyphase systems invariant to transitions to symmetrical components 4=18027
 q-Laplace, q-difference eqns. 2=15450
 real massless scalar wave eqn. of second order 1=13313
 relativistic conformal, physical interpretation 2=15469
 rotational transforms in stellarator theory 2=13576
 scanning operators and generalization of Huygens' principle 2=21786
 shell-model calculations, tables of transformation brackets 1=13600
 similarity function for pattern recognition 1=15389
 Talmi, for particles with diff. masses 3=5972
 Taylor to Lagrange; rel. to pot. field continuation 4=27025
 theorem for estimating eigenvalues 0=2066
 two-fold spectral representation of $f(z_1, z_2)$ 0=6540

Transistors

- See Semiconducting devices, transistors

Transition metals

(Heading introduced in 1961)

- adsorption, field electron micro. study 3=3369
 adsorption isotherm and equilibria with hydrogen 4=10619
 alloys, binary, superconducting T_c and electronic state densities 4=16352
 alloys, superconducting, cold-rolled, high-field critical currents, giant anisotropy 4=16338
 alloys, superconducting, critical fields rel. to low and high current densities 4=16337
 alloys, f.c., low-temp. specific heat 4=12639
 antiferromagnetism, indirect exchange interaction 1=3917
 atoms, d-bands, electron correlations 4=9895
 atoms in dilute solid solution, mag. moments, effect on susceptibility and supercond. transition temp. 1=3882
 b.c.c., metals, cold-worked, dislocation relaxation spectra 1=7821
 band structure, ferromag., elec. cond. var., review 4=30543
 complex phases, electronic struct. 2=7197
 complexes, free, electronic structure 3=15331
 conductivity, elec., high temp. var. 4=22688
 crystal electron struct. and supercond., review 4=20229
 crystal electron structure 4=6681
 electron distrib. det. in 4d band 2=21260
 electron distribution 1=3639
 electron heat capacity, group isoenergetic transitions 2=581
 electron structure and mag. props. 3=2755
 electron structure, from n.m.r., review 4=12669
 electron theory, review 3=17676
 electron theory, review 4=22519
 electron transfer in aqueous soln. 3=8943
 ferromag. direct exchange theory, suitability 3=981
 ferromag., statistical props. of electron system 1=14218
 ferromagnetic, charge carriers, itinerant electrons 4=13130
 ferromagnetic, n.m. relax. 4=23032
 ferromagnetic, optical Hall effect and inner mag. field 4=13039
 ferromagnetic, theory of neutron diffrn. phenomena 3=25540
 ferromagnetism, Correlated electron wave function in 3-d band as ground state 3=15769
 ferromagnetism, effect of electron correl. 4=17660
 first-row, radial wave-functions for atoms and ions 2=6084
 fluorescence excitation by X-rays 3=953
 Green functions method 2=21343
 group I, charact. X-ray absorption 2=8546
 halides, thermal expansion at low temps., expt. 4=17369
 Heisenberg exchange interaction between neighbouring atoms 2=10294

Transition metals—contd

- imbrittlement, rel. to neutron irradi. 3=8784
 impurities in CdS, i.r. absorption 1=11380
 ion complexes, e.s.r. line-shapes of polycrystalline samples 4=26434
 ions in crystals, line spectra, vibration effects 4=4244
 ions, exchange polarization and magnetic behaviour 3=977
 ions in MgO and Al₂O₃, effect of pressure on spectra 1=14589
 ions in silicate glasses, site preference energies of ions 4=26535
 ions in soln., e.s.r. linewidths 4=29646
 ions, spectroscopy, for laser appl. 3=7330
 ions in TiO₂, e.s.r. 4=26432
 ions, zero-field splitting 3=25164
 iron series, energy bands, APW calc. 4=17402
 lanthanide complexes, weak covalent bonding 4=1276
 ligand field spectrum, cubic, three-electron 3=25166
 liquid, electronic struct. 2=7197
 MA₂(d¹)-type, e. s. r. and microwave spectra, rel. to inversion splitting 4=10332
 magnetic dipole moments from asymmetry index 2=14214
 magnetic moment of transition metals in simple metals 2=12754, 14760
 magnetic props., from μ -mesic atom study 1=17298
 magnetic susceptibility, electronic sp. ht. 3=25509
 magnetic susceptibility, temp. variation 1=14679
 magnetism, exchange integral, sign 4=13224
 magnetism model, magnetic couplings 1=7738
 melting points, periodicity and T_c 3=7386
 metals in first long period, formation of solid solutions 1=20623
 metals, Ti to Cu, characteristic electron-energy losses 1=6101
 nuclear magnetic relaxation 3=25595
 nuclear spin relax. due to core polarization, theory 4=13334
 paramagnetic susceptibilities, rel. to group isoenergetic transitions 2=582
 plastic flow yield at low temps. 4=26472
 resistance meas., d.c. induction method 2=2965
 solid solutions, lattice parameter—composition curves 4=10490
 solution in liq. Al, kinetics 3=16614
 superconducting binary phases, specific heats and mag. props. 4=16340
 superconducting, rel. to densities of states and localized moments 4=399
 superconducting, specific heats meas. 3=7405
 superconductivity, contrast with non-transition, isotope effects, mag. mechanism 4=16376
 superconductivity, rel. to electron density 2=7197
 superconductivity, hard, explanation, review 4=18564
 superconductivity, isotope effect 4=395
 superconductivity rel. to magnetism, Hamilton—Jensen theory modification 4=29832
 superconductivity mechanisms 4=400
 superconductivity, s—d interaction 3=5593
 superconductivity of solid solns., survey 1=11882
 superconductivity theory 4=29831
 superconductivity, two-band model 3=9678
 superconductivity, under pressure 4=16366
 superconductivity, review 4=18615
 surface energy, temp. depend. 4=28339
 theory, s—d exchange model ferromag., antiferromag. 4=12668
 thermal electron emission, work function 1=13103
 thermoelec. powers, large, low temps. 2=653
 X-ray emission and absorpt. spectrum interpretation 4=22852
 X-ray K absorption, theory 2=23580
 X-ray scatt., Compton incoherent functions 2=14984
 Cr group de Haas—van Alphen effect up to 18 kG 4=7211
 Cr group, electronic band structure 3=6492
 Cr³⁺, Mn²⁺, Co²⁺ e.s.r. in SrTiO₃ 4=26383
 Fe group, K absorpt. edge, fine structure 2=16842-3
 Fe group, X-ray absorption spectra, inter-electron interaction effects, calc. 2=704
 Fe group, X-ray spectra, K _{α} and satellites, temp., crystal var. 3=25475
 Gd³⁺, Pr³⁺ e.s.r. in LaAlO₃ 4=26383
 in MgO·Al₂O₃ crystals, as impurity ions, energy spectrum calc. 3=20130

Transition metal compounds

(Heading introduced in 1961)

- alloys, anomalous properties 3=10715
 alloys, band structure, ferromag., elec. cond. var., review 4=30543
 alloys, crystal electron struct. and supercond., review 4=20229
 alloys, dilute, magnetism, review 4=20513
 alloys, with dissolved Fe atoms, local mag. moments 2=4197
 alloys, localized electron spins 3=8393
 alloys, magnetic susceptibility, electronic sp. ht. 3=25509
 alloys, magnetism, exchange integral sign 4=13224
 alloys, paramag. susceptibility, rel. to temp. 3=999
 alloys, supercond., H_{c2} temp. var. 4=18617
 alloys, supercond. transition temps., specific heats 4=18616
 alloys, superconducting, upper crit. fields 3=3949
 alloys, thermoelec. power at low temps. 2=6508
 b.c.c., diffusion of solute elements 2=6375
 band structure of b.c.c. transition metals 2=6300
 borides, superconductivity 4=14525
 bromates and iodates of 3d ions, antiferromagnetism, nucl. quadrupole resonance study 1=7807
 carbide solid solns., C atom charges 4=12573
 carbides, C atom charges 4=12573
 carbides, elec. props. meas. rel. to electronic struct. 2=3993
 carbides, use as thermionic emitters 4=14743
 chlorides, in dimethylformamide, equil. 2=15153
 cohesive forces, rel. to d orbitals 2=12364
 complexes, e. s. r., review 4=3902
 complexes, ionic radii, spin—orbit coupling and geometrical stability 1=3554
 complexes, octahedral, u.s. absorption, reson., for polarization prod. 4=16182
 conduction, elec. and band struct. 4=15517
 covalent complexes, fine structure of K-absorption spectra 3=8609
 crystal electron states, narrow band, spin correl. 4=12683
 crystal field splitting rel. to next-nearest neighbour ions 2=23034
 cyano complexes, overlap integral calculation 3=10529
 diatomic molecules, MO description 4=20030
 diborides, nuclear magnetic resonance 3=10541
 difluorides, NaF freezing pt. depression 4=5454
 dihalides, i.r. spectra 2=14274
 elec. conductivity, rel. to crystal internal fields 3=4798
 ferromagnetism and antiferromagnetism, rel. to covalent bonding 1=1202
 ferromagnetism weak, spin coupling types 4=23009
 fluorides, F¹⁹ n.m.r., contrib. of unpairing of 1s electrons to h.f.s. 1=9071
 germanides, crystal structure atomic 4=7602
 group I silicides, charact. X-ray absorption 2=8546
 halides, semicond., elec. behaviour rel. to overlap integrals magnitude 2=23412
 hydrides, interatomic interaction 1=891
 hydrides, nonstoichiometry and lattice defects 2=3898
 hydrides, phases, rel. to adsorption 4=10619
 impurities of Fe, paramag. 2=21294
 impurities in wurtzite-type crystals 2=3908
 ions, diffusion in single-crystal MgO 2=14466
 ions, impurities in corundum, e.s.r. 2=3811
 intermetallic cpds., interatomic distances, calc. as atomic radii sum 4=23488
 ion complexes, ligand nuclei hyperfine interactions 4=25718
 luminescence, on ligand field theory basis 4=26249
 magnetic ion interaction, superexchange model 3=11032
 magnetic susceptibilities and g-values. 1=10128
 magnetic susceptibility and Knight shift, theory 2=3869
 magnetic susceptibility, thermo e.m.f., electrical conductivity meas. 4=1550
 metal-pentacyanonitrosyl complexes, optical spectra 2=6570
 molecular complexes MX₅, d-electron splitting calc. 4=3851
 monosilicides, cryst. struct. 2=6809
 monoxides of group III, bonding correl. 4=12528
 niobates, struct. and spin config. 2=6814

Transition metal compounds—contd

- octahedral complexes, spin-electronic-vibr. calc. 4=20072
 optical rotation, ligand field approx. 3=23046
 orbitals, empty, 4p, localization, X-ray K-edge splitting 3=25175
 oxides adsorbed on alumina, effect on Al^{27} n.m.r. 4=7342
 oxides and carbides, metal-metal bond screening effects 4=22450
 oxides, classification 4=25890
 oxides, conduction mechanism by internal friction meas. 3=10836
 oxides, crystal structure, atomic 4=7603
 oxides, electron structure and elec. props., review 4=25890
 oxides, h.f. dielec. props. meas. 2=10556, 14601
 oxides, prep. using CO-CO₂ atmospheres 4=15840
 oxides, semicond., elec. behaviour rel. to overlap integral magnitude 2=23412
 oxides, semicond., impurity energy levels 2=23308
 oxides and sulphides, pressure effects on elec. conds. 3=25370
 oxides, vacancy interaction energies 3=22737
 phosphides, binary, crystal structure 3=13453
 polarized spectra in cryst. trisoxalatometallates 1=19976
 pyrite struct., cond., elec., and struct. details 4=20336
 with rare earths, antiferromag. coupling 2=12749
 semiconductivity, crystal chemistry approach 2=6447
 silicides, characteristic X-ray absorption 1=14622
 silicides, elec. cond. and Hall effect 1=3709
 silicides, elec. cond., thermoelec. power and Hall effect 1=5004
 silicides, Hall effect, mag. props. 1=3716
 silicides, ternary G and E, crystal structure atomic 4=7602
 solid solns., supercond. peak effect 4=18563
 solid solns., superconducting, size factor 3=16871
 solid solutions, magnetic props. and superconducting 3=15747
 sulphides, groups IV, V, VI, crystal structure, atomic, review 3=23449
 sulphides, semicond., elec. behaviour rel. to overlap integral behaviour 2=23412
 sulphides, surface area meas., isotope exchange method 2=9225
 sulphides, thermodyn. props. 2=17084
 tantalates, struct. and spin config. 2=6814
 3d transition metal—Al b.c.c. binary and ternary alloys, specific heat, low temp. meas. 4=30518
 thermodynamic props. 2=10967
 transition-simple metal alloys, mag. scatt. of neutrons 2=12787, 14797
 trifluorides of 4d elements, mag. ordering, neutron diffr. study 1=1251
 ultrasonic absorption, in octahedral complexes, resonance absorption, with inversion splitting 3=25195
 Al-transition metal, atomic interaction 4=6679
 with B, C, Si, N, thermal electron emission, work function 1=13103
 Fe group with Al or Si, X-ray K absorpt. spectra and wave-function by hybridization 4=7144
 Nb₂M₄O₉, (M = Mg, Mn, Fe, Co or Ni), magnetic structure determination 1=2535
 with NiAs structure, elec. cond. 4=26043
 Si-transition metal, atomic interaction 4=6679
 Ta₂M₄O₉, (M = Mg, Mn, Fe, Co or Ni), magnetic structure determination 1=2535

Transmission

- air, of heat, nearwater vapour bands 4=12471
 bending and torsional waves, in beam structs. and grillages 4=24286
 black body radiation, surf. charact. 2=127
 elastic waves through plate joints 4=24295
 inhomogeneous anisotropic media, ray paths 2=9362
 radiation, isotropic, across interface between two dielectrics 4=10147
 radiative transfer, three-dimensional solns. 4=5109
acoustic waves
 See also Acoustic wave propagation
 acoustic materials, rel. to mounting conditions 2=17561
 airborne transmission-loss meas. of partitions 4=5331
 Arctic Ocean, 90-km test. 3=25864
 attenuation in deep ocean, 20-1000 c/s 4=7818
 attenuation, interaction between sound field and flow 2=2829

Transmission—contd**acoustic waves—contd**

- between rooms, stereo-ambiophonic 2=15703
 in bones of skull, curve of audibility 4=4981
 circular and slit-shaped apertures in walls, formulae 4=11316
 coal mines, hammer blow signals 3=14284
 double-wall soundproofing, freq. depend. 4=29723
 elastic cylindrical shell, sound field, calc. and expt. 4=5311
 electrostatic waves in plasma, collision damping 3=16929
 explosive sounds in sea water 4=4752
 floors, ceilings, and walls of buildings 0=1018
 light partitions, field measurement 1=18543
 light-weight walls, high transmission loss, coupling of adjacent mass elements 1=220
 liquid layer, spherical transient waves 4=5310
 liquid-liquid interface, transient spherical wave 2=15689
 loss in field, meas. 4=14291
 metals, attenuation at low-temp. 0=19581
 ocean, short-range transmission in shallow water 4=23725
 plate with interjacent supports, theory 4=11303
 porous sound absorbers, rel. to flow resistance 4=2785
 random medium, array bearing angle variance 4=27267
 in randomly inhomogeneous medium, freq. depend. 2=19652
 in sea-water, 160-200 kc/s 3=21029
 shallow water, long-range, bottom reverberation 2=2830
 shallow water, long-range, signal-level fluctuations 2=2831
 shallow water, long-range, theory 2=19655
 shallow-water, rel. to environment 2=17555
 shells, spherical elastic 2=7296
 SOFAR channel, South Atlantic, distance meas. 3=11386
 across solid-liquid boundary 0=2198
 speech-transmission circuits, evaluation 2=15426
 static and dynamic losses of partitions 3=18954
 structural resonance of wall between two rooms 4=27274
 in superconducting state 2=7515
 suspended ceiling systems 1=18542
 through flow velocity discontinuity 0=16781
 through a membrane, ideal, stretched 4=21242
 through plate, periodically inhomog., in liquid 2=21973
 transmission structures, reflection and cut-off 1=16028
 underwater, effect of ocean waves 3=11385
 underwater meas. 4=7819
 in water shallow, long-range losses 1=18519

acoustic waves, ultrasonic

- aniline-cyclohexane mixtures 0=19131
 in bones of skull, curve of audibility 4=4981
 at boundary surfaces 1=8180
 delay lines 2=5109-10
 layer-symmetric wall 2=15688
 liquids, forces in u.s. field 2=9346
 meas., pulse technique 1=2825
 piezoelectric emitters, transfer coeffs. 2=2818
 quartz plate, transmission coeff. meas. 1=2825
 into water through 3 μ Al film 3=18934
 CdS, amplification and phonon Cherenkov rad. 4=15410
 CdS, under d.c. voltage and illumination 2=3833
 KCl crystals at low temp. 0=21098

electromagnetic waves

See Electromagnetic wave propagation

light

- See also Absorption, light; Filters, optical
 absorbing plate, optically active, isotropic 3=16788
 aerosols, calc. of particle size distrib. 4=7783
 alkali metal halides, 17-55 μ 0=6167
 along surfaces 4=27324-5
 ammonium dihydrogen arsenate and phosphate, u.v. 0=13686
 anthracene, exciton absorption region 0=13678
 atmosphere, contrast reduction by turbulence 3=6962
 atmosphere, meas. instrument 0=4783
 atmosphere, mol., plane-parallel homog., higher-order scatt. 4=17894
 atmosphere in Nevada Desert 1=9187
 atmosphere, nonuniform, bounded by reflecting surface 4=16243
 atmosphere, radiative transfer due to ozone 2=2484

Transmission—contd

light—contd

atmosphere, turbidity, variations meas. 2=2488
 atmospheric "windows", 0.4-4.0 μ , rel. to atm.
 model 4=23762
 attenuator, rotating-sector, for precision
 spectrophotometry 2=5162
 blood cells, red 1=21112
 boundary of two media, rel. to polarization 2=5476
 chemical analysis, oximeter, cuvette, blood,
 allowing for light scattering 3=13943
 clouds, i.r. 0=14302
 coherent, through plasmas 3=12138
 conducting layers, reciprocity of transmission 2=7374
 contrast function, meas. using gratings 3=268
 corundum, in far u.v., rel. to cutting angle, chromium
 content and temp. 4=7126
 crystal, plates optically active, in axial classes 2=19731
 crystal plates, transparent, rel. to
 polarization 2=15750
 crystalline plates, principal vectors soln. 3=15649
 crystals, absorbing, circular optic axes 3=15648
 crystals, mag. absorbing optically-active 3=13148
 crystals, nonlinear dielec. polariz. mech. 2=14650
 crystals, transparent uniaxial, inhomog. waves 3=15642
 diamonds, semiconducting, rel. to temp. 4=28642
 diffuse, by inhomog. plane layer, brightness
 coeff. 2=21991
 diffuse, by plane layer in turbid medium 2=21855
 diffusing layers 4=324
 effect of surface light traps 1=4470
 Elsasser band 3=15322
 film projection systems 1=8218
 films, dielec., metallic, summation formulae 2=6551
 films, dielectric multilayer, automatic computation 0=10779
 films, meas. in vacuum u.v. region 1=11836
 films, negative absorpt. coeff., theory 2=19717
 films, optical density 3=20934
 films, reversibility princ., Maxwell eqns. theory 2=9397
 films, reversibility and reciprocity 2=13454
 films, solid 0=21247
 films, solid, polarized light rel. to defects 2=10580
 films, solid, and thickness and density meas. 4=13679
 films, use in thickness control during evap. 2=6851
 films, thin, organic, rel. to structure 4=4241
 films, thin, theory 1=13601
 films, very thin, inhomogeneous, theory 2=6550
 filters, linear, non-negative signals 3=3892
 filters, multilayer, for u.v. 2=7379
 fog, calc. of particle size distrib. 4=7783
 fogged salt windows, i.r. transmission 4=8438
 fogs, i.r. 0=10452
 glass coloured filters, for solar radiation
 research 0=16825
 glass, rel. to Fe content 1=14684-5
 glass, Pb, γ radiation loss reduction by heating 4=22861
 glasses, intensity (laser), elec. field effects 4=22862
 gold black deposits, transmittance, 15-100 μ 1=3813
 grating, sinusoidal, and irregular surface 3=258
 grating, sinusoidal profile, power calc. 4=18423
 guide, fibre, for plasma meas. 3=21808
 guided, coherent, by fibres, reflecting tubes, lense
 tubes 3=21510
 haze and fog 2=15198
 i.r., in atmosphere 3=11409
 i.r., through atmosphere, calc. 3=18550
 i.r. by atmosphere, review 3=3468
 i.r., 8-15 μ , selenide glasses 4=20457
 i.r. radn. in upper atmosphere 2=8973
 ice (sea), rel. to porosity and wavelength. 3=13650
 integrated, Fourier transforms eval., analogue
 computer 2=9371
 integrated, transmittance, error 2=17620
 integrating sphere for imperfectly diffuse
 samples 1=16053
 interference microscope measurements 0=6920
 interplanetary matter, rel. to models 2=11105
 irregular surface, and reflection, film appl. 4=1707
 Irtran-1, MgF₂ 3=20480
 lenses dioptré, imperfectly polished 4=18385
 lenses, extra-pupillary disturbances 2=5143
 by light-scattering layers with varying parameters 0=14846
 liquid through meniscus, passage meas. tech. 2=7181

Transmission—contd

light—contd

luminescent films, microcrystalline grains, film thickness
 depend. 4=26167
 meas., variable shutter device 1=18561
 measurement, optical systems, from source brightness
 change 4=21284
 medium of atoms emitting dipole and quad.
 radiation 2=9359
 metal-dielec. interface, boundary conditions 2=19718
 metal films, apparatus for vacuum study 0=19422
 metal films, appl. of Vasicek reversibility princ. 4=11333
 metal films, optical properties 1=10097
 metal films plasma resonance absorpt. 3=10634
 metal mesh refl. filters in far i.r. 4=307
 metallic films, granular structure, reflect. and
 transmission 2=5177
 metallic films, increase by blooming technique 2=7378
 metallic films, in near i.r. 2=6536
 metallic films, phase change rel. to apodisation 4=22840
 metallic films, rel. to thickness and oxidation 4=20801
 metals, extinction theorem, plasma theory 3=17049
 micas, muscovite, apparent optic angle 3=25463
 microscopic objectives, using highly refracting
 films 2=7351
 mirror in He-Ne 6328 Å laser, rel. to output
 power var. 4=21676
 monochromators, double 2=7355
 multilayer dielec. films, theory 3=14360
 multiple film systems 1=16096
 Nevada Desert atmosphere 2=2487
 nitrobenzene, i.r. 1=12883
 nitrobenzol, soln. in n-heptane, absolute
 coeff. 3=21367
 nonlinear theory, for partially coherent illum. 2=9369
 non-parallel radiation, medium with plane-parallel
 surfaces 3=5526
 opalescent media, by light from laser 3=269
 optical fibres 1=12976
 optical glasses, infrared 1=18579
 optical materials, infrared, bibliography 3=16750
 optical materials, 1900-3400 Å 4=14346
 optical signal amplification by medium with neg.
 absorption 2=17602
 optical systems, response function, grating
 meas. 2=2869
 optically active crystal, exciton absorption
 region 2=18808
 optically active crystals 1=16118
 optimum conditions, rel. to Beer's law 3=24041
 organic solvents in far i.r. 2=5023
 particle cloud, probability theory 2=120
 pile of plates, modified Lunelund and Stokes
 formulae 0=19378
 pile-of-plates polarizer 4=29774
 plane layer, transfer integral eqn. 4=14388
 plane-parallel layer, wave optics 3=9605
 plane-parallel layers 2=15737
 plane-parallel layers, nonlinear theory 3=16787
 polarized, through pair of birefr. plates 4=24399
 polyethylene, with C-black, 17-55 μ 0=6167
 polyethylene, in far i.r. 2=5023
 polymer films, optical retardation, continuous change
 meas. 1=19962
 polytrifluorochloroethylene, i.r. 0=12473-4
 powders, effect of adsorbed water, theory 0=3650
 projector systems using heat absorbing filters 1=8217
 quartz, in far i.r. 2=5023
 quarter-wave stacks 2=121
 quartz, 40-200 μ , 300-750°K 4=13053
 quartz, 50-120 μ 1=3817
 quartz wedge, effect on meas., 2-15 μ 4=20443
 radiation imaging technique, for thermal cond.
 meas. 2=2907
 Rayleigh line structure on passing through a liquid 3=3805
 rock salt, spectral depend. 2=18810
 ruby, in far u.v., rel. to cutting angle, chromium content
 and temp. 4=7126
 sapphire, in far i.r. 1=2438
 sapphire, i.r., 20°-1000°C 2=21237
 sapphire, white, u.v., linear temp. dependence 3=18010
 scattering, inverse problem, rel. to particle size 2=9407

Transmission—contd
light—contd

in sea, daylight penetration 3=6952
 semiconductor surfaces, i.r. meas. 3=13557
 semiconductors, i.r. density, meas. 4=26166
 simultaneous meas. of transmission and refl. coeffs. 3=18961
 single-path band factors from double-path meas. 3=14338
 snow, rel. to porosity and wavelength 3=13650
 solar u.v. diffuse transmission, in presence of ozone 1=2564
 solutions, extinction coeff. meas. 3=21367
 spectrophotometer, adapter for automatic meas. 2=17624
 spectrophotometer for meas. at normal incidence 4=10200
 spectrophotometer, prism—grating, effect of polarization 4=16233
 spectrophotometer, SF-4 wide spectral region 2=106
 standards, spectral, glass, recalibration 4=8419
 step-wedge, spectral transmission meas. 2=9394
 suspensions of large coloured particles, interaction between absorpt. and scatt. 3=9621
 suspensions, solid, continuous meas. by opt. method 2=2454
 by systems of spherical particles 3=11939
 test objects, variable transmittance, sinusoidal, prod. 3=18966
 thiazine-iodine complexes 4=6995
 thin films, absolute i.r. intensity meas. 4=7106
 thin films, damped harmonic-oscillator model 2=21241
 thin films, insufficiently parallel, errors in calc. 2=7375
 by thin films, phase-shifts meas. 3=14361
 transparent solids, effect of elastic deform. 3=23036
 triglycine sulphate, maser radiation, optical mixing 2=9388
 turbid media 2=5173
 turbid media, plane layer 2=21855
 turbulent media, transfer function for image transmission 4=10724
 twin crystal boundary, Fresnel formulae 0=3654
 use of 2 values to determine optical consts. 1=18578
 u.v. glass 1=12982
 uniaxial optically active crystals 2=22066
 water vapour, over stratospheric slant paths 4=23777
 water vapour, transmission spectrum, 2.7 μ region 4=3881
 waves in plasma 2=11666
 Ag films 1=7700
 Ag films, coefficients at oblique incidence angles 1=10089
 Ag, thin films, influence of formation rate 1=7701
 Ag thin films, visible and near i.r. 2=18798
 AgBr suspensions, monodisperse, turbidity 2=17103
 Ag—O—Cs photocathode 4=3029
 Ag₂Se films, i.r. 0=16363
 Al films 1=10087
 Al films, u.v., rel. to electron concn. 2=14657
 Al films, in vacuum u.v. region 1=11836
 Al, vacuum u.v., 6 to 30 eV 3=13145
 Al₂O₃ films, in far i.r. 2=4153
 As₂S₃ glass, 15-25 μ 0=6904
 As₂S₃ wedge, effect on meas., 2-15 μ 4=20443
 As—S—Br glass 2=14647
 As—S—Se films 0=4404
 As₂Se₃-type glasses, 400-800 cm⁻¹ 3=10930-1
 Au—Ni thin films 3=8580
 BaF₂, i.r. 2=21236
 BaF₂, i.r., 27°-1000°C 4=10178
 BaTiO₃, transition study in elec. field 0=20958
 BeO, single crystal plates, i.r. 2=23536
 Bi thin films, coeff. 0=10027
 Bi₂Te₃—Sb₂Te₃, p-type, 2-15 μ 2=23510
 CO₂, over stratospheric slant paths 4=23777
 CO₂, i.r. transmittance 4=11247
 CO₂, Ar-diluted, 1500°-3500°K, 4.25 μ 4=22373
 Ca thin films, coeff. 4=26182
 CaF₂, i.r. 2=21236
 CaF₂—SrF₂, and SrF₂—BaF₂, single cryst. 2=690
 Cd_{0.9}Hg_{0.1}Te, transmittivity curve 4=13026
 CdIn₂Te₄, 0.75-2.5 μ meas. 4=7121
 CdS films, meas. rel. to temp. 2=12586
 CdS, polarization 1=17864
 CdSb, semicond., two forms 2=4033
 CdSb, thin films 2=6460

Transmission—contd
light—contd

CdSe 1=1151
 CdSe, with polarized light 2=23516
 CdTe, p-type 1=12445
 CdTe, and structure 4=1508
 Cr, vac. u.v., plasma freq. and M_{2,3} band 0=20981
 Cu, film, during oxidation and reduction 2=6878
 Cu, films, 4-20 m μ , anomaly 3=17996
 Fe, very thin films on quartz support 2=4112
 Ga films, i.r. and u.v. 4=28686
 Ga films, optical props., 4000 to 10000 Å structure, meas. 4=28685
 Ga thin films, factor, meas. 4=30680
 GaAs filters, improvement by monitoring GaAs diodes 4=7205
 GaSb—InSb alloys, i.r. transmission and optical energy gap 0=6120
 Ge films, 12-60 m μ , wavelengths 0.4-0.7 μ 3=10953
 Ge oxides in Ge, i.r. 2=23352
 Ge, vacuum u.v., 6 to 30 eV 3=13145
 Ge wedge, effect on meas., 2-15 μ 4=20443
 Ge and Se, cooled mirrors 2=19695
 H, freqn. for passage without refr. 4=3776
 H₂O vapour, i.r. transmittance 4=11248
 Hg films, superconducting and normal, far i.r. 0.1-1.1 mm 0=10852
 HgTe, i.r. 3 to 15 μ 3=10835
 HgTe, and structure 4=1508
 In films on glass substrate, 400-1000 m μ 3=25435
 In films, i.r. and u.v. 4=28686
 In films, superconducting and normal, far i.r., 0.1-1.1 mm 0=10852
 InAs, at liquid H temp. 3=6339
 InSb films, i.r. 4=26200
 InSb, i.r., rel. to neutron irradi. 4=1735
 InSb, thin films 2=6460
 K dihydrogen arsenate and phosphate, u.v. 0=13686
 K, in far u.v. 0=18117
 KH₂PO₄, domain pattern observ. 4=28700
 KH₂PO₄, maser radiation, second harmonic prod. 2=9389
 KH₂PO₄, modulated at microwave freqn. 3=5535
 KH₂PO₄, optical harmonic generation, temp. depend. 4=28701
 KMgF₃, far i.r. meas. analysis 4=17579
 LiF, rel. to γ irradiation 1=19964
 LiF, spectral, vac. u.v., rel. to crystal surface 3=15682
 MgF₂, far i.r. meas. analysis 4=17579
 MgF₂, Irtran-1 3=20480
 MgO, far i.r. 2=17685
 MgO, i.r., 27°-1000°C 4=10178
 MgO particles, meas. on film 3=24
 MgO·Al₂O₃ (spinel) monocrystals 0=16033
 Mg₃Sb₂, thin films 2=6460
 Mo films, 3-50 Å 4=22878
 Na, in far u.v. 0=18117
 NaCl, i.r. 2=6541
 N₂O₃, i.r. transmittance 1=14568
 Pb films, superconducting and normal, far i.r., 0.1-1.1 mm 0=10852
 PbBr₂, i.r. 2=10568
 PbCO₃, paint layer, as suspension, meas. 2=10992
 PbCl₃, i.r. 2=10568
 PbF₂, i.r. 2=10568
 PbI₂ 4=26202
 PbS, films, condensed, i.r. 2=10584
 PbS, i.r., and dielec. const. 4=22874
 PbSe, films, condensed, i.r. 2=10584
 PbTe, films, condensed, i.r. 2=10584
 PbTe, i.r., 28°-296°K, rel. to carrier concentration 3=10907
 Pt films, in vacuum u.v. region 1=11836
 Rh films, in vacuum u.v. region 1=11836
 S, rhombic, i.r. transmittance 3=8603
 Sb films 0=21247
 Sb, vacuum u.v., 6 to 30 eV 3=13145
 Sb₂S₃, i.r. meas. 2=18786
 Se optical film i.r. transmission 1=18602
 Se single crystals, 1.5-4.0 μ 4=10191
 Si, doped, 40 to 100 μ m 4=10194
 Si oxides in Si, i.r. 2=23352
 Si, p- and n-type, far i.r. 4=4273
 Si, thin layer 0=20975

Transmission—contd
light—contd

- Si wedge, effect on meas., 2-15 μ 4=20443
 SiO films, effect of evaporation rate 3=20486
 Sn films, superconducting and normal, far i.r.,
 0.1-1.1 mm 0=10852
 Sn, vacuum u.v., 6 to 30 eV 3=13145
 SnO₂, energy gap and thermal shift 3=2924
 SnO₂, semiconducting 0=15965
 SnO₂, Sb-doped thin layers, 0.35-2.5 μ , wavelength
 depend. 0=16036
 Sr titanate, i.r. transmittance, -187°C to 26°C 1=14571
 SrF₂, i.r. 2=21236
 Te films 0=21247
 Ti films 0=21247
 TiO₂, paint layer, as suspension, meas. 2=10992
 Tl films, var. λ , thickness 4=26221
 Xe flashtube opacity, direct meas. 4=27308
 ZnO, paint layer, as suspension, meas. 2=10992

Transparency

- See also Optical constants; Transmission, light
 alkali metals, u.v. 0=1721, 4401
 aniline hydrobromide, optical props. 1=19942
 anisotropic scatterer, singular integral method
 generalization 2=5664
 anthracene, thickness depend., spectral distrib. 2=18809
 atmosphere, from polarization of sunlight 1=6589
 atmosphere, to solar i.r., 1.0-12.5 μ . 3=25888
 atmospheric, anomalous and "selective", Buger's
 applic. and reversion effects 3=3466
 binary regular solutions 2=21905
 cholesterol ester, liquid crystals 3=21370
 diamond, composite class, to u.v. 2=8501
 diamond, to u.v., rel. to crystal classes 2=8498
 disperse systems, rel. to particle spectrum 4=20839
 disperse systems, rel. to particle spectrum 4=20840
 disperse systems, spectral, rel. to particle distrib. 4=15849
 dispersions, and particle size spectrum 4=13748
 gases, spectral, population shift theory 3=16662
 metal films, rel. to surface impedance in i.r. 3=20434
 phase-contrast and interference study 3=257
 photographic emulsions, statistical distrib. meas. 4=21320
 photographic films, rel. to granularity, statistical
 model 1=246
 pressed crystal powders, clouding 1=4024
 sapphire, white, u.v., linear temp. dependence 3=18010
 solids, light deviation by elastic deform. 3=23036
 spherocobaltite 3=18267
 thin film, insufficiently parallel, errors 2=7375
 As-S-Tl glass, i.r. meas. 2=8479
 CO₂, spectral, rel. to Venus atmosphere 3=13865
 Ca, thin layers, rel. to thickness during growth 4=28674
 CaF₂, SrF₂, BaF₂, crystals 2=6555
 Fe thin films in air and vacuo 1=17863
 In thin layers rel. to evaporation 4=28692
 KCl, rel. to phase transforms. 2=23803
 MnCO₃, rhodochrosite 3=18267
 NH₄H₂PO₄, rel. to dielec. props. 2=18766
 RbCl, rel. to phase transforms. 2=23803

Transport processes

- See also Diffusion; Kinetic theory; Liquids, theory;
 Solids, theory; Statistical mechanics
 adjoint function perturbation theory relations 4=11125
 aerosols, effect on attenuation and dispersion 0=14740
 air, collision integrals, at high temps. 2=9314
 alloys, dilute 3=8382
 analogue techniques for propagation problems 1=6803
 approach to equil., effect of initial correl. 4=18105
 approach to equilibrium 1=15745
 in arcs, electric, of Na, Cu 3=24256
 atmospheric, before 1954 nuclear tests 2=2466
 atmospheric hydrogen content (1949) 2=4614
 atmospheric, recent growth of content 2=2467
 atmospheric, thermonuclear origin 2=11011
 atoms, hyperfine splitting 2=18407
 atoms, irrad., effect of alkyl radicals 2=4562
 average energy gain method, quantum theory 4=11121
 β -activity meas. in drinking water 2=1828
 β -sources in Zr and Ti carriers, energy
 distrib. 2=3495
 between gas and liquid phases, heat and mass 4=21334-5
 binary mixture rectification, heat transfer effects on
 mass transfer 1=10448

Transport processes—contd

- binary mixtures, of rigid sphere fluids 0=3469
 Boltzmann elastic collision operator, special
 properties 0=18979
 Boltzmann eqn. for anisotropic scatt., degenerate
 solns. 4=18111
 Boltzmann eqn., energy-depend., transport approx. 3=12463
 Boltzmann eqn., basis of functional
 assumption 4=2603
 Boltzmann eqn., cartesian tensor expansion 4=2600
 Boltzmann eqn., Cartesian tensor scalar product and
 spherical harmonic expansions 0=18989
 Boltzmann eqn., Chamber's solution 2=15501
 Boltzmann eqn., collision term 0=51
 Boltzmann eqn., differential-operator
 approximations 0=16622
 Boltzmann eqn. in external mag. field 4=28519
 Boltzmann eqn., generalized, for homogeneous gases,
 structure of three-particle scattering operator 4=11234
 Boltzmann eqn., generalized normal solns. 4=94
 Boltzman eqn., generalized, for quantum gas 4=2604
 Boltzmann eqn., integral form 0=98
 Boltzmann eqn., kinetic integral soln. 4=95
 Boltzmann eqn., linearized, particular solution for
 plasma 3=14565
 Boltzmann eqn., Lorentz gas perturbation theory approx.
 soln. 3=3772
 Boltzmann eqn., mathematical props. 3=13996
 Boltzmann eqn. and molecular chaos 2=17373
 Boltzmann eqn., monoenergetic, variational
 analysis 3=18755-6
 Boltzmann eqn., omission of exclusion factors, rel. to
 Pauli principle 0=3470
 Boltzmann eqn. one-velocity, neutron transport 2=5663
 Boltzmann eqn., orthogonal polynomial ang.
 expansion 4=2602
 Boltzmann eqn., quantum-mechanical 0=6700
 Boltzmann eqn., quantum-mechanical derivation 1=18321
 Boltzmann eqn. for Raman-active medium density
 matrix 4=20006
 Boltzmann eqn., relativistic, steady-state solution 0=18990
 Boltzmann eqn., and shock wave structure, transport
 function 0=16770
 Boltzmann eqn., soln. assuming determinacy 4=14086
 Boltzmann eqn., soln. for stationary states 3=18754
 Boltzmann eqn., solution, variational methods 4=24110
 Boltzmann eqn., spectrum, intuitive derivation 4=93
 Boltzmann eqn., stationary, solution 3=3771
 Boltzmann eqn., transformation for radiation deep penetra-
 tion problems 4=24109
 Boltzmann eqn., Wild's inversion, derivation 4=16059
 Boltzmann equation for hard spheres, differential
 form 4=11124
 Boltzmann's equation, relaxation-time approx.
 soln. 3=14069
 Boltzmann relaxation equation and scattering 4=11123
 Boltzmann time-depend. eqn. for electrons and
 phonons 4=24111
 Bose systems, normal and second sound 4=8112
 Bose systems, using thermodyn. correl. functions 4=5102
 Cauchy equation in multi-dimensional
 space 1=10452
 charged Brownian particle in field, transport
 eqn. 4=21061
 charged-neutral particle colls., Boltzmann eqn.
 calc. 4=11235
 in chromatography 2=860-1
 canonical ensemble, transport coeffs. from
 dissipation 0=12376
 coefficients, time-correlation formulae, elementary
 derivation 4=18110
 collision integrals, for exponential repulsive
 potential 0=956
 collision of particles in field, non-Markoffian, asymptotic
 eqns. 4=24104
 concentration-dependent diffusion, exact solutions 0=6695
 conditional Monte Carlo, applicability to deep
 penetration problems 2=5602
 conference, Woods Hole, (1962) 3=7150
 conservation laws and correlation functions 1=15744
 constant flux solutions 4=14083
 correlation function method validity 4=21058
 correlation theory for non-uniform systems 4=18109

Transport processes—contd

coupling, weak, between two quantum mechanical systems 1=18319
 crystal impurity scatt., calc. 4=25874
 crystals, Boltzmann eqn., general soln. 3=4847
 crystals, h.f., freqn. depend. 3=12937
 dense fluids, kinetic theory 1=18391
 in dense media, approx. theory 0=904
 density matrix, mono-electronic, exclusion principle appl. 3=23794
 density matrix, variational method of solving Schrödinger eqn. 1=10449
 diffusion of resonance excitation through a gas 1=8086
 diffusion in Zr, autoradiographic study 2=21073
 discrete-ordinates methods, accelerating convergence 4=21060
 dissipation functions, and invariant imbedding 0=19004
 efficiency and entropy coeff. 4=2601
 eigenvalue soln. of generalized eqn. 1=4288
 electrochemical cells, mass and charge, double layer theory 4=15843
 electrodiffusion as random walk problem 1=18324
 electrolysis, Soret effect 3=13615
 electromagnetic wave information carrying capacity 4=2528
 electron conductors, variational calc. of transport props. 1=11174
 electron drift and energy in gas mixtures 1=11911
 electron gas, Boltzmann eqn., drift term, in const. e.m. field 4=12709
 electron gas, configurational e.m.f., Boltzmann eqn. 4=8113
 electron gas, Green function method, two-time 3=21759
 electron gas in mag. field, quantum theory 4=8115
 electron generalized equation 1=8084
 electron "liquid", degenerate, Coulomb interact. effect 4=9889
 electron scatt. in strong mag. field, theory 2=3886
 electron scattering in mag. field 1=17499
 electron transport in solids, Landau's eqn. 2=23100
 electrons, in magnetic field, theory 0=2813
 electrons, with Maxwell-Boltzmann distrib., constant relax. time, Boltzmann eqn. soln. 0=13573
 electrons in solids, at high temp. in presence of impurities, theory 1=12413
 energy in one-dim. linear coupled oscillations, impurity atom effect 4=24108
 energy transfer in grey medium 4=2609
 entropy balance eqn., and Onsager's relations 0=16643
 entropy prod. 3=23780
 entropy production, minimum 0=16646
 equation, linear, with constraints, solution conditions 4=18113
 equations for average values of temperature or concentration 1=15747
 equations, simple solutions, applications 0=3471
 equations, statistical properties 1=18317
 evolution in equil. in strong coupling case, model 2=21854
 exchange processes, in fixed columns 0=3466-8
 excitation migration, Magee-Funabashi theory 2=13281
 Fermi fluids, kinetic eqn. 2=13275
 Fermi gas, weakly interacting, hydrodynamics 4=2596
 fermions, Bogolyubov eqn. 3=21263
 finite atmosphere, diffuse reflection and transmission 0=14551
 flow properties of systems of fermions 1=5235
 fluctuations from non-equilibrium steady state 0=6692
 fluids, dense, polyatomic, approx. mol. theory 2=15537
 fluids, non-equilibrium distribution functions 0=10650
 fluids, phonon concept 0=12379
 fluids, transport coefficients 1=6804
 Fokker-Planck diffusion term 3=9374
 Fokker-Planck eqn., derivations 0=16514
 Fokker-Planck eqn. formulation incl. excitation effects 4=11585
 Fokker-Planck eqn., cartesian tensor expansion 4=2599
 Fokker-Planck eqn., soln. 0=19657
 Fokker-Planck equation 1=18320
 Fokker-Planck equation, soln. using Campbell's theorems 3=9373
 fused salts, phenomena involved in transport properties 0=8658

Transport processes—contd

fused salts, thermodyn. theory 2=19549
 gas, calc. by distrib. function expansion 4=29667
 gas, dense, eqn. deriv. 2=9203
 gas mixture calc. by distrib. function expansion 4=29668
 gas mixtures, kinetic stage of molecular movement 1=15953
 gas mixtures, viscosity and conductivity, thermal 3=18849
 gas of rough spheres, relaxation effects 3=9495
 gas transport properties, collision integral calc. 4=18240
 gases, assuming inverse power intermolecular potentials 0=16735
 gases containing molecules, dissipative processes, theory 4=21172
 gases, dense, equation asymptote disagreement resolution 4=18239
 gases, dense, statistical mechanics 3=9497
 gases, dense, triple collision operators 4=27213
 gases, density expansion calc. 3=3829
 gases, effect of chemical forces 0=14547
 gases, exponential attractive potential theory 1=11786
 gases at high-temp. parameters 1=18466
 gases, high temp. and reacting heat transfer 2=2763
 gases, Kubo formulae validity 3=18850
 gases, low density, correl. -function expressions 4=5235
 gases, Maxwell-Chapman method 3=3825
 gases, mixtures, interpretation of formulae 4=234
 gases, moderately dense 3=18846
 gases, periodic disturbances 4=18247
 gases, slightly ionized, Boltzmann eqn. sol. 2=15888
 gases, slightly ionized, transport props. in low elec. fields 0=2326
 gases, survey 1=12924
 gases, theory 4=5234
 gases, transport coeff. calc., Kihara's method 2=5060
 gases, very high temp., calc. from intermol. potentials 2=2771
 general theory, rel. to correlation function method 4=97
 generalized multigroup theory 2=22532
 generalized path variable method 3=21265
 grainy scatt. medium, diffusion approx. 4=18114
 grey scattering, Rayleigh phase function 0=16634
 heat-mass exchange, in layer of steel balls 0=12514
 heat and mass transfer, in dispersed media 1=16139
 heat and mass transfer, drying process, differential eqns. 2=9422
 heat and mass transfer in rectification of mixtures 1=18316
 heat and mass transfer, spheres in Stokes' flow 2=9423
 heat of transport in interstitial solid solns. 2=3932
 Hopf q-function evaluation 1=80
 hydrodynamic eqns., use, rel. to use of correl. functions 4=5104
 interacting particle systems 1=15718
 invariant imbedding, conservation relations and nonlinear eqns. 0=19005
 invariant imbedding, fundamental equations 1=9350
 invariant imbedding, generalized relation 1=9351
 invariant imbedding, wave branching processes 2=9
 ionic melts 2=1132
 ionized gas in strong mag. field 1=10674
 in ionized plasma 0=2362
 irreversible behaviour, statistical mechanics 0=16651
 irreversible processes in gases, inhomogeneous systems 1=9352
 irreversible processes in quantum plasma 1=9540
 irreversible processes, quantum theory 0=16650
 irreversible processes, quantum theory, variation principle 4=2581
 irreversible processes, thermodynamics 0=16640
 irreversible processes, thermodynamics 3=18757
 irreversible, statistical interpretation of phenomenological theory 0=16632
 iso-amylol-water boundary, of mass, hydrodynamic stability effects 4=24193
 isotropic scatt. of conc. ray pencil from point source 4=14056
 isotropic turbulence, one-dimensional equilibrium spectra 0=3501
 kinetics problems, separation into time and space functions 1=18336

Transport processes—cont'd

Kubo formula and Kadanoff-Baym equations 4=18108
 labelling of organics 2=21604
 laminar boundary layer equation, at high Prandtl numbers 0=16677
 laminar flow of heat or mass, transfer coeff. eqns. 2=19471
 laminar flow, total enthalpy change 0=221
 Lamm eqn., Faxén soln., simple deriv. 4=18115
 Landau transport eqn. 4=11113
 linear collision operators for imperfect Lorentz gases 1=1704
 linear theory, half-space problems 3=9375
 linearized collision operators, properties 0=18978
 Liouville eqns., stochastic, deriv. 3=11731
 Liouville equation, perturbation soln., time independ. 0=18963
 in liquid alloys, elec. force on ion 0=19112
 liquid-liquid, phase boundary streaming, Schleirein obs. 4=27146
 liquid phase boundary, of mass, hydrodynamic stability effects 4=24193
 liquid salts, activation energy concept. 4=24191
 liquids, friction constant, semi-empirical determination 0=10652
 liquids, monatomic, config. relax. model 4=8163
 Lorentz gas, eqns. 2=1085
 luminescent solutions, energy transport 0=6806
 magnetoplasma in a.c. field 3=9774
 many-particle systems, with linear interaction 0=16625
 Markov, trajectory stability 3=18736
 mass, electrochemistry, choice of diffusion currents 4=13728
 mass flow, steady bithermal 0=14907
 mass transfer, equilib-ine curvature effects 3=11751
 mass transfer through laminar boundary layers 2=11322
 mass transfer, steady convective, standard formulation 1=18318
 mass transfer, in turbulent flow 0=3669
 mass transfer, turbulent, near walls 0=16678
 master eqn., generalized, t-matrix expansion 3=11732
 master eqn., global, deriv. 4=18104
 master eqns. for time evolution of correlated sub-systems 4=14064
 master equation, quantum, generality 4=24102
 master equations, solution of two eqns. coupled by particle exchange 4=14087
 maximum principle general consequences 4=18112
 medium-vacuum interface, boundary conditions, spherical harmonics 1=2718
 metal films, carrier transport 1=14365
 metals, and alloys, ferromagnetic, effects of s-d interaction 0=20753
 metals, Boltzmann eqn. for inhomog. elec. fields 3=13030
 metals, effect of Debye-Waller factor 1=4974
 metals, effect of electron-electron scatt. 1=8936
 metals, effect of phonon spectrum and umklapp processes 0=17888
 metals, electron-phonon interact., quasiparticle theory 4=17389
 metals, review 0=9862
 metals, thermal transport phenomena, quantum-mechanical approach 0=1537
 metals, transport props., effect of lattice vibration spectrum 0=1554
 in metals, variational principle 1=1710
 Milne problem, polynomial source 2=7111
 Milne's problem, thermal neutrons in nonabsorbing medium 2=5661
 Milne's problem for two adjacent half-spaces 1=15749
 Milne's problem, velocity depend. sol. 2=16201
 model for nonparabolic hit sphere, symm. energy bands 4=22692
 molecular friction in dilute gases 0=19195
 molecular transport in liquids and gases 0=2141
 Monte Carlo method for criticality problems 0=13325
 multicomponent gas mixtures, at high temp. 0=957
 multicomponent systems, linear relations 0=18964
 multiple scattering of e.m. fields 0=12674
 multiple, waves by weak random irregularities in the medium 1=8242
 n-diffusion 1=8085
 naphthalene, electron transfer from negative ion rel. to ESR 1=14803

Transport processes—cont'd

neutron diffusion constant in one-group theory 1=502
 neutron diffusion, two-group approach 1=16799
 neutron, flux perturbation 2=5651
 neutron half-space transport, anisotropic scatt. 4=12015
 neutron, Monte Carlo calc., reciprocity theorem 2=5673
 neutron multigroup calc., transport equation numerical soln. 4=24639
 neutron, perturbation formulae 2=41
 neutron scatt., anisotropic, Boltzmann equation solution 4=907
 neutron slowing down, energy distrib., Boltzmann eqn., exact and asympt. soln. 4=21870
 neutron slowing down in infinite homog. medium, exact and asympt. time-energy distrib. 4=21871
 neutron theory, variational method 2=2654
 neutron transport, Boltzmann eqn. in plane geom. 4=908
 neutron transport, cylindrical geom., spherical harmonic soln. of Boltzmann equation 1=503
 neutron transport eqn., disturbed flux near detectors 2=16208
 neutron transport eqn., numerical soln. 4=3423
 neutron transport flux and current at grey plate surfaces 1=18325
 neutrons, Chebyshev polynomial approximation 1=10891
 neutrons, critical thickness of slabs 1=10890
 neutrons, effect of scatt. and cross-section 3=19647
 neutrons, eqns., existence and uniqueness theorems 4=3420
 neutrons, soln. of one-dimensional critical problem 4=3735
 neutrons, spherical-harmonics method solution 4=16061
 neutrons, synthetic method soln. 4=3736
 neutrons, transport eqn. STRETCH computer programme 4=6074
 noble metals, transport properties 1=8893
 non-linear theory 1=18322
 one-dimensional particle chain, velocity auto-correl. func. 0=16626
 Onsager's reciprocity relations for strongly coupled systems 4=96
 Onsager's relations for vectorial phenomena 0=16644
 organic phosphors, energy transport 0=1572
 paramagnetic gas in magnetic field. 3=171
 paramagnetic gas in magnetic field, transfer phenomena 1=18475
 particles in scattering medium, quantum theory, incoherent processes 0=9298
 percolation, comparison of atom and bond processes 1=15742
 perturbation theory, use of asymptotic wave vector 3=23764
 photon transport theory 1=18315
 plane gray photosphere, transfer eqn. soln. 1=18000
 planetary atmosphere, escape 1=2600-1
 plasma Boltzmann eqn., spherical harmonics formulation 1=15740
 plasma, Boltzmann function approximation 4=8688
 plasma, coeffs. 1=18821
 plasma, correlation effects 2=1417
 plasma, for cut-off Coulomb potential 4=14632
 plasma, e.m. wave interactions 1=15725
 plasma, eqn. 1=5449
 plasma, nonequilib., binary distrib. function 1=2962
 plasma, non-isothermal kinetics 3=7501
 plasma, partially ionized, in mag. field, calc. 4=11588
 plasma, particle and heat fluxes perp. to mag. field 4=5601
 in plasma, radially constricted 3=16926
 plasma, relativistic eqns. 0=9030
 plasma slab, heat and momentum balance 4=18810
 plasma in strong external field, eqns. 1=16310
 plasma, theory 1=15724
 plasmas, in strong magnetic field 1=8325
 plasmas, unified theory calc. 4=498
 plate, with porous feeding and sublimation, turbulent heat and mass 4=21333
 polar gases 2=1191
 polar gases, mixture 2=13369
 Poisson-Boltzmann eqn., variational soln. 4=5103
 positive space-charge sheath, positive ion movement, theory 4=11513

Transport processes—contd

- potential barrier penetration in variable external field 2=21856
 principle of corresponding states 0=14543
 problem soln. by conditional Monte Carlo 2=4968
 production by neutron bombard. of LiF crystals 2=615
 production by pick-up reacts. 2=12191
 pseudo-Markovian collision operator, properties 4=27114
 quantum corrections, for transport coefficients 0=18969
 quantum corrections to transport cross-sections 4=28283
 quantum fluids, homogeneous, evolution eqn. 3=23792
 quantum gas, generalized Boltzmann eqn. 2=4969
 quantum gases 0=10617
 quantum mechanical equation 1=12827
 quantum mechanical transport theory 4=8111
 quantum statistical condensate, dynamics 4=29567
 quantum statistics, linear transport coeffs. 4=98
 quantum theory 0=14542, 16635
 quantum theory, thermal Green's functions 3=23804
 quantum theory of transport, recent developments 1=15741
 radial distrib. function, perturb. correction 4=27135
 radiation, diffuse from layer in turbid medium 2=21855
 radiation, diffuse reflection in inhomogeneous atmosphere, invariance principle 1=10454
 radiation, modified spherical harmonic soln., extension 4=11127
 radiation and neutron, modified spherical harmonic soln. 4=11126
 radiation in scatt. media, Shuster-Schwarzschild method 4=18119
 radiation, slip concept for boundary condition discontinuity 4=14090
 radiative, through atmosphere, eqn. soln. 0=5566
 radiative, in conservative non-uniform media 1=8087
 radiative, gas, HF, calc. 4=5108
 radiative, in novae 0=14449-50
 radiative, scatt., anisotropic multiple 4=14088
 radiative, scatt., anisotropic multiple, numerical solns. 4=14089
 radiative transfer 0=16616
 radiative transfer, diffuse reflection and transmission in finite, homogeneous atmosphere 1=2719
 radiative transfer, diffusion matrix 1=18326
 radiative transfer in dispersive media 4=2607
 radiative transfer, Eddington-Barbier soln. 2=15502
 radiative transfer eqn., appl. to scatt. in turbid medium, 3=14368
 radiative transfer, error function absorption coeff. 0=14549
 radiative transfer, generalized reciprocity principle 1=2708
 radiative transfer, generalized scatt. functions 4=100
 radiative transfer, multiple scatt. problem 2=2658
 radiative transfer in non-grey atmospheres 1=15752
 radiative transfer, in non-uniform media 0=4961
 radiative transfer, penetration, diffusion 3=81
 radiative transfer problems, numerical approximations 3=21266
 radiative transfer, reabsorption eqns. 2=6558
 radiative transfer, soln. of eqn. and Milne-Eddington model 0=19001
 radiative transfer theory, book 1=4289
 radiative transfer, three-dimensional solns. 4=5109
 radiative transfer, transport eqn. numerical soln., application to neutrons 4=24639
 radiative transfer, in uniform medium, non-conservative 1=4720
 radiative transfer, Wick-Chandrasekhar approx., convergence 0=10619
 in rain water, fallout meas. 2=4613, 10031
 relativistic extension, from conventional Boltzmann equation derivation 3=18758
 relativistic streams, statistical mechanics 0=17003-4
 relaxation of isolated ensemble of harmonic oscillators 0=14525
 release from Li-doped NiO by neutron irradi. 2=17100
 resonance radiation, effect of reflecting boundaries 2=7149
 resonance radiation, incoherent scattering theory, verification 0=13394

Transport processes—contd

- reversible eqns. deriv. for distrib. and correl. functions 4=18106
 rigid-sphere molecules, linearized Boltzmann integral 4=8116
 scattering and transmission functions 0=14552
 semiconductor surfaces, review 1=3742
 semiconductors, Boltzmann eqn. 4=15527
 semiconductors, effect of electron-electron scatt. 1=8936
 semiconductors, heat and current transport 1=17648
 semiconductors, low mobility, general theory 2=21123
 semiconductors, review 3=10731
 in separation cascades, extremum field theory 4=14085
 separation cascades, transformation theory 4=14084
 in simple dense fluid mixtures 1=4329
 simple system, evoln. to equl., exact calc. 4=18103
 single-ion heat of transport in electrolytic solns. 4=5154
 singularity condition and connected diagram expansion 4=24105
 in slightly ionized gases, in high elec. field 0=8989
 solid solutions, binary disordered 0=18404
 solids, Boltzmann eqn., relaxation-time approx. 4=6768
 solids, in elec. and mag. fields, temp. grad. 3=20258
 solids, irreversible processes 0=16649
 solids, neutron one-velocity theory, inequalities 1=19206
 solids, quantum mechanics 3=12938
 sound propagation, quantum many-particle treatment 1=15743
 spherical harmonic method, boundary conditions 2=9209
 spherical harmonic solutions of equations 0=4955
 spherical harmonics, convergence rate 0020148
 spherically symmetric molecules, interactions, review 2=3794
 stars, numerical solution 4=20897
 statistical mechanics 0=16647-8
 statistical theory using BBGKY hierarchy 3=5390
 statistical thermodynamics, range of validity 3=7151
 in strong mag. fields, perturbation theory 4=29568
 structure of transport equations 0=18972-3
 superconductive, Hamiltonian operators and relaxation 4=14494
 survey of developments of new techniques and theory 2=23270
 susceptibility tensors, calc., variational method 1=10450
 suspensions, non-Newtonian, metal oxides, turbulent 4=15855
 systematization of impulse, thermal and material exchange 3=5392
 systems connected by capillary 2=13280, 17380
 systems not in equilibrium, statistical operator 2=40
 thermal cond. of fluids, auto-correlation expression 0=14545
 thermal disturbances, dissipation-fluctuation theorem 4=8111
 thermal, coeffs. in resistive medium, correl.-function, proof 4=27347
 thermal noise in dissipative media 1=4290
 thermodynamics, nonequilibrium, statistical basis 0=16645
 three-body scatt. operator in evolution eqn. 4=88
 time dependent, one-dimensional case, computational solution 1=15746
 time-dependent pair distrib. function, linear velocity-gradient 3=14150
 time evolution and inhomogeneous master eqn. 4=29565
 time lag theory 2=2653
 time-relaxed probab. densities and correl. functions for moderately dense fluids 4=27113
 transfer function of distributed parameter reactor systems 0=13320
 transfer of matter between two liquid phases 1=2742-4
 transfer problem, integral equation transform 0=14550
 transistors, diffused, base region charact. 2=2185
 transport coefficient ratios for isotopically substituted molecules in liquid phase 1=10498
 transport coefficients, general calc. method 2=9206
 transport coefficients, theory 4=8110
 transport coefficients and non-equilibrium stationary states 1=12828
 transport coeffs. for electron scattering in strong mag. field 1=17498
 in turbulent region, transport of heat or of matter 1=1836

Transport processes — contd

- 2 bodies, equations of motion, from n-body radiation energy calc. 4=2608
 two-component square-well fluid 4=5124
 two-point boundary value problems, invariant imbedding 1=4285
 unstable solns. and stability criterion 3=23805
 Van Hove's $G_s(r,t)$, simple binary collision model 4=21059
 variation principle, extremum property 1=4286
 variational method 0=52
 velocity-dependent, theory 1=13433
 working up conc. in H, thermal diffusion plant 2=8071
 zero sound in nearly perfect Boltzmann gas 4=29569
 Bi_2Te_3 , phenomenological treatment 4=13530
 Ge, calc. from scatt. theory 2=14543
 H, cross-sections comparison 2=2770
 He II, Hamiltonian operators and relaxation 4=14494
 S_n transport analysis, albedo logic 2=11954
 Si, calc. from scatt. theory 2=14543

Triboelectricity

- (Heading introduced in 1962)
 colloids, u.s. charging in non-conducting liquids 4=7786
 i.r. circuit systems, cause of microphonic noise 4=14560
 polymers 3=6623
 Al_2O_3 , effect of rubbing with Ta wire 3=2966
 NaCl, effect of rubbing with Ta wire 3=2966

Tritium

- aqueous solutions, scintillation counting 0=5687
 atmospheric, artificial, inventory and occurrence in methane. 3=25895
 atmospheric content. 3=25892-3
 in atmospheric H_2 0=2040, 5682
 atmospheric, in H and CH_4 . 3=25894
 atmospheric, produced by thermonuclear explosions, moratorium distrib. 4=2213
 atomic spectrum, ground state, precise h.f.s. det. 0=7725
 atoms, h.f.s., precise det. by e.s.r. 0=20543
 atoms, hyperfine anomaly, theory 1=801
 β -activity in solns., obs. by liquid scintillation spectrometer 4=25334
 β -spectrum, low energy region 0=4053
 charge exchange analysis 1=16916
 colours, moderation, relative efficiency of D_2 or CH_4 4=7778
 counter, liquid, scintillation, simultaneous with C^{14} 4=15179
 counter, proportional, for $>125^\circ C$ 4=15177
 counters, liquid scintillation, review 4=15178
 decay energy 1=554
 decay, initiation of T_2 -ethylene reaction 0=3321
 det. by immersion of counters into sample 1=8629
 detection, propane proportional counting system. 3=25857
 determination in aqueous and organic systems 1=19399
 diffusion of HT in liquid argon 0=14635
 diffusion of He^4 with DT , T_2 , thermal 3=21430
 diffusion in polymers, and H, D 4=6877
 estimation, in proportional counter 0=4756-7
 extraction from He^3 0=20575
 fallout, in rain, var., and Sr^{90} . 3=25896
 fallout, snow, antarctic 4=4776
 gas counting, tracer applications, review 4=10682
 Greenland ice content 3=24887
 as internal radiation source in e.s.r. studies of organic cpds. 1=12307
 ion generator, producing air ions 0=7164
 ionization chamber meas. 4=15176
 isotope effect, in oxidation of benzyl- α -t alcohol by chromic acid 0=4712
 labelling, for very low vapour press. meas. 0=19512
 liquid state, thermodynamic props., reduced volume, quantum cell model 4=14134
 melting, pressure-temperature equn. 3=12000
 in meteorites, content 0=6581
 in meteorites rel. to cosmic ray spatial constancy 1=15437
 molecular beams, production, for nuclear fusion studies 0=20709
 molecule, ortho-para conversion by adsorption 3=12789
 monitor for 0=5456
 natural, production rate 1=12688
 neutron scatt., elastic, at 3.72-10.72 MeV, calc. 1=556
 North Pacific surface water, content 3=24888

Tritium—contd

- ortho-para conversion in gas and solid phases 4=12470
 polycrystalline, structure 0=21187
 prod. by protons, deuterons and α -rays in Al, Pb, Zn and Cd 1=19469
 prod. by protons, deuterons and α -rays in Al, Pb, Zn and Cd 3=4637
 production in fission, by neutrons of U and transuranic nuclides 0=461
 production in nuclear reactions, compound nucleus and direct-interaction effects 0=20425
 production in Th, by 135 MeV protons 0=17595
 proton scatt., elastic, phase shift analysis 3=22130
 radiation source for e.s.r. studies 1=11474
 radioactivity meas. using int. gas counter 4=19714
 radioactivity meas., in rain, by conversion to benzene 4=13744
 radiochemistry, in Li salts, n irradi., and thermal release 3=23552
 reactions of recoil atoms with alkanes, rel. to C-H bond type 4=7776
 reactions initiated by β -decay of tritium 0=14132
 scintillation counting, liquid, in suspensions 4=10681
 solid, defects due to radioactive decay, e.s.r. study 0=20855
 superfluidity, in mag. field, critical temp. and press. 0=19531
 targets, Zr and Ti films 0=8280
 in CH_4 - D_2 mixtures, n-irrad., failure of elastic collision model 3=18460
 T^+ ion source output 3=24376
 T-He, age of Ramsdorf meteorites 0=4885
 T-Ti targets, cooling system 4=9004
 in Ti or Zr, 0-18 keV X-ray and bremsstrahlung sources 4=6014

Tritium compounds

See Hydrogen compounds

Tritons

- See also Nuclear reactions, tritons
 accelerator for, 340 kV 0=9113
 ang. distrib., $Be^9(He^3, t)B^9$ 0=5755
 ang. distrib. from (d,t) reactions at ≤ 1.5 MeV on nuclei with $A \approx 60$ 1=715
 angular distrib., spectra, from (α ,t) reactions on Li^7, Be^9, Na^{23} 1=728
 angular distribution, $Li^7(\alpha, t)Be^8$ 0=13246
 asymmetry parameter, from μ^- capture by He^4 3=12460
 bare form-factor and binding energy calc. 4=9314
 β -decay, rel. to deuteron binding energy 2=5749
 binding energy, calc. from Brueckner-Gammel potential, discrepancy from expt. 1=5793
 binding energy, effect of hard core 0=17433
 binding energy, tensor and L.S. forces 0=17432
 binding energy, variational calc. 1=2104
 binding energy, velo. dependent potential calc. 4=19607
 binding, three-body force effects 3=22215
 breakup by 14.4 MeV neutrons 4=12098
 detector, semiconductor and gas-ion chamber 2=9746
 e.m. form factor rel. to nucleon form factors 4=9315
 e.m. structure, using S and D states function 4=27911
 $e+H^3 \rightarrow h+n+p+e'$, coincidence, calc. 4=27827
 elastic scatt. on C^{12} , 1-2 MeV 2=3631
 electrodisintegration, 400 MeV calc. 3=15048
 electromagnetic processes, effect of nucleon spin-orbit interaction 1=19180
 emission from nuclei, shell-model calc. 0=15567
 energy, variation calc., D-state wave functions 0=17434
 equilateral triangle, nuclear forces theory 2=5776
 form factor, in terms of component nucleons 4=6143
 form factor sharp fall off and n capture by d 4=21965
 ground-state energy calc. 2=13943
 ground-state energy and wave-function 2=7832
 ground state exterior wave functions 4=25210
 hypertriton, analysis rel. to Λ -nucleon hard core 3=10179
 hypertriton, average Λ -N interact., variational calc. 4=9316
 hypertriton binding, rel. to Λ -N potential 4=6139
 hypertriton, equivalent two-body method 2=3418
 hypertriton, trail wavefunction 4=27912
 interaction with d, evidence for α excited state 2=22661
 interactions with deuterons at 6-14 MeV 0=15462
 kinetic and potential energy, matrix elements 0=11238
 magnetic moment, calc. 0=13122
 magnetic moment, precision meas. 0=387

Tritons—contd

- mass discriminator, protons, deuterons, tritons 2=20189
 matrix elements of the quadratic LS operator 2=16248
 momentum transform, from $d + d \rightarrow p + t$ 0=11420
 neutron scatt., elastic, 1-6 MeV, diff. cross-sections 0=17435
 neutron scatt., inelastic, theory 4=12080
 operator expectation values 4=27913
 p scatt., ang. var., and He^4 excitation 4=25211
 p-t interactions, with central forces 1=3171
 p-t scatt., elastic, phase shift analysis and 0^+ resonance 4=9317
 photodisintegration cross-sections calc. 4=6319
 photodisintegration, hard core effect 2=20439
 photodisintegration, low-energy, theory, rel. to n-d scatt. 0=11239
 photodisintegration, rel. to rigid nucleon core 4=19609
 photodisintegration, 3-particle, final-state n-n interact. 4=19608
 photodisintegration to three particles theory 2=5777
 photodisintegration, up to 9 MeV 4=15109
 photoeffect, effects of parity nonconserving potential 1=19288
 prod. and angular distrib., in (γ, t) reactions, on Li^6 to Au 0=13264
 prod. by p, at 28 GeV, with d and He^3 , high energy, momentum spectra, theory 3=15198
 production, Au^{197} proton bombard. energy spectra 2=453
 production by 155 MeV proton bombardment of C 1=13803
 production, by $p + d \rightarrow \text{H}^3 + \pi^+ + \pi^0$, momentum spectrum 2=7889
 production, π^- -emulsion stars 2=22579
 production by 30 GeV protons on Al, Be, Fe 3=6090
 proton scatt., polarization, calc., rel. to scatt. on He^3 1=3184
 range, in polystyrene, N_2 , air, Al, Ar, Ni, Kr, Xe 3=10180
 reactions with H_2 and D_2 0=10347
 scattering by C^{12} , $\text{O}^{16,18}$, F^{19} and Ca^{40} , elastic, 6.4 - 7.2 MeV 4=12256
 scattering, inelastic, from deformed nuclei, rel. to coupling potential 3=19885
 scattering, N- H^3 , and H^4 state 3=19714
 scattering by N^{14} , 1-2 MeV, differential cross-sections 4=17191
 scattering on nuclei, elastic, optical model 1=5884
 scattering of protons, elastic, below 1 MeV 3=15047
 scattering on protons, elastic, at 50-200 keV, phase-shift analysis 0=13073
 solar flare flux, trapped in satellite 1=12754
 spectra and ang. distrib. meas. 2=20440
 spectra and ang. distributions, in (d, t) reactions, on C^{12} , F^{19} and Al^{27} 0=9638
 spectra, from (d, t) reactions 0=9639
 structure, from stripping reactions 4=9565
 td, n He^4 , 2-channel, 5-nucleon reaction 1=9739
 wave function for ground state, variational calc. 3=4473
 wave function, with tensor forces 4=9312
 wave-functions, matrix elements 2=12017
 Au-p reaction at 154 MeV, spectra 2=1892
 $\text{B}^{10}(d, t)\text{B}^9$, 13.5 MeV 4=30351
 $\text{B}^{10}(n, t)\text{Be}^8$, 14.4 MeV, ang. distrib. 4=22151
 $\text{B}^{11}(\text{He}^3, t)\text{C}^{11}$ 2=496
 $\text{B}^{11}(\text{Li}^7, t)\text{N}^{15}$, 3.5 to 4.5 MeV ang. distributions 4=22220
 $\text{Be}^9(d, t)$ 0=9640
 $\text{Be}^9(d, t)\text{Be}^8$, ang. distrib. 0=17600
 Bi(d, t), triton spectra, rel. to nuclear structure 1=3397
 $\text{C}^{13}(d, t)\text{C}^{12}$, at 148 MeV, t ang. distrib. 0=5751
 C-p reaction at 154 MeV, spectra 2=1892
 from Cf^{253} spontaneous fission, energy spectra 1=748
 from D plasma in Scylla, velocity spectrum 0=13387
 H^4 , H^5 3=19714
 H^4 search in $\text{H}^3(d, p)$ 4=15110
 H^4 state with $T = 2$, no evidence from $\gamma + \text{He}^4 \rightarrow \pi^+ + T + n$ 4=12079
 H^3 prod. limits in Li $(\gamma, 2p)$ reaction 4=19747
 H^3 , H^4 unlikely because of He^8 5=19611
 and He^8 , e.m. form factor difference and mixed symmetry 4=16979
 $\mu^- + \text{He}^4 \rightarrow \text{H}^3 + n + \nu$ 3=14997
 from $\text{Li}^6(n, t)\text{He}^4$, angular distribution 4=17158
 in Li^6 photofission, energy spectra 4=25444

Tritons—contd

- $\text{Li}^{6,7}(d, t)$ 0=9640
 $\text{Li}^7(\gamma, t)$, ang. distrib. 2=7967
 Li^7 photodisintegration, spectrum and ang. distrib. 3=24921
 $\text{Li}^7(\text{Li}^{12}, t)\text{B}^{10}$, spectra 1=19533
 $\text{Li}^6(\text{Li}^7, t)\text{B}^{10}$, angular distribution curve 3=15167
 $\text{Li}^7(n, \alpha)\text{H}^4$, 14 MeV, search 4=21964
 $\text{Li}^7(\gamma, t)\text{He}^4$, energy distribution meas. 3=10249
 $\text{N}^{15, 60, 61}(d, t)$, ang. distrib. 2=1914
 $\text{O}^{16}-\text{Al}[\text{Ni}, \text{Ag}, \text{Au}]$ reaction, 167 MeV emission 4=22229
 Pb(d, t), triton spectra, rel. to nuclear structure 1=3397
 in Si, range-energy relationship 3=17113
 T (α, γ) Li^7 reaction 1=17151
 T + He^3 reaction, 460-1087 keV, ang. distrib. 4=6148
 T(d, n) He^4 , anisotropy factors, total neutron yield 4=9308
 T(d, n) He^4 , neutron polarization 3=676
 T(d, n) He^4 , 0.1-7.7 MeV, as source of polarized neutrons 2=293
 T(d, n) He^4 , neutron polarization, 4=30279
 T(d, n) He^4 , 1 to 3 MeV 4=30278
 T(d, n) He^3 , at 6-11.5 MeV, neutron ang. distrib. 1=7291
 T(d, n) He^4 , 3-19 MeV 4=19605
 T(p, n) He^3 , at 5-13.5 MeV, diff. cross-section 1=19294
 T(p, n) He^3 , neutron polarization 4=15063
 T(p, n) He^3 , at 3.4-12.4 MeV, neutron ang. distrib. 1=8520
 T(p, n) He^3 , 12-17 MeV, neutron polarization 4=6145
 T(p, γ) He^4 , at 5.8-9.2 MeV, γ -ray ang. distrib. 2=3419
 T $^3(p, n)\text{He}^3$, threshold energy, n-H mass diff. 0=20246
 T-T react. at 60-1140 keV, cross-sects. 3=6091
 $\text{Ti}^{46-50}(d, t)$ Ti^{45-49} , at 21.4 MeV, ang. distrib. 2=20670
 Ti(d, t), triton spectra, rel. to nuclear structure 1=3397
 $\text{Zr}^{91, 92, 94}(d, t)$; spectra 1=17149

Tungsten

- abrasion, theory 0=3164
 abrasion wear and friction 1=1353
 activity of faces and oxygen method of colour etching 4=2016
 adsorbed layers of KCl and Cl, kinetics 3=11323
 adsorption of alkaline earth atoms 1=20694
 adsorption of Ba and CO, rel. to work function 3=18394
 adsorption of BaO 2=17074
 adsorption of CO 2=8895
 adsorption of CO_2 0=751
 adsorption of CO_2 and O_2 , field effects in electron emission microscopy 0=5356
 adsorption of Cs ion, linear var. of adsorption energy with work function of W 4=29196
 adsorption-desorption of H_2 4=23608
 adsorption and desorption of Ge, field emission 3=8928
 adsorption, diffusion and evaporation of CO 0=3325
 adsorption, field emission micr. study 3=13568
 adsorption of H and Xe, rel. to surface features 3=3369
 adsorption of H_2 0=4748
 adsorption of, and interaction with, H 0=6424
 adsorption of N, heat of 0=3328
 adsorption of N and CO 2=8917
 adsorption of N, direct obs. 2=17072
 adsorption of N_2 and CO, sticking coeff., effect of surface coverage and temp. 4=17849
 adsorption of O_2 0=21297
 adsorption of O_2 2=23919
 adsorption of O_2 3=6887
 adsorption, surface structure influence 1=20742
 adsorption of water, 80°-400°K 2=8897
 adsorption of Xe and H_2 , effect on sintering 2=10946
 alkali ion pulse emission 0=9093-4
 α -irrad., damage 2=23947
 arc plasma-sprayed, sintering effects on props. 4=15719
 arc spectrum, isotope shifts 0=15667
 arc stability 1=1899
 atomic and electronic heat, 10-273°K 0=1561
 atomic scatt. factor, new approx. 2=19073
 atomic structure, relativistic self-consistent solution 0=9741
 atomically clean surfaces, production 0=8726
 atomization of H_2 , at W filament 0=9779
 atoms, WII spectrum, 2173 lines, 1756.6-6219.77 Å 4=22309
 band structure from X-ray spectra 3=4979
 bombarded with Na^+ , K^+ , Rb^+ , Cs^+ , backscatter rel. to temp. 4=8854

Tungsten—contd

bombarded with Ne, Ar, Kr and Xe ions, ionic entrapment and thermal desorption 4=13693
 bremsstrahl—isochromat, structure of short-wave limit 0=20593
 bremsstrahlung-isochromats, X-ray spectrum short-wave limit structure 1=6216
 brittle fracture, transition temp. rel. to grain size 1=11506
 cathode, laser-heated, thermionic emission 4=16521
 cathodes, Ba dispenser, W-based, emission fluctuations 1=16365
 cathodes, heated, field emission, elec. stability and life 0=9068
 cathodes, impregnated, metallic vapour poisoning 2=7642
 cathodes, improved life in mag. fields for a.c. heating by adding 3% Re 4=19083
 chemisorption on Cu, Ag, Au, Fe, Co, Ni, work function, bond 0=18452
 chemisorption of N₂ 1=1476
 chemisorption of N₂ 4=4702
 chemisorption of N₂, study with field emission microscope 4=13695
 chemisorption of O, 20° and 300° K 3=3396
 chemisorption of O₂, detector using work function prop. of W filament 4=10683
 cold worked, dislocation relaxation spectrum 1=7821
 cold-worked, elec. resistivity recovery 4=17480
 compressional, shear wave velocities 2=16942
 contact potential to niobium 4=6931
 counter-tube cathodes, spectral yield curve 0=9229
 cracks, at twin—grain boundary intersections 4=23136
 crystal dislocations, mobility on {110} planes 4=22591
 crystal growth by recrystallization 3=13541
 crystal growth from vapour 3=23406
 crystal spheres, sputtering by Kr ions 1 to 10 keV 2=3097
 crystal struct., atomic, likelihood ratio calc. 4=29143
 crystallite size and lattice strain in wires 2=6861
 cyclotron resonance 3=22692
 cyclotron resonance, 1.6° K 3=2777
 desorption of Ba by elec. fields 3=3360
 desorption of BaO by elec. field 4=7722
 desorption of Cs by elec. fields 3=3361
 desorption of Cs⁺ from, kinetics 2=17073
 desorption of H₂, O₂, and CO by electrons from field emitter points 4=23609
 desorption of K, in elec. fld, 77° to 1050° K 4=4675
 desorption of Rb, Mg, Ag ions by elec. fields 1=5105
 desorption of Th, due to electron emission 2=8896
 determination in W—Fe alloy 3=11278
 diffusion in α - and γ -iron 3=22818
 diffusion in Co, by electric current, 1100-1350° C 3=17782
 diffusion in Co—W alloy 1=14303
 diffusion and desorption of Th atoms, field emission, microscope study 2=10947
 diffusion and ionization of Cs 1=4569
 diffusion of Li^{6,7}, in polycrystalline ribbon 0=17976
 diffusion of O, activation energy determ. by internal friction 4=17446
 diffusion in W, TaC, TiC—WC, TiC—WC—TaC 3=25295
 diffusion in W—Mo alloys in elec. fields 1=4992
 diffusion in W—Mo alloys in elec. fields 1=11222
 diffusion in W(15 at.%)—Mo, electric field, effects 3=20237
 diffusivity, thermal, 1600-2960° C 4=15495
 dislocation etch pits 2=2350
 doped wires, secondary recryst., rel. to temp. and heating rate 4=10588
 ductility rel. to Cr 3=10655
 effect on $\gamma \rightleftharpoons \epsilon$ transformation in Fe—Mn alloy 4=10426
 elastic constants and spec. heat, 14-300° K 0=21103
 elastic const., 4.2°-300° K 3=13325
 elastic const., 77-500° K 2=14869
 electric cond., high temp. depend. 2=20953
 electrical resist. ratios, 1.4°-27° K meas. 4=20338
 electrochemical test for distinguishing from Mo and NiCoFe 3=9311
 electron emission, Auger, due to low-energy ions 4=3039
 electron emission in field-emission region, 4.2-400° K 1=18909
 electron emission, field, temp. depend. 2=13583
 electron emission by H⁺ ions at 1-30 keV 3=24347
 electron emission, due to He⁺, Ne⁺, Ar⁺, N₂⁺, Ca⁺ 1=16391

Tungsten—contd

electron emission, due to He⁺, two-process model 3=4182
 electron emission, field, energy distrib. 3=12232
 electron emission field, for 10⁻¹⁴-10⁻¹⁹ amp. 4=16519
 electron emission, induced by laser beam 3=19304
 electron emission, kinetic, due to 1-21 keV Cs ions 4=19095
 electron emission by ion bombardment 0=19806
 electron emission, secondary, with adsorbed Ba 2=1496
 electron emission, secondary, by positive ion bombard. 3=24346
 electron emission, secondary, and scattering 2=17878
 electron emission, secondary, with thermal emission current 3=24343
 electron emission of Th or Ba layers on W 1=16361
 electron emission in thermionic converter, rel. to CsF atmosphere 4=18662
 electron field emission, 10⁻¹⁹-0.1A, rel. to cryst. directions 3=14620
 electron field emission, time depend. 0=3783
 electron and ion emission, work function 2=17862, 20012
 use for electron-microscope shadowing 2=15119
 electron refl. and diffr., 1-206 eV meas. 3=7645
 electron reflection, low-energy, from clean surfaces and N and O monolayers 1=7099
 electron work function, for various crystal faces 0=15047
 electronic band structure, by De Haas—Van Alphen meas. 3=6492
 electrophoretic deposition and fusion to substrate 4=7789
 electrostatic electron emission, in pulse regime 0=15048
 emissivity, ribbon, var. with crystal structure 4=11324
 emissivity, spectral and total, and thermal cond., above 2300° K 0=14876
 energy band structure by isochromat meas. 3=15468
 enthalpy and heat capacity 0°-2400° C 2=12386
 enthalpy, 2400-2820° C 2=18528
 etch figures, electron microscope obs., of zone-refined W 4=9967
 etch figures, rel. to etching solution 3=20783
 evaporation in gas, rel. to heat dissipation rate 4=372
 evaporation of Th monolayer films on W 2=15088
 expansion, thermal rel. to at. vibr. amplitudes 4=17376
 explosions, flash lamp induced heating, compared with electrical, wire and strip 3=21628
 Fermi surface area from skin effect meas. 3=2757
 Fermi surface, by magnetoacoustic meas. 4=9906
 Fermi surface, magnetoelec. props. 4=4022
 field desorption of CO 4=7725
 field desorption of N and CO, corrosion 3=18396
 field emission through adsorbed inert-gas layers 0=19713
 field emission electrons, polarization 2=5368
 field emission, prior to destruction, by high-density autoelectronic current pulses 3=7630
 filaments, deformed, particle size and strain 3=25785
 filaments, electrically heated, transient characts. 3=14627
 filaments, hot, fluctuations 3=17821
 filaments, 1710-2500° K, in cold gases, energy exchange 3=24078
 film, elec. cond., from W hexacarbonyl vapour electron bombardment 4=26016
 films, heat treatment, structural changes 0=12086
 films, oriented or epitaxial, deposition 2=10806
 films, prep., props. 3=11316
 films, vacuum deposition, using spring-loaded conductors 3=9524
 films, work function 2=9612
 γ -ray absorption 1=7226
 grain boundaries, rel. to α -irrad. 3=17775
 grain boundary shown by field ion photomicrograph 4=9979
 heat capacity, at 100-3000° K 2=2925
 incandescent, alkali earth metals and Na ionization 0=10878
 incandescent, optical pyrometer meas. 0=12537
 incandescent surface, CO formation 2=8911
 internal friction, dislocation relax. 2=21412
 internal friction, high temp. damping 0=3145
 internal friction and Young's modulus, deuteron irradi. effects 2=12842
 ion bombardment at oblique incidence, etch effects 1=4672
 ion microscopes, field, use 1=18946
 ion range, heavy, anomalous penetrating tail, heavy ions 4=19119

Tungsten—contd

as ion source, oxygenated surface 3=14668
 irradiation damage and recovery 0=7906
 Kapitza resistance meas. 3=12017
 Langmuir probe, work function in Ar plasma 4=14685
 lattice defects, field ion microscopy 1=19788
 lattice focusing of collision sequences 3=22881
 lattice parameter determination 1=11554
 lattice parameter measurements, comparisons 1=15068
 lattice parameters, X-ray study, absorption correction 0=1919
 magnetoacoustic oscillations 2=14376
 magnetoresistance at 4.2°K in high fields 2=23249
 magnetoresistance, high-field, and Fermi surface 4=17476
 mass spectra anal. 0=9098
 mechanical props. and structure, anneal effect 3=11183
 melting point meas. by elec. heating 2=19779
 microcrystals, up to 60 Å diam., surface atomic structure. 3=3296
 Mössbauer effect by Fe⁵⁷ impurity, meas. 4=12579
 moving edge dislocations 3=10654
 neutron irradiation effects on physical properties 1=10021
 neutron irradiated, damage and recovery 0=20853
 nitrogen on crystal faces of, surface potl. 4=29199
 notch-impact behaviour of recrystallized, recovered and wrought rods 4=30789
 oxidation, 1500°-2600°K, mass-spectr. study 4=4695
 oxidation, pure and carbon-containing 1=5109
 particle range of inert gas atoms, "tail" 4=27579
 photoelectric emission, 10-50 eV 3=14631
 photoelectric emission yield for 1.54-13.3 X-rays 1=13109
 photoelectric yield for soft X-rays 2=208
 photoelectron emission of BaO-coated material 2=13586
 photoelectron yield from soft X-rays 1=2990
 photon emission, on He, Ne ion bombard., 25-100 eV 3=21900
 Planck's constant from X-ray short-wave limit 1=14623
 plastic deformation, at 1250°K 3=13368
 point, electron emission, laser beam induced 4=8811
 polarized thermal emission of light 2=122
 polycrystalline, interactions of adsorbed N and CO 4=23607
 pure, prep. by floating zone refining and melting by electron bombardment 4=23349
 radiation damage, deuteron bombard., energy depend. 1=3695
 radioactive, atmospheric, var. with time and place 4=2212
 reaction diffusion of Si 2=23205
 reaction kinetics of SrO on W 0=3308
 recrystallization, of doped wires 2=6834
 recrystallization kinetics 3=3333
 recrystallization, torsion induced 0=6328
 recrystallization, torsion induced 2=8785
 recrystallization, of wire 2=808
 reflection and dissociation of H₂ 2=20876
 reflection, light, far u.v. 4=22877
 reflection of noble-gas ions 1=10744
 resistance, electrical, and work function, effect of adsorption of electropositive atoms 3=13040
 resistance ratio, residual, diameter and current depend. 4=20337
 resistivity rel. to plastic deform. 3=13037
 resolidified drops, voids 1=20631
 resonance interaction with slow neutron at low temp. 3=4801
 secondary electron emission, inert gas ion bombardment, up to 50 keV 4=8824
 secondary emission 0=5341
 secondary emission, bomb. with positive ions 0=9078
 secondary emission, during incandescence, under K ion bombard. 0=15059
 secondary emission, Zn and Cd ion bombard. 0=12632
 self-desorption of residual gases, autoionic projector 2=8887
 shadowing of electron-microscope specimens 3=11329
 shock wave parameters rel. to initial densities 2=13360
 shock wave parameters rel. to initial densities 3=5487
 single crystal, field emission preceding vacuum arc 1=16362
 single crystals for emission and adsorption studies 2=21485

Tungsten—contd

sintered, U.T.S., temp. depend. 0=1866
 sintering kinetics, diffusion mechanism 4=7687
 slip investigation at room temp. for ~10% plastically deformed single crystals 4=30790
 sorption of noble gases from ion beams 1=20690
 spark, far u.v. continuous emission, spectrum, spatial distrib., apparatus 3=24249
 specific heat calc., from elastic consts. 2=8166
 specific heat, 1200°-2400°K 3=10596
 specific heat, 2400-2820°C 2=18528
 spectral power distrib. from colour temp. 3=7322
 specular reflection in electron diffraction 1=11978
 spike formation on surface by Ar ions 3=22880
 sputtering, collimation of particles in discharge 2=9647
 sputtering, effect of ambient gas at high temp. 3=14680
 sputtering patterns, from 30 keV Ar ions 4=12828
 sputtering, var. K ion energy, temp. 4=19127
 sputtering, under Cs ion bombard., cathode sputtering ratio 4=24753
 statistical model, electron structure 0=7830
 stress/strain relations, heat treatment temp. effects 3=23307
 structure of Ba and BaO layers on W 1=20701
 structure, grain boundaries, atomic configuration, field ion microscope obs. 4=23535
 subcrystals, in vapour-grown crystals 0=18301
 superconductivity 4=24515
 surface accommodation coeff., He, Ar, N, 2800°K 4=4660
 surface adsorption, desorption, ionization and diffusion of K, var. temp., K flux 4=23610
 surface adsorption, rel. to electron bombardment 3=18395
 surface, catalytic action in atomic beam recomb. 2=4522
 surface, coated with Cs, Sr, Ba, Th, work function var. 2=1474
 surface imperfections, after He atom bombard., at 20 keV 4=15511
 surface, incandescent, BaO beam interaction 3=23541
 surface, ion microscope study at 20°K 4=29178
 surface ionization, ionization potl. of Er, Tb, Ce, Th 1=18758
 surface ionization of K 3=9733
 surface ionization of K and CsCl 0=10873
 surface ionization, 1100°-1200°K 2=13546
 surface migration in high electric fields, activation energy 0=11646
 surface migration of N 0=7838
 surface, ordered, thermal rearrangement 3=18376
 surface potential changes, rel. to N₂ adsorption 4=11687
 surface structure of wires on d. c. passage 2=14930, 19040
 surface tension and surface migration consts. 0=7839
 tensile properties and twinning rel. to purity of single crystals 3=25617
 tensile strength, 0°-2300°C 1=20378
 thermal cond., high temp. depend. 2=20953
 thermal conductivity, phonon and electron components, separation methods 3=12930
 thermal conductivity, up to 1700°K 3=14395
 thermal and elec. conductivity and thermoelec. power 0=11588
 thermal expansion and lattice consts. up to 878°C 4=6753
 thermal expansion, low temps. 2=7439
 thermal expansion, meas., 500°-1500°C 2=19495
 thermal expansion, 1.5° to 12°K 4=9864
 thermal expansion, 24°-528°C 3=15441
 thermionic emission of Ba-activated cathodes, effect of carburization 2=15943
 thermionic emission cathode, use in microtron 4=8801
 thermionic emission, in Cs vapour, low coverage, discontinuity 3=14624-5
 thermionic emission, improved uniformity 4=3026
 thermionic emission of positive mol. ions 2=3086
 thermionic emission, in vacuo 0=10972
 thermionic emission variation rel. to time of heating by d. c. and a. c. current 4=8804
 thermionic and photoelec. Schottky deviations 3=21863
 thermocouples with Re for use in C atmospheres at >2000°C 1=4502
 thermocouples, Re-W, stability in H₂ atmospheres 0=14955
 thermocouples, W/Rh-W, up to 2800°C 0=7006
 thermodynamic enthalpy, 350-2000°C 3=8361
 thin ribbons, growth 4=7565
 thoriated, arc cathode 3=9755

Tungsten—contd

- thoriated, mechanical and thermionic props. 2=18992
 trace impurities in W, spectrochem. determination 2=23984
 twinning on fracture surfaces 3=18210
 u.v. radiation, on H ion impact 4=20487
 vacancies, formation and density 3=15482
 vacancies, rel. to quenching, 2350° to 1.5° K 4=22563
 vacuum annealed, causes of brittleness 0=16241
 vaporization, flash heating, near u.v. spectroscopy 3=24117
 vibration spectrum and heat capacity 1=19701
 volatilization, in H₂O vapour 4=27387
 welding 3=18685
 whiskers, formation and orientation 1=15003
 wire, "dope-tube" formation, mechanism 3=4880
 wire, electron metallography, using C replica technique 3=18421
 wire, field ionization at surface 3=12067
 wire, relaxation damping capacity, shear modulus 3=13329
 wires, hot resistivity 3=10723
 work function, adsorbed Ca effect 2=1477
 work function, adsorbed Sr effect 2=1478
 work function, changes caused by sublimating BaO 3=19294
 work function, effect of adsorbed Ba 3=14615
 work function, effect of absorbed N 3=12225-6
 work function, effect of adsorption of O₂ 4=3024
 work function, effect of chemisorption 1=7099
 work function, chemisorbed nitrogen effect 2=15942
 work function, impurity effect, theory 4=21555
 work function meas. using GM counter 3=2015
 work function of oxygen-coated W, rel. to adsorption of Ba 2=15104
 work function of polycryst. foil, meas. 3=9825
 work function of single crystal planes, 78°-293°K 3=12228
 work function, 311 plane, and temp var. 3=7626
 work-hardening and recovery from triaxial deformation 1=1334
 work hardening recovery by Young's modulus and internal friction meas. 3=11174
 X-ray diffraction techniques to 2200°C 1=10247
 X-ray emission linewidths, K and L α 3=3029
 X-ray interference, temp. depend., Debye analysis 4=12618
 X-ray L-emission spectrum 2=6588
 X-ray L-emission spectrum, "s" and "t" lines 2=14215
 X-ray L intensities 1=13951
 X-ray spectrum structure at short wavelength limit 1=6217
 Young's modulus data, rel. to temp., polycrystalline and single-crystal behaviour comparison 4=30788
 zone melting, analogue simulation 1=10240
 zone melting without a crucible 2=2364
 Au—Ba films on, work function, possible BaAu_x 1=15174
 Ba adsorption 1=15183
 Ba adsorption, activation energy 1=12667
 Ba, BaO and Cs adsorption, electrostatic interaction 1=12668
 Ba-coated, electron emission, in O₂ atmos. 2=9617
 BaO adsorption, activation energy 1=12667
 with BaO films, secondary electron emission of system 4=582
 CO dissociation from surfaces by electron bombardment 1=10667
 Cd on, adsorption, migration, evaporation 1=20693
 Cs adsorption, activation energy 1=12667
 H⁺ formation on, during incandescence 0=8985
 H₂ diffusion in, degassing, above 1000° C 4=22620
 O and Ba coated, work function 0=9064
 Rn²²² ions range, 2-450 keV 3=14676
 Sr adsorbed layer migration 4=23611
 Th atom surface adsorption 2=10948
 W⁵⁺, e.p.r. in glasses, silicate and phosphate 3=20656
 W^{182, 183}, Mössbauer effect 3=6462
 W¹⁸⁷ ions, range in W, 1.6-127 keV 3=14678
 W—Cs system, for thermoelec. energy conversion 2=7555
 W—Re interdiffusion, rel. to intermetallic cpds. 2=8245
 Zr films on, emission props., and microstruct. 2=2428

Tungsten compounds

- alloys, ductility, at low temp. 4=23220
 alloys, superconductivity 3=16873
 borides and carbides, thermoelec. power with Cu 1=12465
 metal tungsten bronzes, model for electronic structure 3=15461

Tungsten compounds—contd

- nitride, hexagonal, crystal structure 4=23494
 oxides, mag. susceptibilities, non-stoichiometry 2=2266
 tungstate luminors, triboluminesc. 2=16879
 tungstates, Eu³⁺ fluorescence 2=4173
 tungstates, luminescence 4=1762
 tungstates, u.v. luminesc., rel. to electron traps 2=21268
 M₂WO₆ (bronzes), nuclear mag. reson. 2=4287
 Th—W, saturated emission at high currents, meas. 3=19307
 W borides, carbides and nitrides, elec. props. 1=3707
 W carbide, Co-bonded, wear of hard and soft phases 0=18285
 W carbide—Co, Lorenz number, thermal and elec. cond. 1=925
 W carbide grains, Co coated, mag. study to determine size 1=6555
 W carbide, "hot" electron emission 0=9066
 W carbide, pickup of copper and duralumin 0=6322
 W carbides, anisotropic thermal vibrations 0=13488
 W halides, complex, far-i. r. absorption spectra 4=3877
 W hexacarbonyl vapour electron bombardment, electrical props. of film formed 4=26016
 W hexahalide complexes, electron transfer spectra 0=20650
 W nitride, cubic form, electron diffraction study 0=14023
 W nitride II, rhombohedral, chemical crystallog. 3=20842
 W nitrides, crystal structure 3=13462
 W nitrides, electron diffraction phase anal. 0=14022
 W oxide, thin film layers 2=21565
 W oxide, whiskers, obs. 3=3374
 W oxides, crystal growth 3=18271
 W oxides, mass spectra 0=10699
 W oxides, thermodynamic props. 0=1955
 WB, crystal structure, rel. to similar types 3=18338
 W_xB_{1-x} (B=Re, Ru, Os, Rh, Ir, Pd, Pt), supercond. and para-mag. suscept. 2=2961
 W—Ba and W—BaO systems, work function and photoelec. emission 1=13106
 W—Be system, crystal structure 4=17811
 WBe₂₂, crystal structure 3=20839
 WBr₆ and WCl₆, mean vibr. amplitudes 4=17292
 WC, Co-bonded, adiabatic elastic moduli 1=1252
 WC, crystal structure 1=20451
 WC films, crystal structure 1=11566
 WC, high-temp. heat content 4=12650
 WC, lattice defects, hardness, X-ray diffract. line widths, rel. to high press. and temp. 4=22592
 WC, plastic deformation, evidence 4=4491
 WC, struct. by neutron diff. 2=10866
 WC, superconductivity 2=7521
 W—C system, phase transitions at 1300° and 1760°C 4=26570
 WC, wear of sintered material 3=3247
 WC, desorption of Rb, Mg, Ag ions by elect. fields 1=5105
 W₂C, deposition and field emission of Ba layers 1=20692
 W₂C films, crystal structure 1=11566
 W₂C, structure, electron diffr. study 1=15083
 W₂C, superconductivity 2=7521
 WC—Co alloys, Co cementing phase, packing, deformation errors 3=16117
 WC—Co, macroscopic structure, rel. to electrical resistivity 3=13497-8
 WC—Co, sintered, fracture mechanism 3=11178
 WC, Co-bonded, elastic modulus, formulae 4=28986
 WC, Co-bonded, ultimate compressive strength and fracture mechanism 4=23221
 WCl₆, liquid and supercooled solns., e.s.r. study 3=21407
 W (CO)₆, i.r. spectrum 2=16530
 WC—Co alloys, compressive strength, effect of composition and structure 4=15720
 WC—Co alloys, ultimate tensile strength 4=26532
 WC-Co(10%), anisotropy, from X-rays 3=6775
 W—Co alloys, brittle fracture and microhardness rel. to composition 2=23780
 WF₆, mag. suscept. 2=16889
 W—Fe, determination of W 3=11278
 W—Mo, component diffusion, 1500°-2600° C 4=22621
 W—Mo, diffusion of Mo and W in elec. fields 1=4992
 W—Mo, diffusion of Mo and W in elec. fields 1=11222
 W(15 at.%)—Mo, diffusion of W and Mo, electric field, effects 3=20237
 W—44 at. % Mo, ordering 3=20891

Tungsten compounds—contd

- W—Mo, 25, 50, 75 at. %, surface, ion microscope study at 20°K, vacancies 4=29178
 W—N system, superlattice and disordered phases 3=23451
 W₂N, hexagonal II, crystal structure 1=15086
 W₃N₆ films, rhombohedral, structure 3=13460
 WO bronzes, crystal structure, sintering temp., and dielec. props. 3=25390
 WO₂, molecular vibr., mean ampl. 4=25665
 WO₃, Ag-doped, solid-state studies 0=17922
 WO₃, amorphous, Na²⁴, Ar⁴¹, Kr⁸⁵, Xe¹²⁵ range meas., comp. to theory 4=27580
 WO₃, colloidal crystals, structure 3=18408
 WO₃ crystals, green stripes from heat treatment 2=21050
 WO₃ crystals, growth and evaporation (700°–1800°C) 1=9111
 WO₃, desorption of Rb, Mg, Ag ions by elec. fields 1=5105
 WO₃, elec. props. rel. to W bronzes 3=13083
 WO₃, i.r. absorption, effect of illumination with u.v. 0=18118
 WO₃, monoclinic, crystal structure at room temp. 1=9136
 WO₃, optical absorption edge, temp. dependence 1=12486
 WO₃, patterns produced by heat treatment 1=15080
 WO₃, phase transitions below room temp. 1=9100
 WO₃, triclinic, domain structure, effects of stress 1=977
 WO₃, weak temp.-indep. paramag. 2=6655
 W—Os, supercond. regions 2=7522
 W—Pt, superconductivity 3=3962
 W—Re, field ion microscope study 3=18340
 W—Re, grain boundaries, atomic configuration, field ion microscope obs. 4=23535
 W—20% Re, grain boundaries, rel. to α -irrad. 3=17775
 W—Re, thermocouples, thermoelectric stability at high temp. 4=24417
 W—Ru alloy, constitution diagram 4=15746
 WSe₂, optical properties of single crystals 3=25466
 WS₂, oxidation, 650–1500°C, weight var. 4=13715
 W_xTa_{1-x}Se₂, X-ray and thermoelec. study 3=23029

Tuning forks

See Vibrating bodies

Turbulence

See also Cavitation; Vortices

- acoustic generation and scattering 2=21868
 acoustic radiation 1=4402
 acoustic radiation from turbulent fluid containing foreign bodies 0=8684
 acoustic scattering 0=6878
 aerosols, Stokesian particles, motion 4=2636
 in air and air—H₂ jets 0=8682
 air, droplet movement in homogeneous field 4=5227
 air jet, energy spectra at high Reynolds number 3=5454
 air in pipes, local heat transfer coeffs. and velo. fields 3=9489
 air, vortex flow, heat transfer and friction 0=6977
 airflow, acoustical signal detection 0=12463
 airflow, wall pr. correlations 1=8147
 alkali metal liquids, heat transfer 0=3526
 anemometer, hot wire, streamwise and cross-stream 3=14196
 anemometer meas., hot wire, review 3=18840
 anisotropic, stress formulation 1=4307
 anisotropic, stress formulation 1=10486
 around elastic shells, sound radiation 1=16011
 around plate, heat transfer 3=19036
 around streamlined plate, heat transfer 3=19033
 atmosphere, diffusion, generalized theory 3=9026
 atmosphere, diffusion of heavy particles 3=18496
 atmosphere, energy dissipation 3=9030
 atmosphere, energy dissipation fluctuation 4=23737
 atmosphere, energy transport 1=20825
 atmosphere, inertial subrange 2=11016
 atmosphere, large-scale 200 mb spectra 2=17130
 atmosphere, lower, broad-band spectral meas. 3=3454
 atmosphere, neutral, exchange 3=3459
 atmosphere, 90–130 km, review 3=13698
 atmosphere at 100 km, turb. struct. 2=882, 19208
 in atmosphere, Richardson's criterion 0=2022
 atmosphere, sailplane meas. 2=11015
 atmosphere, 60 to 110 km 3=9033
 in atmosphere and stratosphere, in stable layers, electrically neutral 0=14196
 atmosphere, surface layer, empirical data 3=3455
 atmosphere, thermally stratified 2=21627
 atmosphere at 2m, scale analysis 2=12999
 atmosphere, upper 3=11420

Turbulence—contd

- atmosphere, upper, detm. by rockets 3=3479
 atmospheric, and astron. star image movements 4=13878
 atmospheric, decay rates in various regions 4=7831
 atmospheric, effect on laser propagation 4=19185
 atmospheric, effect on photography of distant objects 1=13003
 atmospheric, effect on sound amplitude fluctuations 4=7866
 atmospheric, effect on sound propag. over ground 3=21043
 atmospheric, eqns. 1=2562
 atmospheric, rel. between Lagrangian and Eulerian props. 4=13786
 atmospheric, specific features 3=3453
 atmospheric, structure 1=15227
 averaged Navier–Stokes equations, velocity products 0=68
 axisymmetric, Chandrasekhar's theory 0=6759
 axisymmetric, spectrum 0=2154
 bibliographical review 0=10631
 bound layers, heat transfer 3=11968
 boundary layer in compressible fluid 4=29588
 boundary layer flow, heat transfer 3=5410
 boundary layer flow, "law of the wall" 4=29591
 boundary layer flow problem 0=3553
 boundary layer, noise prodn. 3=14290
 boundary-layer, noise produced 3=18914–15
 boundary layer at a plate, friction and heat exchange 1=4368
 boundary layer transition by spherical roughness 1=15918
 boundary layers, incompressible, velocity defect laws 0=14595
 boundary layers, interaction with shock waves 2=15630
 boundary layers, meas. at Mach 8–10 0=952
 boundary layers, noise production 3=9553
 boundary layers, nonstationary, on wing profile and figure of rotation 0=10685
 boundary layers, relation bet. temp. and velocity 2=15533
 boundary-layers, research, conference 0=14672
 boundary layers, statistical theory 0=927
 boundary layers, velocity profile 2=21881
 boundary layers, velocity defect laws 0=14677
 boundary layers, with zero press. grad., flat-plate anal. 0=19068
 Broszko's relations 3=116
 Burgers equation, Wiener–Hermite function solution 4=2637
 Burgers' model, nonlinear perturbations 2=21877
 channels, sand roughened, Nikuradse curve 2=1121
 cloudy particle relative velo. calc., in flow 4=16073
 colloids, and coagulation 4=26767
 complication factor 4=29654
 compressible flow, heat and mass transfer 2=19741
 compressible flow, over flat plate 0=8683
 concentration fluctuations, light probe meas. 4=2638
 conducting fluid in strong mag. field 4=3124
 conducting fluids in mag. fields 3=21951
 conference, Marseilles (Sept. 1961) 2=24007
 convection, nonisothermal, between parallel planes 0=8620
 convection, in stars, spectrum 4=11392
 convection, thermal, at arb. Prandtl number 3=1853
 convection, transition from laminar flow, theory 2=19748
 Couette flow, cylindrical, general theory 2=15553
 decay of long-range correlations 1=9353
 decay of turbulent energy, soln. of eqn. 2=1113
 decaying homogeneous, theory 0=8626
 definition, with ref. to atmosphere 0=12167
 diffusion, longitudinal, in finite channel, meas. method 4=11162
 diffusion of plasma across mag. field 2=7602
 diffusion from point source with boundary layer flow, meas. 4=11149
 diffusion in stationary turbulent field 4=5106
 diffusion in stratified flows, lab. meas. 2=24009
 diffusion in stratified fluid 4=29593
 diffusion under transverse velocity gradient 1=6835
 dispersion by continuous movements 0=19000
 dissipation fluctuations 3=3789
 dissipation fluctuations in isotropic stream 3=114
 dissipation fluctuations in isotropic stream 3=5415
 dissociating gas, boundary layer 3=3819
 divergent limiting turbulent layer, static pressure distrib. 3=117
 dusty gases, improved flow, theory 1=15914

Turbulence—contd

in e.m. pumps, mag. field independ. 0=17079
 e.m. wave scattering, allowing for average flow
 curl 1=13182
 elastic lamina analogy 2=9214
 energy budget in lowest 100 m 2=24017
 energy transfer 0=14594
 flame, gasoline, acoustic noise power and spectral
 distrib. 3=11872
 flow, diffusion, resistance law, wall boundary layer 3=14100
 flow excitation of cylindrical shell 4=21217
 flow, gases, with mass transfer, calc. of transport rates
 by reference states using injection friction 4=5220
 flow, incompressible, intrinsic eqns. 3=115
 flow, isotropic, energy transfer 2=24015
 flow, past cylinders, high velocities 2=15534
 flow in pipes, heat and mass transfer 3=5411
 flow in porous-wall pipe 3=3784
 flow relations of Broszko, criticism 4=18143
 flow, between rotating cylinders 2=11337
 flow round rotating cylinder, noise generation 0=19330
 flow, static press. det. 2=9240
 flow, transition from laminar, in magneto-fluid
 mechanic channels 1=5551
 flow in tubes, bulk velocity and temp. meas. 1=15799
 fluid flow, eddy viscosity variation 1=18372
 fluid laminar flow system, slightly subcrit., perturbation
 generation 4=27138
 fluid, perfect barotropic, turbulent islet const. 1=15802
 fluids, Eulerian-Lagrangian problem 2=11326
 fluids, in magnetic field 4=11779
 fluids, motion with large Prandtl nos., heat
 transfer 2=9421
 fluids and plasmas, nature and effects 2=2678
 fluids, rotating, large-scale 2=17415
 free-convection layer along vertical plate,
 transition 3=277
 friction and heat exchange, flow of fluid with var.
 properties 4=18457
 Friedman-Keller equations, spectral analysis 3=18785
 gas analogy for simultaneous exchange of momentum, heat
 and mass 0=19177
 gas diffusion, Bourret's eqn. 1=18462
 gas flow in pipe, dispersion of gas 4=213
 gas flow, with strongly varying density 4=212
 gas, heat exchange and frictional resistance 3=9490
 in gas, with rapid temp. and density changes,
 flow pattern distortion 1=5291
 gas, skin-friction and heat transfer 3=23919
 gas streams, aspirated sampling nozzle 0=8325
 in gaseous detonations 1=7908
 gases, boundary layer problems solns. 2=15623
 gases, equation 2=21945
 gases, flow pattern, rapid deformation of 0=19180
 gases, grid-produced, final-stage decay 4=5226
 gases, meas., using glow discharge 2=19591
 gases, mixing mech. 2=9293
 gases, pre-mixed streams, optical flame studies 0=12536
 generation of acoustic radiation 1=16010
 heat eddy diffusivity near wall 4=16273
 heat exchange in air near ground 1=1509
 heat loss from flowing non-boiling water 0=6979
 heat and matter diffusion 3=7186
 heat transfer from plates, with and without press.
 gradient 2=7425
 heat transfer, in tubes, Reynold's analogy 0=19070
 heat transfer, in turbulent flow 0=3669
 heat transfer, velocity rel. to temp. 3=11969
 homogeneous, decay, quantum field theory
 appl. 2=17416
 homogeneous, decay, quantum fld. theory applic. 3=5412
 homogeneous, four-point dyn. eqns. 2=19525
 homogeneous and isotropic, generalizing mathematical
 models 2=24013
 homogeneous layers, stability 3=3787
 in hydrodynamic eqns., existence of solns. 1=15797
 hydrodynamic and hydromagnetic, in astrophysics 1=15514
 hypervelocity objects, behaviour meas. 2=15627
 and ice hailstones, convective transfer from 4=10716
 incompressible liquid, statistical dyn. approach 0=926
 and incompressibility 0=6726
 in incompressible fluid, theory 1=15798
 inhomogeneous, diagonalizing approx. 4=29596

Turbulence—contd

intermittency, energy dissipation fluctuations 4=29592
 interstellar, general statistical regularities 4=23888
 inverted atmosphere, Taylor instability 0=10683
 inviscid compressible fluids, density fluctuations 0=6761
 ionized gases, effect of mag. field 0=12169
 ionosphere, forward v.h.f. scatter theory 0=12711
 ionosphere, 90 km level, anisotropy 1=20960
 in ionosphere and troposphere, e.m. wave
 scattering 1=12021-2
 ionospheric, rel. to geomag. fld. intensification 3=3516
 ionospheric, influence of earth's mag. field 0=12172
 ionospheric scatter propagation relationship 0=12174
 isotropic, decay, direct-interaction approx. 4=24136
 isotropic, energy transfer 3=5413
 isotropic, energy transfer to small eddies 3=23922
 isotropic, of high Reynolds number, scattering acoustic
 waves 1=1799
 isotropic homogeneous, differential integ. eqn. 3=16584
 isotropic, initial response to mag. field 3=21952
 isotropic, intermediate scale, statistical
 theory 1=1728
 isotropic, isotropic temp. fluctuations 2=21880
 isotropic, molecular theory, two-point vel. correl.
 function 1=15800
 isotropic, one-dimensional equilibrium spectra 0=3501
 isotropic, pressure-velocity intercorrelations, at single
 points 0=19065
 isotropic, pressure-velocity intercorrelations, at 2
 different points 0=19066
 isotropic, spectrum, decay 0=6760
 isotropic, system of dynamic
 equations 1=2737
 jets, coaxial, for miscible fluids, theory 3=105
 Lagrange characteristics 4=14106
 Lagrangian and Eulerian correl. times 4=14107
 in laminar flow, in rectangular pipes, isolated
 disturbances 0=19063
 large-ion chamber, air flow 0=949
 large Reynolds number, Eulerian rel. to
 Lagrangian scales 3=14107
 liquid columns, oscillating, viscous damping 3=119
 liquid elec. conductor in circular cross-sect. tube,
 turbulent vel. increase 4=11769
 liquid flow in tubes 3=5420
 liquid free surface photography 3=16744
 liquid gas mixture, forced convection rel. to heat
 transfer 2=1291
 in liquid He, mobility of electric charges 1=5390
 liquid HeII between rotating cylinders 0=1070
 liquid metals, heat transfer 2=5202
 in liquid metals, heat transfer in channels 0=14869
 liquid, and scattering, light, coherent, granularity 3=19025
 liquid wakes from passage of a drop 1=18374
 liquids, heat transfer at large Prandtl numbers 3=18791
 liquids, using Ling hot-film anemometer 3=3790
 liquids, static medium, Rayleigh's model of small
 perturbs. 2=11335
 locally isotropic, in incompressible fluids 0=19067
 localness hypothesis, modified mixing length
 formula 1=8100
 magneto-fluid dynamic boundary layers 1=5550
 magneto-fluid dynamical, energy spectra 1=5553
 magnetohydrodynamic, in astrophysics 2=19308
 magnetohydrodynamic, decay 1=7136
 magnetohydrodynamic, decay, final stage, energy
 spectrum 2=15993
 m.h.d., energy transfer in spectral and fluctuation
 theories 4=19176
 magnetohydrodynamic flow in transverse mag.
 field 3=21957
 magnetohydrodynamics, isotropic, theory 3=17042
 magnetohydrodynamic, Kraichnan's theory 2=17940
 m.h.d., large mag. field effects 4=30033
 magnetohydrodynamic, for poor conductivity and
 Reynolds number $\gg a \ll 1$ 4=5777
 magnetohydrodynamic, small-scale, structure 4=14876
 magnetohydrodynamic, in viscous incompress.
 fluid 2=13664
 mass transfer near fluid interface 1=18371
 mass transfer near solid or fluid boundary 3=3791
 mass transfer, turbulent, near walls 0=16678
 mathematical model 2=15554

Turbulence—contd

mean-velocity and turbulence meas., corrections at high turbulent levels 0=12408
 mesh induced, asymptotic decay, calc. 3=11754
 metals, liquid, heat transfer 4=2670
 at meteor heights, theory of propagating atmospheric waves 0=10404
 microstructure, acoustic microanemometer investigation 0=10396
 microstructure in atmos., scattering of waves 0=12176
 mixing, of coaxial streams, in closed conduit 0=6753
 mixing-length, generalized theory 0=6822
 mixing-length theory, turbulent convection 3=21590
 model, cylindrical, boundary-layer transition, optical study 0=16727
 n.m.r. study 0=16674
 Navier-Stokes flow, incompressible, selected solns. 2=24016
 Navier-Stokes, theory and functional integration 0=14592-3
 "near field" noise from turbulent jets 1=11822
 noise generation, diffraction theory 4=5299
 noise in water-filled tubes, rel. to velocity 1=16012
 noise when convected at high speed 3=11861
 in non-Newtonian fluids 4=14115
 non-uniform, theory 3=5414
 Onsager's cascade model, generalization 4=29594
 onset, amplitude effects in unstable laminar boundary layer 4=14103
 pattern in turbulent flow, in wall-adjacent region 0=928
 photospheric mag. fields 4=2418
 in pipe, mass transfer, and irreversible first-order chemical reaction 3=14103
 plasma 1=5451
 plasma, convective instability in mag. field 2=15913
 plasma, detection by shadowgraph technique 4=18924
 plasma, rel. to dissipation 3=7540
 plasma, due to ionization instability in strong mag. fld. 4=19051
 plasma, electrodynamic props. 3=16932
 plasma, electron, elec. field fluct. theory, addendum 4=14709
 plasma, energy spectrum of charged particles compared with neutral 4=8672
 plasma flow, incompressible, characteristic functional 1=16327
 plasma, interaction with charged particles 4=21503
 plasma, mag. field confinement 3=9802
 plasma, quasi-equilib. processes, kinetic description 3=5662
 plasma, quasi-equilibrium processes, kinetic description 3=396
 plasma, in r.f. discharge 3=7470
 plasma, relativistic, statistical theory 4=8769
 plasma in strong magnetic field 3=21836
 plasma, weak stationary, effect on fast particle motion 4=29907
 plasma, weakly nonequil., kinetic theory 3=21844
 in plasmas 3=7523
 plate, with porous feeding and sublimation, heat and mass transfer 4=21333
 in Poiseuille flow, transition, simple model 3=7179
 in porous pipes, with injection and suction 1=4367
 pressure fluctuations. 3=156
 pressure resolution, by transducers 3=9484
 pressure and temperature correlation in turbulent stream 0=19069
 random force model 4=128
 in rarefied plasma, in mag. mirror system 1=18874
 salt water under fresh water layer 0=8609
 scalar field transported by turb., initial spectral behaviour 3=18783
 and scattering and absorption of electromag. waves 3=12315
 scattering, e.m. waves, u.s. model in water 4=30066
 sea surface, e.m. wave propag., field and velocity phase structure 1=13183
 seawater, spectrum at high Reynolds number 0=5000
 semiconductors, fluctuations, electrical magnetohydrodynamics 3=20280
 semi-isotropic, helicoidal flows 1=15801
 in shear flow with stability 0=10640
 shear and thermally driven, direct-interaction approx. 4=24137

Turbulence—contd

shock-tube boundary layers, transition 2=9302
 shock waves, change from laminar 4=24298
 slicks on Lake Huron 3=7187
 solar atmosphere, acoustic noise generation 3=11540
 solutions, convective solute diffusion 0=78
 sound propagation in, freq. spectra and phase diff. fluctuations 1=15248
 sound scatt. in nonisotropic turbulence 3=23986
 Spalding function, extensive calc. 3=11970
 spectra in stably stratified atmosphere 0=12173
 spectral energy budget in wall turbulence 4=11154
 spectrum, negative, predicted by joint normal distrib. hypothesis 4=16074
 stably stratified fluid, nearly inertial, spectrum 4=16137
 stagnation point fluctuations, on body of revolution 0=16728
 stars, and spectra 3=18643
 stationary, homog., Lagrangian auto-correl. coeff. 3=14101
 statistical correlations, calc. 4=129
 statistical description of stream 2=19524
 statistical theory 0=4999
 statistical theory, Eulerian-Lagrangian transform.* 2=24014
 steady-state isotropic, approximations 4=29595
 in stellar convection zones 1=6719
 stochastic nonlinear approach 1=4267
 stratified fluids, in boundary layer 0=6827
 stratified media, homogeneous struct. 2=24008
 stream, combustion of two-phase mixtures 1=4094
 streaming-potential fluctuations 3=23849
 supersonic, radiated pressure field 4=29657
 supersonic, theory, review 4=8308
 sun, chromosphere, spicules velo. and K profile mechanism 4=13934
 sun, and disc edge spreading function 4=13932
 suspension flow 3=101
 theory, and similarly of vorticity fluctuation, applications 0=5001
 thermal, at very small Prandtl no. 2=24012
 thermodynamics of turbulent systems 1=18680
 in thermosyphons 1=250
 3-dimensional turbulent boundary layers 3=21299
 time symmetry properties and two-time velo. correls. 4=18142
 trail behind hypervelocity sphere 1=15923
 transition to laminar pipe flow 2=7237
 transition mechanism 1=4309
 transition process, under disturbed entrance flow conditions 0=8621-3
 transport eqns., statistical properties 1=16317
 transport expt., uniform gradient 2=24010
 transport of heat or of matter in turbulent region 1=1836
 transport of scalar props. 2=13313
 travelling wave fluctuations, spatial correl. 4=11276
 in tubes, effect of tube deflections on turbulent transition 1=5258
 in tubes, relation to tube characteristics 1=5257
 turbulent boundary layer in stream of dissociating gas 1=15924
 turbulent diffusion, theory 0=8625
 turbulent flow of incompressible liquids, statistical dynamics 1=4508
 turbulent flow of incompressible liquids, statistical dynamics 1=10488
 two-phase burning streams, flame propagation 0=18437
 in upper atmosphere 0=4788
 in upper atmosphere, ionospheric irregularities 0=21332
 in upper atmosphere, seasonal variation 3=13693
 velocity field in 2-dimens., energy transfer 2=9239
 velocity, temp. distrib. 2=13302
 vertical body force and temp. gradient 2=24011
 vertical, frequency spectrum 0=12170
 vortex, flow and energy separation analysis 1=18375
 vortices, order-of-magnitude dynamics 2=11338
 in wake of porous cylinder containing electrolyte, concn. meas. 1=6836
 wakes behind rotating bodies, momentum and heat exchange 2=15775
 in water tunnels, noise production 0=2216
 water, vortex flow, heat transfer and friction 0=6977
 wave propagation, effect on 3=23956

Turbulence—contd

- weak fields, effect of inhomogeneity and shear flow 1=15922
- Wiener—Hermite expansion, for large Reynolds numbers 4=29597
- wind tunnels, silencing 2=19654
- winds, spectra, validity of Taylor's hypothesis and Kolmogoroff's law 4=10707
- winds, time scale, l.f. errors 4=10710
- winds, vertical, 2500 ft., rel. between Lagrangian and Eulerian props. 4=10709
- CO—H₂O system, mass transfer, conc, effect 3=16152
- CuSO₄ soln., under electromag. forces 2=3139
- He, liq., expts. 2=17710
- He II, in capillaries 4=21377
- He II, capillary heat flow, crit. velocity 4=8549
- He II flow, in wide capillaries 4=14501
- He II, liq., isothermal flow, theory 2=1329
- He II, when heat current applied 3=21642
- Hg flow in mag. fld., trial installation, Grenoble 4=11768

Twilight

- See also Atmospheric spectra; Zodiacal light
- airglow, 1.58 μ Δ — Σ band, theory 3=25933
- equatorial observations, summer 1958 1=1553
- i.r. emission band, airglow 0=2028
- metallic emissions rel. to atmospheric dynamics 3=13791
- nature and use in atmospheric research, review 4=10743
- night-sky emission theory 0=18510
- OI, 5577A enhancement, seasonal variations 0=18517
- OI, 5577 and 6300A glow, photometric obs. 0=14288
- optical state of earth's atmosphere 0=3360
- polarization of light from sky 0=4804
- polarization of skylight at zenith, spectral meas. 4=23781
- refraction formula, and scale height 4=10741
- scattering, and aerosol layers, atmospheric stratification 4=29268
- sky brightness, effect of lunar atmosph. tide 3=6988
- solar-ray trajectories, calc. 0=3360
- transmission functions 2=11073
- vertical distribution, Na resonance scattering 0=14287
- violet light obs., in summer, at Haute Provence 2=6949
- visible light effects on ionospheric polar blackouts 2=895

Twilight—contd

- 3914 A quiet enhancement and N₂⁺ ion-densities rel. to 60R nightglow flux 4=4789
- 6300 A airglow, Townsville, Australia, June-Oct. 1962 4=4787
- 6300 A line researches 0=18516
- Ca emission 0=6482
- He content, and fast photoelectrons 4=13826
- He emission lines 2=6955
- He, i.r. emission enhancement 2=21661
- He I λ 10830 A line, preliminary study 3=3510
- Li, abundance after nuclear explosion 3=11447
- Li emission of Aug. and Sept. 1958, causes, theory 1=21025
- Li, Na and K in airglow, relative abundances 4=23782
- Li, at Saskatoon, 1960-61 2=17179
- Li 6708A line observations during I.G.Y. 1=1554
- Li⁺, high abundance, due to thermonuclear explosion, high altitude 3=18554-5
- N₂⁺ emission, rel. to sunlit aurora 2=24045
- N₂⁺ first negative bands, origin of ionization 1=6628
- N₂⁺, prod. and loss processes 3=13787
- Na, abundance, rel. to daylight 4=26806
- Na abundance and distrib. obs. in upper atmosphere 1=21024
- Na airglow, 1955-7 data analysis, Na distrib. and height 0=4802-3
- Na, at Christchurch, New Zealand 4=10742
- Na D lines, intensity ratio 1=4130
- Na D-lines, intensity, seasonal var. 0=2032
- Na emission enhancement, at College, Alaska 2=19229
- Na, emission, obs. in southern hemisphere 4=30937
- Na emission, southern-hemisphere observations 0=12200
- Na flash, obs., 1958-59 2=908
- Na flash, Rayleigh scattering 0=786
- Na glow, excitation 0=21382
- Na glow, observation corrections 0=2033
- Na resonance scattering 0=2029, 2031
- O₃, atmospheric distribution method by selected wavelength sources 1=11646

Twinning

- See Crystals, twinning

Ultracentrifuges

See Centrifuges

Ultrasonics

See also separate headings, e.g. Absorption

absolute intensity measurement, of u. s. waves in liquids and solids 4=29715

acousto-elastic effect, velo. meas., metallurgical appls. 3=23275

aerosol coagulation 0=139

alloys, precipitation hardening, u.s. effects 3=16109

amplification in crystals, conditions, review 4=3988

amplification, MgO crystals, 9.46 kMc/s 4=6736

amplification, in paramag. crystals 2=566

amplification, in semi-metals in elec. or mag. fields, theory 2=15684

amplification in semi-metals in elec. or mag. fields, theory 3=5495

amplification of u.s. pulses, by ruby maser 1=11821

amplifier, travelling-wave, theory confirmed 4=6735

apparatus, for elastic const. meas. 0=11965

applications, developments, review 0=14758

applications, review 2=15694

applications, review 3=9565

atomization of liquids 3=23850

atomization of liquids by u.s. vibrations 2=2695

 β transformation, kinetics of structure changes 2=10911

biological applications, present and future 2=15420

in catalytic properties of MnO_2 gels and

suspensions 1=10296

cavitation 3=16594

cavitation, aerosol formation, coagulation, fountain 4=8353

cavitation bubbles, effect on 2=15555

cavitation and chemical effects 3=18793

cavitation effect, meas. 4=29604

cavitation, 500 kc/s generated, growth 3=14121

cavitation, meas. by chemical reactions 4=8351

cavitation, nucleation by cosmic rays 2=2686

cavitation, rel. to sonoluminescence 1=15892

cavitation, statistical approach 4=2642

cavitrons for cleaning 3=3238

cleaners 3=3239

cleaning, 15-2500 kc/s 0=14358

cleaning in production 3=2817

cleaning, review 2=21978

cleaning, technology 2=21978

with coarse gratings 0=8753

coercive force removal 2=23655

coherent radiation with optical-acoustic maser effect 4=8966

colloidal charging in non-conducting liquids, triboelectric 4=7786

colloids, effect on stability, book 3=6936

concentrator, high-power, focusing 2=13400

concentrators, theory and computation 0=998

conduits, various combinations 0=5078

creep, effect of irrad. growth, thermal cycling 2=4332

crystallization kinetics effects 4=10463

crystals, elastic const. meas., survey 2=23728

crystals, high density, elasticity meas. 0=13901

crystals of Zn, Al, effect on work-softening 2=2328

delay line, crystal, using ray deviation from wave normal 3=14264

delay lines for d.c. pulse transmission. 3=205

density meter for liquids 3=14089

use in dentistry 3=16714

detection of kMc/s waves by phonon-photon

double-quantum transitions 1=6072

development, role of piezoelectricity 3=14253

device technology, new trends 4=8350

diffraction of light, by a.m. u.s. beam 0=16898

diffraction of light by high frequency waves 1=9485

diffraction of light by plane waves in liquid 1=10601

diffraction of light, by progressive wave 0=2253

diffraction of light, 3-dimens. system, higher-order spectra 0=16899

diffraction of light, by two non-orthogonal u.s. waves 0=16897

diffraction of light, by 2 parl. u.s. waves, with 1:12 frequency ratio 0=19437

diffraction of light, by u.s. waves 0=14845

diffraction of light by u.s. waves in water 2=2897

Ultrasonics—contd

diffraction of light by ultrasonics, phase and amplitude modulation. 3=220

diffraction of orthogonal light wave 3=24056

diffusion coeff., effect on, heterogeneous systems 2=23975

drying effects 4=21250

e.s.r. saturation, by u.s. sound field 0=3125

echo amplitude 1=1793

echo sounding fish recorder 3=3240

effect on colour of electroluminescence 0=18152

effect on diffusion of developer into photographic emulsion 0=8816

effect on electroluminescent panels 1=10121

effect on electron energy spectrum of crystal 3=15459

effect on motion of Bloch walls in Ni 0=16136

effect on phosphorescence of ZnS:Cu and

 $\text{Ba}_2\text{Br}_2\text{F}_2$ 1=5056

effect on recoil in Mössbauer effect 0=20335

effect on surface structure of glass 0=21215

effects, aerosol ejection and splash formation from fountain jet 4=8160

elastic const. meas., Be 0=1840

elastic const. meas., c.w. resonance technique, for single crystals 0=11963, 13897

elastic const. meas., pulse method, monoclinic crystals 0=13896

elastic const. meas., rutile 0=13902

elastic constant variation detection 4=13363

elastic const. meas., props. rel. to solid eqn. of state 2=16578

elastic moduli meas., to 1000°C 4=30745

elastic wave propag. along layers, two-dimensional model 3=16686

electrokinetic effect, in glass, 20-250 Kc/s 0=5267

electroluminescent panels, u.s. irrad., yellow discolouration 0=8025

electrolyte diffusion, in gelatine gels, u.s. irrad. effects 1=4106

electrolytes, effect of conduction on compressibility 0=19128

electro-optical liquid delay lines for light modulation 3=2976

emulsification of dibutylphthalate/water

mixtures 1=20774

emulsification, dispersion and coagulation, effect of sound intensity 0=4737

emulsion formation, dibutylphthalate-water, disperse phase changes 4=7791

emulsion formation, review 2=1237, 7303

emulsion formation, ultrasonic intensity effect 2=6896

fatigue failure prediction with surface waves 2=12870

fatigue tester 2=19017

field meas., BaTiO_3 microprobe for 1 Mc/s 3=392

field near quartz source, transducer adjustment method 2=11452

field in solids, optical measurement 1=9445

flaw detection 1=14921

flaw detection, diffraction effects, pulse amplitude 1=16035

flaw detection, using Gauss radiators 1=2604

flaw detection, in metals 0=8760

flow det. near surface 2=4345

flow detection by stress wave propagation 1=10572

flowmeter, phase-shift type 3=410

flowmeters 4=137

focusing, cylindrical system 4=27260

focusing devices, efficiency analysis 4=5315

focusing, using solid-body reson. device 2=21982

focusing, using solid material 2=21981

focusing, solid resonant device 4=14288

fog production by u.s. fountain, kinetics 1=6578

generation, cavitation intensity variations 2=2817

generation, in paramag. crystals. 2=566

generator, cavity, 435 Mc/s 4=11788

generators, focused, high intensity 0=999

glass, stress in machining, var. with amplitude, clamping press. 4=2756

goniometers, use in elasticity meas. in metals 4=15682

gyrators, piezoelectric-piezomagnetic 3=2828

h.f. electrostatic transducers for gases 3=2804

haemoglobin irradiation 0=18528

Ultrasonics—contd

high temp. prod., in metals and alloys, using internal friction 4=11398
 in hydration—dehydration of polyelectrolyte solutions 1=15865
 hypersonic waves, generation and detection 0=7867
 image conversion, study of BaTiO₃ and quartz piezoelec. oscillations 1=6919
 image converter, electronic 2=11477
 image convertor, electron mirror principle 1=8195
 image convertors 0=10735-6
 image convertors 1=8194
 image convertors, applic. to medico-diagnostics 0=19322
 image converters, limits to sensitivity 4=5334
 image formation using quartz surface 4=16186
 immersion testing, piezoelec. probes 4=29721
 instruments, high-intensity, teaching 4=8318
 internal molecular rotation studies 0=19325
 irradiation effect on creep of Cu springs 0=4563
 jets, periodic structure, effect of reflector on u.s. emission 4=276
 Lamb and Rayleigh waves, radiators, directivity diagrams 4=8323
 laser output control by u.s. variation refractive index 4=19271
 Levavasseur whistle, evaluation and applications 3=3237
 light diffr., successive diffr. theory 4=8446
 light diffr. in water, oblique incidence 4=18425
 light diffraction, by amplitude modulated waves 4=29769
 light diffraction by damped and undamped waves, energy distrib. 1=16108
 light diffraction, effect at critical state 2=5188
 light diffraction, Debye—Sears, spectra intensity computer calc. 4=14386
 light diffraction, in liquid, intensity calc. 2=17645
 light diffraction, in Plexiglas, by progressive u.s. wave 1=8237
 light diffraction by superimposed supersonic waves 2=15745
 light diffraction, by systems near crit. point, fluctuation effects 2=2939
 light diffraction by two superposed parallel u.s. waves, calc. 1=242
 light diffraction, by two waves of different freq. 2=9406
 light diffraction by u.s. waves, Fresnel region 3=9616
 light diffraction, by weak field, intensity distrib. 2=1234
 light, diffraction, by wide high-frequency u.s. beams 3=24057
 liquid degassing, radiated power effect 4=24206
 liquid dielectrics, effect on dielectric props. 3=9471
 liquid level meas., using oscillating immersed strip 1=2723
 liquid metals, structural changes at solidification, cavitation effects 4=27372
 liquid surfaces, withdrawal of transducer, column formation 0=14596
 in liquids, rel. to differing exptl. conditions 4=8203
 listening through the moth ear 2=15427
 luminescence, liquids, by cavitation, u.s. 3=18819
 luminescence of liquids in ultrasonic fields, survey 0=19164
 machinery 3=2818
 machining 2=15441
 machining, effect of cavitation 0=3390
 machining, effect of plasticity and hardness 1=9241
 machining, effect of plasticity and hardness 1=10358
 machining, semiconductor slices 0=14362
 magnetic field measurement 0=11010
 magnetization switching study in Mn ferrite 1=12539
 maser, optical, ruby, modulation of resonance sharpness 3=19486
 matterscope 0=3590
 medical scanner 4=13978
 metal flaw meas., refractory disks 3=23490
 metals, exo-electron emission on irradiat. 4=27560
 microscope, phase contrast 3=222
 microwave, conference 2=4238
 microwave (1-24 Gc/s), in solids, review 3=6470
 mineral layer studies 0=16798
 molten metals, electrodynamic methods of exciting u.s. waves 0=5110
 n.m.r. stimulation, review 3=20665
 neutron-induced cavitation 3=17132

Ultrasonics—contd

nondestructive testing, use of Lamb waves 1=10559
 optical phase analyser, with progressive u.s. wave 1=18611
 organic cpd. synthesis, in u.s. field 0=1964
 organic compounds, pulse studies 3=21355
 p.v.c., crystallite growth increase, at 1 Mc/s 3=13419
 phase modulation in air by sound wave 4=24326
 photographic emulsion grains, dislocations effect 2=5192
 photographic recording of ultrasonic shadows and beams 1=4416
 photosensitive layer softening 4=27343
 piezoelectric crystals, sources of sound 0=14733
 piezoelectric probes, for immersion testing 4=29721
 piezoelectric vibrator, rel. to liq. drop holder 4=24155
 plasma jet 4=19073
 polarization using reson. absorpt. in transition metal complexes 4=16182
 polydimethylsiloxane, rel. to viscoelastic consts. 24189
 polymer solns., degradation, cavitation 2=19558
 power, liquid-borne, meas. 4=14302
 power measurement, milliwatt radiometer 4=29719
 processing, temp. gradient in wave 2=7292
 properties and effects, review 2=21979
 pulse-echo method to obtain pictures of human heart in situ 4=8349
 pulse echo method, for size of defects 0=5109
 pulse echo techniques 0=6855
 pulse-echo testing, dual-freqn., defect size meas. 4=8352
 pulses, pressure and waveform meas. by light diffraction 2=7307
 purification of polyethylene 1=20638
 purification of polyethylene 2=6841
 quartz crystal, oscillatory behaviour 2=7274
 quartz, fused, delayed pulse det. and new opt. effect 1=2718
 radiation pressure in liquids, pendulum meas. 4=21253
 radiators, use for diffraction-type light modulation 1=18612
 radiators, for diffractational light modulator systems 0=12494
 radiators, high-intensity, ferrites for use in 4=5298
 reaction temp. of metal with water 2=4540
 receiver, based on a thermistor 1=9455
 receiver, portable, for airborne ultrasound 4=29716
 rock freezing process control 4=26781
 rocks, dynamic elastic parameters meas. 3=3427
 rod, surface vibr., conversion into rotation and translation of coupled body 4=11275
 sapphire, elastic moduli determination 1=1290
 shutter, u.s. refraction, for lasers 3=12348
 sirens, gas jet, dual chamber 4=11299
 solid mixtures with specified impedances 2=2832
 solids, elastic and inelastic props., u.s. determ. 4=4440
 solids, elastic props., u.s. method at high temp. 2=4299
 solids, porous, u.s. absorption det. method 2=9429
 solids, strain amplitude of Mc/s waves 4=26466
 solvent agitation, for cleaning glass 0=6529
 sonographic characteristics of photosensitive materials 4=288
 spectroscopy, using continuously variable frequencies 1=6938
 spectrum analysis using modulated light 3=2977
 spin echo stimulation in nucl. quadrupole reson. 2=4292
 standing waves, diffraction of light 1=16109
 stroboscopes, variable phase, with light modulation by u.s. waves 0=5181
 testing cast iron with spheroidal graphite 2=23899
 therapeutic equipment calib. 2=15419
 thermal cycling, α - β phases 2=802
 thermal visualisation of u.s. oscillation of shells in liquid 0=1005
 thin metal films, effect on structure 1=1450
 three dimensional system, diffraction of light 0=8808
 transducers, acoustic contact with rocks 4=11301
 transducers, composite, intensity increase 2=5103
 transit-time meas. survey on fused silica 3=574
 transmitters and u.s. forces in liquids 2=9346

Ultrasonics—contd

- u.s., distrib. on plane normal to propagation direction 1=18532
- u.s. fields study, BaTiO₃ microprobe 3=1777
- ultrasonograms, fine-grained emulsion production 0=14746
- use for meas. of int. pressure of liquid 4=152
- very high energy, survey of uses 0=6890
- visualization of soft-tissue structure 4=4964
- visualization of u.s. fields and streams 2=15696
- visualisation of u.s. pulses, with a h.f. carrier 0=1004
- visualization of u.s. wave 3=14366
- and water, deionized, conductivity, electrical, increase 3=18830
- water delay line, variable 0=14727
- wave generator, using electron-beam impingement 0=12447
- waveguides, pressure profiles 3=14263
- wave packet visualization by strobe optical system 3=11868
- wave velocities in stressed Ni steel 3=2706
- whistle, for applic. to liquids and gases 0=996
- AgBr crystals, u.s. field effect on elec. cond. 4=22767
- Al₂(SO₄)₃·K₂SO₄·24H₂O, crystal growth, accel. 3=25668
- Bi rod thermal conductivity, effects of u.s. vibrations 1=9985
- CaCO₃, crystal growth, u.s. effects 4=7545
- CdS amplifier, free carrier trapping effect 4=21236
- CdS, u.s. amplification, rel. to non-ohmic behaviour 3=12919
- Cu, rel. to welding 1=10359
- (17%)Fe—(80%)Ni—(3%)Mo, films, effects on magnetic properties 4=22978
- Fe₂O₃, attenuation, 4.2°-300°K 1=14174
- He, liquid, cavitation, 1.2°-2.3°K meas. 4=18520
- KI solns., relax. effects, effect on lumin. 2=11370
- KMnO₄, influence on directed crystallization 3=16044
- MnSO₄ soln., relaxation, dielectric const. influence 1=18404
- N₂O, aqueous solution, absorption study 1=11760
- Na, low temp., use of isopentane adhesive to PZT transducer 4=27272
- Ni—Fe (80/20%) films, u.s. switching of magnetization vector 3=15826
- Sn attenuation, 1.5°-4.2°K 1=14173
- Zn crystal growth effects 3=23392
- ZnO, u.s. amplification, rel. to non-ohmic behaviour 3=12919
- ZnS:Cu, luminescent, light-expulsion by ultrasound 2=8556

Uncertainty

See Indeterminacy; Probability

Units

See also Constants; Dimensions; Nomenclature and symbols

- a.c., exact measurement method 2=7527
- angle, solid 4=21002
- assignment, philosophical aspects, mechanical and electrical 3=13985
- astronomical, det. from radar obs. of Venus 4=29474
- astronomical, meas. by radar bouncing off Venus 4=26818
- astronomical unit of length, theory and meas. 3=5229
- atomic 0=7237
- axiomatic treatment, units and dimensions 4=11008
- capacitance, absolute scale determination 4=8585
- changes in, rel. to math. form of physical laws 0=14884
- curie, definition 3=641
- current and resistance, elec., pot., Faraday const., proton gyromag. ratio, meas., review 3=21189
- "dex" suggested for "order of magnitude" 0=18898
- dictionary of 400 units, numbers and scales 4=5004
- dictionary of national and international units 4=18011
- dimensional aspects 4=24003
- elect. and mag., detailed review 2=15860
- electrical and magnetic systems 3=1905
- electrical, "practical" units, naming 1=10647
- electrical systems differences 4=27440
- in electrokinetics 1=4552
- electromagnetic, from formalized eqns. 3=12292
- electromagnetic, rationalization 2=13653
- electromagnetism, rationalized system, interpretation possibilities 3=5313
- electron diffraction pattern, resolving power 2=817
- Faraday, determination with Ag perchloric acid coulometer 0=19582

Units—contd

- humidity, Celsius-gramme-metre system 0=947
- international conference decisions 2=4904
- international (SI) system 4=29501
- length, standards, methods of meas. 0=861
- light velo., redefinition 4=5007
- M.K.S.A. system, discussion and problems 1=4233
- mass, atomic counting method 4=2504
- mass, length, time, current, temp., international agreement, report 4=27012
- metre, definition based on Kr⁸⁶ 2=4904
- metre, history and definition 3=9316
- MKSA, rel. to teaching of electromag. in schools 2=20105
- n.m.r. shielding data 2=11817
- neutron flux 1=7248
- neutrons flux, "chad" 1=509
- new radiobiological quantity 1=626
- new set of values by NAS—NRC 4=11007
- photometric, rel. to radiometric scale 4=11323
- in physical laws, mathematical relations 0=858
- practical, for temp. system 2=7107
- pressure and flow in vacuum technique, choice of units 1=4383
- pressure, in vacuum physics 1=5298
- pressure in vacuum physics ("vac"), criticism and defence 1=9425
- pressure, vacuum range, proposed standard 0=19222
- radiation units, for various substances 4=6012
- radioactivity, ICRU report 4=6259
- radiological, Internat. Commission recommendations 4=12163
- rationalized, electromagnetic, interpretation 3=2467
- in rel. to their boundary position between quantities and pure numbers 4=5005
- resistance, evaluation of NBS standard 2=5248
- second, redefinition 4=5007
- steradian in e.m. quantities 4=5750
- sub-multiples, femto and atto 3=9315
- systems, conversion factors, discussion 2=1039
- temperature 3=21599
- temperature, gas const. elimination 4=18461
- temperature scales, thermodyn. and international 3=11981
- time and frequ., astron. definition 3=11651
- time, standards, methods of meas. 0=861
- from unified field equation 0=4926
- "universal", of temp., magnetism, mass, length and time 0=2093
- vacuum meas. 4=18254
- vacuum, use of mol. density for u. h. v. 4=27230
- vacuum pressure scale, inverted logarithmic 1=5299
- weight and measure, US Customary and Metric, tables 1=18238
- X-unit/milliångstrom, conversion constant, precise value 2=5748
- C¹² atomic mass standard 1=8035

Uranium

- abrasion wear and friction 1=1553
- activity in air, oil and urine, 2 π gas-flow α -counter 4=25215
- α particle, range, 4.5 MeV 0=9446
- α -phase, cold-worked monocrystals, influence of deformation mechanism on recrystallization 0=10260
- α -phase, creep activation energies 2=12856
- α -phase, crystal growth due to irradiation 2=20995
- α -phase, crystal growth due to irradiation, rel. to dislocation loops 2=8222
- α -phase, crystal growth due to irradiation by neutrons 2=12880
- α -phase, crystal growth due to irradiation, rel. to other props. 2=6392
- α -phase, crystal growth due to irradiation, rel. to point defects 2=6398
- α -phase, irradiation growth, absence above 430°C 0=13938
- α -phase, lattice consts., precise values 2=15014
- α -phase, self-diffusion anisotropy 2=14467
- α -phase, single crystals, adiabatic elastic moduli, temp. depend. 0=16204
- α -phase, {110} slip rel. to temp. 2=6325
- α -phase, swelling due to irradiation 2=3674
- α -phase, thermal cycling 0=13570
- α -phase, volume increases, due to neutron irradiation, effect of thermal fluctuations 0=9721

Uranium—contd

α -uranium single crystals, recrystallization 1=20430
 α -uranium, thermal expansion, -196° to +100°C 1=19726
 analysis, fluorimeter 1=11642
 arc zone melting, purification 0=8169
 atomic position parameter in crystallography 2=10833
 atomic scatt. factor for X-rays 2=15010
 atomic structure, relativistic self-consistent solution 0=9741
 atoms, ejected by fission fragments 2=20691
 atoms, structure, electronic, in tri and tetra-valent compounds 4=1216
 atoms, UV energy levels, from UF_4 absorption spectrum 0=1731
 in australites, by α -counting 3=7025
 $\beta \rightarrow \alpha$ transformation, Cr, Mn, Mo additions 2=4456
 burn-up and irradiation swelling, fast reactor 2=3653
 cold cathode ion source for synchrocyclotron 2=3088
 cold rolling, X-ray line-shift study 3=8766
 conductivity elec., n effects, low temps., two-spike mechanism 4=6932
 conductivity, elec., temp. var., down to liquid He temps. 4=6918
 conductivity electrical, var. with heat treatment, 4.2°-100°K 3=20270
 conductivity, thermal and electrical, effect of neutron irradiation 3=25325
 content in radioactive minerals 0=3335
 convertor prep. by sputtering 4=12171
 creep, activation energy temp. var. 4=23224
 creep buckling, stacked fuel element 2=4331
 creep, effect of irradiation 1=11514
 creep, 550°C, at tensile stress of 350 psi 3=25633
 crystal dislocation networks, due to radiation 4=4059
 crystal dislocations, on deformation and irradiation followed by heat treatment 4=4058
 crystal dislocations, stacking fault formation mechanism 4=12762
 crystal structure 1=20533
 crystal structure parameters, 20° and 630°C 2=23831
 crystal structure, temp. variations near 43°K 3=6841
 crystal structures, grains, unrefined, from ultrasonic pulse scattering 3=13496
 crystal texture, chance development 2=4367
 crystalline texture, neutron diffraction study 0=18416
 deformation mechanism, β -U, extended dislocation model 4=20688
 deformation during α - β cycles 3=1354
 deformation, effect of orientation and temp. 2=4322
 deformation under irradiation at low temps. 1=10022
 determination in flat fuel elements by γ -ray absorption 4=6442
 diffusion into Al, maximum penetration 0=13563
 diffusion of Au in γ -U 2=2094
 diffusion of Fe, Cr, in β U 3=10691
 diffusion of Kr, fission-produced, in U metal 0=11645
 diffusion in liquid Cd 4=5167
 diffusion in Mg 4=1517
 diffusion, self- and hetero-, review 3=8454
 dimensional instability, mechanism 0=11650
 drawn rods, neutron study of texture 0=6394
 ductility after work-hardening, partial annealing 3=6795
 effect of α - β thermal cycling on U and alloys 0=4580
 electrodeposition, molecular plating method 4=17866
 electrolytic deposition from nitrate 4=20836
 electron elastic scattering factors, nonrelativistic theory 4=15298
 electronic structure of α -U, group-theoretical analysis 1=17449
 etching, thermal, of α - and γ -phases 2=4370
 evaporation, by fission fragments 0=5812
 external conversion of γ -rays from Ta^{182} 1=19421
 fast fission factors, lattice in light water 2=3639
 film preparation 3=8925
 films, cryst. struct. 2=822
 films, thermionic constants, 1200-2400°K 4=5695
 fission neutron inelastic scattering in 0=5801
 foils, rare gas loading and evolution 1=17551
 fracture, effect of inclusions 2=4344
 fuel, temp. coeff., Pu^{239} reson. absorpt. effect 2=3638

Uranium—contd

gamma-ray scatt., elastic, 9 MeV, differential cross-section 4=6316
 γ -ray study of K, L and M + N + ... shells 0=7688
 γ -U, neutron irradiation 2=16672
 grain shapes, sizes, after quenching 2=4470
 grain size, effect of alloying additions 4=23350
 grain size, u.s. waves, vel. and attenuation, meas. 4=29166
 heat content of γ -phase and molten, meas. using drop calorimeter 4=21127
 heat treatment 2=12927
 heats of solution, formation, thermistor microcalorimeter 2=1305
 internal friction, changes on heating 2=12843
 internal friction, cold-worked metal 2=21407
 ionization potential, by surface ionization method with Li 0=10874
 ionization on W surface, effect of freon-12 2=22179
 ion source for mass spectrometer, increasing ion production 4=8860
 ions, U^+ bombard. of Cu, sputtering ratios 0=9110
 ions, U^{++} , paramag. resonance in CaF_2 at 20°K 1=9055
 ions, U^{4+} , in CaF_2 and SrF_2 , e.s.r. 2=23708
 ions, U^{5+} , elastic scatt. of slow positrons, calc. 2=20754
 irradiated, α - γ -phases, low, high temps., swelling 2=21085
 irradiated and annealed, density changes 2=20724
 irradiated, effect of heat and pressure on swelling 0=8265
 irradiated, growth of gas bubbles, effect of dislocations 0=9903
 irradiated, growth, wrinkling, creep, fuel element life 0=7674
 irradiated Kr^{85} release on phase changes 2=4457
 irradiated, melting, release of inert gases 2=6061
 irradiated, tensile props. 0=10271
 irradiation creep, mechanism 3=2795
 irradiation effects on composition, under long use in reactor 0=15623
 irradiation growth after mechanical working 3=8480
 irradiation growth rate eval. 3=6310
 irradiation growth rates 4=22654
 irradiation growth, twinning mechanism in-correctness 4=7464
 isotope separation, cascade process 1=3525
 isotope separation, nozzle, by adding He 3=15309
 isotope separation by UF_6 gaseous diffusion, use of fine-pored Ag membranes 0=18385
 isotope separator, magneto-ionic expander 0=12652
 isotopic anal., spectral methods 1=3526
 isotopic analysis 3=18999
 L X-ray fluorescence yield meas. 4=15307
 lasers, $U:CaF_2$ longitudinal modes 2=19700
 lattice dynamics and elastic constants of α -phase 1=11145
 lattice strains due to β -quenching 2=19097
 liquid, density and thermal expansion of isotopes 2=2700
 mechanical props., effect of radiation 0=4545
 mechanical props, tensile, effect of grain shape 4=7463
 mechanical strength, fracture elongation, var. with grain size 4=4492
 metal containing Kr gas bubbles, X-ray study 4=2115
 metallurgy, production 0=3392
 meteor content, neutron activation via Xe 0=4883
 microstructure rel. to thermal cycling 2=21545
 μ -mesic atoms, X-ray emission and radiationless transitions 1=4919
 monoclinic α -U, plastic deformation 1=20355
 natural, fuel rod heat treatment, effect on burn-up distortion 0=14044
 neutron absorpt., effective reson. integral 3=2544
 neutron backscattering from reflectors, Monte Carlo calc. 4=21860
 neutron diffraction, nuclear coherent scatt. 2=10832
 neutron resonance absorpt., temp. depend. 1=16810
 nuclear reactor swelling, rel. to burn-up and temp. 4=6440
 occurrence in free form in UO_2 2=14926
 ore deposit, size determination by Kr^{85} method 0=4777
 in ores, determination by γ -ray spectrometry 1=7926
 ores, prospecting, using atmospheric Rn activity 0=16498
 oxidation, in air at increasing temps. 3=3250-1
 phase transformation, α - β 3=25652

Uranium—contd

- phase transformation, $\alpha \rightleftharpoons \beta$, nucleation and growth 2=6823
 phase transformations, $\alpha \rightarrow \beta$, $\beta \rightarrow \gamma$, sintered and massive samples 4=1772
 phase transformations, up to 45 kbar pressures 3=8795
 phase transition, $\alpha = \beta$, mechanisms, review 3=5129
 phase transition at 42°K in α -type 1=15135
 photoelectric emission 2=7646
 photoelectric emission 3=5694
 photoelectric props., changes at phase transformations 2=3072
 photoelectrons from inner shells, ang. distrib. 1=19600
 plastic deformation of α -U 1=20354
 plastic deformation and fracture of single crystals at -196°C 2=23756
 plastic deformation, -196°C, rel. to pre-work hardening at 20°C 4=13449
 plastic deformation, single crystals, -196°C, tension 3=15989
 point defects and fission spikes from weak irradiation 4=1534
 polycrystals, effect of thermal cycling on micro-structure 0=16254
 powder, ignition study 3=6916
 preferred orientation, effect of $\alpha \rightarrow \beta \rightarrow \alpha$ phase transformation 2=4452
 prospecting by Rn dosage in atmospheric air 1=15242
 proton bombard., 143 MeV, neutrons emitted at 0° 2=7987
 radiation effects 4=30596
 radioactive current from UO_2 1=19378
 radiography, neutron 4=10993
 radiometric determination in complex ores 0=18455
 reactivity, temp. coeff., meas. 0=13330
 recrystallization of Belgian uranium 2=12932
 recrystallization after cold-rolling and annealing 4=10410
 recrystallization during hot or cold forging 2=4471
 recrystallization, secondary and after critical strain 4=2116
 reserves in U.S., reactor operating costs 2=3643
 resistance, electrical, anisotropy, α -form 3=22899
 resistivity of interstitial atoms and vacancies in α -U 3=25326
 resonance integral (for neutrons) 2=12203
 in rocks, quantitative det. 2=17113
 rod, transient temperatures 1=772
 self-diffusion, addition Mo, Zr or Nb effect 2=18613
 self-diffusion, in α -U 2=606, 6376, 18612
 self-diffusion, β -phase 0=11644
 self-diffusion, in β -U 2=3948
 sintering, β , α phases, contraction at var. temp., activation energies 4=13664
 specific heat, U^{235} , hyperfine < 0.75°K 4=9850
 spectrum, isotope shifts 4=12379
 spectrum, isotopic displacements 0=5890
 strain relaxation by neutron irradiation 2=23769
 strength rel. to crystal structure change 4=28960
 stress/strain at 1.4-77°K 1=12594
 structure rel. to anisotropic thermal expansion 3=10606
 structure of metal 1=6485
 subgrain boundaries, due to phase transformation 1=1414
 superconductivity, mechanism, rel. to low-lying virtual f-shell 4=5516
 superconductivity, simple model 4=14523
 surfaces, total emissivity 3=14413
 swelling, effect of thermal cycling 2=23884
 swelling, irradiation, under mech. restraint 3=12712
 swelling on postirradiation annealing 4=12835
 thermal diffusivity meas. 1=17430
 thermal and electrical conductivity 4=28388
 thermal expansion of α -U single crystals 2=2057
 thermal expansion, anomalous below ~ 43°K, and conductivity, electrical 3=20270
 in thermal reactor, Doppler effect 2=3676
 thermionic props. of wires and films 0=3786
 thermoelectric power determination 0=18082
 thermoelectric power, 20°K-room temp. 2=12552
 thermoelectricity, temp. var. down to liquid He temps. 4=6918
 thermoelectric power rel. to temp. 4=17542
 thin films prepn. for neutron cross-section meas. 3=11321
 transformation temperatures 0=18377
 vacuum deposition, on organic backing 0=17288

Uranium—contd

- vapour pressure, effect of oxygen 3=3930
 vapour, ionization by electron impact 4=16437
 vapour pressure 0=10699
 wave number meas. from Fabry-Perot interferograms 0=10768
 work function of films and foil 2=17858
 X-ray L-emission spectrum 2=6588
 X-ray L intensities 1=13951
 X-ray spectra, h.f.s. 1=14615
 in NaF beads, det. from photoluminesc. 2=17107
 U, anisotropic irradiation growth prediction 3=4898
 α -U, atomic positions, 22°-600°C 3=25705
 α -U, crystal structure 3=8837
 α -U, dislocation loops, orientation 3=20181
 α -U, effect of Fe and Al on tensile props., -183° to 350°C 4=28987
 α -U, Frank dislocation formation 3=2794
 U-graphite reactor fuels, fission products loss 3=12737
 α -U, plastic deformation rel. to grain size 4=7462
 α -U, plastic deformation by rolling, 550°-640°C 3=13370
 α -U, single crystal extended to fracture struct. 4=23222
 β -U, tensile props., rel. to strain rate and temp. 4=20689
 α -U, thermal cycling during creep, incremental collapse 3=8908
 U^{4+} in $\text{Ca}[\text{Ba}, \text{Sr}]\text{F}_2$, e.s.r. and charge compensation 4=26439
 U^{3+4+} e.s.r. in $\text{CaF}_2, \text{SrF}_2$ 4=26438
 U^{3+} , electronic energy levels, theory and expt. 4=22310
 U^{4+} e.s.r. in $\text{CaF}_2, \text{SrF}_2$ and BaF_2 3=3180
 U^{4+} , Slater-modified Hartree-Fock calc. 3=12767
 U^{233} , age of fission neutrons in water 1=17205
 U^{233} , diffusion in UO_2 2=8249
 U^{235} fuel prep. for reactor 3=15267
 $\text{U}^{233, 235}$, epithermal neutrons η meas. 0=4133
 $\text{U}^{233, 235}$, η for 30-900 keV neutrons 0=4134
 $\text{U}^{233, 235, 238}$, delayed fission neutrons 0=5811
 U^{235} , enrichment, checked by γ -intensity 0=11388
 U^{235} , estimation by means of ionization-chamber fission counter 0=15188
 U^{235} , fission due to neutrons 2=10162
 U^{235} , isotopic ratio analysis in impure materials 2=23988
 U^{235} , pore size and distribution, caused by fission gases, 200°C 3=22457
 U^{235} , purely proton moderated spect., collision density 1=17159
 U^{235} , thermal fission, group-const. 2=3648
 $\text{U}^{235, 238, 239}$, 1.6-2.1 μ spectrum, isotope shift 1=811
 $\text{U}^{235, 238}$, mixture, isotopic shift of 46 spectral lines 0=4176
 U^{238} , fission cross-section for fission neutrons 0=2695
 U^{238} , fission product ions, diffusion in UO_2 2=6377
 U^{238} lattices, resonance escape probability, meas. 1=17248
 U^{238} , neutron inelastic scatt., < 1 MeV 2=5927
 U^{238} , rod, resonance neutron capture 2=3601
 U^{238} , superconductivity, rel. to nuclear temp. determ. 4=3530
 U^{235} - Pu^{239} , rel. to conversion factors in U and water lattices 0=2702
 U-Th separation, by ion exchange 0=21302
- Uranium compounds**
 absorption spectra 0=20656
 alloying additions effect on grain size 4=23350
 alloys and cpds, self- and heterodiffusion, review 3=8454
 analysis in soln., by γ -absorptiometry 0=4767
 binary alloys, U-rich, for nuclear fuels, micro-structure 2=17033
 carbide fuel particles, crushing strength meas. 4=22268
 carbides, crystallography, fabrication methods, compatibility, irradiation behaviour, review 4=13611
 carbides, magnetic susceptibility 4=17627
 chloride, fluorescence spectra 1=14638
 dicarbide, heat content 1484° to 2581°K 3=15438
 dumontite, crystal structure 3=16086
 films, electrolytic deposition, from ammonium oxalate solns. 4=7767
 fluoride I, fluorescence spectra 1=14638
 glass, phosphorescence decay 0=18145
 hydride, nonstoichiometry and lattice defects 2=3898
 isotope separation, by nozzles 0=13397
 light-water UO_2 reactor core, analysis method 2=3657
 $\text{mX}^{4+}\text{O} \cdot \text{UO}_3 \cdot n\text{H}_2\text{O}$, general structural formula 3=3305

Uranium compounds—contd

metallographic techniques, polishing, etching 2=4441
 nitrides, properties and structure 4=2093
 nitrides and sulphides, review of phys. chem
 props. 3=16473
 oxides, phase diagrams 4=2140
 oxides, sintering 1=1446
 oxides, valency, from X-ray M_V emission spectrum last
 lines 3=23558
 sklodowskite, crystal structure 3=16085
 spectra, mag. susceptibility 4=1216
 thermionic constants, 1200-2400°K. U-activation 4=5620
 urania-thoria solid solns., thermodynamic props. 0=6382
 urania-zirconia solid solns., thermodynamic
 props. 1=14193
 uranyl acetate, absorption bands analysis 3=8282
 uranyl fluorides, spectra, u. v. absorpt. 4=10198
 uranyl ion, force consts., by Wilson's F-G matrix
 method 1=13983
 uranyl nitrate, absorption bands analysis 3=8282
 uranyl nitrate, fluorescence spectra of rapidly frozen
 solns. 1=14637
 uranyl nitrate solns., fluorescence depend. on temp. and
 thermal treatment 0=3539
 uranyl nitrates, solutions, absorption spectra 1=4344
 uranyl nitrates, solutions, absorption spectra 1=10514
 uranyl oxalate, electronic absorption spectrum 4=1756
 uranyl phosphate, electronic absorption spectrum 4=1756
 uranyl phosphate, oxalate, and salicylate crystals, i.r.
 absorption 1=14599
 uranyl phthalocyanine soln., luminescence 4=5199
 uranyl salt solns., absorption and luminescence
 spectra 2=15603
 uranyl salts, i.r. spectra 4=22383
 uranyl sulphate, fluorescence spectra for five
 modifications 1=6229
 CdU_2O_4 , lattice parameters 1=4054
 with Ge, thermodyn. study 2=10908
 Kr evolution 1=19570
 with Pb, thermodyn. study 2=10908
 with Si, thermodyn. study 2=10908
 with Sn, thermodyn. study 2=10908
 U acetate, fluorescence spectra 1=14638
 U alloys, metallographic examination
 techniques 2=4441
 U alloys, proposed nomenclature 1=20587
 U alloys, Young's modulus, temp. variation 1=2504
 U carbide, effective resonance integral 0=20499
 U carbide, flow and recovery props., 1500-1900°K 2=6742
 U carbide, work function 2=11685
 U carbide work function 4=18499
 U carbides, props. (nuclear engng. data sheet) 1=4168
 U dioxide rods, temperatures, thermal stresses and dis-
 placements 0=6962
 U, effect irradiation on corrosion resistance 0=14068
 U, eight dilute alloys, effect of α - β thermal cycling 0=4580
 U-fission alloys containing Tc, phase relns. 3=5130
 U-fission products, transformations, props. 0=14072
 U fluoride, U tetrafluoride, molten, absorption
 spectra 0=19155
 U fluorides, pentavalent, near i.r. absorption
 spectra 3=18011
 U hexafluoride, vapour-pressure anomalies 2=8077
 U (IV) hexahalide solns., spectra, electron transfer and
 5f \rightarrow 6f transitions 4=5186
 U nitrate, fluorescence spectra 1=14638
 U oxalate, coprecipitation with Ca 3=1275
 U oxide, diffusion of radioactive noble gases 0=4308
 U oxides, diffusion of Xe^{133} , 500-1150°K 0=1607
 U oxides, hydrated, synthesis and crystal props. 0=4578
 U oxides, mass spectra 0=10699
 U^{235} oxides, neutron flux meas. 2=3364
 U oxides, neutron irradiation, release of stored energy 2=6393
 U oxides, reson. integral (for neutrons) 2=12203
 U oxides, sintering, impurity effects 2=834
 U salts, rel. to sound cavitation in water 3=18794
 U sulphate, fluorescence spectra 1=14638
 U^{4+} in octahedral coord. complexes, absorpt.
 spectra 4=22900
 U-Al alloy, composition analysis 2=4575
 U-Al system, layer growth during
 interdiffusion 2=3937
 UAl_3 , cpds., conduction electron polarization, by
 n.m.r. 1=1277

Uranium compounds—contd

UAl_2 , lattice const. 2=15051
 UAl_2 , n.m.r. of Al^{27} , band structure 3=8730
 UAl_2 , n.m.r. of Al^{27} , Knight shift 3=3192
 UAl_2 , nuclear fission fragment damage, electron
 microscope examination 3=13015
 UAl_2 - UF_6 system containing $U(Fe, Al)_2$, crystal
 structure 4=10558
 UC, anomalous thermionic emission 0=17027
 UC, creep, elec. resist. and emissivity 4=23225
 UC, cryst. struct. 2=10867
 UC, diffusion of radioactive noble gases 0=4308
 UC, disloc. distrib. by electron microscopy 4=30567
 UC, elastic constants, by pulse-echo
 technique 3=25599
 UC, elec. resist., neutron irradiation effects 4=22664
 UC, etch pits production technique 4=7535
 UC, use as fast reactor fuel 2=12271
 UC, films evaporated from, work function 3=4179
 UC, fission fragment damage, by X-ray
 diffraction 2=6326
 UC fuel particles, fission-gas release 4=17226
 UC, interatomic distances 3=20843
 UC, irradiation, burnup studies 1=13905
 U-C low carbon alloys, constitution 1=20586
 UC, neutron irradiation, damage saturation and
 annealing 4=22656
 UC powder, Xe diffusion 3=2834
 UC, props. 1=5953
 UC, props, rel. to prep. 3=7079
 UC, props., preparation, irradiation behaviour 0=20524
 UC, resistivity, neutron irradiation, annealed 2=6414
 UC, resistivity and thermoelectric power 4=4175
 UC, sintering, diffusion activation energy meas. from elec.
 cond. var. 4=13665
 UC, specific heat and Debye temp., rel. to electronic
 structure 4=1398
 UC, temp. coeff. of resistivity, effect of oxygen 2=8307
 UC, thermal expansion, var. composition, temp. 4=22509
 UC, thermionic properties at 1200-2100°K 0=12626
 UC, vacancies prod. by quenching 2=21359
 UC, work function, patch effect 4=5696
 UC, X-ray crystallography, lattice expansion 1=20468
 UC-HfC solid solubility at 2000°K 3=25759
 UC-Nb cathode, thermionic consts. 1=13102
 UC, U_2C_3 and $UC_{1.91}$, heat capacities, low temp., and
 entropies 4=22498
 UC and UC-ZrC, thermionic emission 1=11964
 UC + ZrC layers, work function meas. 2=22160
 UC-ZrC₄, work function 3=14616
 UC_2 , cryst. struct. 2=10867
 UC_2 , dispersions in Al for plate-type fuel elements 0=9722
 UC_2 , dissociation press. 2=7471
 UC_2 , interatomic distances 3=20843
 UC_2 , neutron diffract. & paramag. scatt. analyses 3=1328
 UC_2 , struct. 2=4419
 UC_2 (tetragonal) and U_2C_3 (cubic), geometrical
 relationship 3=3324
 UC_2 , twinning and crystal orientation 4=29034
 U_2C_3 , interatomic distances 3=20843
 UCd_{11} , elastic consts. 4=23223
 UCd_{11} , electronic configuration and valency 3=13237
 U-Cd, U-Zn, intermetallic phases, effusion balance
 invest. 2=6822
 UCl_4 , absorption spectra, at liq.-He temp. 2=14676
 UCl_4 , heats of soln., formation, microcalorimeter 2=1305
 $UCoO_4$, mag. struct. and props. 2=12662
 U-Cr alloys, grain size and microstructure 4=30871
 U-Cr alloys, transformation curves, by isothermal
 dilatometer 3=6858
 U-Cr, grain refinement by continuous cooling 3=3322
 UD_3 , β -modification, magnetization, paramag. suscep.
 and magnetothermal effects 3=6692
 UD_3 , β -modification, magnetization, paramag. suscep. and
 magnetothermal effects 2=10642
 U-Eu mixed oxide system, crystal structure atomic, and
 phase transformations 4=7604
 UF_4 , absorption spectrum, 2000A-8 μ 0=1731
 UF_4 , crystal struc., fluorine posn. meas., neutron
 diffn. 4=29146
 UF_4 , crystal structure 4=23495
 UF_4 , films on UO_2 , optical interference 3=24042

Uranium compounds—contd

- UF₄, heat capacity, 1.3-20°K, and thermodynamic props. to 300°K 0=15811
 UF₄, magnetic props. 1=11412
 UF₄, μ -meson atomic capture 2=13837
 UF₄ and UF₃, effect of pressure on crystalline spectra 1=3834
 UF₆, dissociation by fission fragments 1=1491
 UF₆, F¹⁹ n.m.r. 3=23256
 UF₆, mass spectrometry 0=12124
 UF₆ in NpF₆, mag. suscept. 2=18890
 UF₆, n.m.r., polycrystalline 3=18153
 UF₆, precision isotopic analysis 1=5986
 UF₆, U isotope separation, nozzle, by adding He 3=15309
 UF₆, gas flow through nozzle 1=15928
 U-Fe, neutron irradiation 2=20729
 UFe₂, elec. cond. 2=12497
 UFe₂, ferromag. props. 3=1113
 UFe₂, ferromag. props. and comparison with theory 3=15791
 UFe₂, lattice const. 2=15091
 UFe₂, mag. fields at Fe⁵⁷ nuclei 1=19686
 UFe₂, magnetization rel. to field strength, 300° to 100°K 1=20078
 U-Fe-C system, evidence of UFeC₂ 2=12923
 UGe₂, ferromagnetic props. 0=11834
 UH₃, β -modification magnetization, paramag. suscept. and magnetothermal effects 2=10642
 UH₃, β -modification, magnetization paramag. suscep., and magnetothermal effects 3=6692
 UH₃, enriched, critical assemblies 1=13898
 UH₃, reaction with aqueous acid 0=14103
 UH₃ and UD₃, magnetothermal effects and magnetization per mol., 4.2, 77.4°K 3=8673
 UMn₂, elec. cond. 2=12497
 U-Mo alloy, $\gamma \rightarrow (\alpha + \gamma')$ phase transformation 4=13506
 U-Mo alloy, γ -quenched, annealing 3=5135
 U-Mo alloys, annealing, post-irradiation, rel. to nuclear fuel swelling 4=3759
 U-Mo alloys, deformation mechanisms 4=20687
 U-Mo alloys in γ -phase, thermal conductivity and thermoelectric power, 4°-40°K 4=28388
 U-Mo alloys, plastic deform., resistance, temp., rate var. 4=28988
 U-Mo alloys, microstructures, effect of ternary additions 4=29168
 U-Mo alloys, morphology of α pseudograin 4=29167
 U-Mo alloys, γ -grain boundaries 4=4652
 U-Mo(1-3.5 wt. %), phase transformations, $\gamma + \beta$ and $\gamma \rightarrow \alpha$ 4=7518
 U-Mo alloys, tensile tests 4=20686
 U-Mo, equilibrium diagram (below 900°C) 0=18378
 U-Mo, finely dispersed phases 2=4443
 U-Mo, γ solid soln., decomposition 2=21555
 U-Mo, irradiation-induced phase changes 0=14071
 γ -U-6 at. % Mo, kinetics of isothermal decomp. 3=25764
 U-Mo metastable phases, origin 2=4455
 U-Mo, monoclinic phases 2=4454
 U-Mo at 0.5% burn-up, X-ray data 1=20468
 U-Mo, as nuclear reactor fuel 2=6060
 U-Mo, paramag. suscept., 100-300°K 2=6657
 U-Mo, superconducting in high mag. fields 3=16879
 U-Mo, swelling due to neutron irradiation 2=18626
 U-Mo two-phase alloys, electron micro. study 3=5154
 UMoC₂, crystal structure, atomic 4=13608
 U-Mo-Nb alloys, transformation kinetics 2=4453
 U-Mo-Nb, crystal struct., atomic, up to 30 at. % Mo, 40 at. % Nb 4=13610
 U-Mo-Nb, U rich, phase boundaries, $(\beta + \gamma)/\gamma$, 675, 700, 720°C 4=7517
 U₂Mo alloys, disorder by irradiation 2=4442
 U₂Mo, phase change and disordering by irradiation 1=1415
 UN, fission fragment damage by X-ray diffraction 2=6326
 UN nuclear reactor fuel prod., and U-N phase diagrams 4=12321
 U-Nb alloys, phase transformations rel. to cooling 3=8894
 U-Nb, effects of irradiation 0=12084
 U-Nb, γ - β transformation rel. to cooling 3=8888
 U-Nb, as high-temp. reactor fuel 2=6062
 U-Nb(0.3-17.3 at. %), metastable phases, quenching rate effects 4=13609

Uranium compounds—contd

- U-Nb, superconducting in high mag. fields 3=16879
 U-Nb, transformation of β -phase 3=16100
 U-Nb, U-Zr-Nb, γ solid solns., decomposition 2=21555
 U-O bond, force const., in UO₂²⁺, from K₃UO₂F₆ spectrum, i.r. 3=22575
 U-O system from U₃O₈ to UO₂, cond. elec., temp. var., phase transformation 4=6991
 UO and UO₂, ionization by electron impact 4=16437
 UO₂ aqueous slurries, study 1=4107
 UO₂ cermet reactor fuels, burnup 1=13880
 UO₂, cleavage surface 1=20385
 UO₂ cond. thermal, low temps., n irradi., spin-phonon effects 4=17386
 UO₂, creep deformation 3=25632
 UO₂, crystal growth, habit differences 2=14941
 UO₂, crystal growth by sublimation 2=12890
 UO₂, crystal struct., atomic, non-stoichiometric 4=23496
 UO₂, crystal structure, by neutron diffraction 3=20844
 UO₂ crystals, U precipitation 3=13591
 UO₂, crystallite size and strain 2=23831
 UO₂, Debye-Waller factor and characteristic temp. 4=10530
 UO₂, density rel. to melting 4=24438
 UO₂, diffusion of fission products 2=6377
 UO₂, diffusion of fission Xe, on annealing at 1400°C 4=12805
 UO₂, diffusion of O¹⁸, mech. 2=3944
 UO₂, diffusion of Rn 1=17563
 UO₂, diffusion of U ion 2=3949
 UO₂, diffusion of Xe¹³³ 2=6362
 UO₂, diffusion of Xe, increase on irradiation 4=6879
 UO₂, dimensional, structural and thermal effects of irradiation 4=22653
 UO₂, dislocations 3=17733
 UO₂, elec. cond., 90-800°K 4=15546
 UO₂, elec. props. in single crystals, 90°-900°K 3=25372
 UO₂, epitaxial growth on CaF₂ 4=2040
 UO₂, evolution of structure during fuel rod irradiation 3=25650
 UO₂ films, damage due to irradiation 1=3700
 UO₂ films, damage due to irradiation 1=3699
 UO₂ films, electron emission due to emerging fission fragments 2=11703
 UO₂ films, energy of fission fragments 3=4678
 UO₂ films, fission fragment tracks 3=822
 UO₂, fission fragment tracks 3=17805
 UO₂, fission fragment tracks due to neutrons 2=18368
 UO₂, fission fragment tracks in thin films, electron microscope examination 1=2003
 UO₂ fission-induced vaporization 3=3935
 UO₂, fission products, volatile, emission 3=22440
 UO₂, focussed collision sequences, by 50 keV Xe⁺ 4=6902
 UO₂, fuel element, transient thermal behaviour 2=20726
 UO₂ fuel elements, temp. distrib. 3=10432
 UO₂, high density, grain boundaries, thermal etching evidence 4=26700
 UO₂, high temp. substoichiometry 2=21534
 UO₂, hydrofluorination, optical interference meas. 3=24043
 UO₂, incandescent, thermal conductivity 0=8821
 UO₂, indentation, plastic behaviour 2=19022
 UO₂, inert gas release, abnormal kinetics 3=22441
 UO₂ ions, luminesc. rel. to adsorbent surg. 2=14738
 UO₂, irradiated, activity 1=17191
 UO₂, irradiated, damage study 1=17587
 UO₂, irradiation defects, electron microscope study 3=22847
 UO₂, magnetic susceptibility 3=8642
 U₃O₈, magnetic susceptibility, to determine valency 3=8642
 UO₃, microstructural changes, rel. to irradiation burn-up 3=20960
 UO₃, microstructural changes, rel. to neutron-irradiation 3=20958
 UO₂, N diffusion kinetics 4=28493
 UO₂, neutron resonance absorpt., temp. depend. 1=16810
 UO₂, nonstoichiometric, electrical cond., thermoelec. power 1=17641
 UO₂, non-stoichiometry 2=10776
 UO₂, as nuclear reactor fuel 2=6060
 UO₂, occurrence of free U 2=14926
 UO₂, octahedral habit of electrodeposited crystals 1=20431

Uranium compounds—contd

- UO_2 , over-sintered, grain-boundary precipitates in 4=7680
 UO_2 , paramag. susceptibility, neutron irradi. 3=15758
 UO_2 particles in graphite, stored energy on fission 1=12235
 UO_2 pellets, nitrogen release at high temp. 4=12323
 UO_2 , pore distrib., sintered in H 3=11311
 UO_2 , quadrupole-quadrupole interaction effects 1=6426
 UO_2^{3+} radiationless resonance energy transfer to Nd^{3+} in Ba crown glass 4=22914
 UO_2 , radioactive current from U 1=19378
 UO_2 , refractive index 4=11350
 UO_2 , review of sintering techniques 0=14056
 UO_2 , single crystals grown by electrodeposition 2=4385
 UO_2 single crystals, impurity study by Mössbauer effect 4=17428
 UO_2 , sintered, electric resistance anomaly 4=4205
 UO_2 , sintered, electron, optical microscopy 2=4518
 UO_2 sintered, fractographic studies 1=20647
 UO_2 , sintered, microfractographic obs. 3=3240
 UO_2 , sintering in CO_2 atmosphere 4=4654
 UO_2 , sintering in H_2 at 1350°C 0=8464
 UO_2 , sintered, high-temp. torsion 3=6777
 UO_2 , sintering of high-density bodies 1=20646
 UO_2 , slip lines to distortion during crystal growth 3=25285
 UO_2 , solid soln. formation with foreign elements in $\text{U}_3\text{O}_8 \rightarrow \text{UO}_2$ transform 3=25765
 UO_2 , stacking faults 4=25953
 UO_2 , stoichiometric, creep deform. 3=8773
 UO_2 , structure of heat treated crystals 4=7679
 UO_2 , suspensions in NaK, stabilization 0=14143
 UO_2 , Swedish investigations of use as reactor fuel 1=3480
 UO_2 temp. spike defects due to neutron flux 1=17515
 UO_2 , thermal atomic motions up to 1100°C 3=20845
 UO_2 , thermal cond. changes at high-temp., theory 4=12664
 UO_2 , thermal conductivity at high temps. 1=14191
 UO_2 , thermal cond. during irradi. 2=3860
 UO_2 , thermal cond. and phonon path at low temp. 2=3859
 UO_2 , in thermal reactor, Doppler effect 2=3676
 UO_2 -BeO, UO_2 -ThO₂-BeO, inert-gas emission during neutron irradi. 2=20727
 $\text{UO}_2\text{Cl}_2 \cdot 2\text{H}_2\text{O}$, spectrum, u. v. absorpt. 4=10198
 $\text{U}^{235}\text{O}_2\text{F}_2$, aqueous solutions, critical parameters of slab volumes 0=13323
 $\text{UO}_2 \cdot 2\text{H}_2\text{O}$, antiferromag. props. 4=4395
 UO_2MoO_4 , crystal structure 4=23499
 $\text{UO}_2(\text{NO}_3)_2$ aqueous solutions, critical parameters in nuclear reactors 4=12316
 $\text{UO}_2(\text{NO}_3)_2$, hexahydrate and -deuterate, luminescence, pyroelectricity 0=18138
 $\text{UO}_2(\text{OH})_2$, crystal structure 4=23498
 UO_2 -PuO₂, in U metal, burn-up fuel 2=3653
 UO_2 -Si, Zr or Th cermets, study 0=6533
 UO_2 -SiO₂ system phase diagram 4=5446
 UO_2SiO_3 , electron or light excited, luminescence 0=1753
 $\text{U}^{235}\text{O}_2\text{SO}_4$, aq., H bubbles on fission tracks 2=10990
 UO_2 -ThO₂-ZrO₂, structures 0=8229
 UO_2 , $\text{UO}_2 \cdot x$, structure, atomic arrangement space group 4=29145
 $\text{UO}_2/\text{U}_3\text{O}_8$ mixtures, sintering, activation energy 4=20790
 UO_2WO_4 , crystal structure 4=23499
 UO_2 -Y₂O₃ solid solns. diffusion of Xe¹³³, on irradi. and heating 4=15496
 UO_2 -ZrO₂, a.c. elec. conduct. meas. 3=10882
 UO_3 , crystalline hydrates, proton mag. reson. 2=10725

Uranium compounds—contd

- UO_3 , elec. cond., dissociation, 80-900°C 4=25992
 UO_3 (Mallinckrodt), crystal structure 0=3224
 α - UO_3 , optically active lattice vibrations 2=6581
 UO_3 , sintered, elec. cond. 298°-923°K 2=12496
 $\text{UO}_4 \cdot 2\text{H}_2\text{O}$, proton resonance and chemical structure 3=3203
 U_3O_7 , α and β -phases, thermodyn. props. 2=10329
 U_3O_8 , α -phase, elec. conductivity 4=1625
 U_3O_8 , crystal structure, neutron diffraction study 4=23497
 U_3O_8 , effect on spectral line intensity of carriers 4=26224
 U_3O_8 , elec. cond., dissociation, 80-900°C 4=25992
 U_3O_8 , geophysical prospecting, γ -ray log, computer analysis 3=21027
 U_3O_8 , irradiated, diffusion phenomena of fission products 0=15620
 U_3O_8 , magnetic susceptibility, temp. var. 3=8642
 U_3O_8 neutron diffn. structure study 4=29144
 U_3O_8 , semicond. system, e.m.f. on neutron irradi. 2=6485
 U_3O_8 , slow-neutron capture by bound nuclei, analogue of Mössbauer effect 1=5927
 U_3O_8 , stacking fault formation on partial reduction to UO_2 0=20793
 U_3O_8 , twinning, slip and cleavage 2=12883
 U_3O_8 -x, "out-of-step" structure 3=811
 $\text{U}_3\text{O}_8 + \text{Cr}(\text{CO})_6 \rightarrow \text{Mo}^{99}(\text{CO})_6$ by fission 2=1942
 U_3O_8 -ThO₂, formation by gas phase reaction 4=13462
 U_3O_8 -ThO₂, solid soln. formation by gas phase reaction 4=13462
 UO_3 - U_3O_8 , elec. props. rel. to phase transition 3=25371
 U_4O_9 , cryst. struct. 2=10885
 U_4O_9 , precipitation in UO_2 , habit planes 0=8150
 U_4O_9 , structure, atomic arrangement, space group 4=29145
 U_4O_9 , thermal expansion, up to 1026° 3=15445
 UOS , antiferromagnetic props. 3=15731
 UOS , mag. props. and structure 3=13283
 UOS , mag. susceptibility temp. var., two Curie consts., explanation 3=15760
 UP , vaporization, mass spectrometric study 4=21364
 U-Pu , cryst. lattice parameters 2=19087
 α - U-Pu , lattice consts. at room temp. 3=25733
 U-Pu-C ternary phase diagram below 50 at. % C 3=25747
 U-Pu-C ternary system, below 635°C 3=25748
 U-Pu-Mo , phase transformations 2=17043
 U_2Ru , unit cell 2=4444
 US , magnetoresistance, Hall effect, elec. cond., 4.2-360°K 4=12842
 US and US-ThS solid solns., thermoelec. props. 4=26162
 US , vaporization 1=11863
 US , vaporization, thermodynamics, phase behaviour 1=11862
 USe , covalent bond 2=3771
 U_2Se_3 , covalent bond 2=3771
 U_3Se_4 , covalent bond 2=3771
 U-Si , (U_3Si), effects of irradiation 0=12084
 USi , $\text{USi}_{1.88}$ and USi_2 , crystal structure 1=15089
 U-UO_2 , phase diagrams 4=11409
 U-Zr alloys, phase transformations 4=7516
 U-6 wt. % Zr , characts., transformations 2=4433
 U-Zr , γ and δ , elec. resistivity and mag. susceptibility 2=620
 U-Zr-Nb , effects of irradiation 0=12084
 U-Zr-Nb , irradiated, corrosion in water 0=14069
 U-Zr , U-Al fuels, U^{238} resonance neutron capture 2=5945

Vacuum apparatus

See also Glass-metal seals

air-admittance valve, all-metal, disk type 1=2801

air-lock, sliding capsule, automatic 4=14230

all-metal bakeable taps 0=981

all-metal systems 0=12437, 16739

all-metal systems, joints, valves and cold traps 1=9429

anti-emission materials with thoriated W cathodes 3=9523

apertures to atmosphere in electron-beam systems 4=8281

automatic control, $760-1 \times 10^{-8}$ 0=12442

bakeable seals, using Al wire gaskets 0=5064

balance, micro, quartz crystal 3=18774

balance, vacuum, recording type 4=11012

bibliography 2=2791

building precautions, review 2=7263

C-Stellarator, u.h. vacuum system 1=4619

capillaries, thin walled, for X-ray diffraction of pyrophoric crystals 4=23406

centralized evacuation, by prevacuum pumps 2=19637

cold trap, mains-operated filter 3=18867

cold trap for pump vapours, with high efficiency and long life 1=5313

cold trap, with water-cooled thermopile 0=16744

conductance of systems for molecular flow 0=19173

conference, Boston (Oct. 1963) 4=16153

contamination, silicone 3=14229

control system, semi-automatic 1=6913

demountable seal, -188°C to $+800^{\circ}\text{C}$ 0=5063

demountable seats and heat-resist. valves 3=14230

dessicator for photographic materials 0=19238

diffusion-pump thermostat 0=218

for discharge apparatus, "Tokamak 2" 1=1900

electron-beam systems, vacuum-to-atmosphere apertures 4=8281

for electron ejection, Auger, from solid surfaces 3=14619

electron tubes, gas evolution and absorption 1=18478

electronic tubes, construction materials 1=18488

enamelled iron walls, for ultra-high vacuum containers 0=8725

epoxy-resin joints, for sealed-off high-vacuum tubes 0=10705

evaporation apparatus, shutter between source and work 1=9432

evaporation source, with controlled characteristics 0=16361

evaporation source, for deposition of Al 0=19240

evaporation units, for thin film production 1=184

evaporator for radioactive substances 1=1774

feedthrough, high-vacuum dual-motion 4=2742

feedthrough, rotary 4=8278

flap-valve, for narrow apertures 0=19235

flowmeters, with resistance manometers 1=4394

fluid-free stainless-steel system, 10^{-10} torr 3=23945

fluid traps 0=19233

freeze-drying, large scale 0=5066

furnace 0=8724

furnace, compact 1=13018

furnace, with fast response and low inertia 1=13019

furnace, up to 1400°C 0=8461

furnace, r.f. induction, for clean target preparation 0=111

furnace, 2800°C , resist. heated 4=2746

furnace, for X-ray diffractometry 0=8185

gas collection and meas., grease-free apparatus 3=9521

gas evolution and absorption from vacuum tube materials 1=18494

gas-filled tube purification, electrophoresis appl. 2=2802

gas inlet valve, for pressure distrib. in C stellarator 4=18302

gate valve, with large aperture 3=23953

glass contamination, effect on breakdown 3=9759

glass fibre mats, evacuated, as thermal insulation 0=1051

glow-discharge coating, directional 0=113

for high-purity gases 0=5295

high temperature apparatus, for spectroscopy 2=17627

high-temperature pressure-vacuum apparatus 0=2062

high-voltage continuously-pumped system, pre-breakdown conduction 0=16748

insulated terminals, demountable 0=16743

ion-injection magnetic mirror device; vac. system. 3=185

joint, flexible, using rubber "O"-ring 1=9431

joints, cylinder and ball and socket, for Hg manometer 3=18869

Vacuum apparatus-contd

lead-in electrode, exchangeable 3=23952

leak detector, mass spectrometer type 1=4390

leak detector, using O_2 and thoriated W diode 0=14701

leak detector, resistance type 1=2797

leak detectors, mass-spectrometer type 0=283, 2191, 8723, 12439, 14703, 15087, 19237

leak valve, all metal 0=19234

leak valve, for ion source, adjustable 0=12643

leak valves 0=19236

level control, ultrahigh trap 4=27237

limiting pressures, meas. using omegatron mass-spectrometer 0=12436

liq. He trap 0=3579

liquid nitrogen traps, automatic refilling 3=18868

luminescence of solids, study 1=12933

magnetic vacuum valve improvements 3=1740

manipulator 2=1217

in manometer, ionization, by cooling 2=2783

mass spectrometer use in electronic tube technology 1=18945

mechanical rate of deposition monitor 4=253

metal-ceramic seal, 19 in. diam., bakeable 4=18299

metal gasket-seals, theory and application 4=18298

metal gasketed joints, for ultra-high vacua 1=2799

metal plant. for alloy film prod. 2=1216

metallo-plastic joints 1=2800

mica window, for demountable devices 2=21959

microbalance, for evaporation rate meas. 4=29805

microbalances, effect of Knudsen forces 4=18019

microbalances, errors from unequal thermal expansions 4=18020

molecular flow through various pipes, Monte Carlo calc. 0=12431

molecular sieves and desiccants, uses 2=5085

motion transmission, into vacuum, leak-free system 2=9326

motor, contamination-free 4=2743

multiple glass-W rod seals, prodn. method 4=2748

"Nimrod" system, design and materials 1=18479

nonrefrigerated traps 0=108, 16745

O-ring seal, In, tight to HeII 0=3574

O-ring seal, rolling-type 1=2798

omegatron, characteristics 1=16436

optical props. det. of metal films 0=19422

for particle accelerators, water-cooled cap and echelon unit 1=9426

for polarizing spectrometer, ultra high system 4=14225

pressure controller, automatic, for liquid-He cryostats 0=112

proton synchrotron (Harwell), leakage within resin laminates 2=1218

for proton-synchrotron at Saclay 1=1550

proton synchrotron system, epoxy resin 4=19151

regulator for gas flows down to 0.01 cc min^{-1} 1=18489

residual gas composition with condensation pumps 0=12441

residual gas composition in high-vacuum systems 1=18490

residual gas investigation 1=18491

residual gas spectra 4=21188

review 2=1212

rotary feed through for liquid N 4=27238

rotational drive, high-speed 2=19639

rubber, silicone, outgassing 4=8280

seal, optical flats 4=2747

seal, rotation, Teflon 4=8276

seal, ultra-high vacuum, for space simulation tests 1=10557

seals, Al foil gaskets 4=18296

seals and gaskets, for ultra-high vacuum systems 2=15664

seals, O-rings with blank-off threaded plugs for unused feedthrough holes 3=9520

shutters, magnetically operated 2=69

sliding bar vacuum lock for mass spectrometer ion source 4=16562

sluice, for mass-spectrometer 2=22282

sluice valve of large aperture 1=5310

stopcock, metal 2=2800

students' kits 0=19241

sublimation apparatus, prep. of α -active thin sources 0=7489

Teflon coatings, to reduce gas-wall interaction 4=18301

Vacuum apparatus—contd

- television tubes, residual gas investigation 1=18492
- thermal cond. meas. of powders 4=2865
- thermal gas flows, production 4=5260
- thermocouple, Mo and Kovar fused to glass 3=24092
- trap, glass, const. level liquid N₂ 4=18303
- traps, copper, for ultra high vacua 3=5475
- tube materials, monitoring of props. 3=9522
- turret for vapour deposition, multiple heater 2=21961
- u. v. irradiation chamber, for space vehical thermal control coatings 4=18307
- ultra-high (1.5 × 10⁻⁹ torr) system, for large volume 2=1213
- ultra-high systems, with oil diffusion pumps 1=2793
- ultra-high vacuum production, Alpert's method, for surface phenom. studies 0=14699
- ultrahigh vacuum, review. 3=180
- ultrahigh vacuum in small glass systems 3=3840
- ultra-high vacuum unit 0=6841
- vacuum evaporator for ultra-high vacuum range 3=23954
- valve, all-metal, bakeable, design 4=5262
- valve, all-metal, for ultra-high vacuum 1=10558
- valve, bakeable, high-conductance, using 6 in. steel ball 3=1739
- valve, electrodynamic, for fast "pulses" of gas 2=7268
- valve, fast acting, for gas injection 0=3577
- valve, glass, for high vacuum 2=2801
- valve, glass, using liq. gallium seal 2=19638
- valve, greaseless, non-absorbing 1=6915
- valve, heated Pt wire for variable leak 2=5084
- valve, large, ultra-high vacuum 3=7255
- valve, metal, for high vacuum 2=15663
- valve, packless, all-metal, for 743° - 77°K 3=7257
- valve, wide aperture for shock tube evacuation 4=27235
- valve, with rolling C- ring seal, greaseless 4=8279
- valves, all-metal, modification 4=2744
- valves, u.h.v., bakeable 3=3843
- valves, for ultra-high vacuum 0=3575-6
- vapour pressure measurement, effusion method, metal cell 2=43
- window seal, bakeable 1=5311
- window seal, for gas laser 3=22026
- X-ray camera, high temp., for reactive metal exam. 0=13972
- Young's modulus meas., using transverse vibrations, -200° to +700°C 0=8099
- zeolite oil vapour trap introduction 3=14226
- Zeta, 1958 modifications 0=5838
- Al creep meas., high temp., induction heat source 4=26496
- Al wire seals for bakeable vacuum systems 1=183

Vacuum gauges

- Alpert-type, construction and characteristics 1=5307
- Alphatron, using radioactive materials 3=5469
- using alternating gas discharges, for rockets 2=2796
- based on meas. of radiometer forces 4=5260
- Bayard-Alpert with additional differential collector 3=21458
- Bayard-Alpert, anomalous residual currents 4=2740
- Bayard-Alpert, bistable operation 2=9325
- Bayard-Alpert, CO₂ dissociation 2=19631
- Bayard-Alpert, change of X-ray limit 3=5470
- Bayard-Alpert, clean-up of argon 1=9433
- Bayard-Alpert, contaminants, by omegatron mass spectrometry 3=21460
- Bayard-Alpert, filament impurities rel. to operation 4=18283
- Bayard-Alpert, increased pumping action, rel. to adsorption 3=16669
- Bayard-Alpert, ion sorption characteristics 2=2792
- Bayard-Alpert ionization, ion pumping of noble gases 1=10552
- Bayard-Alpert ionization type, erroneous readings, causes 1=11796-7
- Bayard-Alpert and magnetron, pres. meas. < 10⁻¹⁰ torr 3=23951
- Bayard-Alpert, operation 2=13387
- Bayard-Alpert, pumping and desorption dynamics, 10⁻⁸ to 10⁻⁷ torr 4=18288
- Bayard-Alpert, pumping speed for N₂ 2=5080
- Bayard-Alpert, reverse X-rays 4=18285
- Bayard-Alpert, sensitivity optimization and ion current linearity 4=21195

Vacuum gauges—contd

- Bayard-Alpert, sorption, ion, Ar, N 3=23946
- Bayard-Alpert, for 10⁻³-1 torr 2=17520
- Bayard-Alpert, total pressure meas., < 10⁻⁸ torr 3=5474
- Bayard-Alpert type, meas. device 1=18484
- bibliography 2=2791
- calibration systems 0=19232
- calibration, 10⁻² to 10¹ mm Hg, by air injection 1=8169
- calibration, 10⁻³ to 10⁻¹⁰ torr 4=18279
- calibration uncertainty and traceability problem 4=18278
- capacity-type micromanometer 0=6843
- for cathode-ray tubes, gas press. meas. 2=2799
- cold cathode, for below 10⁻³ mm 0=12438
- cold cathode discharge gauge 4=18286
- combined thermoelec. and ionization gauge, 1-10⁻⁶ mm Hg 0=5060
- common types, lower pressure limits, review 2=2798
- conference, Boston (Oct. 1963) 4=16153
- diaphragm displacement, strain gauge obs. 4=29508
- electric discharge—mag. field type, review 1=5305
- electron-beam ionization, obs. by effect on space charge 4=18282
- using fast charged particles, review 1=2724
- fast ion gauge for neutral ion density nr. confined plasma 3=24297
- fibre, quartz damping calc. 4=14229
- field-emission microscope, gas-contaminated, single ion detection 4=2738
- gas viscosity meas. 4=14194
- heat cond., with saturation diodes 4=24279
- hot-cathode ionization gauge, life of oxide-coated filaments 2=19632
- hot-cathode magnetron ionization gauge for ultra high vacua 1=4386
- hot-cathode magnetron ionization, improved 3=14227
- in image orthicon tube, secondary electron multiplier as ionization gauge 4=18293
- ionization, B-A, elec. clean-up 3=16670
- ionization, Barkhausen oscillations, avoidance 1=1799
- ionization, Bayard-Alpert, bistable behaviour 0=5061
- ionization, Bayard-Alpert, cause of large-magnitude errors 0=19226
- ionization, Bayard-Alpert, gas desorption and pumping effects at 10⁻⁶ mm Hg 4=5257
- ionization, Bayard-Alpert, nonproportionality 0=2188, 19225
- ionization, Bayard-Alpert, outgassing difficulty, use of PCT gauge 1=18483
- ionization, Bayard-Alpert, ultra-high vacuum use 3=11843
- ionization (Bayard-Alpert) with photocurrent suppression 3=18865
- ionization, calibration for water vapour 2=2795
- ionization, cold cathode, three-electrode form 0=19230
- ionization, control circuit 0=2190
- ionization, with electron multiplier output 4=8270
- ionization, electron-surface interaction effects 4=18284
- ionization, emission stabilizer 2=21956
- ionization gauge for atmospheric meas. 4=30927
- ionization gauge, cold cathode, characteristics 4=14228
- ionization gauge, emission current regulation 4=2739
- ionization-gauge filaments, protection 3=5472
- ionization gauge head, Bayard-Alpert type 1=4387
- ionization gauge, new type 1=2796
- ionization gauge, with photomultiplier electron source 1=15977
- ionization gauge, power supply for pulsed magnetic field use 1=15980
- ionization gauge sensitivities, mass spectrometric determ. 3=23950
- ionization gauge, supply circuit 1=16216
- ionization, hot-cathode, linearity theory 4=249
- ionization, hot-cathode, resistive-film elimination 3=23949
- ionization, hot-cathode, sorption and desorption of gas 0=16746
- ionization, improving sensitivity 4=16159
- ionization, ion energies in cold cathode, discharge 0=5275
- ionization, manometer, for halogen-bearing gases, calibration 2=2793
- ionization, meas., effects of adsorbed oxygen 3=21462
- ionization, "nude" gauge for density meas. in vapour stream 1=5104

Vacuum gauges—contd

ionization, Philips type, discharge mechanism 0=19614
 ionization, prod. and power supply 2=13388
 ionization, pumping mechanism of nitrogen 2=21957
 ionization, radioactive 4=16158
 ionization, range extension, by low intercept collector 4=16160
 ionization, recording, low-cost 2=21955
 ionization, re-emission of ionically pumped Ar 3=9518
 ionization, self-chopping 2=15661
 ionization, sensitivities 0=8722
 ionization, simple circuit, for 10^{-4} - 10^{-7} mm Hg 2=11434
 ionization, up to 10^{-1} torr 0=19228
 ionization, tetrode type 1=18487
 ionization, as thermal conductivity gauge 4=251
 ionization, for transient pressures 10^{-4} to 10^{-7} mm Hg 1=10554
 ionization type, review 1=5305
 ionization, for ultrahigh vac. mass spectr. 2=20054
 ionization, ultrahigh vacuum 4=250
 ionization, for very low pressures 1=11798
 ionization, wide-range, with Ni electrodes 2=7266
 Knudsen, cylindrical, construction and calibration 2=2797
 Knudsen, radiation pressure errors 4=24278
 low temp. (liquid He), Pirani 4=24277
 McLeod, diffusion effects with cold traps 4=8275
 McLeod, for gas-vapour mixtures 2=15659
 McLeod, for gases with high critical temp. 0=19227
 McLeod gauge, precision type 1=15978
 McLeod, improvement in operation 1=18486
 McLeod manometer with prescribed volumes as standard instrument 1=4389
 McLeod, mechanical, 5 to 500 μ 4=21194
 McLeod, source of error in cold trap system 2=11433
 McLeod, systematic errors, and use as standard 4=18277
 magnetic ionization gauge 1=12932
 magnetron and ionization gauges, mutual interactions 4=8272
 magnetron, instability 4=8271
 magnetron type 0=980
 magnetron type evaporation-ionization 4=8268
 magnetron, with elimination of oscillations 4=8269
 mass spectrometer, for partial press. 4=29681
 micromanometer, electrical, range 10^{-4} to 1.0 in water 1=10553
 molecular manometer, heat transfer 1=15979
 molecular streaming, discrepancies due to 0=2186
 molecular vacuum pressure meter 1=18482
 oil-filled manometer 3=9519
 oil manometer, self degassing 2=5083
 oil, sloping limb, out gassed by mag. stirring, down to 5×10^{-2} torr 3=21459
 omegatron, as mass spectrometer 3=5474
 omegatron, for partial press. meas. 4=2741
 omegatron, for partial press. meas. $<1 \mu$ torr 2=13386
 orbitron ionization gauge 4=18289
 P I G reflex pulse discharge, measurement of temp. 3=24229
 partial pressure, elec. mass filter appl. 1=18485
 for partial press. meas., mass spectrometers 4=5261
 partial-pressure gauge, fast electrometer-amplifier 4=18292
 Penning, rise time <1 msec 4=18290
 Philips, enhanced linearity, ruggedness 2=5081
 Physical Society exhibition review 4=23981
 piezoelectric oscillator manometer 1=8817
 Pirani, calibration for pressure measurement 1=4388
 Pirani, differential, for dynamic pressure meas. 3=1736
 Pirani gauge, using Pd barrier, for high press. leak detection 0=5062
 Pirani, thermistor-type 0=19231
 power supply 2=2794
 press. meas. in presence of condensable vapours, use of "air-bleed" 1=5308
 pressure scale, inverted logarithmic 1=5299
 pressure standard, proposed unit 0=19222
 pressure transducer, 10^{-5} -200 mm Hg range 2=19506
 pulse compression, thermal 2=19635
 radiometer, Klumb-Schwarz type, theory 4=252
 readings, interpretation 3=16671
 Redhead magnetron and Bayard-Alpert on Explorer XVII for upper atmosphere meas. 4=20859

Vacuum gauges—contd

Redhead magnetron, inverted magnetron, suppressor grid ion, characteristics, 10^{-7} to 10^{-14} torr 4=18280
 Redhead, relative sensitivities, pumping speed 2=21954
 residual mixture, electron-adsorption method 2=1215
 "Reva" friction pump 2=5082
 review 1=5306
 review 2=7263
 review of recent progress, ultra high 4=8257
 review, ultra high 4=8274
 semiconductor manometer, $1-10^{-6}$ mm Hg 0=2189
 semiconductor, thermistor 4=11266
 for space simulation chambers 4=18294
 spinning rotor, for $<10^{-4}$ torr 2=7265
 spiral Bourdon gauges from Pyrex 1=9362
 standard unit of pressure ("vac"), criticism and defence 1=9425
 standards and calibration technique 4=18277
 "tensimeter", new gauge for 1 mm Hg to 1 atm 1=10555
 thermal conductivity type 0=19229
 thermal, in pulse pressure operation 1=15976
 thermistor current, indirectly heated 4=27234
 thermistor hypsometer, with high accuracy 0=914
 thermistor, influence of wall temp. 0=6842
 thermistor pressure gauge design 1=10471
 thermocouple, circuit diagram 3=5473
 thermocouple, const. temp., high-sensitivity probe 4=18287
 thermoelectric, extension to 5×10^{-6} mm Hg 2=19633
 tritium adaptation to measuring equipment 4=5259
 using tritium source, 10^{-4} to 200 torr 4=18291
 types and calibration methods, review 2=17519
 ultra-high vacuum, nonbaked, outgassing and directional press. 2=9324
 for ultrahigh vacuum, review 1=5304
 units 4=18254
 VG-1A ionization gauge, sensitivity calc. 1=6914
 vibrating vane, absolute gauge, to 10^{-9} mm Hg 2=19634
 viscosity indicating, theory 2=19636
 Wrede gauge of improved design 1=9427
 Hg manometer, joints, cylinder and ball and socket 3=18869
 Hg, shortened 3=1737
 O₂, partial pressure meas. 1=9361

Vacuum pumps

adsorption, charcoal, for metal structure studies 2=2784
 adsorption, using cold charcoal 0=8721
 adsorption, for H evac. 2=5079
 adsorption, large capacity 0=16741
 adsorption type, high capacity 1=4384
 backstreaming in baffled systems 4=18260
 back streaming and diffusion effects 4=29680
 Bayard-Alpert ionization gauge, pumping dynamics 10^{-8} to 10^{-7} torr 4=18288
 Bayard-Alpert ionization type, pumping of A, N₂ and H₂ 1=15971
 bibliography 2=2791
 charcoal, active as sorbent for 10^{-3} mm Hg 3=18866
 chemical and ionic, general principles 1=15970
 circulation pump 4=27232
 clean metal surface pump 3=23948
 comparison 4=8264
 condensation, gaseous, by refrigeration 4=5255
 condensation, H, large, for u.h.v. 3=182
 condensation, limiting vacuums 4=14226
 condensation, residual gas comp. in evac. system 0=12441
 conference, Boston (Oct. 1963) 4=16153
 continuously pumped linear accelerator 1=4676
 control system, semi-automatic 1=6913
 cryogenic pumps, physical principles 3=11841
 cryopump configurations, free-molecular flow regions 4=11264
 cryopumps, speed meas. 4=18272
 diffusion, development 4=18259
 diffusion, glass-Hg, pumping speed, rel. to condensing wall temp. 2=19627
 diffusion, Hg and oil, max. attainable vacuum, comparison 0=2188
 diffusion, Mg, with liquid N₂ traps 4=18264
 diffusion, metal-oil, with discharge tubes sensitive to hydrocarbons 2=2788
 diffusion, for nuclear reactors, fusion 4=8264

Vacuum pumps—contd

diffusion, new nozzle arrangement 4=245
diffusion pump baffle, circular chevron 3=18863
diffusion pumps, developments and applic., review 1=8168
diffusion pumps for 4×10^{-10} torr 1=2794
diffusion pumps in series, with glass traps, for $(4 \text{ to } 5) \times 10^{-10}$ mm Hg 4=248
diffusion, speed meas., dome fitting 0=978
diffusion, use of di-butyl-phthalate fluid 4=8260
diffusion, use at ultrahigh vacua 2=13384
diode getter ion pump, pumping action, study by tracer technique 4=14227
diode type getter ion pump for inert gases 3=14224
for electricity, direct converter, Cs, continuous 4=24543
evapor-ion pump development 1=4385
evaporation, with liquid He trap 0=3571
flow, gaseous, thermomolecular, and pump throttling 4=8265
fore-pump, speed meas. 2=7262
free-molecular flow through clearance with one moving wall 3=1716
freezing, gas, high speed 4=11261
gas discharge, high speed pumping 0=3570
gas discharge, pumping effect 0=8720
gas pressure maintenance device 1=15975
gas trapping during ion pumping 4=8262
getter-ion 2=15657
getter-ion, grids, plasma containment 4=18967
getter ion, mechanism and development 3=18864
getter-ion, operation and applic. 0=107
getter-ion, protection circuit 2=13382
getter ion-pump for electron tubes 1=11795
getter-ion pumps, integration of current 1=5302
getter-ion, theory and design 0=5058
getter-ion, Ti droplet, pumping characteristics 0=16742
getter-ion, with Ti evaporation by heat 2=15656
getter-ion, Ti sublimation and ion pumping 4=18270
getter-ion, Ti or Zr, review. 3=181
getter-ion, for ultrahigh vac. mass. spectr. 2=20054
getter pump, flash-type, for evacuation of large volumes 4=21189
glass oil-vapour pump design 0=976
heated-H condensation, 4×10^{-10} mm pressure 4=27233
hydrogen condensation, $\sim 10^{-9}$ mm Hg 2=2787
ion diode, wall potential 2=2786
ion drag, using razor-edge emitters 2=2785
ion getter, circuit diagram 3=5471
ion-getter pumps, high-speed, demountable 1=1773
ion, high-speed, discharge axial field 0=3570
ion pump configurations, rel. to Penning discharge 4=18265
ion pump, high pumping speed, modified Bayard-Alpert 1=2795
ion pump used as leak detector 1=4391
ion pump, for Ti evap. 2=7264
ion pump, ultimate press. 4=18269
ion pumps, gas discharge pumping action in mag. fields 4=16155
ion pumps, titanium type 1=18481
ionic pumping, influence of initial conditions 1=15972
ionization, glass wall potential 1=15973
ionization, re-emission of Ar 3=9518
ionization, for ultrahigh vac. in small glass systems 3=3840
isotope separation, in molecular pumps 0=4161
kinetic pumping systems, surface contamination 4=21566
large ion, magnetic field design 4=18267
low temp., in near free-molecule flow region 4=12262
low temp., speed of a shielded surface, calc. 4=11260
magnetron type evaporation-ionization 4=8268
manifold outgassing rate, inclusion in pumping equation 4=18257
mass spectrometer investigation 4=8273
mechanical booster, backflow study 4=247
mechanical, Gaedes' influence 4=8267
mechanical, pumping rate calc. 2=19630
mercury diffusion, RVA-1-2 type 2=21953
miniature pump, with Ti getter 0=14700
molecular 0=2187
molecular, light and heavy gas selective pumping 2=19629
molecular sieve 2=15658
narrow slot differential pumping 4=18258
oil diffusion, backstreaming rate, nozzle design effect 4=18261

Vacuum pumps—contd

oil diffusion, decomposition products, effect of operating conditions 2=9323
oil-diffusion, for particle accelerators 1=9426
oil diffusion, residual gases 4=18262
oil diffusion, for ultra-high vacuum systems 1=2793
oil-vapour, NVO-40 4=16154
oil vapour, for 2×10^{-3} mm Hg, in vessels sprayed with Ti 2=19628
oil vapour, vel. distrib., from Laval nozzle 2=1214
outgassing rate, rel. to exposure and pumping time 4=18275
outgassing rates, rapid determination 0=2192
Penning, gas sorption characteristics 1=18480
Penning, molecular-sieve backed system 2=11432
phenoxy benzene pumping fluids 0=16740
plasma, from jet accel. by gradients of h.f. and static mag. fields 4=5605
poisoning prevention with alumina traps 0=16745
polyphenyl ether pumping fluids 0=16740
pumping at solid surfaces 3=21454
pumping speed, measurement 0=10702
pumping speed under quasi-stationary conditions 1=5303
pumping speed under quasi-stationary conditions 1=11794
Redhead gauge as pump, speed 2=21954
review 2=1212, 7263
review of recent progress, ultrahigh, getter ion, oil diffusion, cryogenic 4=8258
review of ultra high vacuum pumping systems 1=5301
Roots pump, speed 1=18482
Roots, theory and appl. 2=13383
rotary, for corrosive products 2=13385
rotary, design 0=3569
sorption, multisurface, molecular sieve 3=16668
speed meas., by metering dome, error correction 4=8263
speed meas., errors due to test domes and gas beaming 4=18273
speed, Ti, high temp. electrode effects 3=23947
sputter-ion, gas evolution during baking 4=18274
sputter-ion pumps, gas evolution during baking 4=21193
sputter-ion, reviews 4=8261
sputter-ion, with I/P characteristics down to 10^{-11} torr 4=18266
sputter-ion with thermionic electron injection 4=21192
sputtering-ion pumps, Ti sheets for cathodes 4=21191
steam ejector pump, 0.5 kg/hr capacity 4=246
"thermal gradient", experimental model 4=11263
titanium pump, high speed 1=12931
Toepler, liq. Sn, for transfer of high purity He 3=7254
u.h. pumping group, unitarily designed 4=18263
ultrahigh vacuum, effect of fore-vac. conditions 3=11842
ultra-high vacuum, review 4=27231
ultrahigh vacuum in small glass systems 3=3840
vapour pressure measurement, in 2 methods 2=2790
vapour pumps, process affecting efficiency 3=1735
vapour pumps, theoretical development 1=15969
vapour, review 4=8266
very high speed, ultra-high vacuum 2=5078
zeolite backing pump, for Al vessel outgassing characteristics 4=18296
50,000 l/sec, cold cathode ion pumping with active film gettering 4=18268
H condensation method 1=8838
He condensation, for mag. trap evacuation 3=21456
He and He-Ar mixtures, cryogenic tests, 2.5° to 4.2°K, below 10^{-6} mm Hg 4=2736
Pd or PdAg diaphragm, heated, for H 3=14225
Ti, construction. 3=183
Ti getter, optimum Ti evap. conditions 4=5256
Ti getter pump 0=5059
Ti getter pump, with high pumping speed 0=977
Ti ion getter, anomalous currents 4=21190
Ti-ion pump, props. 2=68, 2789
Ti ion-sorption, design 4=16156
Ti, for mass spectrometers 3=16994

Vacuum technique

adsorption and desorption in partial and ultra vacua 3=18862
alkaline earth oxide coated cathodes, activation rel. to Ba and Mg getters 4=21561

Vacuum technique—contd

all-metal systems, ultra-high vacuum
 production 1=5307
 alloy formation by deposition 0=21234
 alloy vaporization, 760°-980°C, 5×10^{-7} to 10^{-9}
 torr 4=18500
 annealing in high vac., optical heating system 0=14900
 apparatus for evaporation rate and reaction
 kinetics obs. 4=17854
 arc evaporation of refractory metals 1=6688
 in atomic and nuclear research 2=17516
 automatic pumping system 3=21455
 bakeout, Al foil oven 2=11435
 balance, torsion micro, for high-vacuum work 3=7166
 ballast gas admission, into vacuum pump 2=17517
 bibliography 2=2791
 blood preparations 1=5316
 book 2=5075
 book 3=5596
 book, vacuum and electronics, applied physics 4=8581
 breakdown, elec. 4=18754
 calorimetry, exploding wires study 2=22082
 cathode desorption studies, mass-spectrometric
 methods 1=9430
 ceramic-metal seals, elec. lead-ins 4=18300
 Ceto getter, study of crystal structure 1=15124
 charcoal, active, as sorbent for 10^{-3} mm Hg 3=18866
 cheap construction methods 4=18256
 chem. analysis of residual gas, ion source,
 negative 3=21012
 cleaning traps by flushing 4=5254
 coating by glow-discharge, directional 0=113
 computations 1=15967
 conference, Boston (Oct. 1963) 4=16153
 conferences 2=5076, 17515, 21952
 conical basket for evaporation of metals and
 oxides 1=1627
 continuously pumped linear accelerator 1=4676
 counters, semiconductor, surface protection against Hg
 vapour 3=22043
 cryosorption, pressure response relationship 4=20815
 crystal cleavage 4=7534
 crystal fracture under vacuum to obtain clean
 surfaces 1=6146
 deposition of CdSe films 0=4693
 deposition of Cs, K, Rb, Na 3=11844
 deposition of dielectric films for capacitors 1=6562
 deposition, optical monitoring 3=11845
 deposition of radioactive materials 0=17514
 deposition of supercond. films, vapour sources 3=9525
 deposition systems, use of hollow cathode
 discharges 1=11803
 deposition vapour source for semicond. films 4=26090
 desorption, rubber, of gas, diffusion mechanism 4=4676
 detection of single ions using W point cathode 4=21196
 diode leak-detector control unit 2=1369
 discharge-tube clean-up, electrical method 1=9433
 discharge tubes, contamination from walls due to
 ions 2=9328
 drying, by sublimation 2=9327
 education course 4=18255
 electric breakdown, by particle impact on electrodes 3=380
 electrical clean-up of gases, calculations 0=109
 electroluminescent panels, preparation 0=18153
 electron diffraction examination, of solid films 2=4509
 electron gun, high-power 3=14649
 electron micrographs cinematography 4=17828
 electron tube, demountable, using moulding seal 4=5716
 electron tube residual gases, conference 4=11718
 electron tubes, gas evolution and absorption 1=18478
 electron tubes, methane pressure changes, rel. to cathode
 emission 4=21576
 electrostatic time-of-flight spectrometer 0=2402
 encapsulation of semiconductor devices 0=9984
 epoxide resins, as vacuum-tight materials 2=21958
 evacuation kinetics, effect of sorption 2=21950
 evaporated films, recording microbalance 4=5263
 evaporation, electron bombardment apparatus 0=5065
 evaporation, glass surface contamination 3=21461
 evaporation masks, registration in situ 2=19642
 evaporation method without irradiating object to be
 coated 3=21178

Vacuum technique—contd

evaporation of multilayer films, technique 1=11802
 evaporation, optical monitoring 3=11845
 evaporation on to organic films, prep. 3=25773
 evaporation by r.f. levitation, applic. to Si and Ge 2=23914
 evaporation rate meas. and control using "nude"
 ionization gauge 1=5104
 evaporation rate meas., from crystals 0=106
 evaporation source, for refractory materials 3=5553
 evaporation, sources, reflection 3=16135
 exoelectron emission from surfaces, examin. 0=3780
 fatigue measurement, apparatus 0=4566
 fatigue tester 4=20637
 feedthrough, high-vacuum dual-motion 4=2742
 film deposition by evaporation, review 1=5315
 film deposition, onto heated substrate 2=19641
 film-deposition rate, automatic control with crystal
 oscillator 2=12946
 film deposition, by slow sublimation 1=12665
 films, solid, residual stress control 4=23566
 flow, time of arrival measurements 1=160
 freeze-drying of tissues with thermoelectric unit 3=11619
 friction meas. at ultrahigh vacuum 3=25647
 friction and wear study, ultra-high vacuum
 methods 4=20639
 gas analysis, in high-vacuum systems 2=22283
 gas analysis, using omegatron 2=15662
 gas clean-up by electron collisions 1=15984
 gas cleanup, penetration depth investigation 0=9003
 gas compression by untight piston 1=15968
 gas desorption meas. by electron bombardment 4=21209
 gas desorption at rubbing surfaces 1=15983
 gas sample bottle connecting system 1=11801
 gas sorption on clean surfaces 1=18493
 gaseous desorption from Mo surface, 80°K,
 5×10^{-10} torr 4=18276
 gaseous heat conduction 0=19483
 gases, residual, analysis by desorption spectra 4=18306
 generation of clean surfaces 3=23499
 getter film interactions with ionizing discharges 4=21202
 getter flashing with electrode bombardment 4=21201
 getter, flashless, low operating temp. 4=21199
 getter gas evolution during evaporation, meas.
 methods 4=21206
 gettering, electrical in low-pres. discharge in steel
 vessel 3=7461
 getters, Ba, sorption of H_2 2=5086
 getters, Ba, in vacuum tubes, problems 2=67
 getters, Ce-Al-Th alloy, for CO_2 at high temp. 2=5087
 getters, non-evaporating, with surface adsorption and
 pore-diffusion 4=21198
 glass, aluminized, outgassing by electron bombard. 0=979
 glass cleaning techniques 0=3578, 6529
 glass, for deposition, residual contamination, electron diffr.
 study 4=13647
 glass, O_2 outgassing by electron bombardment 4=21204
 glow discharge elimination in furnace 1=6985
 high-temperature vacuum furnace 1=4507
 high-voltage armoured lead-in 3=3697
 inert-gas cleanup, discharge mechanism 0=10703
 inert gases ionically pumped into glass, thermal
 recovery 4=21205
 ion beam supersonic annular nozzle as differential
 barrier 4=24280
 ion pumping of inert gases 1=20677
 ion pumping of noble gases 1=10552
 in isotope separation, by cascade process 1=3525
 kinetic theory, appl. 3=9499
 lamellar solid cleavage studies, u.h. vacuum
 study 4=20674
 leak detection, bubble tests for gas tightness 4=27229
 leak detection using ion pump 1=4391
 leak detection, using mass spectrometer without bake-out
 or high vac. technique 0=14702
 leak detection, with omegatron 0=283
 leak detection, survey 1=4393
 leak detection, with thermal cond. gauge, sensitivity to
 var. gases and liquids 0=8723
 leak and Hg vapour detection by discharge
 spectra 4=18304
 liquid nitrogen trap, automatic feed 1=5314
 low-pressure meas. under transient regimes 2=15660

Vacuum technique—contd

low-temperature static seals 1=5312
 magnetic suspension balance 4=2508
 magnetic trap evacuation by He condensation pump 3=21456
 manipulation of Cl, NaCl-fusion cut-out 0=14703
 mass spectrometer electrostatic for residual gas analysis in high vacuum devices 1=18943-4
 for mass spectrometers 3=16994
 mass-spectrometric methods for gas desorption studies 1=9430
 mass spectrometry, review 3=12263
 mass spectrometry, at 10^{-10} torr 2=17904
 measurements, using forced periodic changes of molecular k.e. 0=6844
 metal film deposition, reduction of contamination 2=10942
 metal film resistors, prep. 0=8287
 metal film vacuum deposition, helium flush technique 1=7883
 metal-to-glass seal for cryogenic apparatus 1=11868
 metal outgassing, volume and surface effects 4=21208
 metal surface cleaning, by ion bombardment 0=8726
 metals, evap. from TiC heater 2=6850
 metals, films refractory, deposition, using spring-loaded conductors 3=9524
 metals, liquid, clean surface maintenance 2=7093
 metals, thin films, refractory 4=30672
 metals, surface purification, in vacuo, reviews 4=7699
 metallizing unit modifications 4=2745
 microbalance, helical tape, for use in high-vacua 3=21284
 motor, contamination-free 4=2743
 multiple film evaporation 1=9162
 nitrogen sorption on Ti films 3=23520
 nomenclature 4=18253
 in nuclear physics, handbook 3=2146
 omegatron, use for press. meas. in vacuum 3=3841
 optical film deposition, apparatus 1=4473
 outgassing, appl. of vac. process evaluation 2=5077
 outgassing, with mica, props. rel. to thermionic valves 2=21960
 outgassing, props. of Ni 2=5088
 outgassing speed measurement 1=5309
 oxide film deposition method 3=23955
 patterned film production, scattering effects 0=3282
 polythene capsule forming for combustion calorimetry 1=6986
 pressure and flow, choice of units 1=4383
 pressure units 1=5298
 pumping action of Cr, bomb. by electrons 2=11542
 pumping, of linear accelerators 0=2407
 pumping metal vacuum tubes, on double unit 1=4395
 purging chamber of contaminants 3=14223
 remote-opening device for vac. systems in rockets 3=3842
 replication for surface structure determinations 0=14046
 residual gas, analysis in evaporators 0=10704
 residual gas composition in vacuum systems 1=18490
 residual gas, conference 0=19224
 residual gas effects on deposited films 4=8273
 residual gases, investigation 1=18491
 residual gases in television tubes 1=18492
 review of problems in ultra high vacuum production 1=5301
 review of recent developments 1=5300
 review of recent progress, ultra high 4=8257
 review of technological advances 1=4382
 seal, coaxial line 4=29682
 seals, Al bakeable type 1=11800
 seals to quartz crystals, active-metal soldering technique 1=4165
 sealing radioactive sources 4=12172
 sealing wide bore silica tubing 4=11267
 selector valve with one knob 3=1738
 silicone materials, performance in thermal-vacuum environments 4=20414
 slide cleaning for deposition 0=110
 sliding seal 3=7256
 sorption, of activated gases, by Ti films 0=10374
 sorption meas. in u.h.r. and const. press 4=26718
 sorption, vaporization, decomposition of solids, meas. 4=5253
 sorption of water vapour on glass surface 2=6853

Vacuum technique—contd

space effects on materials, with u.v. radiation 4=20959
 stage for electro- and magneto-optical obs. at low temp. 4=16222
 surface contamination, in demountable systems, C film exam. by electron microscope 0=19239
 surface phenomena studies, ultra-high vacuum apparatus 0=14699
 symposium 0=5057
 teaching, diffusion-pumped system 1=2791
 teaching laboratory, cheap construction methods 4=18256
 temp. measurement using internal(disappearing) filament 1=11856
 use of titanium films for $\sim 10^{-9}$ mm Hg vacua 4=16157
 torsion microbalance for ultrahigh vacuum modifications 4=2510
 ultra-high, methods of production, review 4=27231
 ultrahigh, review 2=9322
 ultrahigh vac., to study physical adsorption at very low press. 4=7716
 ultra-high vac. technology, review (in Japanese). 3=179
 ultrahigh vacua, Mo vaporization technique 1=15974
 ultra-high vacuum, methods, requirements and limitations 1=2792
 ultra-high vacuum, production with oxide semiconductors, under electron bombard. 3=21457
 ultra-high vacuum production, by SiO gettering 2=9321
 ultra-high vacuum, review 1=4381
 ultrahigh vacuum, review. 3=180
 ultra-high vacuum technology 0=19223
 ultra-low pressures, review 1=18477
 units 4=18254
 units, use of mol. density for u.h.v. 4=27230
 unsupported films, production 2=21564
 vacuum circuit analogy with electric current circuit 3=21452
 vacuum sealing of leads to thermopile 1=10556
 vacuum trip unit, transistorized 1=2802
 walls, for cyclotron nuclear reaction chambers 4=16163
 windows in bubble chambers 1=3096
 X-ray monochromator isolating window 4=24778
 AgCl, outgassing props. 3=18870
 B evaporation, electron bombardment apparatus 4=14224
 C in cathode, effect on residual gases 4=21203
 Cs, deposition 3=11844
 H₂ vapour pressure measurement, 1.4×10^{-8} to 6.5×10^{-8} torr, 4.2° to 2.5°K 3=12008
 H₂ pressure regulator 4=14232
 H₂ and He continuous cryotrapping by Ar, 4.2°K 4=18271
 He diffusion in glass 1=10010
 He₂ and N₂ condensation on defined cooled surface, 2.5° to 29°K 4=8259
 K, deposition 3=11844
 Mb, films, deposition, using spring-loaded conductors 3=9524
 MgO cold cathode tube, residual gas analysis 4=21562
 Mo getters, efficiency, at liq. N temp. 4=11265
 Mo and W, pure, prep. by melting under vacuum 4=23349
 N, sorption speed during electron impact activation 4=18295
 Na, deposition 3=11844
 Na vapour etching, of sheet glass 0=21217
 O₂ detector, by chemisorption 4=10683
 Pt films by induction heating evaporation 3=19005
 Rb, deposition 3=11844
 Re, Re-W, Re-Mo props. 4=18297
 Si evaporation and film fabrication 3=20927
 Si films, electron beam bombard. 0=19423
 Ta, films, deposition, using spring-loaded conductors 3=9524
 Th and Zr alloy bulk getters, residual N₂, CO and H₂ pressures 4=21197
 Ti, as getter 0=3573
 Ti hydride gas generator, anal. of gas evolution 0=12440
 U deposition on organic backing 0=17288
 W, films, deposition, using spring-loaded conductors 3=9524
 Xe filling contamination by N₂ from Fe components 4=21207
 Zr-Al alloys, gettering props. rel. to structure 4=21200

Vacuum tubes

See Electron tubes

Valency

- atomic valence state, energies calc. 2=16522
 atoms, valence state by electron spectroscopy 4=19979
 bond resonance structures, for triplet state 0=17790
 compensator ions in colloids 2=21599
 covalency in octahedral complexes of Ni^{2+} , Co^{2+} , Mn^{2+} 1=17888
 dibenzene chromium mol., rel. to symmetry assessments 4=22389
 electron exchange between Ti(I) and Ti(III) 1=1476
 extraordinary basic functions 1=8850
 Group VII elements, rel. to equilibrium diagrams 4=13469
 meas. in electrode processes, by radioactive Ag microcoulometer 4=7764
 and molecular levels, from X-ray photoelectron spectra 4=23686
 semiempirical valence bond, calc. of electronic energies of CH_n 2=16534
 spinels containing Mn and Fe, ($\text{Fe}^{2+}\text{Mn}^{3+}$) assignment 0=3240
 transition metals, apparent metallic valencies 1=20624
 Al compounds, from X-ray emission $K\alpha$ spectrum 4=20062
 B and higher borides, valence orbital structure, systematization 0=13515
 BF_3 + dimethyl and diethyl ether addition compounds, vibrs. 4=25695
 $\text{i-B}_2\text{H}_{12}$, valence structure by X-ray diffraction 4=4602
 Mg-Mn ferrites, ion distribution and valence 1=14738
 MgO impurities, e.s.r. valency determ. 0=11795
 Mn, in α and β brasses 3=23140
 NdCd_{11} 3=13237
 Pb, metallic 0=4256
 Te ions 4=29225
 Ti in TiI_2 , from isomorphism with NH_4I , and CsI 3=11263
 U carbides 3=20843
 U oxides, X-ray $M\gamma$ emission spectrum last lines 3=23558
 U in U_2O_7 , from mag. susceptibility 3=8642
 UCd_{11} , electronic configuration and valency 3=13237

Van Allen radiation

See Atmosphere, radiation belts

Vanadium

- absorption spectrum in aqueous solution, crystal-field theory 1=8122
 ageing, strain, work hardening, rate, effect of dislocations 4=29021
 atom, V III spectrum meas. 3=8195
 atom, VII transition array for d^3-d^2p in LS coupling 4=6488
 atomic and electron heats, 10-273°K 0=20752
 atoms, doubly ionized, fine structure theory 4=1218
 cathode, fluorescence yield, X-ray photoeffect meas. 2=14704
 cathode, fluorescence yield by X-ray photoeffect meas. 3=6663
 crack formation, by post-irrad. thermal cycling 2=8751
 crystals, neutron diffraction spin-orbit interaction 3=18294
 diffusion, in liquid cast Fe, by electrolysis 3=5431
 diffusion of V^{48} in Ti, activation energy, frequency factor, temp. effect 4=28492
 e. s. r. in GeO_2 , amorphous and polycryst. 4=13330
 effect on mag. susceptibility of Al 0=16124
 elastic constants, for single crystals, 27°C 1=3954
 elastic moduli, 4.2-300°K 0=16200
 elastic moduli, normal to supercond. transition 2=7508
 electrical conductivity 2=10437
 electron spin resonance of V in TiO_2 1=1264
 electronic and nuclear polarization by slow neutron scattering 3=18057
 energy band structure 2=6300
 films, prep. and superconducting props., rel. to impurities 2=4494
 films, superconductivity 3=19109
 films, vapour-deposited, superconductive, use as getter 4=11481
 halides, thermal expansion at low temps., expt. 4=17369
 hardness and grain size, var. with annealing temp. and deform. 3=5137
 i.r. properties, rel. to electron groups 3=17977
 internal friction from ordering of impurities 3=20697
 ion, V^{2+} , in Al_2O_3 , R line splitting in elec. fields 4=9820
 ions, absorption spectrum, 0.4-1.2 μ , in Al_2O_3 0=20991
 ions, e.s.r. in sapphire 0=10238

Vanadium-contd

- ions, V^{2+} , e.s.r. in ZnF_2 0=10233
 ions, V^{3+} , in corundum, spectra 2=14677
 ions, V^{3+} , e.s.r. in Al_2O_3 2=4250
 ions, V^{3+} , e.s.r. in corundum 0=8086
 ions, V^{3+} , zero-field splitting in Al_2O_3 , pulsed field meas. 1=1270
 ions, V^{4+} , e.s.r. in rutile, h.f.s. of $\text{Ti}^{47,49}$ 4=23057
 ions, V^{3+} , e.s.r. in sapphire 0=1834
 ions, V^{4+} , e.s.r. in TiO_2 2=2300, 6692
 lattice freq. spectrum, Born-von Karman model 4=20184
 lattice parameters, X-ray study, absorption correction 0=1919
 mag. susceptibility and resistivity, anomaly at 245°K 1=7735
 magnetic susceptibility, 20-293°K 0=21029
 mobility of interstitial O and N, effect of pressure 1=2396
 Mössbauer effect by Sn^{119} with 23.8 keV γ -rays 4=6687
 n.m.r., normal and superconducting 4=20627
 n.m.r., supercond., Knight shift component separation 4=20625
 n.m.r. of V^{51} , temp. depend. 25°-330°K 4=20626
 nuclear magnetic relaxation, 20.4-292°K 1=10193
 nuclear spin-lattice relaxation 1=1284
 oscillator strengths of neutral atom 0=20590
 paramag. resonance, V^{4+} in TiO_2 0=13879
 phonon frequency distribution, by neutron scatt. 2=18523
 phonon spectrum 2=8159
 phonon spectrum investigation by neutron scattering 3=17641
 plastic deformation at low temps. 3=13351
 sound velocity, effect of high mag. field 3=8356
 specific heat, calc. from elastic constants 2=8166
 specific heat, lattice, temp. var., renormalization, calc. from vibr. 4=1400
 specific heat, 65°-105°K 2=23077
 spectra, in solar photosphere 0=14415
 spectrum, Q correction 0=13414
 spin resonance, in Si 0=4514
 stress relaxation in samples containing interstitial O and N, effect of pressure 1=2396
 supercond., thermal conductivity 3=1904
 supercond. transition temp., effect of Fe in dilute solutions 1=3882
 supercond. wires, quantum interference effects 4=24499
 superconducting, absorption, u.s., and $2\epsilon_0$ 4=16377
 superconducting, absorption, u.s., shear, 75-225 Mc/s, and $2\epsilon_0$ 4=16355
 superconducting, circulating current, shot noise 4=21416
 superconducting, effects of dislocation config. 4=27426
 superconducting energy gap, ultrasonic meas. 4=2924
 superconducting, far-i.r. absorption 0=14933
 superconducting films, energy gaps 4=14530
 superconducting films prep. by "protected sputtering" 4=18587
 superconducting, pressure and volume effects, crit. mag. field, Fermi surface 1=258
 superconducting thin films, residual resistivity and critical current 4=18618
 superconducting, transverse u.s. atten. for $q/\lambda < 1$ 4=6729
 superconductive two-component diffusion films containing Si 4=5527
 targets, deuteron interactions with O, C and Hg impurities 4=22167
 thermal cond., normal and supercond. 0=10843
 thermal cond., normal and supercond. states 2=6292
 thermoelectric power, 4.2°-340°K 3=13140
 vacuum-arc evaporation 1=6688
 variation of elastic moduli at superconducting transition 1=11884
 vibration spectra and spec. heat, calc. 3=12914
 vibration spectrum, calc., compared with neutron diffraction spectrum 0=1552
 X-ray abs. spectrum, in various cpds. 0=1737
 X-ray absorption spectrum 1=2449
 X-ray diffraction pattern, diffuse streaks due to N impurity 0=8204
 X-ray lines, K, from false tube, meas. 4=20453
 yield and flow stress meas., 4.2 - 373°K, and thermally activated flow mechanism 4=28970-1
 Young's modulus data, rel. to temp. 4=30788
 Young's modulus, temp. variation 1=2504

Vanadium—contd

- V II, d³p config. 1=806
 V²⁺, e.s.r. in CaO 3=3181
 V²⁺, e.s.r. in MgO, lattice imperfection effects 4=26440
 V²⁺ embedded in Si, e.s.r. 3=20639
 V²⁺, 'forbidden' paramag. resonance in ZnSiF₆. 6H₂O 1=3928
 V²⁺ spectrum in octahedral coord. crystal 3=12768
 V³⁺, in corundum, e.s.r., spin Hamiltonian const. 1=20238
 V³⁺, in corundum, mag. suscept. 3=20548
 V³⁺, e.s.r. in Al₂O₃ (corundum) 1=20236
 V³⁺ ions, e.p.r. in Al₂O₃ (corundum), hyperfine transitions, calc. 3=20659
 V³⁺, line broadening of P³¹ n.m.r. absorpt. in H₃PO₄ 3=13316
 V⁵¹, n.m.r. in Cr-V alloys 3=8741
 V⁵¹ n.m.r. in V-Al alloys 4=26455

Vanadium compounds

- binary and ternary alloys, crystal structure 4=13612
 borides and carbides, thermoelec. power with Cu 1=12465
 carbide, thermoelectricity 1=14532
 complexes, trivalent, optical and magnetic props. 4=10247
 dihalides, linear symmetrical, mean amplitudes of vibr. and Bastiansen-Morino shrinkage effect 4=30441
 monoxide, non-stoichiometric, thermodynamic props. and vacancy interaction energy 4=28390
 oxides, energy spectrum, current carriers 3=6605
 spinels, prep. and elec. and mag. props. 3=12934
 spinels, valency semicond., temp. depend. 0=4366
 vanadyl complexes, electronic spectra 4=22901
 vanadyl sulphate, e.s.r. 1=20200
 V alloys with Ti, Cr, Tc, Knight shifts 3=3204
 V alum, trivalent, mean electric susceptibility 3=20049
 V ammonium alum, mag. props. 0=6214
 V-base solid solns., mag. suscept. 3=18062
 V boride, X-ray abs. spectrum of V 0=1737
 V borides, carbides and nitrides, elec. props. 1=5707
 V carbide, X-rays abs. spectrum of V 0=1737
 V corundum, polarized i.r. absorption spectrum 1=3846
 V, n.m.r., shifts, line-widths and intensities 1=10194
 V nitride, X-ray abs. spectrum of V 0=1737
 V oxide, e.s.r. 1=20200
 V oxides, elec. cond., composition depend. 0=6128
 V oxides, lower, semicond. props. 2=23412
 V oxides, various, temp. variation of susceptibility 0=10101
 V-permendur, polycrystalline sheets, anisotropy 1=17963
 V phosphate glass, elec. conductivity rel. to composition 2=8306
 V system, i.r. spectra 3=20491
 V, with transition elements, influence of exchange 0=8959
 V with transition elements, superconductivity 0=8958
 V³⁺ alums, mag. susceptibility 0=18167
 V³⁺ hydrated salts, paramag. behaviour 3=6691
 V³⁺ paramagnetics, susceptibility and anisotropy 0=8033
 V³⁺ salts, hydrated, mol. orbital theory of ligand field 4=20520
 VAl, α' -type, structure 0=3226
 V-Al alloys, V⁵¹ and Al²⁷ n.m.r. 4=26455
 VAl₃, hot hardness 2=2337
 VAl₄, structure 0=3226
 V₃Au, V₃Pt crystal structure, atomic, change from Cr₃Si to Cu₃Au by O, N or C impurities 4=13606
 VB, paramag. props (150-800°K) 3=1124
 VBO₃, with calcite structure, X-ray evidence 4=29105
 VC, dissociation press. and thermodynamic props. 3=1386
 VC, work function 3=14616
 V₂C, supercond. invest. down to 1.98°K 3=7406
 V(CO)₆, paramagnetism obs. by n.m.r. 4=2709
 VCl₃, vapour spectrum, Jahn-Teller splitting 2=6162
 VCl₄ molecules, θ kK band intensity and molecular association 4=3880
 VCl₄, spectra, i.r., Raman, vibr. bands 4=1281
 VCl₄, spectrum, u.v. 4=9749
 VCl₄, vapour spectrum, Jahn-Teller splitting 2=20842
 V-Co-Fe alloys, mag. props., effect of elastic stresses 3=3115
 V-Cr alloys, n.m.r. and magnetic properties 4=10346
 V-Cr alloys, thermodynamic props 4=22518
 V-Cr, elec. resist., 20-293°K 2=10437
 V-Cr, mag. susceptibility 1=1195
 V-Cr, paramag. susceptibility, rel. to temp. 3=999

Vanadium compounds—contd

- V-Cr, paramagnetic susceptibility 2=4209
 V-Cr solid solutions, electronic specific heat 3=8367
 VF₅, i.r. spectrum from 3-25 μ 4=25687
 V-Fe alloy, atomic magnetic moment by neutron diffraction 3=1105
 V-Fe alloys, average ferromagnetic moment 3=11055
 V-Fe alloys, thermodynamic props. from v.p. meas. 4=10441
 V-Fe, ferromag., localized electron spins 3=8393
 V-Fe, mag. susceptibilities and n.m.r. meas. 3=23141
 V_{0.33}Fe_{0.67}, nuclear mag. spec. ht., 1.6-4.2°K, internal field 1=8882
 V-Ga, diffusion films, prep., superconductivity mag. field, heat treatment effect 4=27438
 V-Ga, films, diffusion, supercond., transition temp. 3=16880
 V₂Ga₅, decomposition into V₆Ga₇ 4=10632
 V₃Ga, Knight shifts, 1.8° to 300°K, rel. to superconductivity 3=336
 V₃ (Ga, Si, Ge, As, etc.), n.m.r. Knight shift in supercond. temp. var. 4=20625
 V₃Ga, supercond., evidence for negative surface energy models 3=5591
 V₃Ga superconducting films, getter sputtering for prep. 4=14231
 V₃Ga, superconducting, thermodynamics 2=17732
 V₃Ga, superconducting, mag. field penetration depth 4=27437
 V₃Ga, superconducting, phonon contrib. calc. of high T_c and H_c 4=29842
 V₃Ga, superconductivity, in high mag. fields 2=11570
 V₃Ga, superconductivity and mag. props. 3=14455
 V₃Ga, superconductivity, press var. 4=18619
 V₃Ga, V₃Si, crystal electron band struct. model, peak density at Fermi surface 4=20245
 V₃Ga, wires, supercond., transition temp. 3=16880
 V₆Ga₇, decomposition into V₂Ga₃ and V₈Ga₉ 4=10632
 V₃Ge films, superconducting, size effects 4=14538
 V₃Ge superconducting films, getter sputtering for prep. 4=14231
 V₃Ge, superconducting, mag. field penetration depth 4=27437
 V-H alloys, constitution and mag. susceptibilities 2=12922
 V-H alloys, internal friction, H conc. depend., -190° to +210°C 3=23286
 V-H system crystal struct., atomic 4=30856
 V(dipy)₃I₃, mol. electronic struct., ligand field theory 4=22412
 VMn, ordered structure of CsCl type 4=13613
 V-Mo-C, crystal structure and phase transform. 2=17034
 VN, n.m.r. of V⁵¹ 4=23076
 V-Ni solid solutions, electronic specific heat 3=8367
 VO, metal-to-insulator transition, effect of press. 3=1254
 VO, molecular vibr. Franck-Condon factors, r-centroids, $\frac{1}{2}\Delta$ - $\frac{1}{2}\Delta$ system 4=9730
 VO molecule, Franck-Condon factors, calc. 2=16521
 VO molecule, vibrational spectrum 2=14254
 V-O, spectrum, i.r. absorpt., vibr., structure 3=22574
 VO₂ (x = 0.75-1.74), structure and thermo. e.m.f. 0=18353
 VO₂, crystal structure 2=15029
 VO₄, phase transition, thermal effects 4=20718
 VO₂, powdered, diffuse reflectance meas. 0=18112
 VO₂, resistance through semiconductor-to-metal transition, rel. to press. 4=28576
 VO²⁺ ions, n.m.r. in aqueous solutions 3=14187
 VO²⁺, mag. props. in dilute systems 0=8084
 VO²⁺ solutions, paramagnetic relax., var. conc. and added HCl and [VO.H]³⁺ 4=14188
 VO²⁺ in Tutton salts, e.s.r. 4=20603
 V_nO_{2n-1} (4 < n < 8), crystal structure, atomic, calc. 4=7647
 V₂O₃ crystals, resistivity meas. 3=2927
 V₂O₃, elec. conduction and thermoelectricity 2=10496
 V₂O₃, low-temp. X-ray diffraction studies 0=12046
 V₂O₃, magnetic transitions 0=11799
 V₂O₃, metal-to-insulator transition, effect of press. 3=1254
 V₂O₃, neutron diffr. study, 168-533°K, structural transition 0=6363
 V₂O₃, phase transformation metal to insulator, press. var. 4=17773
 V₂O₃, semiconductor to metal transform. 4=25993
 V₂O₄, phase transformation, metal to insulator, press. var. 4=17773

Vanadium compounds—contd

- V_2O_4 ultra fine particles, antiferromag., susceptibility meas. 3=1095
 V_2O_5 , absorption spectrum 1=12498
 V_2O_5 , atomic distances 0=4650
 V_2O_5 , e.s.r. of partially reduced crystals 3=15950
 V_2O_5 , effect on Bi_2O_3 polymorphism 4=23253
 V_2O_5 , effect on dielec. props. of barium titanate 0=7982
 V_2O_5 , ice growth on 0=6335
 V_2O_5 , NMR anisotropy 1=14825
 V_2O_5 , non-stoichiometric, spectrum, reflectance and bandgap 4=10197
 V_2O_5 , n.m.r. dispersion, and V^{51} elec. moment 4=25264
 V_2O_5 , semicond. props. 2=4041, 14564
 V_2O_5 sols, streaming birefringence 0=3333
 V_2O_5 , thermoelec. power, rel. to nuclear irradi. 2=18761
 V_2O_5 type, current carriers, energy spectrum extremum 4=6784
 V_2O_5 , X-ray abs. spectrum of V 0=1737
 $VOCl_2$, aqueous soln., e.s.r. line shape, rel. to cond. and temp. 2=61
 $VOCl_2$, aqueous solution, e.s.r. line shape rel. to conc. & temp. 3=150
 $VOCl_2$ dil. solns., e.p.r. hyperfine line width 3=5451
 $VOCl_2$, dil. solns., e.s.r. hyperfine line width 2=15621
 $VOCl_2$, solns., $V^{50,51}$ e.p.r., h.f.s. 4=16126
 $VOCl_3$, force constants and thermodyn. props. 2=14246
 $VOCl_3$, potential constants 0=5900
 $VOCl_3$ in $LiCl-KCl$, e.s.r. 4=10315
 $V_2O_5-Cu_2O$, structure and elec. props. 2=8359
 VOF_3 , solns., $V^{50,51}$ e.p.r., h.f.s. 4=16126
 VOF_3 , i.r. spectrum from 3-24 μ 4=25687
 $10 V_2O_5 \cdot 90 M_2O_5$ ($M = Nb, Ta$), tetragonal phase 4=26666
 $VO_{0.5}-VO_{1.50}$, paramagnetic susceptibility 2=12757, 14765
 $V_2O_3-V_2O_5$, phase diagram, magnetism 3=15779
 $V_2O_3-V_2O_5$ system, elec. conductivity 4=12841
 V_3Pt , superconducting, mag. field penetration depth 4=27437
 $V(Si)_2$, (patronite) crystal struct., atomic 4=26677
 V_2S , crystal structures of α and β forms 0=4629
 V_2S_8 , crystal structure and vacancy order 4=26678
 $VSO_4 \cdot 7H_2O$, optical absorption, 9000-35000 cm^{-1} , electronic states of V^{2+} 1=2448
 VSb_2 , elec. cond., theory 0=13577
 V_3Se_4 , crystal structure 3=1346
 $V-Si$, diffusion films, prep., superconductivity mag. field, heat treatment effect 4=27430
 $V-Si$, films, diffusion, supercond., transition temp. 3=16880
 $V-Si$ films, hard supercond., prep. and props. 4=24501
 VSi_2 , X-ray absorption spectrum 1=2449
 V_3Si films, prep. and supercond. props. 3=3967
 V_3Si , supercond., evidence for negative surface energy models 3=5591
 V_3Si superconducting films, getter sputtering for prep. 4=14231
 V_3Si , superconducting, mag. field penetration depth 4=27437
 V_3Si , superconducting, phonon contrib. calc. of high T_c and H_c 4=29842
 V_3Si , superconductivity, effect of elements replacing V 3=335
 V_3Si , superconductivity and mag. props. 3=14455
 V_3Si , superconductivity, press var. 4=18619
 V_3Si , wires, supercond., transition temp. 3=16880
 V_3Si , X-ray absorption spectrum 1=2449
 V_3Si , X-ray absorption spectrum 1=2449
 $V-Ta$, supercond., specific heat in high mag. field 4=8576
 $V-Ta$ (5 at. %), supercond., thermodynamic props., magnetization 4=18620
 $V_{0.5-0.7}Tc_xAl_{0.5-0.3}$ (x up to 0.60), mag. susceptibility, n.m.r. Knight shift 4=7357
 $V-Ti$, V diffusion 2=14455
 $V-Ti$, superconductivity crit. current and field 4=18621
 V_3X intermetallic cpds., susceptibilities and Knight shifts, theory 1=5062
 V_3X intermetallic cpds., thermoelec. powers 4=1701
 V_3X ($X = As, Au, Co, Ga, Ge, Ir, Pt, Sb, Si$), n.m.r. properties 0=19561

Vaporization

- See also Boiling point; Condensation; Distillation; Evaporation; Heat of vaporization; Thermal transformations; Vapour pressure
adiabatic saturation equation 2=22094
arcs, electric, time var. 4=486
atomic absorption spectroscopy, and flame mechanism 3=699
benzene, forced vap. at 25°C 0=14908
binary liquid mixtures, vapour bubble growth rate calc. 4=27382
binary mixture rectification, heat transfer effects on mass transfer 1=10448
boiling boundary layer, vapour content distrib. by β -translucence 0=10805
bubble dynamics from exponentially heated surfaces in a liquid 3=12004
bubble growth in superheated liquid, nucleate boiling 4=8513
n-butyl alcohol, forced vap. at 25°C 0=14908
carbon tetrachloride, forced vap. at 25°C 0=14908
carbon tetrachloride, thermodynamics 0=3694
diffusion-limited rate enhancement, theory 4=24452
distillation technique, developments 1=5363
droplets, and combustion, theory 0=14894
entropy and enthalpy, rel. to condens. coefft. 3=19070
equilibrium, change with temp. 0=5215
exploding wires, rel. to conductor configuration 4=18352
flowing film of liquid containing several constituents 1=5377
forced convection, local pressure gradients 0=14873
heat pipe, evaporation transport and condensation through a wick 4=27349
hydrodynamic boundary conditions at surface, high temp. and press. 4=24445
hypersonic laminar boundary layer 1=16173
isotope separation factor, rel. to intermol. virial function 4=20133
by laser, vapour mass spectrum 4=21361
latent heat of, calc., elements and homopolar compounds 4=2896
latent heat, reliable, Haggenmacher method 3=16840
liquid metals, at boiling point, energy of vaporization 1=18386
liquid phase in gas-liquid mixture, rel. to heat transfer 2=1291
liquids, heat and mass transfer 2=9451
liquids, by shock decompression 2=15633
metals, diffusion-limited rates 3=24120
methanol, forced vap. at 25°C 0=14908
propylene-argon system, phase equilibrium 4=11410
rare earth oxides 1=8263
rare earth oxides 2=1315
rare-earth sesqui-oxides, two dissociation modes 1=13022
refractory substances, rate meas., 1600°-2500°C 4=2897
simple fluids, critical region rel. to correl. functions 4=24441
solid, porous, steady-state model 3=24118
solids, rel. to dissociation of diatomic mols. 3=740
steam-water globules interact., mech. and thermodyn. 3=297
supersaturation, const. and uniform, methods 4=5463
thermodynamics 0=3694
transition metal (II) halides, dimer formation 0=3566
in tubes, U shaped, theory 1=4512
Underwood's theorem, for triple-valued relative volatilities 2=6869
uranium monosulphide 1=11862-3
in vacuum technology, meas. using electromagnetic microbalance 4=5253
van der Waals theory, distrib. functions 3=12006
van der Waals theory, one-dim. model 3=12005
vapour degreasing for cleaning glass 0=6529
volatiles on lunar surface 1=18034
water, forced vap. at 25°C 0=14908
water, heat of vaporization, measuring instrument 1=16172
water, thermodynamics 0=3694
water, in U-tubes 1=4512
wire explosions 0=5214, 12530
wires, rel. to elec. cond. 3=8488
wires exploded by elec. current 1=9537
Ag, liquid, rate precise meas. 4=27384

Vaporization—contd

- Ag, from W boat, directional props. 2=23915
 AlAs 1=11860
 Al₂O₃, mass spectra 0=10698
 Ar, critical opalescence, X-ray meas. 4=2890
 As, porous, Knudsen cell model 3=24118
 Au and Al films, rel. to fission fragment track visualization 2=23227
 B in d.c. arc, volatilization 3=19220
 B₄C 4=24455-6
 B₂O₃, thermodynamics 3=25809
 Ba, arc, electric, var. with sample composition 4=484
 BaS, rel. to thermodynamic props. 4=16301
 C, by laser, 30 MW, photographic obs. 3=21627
 CaS, rel. to thermodynamic props. 4=16301
 Cd, arc, electric, var. with sample composition 4=484
 Cd₃As₂, nonstoichiometric, meas spectrometric study 4=24457
 Cr₂O₃ 1=4513
 Cs, coprecipitated with K₂Ni₄[Fe(CN)₆]₃, high temp., inhibiting agents 4=5470
 Cu, liquid, rate precise meas. 4=27384
 Fe-, Ni-, Co-base alloys, 760°-980°C, 5×10^{-7} to 10^{-9} torr 4=18500
 Fe-Ni alloy in He atm., rate enhancement 4=24453
 GeTe, chemical reactions, partial pressures, entropy changes 4=20828
 Ge in Te vapours, rate, rel. to pressure 1=11858
 H₂O¹⁷-H₂O¹⁸ system, relative volatilities 2=19783
 He-H₂ vapour-liquid equilib. and temp. corrs. 3=24112
 Hf and HfO₂ 3=7390
 In₂O₃, mass spectrometric investigation 3=12010
 Ir and Rh 1=9506
 Li, arcs, electric, var. with sample composition 4=484
 LiBO₂, thermodynamics 3=25809
 Li₂O, thermodynamics 3=25809
 MgO, u. v. band emission 2=8105
 NaOH, velocity analysis of molecular beams 1=2358
 NbC 2=19782
 NiO 1=11864
 Rb, arc, electric, var. with sample composition 4=484
 Ru, coprecipitated with various agents, high temps., mechanism 4=5469
 S, composition of vapours, various allotropes 4=8516
 Sb₂O₃-As₂O₃ mixtures 4=27383
 SiC, dissociation pressure 1=4514
 Si in Te vapours 1=11859
 SrS, rel. to thermodynamic props. 4=16301
 ThC₂ 4=24461
 UO₂, fission-induced, fragment collection 3=3935
 UP, mass spectrometric study 4=21364
 W, flash heating, near u.v. spectroscopy 3=24117
 W, in H₂O vapour 4=27387

Vapour density

See Density, gases

Vapour pressure

See also Humidity; Vaporization.

- acetaldehyde, calc. 4=2392
 acetone-isooctane system, and activation coeffs. 4=16143
 Antoine equation, linear form 2=22091
 calc. 4=2892
 cis-, gem-, and trans-dideuteroethylenes 3=8247
 correlation of data for Hg, Li, Na and K 3=14423
 crystal, formula for $T \cong \Theta$ 3=5557
 crystal, monatomic 3=14428
 crystals, partial pressure rel. to evaporation 2=7477
 cyanoacetylene 3=7216
 1, 2-difluorobenzene 3=8291
 electrically-charged droplets 2=11538
 equation, non-linear const. determ., graphical 3=14421
 equations for estimation of vapour pressures 4=24446
 ethanes, deuterated, and statistical theory of isotope effects 4=24440
 ethylenes, isotopic effects 4=5151
 gases, data 1=178
 Group III-V semiconductor, with Group IV substituents 3=22758
 inert gases 1=13044
 isotope effects, intermolecular mechanics 3=22614
 isotope mol. mass distrib. effects 3=19073
 isotopic effects rel. to mol. structure 3=21632
 isotopic liquids 0=8654
 isotopic liquids 1=8262

Vapour pressure—contd

- isotopic molecules 3=8247
 isotopic molecules 3=8248
 isotopic mols., expt. and theory review 3=21631
 Kelvin reln. to surface curvature, test 3=23860
 at liquid-vapour transition 2=17692
 liquids, rel. to bulk rigidity modulus 2=19538
 liquids, rel. to compressibility coeff. 0=6780
 metal vapours, from evaporation rate 2=19786
 metals, saturation, rel. to vacancy max. concentration at m.p. 4=11405
 molecular flow in isothermal enclosure 3=14201
 monatomic isotopic solids, v.p. ratio, and anharmonic forces 4=24451
 monodeuteroethylene, isotope effect 3=8248
 of nearly classical liquids 1=5374
 organic coolants for nuclear reactors 3=19072
 partial, over monocrystal surfaces 0=11994
 phenol-BF₃ system 1=11611
 polyvinylcarbazol in benzol, curve 3=8920
 polyvinylcarbazole, in benzene, conc. and temp. depend. 4=29806
 in porous materials, correlation with relative humidity, moisture content, temp. 4=10592
 Rankine-cycle fluids, for space-power systems 4=5462
 selenides, containing radioisotopes 3=24116
 semiconductor-impurity systems 2=9452
 solids, thin films, thermodynamics 4=13667
 rel. to surface tension 4=141
 transition metal (II) halides 0=3566
 trifluoroacetonitrile 1=11861
 trifluoromethanethiol 0=5017
 vapour-liquid phase equilibria, calc. 2=11540
 A, isotopic liquid above b.p. 0=14683
 A, isotopic liquids 0=2168
 A, liquid and solid 2=6269
 A by phenomenological cell model 1=9385
 A³⁶-A⁴⁰ solid solution, 72°K to triple pt. 2=9465
 A + O, liquid 2=22097
 Ag, effect of oxygen 4=5471
 Ag, formula 2=11537
 Ag, at high temperature, using recording micro-balance 4=24454
 Ag + Bi alloys, liquid 3=14422
 Ag-Cd alloys, Cd vapour 3=13522
 Au 2=15806
 B, 1781-2152°K, Langmuir meas. 4=5468
 B₂ 3=305
 BeO, in equilib. with solid, at high temps. 0=6997
 Bi liquid 3=9662
 Bi, upper limit at room temp. 1=175
 C, orbital theory calc. 0=509
 CO, above boiling pt. 2=13490
 CaCl₂, 1110° to 1281°K 4=5461
 CaF₂ 3=12007
 CaZn₂ 4=366
 Cd, solid, 200-290°C 0=13472
 CdCl₂, mass spectrometer obs., dimer amount, 515-565°C 4=16144
 CdS, crystal growth 0=8163
 CdSe, 740-900°C 2=1314
 ClF₃ 4=9737
 Co-Sc system 4=7480
 Cr, in solid state, radioactive tracer method 0=13473
 Cr, over V-Cr alloy, 1450°-1650°K, rel. to alloy thermodynamic props. 4=22518
 Cr-Fe system 1=2539
 Cs antimonides, Cs partial pressure, 25-180°C 1=10627
 Cu halides, solid 2=7473
 Cu-Ag alloys, rel. to vibr. entropies of Ag 3=12922
 F₂, liq., calc. using significant structure theory 4=8166
 GaAs 1=14177
 Ga₂O, over Ga-Ga₂O₃ mixtures 2=15807
 GeS, 433-596°C, Knudsen method 1=1849
 GeTe, 683°-837°K 3=295
 H difference for normal and equil., 20°-32°K 4=21356
 H, 20°K equil., meas. 2=15805
 H₂, para 3=14424
 H₂, para, 1-22°K 4=14451
 H₂, 3.4-4.5°K 0=16738
 H₂, vap. pres.-temp. relation 4=5478
 pH₂-oD₂ solid system at pH₂ triple point, and phase separation 4=20705

Vapour pressure—contd

H₂O-D₂O 4=24450
 HT and D₂, rotational effects 0=20606
 He⁴, 1958 international tables 0=7036
 He⁴, rel. to 1958 temp. scale 1=4519
 He⁴, 0.50-5.22°K, rel. to temp. scale 1=16183
 He³-He⁴ mixtures, 0.6-2.4°K 0=10822
 He³-He⁴ solutions, 1.4-2.6°K 0=5231
 Hg, 10⁻⁹-1.08 × 10⁶ mm Hg 0=5215
 Hg, var. in discharge tube with ignitor 4=29881
 InAs 1=14177
 InP 1=14177
 Ir 2=5216
 Ir metal 4=8510
 K, equation and dissociation energy 2=1312
 K, third virial coeff. 4=230
 Kr isotopes, rel. diff. of saturated vapours 2=10228
 Kr, solid and liquid 2=6270
 Kr^{82,84}, saturated vapour press. diff. 3=21633
 La 2=2937
 LiCl, meas. by torsion-effusion method 4=18498
 LiF, meas. by torsion-effusion method 4=18498
 LiF, over solid and liquid, eqns. 0=10689
 LiI, dimer-monomer ratio 2=13373
 LiNO₃-NH₃ solutions 2=15576
 MgCl₂, meas. by torsion-effusion method 4=18498
 MgF₂, meas. by torsion-effusion method 4=18498
 MgO, 1660° to 2010°K 4=5474
 Mn-Cu alloys 4=2898
 Mo, 2100-2500°K 4=24458
 N₂, above boiling pt. 2=13490
 N₂, isotopic liquids 0=2168
 N₂, saturated vapour press., exper. data, anal. and correl. 4=29803
 N₂, 21.2-26.4°K 0=16738
 NO molecules, isotope effect 1=3581
 NO, variation with temp. 2=132
 N₂O, structural and isotope effects 1=16171
 Ne, A, Kr and Xe isotopes in solid state 1=6067
 Ne, isotopes 0=8700
 Ne isotopes 1=10628
 Ne isotopes, by phenomenological cell model 1=9385
 Ne, isotopic liquid above b.p. 0=14683
 Ne, solid and liq., meas. 2=15804
 Ni, 1190°-1355°C meas. 2=19784
 Np liquid metal 4=27385
 O₂, above boiling pt. 2=13490
 O₂, isotopic liquids 0=2168
 O₂, saturated vapour press., exper. data, anal. and correl. 4=29803
 Os, meas. using microbalance technique 4=24459
 Os, 2300-2800°K 2=17694
 PbS, 775-920°K, Knudsen method 1=1849
 Pd 2=15808
 Po at room temp. 1=1850
 Pt 2=5216
 Rh 2=5216
 Ru, meas. using microbalance technique 4=24459
 Ru metal 4=8510
 Ru, 2000-2500°K 2=17694
 S, saturated, partial pressure of S₂ meas. 2=7474
 S vapour, partial pressure of S₂ 3=13587
 SO₂, and H₂O-SO₂ system 3=9663
 Sb 1=13023
 SbBr₃ 3=21629
 SbI₃ 3=21629
 Sc 2=2937
 Sc 3=24119
 ScH₃ 0=21270
 Se, role in MnSe:Ag formation 2=19086
 SeO₃, solid and liq. phases, 80-120°C 4=29807
 Si 1=4514
 SiF₄ 3=21636
 SnSe, 773°-898°K 3=21637
 SnTe, 792°-933°K 3=21637
 SnTe(g) and Te₂(g) in equilibrium with SnTe(c), partial press. 4=24462
 Sr, 500-650°C 4=8523
 Ti-Mo alloys, 1600°-1800°K 4=8524
 Tl selenides, temperature-pressure relations 0=19201
 TiCl₄, liquid 4=24448
 U 0=10699

Vapour pressure—contd

U, effect of oxygen 3=3930
 Xe, low pressure, below 90°K 2=1175
 Xe, solid 1=1848
 Xe^{130,136}, saturated vapour press. diff. 3=21633
 Y 2=2937
 Y, 1100-1480°C 4=16302
 Zn, above GaAs and GaP, rel. to solubility 4=13458
 Zn, in Cu-Zn-Ni solid solutions 2=6837
 ZnBr₂, meas. rel. to gas dimerization 4=11413
 ZnCl₂, meas. rel. to gas dimerization 4=11413
 ZnSe, crystal growth 0=8163
 ZnSe, 1060°-1393°K meas. 3=1871

Vapour pressure measurement

acetone, saturated, apparatus 3=19071
 alkali metals at high temps. 4=2899
 alkali metals, 10⁻⁶ to 10⁻² mm Hg 4=373
 alloys, torsion-effusion apparatus 0=3678
 apparatus for 10⁻³-760 mm Hg, -100°C to +20°C 0=14669
 binary alloys, by radioactive tracer dew point method 4=11412
 carrier gas method, flow velocity depend. 0=14893
 in cloud chambers, simultaneously with temperature meas. 2=5538
 by differential thermal analysis 3=9660
 effusion method, metal cell 2=43
 gravimetric apparatus 2=2436
 at high temperature, using recording microbalance 4=24454
 at high-temperature, by semimicro-balance 3=5401
 in high-vacuum pumps, 2 methods 2=2790
 Knudsen furnace, electron-bombardment type 1=10626
 Knudsen cell, diffusional contribution to flow 2=19607
 Knudsen effusion technique 3=24119
 liquid mixtures, binary, radioactive tracing 2=5215
 low pressures and temp. 0=16738
 mass spectrometer and saturator method 2=132
 mass spectrometric, partial, many-components 3=24113
 mercury reservoir for demonstrations 3=151
 metals, from evaporation rate 2=11537
 microbalance technique, for Pt, Ir and Rh 2=5216
 null-point torsion effusion apparatus 0=14892
 at 1-35 atm, automatic apparatus 2=1310
 polymer solutions, instrumentation 4=29806
 porous medium, modified hygrometer 4=5228
 selenides, Knudsen method 3=24116
 solids, porous, interpret. of Knudsen results 3=24118
 spoon gauge, optical servo control 1=8091
 tellurium by electrical discharge method 1=2913
 rel. to temp. and composition of system, for vapour-liquid equilibrium study 4=11408
 thermometric, for miscible diff. press. liquids 4=24450
 total, above liquid mixtures, apparatus 4=5458
 up to 20 kg/cm² and 500°C 3=19072
 very low press., nuclear method 0=19512
 Ag, 1268 to 1462°K, calc. 4=27384
 Cr in Cr-Ni-Al alloys, 1060°-1300°K 3=1872
 Cs, with Bayard-Alpert ionization manometer 3=19076
 Cu, 1367 to 1523°K, calc. 4=27384
 Fe, by torsion-effusion method, 1500°-1700°K 4=10441
 H₂, 2.5° to 4.2°K, u.h.v. conditions 3=12008
 He, manometer, two fluid 4=5483
 InSb, 783° to 1243°K 4=21362
 PbTe, partial press. in equilibrium, meas. by optical absorption method 4=21363
 V-Fe alloys, by torsion-effusion method, 1500°-1700°K 4=10441

Variable stars

See stars

Variational calculus

See Mathematics

Vavilov-Cherenkov radiation

See Cherenkov radiation

Vectors

angular momentum 0=908
 antiunitary operators, normal form 0=16608
 bicubic spherical harmonics 0=3394
 bivectors, harmonic, appl. to e.m. wave theory 2=1578
 in chemical equilibrium formulation 2=15125
 dimensional analysis, vector space theorems 0=16562
 div B = 0, rel. to lines of induction 3=19395
 e.m. field, use of magnetic pole 2=1342
 electromagnetic energy-momentum vector 0=7194
 inertial fields, linear theory 2=4928

Vectors—contd

- reduction theory, in crystallography 1=14941
- relative velocities, "domino rule" method of combining 1=4182
- rotation of rigid bodies, vector representation 2=13297
- symmetry 1=4008
- tetrads and geodesics eqns. 2=15476
- unitary and antiunitary symmetry operators 0=16609
- vector analysis, applied to photographic and optical response data 3=16723

Velocity

- e.m. wave-front velocity 0=2439
- e.m. waves, phase, in artificial metal dielectrics 1=4719
- e.m. waves in plasma, phase vel., rel. to temperature 2=19977
- e.m. waves, poss. gravitation var., from planetary radar meas. 4=16028
- elastic waves, in Ce, at high pressures 1=3957
- elastic waves, in Ce, at high pressures 1=10205
- electromagnetic waves, proposed test of special relativity 4=8930
- electrons, positive column of discharge 1=4571
- gases, distrib., electron optical study 4=8229
- matter with super light velocity, theory 1=10828
- in motor car accidents 0=6705
- particle, in solid cone in longitudinal half-wave resonance 0=2194
- plane surface microwaves, group velocity 0=11047
- plasma, accelerated, rel. to impulse 1=9560
- relative velocity vectors, 'domino rule' method of combining 1=4182
- visual discrimination, Weber ratio 0=14348

acoustic waves

See also Dispersion, acoustic; Helium, liquid, sound propagation; Shock waves,

- in air 3=5497
- alcohols and binary solns., temp. depend. 1=12879
- ammonium perchlorate, granular, columns, longitudinal 3=20091
- anisotropic crystals, rel. to electron-phonon interaction 2=8163
- antiferromagnetics 0=10163
- aqueous solns., equimol., and in organic liqs. 4=8205
- aqueous solutions, sound characteristics 2=19559
- argon, up to 150 atmospheres, 300°C 3=7242
- binary fluid mixtures, conc. depend. 0=16695
- binary liquid mixtures, conc. depend. 0=6786
- binary mixtures and solutions, characteristic lines, adiabatically and isothermally measured 4=5177
- Bose system, dispersion formula 0=12381
- bosons, interacting, system 3=23802
- n-butyl alcohol, rel. to temp. and press., meas. 4=8206
- crystals, homog. stressed, small-ampl. waves 4=13368
- dense gases, temp. dependence 0=19205
- in Dow Corning 200 fluid, temp. and press. depend. 4=2674
- effect of diffraction 1=6933
- electrolytic solutions, calculated 0=5013
- electrolytic solutions, from compressibility data 0=19046
- ethyl alcohol, rel. to temp. and press., meas. 4=8206
- ethylene, study of molec. vibrations 2=6146
- ethyl alcohol, temp. coeffs. meas. 4=8207
- expanding reacting fluid 0=10722
- Fermi system, sing-part. Green's function 3=7147
- Fermi system, single-particle Green's function 2=21853
- fluids, calc. from molecular data 2=11371
- in foams 4=8337
- gas, with finite cond. in mag. field, concept validity 4=11784
- gas mixtures, calc. 1=2787
- gas mixtures, calc., classical 3=16656
- in gaseous mixtures, formula 1=18471
- gases, dense, depend. on density, temp. and press. 4=5175
- gases, mixture, calc. 2=2774
- in gases, resonance-tube method 1=18521
- gases in tubes, phase comparison technique 4=8354
- hypersonic, in viscous liquids 0=10724
- in inhomogeneous media 1=2816
- and law of corresponding states 2=5070
- and light velocity, thermodyn. equilib. covariant principle 2=19389

Velocity—contd**acoustic waves—contd**

- liquid with cavitation droplets 4=18157
- liquid and saturated vapour 2=2717, 7207
- liquids, at boiling point, liquid-vapour phase ratio, Pictet-Trouton rule 0=5079
- liquids, calculation from kinetic theory 1=9389
- liquids, cell model theory, rel. to intermol. energy 4=151
- liquids, dense, depend. on density, temp. and press. 4=5175
- liquids, influence of structure 1=9391
- liquids, mixtures, organic, var. 3=16622
- liquids and solutions, rel. to cell model theory of liqs. 4=5171
- liquids, temp. depend., Guldberg law 1=8115
- liquids, temp. dependence 1=9390
- liquefied gases in capillary tubes, low temps. 3=1683
- metal bars, temp. variation 0=5081
- in metals, changes during phase transitions 4=15414
- metals, effect of electron spin paramagnetism 4=9839
- metals, longitudinal, effect of mag. field 3=4808
- metals, rel. to magnetic field 2=23058
- metals, at melting point, liquid-solid phase ratio 0=5080
- metals, oscillations in mag. field, geometric and quantum 4=1386
- metals, phase, in external mag. field, calc. 3=4820
- metals, plasma theory calc. 4=17329
- methyl alcohol, rel. to temp. and press., meas. 4=8206
- molar, in inorganic melts and solutions 1=15868
- neopentane—C₅H₁₂, neopentane—C₅H₁₂, mixtures, var. 3=16622
- nitroanisole, effect of molec. association 1=2755
- nitrogen, up to 500 atmospheres, 500°C 3=7242
- nitrophenol, effect of molec. association 1=2755
- ocean, bathyscaph "Trieste" meas. 2=21618, 21980
- ocean, velocity depth profiles 2=17552
- oceanographic, calc., data precision 3=18487
- open pipes, demonstration experiments 0=2199
- organic liquids, 5- and 6-membered rings, molar sound velocity 0=19134
- organic melts, temp. coefft. and molar velocity 2=5015
- plasma, ionic sound wave velocity meas. 4=19021
- n-propyl alcohol, rel. to temp. and press., meas. 4=8206
- relaxing medium, non-linearities 4=14281
- rocket-grenade expt. 0=14197
- salicylidene aniline crystals 4=22781
- in sea, down to 5760 m depth 1=12685
- in sea, variation with depth 1=5327
- seawater 1=5328
- seawater, extrapolation of equation 2=17554
- seawater, Mediterranean (1959) 1=2820
- semiconductors and semimetals, in d.c. elec. field 4=15412
- semimetals, ang. dependence 4=9838
- in solids, dependence on free-electron conc. 1=2375
- solids, with high sound absorpt. 2=19653
- solutions, aqueous, temp. and conc. var. 4=14158
- steam, saturated and supersaturated 1=201
- in steel, variation with temperature 1=16027
- suspensions in mixtures, of any conc. 2=7293
- for temperature meas., high 4=8482
- travel time deriv. with respect to source angle for layer of const. vel. gradient 4=21243
- two-component systems 0=8737
- two-phase mixture, anisotropic, with cubic symm. 4=12624
- van der Waals solids, 0°K 0=17868
- vapours, saturated, of liquids 2=11427
- viscous media, potential function in solving wave-equation 0=16763
- sea water 0=19276
- sea water, formula 0=989
- sea water, temp., press., and salinity depend. 0=10721
- shallow water, under-ice, in Barrow Strait 0=14726
- shallow water, variations 0=5083
- in solid solutions, with solute particles or cavities, dispersion 3=2727
- solids, calc. from elastic const. 3=20110
- surface waves in air 1=2817
- in systems with additional parameters, internal friction 1=7814
- TNT explosion products 0=14728
- u.s., in aqueous solutions of acetates 1=6858
- water, anomalous temp. dependence 1=15866

Velocity—contd

acoustic waves—contd

- water, distilled 0=19275
 water, effect of pressure 0=10657
 in water-filled sands 3=23987
 in water, free-field speed 4=29624
 water, giving eqn. of state 4=8178
 water vapour, 100° and 250°C 4=27220
 wind effects, acoustic-gravity waves, with
 wind shear 4=10732
 A, liquid and gaseous, at high press. 0=8695
 A, liquid, at high press., 84-90.3°K 1=140
 Ag, effect of high mag. field 3=8356
 in Al and Cu bars 1=16026
 Al, effect of high mag. field 3=8356
 Al, 0.4-3.5 × 10⁶ atm. 0=11974
 Ar 3=16659
 in Ar 3=5497
 Ar gas 3=9505
 Ar, from neutron scattering data 4=27171
 Au, effect of high mag. field 3=8356
 BeO crystals 3=10884
 CCl₄-C₆H₆, CCl₄-C₆H₁₂ mixtures, var. 3=16622
 C₆H₆-CCl₄, C₆H₆-C₆H₁₂, C₆H₆-neopentane,
 C₆H₁₂-CCl₄, C₆H₁₂-neopentane mixtures, var. 3=16622
 Cs, liquid and vapour, up to 1500°K and 22 bars,
 calc. 4=8246
 CsCl, effect of crystal lattice vibr. spectrum 4=3974
 Cu, effect of high mag. field 3=8356
 Cu, 0.4-3.5 × 10⁶ atm. 0=11974
 D, -175° to +150°C 0=14909
 D₂O, speed of sound variation with temp.
 and pressure 1=5329
 F₂, rel. to vibrational relaxation 2=8084
 Fe, up to melting temp. and phase transformation 4=15413
 Fe, 0.4-3.5 × 10⁶ atm. 0=11974
 H, -175° to +150°C 0=14909
 H plasma 1=18843
 H₂, liquid, pressure depend 2=4982
 HCl, rel. to rotational relaxation 1=9419
 H₂ and D₂, -175°C to 150°C, up to 2500 atm 3=23930
 He gas, and temp. meas., 4-14°K 4=16308
 He, gaseous, temp. meas., 2-20°K 2=17559
 He liquid, at and below lambda point, expt. determ. 4=5492
 He vapour, <4.2°K 1=4522
 He II, second sound, down to 0.38°K 0=12553
 He³, liq. and solid 2=7492
 He³, 0.02°-0.3°K, rel. to melting curve 3=14437
 He^{3,4}, solid, calc. 1=257
 in He³-He⁴ solution, fourth sound 4=16326
 HF, liquid 0=3524
 Hg amalgams, rel. to composition 3=16604
 In at 1.0°K 1=9974
 InSb, metallic form 4=29114
 Kr 3=16659
 N gas 3=9505
 N₂, H₂ and O₂, at boiling points, as temp. meas. 0=216
 NH₄H₂PO₄ (ADP), elastic const. 1=6444
 NaCl, effects of Li⁺, I⁻, Rb⁺, Ag⁺, Br⁻, K⁺
 impurities 3=22644
 Na-K alloys, liquid, rel. to comp. and temp. 2=17446
 N₂O, dissociating 1=8159
 O₂, at different temp. 0=16764
 O₂ gas 3=9505
 O₂ gas 3=9506
 O₂, with H₂, D₂ or Fe, mol. relax. meas. 4=12466
 O₂ and N₂, and mixtures, liquid, high press. 0=124
 Pb, 0.4-3.5 × 10⁶ atm. 0=11974
 PbZr_{0.95}Ti_{0.05}O₃, and phase transform. Fe₁-Fe₂ 3=15618
 Ta, effect of high mag. field 3=8356
 V, effect of high mag. field 3=8356
- acoustic waves, ultrasonic
 See also Dispersion, acoustic, ultrasonic
 alcohol-glycerol mixtures, conc. depend. 0=10658
 in aliphatic amines, rel. to molec. structure 1=18409
 aniline-cyclohexane mixtures 0=19131
 antiferromagnetics, in mag. field 4=22490
 aqueous solns. of electrolytes, temp. variation 4=29625
 benzene-methylalcohol system 2=15584
 benzene, single crystal, meas. for elastic const.
 determ. 4=20645
 benzene-methanol-toluene system 4=14160

Velocity—contd

acoustic waves, ultrasonic—contd

- benzophenone, supercooled liquid, discontinuity at melting
 pt. 1=12876
 binary alcohol mixtures 1=8116
 bromocyclohexane, u.s. studies of
 isomerization 1=4340
 cast iron with spheroidal graphite, rel. to mech.
 props. 2=23899
 cellulose acetate in acetone 3=14161
 changes in vel., continuous meas. 4=8356
 chlorocyclohexane, u.s. studies of
 isomerization 1=4340
 chloroform 0=127
 o-chloronitrobenzene, melt and soln. 0=10659
 m-chloronitrobenzene, normal and supercooled, temp.
 depend. 0=6789
 concrete samples, "sing-around" technique 3=21502
 crystals, piezoelectric effects 4=6738
 in cubic crystals, elastic const. det., misalignment
 errors 1=6440
 cyclohexane binary liquid mixtures 4=18191
 diffraction effects 0=19298
 diphenylamine, supercooled liquid, discontinuity at
 melting pt. 1=12876
 diphenylether, normal and supercooled, temp.
 depend. 0=6789
 electrolytes, in aqueous solns. 4=2678
 electrolytes, aq. solns., rel. to concn. 2=11369
 electrolytes, dispersion 0=941
 electrolytes, effect of temp. and conc. 0=16769
 esters, 20 Mc/s, 10°-50°C 3=11795
 ethanes, substituted, 10-110 Mc/s, -70° to +100°C,
 rotational isomerism 0=19125
 ethyl acetate, vel. and absorption coeff. 0=8652
 ethyl cellulose in methyl alcohol 3=14161
 eutectic binary metal melts 2=8866
 furan 2=15586
 gases, compressed, var. with temp., press. 4=2729
 gases, liquified, temp coeff. rel. to mol. wt. 3=7204
 gases, vibrational relaxation study 0=9789
 glass, optical, elastic constants, temp. var.
 determ. 3=5058
 in glasses, high temp., differential path method 3=7294
 glycerine, -50° to +50°C, at hypersonic freq. 0=5011
 glycerine, hypersound velocity, effect of temp. 1=10570
 glycerine, hypersound velocity, effect of temp. 1=8183
 glycerol-water mixtures, conc. depend. 0=10658
 glycine sulphate, light diffraction obs. 0=9845
 halomethane gas mixtures, multiple velocity
 dispersion 0=19206
 hard materials, surface waves 0=8738
 high temp. meas. 3=18936
 hydrocarbon oil 1=5277
 ice, single crystal, rel. to temp. 4=17350
 Indian granite 0=2201
 irons, cast, decrease during cooling from 1000-700°C,
 and graphite formation 3=23473
 isobutyl bromide, vibrational, rotational isomeric,
 structural and shear relaxation 0=17736
 latent heat of vaporization correl. 0=16768
 liquid binary mixtures 1=18402
 in liquid binary mixtures 3=9455
 liquid, freezing, nucleus size, by anomalous
 increase 3=18251
 liquid H, ortho- and para- 1=8117
 liquids, compressed 3=18813
 liquids, rel. to internal pressure, theory 3=21358
 in liquids at low temps. 3=21357
 in liquids, phase velocity meas. 1=18409
 liquids, supercooled, discontinuity at melting pt. 1=12876
 liquids, rel. to temp. 1=18406
 lithium halides, aqueous solutions 3=18812
 longitudinal mode, in Ta rod 3=1772
 marine sediments 0=8739
 measurement, delay change 4=273
 measurement at high temps. in solids, long. and
 shear 4=26463
 measurement, solids, coupling time lag corr. calc. from
 roughness 4=14301
 measurement, transparent solids, using double
 refraction 4=16187

Velocity—contd

acoustic waves, ultrasonic—contd

megacycle freqs., effect of nonparallel sample faces 3=23984
 menthol, normal and supercooled, temp. depend. 0=6789
 in metal nitrate electrolytes 3=9456
 metallic nitrate solns., parameters 4=176
 metallic nitrates, aq. soln. 4=175
 metallic sulphates, aqueous solns. 4=2658
 metallo-organic compounds, molar vel. 2=15589
 metals, molten, temp. coeff. rel. to mol. wt. 3=7204
 methanol-water solution, rel. to cavitation 0=19129
 methyl cyclohexane, u.s. studies of isomerization 1=4340
 methyl formate, rel. to temp. 1=18408
 methylene bromide 0=127
 molten binary alloys, ultrasound velocity 1=5276
 molten salts 0=16696
 naphthalene, binary liq. systems 4=11178
 naphthalene, melt and soln. 0=10659
 near resonant absorption, by u.s. paramag. resonance 3=6759
 nitrate electrolytes, aqueous 3=11792
 o- and m-nitrophenol, melt and soln. 0=10659
 org. liquids, temp. coeff. rel. to mol. wt. 3=7204
 organic liquids, rel. to compressibility and molecular parameters 1=18403
 organic liquids, rel. to molar refraction and internal pressure 0=19130
 organic solids and melts 1=6857
 organic solns., and intermolecular free lengths 4=18195
 palmitic acid, melt and soln. 0=10659
 phenol, supercooled liquid, discontinuity at melting pt. 1=12876
 phenyl salicylate, melt and soln. 0=10659
 plastics, 3 specimens, 250-1000 kc/s 1=2822
 plates, longitudinal spectra 0=16800
 polarized transverse waves, det. of elastic const. rel. to stress 1=20282
 polymer solutions 3=14161
 polysiloxanes 2=11350-1
 polysiloxanes, and mutual solns., temp. depend. 1=15872
 polyvinyl acetate in benzene 3=14161
 porous materials, moisture effects, pulse meas. 4=5312
 pulse-echo method of meas. 3=21501
 pulse interaction with spin resonance 4=26415
 pyridine 2=15586
 pyrite, pulsed waves 3=23280
 quartz 2=1239, 7312
 quartz plates, Lamb waves, theory 2=9338
 quartz, X-cut, to 10 Gc/s 3=18934
 quinoline 2=15586
 relation to thermodyn. functions and compressibility 3=7395
 salol, normal and supercooled, temp. depend. 0=6789
 salol, supercooled 0=10723
 salol, supercooled liquid, discontinuity at melting pt. 1=12876
 sand, quartz, moisture effects, pulse meas. 4=5312
 seawater, 500 kc/s, small changes, meas. instrum. 3=13651
 sea water, Mediterranean, Jan. 1961 3=3442
 in seawater, new formula 1=4410
 solid-liquid boundary, by angles of total reflection 0=16766
 solids, change due to dislocation damping 4=20275
 solids, high-pressure meas. apparatus 4=16189
 in solids, meas. by pulse method 4=20197
 in solids, pulse superposition method 1=2819
 solutions of electrolytes 1=12877
 solutions, electrolytic, aq., anomalies 1=15871
 stearic acid, melt and soln. 0=10659
 steel samples, "sing-around" technique 3=21502
 in steel transformation products 4=20205
 stressed solids, var. meas., metallurgical appls. 3=23275
 styrene-butadiene rubber, longit. velocity 2=6732
 thiokols, liq., 20°-60° 4=24208
 thiophene 2=15586
 thymol, supercooled liquid, discontinuity at melting pt. 1=12876
 triacetin, hypersound velocity, effect of temp. 1=8183
 triacetin, hypersound velocity, effect of temp. 1=10570
 water, along saturation line 2=1145
 water containing algae suspension 0=8750

Velocity—contd

acoustic waves, ultrasonic—contd

water and electrolytic solns., temp. depend. 0=6793
 water, interferometric meas., effect of diffr. 4=21131
 water-formic acid mixtures 4=27174
 in waveguides, metallic water-filled cylinders 3=18925
 yttrium iron garnet, elastic const. of single crystals 1=1502
 A, at 3500 atm, 3.5 Mc/s 2=21946
 A, at 3500 atm, 3.5 Mc/s 3=1728
 AgNO₃, aq. soln., anomaly 1=15871
 AgNO₃ soln. 1=18407
 Al nitrate, molten, 60-100°C 1=15869
 Al, rel. to slip and dislocation 2=21436
 Ba(NO₃)₂, aqueous soln. 0=14640
 Bi, 98° and 4.2°K 0=16199
 Bi, oscill. changes, with var. mag. field, 4°K 3=8402
 CO₂, solid 0=11965
 Ca nitrate, molten, 60-100°C 1=15869
 CaCO₃, and elastic const. 3=23278
 CaI₂, aq. soln., anomaly 1=15871
 CaI₂, tetra hydrated, aq. soln. 4=24207
 Ca(NO₃)₂, aq. soln. and melt 2=5011
 Ca(NO₃)₂·4H₂O, aqueous soln. 0=14640
 Cd, elastic const. meas. 0=13898
 CdBr₂-KBr-H₂O 2=17459
 CdBr₂-ZnBr₂-H₂O 2=17459
 CdCl₂-KCl-H₂O 2=17459
 CdCl₂, ZnCl₂-H₂O 2=17459
 CdI, in acetone, ethanol and ethylene glycol, 780 kc/s 2=15588
 CdI, aqueous solns. 0=6790
 CdI₂-KI-H₂O 2=17459
 CdS 0=21094
 Ce acetate, aq. soln., anomaly 1=15871
 CoCl₂ solutions, temp., conc. var. 4=27172
 CoSO₄·7H₂O 3=20690
 CsBr, 73-300°K, elastic const. 1=12583
 CsI, 73-300°K, elastic const. 1=12583
 Cu-Ag, and elastic const. 3=23276
 Cu-Au, and elastic const. 3=23276
 Cu-Ni and elastic const. 3=23276
 Cu-Pb, and elastic const. 3=23276
 D₂O vapour 4=14214
 Fe-Ni (70/30), phase change study 1=7813
 FeSO₄·7H₂O 3=20690
 Ge, n-type, and electron and hole scatt. 3=13063
 Ge, pure and n-type 4=20201
 Ge, temp. depend. 0=1843
 H₂, liquid, normal and para, rel. to pressure 3=23880
 H₂, meas. and rotation-relax. freq. 3=14212
 H₂ mixtures with He, N₂, O₂, thermal and ordinary diffusion 0=5049
 H₂, 25.2°C and relax. times for rot. degrees of freedom 3=14213
 HCl, aq. soln. 1=1736
 HCl, critical temp. region 2=13375
 HNO₃, aq. soln. 1=1736
 H₂O₂, aq. soln. 2=2719
 H₂S, 25°C, 10⁻⁷-6 x 10⁻⁶ c/s atm, and time for rot. degrees of freedom 3=14213
 H₂SO₄, var. with temp. and conc.; association 4=2679
 He³, liquid and low-temp. gas, at 14 Mc/s and up to 9 atm. 0=2281
 He, at 3500 atm, 3.5 Mc/s 3=1728
 He, 3500 atm, 3.5 Mc/s 2=21946
 He³, liquid 4=14488
 in Hg 4=2675
 HgCl₂, aqueous solns. 0=6790
 In, 1.4-300°K, elastic const. 1=20295
 KBr, 5-200 Mc/s, -120 to +300°C 1=901
 KBr, molten, rel. to compressibility 2=13333
 KCl, 5-200 Mc/s, -120 to +300°C 1=901
 KCl-NaCl-H₂O 2=17459
 KF, molten, rel. to compressibility 2=13333
 KI in glycol, glycerine and ethanol, temp. and conc. depend. 1=11759
 KI, molten, rel. to compressibility 2=13333
 KNO₃, aqueous soln. 0=14640
 KNO₃-Pb(NO₃)₂-H₂O 2=17459
 KNO₃-Sr(NO₃)₂-H₂O 2=17459
 LiF, 5-200 Mc/s, -120 to +300°C 1=901

Velocity—contd**acoustic waves, ultrasonic—contd**

- LiF, liquid, 890-1040°C 3=5440
 MgO, near resonant absorption, by u.s. paramag. resonance 3=6759
 MgSO₄·7H₂O 3=20690
 MnSO₄, aq. soln., freq. and temp. depend. 0=6792
 in N₂ 3=5497
 N₂, gas 3=16659
 N₂, liquid 2=21908
 N₂, pressure depend. to 5000 kg/cm² 1=6904
 N₂, 3500 atm, 3.5 Mc/s 2=21946
 N₂ at 3500 atm, 35 Mc/s 3=1728
 N₂O, freq. depend. 1=8160
 N₂O, meas. by optical diffraction 4=11246
 N₂O₄, dissociation study 2=4530
 Na acetate, molten, 60-100°C 1=15869
 Na, elastic const. meas. 0=13904
 NaCl, deformed, various dependences 1=17406
 NaCl, effect of crystal interstitials due to H₂O, 1.5-40°K 4=17351
 NaCl, 5-200 Mc/s, -120 to +300°C 1=901
 NaF, liquid, 1025-1160°C 3=5440
 NaI 0=17895
 NaK tartrate, aq. soln. and melt. 2=5011
 Na—K tartrate, molten, 60-100°C 1=15869
 NaNO₃, aqueous soln. 0=14640
 NaNO₃—Pb(NO₃)₂—H₂O 2=17459
 NaNO₃—Sr(NO₃)₂—H₂O 2=17459
 Na₂S₂O₃, aq. soln. and melt. 2=5011
 Ne—He, A—He and K—He gas mixtures 0=14721
 Ni alloys, high, and elastic const. 3=23277
 NiSO₄·7H₂O 3=20690
 Ni-steel, rel. to stress 3=6471
 O₂, liquid 2=21908
 Pb acetate, molten, 60-100°C 1=15869
 Pb(NO₃)₂, aqueous soln. 0=14640
 Pb(NO₃)₂—Sr(NO₃)₂—H₂O 2=17459
 PbS, 80-640°K, along [100] and [011] 3=20090
 PbSe monocrystals, temp. var., 80-640°K 4=15415
 PbTe 2=18525
 Rb halides, aqueous solns. 3=16623
 RbBr, 300°K, elastic const. 1=12583
 RbI, 300°K, elastic const. 1=12583
 Si, neutron irradi., size of damaged region 0=2835
 Si, p-type, and electron and hole scatt. 3=13C63
 Si, pure and p-type 4=20201
 SiO₂, transducer thickness effects on meas. 4=27266
 Sr(NO₃)₂, aqueous soln. 0=14640
 Th(NO₃)₄, tetra hydrated, aq. soln. 4=24207
 U, grain size, meas. 4=29166
 Zn halides, aq., rel. to dissociation 2=15152
 Zn halides in aq. soln., rel. to conc. 1=1740
 ZnBr₂, aq. soln., anomaly 1=15871
 ZnBr₂—KBr—H₂O 2=17459
 Zn—Cd amalgams 2=7210
 ZnCl₂—KCl—H₂O 2=17459
 ZnI₂—KI—H₂O 2=17459
 ZnS, in different directions 4=13450
 ZnSO₄·7H₂O 3=20690

light

- air and vacuum, review of results 0=10746
 ballistic theory of emission, test 1=6942-3
 change, moving source expt. 4=30
 conformal coords. for space-like motions 3=11682
 constancy principle 0=4932
 equal, to e.m. waves, flare star obs. 4=21269
 Fresnel drag meas. using ring laser 4=27280
 independence of source motion, terrestrial test 4=18373
 in liquids, flowing 0=19356
 in mag. field 0=12466
 in mag. field, quantum effects, possible exptal det. 1=9465
 and meas. of interplanetary distances 0=6574
 Michelson—Morley experiment 4=5355
 Michelson—Morley experiment, alternative deduction 3=5345
 from moving source, exper. study of special relativity theory 0=18922
 moving source expts. and relativity 4=24032
 moving source, general relativity, interpretation of Kantor's expt. 4=11038

Velocity—contd**light—contd**

- moving source, Kantor's expt., relativistic explanation 3=18957
 one-way, 2nd order constancy, rel. to special relativity 3=5344
 one-way signal, test of relativity theory suggested 1=4246
 photon, in vacuo, energy depend. investigation 0=12467
 precise det. using O₃ microwave absorption 1=837
 in quantum theory of finite degree of freedom 4=14999
 receiver velocity, effect of 3=7303
 redefinition 4=5007
 relativity postulate on independence of source motion, confirmation 4=8365
 source velocity independence 1=18558
 teaching demonstration of finite value 4=21270

Velocity analysis, particles

(Heading abolished in 1963; for later entries see

Particle velocity analysis)

- "Alpha" plasma machine, neutral atom flux 1=9610
 atmosphere, upper, particle descent profile 2=4622
 Brookhaven fast chopper, modification 0=17348
 by Cherenkov counters, calc. and tables 2=22362
 with conical pole pieces, stray field derivation 0=7191
 cyclotron instrumentation: magnetic analysis equipment 1=1943
 5 electrons produced in distant collisions by ultra-relativistic particles 1=13121
 direct method, using resonant microwave cavity cloud chamber 0=7252
 effective neutron temperatures, meas. 1=17233
 electronic, for α -particle selection 1=3207
 electrons, in magneto-plasma 2=1602
 electrons, from pyrotron plasma, scintillator probe 2=1452
 electrons, secondary, normal distrib. 2=1490
 electrostatic analyser, aberration correction 0=5364
 electrostatic analyser, 75 kV γ =513
 electrostatic analyser with variable focal length 1=10743
 electrostatic electron selector for appearance potential meas. 1=1887
 emulsion tracks, maximum likelihood method 0=5465
 in emulsions, from grain density data 2=11843
 energies, conversion lab. system to moving system 2=17405
 energy and ang.-distrib. fluctuations meas. 0=312
 fast neutrons, time-of-flight technique 0=2552, 17349
 fission-fragments, automatic time-of-flight measurements 0=17629
 heavy cosmic-ray primaries, energy det. in emulsion by knock-on electron method 0=17442
 helical slot neutron monochromator 1=7254
 ion transmission, with inhomogeneous mag. fields 0=7170
 magnetic analyser combinations for nuclear reaction studies 1=1995
 magnetic analyser, for particle accelerators 0=15222
 magnetic particle analyser, multi-purpose 1=1996
 magnetic proton spectrometer, Uppsala 0=11075
 magnetic spectrometer, line-focus intensity distrib. 0=7173
 mesons and hyperons, using travelling wave devices 0=319
 microwave separator for high-energy particle beams 1=4675
 molecular beams, neutral and charged 2=12355
 molecular beams, velocity selector, slotted disk type 2=20888
 momenta meas., 10¹⁰-10¹² ev 0=12805
 momentum analysis, telescope of spark counters 2=17989
 moving source, direct first-order expt. 2=19666
 neutrons, mechanical velocity selector 1=4801
 neutrons, pulse-time recording for time-of-flight methods 0=2474
 neutrons, time-of-flight tape recording 0=17352
 particles, Cherenkov detector 1=16617
 photons, in vacuo, energy dependence investigation 0=12467
 π -mesons, bubble density in H bubble chamber, velocity depend. 0=12728
 plasma, instabilities associated with anisotropic velocity distributions 1=9551
 propane bubble chamber determination 0=20090
 protons, bubble density in H bubble chamber, velocity depend. 0=12728

Velocity analysis, particles—contd

- protons, 6.3 BeV, check of energy det. methods by multiple meson prod. in emulsion 0=1283
- retarding-field energy analysers, design study 2=1522
- spectrometer, double-focusing magnetic, theory 2=13710
- spectrometers, image location, effect of stray mag. fields 0=19799
- spherical condenser, as particle spectrometer 1=1919
- time-of-flight experiments, with 15 MeV linear accelerator 0=17350
- time-of-flight fluctuations, statistical problems 0=6691
- time-of-flight meas., $\sim 10^{-9}$ sec, single-channel time-interval analyser 0=19995
- time-of-flight 'time expander' circuit 1=2069
- time moments and asymptotic formula for slowing down neutrons 0=363
- van de Graaff beams, for time-of-flight meas. 0=2476
- velocity discrimination with two Cherenkov counters 1=7174

Velocity measurement

- See also Angular velocity measurement; Stroboscopes
- float, vertical 4=27141
- flow measurement by Co^{60} tracer 1=6843
- γ -rays, constancy, by positron annihilation 3=22098
- gaseous detonation wave, with interferometer. 3=198
- in liquids, local vels., hot-wire anemometer 3=14090
- low fluid velocities down to 0.1 ft/sec 4=14114
- microwave reflection from piston end, in hypersonic gun tunnel 0=4976
- particles in opaque fluid 0=3491
- photoelectric apparatus 0=3488
- pitot tube performance, supersonic flow, rarified 3=14197
- plane conducting surface, capacitor technique 1=6815
- projectiles and high speed objects, photographic method 2=2670
- radioactive pneumatically transported grains 0=19041
- shock waves, use of coaxial photocells 2=21935
- shocks in solid explosives 0=3584
- smear camera technique for small, rapid motions 1=9497
- space vehicles, astro Doppler technique 2=15418
- sputtered atoms, time of flight 3=14681
- stroboscopic, bullet, teaching demonstration 3=21286
- vehicles, using interrupted light beams 0=4986

acoustic waves

- air, atoms, press., 100-1500 c/s, sp. ht. calc. 0=5052
- attenuation equipment modification 3=3858
- behind shock front, flying plate projective 0=8742
- in explosion products 0=14728
- in liquid-filled capillary tubes, low temps. 3=1883
- liquids, interferometric determination 0=6859
- liquids, by resonator tube, effect of walls 0=5082
- models 0=19333
- phase comparison interferometer for velocity changes < 1 mm/s 1=16039
- plastics, thin films 0=6859
- sand, using small samples 2=73
- sea, variations recorder 0=14756
- sea water, long-range measurement 1=5328
- sing-around velocimeter, errors 3=14281
- in small samples, by gated modulator 3=18938
- solids, limited size 0=990
- sound tubes, effect of attenuation 1=1787
- surface waves in air 1=2817
- underwater l.f. sound meter 1=2831
- velocimeters, sea-going, calibration 3=3860
- water, as function of temp. and pressure 0=19273-4
- A, solid 0=9848
- CO_2 , atmos. press., 100-1500 c/s, sp. ht. calc. 0=5052
- ClO_3F , for Cp/Cv 0=105
- HCl, in critical region 3=18859
- in Ni-Zn ferrite, 5 Mc/s 3=17652
- O_2 , atmos. press., 100-1500 c/s, sp. ht. calc. 0=5052

acoustic waves, ultrasonic

- alkali halide crystals, c.w. resonance technique 0=11963
- with coarse gratings 0=8753
- hydroxide solns., aqueous 0=5012
- inorganic acids, molar sound velocity 0=19133
- interference methods, classification into 48 types 4=5327
- interferometer, for 2 Mc/s meas. 2=1240
- liquids, by optical diffraction 0=6858
- liquids, variable frequency interferometer 0=16767

Velocity measurement—contd**acoustic waves, ultrasonic—contd**

- optical method, for liquid-solid boundaries 2=7311
- optical method, time-dependent 4=14303
- pulse superposition method, for various temp. and press 2=13416
- pulsed echo system 1=4418
- sea ice, Young's modulus meas. 2=4307
- "sing-around" technique for large solid samples 3=21502
- solids, difficulties of accurate meas. 2=1232
- solids, 100-500 Mc/s 2=9353
- solids and liquids, combined impulse and interferom. method 2=1239.7312
- in solids, sing-around technique 1=1788
- in stress analysis 0=694
- toluene, rel. to temp. 2=13335
- transducer thickness effects 4=27266
- water, along saturation line 2=7209
- wavelength, precision meas. with interferometer 2=7308
- A, liquid, at high press. 0=19132
- GaAs, for elastic const. det. 2=18977
- Ge, under pressure, transverse vel. 0=1844
- N, liquid at high press. 0=19132
- α -U, phase comparison meas. 0=16204
- Zr, α -phase, elastic moduli meas. 2=4306

light

- air and vacuum, review 0=10746
- constancy determ. 4=11319
- constancy, expt. evidence 2=9161
- constancy, proposed test 2=21805
- constancy test, proposition 2=2612
- in distance meas. 0=14569-70
- Einstein's postulate test, comments 3=23996
- emitted by moving source 1=11697
- Fresnel drag, using ring laser 4=27280
- i.r. precision spectroscopy 3=248
- interference method 1=18604
- interferometry, rel. to atomic const. 3=14305
- Leybold's apparatus improvements 4=24334
- method using laser source 4=18374
- moving source, Kantor's experiment, relativistic explanation 4=2808
- moving sources, secondary re-emission in "ballistic" theories 3=18958
- μ_0 , ϵ_0 det., teaching expt. 3=5508
- review 0=19355
- in transverse magnetic field 1=12958
- uncertainty, statistical estimate by geodimeter method 3=11878
- in vacuum, using microwave frequencies, M.I.T. survey 0=8762

Vibrating bodies

- See also Crystals, lattice mechanics; Elastic waves; Pendulums; Piezoelectric oscillations, acoustic radiation damping 3=16673
- acoustically and mechanically induced vibrations, equivalence 3=11272
- aircraft, base pressure fluctuations 1=2803
- amplitude meas. of oscillations 3=23957
- amplitude transformers, torsionally resonant, for high magnification 4=11271
- anti-vibration mountings 0=6870
- antivibration mountings 2=2808
- bar, cylindrical, semi-infinite, plastic strain wave propag. 3=5484
- bar, dynamic absorber effect on solid damping 4=18313
- bar excited by transverse impact, theory verified by expt. 1=12934
- bars with variable cross-section, calc. 4=5266
- bar, whirling, axial vibrations 3=9529
- bars, crest and extremal statistics 3=5478
- bars, flexural and longitudinal reson. freq., Young's modulus relations 0=13905
- bars, longit. vibrations 0=19248
- bars, longitudinal oscillation with uniform stress 3=191
- bars, plates, wedges and cones, stress and strain limits on attainable velocity 0=16749
- bars, resonance method for mechanical impedances, under various conditions 0=19248
- bars, tapered, of revolution, in longit. half-wave resonance 0=16756
- beam, attached to plate, acoustic scatt. 2=21975
- beam coupled to plate, input impedance 1=6918

Vibrating bodies—contd

- beam, Cu, anomalies, rel. to internal friction 2=8712
 beam, mass-loaded cantilever, response crests distrib. 3=5477
 beam, rotating, transverse vibs. 3=18878
 beam, simply clamped, response to vibratory forces and moments, theory 4=14240
 beam structures, viscoelastically damped, loss factors 2=17526
 beam, thin, of varying cross-section, torsional vibrations 1=12935
 beam, whirling Rayleigh type 3=18879
 beams, damping for displacement-amplitude meas. 2=9332
 beams, discontinuously loaded 0=16754
 beams, effect of shear on higher frequencies 0=6850
 beams, elastically mounted, damping 0=16755
 beams, flexural vibration, cross-section distortion 4=29685
 beams, flexural vibrations, corrections for shear and rotatory inertia 4=11268
 beams, free-free, damped, transverse vib. 3=7262
 beams, frequency modulation 2=13397
 beams, impedance and transmissibility of transverse modes 4=8298
 beams, inhomogeneous, vibr. freqn. and mode shapes, calc. 4=14249
 beams with internal damping, transverse vibs. 4=5267
 beams, internally damped, on vibrating supports 2=2807
 beams, mechanical impedance and transmission 3=9530
 beams and rectangular flat panels, acoustic-structural coupling 4=8290
 beams, rectangular, torsional vibrations 3=192
 beams, rotary inertia and shear effects 4=29684
 beams, shaker-excited, damping calc. 2=17531-2
 beams, supported, initial vibrations 1=15997
 beams, transverse vibs. 3=18882
 beams, 2-layer viscoelastic, bending and extension 0=16758
 bending wave radiation, from vibrating plates 0=19283
 bending waves, measurements and investigations 0=19249
 branch mode analysis, many degrees of freedom 4=11270
 bubbles, viscous damping 0=10643
 cantilever beam, random loading 3=18880
 cantilever beams, tapered, with end loads, transverse vibs. 4=14237
 cantilever, vibration during and after impact with transversely impinging load 4=27242
 circular cylinders, with vanishing axial component, resonances 1=8174
 circular membrane, nonlinear response to sinusoidal acoustic excitation 4=8289
 circular plate with central hole 3=21467
 circular plate, extensional vibrations, theory 4=24283
 circular plate, water-loaded, resonant frequency 0=6849
 circular plates, cylindrically anisotropic, flexural vibs. 4=14238
 circular plates, simply supported and edge clamped 4=24285
 clamped panel, nonlinear response 1=18501
 clustered rods, cooled by parallel flow 0=5072
 compression impulse, optical analogy 4=18311
 cone, longitud. resonant, analysis 4=8293
 cone, solid, in longitudinal half-wave resonance 0=2194
 conical bar, longitudinal vibs. 3=187
 conical bar, varying rigidity and density, torsional vibrations 0=14709
 conical shells 0=10710
 conical shells, axisymmetric modes 0=12444
 connected structures, random vibr. 4=24282
 coupled plates 3=18875
 coupled resonators, random response 1=2812
 crystal plate, infinite, monoclinic, freq. spectrum 3=5481
 crystal plate, infinite, monoclinic, at high freqs. and long wavelengths 3=5480
 crystal plates, flexural modes 2=13394
 crystal plates, h.f., eqns. 1=15992
 crystal plates, h.f., thermoelastic dissipation 4=8286
 cube, natural longitudinal vibs. 3=18876
 cylinder, axial-shear, natural frequency, conditions 1=18505
 cylinder, hollow, elastic 1=1777
 cylinder, motion induced by elastic waves 1=1779
 cylinders, hollow, point-excited 1=202

Vibrating bodies—contd

- cylinders, hollow and thick-walled 0=19251-2
 cylinders, isotropic, natural elastic vibrations, meas. 1-120 kc/s 0=14708
 cylinders, solid elastic, isotropic, exptl. study 4=8297
 cylindrical bar, ship propeller field excited, acoustic radiation 4=27257
 cylindrical elastic shell, interaction of acoustic wave 0=10716
 cylindrical shells, axially symmetric vibrations, in acoustic medium 0=14711
 cylindrical shells, exper. study 0=14710
 cylindrical shells, orthotropic, thick 4=8296
 cylindrical shells, thick-walled 0=2193, 8729, 10708-9
 cylindrical and spherical resonators, loss factors 1=6917
 cylindrical structures, input impedances 0=6851
 cylindrical vehicles, sound-induced vibs. 2=9335
 damping layer, influence of rate of flow values 0=1017
 damping and vibration detector position, effect in reson. meas. 0=5075
 dielectric substances, free oscillations 0=16030
 disk, circular, edge mode frequency 1=18502
 disk, free edge, maximum power criterion 1=6916
 disk, rotating, symmetric planar vibs. 3=18874
 disks, design for mechanical radiation 3=7263
 disks, radial extensional vibrations, theory 0=14705
 dynamic absorber, transient behaviour 0=136
 earth, free, spheroidal, long-period, calc. 3=18468-9
 effect of small changes in mass and stiffness on natural freq. and modes 1=5318
 elastic coupling between longitudinal and transversal vibr. in rods 1=15985-6
 elastic, with finite cond. in transverse mag. field 4=14234
 elastic-plastic strings, spatial motion 1=15767
 elastic plate, excited by marine propeller, acoustic radiation 4=29707
 elastic plate, surface flexure-waves, production 2=21963
 elastic plates, flexural vibs. 3=9533
 elastic rod, semi-infinite, extensional waves 1=2809
 elastic solid, after impact of rigid circular cylinder 3=94
 elastic-strip, plate-wave phase velocities 3=18873
 elliptical vessels containing liquids, rotational vibration 0=6716
 equivalent pendulum, Schuler's theorem, proof 2=13296
 extremal statistics, effects of dynamical nonlinearity 1=1778
 fatigue, under combined sinusoidal and random excitation 1=12585
 ferroelectric cylindrical tubes, vibration theory 3=11846
 ferroelectric tubes, coaxially segmented, theory 4=27245
 flat plate, flexural vibrations, finite amplitude 3=16677
 flat plate in non-Newtonian fluids, constitutive eqns. 4=27139
 floating floors, theory 1=182
 frames, nat. freq. and principal modes 4=29687
 grillages and beams, transmission of bending and torsional waves 4=24286
 gut strings, frequency shift due to humidity 0=5111
 gyroscope freqs., var. with rigidity, mass, nonconservative forces 4=11128
 hard-spring oscillator, equivalent linearization 0=16757
 hard-spring oscillator, randomly excited 0=10711
 hard-spring resonators, peak density in random response 1=9438
 hard-spring resonators, random fatigue 1=9437
 harmonic oscillator, restless motion 2=4909
 history to 1788 1=1775
 infinite plate, acoustic power rad. 4=27254
 infinite plate, longitudinal thickness vibrations 1=5042
 isolation mountings, 2- and 3-element, transient behaviour 3=9536
 Jacobi, Maclaurin and Jeans spheroids, stability 3=16681-4
 l.f. motion, in elastic wave field 0=19033
 linear chain, identical particles, connected by springs 2=17390
 liquid-containing body, elastic vibrations 0=925
 longitudinally excited, loss distrib. 4=27241
 magnetostrictor, dissipative forces 3=19411

Vibrating bodies—contd

- membrane, circular, of varying density, vibration problem, perturbation method 4=21216
- membrane, composite circular, free vibrations 2=17533
- membrane, infinite composite 3=21465
- membrane strain, effect on fatigue damage rate 1=9439
- membranes in air 3=5478
- membranes, composite circular 3=21466
- membranes, four-part, free oscillations 2=11438
- membranes, between two eccentric circles 2=5094
- membranes, slightly tapered strips, response turning point study 4=27244
- membranes, velocity distrib. det. 0=19313
- mixed boundary-value problems 2=17527
- modes, rel. to force due to random press. field 4=18308
- multiresonant structures, damping by feedback 4=27240
- Myklestad matrix method, extension 0=5067
- nonlinear, orbitally stable soln. 0=6537
- nonlinear string, response to random excitation 0=14704
- nonlinear system, passage through resonance, approx. soln. 0=114
- nonlinear systems, vibrationally linearized, stability 2=17393
- normal modes in certain spring-mass non-linear systems 4=27239
- orthotropic plates with stepwise rigidity change 1=15988
- orthotropic sheets, wave impedance, radiated power 1=8172
- oscillations of ferroelectric bodies 4=26111
- oscillator with non-linear damping, random vibr. in metals 4=26465
- panels, ribbed, response to acoustic waves 2=13393
- panels, vibr., sound coupling below int. freq. 4=27255
- paraboidal shells of revolution, elastic vibr. 4=8294
- parallel bars, elastically connected, normal mode vibrations 4=8287
- particle on stretched string, Doppler effect 2=5093
- piano sounding-board 1=8189
- piano string, stiff, normal frequencies 4=8285
- piezoelectric plate, natural freqs., static deform. 3=16678
- piezoelectric, reson., and elastic const. meas. 4=15683
- piston, circular, in infinite baffle, pressure 4=29686
- piston face, equivalent Eulerian boundary conditions 3=21464
- pistons in rigid baffle, mutual radiation impedance 4=27256
- plastic medium, rate-sensitive, stress-wave propag. 4=8299
- plate, circular, composite, free vibr. calc. 4=24284
- plate, circular, elastic, with central load 1=4396
- plate, clamped in fluid, forced vibrations 0=19247
- plate damping due to attached viscoelastic layers 4=8292
- plate, effect of periodic inhomogeneity 2=21973
- plate, generated by impulsive force and sound radiation 1=15990
- plate, multilayer, damping 2=7271
- plate, semi-infinite, edge admittance 4=8291
- plate, thin isotropic rectangular, edge mode frequency 1=18502
- plate, thin rectangular, edge mode 1=18503
- plates 1=2805
- plates, absorption coefficient meas. 2=13392
- plates, acoustical radiation behaviour 0=16809
- plates, amplitude meas., using interference microscope 0=5069
- plates, anisotropic inhomog., boundary conditions 1=185
- plates, bending wave propag. 3=9531
- plates, Chladni nodal line patterns 4=2755
- plates, circular 2=7270
- plates, circular, elastic, non-linear 3=18872
- plates, cross-stiffened, sandwich 1=18496
- plates, damping, temp. depend. 0=16800
- plates, directional flexural waves, excit. 4=14236
- plates, elliptical, rel. to shear and inertia, theory 4=21213
- plates, 4 materials, flexural modes 2=13394
- plates, generalized Hamilton's principle and variational eqn of motion application 4=8284
- plates, inf. and elastic, stress wave 0=118
- plates, infinite and thin, mechanical impedances 0=19346
- plates, Lamb waves at Mc/s frequencies 1=10559
- plates, moment impedance 0=19245

Vibrating bodies—contd

- plates, orthotropic and buckling of isotropic plates 4=18314
- plates, piezoelec., thickness vibs. 3=7267
- plates, piezoelectric, quartz and tourmaline, bending, longitudinal and thickness vibrations 0=19255
- plates, rectangular orthotropic, analogy with buckling 3=16676
- plates and rods, thin, thermoelastic waves 2=11447
- plates, skew cantilever and triangular 2=5095
- plates, theory 0=983
- plates, thin elastic circular, flexural vibrations 4=14235
- plates, thin, equations for elastic layer 4=256
- plates, triangular, thin equilateral 0=16752
- plates, velocity distribution determination 0=19313
- plates, very small ampl., light modulation meas. 4=18315
- plates, vibrations and sound radiation 1=15991
- prismatic bars, flexural natural freq., depend. on width/length 0=14706
- prism, rectangular, thermoelastic vibr. 2=13287
- prisms, natural longitudinal vibs. 3=18876
- quartz crystals, internal displacements, by X-ray diffr. 3=15982
- quartz disks, extensional vibs. 3=5482
- quartz lenses, double convex, Chladni's figures 0=14713
- α -quartz plate, acoustic mode propagation 3=20087
- quartz plate vibration in stationary electric field 1=187
- quartz plates, analysis 0=19254
- quartz plates, square, contour vibrations 0=16751
- quartz plates, thickness vibs. 3=7267
- rails, during passage of train, 10-100 kc/s 0=5073
- rectangular piston, sound field 0=2205
- rectangular plates, isotropic and orthotropic 3=23959
- resilient supports, vibration isolation 0=14707
- resonant cantilever beams, fatigue tests 3=7261
- resonant vib., relation bet. strain and vel. 3=9528
- response and radiation, when excited by sound 2=13395
- ribbed plates, transverse vibrations 0=5068
- rigid, in rubber-elastic media, 1st order vibrations 2=7272
- ring, dilationless circumferential modes 4=8295
- ring segment, clamped, circular, out-of-plane vibrations 3=18871
- rings, circular, incomplete 1=5319
- rod, cylindrical, porous fluid-saturated 2=2810
- rod, edge mode frequency 1=18502
- rod, metallic, high temp. prod. by internal friction 1=14852
- rod, metallic, high temp. prod. by internal friction 1=20311
- rod, semi-infinite, axisymm. wave propag. 4=18309
- rod, semi-infinite, bending wave propag. 2=5096
- rod, string in fluid stream, aeolian tones 2=21967
- rod, surface, u.s., conversion into rotation and translation of coupled body 4=11275
- rod, thin, propag. of elastic disturbances 3=14232
- rods, axially symmetric waves 2=9333
- rods, bending wave propag. 3=9531
- rods, characteristic impedance study 2=11437
- rods, frequencies below radial resonance 0=10707
- rods, internally damped, longitudinal vibr., theory 4=14241
- sandwich plates, extensional vibr., h.f. 3=189
- sandwich plates, nonlinear flexural vibr. 3=188
- shell, conical, supporting mass. axisymmetric vibs. 2=9334
- shell, cylindrical, radial vibrations 2=2806
- shell, elastic, cylindrical, response to moving shock wave 3=7260
- shell, spherical, flexural vibrations 2=17535
- shells, cylindrical, point-driven. 3=190
- shells, dynamic asymmetry 3=9532
- shells, elastic, axisymm. vibs. 4=18312
- shells and plates, elastoplastic, dynamics 1=15989
- shells and plates, elastoplastic, dynamics 1=18499
- shells, with rot. symm., free vibr. theory 4=24287
- shells, shallow spherical 1=11805
- shells, spherical, free axisymm. modes 2=2805
- shells, spherical, non-axisymmetric modes 2=17534
- shells, thin, cylindrical, in water 1=15993
- soap films 1=188
- soft cylinder in hard skin 1=15994
- solid cylindrical layer, normal plate modes 4=255

Vibrating bodies — contd

- solid propellant rockets, acoustic rockets 0=8735
 solids, as aggregate of atoms, extension of Huygens' principle 0=13463
 sound deadeners, testing 0=16804
 sphere, radially heterog., torsional disturb. 4=258
 sphere, in rotating liquid 0=6746
 spherical shells 4=14239
 spherical shells, bending effect 4=8288
 spherical shells, elastic 0=5071
 spherical shells, flexural vibs. 3=7265
 spheroidal shell, prolate, free extensional torsional vibrations 1=2806
 spring, damped, transient response to pulselike displacements 3=9535
 spring-mass system, forced oscillation, Coulomb and viscous damping 0=19243
 square crystal plates, flexing, natural frequency and first overtone 1=186
 stability asymptotic for one degree of freedom systems 4=16166
 string, boundary flexibility effect on converted random loading 4=18310
 string, nonlinear continuous, exact soln. 3=186
 strings, amplitude depend. on reson. freq., applic. to vibroscope 0=6848
 string, displacement of mean position, theory 2=1221
 strings, large-amplitude motion 0=116
 strings, minimum bowing press. 0=16750, 19244
 strings, nonlinear stretched, frequency response 1=1776
 strings, parameters determining musical response 0=1010
 strings, response to moving noise fields 1=18539
 structure, continuous, response to random loading 3=9534
 surface wave excitation and propagation, geometrical theory 4=11273
 surfaces, sound radiation 4=24311
 surfaces, vibrometer meas., damping effects 0=117
 system with redundant coord., force const. 3=8233
 system stability, under forced frictional oscillations 0=6846
 system of transducer, concentrator, sample, equivalent circuit 4=259
 tape moving between pair of pulleys, transverse vibrations 0=12443
 thermoelastic dissipation, theory 2=5098
 thin infinite plate, reflection 1=11809
 thin plates, c.f. wavelength, energy meas. 1=15987
 torsional-mechanical oscillator, impulse driven 2=4974
 transmissibility, reduction by attachment of dynamic absorber, theory 4=21211
 tubes, thin cylindrical, longitud. vibr. 2=5092
 tuning fork, effect of gravity 2=19643
 tuning forks, analysis 0=19855
 two-degree-of-freedom systems, response to white noise excitation 1=6925
 vibration control by resilient mounts 3=14231
 vibration testing, random versus sine 1=8171
 variational principles in elastodynamics 4=29573
 viscoelastic, between par. planes 0=3502
 viscoelastic circular cylinder, forced torsional vibrations 0=19250
 viscoelastic spring, loss factors 2=17528
 wire carrying a current in magnetic field 4=2754
 wires, applic. in pressure cells 0=12399
 wires, resonance effect on aeolian tones 2=17544
 wooden beams, free flexural vibrations 0=3580
 AgCl, damping due to u.v. irradiation 1=20316
 BaTiO₃ cylindrical disks, axial modes 1=8173
 BaTiO₃ circular disk, thickness mode 3=20389
 BaTiO₃ disc and cylinder electromechanical const. design charts 4=16181
 BaTiO₃ plates, vibration patterns 0=19263
 Pb, resonance peaks, rel. to dislocation motion 3=1220

Vibrations

- See also Acoustics; Damping; Oscillations; Vibrating bodies; Waves.
 absorbing materials, expt. investigation 0=1013
 absorption, two-layer systems 1=2804
 acoustic energy trapping near source above submerged elastic plate 1=2818
 acoustic loading, linear response techniques 2=21962
 air-filled, thin walled cylinders, circumferential waves 3=7271
 analysis, rectangular transfer matrices 4=254
 analysis, transfer-matrix method, generalization 1=5317

Vibrations—contd

- arcs, elastic hinged, lowest natural freq. 2=2804
 bimodal system, response crests distrib. 3=5477
 bubbles, in water, damping 0=119
 bubbles, in water, frequency, radius, and press. changes 0=6865
 in buildings, propagation 0=19332
 clarinet, reed and air column 1=9452
 classical system, variational method for study 0=16614
 conservative systems, periodic motion 2=11436, 17522
 coupling mode amplitudes, quantum operators correl. 2=17337
 crest and extremal statistics, square-law-derived random process 3=5479
 criteria, of dynamic systems 2=15665
 crystal modes 2=559
 cylinder under periodic shearing forces, forced torsional vibrations 1=190
 damping by viscoelastic materials on metal sheets 4=5344
 disordered chain, integrated spectrum, exact calc. 4=20188
 disordered linear system, spectrum, Schmidt's eqn. 4=17345
 dynamics of excited rigid strip mass on an elastic half space 3=18770
 earth, effect of interstellar gravitational radiation 1=8040
 effects and analysis, conference 0=8727
 elliptic boundary problem, small perturbations 4=24281
 ferromagnetics, in a.c. fields, effect of mag. props. 0=12445
 films, thin, thermal 3=4810
 flexural, Myklestad method, solution 2=15668
 forced, Coulomb damping, two deg. freedom 0=984
 forced, of free viscoelastic sphere, giving dilatation const. and complex ratio 4=15686
 Fourier method, extension to nonlinear operators 2=9329
 galvanometers, vibration-isolating mounting 2=1343
 h.f. in alkali halides, dislocation multiplication 4=1482
 heat transfer increased by transverse vibs. 3=5545
 initial, of supported beam 1=15997
 isolator, two elastic elements 4=14233
 linear dynamic system, damping 1=18498
 linear dynamic system, imposed rapid motions 2=17529
 linear lattices, new picture 1=12352
 linear mechanical oscillator 0=14564
 linear monatomic chain, effect of anharmonic potl. 3=23735
 linear random systems, output moments 2=17530
 linear system with arbitrary masses, frequency eqn. 4=8082
 linear systems, nonuniform conservative 2=15669
 longitudinal modes of linear chain, with many-neighbour interact. 4=20179
 longitudinal, in viscoelastic rod 4=5273
 magnetoelastic, cond. plate and bar in a mag. field 3=16679
 magnetoelastic, cond. plate in a mag. field 3=16680
 magnetohydrodynamic, in cylindrical cavity 1=9679
 magnetomechanical, Chladni figures 2=4230
 materials during ultrasonic machining, internal stresses 4=2756
 mechanical, effect on break-up of water jet in air 4=21084
 mechanical impedance, mobility, analytical expressions 3=7259
 Melde's expt., subharmonic oscillation 0=6847
 metals, amplitude rel. to int. friction 4=1912
 nonlinear asymm., under random loading 3=16675
 nonlinear, use of method of averaging 4=16165
 nonlinear, orbitally stable solutions 0=6537
 nonlinear, under random loading, analysis 3=16674
 nonlinear, self-sustained thermally driven, in closed pipe, analysis 4=5281
 non-linear system activated by periodic force, sufficient condition of stability 3=9526
 nonlinear systems, two-tensor phase-space method 2=5091
 nonlinear, in weak external fields 0=16602
 nonlinearity effects in beam vib. problems 4=2753
 oscillations damped without influence on frequency 1=18497
 oscillator, hard-spring, randomly excited 1=15995-6
 oscillatory parametric control 0=6545
 pipes in forced vibration, pressure determination 1=9436

Vibrations—contd

- prolate-spheroidal shells, axisymmetric vibs., perturb. soln. 3=1744
 random 0=982, 10706
 random, of nonlinear systems, perturb. techniques 4=2751
 random responses, zero crossings and peaks 4=2750
 resonance, nonlinear, generalized Van der Pol eqn. 2=9330
 resonance testing with n degrees of freedom 3=1745
 resonances for periodic excitation with perturbation 4=21210
 response of structures with finite mechanical impedance 1=18495
 review of Soviet work 0=6845
 rigid bodies in elastic medium, rotation 3=7264
 ripple tank for wave phenomena demonstration 1=4231
 rod, thin, propag. of elastic disturbances 3=14232
 shock mountings, response to transient displacements 1=15998
 shock waves, vibration relax., calc. 3=23969
 skin sensitivity 3=3648
 stability, non-linear oscillating or rotating systems 4=16164
 stability, Routh-Hurwitz and Markov criteria 0=8728
 stress tensor, asymmetric, continuous medium, mechanical and e.m. fields 3=19420
 string, incompletely flexible, lateral bending vibrations, soln. by WKB method 1=4
 structural fatigue, random and swept sinusoidal vibrations 2=17525
 structural vibration processes 0=19334
 surface, radiation field and external force, reciprocity relation 2=17524
 systems with nonlinear boundary conditions 4=257
 theory, differential equations, integration 3=18697
 thermoelastic, isentropic motion, finite deform. 3=18883
 time or space distributions, visualization method 1=18537
 torsional, damping capacity background 3=18171
 torsional, free, uniform bar with discrete inertia 2=15667
 torsional, general eqn. 1=8170
 tubes, damping 1=4397
 unloading waves theory 3=18887
 variation in amplitude and phase in propagation 0=120
 vibration-impact system, model tests 3=23823
 viscoelasticity, dynamic, thin-plate theory, validity 4=21214
 water, reservoir, effect on acoustic phase 3=16709
 Al-(%) Mg, elastic, effects on internal friction 1=10208
 CO₂ in shock waves, modes var. with Mach number 4=18339
 KCl, influence on Pb impurity entry during growth 4=30821
- excitation**
 acoustic and mechanical excitation, comparison 2=13396
 Aeolian tones generation, fluctuating forces on cylinder 3=1770
 by alternating currents in taut wire, resonance 4=2754
 alum, optico-acoustic effect 0=20972
 beams, by central and off-centre forces 3=18882
 beams, elastically mounted 0=16755
 in body by dry friction 4=23114
 bowing, work done 1=191
 branches of trees, by acoustic waves 3=18926
 cantilever beam, response spectrum 3=18880
 cantilever, during impact with transversely impinging load 4=27242
 coupled tubes, simultaneous excitation of two frequencies 1=9443
 cylindrical shell, elastic, by shock wave 3=18881
 design of vibrators, hysteresis and residual stresses 4=7376
 diaphragms, mech. meas. of dynamic response 4=27243
 elastic body, slightly viscous, space rel. to time damping 2=1219
 human skin, dynamics of vibration sense at l.f. 0=16499
 impact sound, production and reduction 0=19335
 microwave, elastic, prod. by ferromag. resonance 3=23958
 nonlinear response, simple clamped panel 1=18501
 "octave vibration" of stringed instruments 0=5112

Vibrations—contd**excitation—contd**

- organ pipes, stationary vibrations 1=9453
 panels, ribbed, by acoustic fields 2=13393
 photographic film, clamped, excited by light 1=4425
 plate clamped in fluid, forced vibrations 0=19247
 plates, radiation behaviour 0=16809
 random, response of nonlinear string 0=14704
 Rochelle salt, optico-acoustic effect 0=20972
 shell, cylindrical, by fluid flow 4=21217
 spring-mounted mass, resonance investigations 0=985
 structural modes, excited by sound 2=13395
 structures, by random press., approximations 4=18316
 superposed on crystal, electrical effects 0=7917
 white random excitation, Fokker-Planck eqn. 4=2749
 NaCl, effect of internal friction 0=21100
- measurement**
 See also Seismology
 a.f. pick-up, for structural vibration measurement 0=19318
 absolute amplitudes at low freq., principles 4=5264
 accelerometers, capacitive with optimum freq. response characteristics 1=2813
 amplitude meter, using moiré-fringe technique 0=3581
 amplitudes, interferometric method 4=5265
 amplitudes, small, by capacitive meas. 1=9434
 automobile noise, instruments 3=14292
 calibration, interferometric, oscillating, optimum conditions 4=2847
 calibration of vibration pickups, large amplitudes 1=18500
 concrete beams, torsional 0=6853
 cylinders, isotropic, 1-120 kc/s 0=14708
 damping and vibration detector, effect of position in resonance meas. 0=5075
 in detonation waves, H-O mixtures 0=6862
 Hall generator transducer 2=7269
 instrument transfer functions, determination 0=19324
 instruments and methods 0=19316
 interferometric, multibeam is not superior to two beam 4=21212
 internal friction, freqn. modulation technique 3=7258
 longitudinal, in Mc/s range, electrostatic drive and f.m. equip. 0=5074
 metals, torsional vibrations, strain-dependent damping 0=6852
 modulated photoelectric method 2=9331
 moiré fringe technique 2=15666
 nodal indication by fine powders 1=9435
 nonlinear structures, response to random excitation 2=13391
 physical equivalents of spectral motions 0=5102
 pickup, optical calibration 1=9454
 pickups, hybrid cathode-followers for 4=8591
 piezoelectric accelerometers, sensitivity to orientation 1=11733
 plates, absorption coeff. 2=13392
 plates, very small ampl., by light modulation 4=18315
 power, elastic, waveguide, standing wave amplitudes and freqs. 3=166672
 quartz accelerometer, development and calibration 0=16663
 rails, during passage of train 0=5073
 review of Soviet work 0=6845
 small-amplitude, by stroboscopic interference 2=2803
 surface films, dynamic modulus, apparatus 1=9354
 thin plates, extensional and flexural waves, energy meas. 1=15987
 tuned capacitor detector, for megacycle range 0=16800
 vibrating wire gauges, frequency 0=8583
 vibration pick-up calibration 0=19323
 vibrometer, seismic-type, with feedback 4=29683
 vibroscope, amplitude correction 0=6848
 wooden beams, free flexural vibration 0=3580
 BaTiO₃ cylindrical disks, axial modes 1=8173

Viscoelasticity**See also Plasticity**

- anisotropic, Meixner's theory, thermodynamic basis 1=7819
 annular effect in viscoelastic fluids 4=29598
 araldite, photoelasticity under dynamic loads 1=3821
 associated liquids, viscoelastic props. 0=8651
 beams, 2-layer, bending and extensional vibrations 0=16753

Viscoelasticity—contd

- bitumen, penetrometer for routine testing 3=1226
- bitumens, meas. under dynamic loading 1=3956
- n-butyl methacrylate, rel. to glass polishing 4=10393
- CR 39, photoelasticity under dynamic loads 1=3821
- capillary jet, transverse wave motion 1=6837
- capillary ripples on films, dispersion theory 4=5144
- circular cylinder, forced torsional vibrations 0=19250
- clay, hysteresis effects, model 4=23137
- consolidating medium with spherical cavity 3=91
- continuum mechanics and irreversible thermodynamics 0=6689
- creep in anisotropic materials, extension of linear theory 4=28951
- cylindrical wave in viscoelastic solid 3=1748
- damped beam structures, loss factors 2=17526
- damping substances, metallic, temp. dependence 2=5127
- deformation relations, non-homogeneous solids 4=21066
- deformation, relaxation eqns. 0=698
- deformation of rotating cylinder 4=29576
- dilatation consts. and complex ratio from forced vibr. of sphere 4=15686
- dilatational constants, determ. by vibrating sphere 3=21476
- disk, thin rotating, with variable thickness 2=2664
- dynamic, thin-plate theory, validity 4=21214
- dynamic yield conditions for materials 3=11738
- elastomers, gum, rel. to tensile strength 4=7452
- elastomers, stress relaxation 0=3160
- elastoplastic bar, impact on rigid barrier 2=21858
- elastoplastic bar, impact on rigid barrier 3=1644
- electrically conducting liquid, flow in mag. field 2=13671
- eucalypt pulp, Young's modulus, rel. to no. of H-bonds 0=6308
- extremum theorems 1=20336
- flow between rotating disks 1=4306
- flow, capillary, instability onset dimensionless parameters 4=14113
- flow of liquid between concentric rotating spheres 4=16079
- flow, non-linear, characterization 4=18128
- flow, relaxation of stress and creep 0=6309
- flow in tube, axial stress at wall 3=11772
- flow thro. tube, dimensionless groups 3=11771
- fluid normal stress oscillations 4=14124
- fluids, axially-symmetric flow 3=11770
- fluids, constants, measurement 4=18133
- fluids, propagation of sound waves 1=12941
- folding of viscoelastic layer, by compression 2=14886
- free energy rel. to relax. mod. and strain rate history 4=26480
- glass, conference (Sheffield, 1963) 4=4678
- glass-like polymers, meas. by time of contact 4=13366
- glass, nonlinear deformation 2=15076
- glass, organic, review of props. 4=4685
- glass, review of expts. 3=13334
- guided waves in viscoelastic materials, isotropic, attenuation 4=21220
- Hertz problem of rigid spherical indenter 1=14924
- hexanetriol 1, 2, 6, shear rel. to relaxation times 2=7196
- high polymers 1=14882
- high polymers, dynamic bulk and shear viscosity 1=20343
- incompressible simple fluids, 2nd order theory 1=11737
- interpretation of formal solns., spherical cavity problem 1=20338
- linear, creep and relax. contraction ratio 4=23094
- linear, isotropic, theory 0=8113
- linear media, one-dim. response to loads 2=15518
- linear theory, stress depend. on deformation history 1=11737
- linear, uniqueness of solns. 2=14887
- linear, variational principle 2=21860
- liquids, comprehensive flow curves 4=14112
- liquids, constitutive equation for general behaviour 4=27142
- liquids, diffusion of vorticity 0=16680
- liquids, dynamic mechanical props. meas. 1=18349
- liquids, flow, helical, single relaxation line 3=18789
- liquids, flow near a stagnation point 1=115
- liquids, flow from tubes 1=15793

Viscoelasticity—contd

- liquids, jet expansion 1=18379
- liquid, Rayleigh problem 3=18790
- liquid, rheological equations 4=14111
- liquids, short-memory, flow problems 3=11768
- liquids study by sinusoidal shear generator 2=9243
- magneto-viscoelastic surface wave absorption in real conductor in mag. fld 4=24806
- magnetohydrodynamic flow between two plates with transverse mag. field and suction and injection 4=5772
- Maxwell body rel. to Prandtl-Reuss body 4=23095
- Maxwell 3-D model, non-linear, stress/strain rels. 4=23096
- measurement, sine shear generator calibration 4=27131
- measurement, Young's modulus, acoustic materials, as rods 4=17709
- mechanical analogy of viscoelastic fluid 1=11738
- methyl methacrylate rel. to glass polishing 4=10393
- model, three-parameter, for dynamic problems 2=19484
- moving discontinuity surfaces in an indefinite elastoplastic medium 1=11512
- natural time of viscoelastic fluid 4=29589
- network structure, rubber-like, rel. to props. of amorphous polymers 1=7823
- nonlinear, phenomenological theory 1=7822
- non-Newtonian flow, variational theorems 1=112
- non-Newtonian liquid, coeff. detm. 3=16590
- normal-coordinate theory appl. to polymer mol. wt. distrib. 1=14133
- Nylon 1=7811
- oil-seal operation 0=6750
- oils, lubricating, under cyclic shearing stress 0=8597
- optical behaviour of viscoelastic materials under various temp. and loading conditions 1=3820
- oscillation of fluid in circular tube 0=2151
- plane lamina rotation, in viscoelastic liquid 0=6747
- plane layers, transmission of dilatational waves 2=13399
- plate damping due to attached viscoelastic layers, 4=8292
- poly(bisphenol-A carbonate), above glass transition temp. 4=4687
- polybutadiene 4=23196
- polydimethylsiloxane, consts. 4=24189
- polyisobutylene 3=11167
- polymer solutions, conc., dynamic behaviour 2=15583
- polymer solns., effect of hydrodynamic interaction 4=8174
- polymer solns., hydrodynamic interaction effects 3=18810
- polymer solutions at high pressures, u.s. measurement 3=14156
- polymer solutions, idealized relaxation spectrum 1=15884
- polymer solutions, mol. wt. distrib. det. 2=2036
- polymer solutions, review 1=15783
- polymers, amorphous, network structure model 1=7823
- polymers, bulk modulus by "suspension method" 1=12578
- polymers, dynamic, meas. apparatus 2=23729
- polymers, molecular theory 4=28293
- polymers, mol. wt. dependence 1=14134
- polymers, mol. weight effects, theory 3=23339
- polymers, semi-crystalline, relax. spectra 3=15978
- polymers, temporarily cross linked 3=11309
- polymers, temporarily crosslinked, theory 3=16125
- polymers, temporarily crosslinked, theory 4=13437
- polymers, ultrasonic measurement of moduli 0=14049-51
- polymethyl acrylate monolayers 3=16126
- polymethyl methacrylate, dynamic bulk viscosity 1=10477
- polymethyl methacrylate monolayers 3=16126
- polystyrene, dilute solns. in toluene 4=24190
- polystyrene, dynamic bulk viscosity 1=10477
- polystyrene solns., rel. to mol. wt. 4=27158
- polyvinyl acetate monolayers 3=16126
- polyvinyl chloride gels, in various solvents 2=23979
- porous cylinder, fluid filled, deformation, under steady press. 0=10622
- porous media, dissipative, acoustic propag. 2=21971
- propagation of stress, strain and temp. fields 1=20337
- recoverable work after isothermal deformation 4=16069
- relaxation, thermodynamic treatment 1=18329
- renneted milk gel, relaxation times 0=8122-3
- rigid/plastic solids, accel. waves and constitutive laws 2=10741

Viscoelasticity—contd

- rod, stress waves, finite and infinite cases 0=14714
 rubber-like polymers 3=11167
 rubber mixtures, viscosity rel. to compression, in
 plastometer 2=12852, 17418
 rubber, natural vulcanizates, cross-linked 4=10400
 rubber, relation to friction 3=16013
 rubber, strain dependence 0=697
 screw dislocation, in viscoelastic medium 2=16655
 second-order fluids, normal stress effects 4=5136
 shear coefficients, in sonic region 2=1146
 shear, linear isotropic viscoelastic solid 4=23090
 shear waves propag., viscoelastic medium 3=11852
 shells and plates, transverse vibrations, eqns. 1=15989
 shells and plates, transverse vibrations, eqns. 1=18499
 silicone liquids, under cyclic shearing stress 0=8597
 sinusoidal oscillation of medium between parl.
 planes 0=3502
 soils, meas. under dynamic loading 1=3956
 solid propellant rocket, acoustic resonance 0=8735
 solids, dynamic props., meas. 3=13371
 sphere, change to torus by random impacts 0=55
 stability in linear viscoelastic region 0=8576-7
 stability of multilayered viscoelastic media 4=2621
 stress meas. by gauge in elastic inclusion 4=7362
 stress tensor for isotropic materials 3=7159
 stress waves, near and far fields, visco-elastic
 solids 4=18320
 tars, meas. under dynamic loading 1=3956
 thermal stress problems in temp. dependent viscoelastic
 media 1=15762
 thermodynamic theory 3=1658
 thermodynamics, thermomechanical, fracture and
 birefringent phenomena in visco-elastic media 4=18130
 time-temp. superposition principle, appl. to relaxation
 or crystalline polymers 1=7820
 variational theorems 0=4560
 vibrating sphere, viscoelastic waves, dilational
 const. 3=21476
 vibration excitation, space damping rel. to time
 damping 2=1219
 viscoelastic liqs., suitability of viscometer
 geometries 4=16075
 viscoelastic materials, dislocations 1=19776
 viscoelastic medium between rotating
 disks 1=4306
 viscoelastometer, for flow and elastic recovery
 measurement 2=4984
 Voigtian material, 3-dimens. rheological eqn., for large
 deformation 0=21129
 wave velocities in indefinite medium 1=11511
 waves, longitudinal, "superviscous" decay 2=7275
 waves, reflection and refraction at interface 2=7277
 Se, amorphous, rel. to isothermal vol.
 contraction 2=6287

Viscometers

- air, capillary flow, temp. depend. meas. 4=5216
 automatic recording 1=11735
 bar viscometer with conical annulus 1=2728
 for birefringence and viscosity meas., simultaneous, in
 polymer solns. 4=11157
 calibration, NBS oil samples, 0.02-450 P 3=9421
 capillary, data reduction 0=12402
 capillary, elimination of kinetic energy effect 1=4302
 capillary, kinetic energy correction term 3=109
 capillary, mean effective pressure head, calc. 0=63
 capillary, with negligible k. e. correction 0=6729
 capillary, for non-Newtonian liquids 0=8595
 capillary, for non-Newtonian liquids 4=21075
 capillary, +150° to -150°C 2=1118
 capillary, theoretical evaluation 0=6730
 capillary, unsteady flow transpiration type, for Ar,
 Kr and Xe 4=27214
 coaxial-cylinder type, for non-Newtonian fluids 1=6824
 coaxial-cylinder type, for thixotropic fluids 1=109
 concentric cylinder type, for up to 3000 atm. 1=106
 cone and plate, approx. asymptotic theory 4=21077
 cone-plate, flow vortices 4=21079
 cone-plate, for non-Newtonian fluid 2=1119
 cone and plate, oscillatory expts. 4=16075
 cone-plate, use for radial flow meas. 2=9245
 counter balanced sphere, for molten oxides, up to
 1750°C 3=14116

Viscometers—contd

- with damped torsional oscillation 1=107
 electroviscometer, free-flow, design and
 calibration 1=18348
 falling-sphere, end effects 1=10475
 for gases, under high rates of shear 2=7234
 for gases, over range of temp. and press. 3=7223
 gases, transpiration through capillary 3=14191
 glass viscosity meas., const. temp. and stress 4=4683
 interfacial, for monolayer studies 1=15782
 for liquids up to 500°C and under pressures up to
 20 kg/cm² 4=18151
 for metals, low melting-point 1=18347
 for non-Newtonian measurements, design factors,
 Ferranti model 0=19044
 oscillating cup, theory 0=16667
 oscillating cylinder, amplitude of oscill. formula 0=19043
 oscillating cylinder, graphical method 0=6732
 oscillating cylinder, for Newtonian liquids, theory 0=12401
 oscillating-cylinder type, for elastic and non-elastic
 liquids 1=6820-1
 oscillating-cylinder type, use for viscoelectric
 liquids 1=6822
 oscillating cylindrical crucible, absolute meas. 0=10632
 oscillating disk, between fixed plates, theory 0=16671
 oscillating disk, use of quartz strands 4=13447
 oscillating disk, relative meas. 0=16722
 oscillating disk, theory 0=15669-70
 oscillating disk, theory and exper. on 11 gases 0=16723
 parallel plate, theory 0=6733
 penetrometer for routine testing of bitumens 3=1226
 plunger, wall effect in flow of lubricating greases 0=14577
 review 3=14113
 rolling ball, non-Newtonian flow 4=14110
 rolling-sphere for structured liquids 0=14575
 rotating cylinder, with stability modulation 3=1664
 rotating disk, non-Newtonian liquid flow 0=10633
 rotating disk type, for gases 1=4364
 using rotating solids of various shapes, test 3=1663
 rotational, end correction 2=15540
 rotational, for non-Newtonian behaviour, high
 press. 2=15539
 suspended-level, automatic timing, optical
 technique 2=7181
 torsional vane, for foam 0=14576
 vibrating wire type 4=29600
 viscoelastometer, for flow and elastic recovery
 measurement 2=4984
 viscometry, rel. to Navier-Stokes equation 1=11735
 for N₂ compressed to 5000 bars 3=14190

Viscoplasticity

See Plasticity

Viscosity

- n-amyl acetate, time changes, electric current and field
 effects 3=18808
 ang. osc. of cylinder in viscous fluid 0=8598
 attapulgit suspension in water 3=11362
 Bingham fluid behaviour in cone-and-plate
 viscometer 3=14114
 Bingham fluid, yield stress on immersed body 2=13307
 boundary layer theory 0=8617
 butter 1=14889
 canonical ensemble 0=12376
 charged fluid, apparent viscosity 1=15784
 chemical, effect on velocity of sound in expanding reacting
 fluid 0=10722
 circular disk in fluid, impulsive rotatory motion 0=19053
 clay, and rheological consts. 4=15854
 critical mixtures 2=2681, 17419
 dense fluids, soft components of shear viscosity,
 theory 4=11174
 dense media, approx. theory 0=904
 dense polyatomic fluids, approx. mol. theory 2=15537
 dimethyl-diphenyl siloxane, rel. to irradiation 1=11138
 drag of many cylindric lattice at low Reynolds
 number 0=19176
 drag of screen, at low Reynolds number 1=2736
 earth, theories review 4=23698
 effect on hot flow length and testing time in shock
 tubes 4=4263
 effect on multiple prod. of particles 0=11129
 effect of spin relaxation time 0=18224
 effect on stability of two superposed fluids 1=15779

Viscosity—contd

- effect on water flow in canals 3=9431
 equilibrium fluctuations, collective motion theory 3=7140
 Fermi particle system, rel. to degeneracy 2=4962
 flow of fluid under tangential stress and gravity, stability 4=14099
 flow, laminar, non-Newtonian, in circular pipe 0=19064
 flow between rotating cylinders, stability 2=15538
 flow surfaces in general relativity 3=14099
 flow through porous media, three-point correl. 3=1670
 fluid flow, thermodynamic theory 3=1658
 fluid, slow steady rotation of spindle 2=2680
 fluid, in two-dimensional cavity, Navier-Stokes eqns. 2=1107
 fluid, viscous, in elastic tube 3=5404
 force const. on cylindrical particle 0=14583-4
 force on plane, due to current fluctuation 2=46, 1112
 gas bubbles in liquid, velocity of ascent 1=9375
 glass 1=20349
 glass, creep recovery obs. method, validity 4=4682
 glass, meas., reduction in obs. periods 4=4681
 glass, rel. to temp. and stress 4=4683
 glass, silicate and soda-lime rel. to thermal history 4=4684
 glass, variation during stabilization 4=4679
 glasses (VO_x , PO_x , RO_x type) 1=10047
 glycerol 1=20349
 hard-sphere, calc. using correlation functions 4=18092
 high-speed fluid, friction effect on solid 2=16974-5
 hydrodynamical minimum theorem 0=2147
 hydrodynamics, numerical, tensor artificial viscosity 4=8132
 influence on slip instability 4=14108
 lubricating oils, reduction at high shear stress 3=9422
 macromolecules 1=2729
 macromolecules, effect of partial draining 3=4791
 magnetohydrodynamic flow 2=1564, 5456, 22313
 many component fluids with antisymmetric press. tensor, cross effects 4=21072
 measurement, kinetic energy correction 0=6729
 at melting point, formula 1=18393
 Muskat-Aronofsky model, displacement in porous media 0=3493
 non-linear transport theory 1=18322
 non-Newtonian 0=4988
 non-Newtonian, boundary layer flow 2=11334
 non-Newtonian, flexible-chain molecules 0=15793
 non-Newtonian fluids, Couette and Poiseuille flow 1=15790
 non-Newtonian liquid, transverse, coeff. 3=16590
 non-Newtonian, second lay of thermodyn., appl. 2=9244
 non-Newtonian, 3-constant Oldroyd model 2=21875
 paramagnetic resonance in highly viscous media 4=5211
 plastics 2=23023
 plates, extension and flexure, analogy 0=8603
 polyelectrolyte dilute solutions 1=108
 polymer solutions, effective viscosity to microscopic spheres 0=76
 polymers in dilute solution, non-Newtonian viscosity 1=18350
 polymers, temp. invariant characteristic 4=15695
 polymethylmethacrylate in diphenyl solution, shear rel. to shear stress 3=16619
 polymethyl methacrylate, dynamic bulk viscosity 1=10477
 polymethyl- and polyethylsiloxanes 1=20642
 polystyrene, dynamic bulk viscosity 1=10477
 quantum statistical gas, dilute 3=6468
 ratio of vol. to shear viscosity, calc. for dense fluids 0=65
 and Rayleigh number, critical, variable viscosity relation with diffusion coeffs. in Lamm's theory 3=21297
 relationship to thermal conductivity 0=6734
 renneted milk gel, relaxation times 0=8122-3
 revolving fluids, effect of viscosity on stability 1=10483
 rubber, theory, integrals 3=11166
 settling suspensions of spherical particles 0=4987
 skis 4=23230
 snow, meas. 3=3440
 solns. of rigid rodlike molecules 3=135
 sols, stable suspensoid, flow theory and meas. 1=15792

Viscosity—contd

- sphere rotating in non-Newtonian viscous liquid 3=111
 statistical mechanics 0=16647
 steady-flow, and steady-state compliance, from creep data 3=25636
 stiff-chain macromolecules, intrinsic 4=15390
 stiff chains, intrinsic viscosity 1=10476
 Stokes flow of sphere 3=9424
 Stokes friction, steady motion 0=16675
 at surface, surface tension relaxation 0=3504
 suspensions, aggreg. and liq. penetration effects 3=11360
 suspensions, relation to sedimentation velocity 0=4740, 10366
 suspensions, of spheres 0=6730
 suspensions, thermodynamic theory 3=8984
 thermally activated linear response functions 4=16062
 thermodynamic theory 3=18766
 thixotropic materials 0=6735
 turbulent fluid flow, eddy viscosity variation 1=18372
 unmixing demonstration 0=6751
 viscoelastic liqs., dynamic mechanical props. meas. 1=18349
 wave equation for viscous media 0=16763
 A, fluid, at const. density 0=8674
 As_2S_5 1=20349
 As_2Se_3 1=20349
 As_2Se_3 - As_2Te_3 system, vitreous 0=12062
 B_2O_3 1=20349
 Cr-Fe alloys, rel. to Cr conc. and temp. 4=8181
 Kr, all states 2=10288
 TiO_2 pigments, in linseed stand oils 0=6735
 Zn monocrystals, in air and under Sn layer 0=6311
- gases**
 acetylene, rel. to thermal cond., rotational relax. meas. 4=5241
 aerodynamic equations effects 4=18226
 air, capillary flow viscometer for temp. depend. meas. 4=5216
 air, dusty, effect on flow between rotating cylinders 2=7240
 air, at high rates of shear 2=7234
 air, at high temps., collision integrals 2=9314
 Air-hydrogen mixtures, under mag. field influence 1=158
 air, kinematic and diagrammatic, 0° to -183°C , press. to 150 atm 2=5031
 air, mag. field depend. 1=1760
 air-methane mixtures, under mag. field influence 1=158
 air, prediction using real gas state eqn. 4=24263
 air, sophomore-laboratory expt. 4=21161
 air, teaching, meas. 3=21425
 air, in turbulent vortex flow 0=6977
 air, 20° and 25°C , press. depend. 0=16723
 binary mixtures, determinant elements in 2nd approx. 3=21438
 binary monatomic mixture 4=16140
 binary systems, use for diffusion coeff. determ. 3=7231
 calculation, Enskog's dense gas theory and Kirkwood's radial distrib. function 4=14208
 compressed, calc. by simulation method 2=9291
 compressed, continuum model 0=12415
 cyclopropane, viscothermal relaxation, study using sound propagation 4=24271
 density influence 1=6877
 dipolar, influence of electric fields 1=18440
 dissociated, from shock-tube heat-transfer meas. 1=6878
 drag on sphere moving in gas, comparison with Millikan formula 4=14193
 dusty gases, improved flow, theory 1=15914
 electric field effect 4=29649
 ethane, rel. to thermal cond., rotational relax. meas. 4=5241
 ethylene, rel. to thermal cond., rotational relax. meas. 4=5241
 ethylene, viscothermal relaxation, study using sound propagation 4=24271
 and flow, through porous materials, air, rarified 3=9483
 gases, meas. to det. molecular diams. and av. velocity 1=17367
 heat transfer estimation at high temps. 2=2763
 high-temp. transport parameters 1=18466
 high-temperature, rel. to intermolecular potentials 2=2771

Viscosity—contd
gases—contd

hydrogen, dissociating, calc. 1=15913
inert gases, temp. dependence rel. to laminar heat flow 2=5065
inert, in terms of Morse potential 4=8241
interplanetary matter 2=21691
ionized, Boltzmann equation approx. soln. 4=460
kinetic theory, historical development 2=9312
kinetic theory, Maxwell—Chapman method 3=3825
kinetic theory, relativistic, for simple gas 3=23927
Kubo formulae validity 3=18850
Lennard—Jones (12-6) potential parameters, calc. 2=3795
meas., oscillating-disk method, relative meas. 0=16722
methane—oxygen mixtures, under mag. field influence 1=158
methane, in terms of Morse potential 4=8241
methane, rel. to thermal cond., rotational relax. meas. 4=5241
methane, viscothermal relaxation, study using sound propagation 4=24271
methane, -50° to 150°C, below 200 atm. 4=24264
mixture, binary, var. temp., composition 4=11242
mixtures, binary, Chapman—Cowling second approx. bracket integrals 4=8240
mixtures, binary, diffusion coeff. calc. 2=21938
mixtures, binary, parameters eval. 2=7251
mixtures, binary, relation to thermal cond. 2=19623
mixtures, and conductivity, thermal 3=18849
mixtures, for force-constant determination of unlike molecular interactions 0=15786
mixtures, formulae, semi-empirical 3=11829
mixtures, interpretation of formulae 4=234
mixtures, interpretation of linear approximations 1=15915
mixtures, monatomic, rel. to thermal cond. 4=16141
mixtures, two-component, conditions for max. or min. 1=10527
moderately dense gases, theory 4=8239
molecular gas, first and second viscosities 2=2767
molecular gas; first and second viscosities 3=1727
monatomic gas, rel. to heat conduction 2=11424
multicomponent mixtures, semi-empirical formula 4=211
multicomponent viscosities, high temp. mixtures 2=19584
noble gases, calc., at high densities 4=21176
nonpolar gas, viscosity rel. to thermal cond. 2=11423
oxygen—gas mixtures, viscous flow in mag. field 1=5297
plasma, Grad approx. appl. 4=5598
plasma, in mag. field 0=15022
plasma, relativistic, in mag. field, tensor calc. 4=14720
plasma, rel. to stability 4=3009
plasmas, unified theory calc. 4=498
polar gas mixture 2=13369
polar gases 2=5032
polar gases, modified Stockmayer potential 1=8145
polyatomic, nonpolar, rel. to thermal conductivity 4=5240
prediction using real gas state eqn. 4=24263
pressure dependence 0=3561, 19197
pressure shocks in viscous conducting gases 1=10535
quantum-mech. theory for screened Coulomb potential 1=18769
sensitivity to intermol. potential, quantum calc. 4=11237
rel. to spectral line breadth and sound velocity 3=16660
steam, high temp. and press. 2=21876
steam, high temp. and press., equation of state 4=11236
steam, superheated, pressure dependence 4=5236
steam, superheated up to 270°C 1=6876
steam, 200-800 kg/cm², 370-650°C 1=1759
temperature dependence, and meas. methods 2=13355
tetra-deuteromethane, viscothermal relaxation, study using sound propagation 4=24271
theory using exponential attractive potential 1=11786
use in thermometry, Wheatstone-bridge capillary-network apparatus 1=2908
vacuum gauge, continuously indicating, oscillating 4=14194
water vapour, 20°C, press. depend. 0=16723
A, kinematic and diagrammatic, 0° to -183°C, press. to 150 atm 2=5031
A, 20° and 25°C, press. depend. 0=16723
A—He, det. of potential parameters 1=14122
A—He mixture 3=168

Viscosity—contd
gases—contd

A—Ne, det. of potential parameters 1=14122
Ar arcs, 10000° to 15000° K 4=24622
Ar, calc., Enskog's dense gas theory and Kirkwood's radial distrib. function 4=14208
Ar, calc., and Prandtl number, in presence of ionization 4=18241
Ar, effect of press. up to 820 atm 4=27214
Ar, and interatomic Morse potential force consts. 4=9787
Ar, oscillating disc meas. 3=14189
Ar, ratio of η with specific heat 3=11832
Ar, -78.5° to 100°C, below 200 atm. 3=7223
Ar—He mixtures, 20° and 30°C, from 1-50 atm, excess viscosity function of density 4=8242
Ar—NH₃ mixtures 4=18242
CCl₄—methylene chloride solutions 0=10655
CF₄, rel. to thermal cond., rotational relax. meas. 4=5241
CH₄, in mixtures with H₂O, CO₂, and air 1=4364
CO, -50° to 150°C, below 200 atm. 4=24264
CO₂ 4=29670
CO₂, and intermolecular Morse potential force consts. 4=9787
CO₂, near critical point 4=8243
CO₂, oscillating disc meas. 3=14189
CO₂, rel. to thermal cond., rotational relax. meas. 4=5241
CO₂, 20°C, press. depend. 0=16723
Cd, and interatomic potential energy functions 4=25592
Cs, partly ionised 4=24562
D, 20°, press. depend. 0=16723
D₂, -50° to +150°C, below 200 atm. 4=24264
D₂, 20-80°K, law of corres. states 0=8705
H, atomic 2=5053, 9292, 11426
H, coeff. 4=14207
H isotopes and noble gases, mixtures, 20-300°K 0=8675
H, and Morse potential parameters 4=29665
H, 20°C, press. depend. 0=16723
H₂, dissociating, high-temp., kinetic theory 2=5066
H₂, -50° to +150°C, below 200 atm. 4=24264
H₂, up to 5000°K 4=231
H₂, HD and D₂ gases, rel. to intermolecular force potentials 4=18243
H₂, law of corres. states, 20-80°K 0=8705
H₂, at low temp., para—para and para—ortho collisions, calc. 0=7815
H₂—propane, det. of potential parameters 1=14122
HD, below 80°K 0=8703
H₂—D₂, temp. depend. 0=6820
HD—D₂, temp. depend. 0=6820
H₂—HD, temp. depend. 0=6820
H₂—H₂O, vapour mixtures, 295°K 0=16721
H—O mixture, under mag. field influence 1=158
He, H₂, D₂, and Ne, 20-60°K 0=92
He, and interatomic Morse potential force consts. 4=9787
He, oscillating disc. meas. 3=14189
He, 20°C, press. depend. 0=16723
He, 25-237°C, 1-137 atm. 0=8673
He^{3,4}, 20-80°K, law of corres. states 0=8705
He and He—N mixtures, meas. to 1000°C and 600 kg/cm² 4=24265
He—Ne, temp. depend. 0=6820
Hg, and interatomic potential energy functions 4=25592
Kr 3=9494
Kr, effect of press. up to 820 atm 4=27214
Kr, 20°C, press. depend. 0=16723
Kr—A mixtures 1=10526
Kr—He mixtures 1=10526
Kr—Ne mixtures 1=10526
Li—Li gas mixtures, at high temps. 4=3860
Li—O gas mixtures, at high temps. 4=3860
N, 20° and 25°C, press. depend. 0=16723
N₂, calc. Enskog's dense gas theory and Kirkwood's radial distrib. function 4=14208
N₂, up to 5000 bars 3=14190
N₂, and intermolecular Morse potential force consts. 4=9787
N₂, kinematic and diagrammatic, 0° to -183°C, press. to 150 atm 2=5031
N₂, at 127 atm. and low temps. 3=14191
N₂, oscillating disc. meas. 3=14189

Viscosity—contd**gases—contd**

- N_2 , - 78.5° to 100°C, below 200 atm. 3=7223
 N_2 , rel. to thermal cond., rotational relax. meas. 4=5241
 N_2 , in terms of Morse potential 4=8241
 N_2 - CO_2 mixtures, 20°C, 1-21 atm. 1=10525
 N_2 - CO_2 , press. depend. 0=8676
 N -He mixtures, up to 680°C and 200 kg/cm² 4=29669
 N and N -He mixtures, meas. to 1000°C and 600 kg/cm² 4=24265
 NO - N_2O mixtures, 200-500°C 2=21936
 Ne , oscillating disc meas. 3=14189
 Ne , - 78.5° to 100°C, below 200 atm. 3=7223
 Ne , 20°C, press. depend. 0=16723
 Ne , 20-80°K, law of corres. states 0=8705
 Ne , 25°, 50° and 75°C, up to 1800 atm 4=21176
 Ne -Ar mixtures, at 20° and 30°C 4=21177
 Ne -He mixture 3=168
 Ne -He mixtures, at 20° and 30°C 4=21177
 O , atomic, calc. up to 10⁵K 2=9316
 O , 20° and 25°C, press. depend. 0=16723
 O_2 , dissociated, from shock-tube heat-transfer meas. 1=6878
 O_2 , and intermolecular Morse potential force consts. 4=9787
 O_2 , mag. field depend. 1=1760
 O_2 , rel. to thermal cond., rotational relax. meas. 4=5241
 O -H gas mixtures, at high temps. 4=3860
 SF_6 , rel. to thermal cond., rotational relax. meas. 4=5241
 SF_6 - CF_4 mixtures, meas. and kinetic theory 4=2725
 Xe , binary mixtures with K, Ar, Ne, He 1=159
 Xe , effect of press. up to 820 atm 4=27214
 Xe , high temp., calc. from intermolecular potentials 2=2771
 Xe , 25°C, press. depend. 0=16723
 Zn , and interatomic potential energy functions 4=25592

liquids

- See also Lubrication; Superfluidity
 A111BV alloys, thermal stability 0=13465
 acoustic streaming, first and second viscosity coeff. ratio 0=6880
 activation energy for flow, rel. to temp. 2=17420
 activation energy rel. to self-diffusion coeff. 4=24187
 air 4=5161
 alcohols, rel. to dielectric relaxation 3=21398
 alcohols, shear viscosity, temp. depend. 3=21309
 alkali chlorides, molten 4=5159
 alkali halide salts, molten 2=11329
 alkali metal germanate melts containing oxides 4=162
 alkali metals, measurement 0=3526
 anomalies in very thin capillaries 3=7195
 p-azoxyanisole near freezing 4=11181
 barytes suspensions 0=8596
 benzene, viscosity rel. to press. at const. temp., Doolittle eqn., analysis 4=8180
 Bernal liquid, molecular kinematics 4=14059
 binary liquid solns., statistical mechanics 0=19092
 borates, fused, rel. to free volume, eqn. validity 4=2663
 boundary layer calc., compressible liquid with slip 4=16076
 broadside motion of flat plate 0=19057
 bubble formation parameters correlation 4=14131
 bubbles motion, theory 2=1120
 carbon tetrachloride, viscosity rel. to press. at const. temp., Doolittle eqn., analysis 4=8180
 chloral and chloral hydrate, rel. to u.s. propag. 2=17460
 chlorides, molten 2=13321
 chloroform, at room temp. 2=7208
 complex coefficient, and temp., 50 c/s 2=9246
 conc. polymer solns., interpretation 1=4334
 continuum model 0=12415
 crystal p-azoxyanisole near freezing 4=11181
 DNA, comp. of molec. weights 07822
 and density, from oscillating cup viscometer data 0=16667
 deuteromethane 3=11762
 and dielectric relaxation 2=9287
 drops, partial coalescence 0=8645
 dynamic equations of state for very viscous liquids 1=9383

Viscosity—contd**liquids—contd**

- effect on crystallization rate 2=16988
 effect on dielectric relaxation 0=19145
 effect on pulse propag. in column 4=21078
 effect of solvent viscosity on diffusion, Einstein's law 0=14633
 effect on surface tension meas. by drop-wt. method 0=19082
 elastic, equation of state, allowing for var. with shear rate 4=8176
 elastico-viscous parameters meas. by rotating sphere 3=23840
 elasto-viscous, rel. to stress differences, normal 4=27142
 electrolyte solutions, effect of dielec. const. 3=21341
 electrolytes in mixed solvents 3=16612
 ethyl alcohol, aq., steps in intermolecular activation energy 1=15781
 ethylene glycol 0=19045
 during evaporation, viscous flow mechanisms 3=21320
 films, rel. to thickness after putt-out 2=7189
 flexible linear macromolecules, gradient dependence 1=2730
 flow problems, short-memory liquids 3=11768
 formula, departing from stray wave-packets 2=9260
 formula, semi-empirical, using liquid tunnel model and rate process theory 4=2662
 friction constant, semi-empirical determination 0=10652
 furan 2=15586
 glass, rel. to elec. cond. 0=3260
 glass, high silica content, temp. depend. 0=18383
 glycerine-water mixtures 0=14575
 glycols, H-bond mechanism 1=15896
 heavy water, capillary meas. 2=4999
 hexane-silicone mixture, rel. to electron drift mobility 1=18427
 highly viscous, simple and quick method 2=4983
 highly viscous, test of rotating viscometers 3=1663
 hydrogen, normal and para mixtures 1=9368
 imaginary part in viscosity coeff., meas. 1=5250
 interionic, in molten $AgNO_3$ - $NaNO_3$ 4=29617
 intermolecular potential dependence 4=21106
 intrinsic, non-Newtonian, linear representation of meas. 2=19518
 ionic liquids, extension of Stokes' law to include dielec. relaxation 1=15894
 ionic melt, ideal, shear viscosity calc. 4=11175
 liquefied gases, kinematic fluidity 3=1673
 liquid paraffin in water, aged at 20°C 4=10662
 macromolecular, coiling, intrinsic visc. 4=18185
 macromolecular polymer solution 0=12405
 macromolecules, flexible, rel. to dynamic birefringence 1=15877
 macromolecules, semihard, in solution 2=11330
 macromolecules, solutions, as a function of vel. gradient 3=14157
 meas., using Helmholtz resonator 0=8593
 meas. at high press. 4=7360
 meas. from longitudinal waves in a wire 3=9539
 measurement by rotation of sphere 3=23839
 metals, anomalous, fluidity and prefreezing cluster formation 3=9437
 metals, "electronic" viscosity 0=4997
 metals, formula for temp. depend. 2=11328
 metals, high temp., activation energy 3=21602
 methane, liquid, kinematic meas. 3=9423
 3-methylpentane-isopentane mixtures, 77°K, rel. to solute rot. relax. 4=14167
 methyl siloxanes, shear viscosity, temp. depend. 3=21309
 milks, fat-free 0=14575
 mixtures, Andrade eqn. exponent, mole fraction depend. 0=8600
 rel. to molec. structure, steps in activation energy 1=15780
 molten metals, increase in activation energy of flow 4=155
 molten metals, pre-freezing phenomena 1=15844
 molten oxides, Na_2O - GeO_2 - SiO_2 system 4=24164
 molten salts, from u. s. absorption and vel. meas. 0=16696
 monatomic liquids, 12 specimens 0=6775
 Newtonian, oscillating cylinder data, graphical determin. 0=16666
 Newtonian, oscillating cylinder viscometer data, graphical reduction 1=6823

Viscosity—contd**liquids—contd**

nitrates, fused 1=15199
 nonassociating liq., corresponding states correlation 4=2660
 non-Newtonian, axial and circular flow 0=916
 non-Newtonian, capillary measurements 0=12402
 non-Newtonian, flow eqns. 0=2149
 non-Newtonian, tobacco mosaic virus solns. 1=12842
 obsidian—H₂O, 700°-900° C 4=11188
 organic, rel. to dielec. props. 0=19142
 organic, temp. depend., structural data 3=21312
 organic, temp. dependence 0=5215
 organic, variation with pressure rel. to u.s. propagation 1=15873
 oscillating cylinder meas. method 4=24139
 para- and meta-xylene, rel. to structure 4=11179
 paraffin oils, X-irrad., rel. to ion mobility 4=27190
 paraffins, shear viscosity, temp. depend. 3=21309
 parent liquid, rel. to suspended macromolecules 1=18359
 polar, rel. to dielectric properties 4=24225
 polar mols. in dilute soln. 3=23896
 polyacenaphthene solutions 0=14657
 poly-i-butylene-benzene solns. 3=21352
 polyisobutylene, melt viscosity, press. and temp. depend. 0=3492
 polymer-diluent, glass-transition 4=27161
 polymer melts, and critical chain length 4=25799
 polymer solutions, conc. dependence 2=13332
 polymer solns., conc., entanglement effects 3=18809
 polymer solutions, heats of activation 2=21890
 polymer solns. in H₂O, conc., var. temp., conc. and phase separation 4=24179
 polymer solns., Huggins const. calc. 4=2661
 polymer solns., irrad. effects 0=20701
 polymer solns., molecular frictional coeff. 4=27157
 polymer solns., molecular theory 1=7505
 polymer solns., near critical temp. 3=21349
 polymer solutions, Newtonian flow deviation, check 2=9273
 polymer solns. in poor solvents, mol. wt. depend. 3=21350
 polymer solutions, statist. mech. study 2=11368
 polymer solutions, rel. to temperature 3=18811
 polymer solns., viscometer for simultaneous birefringence and viscosity meas. 4=11157
 polymers 4=14112
 polymers, bulk, rel. to molecular wt., theory 4=11187
 polymers, effect on emission anisotropy of solutions 4=27178
 polymers, high 3=7203
 polymers, intrinsic viscosity, velocity grad. effects 0=8599
 polymers, irradiated, branching effect 1=14135
 polymers, meas., low shear 4=5135
 polymers, molten and conc. solns., 4=8179
 polymers, rel. to branching prod. by high-energy irradiation 4=16095
 polymethylmethacrylate solns., rel. to mol. weight 3=134
 polymethylmethacrylate and copolymer solutions 2=13341
 poly-para-tertiary butylphenylmethacrylate solutions 0=12501
 polysiloxanes 2=11350-1
 polystyrene and copolymer solutions 2=13341
 polystyrene-cyclohexane solns. 3=21352
 polystyrene soln., rel. to radioluminesc. efficiency 4=27184
 polystyrenes, short chain, viscosity-mol. wt. dependence 4=25798
 polyvinyl sulphonate-alkali halids, rel. to polymerization 2=11367
 polyvinylchloride, dynamic and shear 1=18351
 prefreezing effects, and struct. 4=24439
 pressure-transmitting, up to 10000 bars 4=23999
 pyridine 2=15586
 quinoline 2=15586
 ratios of coefficients for isotopically substituted molecules 1=10498
 review 3=14112
 rhyolite glass, 350° to 850° C 4=11189
 rockets, improvement using artificial "comet" 2=9124

Viscosity—contd**liquids—contd**

rodlike molecules, Kirkwood calc. approxs. 4=21109
 salt water, from flow and stress near interface 0=8609
 salts, molten, rel. to melting study 0=13466
 shear viscosity, theory 4=21108
 silica, temp. depend. 0=18383
 silicates, fused, rel. to free volume, eqn. validity 4=2663
 silicones, pressure depend. 1=106
 solutions, effect on fluorescence 1=6862
 solutions, rel. to luminescence quenching 3=16632
 solvent, effect on excitation energy transfer between unlike mols. 3=23887
 spheres, moving through liquid 0=6731, 8592
 splash of water drop, falling into glycerol-water mixture 0=8644
 surface of viscous liquid layer, height differences 4=18150
 suspensions, improved Einstein's formula 0=14578
 suspensions, non-Newtonian, metal oxides, turbulent 4=15855
 suspensions, spheres, polymethylmethacrylate, macroscopic, dilute, non-Newtonian 3=18788
 ternary mixtures 3=23841
 theory, appl. of corresponding states theorem to pure liquids and solutions 1=138
 thermodynamic treatment, rel. to dissipation function 2=5006
 thiophene 2=15586
 thixotropic, time dependence of viscosity 0=6736
 time of rise in capillary method 3=1662
 transformer oil, kinetic theory of viscosity 1=8094
 uranin, in organic solvents, rel. to fluoresc. polariz. 3=139
 rel. to velocity distribution at interface of 2 liquids 1=12846
 vinyl polymer, Staudingers rule rel. to dipole moment 1=12343-4
 viscoelastic flow, generalized Reynolds no. 4=135
 visco-elastic, steady motion through channels 1=12843
 viscoelastic substance, in sonic region 2=1146
 viscometer, rotatory, for 2μm³ samples, to 200°C, 500 MNm⁻² 4=21076
 viscoplastic, motion of spheres 0=19051
 viscoplastic oil, lubrication 0=14586
 viscous cond. liq. containing sphere, rotation in mag. field at high Reynold's number 4=14874
 viscous incompressible, filling cavities of a pendulum 4=8122
 viscous suspension, rheopectic flow 1=20340
 water, absolute viscosity 3=11761
 water, distilled, flow through pipes 3=108
 water, effect of dissolved air 1=9367
 water flow temp. var. discontinuities, as for expansion 4=21124
 water flow temp. var. discontinuities, as for refractive index 4=21125
 water, rel. to "free volume" 3=11780
 water, heavy, temp. variation 4=29615
 water, high temp. and press. 2=21876
 water in liq. paraffin, aged at 20°C 4=10662
 water, rel. to pressure and temp. 4=133
 water, step structure in intermolecular activation energy 1=15780
 water, supercooled, meas. to -23.8°C 4=5162
 water, in turbulent vortex flow 0=6977
 Wood's metal 2=21889
 A, calc. for 89°K, vol. viscosity 0=65
 A, rel. to temp. 2=15541
 Al 2=15542
 Al, fluidity and prefreezing cluster formation 3=9437
 Al₂O₃, molten, up to 2200°C 4=16096
 Al₂O₃-CaO slags 3=5424
 Ar 4=5161
 Ar 4=21108
 Ar, liquid, kinematic meas. 3=9423
 Ar-methane system, meas. and calc. 3=7185
 Ar, by microbalance, simultaneous with surface tension meas. 4=24188
 Ar, shear, config. relax. model 4=8163
 Ar-Kr mixtures, kinematic fluidities 3=1673
 B trifluoride 0=6980
 Bi 2=15542
 Bi, short-range order 2=7194, 19539
 Bi, rel. to temp. 2=7182

Viscosity—contd
liquids—contd

Bi, temp. var., m. p. to 1000°C 4=5160
 Bi, ultrasonic study 3=9457
 Bi—Sb system 4=21110
 C tetrachloride, at room temp. 2=7208
 CCl₄, —methylene chloride solutions 0=10655
 C₁₂H₅Cl₄, C₁₂H₃Cl₅, C₁₂H₄Cl₆, temp. var. 4=14148
 CaO—GeO₂ 0=8255
 Cd amalgams, temp. depend. 1=11757
 Cd amalgams, temp. depend. 1=12872
 Co 3=14115
 Cr³⁺ salt solns, rel. to e.p.r. line width 3=3818
 Cr³⁺ salt solutions, rel. to e.s.r. line-width. 2=5028
 Cr—Al alloys, rel. to Cr conc. and temp. 4=8181
 Cr—Fe—C alloys, rel. to Cr conc. and temp. 4=8181
 CuSO₄ solns., conc. var. 4=27162
 F₂, calc. using significant structure theory 4=8166
 Fe 3=14115
 Fe—C alloys, rel. to C content 4=14150
 Fe—Si alloys, rel. to Si content (0-5%) and temp. 4=16094
 Ga, electrokinetic effects, structural viscosity 4=24230
 Ga, structure changes, and elec. cond. data 0=12419
 GaAs, at and above m.pt. 2=21918
 GaAs, at and above m. pt. 3=5448
 Ga—Sn 2=17421
 GeO₂, 1000-1550°C 0=8255
 GeO₂, pure, 1470°-1720°C meas. 4=162
 H₂, rel. to temp. 2=15541
 H₂, up to 5000°K 4=231
 HCl 4=14147
 H₂S, liquid, —11.5° to +50°C 0=14579
 H₂SO₄, aq. soln., meas. at 25°C 3=9448
 He, from damping of torsionally oscillating cylinder 0=16937
 He, falling spheres, drag coefficients 1=6992
 He, between 1.1 and 0.79°K 0=8903
 He II 0=19537
 He II in capillaries 4=21376
 He II, "eddy" viscosity 0=5229
 He II, Landau correction coeff. 0=10818
 He II, near λ -point 0=8904
 He II, normal component, in fine channels, temp. depend. 0=16938
 HeII, bet. 0.79°K and λ point 3=14434
 He II, 1.15-2.15°K 0=8864
 He II, 1.10°K to λ -point 4=29600
 He II, 1.10°K to λ point, meas. 4=5495
 HeII, press. var. 4=18509
 He II, ratio of dilational to shear coeffs. 0=8906
 He II, rotating, surface curvature 4=11446
 HeII, rotating, turbulent 4=18510
 He³ 2=7492
 He³, rel. to Fermi system theory 2=4962
 He³, 0.14° to 2.1°K 4=14489
 He³, 0.14-2.1°K meas. 3=16849
 He³—He⁴ above 1°K 1=6991
 He⁴—He³ solutions, Boltzmann gas model 0=8863
 Hg, electrokinetic effects, structural viscosity 4=24230
 Hg, ultrasonic study 3=9457
 InAs, at and above m.pt. 2=21918
 InAs, at and above m. pt. 3=5448
 In₂Bi, molten, 100° to 350°C 4=8167
 K, rel. to temp. 2=7182
 K + Na, electrokinetic effects, structural viscosity 4=24230
 Kr, liquid, kinematic meas. 3=9423
 Kr—methane system, meas. and calc. 3=7185
 Li^{6,7}, effect of isotopic mass 3=125
 LiClO₃ and LiClO₄—LiNO₃ mixtures, molten 4=29620
 MeCN, EtCN, PrCN, rel. to N¹⁴ resonance line-widths 4=20104
 Me₂NCHO, rel. to N¹⁴ resonance line-widths 4=20104
 N, rel. to temp. 2=15541
 N₂ 4=5161
 NH₃ 1=15855
 NH₃ 4=14147
 Na₂O—GeO₂, 1000-1550°C 0=8255
 Ne 3=21310
 Ni 3=14115
 Ni and Ni—Cu alloys, molten 0=14580

Viscosity—contd
liquids—contd

O, rel. to temp. 2=15541
 O₂, liquid, kinematic meas. 3=9423
 P₂O₅, above and below m.p. 3=21311
 Pb 2=15542
 Pb, rel. to temp. 2=7182
 Pb, temp. var., m. p. to 1000°C 4=5160
 Pb, temp. variation 1=18347
 S, effect of impurities, 120-160°C 1=1726
 Se, meas., giving polymerization rel. to press. 4=25793
 SiO₂, molten, up to 2200°C 4=16096
 SiO₂—Al₂O₃, molten, up to 2200°C 4=16096
 Sn 2=15542
 Sn, rel. to temp. 2=7182
 Sn—Bi 2=17421
 Sn—Bi, dynamic viscosity, temp. depend. 1=12871
 Sn—Cd 2=17421
 Zn amalgams, temp. depend. 1=11757
 Zn amalgams, temp. depend. 1=12872
 Zn, temp. var., m. p. to 1000°C 4=5160
 ZnCl₂ 0=14626
 ZnTe—CdTe, and phase diagram 4=11185

Visibility

See Atmospheric optics

Vision

See also Colour vision; Eye; Stereoscopy.
 aberrations, periaxial, non-coincidence of visual and optic axes 1=6668
 absolute threshold and age 0=2058
 absolute threshold, pyrometric meas. 1=6681
 accommodation, cat, meas. 4=15997
 accommodation correlation 0=12229
 accommodation microfluctuations by Youcault circle projection 1=21136
 accommodation, optimum 2=24224
 accommodation and scotopic visual activity 1=6672
 achromatic foveal thresholds 3=11639
 action spectrum, mammalian indictor retinal receptor response, meas. 4=15996
 acuity, and colour filters 2=24214
 acuity, and dark adaptation 2=13221
 acuity, depend. on type of light source 0=18561
 acuity, effect of correcting-lens power 1=1617
 acuity, effect of retinal image motion 1=6676
 acuity, effects of involuntary eye movements 0=14343
 acuity and eye movements, variations 0=8447
 acuity in mesopic vision 1=21128
 acuity threshold and brightness matching, similar time variations 1=10348
 adaptation, dark and light, initial stages 3=5297
 adaptometer, dark, variable, multidimensional 1=10353
 after-effects in perception, review 3=1569
 afterimage phenomena, continuous negative, spatial enhancement 3=16458
 after-images, reson. not seen normally 3=9310
 ametropia, aniseiconia and intracamerall corr. 3=240
 angular displacement of feedback of motion 3=1566
 aniseitonia, meas. and corr. instruments 4=4985
 anisometropia, optical components 2=13226
 apparatus, eye-marker camera, heat-mounted 2=13218
 appearance of anodized Al surfaces 3=16460
 artificial, using fibres 3=11626
 binocular, with colour filters 2=7084
 binocular contrast effect 1=21138
 binocular, inhibition effects, theory 2=2581
 binocular, space geometry 0=18550
 binocular summation 4=2495
 binocular visual space, curvature 1=4153
 black line segments on bright background 3=11630
 blur-to-sharp transition, quantitative aspects 3=11632
 bovine, contrast transfer function 2=24232
 brightness and acuity with intermittent illumination 1=12725
 brightness—area correlation field in fovea 3=13224
 brightness, apparent, cyclic fluctuation 3=11636
 brightness contrast and inducing stimulus output 3=21172
 brightness discrimination, body position effects 4=2494
 brightness discrimination with constraint of retinal image movement 1=6683
 brightness discrimination, effect of body accel. 2=24215
 brightness function, adaptation effect 3=7074

Vision—contd

brightness, induced opponent responses theory 4=26998
 brightness memory 3=11629
 brightness perception, scatter mechanism 4=10988
 brightness sensation, rel. to object luminescence 1=6680
 CFF of fovea, effects 1=10350
 β -carotene photoconductive props. 1=8965
 catoptric images and peripheral movement illusion 1=4154
 cats, physiological nystagmus 0=3384
 complex flicker, fusion 0=14345
 confusion circle, theory and appl. 2=24211
 contour sharpness, subjective 3=16463
 contrast and assimilation effects, anomalous 3=5301
 contrast, critical flicker frequency and apparent brightness 1=12722
 contrast, enhanced by movement or intermittence 0=8449
 contrast, model of response 2=15432
 contrast phenomena, linear models 1=21129
 contrast preception, rel. to contrast transfer in optical systems 2=21996
 contrast resolution rel. to target oscillation 3=3689
 contrast sensitivity, with different illuminants 0=14350
 contrast sensitivity, reduction due to glare 2=7082
 contrast thresholds, effect of luminance noise 4=20982
 critical flicker freq., equivalence of pulse-to-cycle fractions 0=3383
 critical flicker frequency, effect of light-time fraction 1=10351
 critical flicker frequency, effect of pulse stimuli 1=21130
 critical flicker frequency, effect of wavelength 3=11634
 critical flicker frequency and phased surrounds 3=13967
 critical fusion freq., change by epinephrine and norepinephrine 4=20678
 cross-wires, confused image, due to illusions 0=19382
 cue-dimensional pattern generation for comparison with computer analysis 4=23976
 dark adaptation 0=8451-2, 14351-2, 18560
 dark adaptation 1=9230-1
 dark adaptation, following glare 3=7072
 dark adaptation, foveal increment thresholds 4=15989
 dark adaptation and pigment conc. relations 4=20977
 dark adaptation, subjective brightness 3=11638
 dazzle, effect of colour 4=8000
 deflection disk, as influencing phenomenon 2=7073
 defocussed contours, sharpness 3=1563
 detection, absolute, by rating-scale method 4=2496
 differential binocular adaptation, effect on scopic acuity 0=3381
 directional sensitivity, retinal, effect of topically administered drugs 3=21174
 discomfort criteria 2=24223
 discrimination and orientation, summary 3=16457
 discrimination processes, neural theories 3=5299
 discrimination, in terms of detectability theory 2=24216
 discriminatory functions, neural effects, review 3=5300
 disinhibition 2=2584
 distance of distinct vision, age depend. 3=16462
 electronic analogue of human recognition system 1=4158
 electroretinogram, potential change 0=8450
 electroretinogram, quantal absorption 4=2492
 electroretinogram, spectral sensitivity rel. to stimulus duration 3=3687
 encoding of visual image 1=10346
 entoptic scatter, contrib. of cornea 3=16459
 entoptic scatter retinal contribution 4=10976
 expts. with goggles, eye's correction for distortion 3=1568
 eye, extra-foveal, visual acuity and image clarity 1=21134
 eye location for wide-field large-exit-pupil optical system 1=2849
 eye movements, demonstration method 1=21132
 eye movements, during fixation 0=8448
 eye movements, involuntary, role in stereoscopic acuity 1=9233
 factors, determining maximum angular velocity of pursuit ocular movements 0=3378
 fine-line visibility, in intermittent illumination 0=18548
 flashes adjacent, brightness matching 2=24209
 flicker discrimination, monocular 2=24218-19
 flicker frequency, critical 2=11222

Vision—contd

flicker fusion, flicker between different brightness levels 0=6517
 flicker fusion, light-dark ratio 0=6518
 flicker, increment threshold technique of study 1=6671
 flicker, light time fraction and surround luminance 3=18679
 flicker perception, luminance rel. to phase 2=21766
 flicker stimuli, harmonic analysis 3=1567
 flicker vision and harmonic analysis 1=12723
 flickering targets, area-intensity relations within fovea 4=15991
 fluctuation of ambiguous figures 3=23718
 fluctuation theory of brightness discrim. 3=5303
 fluctuations of luminosity at low illum. 4=20983
 form perception, origin 2=15435
 fovea, annular and circular targets 2=15434
 fovea-cortex system, 9 c/s resonant freq. 2=24226
 foveal C.F.F., function of age, light/dark ratio and surround 4=15990
 foveal contrast thresholds 1=12721
 foveal dark adaptation, effect of pre-exposure colour 0=18562
 foveal spectral sensitivity, meas. 0=18564
 foveal stimuli, brief, light adaptation and brightness 1=9232
 Fundus Oculi scattering fraction 4=10975
 fusion of complex stimuli, Fourier model 0=6519
 Graham, Edgar D. Tillyer medalist 3=21184
 haploscope, tilting type 0=816
 human eye, foveal sensitivity in near i.r. 3=16456
 human, quantum threshold 1=15378
 human, spectral sensitivity 2=7083
 illusions, geometry 2=11223
 image quality, evaluation 0=19371
 image transfer function 4=20976
 inductive brightness depression, configuration conditions 3=18682
 intensity judgment, inborn ability 3=13959
 latency, rel. to retinal locus, finger-tap test 1=15380
 light-dark boundary, thresholds rel. to viewing time 3=23720
 limits to human vision 1=21131
 luminance threshold, rel. to angular distance from inducing source 2=21762
 luminosity losses in deuteranopes 0=6528
 Mach band appearance with motionless retinal image 1=10355
 Mach bands, movement, visibility 2=15431
 Mach effect with microscope image 4=18392
 magnification effect on character recognition through noisy telescope 4=20979
 mammalian cone electroretinogram "off"-effect 1=4156
 Mars obs. effects 4=15931
 masking obs. 4=23977
 message reception function, comparison with ear 2=7060
 min. dark intervals, between flashes 0=8453
 monocular fixation, eye drift determiners 1=10352
 moon illusion 2=21767-8
 moon illusion 3=11628
 moon illusion, and Emmet's law 2=13219
 moon illusion, terrain effects as cause 3=1570
 motion, cessation, sensitivity to velocity 3=11633
 movement persistence perception in the Ganzfeld 1=6670
 movement, real and apparent aspects 3=21173
 moving object, diff. distances, eyes fixed 3=7073
 moving object, threshold size rel. to speed 4=20981
 networks for pattern perception 1=1622
 noise effects, esp. night vision 1=21139
 non-Euclidian nature of visual space, from illusions 4=2493
 object visibility dependence factors 0=6520
 on-off interaction in the human electroretinogram 1=4157
 on and off response differences 3=21175
 Panum's area, meas. by method of constant stimuli 2=2583
 Panum's zones, reality inconsistent with expt. 1=21127
 perception lag rel. to stimulus luminance 3=13971
 perception of light, physiology 1=21145-51
 perception, optical illusions 1=2580

Vision—contd

- perceptual anomalies, with single contour 0=18549
 perceptual fluctuations with ambiguous figure 3=9308
 perceptual fluctuations, at liminal stimulation 2=24225
 peripheral, absolute threshold and binocular summation 2=24217
 peripheral contrast thresholds, and blurring of retinal image 2=1032
 peripheral, movement thresholds 0=14344
 peripheral retinal response, duration and size as determinants 1=4155
 perspective distortion, over compensation 0=14349
 photic exposure, human and rabbit fundi reactions 4=10978
 photic flicker sensitivity 3=13969
 positive after-images, retinal receptors role 3=13970
 presbyopia, use of aspherical lenses 2=7072
 processes, dynamic characteristics 1=18551
 psychophysical linking hypotheses 3=9305
 Pulfrich stereophenomenon, magnitude as function of target thickness 0=6516
 pulse-to-cycle fraction and critical flicker frequency 1=6669
 pupil servomechanism, "clamping" method 2=21761
 pursuit ocular movements, max. ang. vel. 0=3378
 quantum coincidence minimum requirement 4=15988
 quantum and energy based visual sensitivity 3=13968
 quantum theory 3=3686
 quantum threshold 2=24210
 real and apparent visual movement 4=2491
 recovery, after green and blue-green adaptation 0=8445
 recovery, following adaptation of peripheral retina 2=2582
 refractive error, green/red ratio 0=6526
 resolution and contour interaction 3=21171
 response, to brief light flashes 2=17324
 response to h.f. intermittent stimuli, two alternating trains 4=15992
 response, sinusoidally varying spatial stimuli 4=23978
 response to square-wave modulation at flicker fusion 1=6673
 response, to stimuli of unequal luminance 2=17325
 response to time-dependent stimuli, amplitude sensitivity 1=6674
 retinal image formation, optical and motor factors 3=5294
 retinal image formation, optics, review 3=5293
 retinal images and binocular space vision, relative sizes 1=21135
 retinal images, stabilization by means of telescopic normal incidence system 0=18565
 retinal images, stabilized and unstabilized, monocular rivalry 0=10458
 retinal pH value, significance 3=9309
 retinal potentials, computer summation 1=11665
 retinal receptors, energy transmission 1=12724
 retinal sensitivity, near blind spot 2=15433
 review 1=2579
 scanning-mechanism hypothesis 0=18551
 scanning, of PPI radar screens 0=18567
 scotopic acuity, temporal course, effects 0=18559
 scotopic b-wave, rise and decay varn. 3=3688
 scotopic, photometric equivalent of radiation 1=9229
 scotopic sensitivity, seasonal changes 0=3382
 search performance in moving structured field 4=15993
 sensitivity, rel. to various types of noise 1=21133
 shadows and depth perception review 2=17323
 shutter for square-wave exposures 3=14326
 signal generator with sinusoidal modulation 1=4451
 sine-wave response 2=7085
 sinusoidal patterns, advantages in visual research 1=1618
 size and distance, relative, primary importance 3=18681
 size meas. by microscopy, visual factors 3=23719
 space perception, three-dim., general theory 2=1036
 spatial extent, perception 4=15994
 spectacles, aspherical lenses 2=21994
 spectral energy thresholds, acuity target resolution 0=18553
 spread function width, psychometric det. 2=9138
 stabilized images, on retina, review 2=15436
 star visibility, in daylight, at high altitudes 0=843
 statistical analysis, probit methods 4=2490
 stereopsis, and binocular rivalry of contours 3=18680

Vision—contd

- stereoscopic depth effect, induction 4=26995
 stimulus orientation and retinal summation 2=11221
 subjective sharpness and contrast thresholds 3=1562
 tachistoscopic campimetry, recognition at eccentric positions 2=24213
 tachistoscopic field measurement, data analysis 2=15429
 tactile receptor theory 3=16461
 target detection and location, effects of shape and structure of visual field 2=7077
 target size and shape, effect on visual detection, neural formulation 0=2061
 with telescope, enlarged retinal image, psychological approach 0=19383
 temporal adaptation, to spatial detail 0=4829
 temporal gradients, subjective discrim. 3=9307
 threshold change, during adaptation 2=1033
 threshold during eye movements 3=1571
 threshold, review 2=24212
 threshold, in terms of light quanta 2=1035
 time-dependent stimuli, visual response 1=10349
 time-dependent stimuli, visual responses 2=7076
 time varying stimuli, retinal electrical response 3=11627
 transfer function, grating contrast sensitivity meas. 4=26994
 triangular light pulses, rel. to square pulses 1=21126
 tritanopia, small-field, and effects of fixation 1=6678
 Troxler's effect, adaptometer for 1=1619
 Troxler's effect, localization in visual pathway 2=13227
 twilight, threshold conditions 3=16464
 two intersecting stripes darker than background, and alignment acuity 3=13966
 unsharp and sharp visual patterns, apparent relative movement 4=4987
 unstructured field, search 0=8455
 velocity discrimination, effect of cues 3=3690
 velocity discrimination, Weber ratio 0=14348
 visibility of fixed or stabilized object, rel. to eccentricity 3=11631
 visibility of light signals, nomographic calc. 1=9234
 visual masking, intensity and contour effects 3=3692
 visual measurement, general theory 3=5296
 visual purple role, review 2=24231
 visual space, sources of information 2=13220
 visual system, nonlinear property at fusion 1=21137
 visual system, sine-wave response 1=10354
- Vitreous state**
 See also Glass
 alkali borate glasses, n.m.r. data 0=8256
 bitumen, frictional behaviour 1=12611
 borates, glass-forming, structure and physical props. 0=8252
 borates and silicates, similarity to high temp. crystals of same composition 4=2136
 conductivity, ionic and electronic, of glass-like materials 4=7027
 defect mechanisms, flaw loops and etchpit rows 2=2418
 electron-energy band structure 2=10347
 electron, energy spectrum in one-dimensional model 1=9153
 ether-ethanol irradi., e.p.r. of carbazole donor diphenyl acceptor mixtures, 77°K 3=22595
 formation of glasses, under high press. and temp. 0=12060-1
 formation and structure of simple oxide glasses 1=20632
 free-volume model of amorphous phase, glass transition 1=4073
 glass, acid-leached, pore structure 1=14573
 glass formation, rel. to liquid structure 2=16988
 glass formation in metallic and ionic systems 1=6550
 glass-forming substances, rate and pressure effects 2=13340
 glasses (VO_2 , $s-PO_2$, $s-RO_2$ type) 1=10047
 halides, glass forming 0=8777, 14626
 high polymers, glass transition 1=15165-7
 ice, at low temp. 1=6518
 in inorganic aqueous solns., D substitution, effect on transformation temp. 3=23492
 metals, heavy, halide salts solutions, luminescence 3=10990
 molecular structure, electron diffraction radial distrib. function 2=22958

Vitreous state—contd

molecular transport 0=2141
 order, X-ray diffraction study 2=9257
 organic solns., luminescence, e.s.r. 4=7198
 organic substances, effect of vitrification on polarization of luminescence 1=14647
 oxide glass, fluoride ion in vitreous matrix 0=21218
 paramagnetic resonance line shapes 0=21219
 petroleum asphalt, glass transition phenomena and rheological properties 1=11589
 polyacenes, luminescence, delayed, 77°K 3=20535
 poly(bisphenol-A carbonate), above glass transition temp. 4=4687
 polyethylene 3=3350
 polymer-diluent, viscosity and glass transition 4=27161
 polymer fracture, kinetics under external load, calc. 3=20731
 polymers, crazes, refractive index meas. 3=8579
 polymers, double refraction, sign change on deformation 4=7164
 polymers, optical activity 0=8258
 polymers, vitrification 2=15079
 polymethylmethacrylate, photoelastic properties 0=4398
 polypropylene, atactic and isotactic, glass transition 3=10597
 polystyrene, relaxation enthalpy and cooperative phenomena 4=2139
 polyvinylcarbazol in benzol, v.p. curve 3=8920
 quartz, amorphisation by milling, effect of medium 0=12058
 quartz, amorphous form prod. under shock conditions 0=6324
 quartz particles, effect of grinding 3=8918
 radiation effects, corpuscular 2=8869
 semiconductivity, review 1=6137
 semiconductors 0=3263
 semiconductors, complex chalcogenides 0=13610
 semiconductors, optical properties 0=13609
 silic, heat capacity anomalies 0=11581
 silica, annealing density changes due to neutron irradi., frequency factors 1=7606
 silica, Debye temperature 0=11580
 silicate fibres, structure 0=6372
 silica, properties of suspensions, electrokinetic mobilities 0=4744
 spodumene, crystallization, from Raman spectra 3=5086
 structure, borates and silicates, similarity to high temp. crystals of same composition 4=2136
 structure of glasses with high Young's moduli 1=20635
 in supersonic flow, melting, evaporation and sublimation 4=27371
 thermal conductivity, at low temps., and phonon scatt. 2=16615
 transition, thermodynamic aspects 4=7733
 vitrification, energy balance 0=12059
 vitrification, of plastics 0=4680
 vitrification, quantitative theory 3=23491
 X-ray Compton scattering meas. method 2=5617
 zero-point entropy 3=11304
 Al₂O₃ films, formation and structure 2=10937
 AlVO₄ glass, structure, from spectra, i.r. 4=10626
 As chalcogenides, structure 4=2135
 As glassy chalcogenides, X-ray study 0=21199
 As-S-Te system, semiconducting properties 1=7644
 As₂S₃-As₂Se₃-As₂Te₃, atomic structure, corrections 3=18363
 As₂Se₃, short-range order 3=10802
 As₂Se₃-As₂Te₃, atomic short range order 3=18364
 As₂Se₃Te₃, elec. cond., effect of impurities 0=15944
 BaSO₄, AlAsO₄ glass, structure, from spectra, i.r. 4=10626
 B₂O₃, i.r. spectra, interpretation 4=7112
 B₂O₃, layer struct. 4=20826
 BP₂O₄, AlPO₄ glass, structure, from spectra, i.r. 4=10626
 BVO₄ glass, structure, from spectra, i.r. 4=10626
 Ba borate, radial distrib. study 0=14027
 C, amorphous, tetrahedral structures, in predicted X-ray diffraction pattern, rel. to graphite and diamond 0=6371
 C, preparation and use as crucible material 3=21181
 CaO-B₂O₃-Al₂O₃ glasses, structure and d.c. conductivity 1=14397
 CaO-GeO₂, viscosity 0=8255
 Cs borates, cation distrib. 0=4645
 Cu complexes, e.s.r. line shapes 1=11479

Vitreous state—contd

Cu complexes, e.s.r. spectra 2=16549
 D₂O₂-D₂O, methods of formation 1=6551
 H₂O₂-H₂O, methods of formation 1=6551
 Na borate glass, structure of solid and liquid 3=1361
 Na₂O-GeO₂, viscosity, 1000-1550°C 0=8255
 Rb pentaborate, radial distrib. curve 0=6360
 S, plastic, structure 0=3517
 Se, atomic distrib. curves calc. 4=23614
 Se films, drift mobilities of electrons and holes 2=6472
 Se, glass transformation from amorphous state 1=20637
 Se, photo-Hall effect, n-type cond. 4=22805
 Si, radiation-induced dilatation theory 4=6889
 SiO₂, conductivity, elec., 1000-1800°C 4=12962
 SiO₂, X-ray scatt., surface effects 2=8899
 Tl₂SeAs₂Te₃, photoconductivity, thermoelectricity 3=20418
 ZnCl₂, glass-forming, liquid structure 0=14626

Volume measurement

conference, 44th Nat. Weights and Meas. (1959) 0=6720
 dilatometer, automatic recording 1=1723
 dilatometer, for -190° to +700°C meas. 2=19494
 drop, stationary 4=21005
 drops of aqueous sol., "micro-rod" meas. 0=6770
 gases, automatic recording apparatus for absorption and evolution 1=1468
 hard superconductors 0=8956
 level gauge for liquid H₂ and He 1=10184
 liquid level, use of flexural oscillations of immersed strip 1=2723
 partial specific, mag. suspension balance method 2=17403
 solids, minute change, volumometer 1=10465
 volumometer, for solids, by oil-filled bellows 1=10466
 Se, liquid, specific volume, rel. to temp. 4=27160

Vortices

See also Cavitation; Turbulence
 acoustic, in edge tone theory 2=5102
 acoustic, in fluid rel. to fields 4=21073
 acoustic scattering 2=21868
 advection eqn. in atm. soln., semi-Lagrangian method 4=23741
 axisymmetric boundary layers, transition patterns 0=921
 bath-tub 3=16593
 below liquid surface, motion 2=17423
 boundary layer, over flat plate, in presence of shear flow 0=3498
 compressible fluid in magnetic field 1=5537
 curved filament, progressive deformation 3=1657
 curved, self-induced velocity, electrodynamic analogue 1=2739
 differential equations, equivalent 4=18145
 disintegration of vortex rings 4=18147
 earth's rotation effect 3=9430
 flow, calc., normal to a flat surface, var. Reynold's numbers 4=8141
 flow, incompressible fluids 4=18158
 flow in Taylor vortices meas. 4=18144
 fluid motion, density stratification, Navier-Stokes equations 0=12154
 fluids, incompressible, eqns, corresp. to eqns. of motion 4=8139
 fluids, rel. to aerodynamic sound generation 4=8325
 formation, near resonator, in air stream 0=6828
 formation and structure, vortex rings 4=18146
 hurricane, effect on trajectory of interaction with steering flow 4=23745
 instability, rel. to raindrop breakup 1=20829
 line vortex, viscous core 1=1729-30
 liq. He, vortex lines 0=8874
 in liquid drops, formation 0=8643
 magnetohydrodynamic flow, flat plate drag 0=15125
 meas., forces by vibrating cylinder 3=14120
 non-linear Couette flow, harmonic obs. at high temps. 4=5127
 plasma, production and photography 4=19030
 plasma vortex rings 3=395
 quantized vortex in boson systems 1=12821
 resistance to circular cylinder, due to vortices 0=16679
 rotating flows of von Kármán and Bödewadt 4=18141
 in rotating liquid, differentially heated 1=2731
 secondary motions, in vortex field, generation 4=127
 shear flow, due to oscillations 0=14600

Vortices—contd

- at shearing edge, slip instability effects 4=14108
- shedding from tube, buoyancy effects 2=9247
- similarity structure of vorticity fluctuation 0=5001
- steady spheroidal, Navier—Stokes solution, more exact 1=12851
- supercond., lines, energy, stability, elastic moduli 4=21399
- supercond. type II line, bound fermion states 4=21401
- superflow 0=8922
- superposable axially symmetric flows, decay 0=4992
- tangential discontinuities motion in ideal incomp. fluid 4=16080
- Taylor, between horiz. concentric cylinders, formation conditions 0=8627
- transformations, by identity system 3=16592
- troposphere, nonlinear eqn. soln. 0=21324
- turbulence criteria, in rotating gravity field 4=18148
- turbulent, order-of-magnitude analysis 2=11338
- turbulent vortex, flow and energy separation analysis 1=18375

Vortices—contd

- viscoelastic liquids, diffusion 0=16680, 19072
- vortex motion study with coloured liquid 1=9373
- vortex motion, in transport process systematization 3=5392
- vortex street development, numerical soln. 3=18782
- vortex tube 1=163
- waves, on quantized vortex lines, in rotating He II 0=8907
- H₂O, carbonated, tornado model 4=10705
- He liquid, central macroscopic, in boiling He I and conservation in He II 4=11447
- He II liquid films 4=21371
- He II liquid, Onsager—Feynman-type, above λ point, possibility 4=11448
- He II, liquid, quantized, and critical heat flow, var. tube dia. 4=16322
- He II, liquid, vortex lines near a wire, theory and expt. 4=8548
- He II liquid, vorticity, onset and growth 4=24475
- He II, quantized, by rotation 2=5230
- He II, superfluid, meas. 4=16324

Water

See also Ice; Seawater; Steam.

absorption and photoionization cross-sections 4=28218
 absorption spectra, 1850 to 4000 Å 4=11249
 absorption spectra, u.v., of H_2O , HDO , D_2O 1=852
 with acetic acid-butane, 3 coexisting phases, critical phenomena 4=24442
 acoustic absorpt. in shallow water, surface wave effects 4=14276
 acoustic array, for wide-freq. bands 2=5118
 acoustic field of plate waves in water layer 0=19284
 acoustic impedance in circular tubes 1=11758
 acoustic impedance, 3.2 Gc/s 3=18934
 acoustic sawtooth waves, form analysis 0=19309
 acoustic square-wave propag. 0=123
 acoustic streaming, velocity 0=19306
 acoustic streaming, viscosity ratio 0=6880
 acoustic wave, plane progressive, prod. by quartz transducer 3=16705
 acoustic wave propag. 0=2196
 acoustic noise, due to cavitation 2=11454
 acoustic power meas. using reverberation 4=2799
 acoustic propag. in, plate waves over stratified bottom 1=16016
 acoustic propagation in plane layer with disturbed surface 1=9448
 acoustic radiation field for shallow layer 4=21240
 acoustic scattering from pair of fluid spheres, expt. 4=14292
 acoustic transient propag. 4=21128
 acoustic transmission, in shallow water, long-range, theory 2=19655
 acoustic transmitters and receivers 0=12458
 adhesion energy, on alkali halide crystals 2=9250
 adsorbed on charcoal, n.m.r. relaxation 4=29193
 adsorbed on γ -alumina, dielec. props. 2=8891
 adsorbed on alkali halides, i.r. study 0=10375
 adsorbed on Fe, i.r. spectrum 2=23963
 adsorbed on Ge, as acceptor 2=2143, 8325
 adsorbed on Ge, effect on carrier recomb. 2=8329, 10466, 18676, 23337
 adsorbed on glass, dielectric behaviour 3=17950
 adsorbed on LiF, dielectric admittance 3=10880
 adsorbed on mica, dielectric behaviour 4=21149
 adsorbed on quartz, thermodyn. quantities 2=2435
 adsorbed on Vycor glass, freezing 0=12118
 adsorption in $\text{AgI-KI-H}_2\text{O}$ 3=23522
 adsorption of aromatic vapours on surface 4=29616
 adsorption on cellulose, effect on microwave permittivity 4=1656
 adsorption, by Ge surfaces 0=12115
 adsorption on Hg surface 2=1126
 adsorption on n-type Ge powder 3=6890
 adsorption, thermodynamic quantities correl. 2=2432
 adsorption on W, 80°-400°K 2=8897
 aerosols, droplet interaction 1=11630
 aerosols, nucleation 1=11627
 air bubbles, nonlinear oscillations 0=6865
 air content, dissolved, meas. 0=21264
 with algae suspension, u.s. absorption 0=8750
 α - and β -activity meas. 0=5691
 α -particle range 0=1322
 atmosphere, saturation vapour press. rel. to density, intermolecular attractions 3=18495
 boiling boundary layer, vapour content distrib. by β -translucence 0=10805
 boiling, bubble growth rate 2=5217
 boiling, cooling nichrome wire, in centre of glass pipe 3=9661
 boiling, forced circulation, press. drop prediction 4=24449
 boiling heat transfer at coexistence of nucleate and film regions in saturated and subcooled H_2O 4=27379
 boiling, heat transfer from Ni wire in subcooled and boiling water 4=11417
 boiling from Hg surface 4=24447
 boiling, on Ni wires, surface oxidation temp. effects 4=11423
 bond energy calc. 4=6550
 bond study 0=8666
 bubble formation 0=16682-3
 bubble rise velocity, effect of mass transfer 1=12857
 bubbles of steam, upward trajectories, condensation effects 4=24152

Water—contd

cavitation, single-bubble mechanism 1=134
 cavitation, ultrasonic, nucleation by fast neutrons 4=5142
 cavitation erosion, dependence on dissolved gases 1=10489
 chemical binding, electronic struct. effect, energy calc. 4=30446
 chemical decomposition, by u.s., no change in H isotope ratio 4=13745
 chemical reactions with CS_2^+ , products obs. 2=8912
 Cherenkov radiation on γ -irrad. 3=2239
 cluster about Cu^{2+} , in CuSO_4 soln. 1=11756
 coalescence of drops and surfaces 1=11745
 compressibility, adiabatic, lowering by LiNO_3 3=18807
 compressibility, 5-60°C 0=12400
 compressibility, temp. depend. 0=6793
 condensation coefficient calc. 4=21359
 condensation, effect of adsorption on formation of liquid embryos 4=10718
 condensation meas., by T tracer 4=21360
 condensation on, from atmosphere 0=5211
 condensation on shock-tube walls 4=18496
 condensation from water vap.—inert gas mixture 3=14425
 condensation from water vapour 4=10476
 condensed film, optical props. 0=740
 conductivity, electrical, deionized, increase by ultrasonics 3=18830
 conductivity, thermal, up to crit. point 4=18194
 content gauge, n. scatt. for soil and concrete, optimization 4=29243
 convection, from horizontal rotating cylinder, var. Reynolds and Prandtl numbers 4=5420
 convective circulation induced by evaporative cooling 1=10481
 cooling, in mag. field 2=125
 critical constants, determ. from exper. data 4=29813
 critical heat load, on boiling 2=15818
 of crystallization, loss, exo-electron emission during 3=5689
 crystallization of supercooled, use of Ag I 3=11398
 in crystals, low-freq. motions, study by neutron inelastic scattering 4=20176
 decomposition by light, using anthracene crystal 1=1488
 decontamination from radioactivity, filter efficiencies 2=4523
 degassing and boiling mechanisms, stroboscopic visualization 4=8512
 density, 20×10^4 atmospheres 3=21100
 detonation pressure meas. and eqn. of state 3=1751
 diamagnetism of vapour, calc. 0=17795
 dielectric const. decimetre meas. 4=24227
 dielectric const., Onsager's equations, refr. index choice 3=14176
 dielectric constant, in decimetre wave region, meas. 2=13352
 dielectric constant, 0°-40°C 2=11379
 dielectric polarizability, temp. var., cavity radius, from refractive index 3=23899
 dielectric prop. changes on adsorption by solids in air 4=20825
 dielectric props., review 1=6868
 dielectric properties, effective, rel. to ion hydration 2=10982
 dielectric relaxation time, temp. dependence 4=21148
 diffracted light, frequency shifts 3=7210
 diffusion of butanol, trajectories, finite cell 3=18806
 diffusion in glass, conc. dependent 4=9987
 diffusion in Na carboxymethyl cellulose gel 3=1403
 diffusion in solids, new meas. method 3=8448
 diffusion of solutes, across oil/water interface 0=8656
 diffusion, vapour, in air, teaching, meas. 3=21425
 diffusive motions in, cold-neutron scatt., calc. and expt. 0=14648-9
 diffusive motions in, from neutron scatt. 0=79
 dissociation, electrolytic, r. f., initial rate press. var. 4=26759
 distilled, sea, heavy, light absorption 3=16626
 distilled, sound velocity 0=19275
 distilled, surface tension, effect of electrostatic fields 2=11347
 distilled, viscosity, in flow through pipes 3=108
 doped, mass spectrographic determination 1=11641
 double refraction in strong shock waves 3=7205

Water—contd

- drop condensate, in steam flow 2=9294
 drop evaporation, influence of isoamyl alcohol film 1=10494
 drop, Leidenfrost phenomenon at 100°-500°C 3=7389
 drop shapes under low gravity, 1 litre in contact with Zn stearate plane 3=18668
 drop size, det. using photographic emulsions 1=12853
 droplets, charge accumulation and loss 4=5539
 droplets, 0.2-3 mm diameter, size and conc. meas. by drop-size sensor 4=10700
 droplets, surf. tension, at critical points 4=8159
 droplets, vapour exchange with environment 3=294
 drops, in air, damped oscillations 0=14611
 drops, coalescence and bouncing at air/water interface 4=24154
 drops, disintegration in elec. field 4=24153
 drops, 15-500 μ m radius, prod. by vibrating capillary 3=14132
 drops, falling into water-glycerol mixture, splashes 0=8644
 drops, freezing temp., effect of electrolytes 4=21354
 drops, i.r. absorption 2=11026-7
 drops, impact on metals, pit formation 0=8142
 drops, induced charge detm. 2=15877
 drops, internal circulations 3=14133
 drops, in mist, photoelec. meas. 0=12110
 drops, radiowave back-scattering 2=4597
 drops, size, electronic disdrometer 1=12687
 drops striking water surface, energy dissipation 4=21086
 drops, submicroscopic, freezing point 3=5082
 drops, supercooled, elec. fld effect on freezing 4=11403
 drops, supercooling, electric field effect 4=368
 dynamic contact angle with air sat. with water vapour 3=1672
 e.m. field attenuation 2=3167
 echoes in, from various solids 4=14286
 effect on vitreous silica crystallization 4=23348
 elec. cond. of protons, energy of activation 1=15902
 elec. cond., in strong shock waves 0=6073
 elec. conductivity, changes caused by X-irradiation 0=19113
 electrical breakdown potential, falling drops, 23°C 2=1376
 electrical conductivity, meas. in closed system 2=15866
 electrical conductivity rel. to field 4=14184
 electrical conductivity from undehydrated insulating liquid measurements 1=10520
 electrical strength, under pulse conditions, tap and distilled samples 4=27188
 electron beam, 2.8 MeV, energy loss 1=18935
 electron effects, hydrated e spectrum and reaction rates 4=20073
 electron irradi., ionization distrib. 3=14532
 electronic structure of molecule, calc. for various wave-functions 0=7786
 emissivity, polarized, i.r., calc. 4=24217
 emulsification of water/dibutylphthalate mixtures by ultrasonics 1=20774
 enrichment in H_2O^{18} by thermal diffusion 1=821
 entropy of boiling, calc. 1=8265
 equation of state, from acoustic velocity meas. 4=8178
 equation of state, p-T, anomalies near 4, 150°C 4=5158
 equivalence factors for D_2O , neutron age calc. 0=12955
 evaporation, droplets, freely suspended and charged, in humid air 4=2891
 evaporation enhancement by foreign mols. adsorbed on surface, expt. 4=8517
 evaporation, reduction by cetyl alcohol film 0=14890
 evaporation, from surfaces coated with stearyl alcohol film 0=16922
 evaporation thro. monomolecular films 3=24114
 evaporation through mixed monolayers of long-chain n-paraffinic alcohols 4=8518
 excited by acoustic waves, reflection of e. m. waves 0=7220
 film, dynamic surface tension meas., vertical jet directed onto horiz. plate 0=5005
 film, optical props. in i.r. 4=23722
 film, Na-montmorillonite expanded in NaCl soln. 4=16091
 flow, in canals, effect of viscosity and capillarity 3=9431
 flow, critical, steam-water, pressure gradients 4=2632
 flow near collapsing bubble, rel. to cavitation 4=8149
 flow, in plastic tubes, noise, acoustic 3=5505

Water—contd

- flow, in pipes, cavity formation 0=6762
 flow in porous media, electrokinetic phenomena 3=16596
 flow, static instabilities on heating after sub-cooling 1=17230
 flow stability, in heated passages 0=6749
 flow, turbulent vortex, heat transfer and friction 0=6977
 flow, viscous, rel. to dipole orientation 3=21399
 fog droplets growth and condensation coeffs. 4=5467
 formation of self-trapped electrons ("polarons") by irradiation 0=14136
 "free volume" and viscosity 3=11780
 freezing on addition of electrolytes, expt. investigation 4=2888
 freezing of drops, and electrification 4=23768
 gamma dose distribution, in cylindrical volumes 0=15558
 γ -irradiation, at 4.2°K, H atom free radicals, e.s.r. 2=3791
 gamma-ray absorption 0=7328, 9327
 γ -ray absorption efficiency, effect of multiple scatt. 4=9157
 γ -ray backscattering, 0.2-2.0 MeV 0=7318
 gamma-ray scatt., ang. and energy distrib. 3=14936
 γ -ray absorption 2=5599
 γ -ray attenuation, mass coeff. 2=4431
 γ -ray distribution, from monodirectional source 2=13758
 γ -ray scattering, energy distrib. 3=10076
 gaseous diffusion in O_2 , at high temp. 0=3563
 and glycerine mixtures, viscosity meas. 0=14575
 heat capacity at high temp. and press. 1=18395
 heat of ionization at 25°C, calorimetric study 4=8198
 heat of ionization from calorimetric meas. 4=8199
 heat loss from non-boiling water, at high heat fluxes 0=6979
 heat pipe, use as working fluid 4=27349
 heat transfer, from fine Pt wires, effect of ionic currents 4=8200
 heat transfer by free convection, up to near-critical condition 4=5413
 heat of vaporization, meas. instrument 1=16172
 heating by sun 0=19500
 heavy, D_2O det., float method theory 2=19183
 heavy, density meas. 2=4998
 heavy, isotopic analysis 1=4915
 heavy-light water mixtures, phase contrast refractometry 0=12471
 heavy, neutron moderation, pulsed source 4=25113
 heavy, scattering of slow neutrons 3=9445-6
 heavy, specific volume at high temp. and press. 4=2657
 heavy, viscosity 2=4999
 heavy, viscosity, temp. variation 4=29615
 heavy-water manufacture, Sweden 3=4688
 heavy water, molecular u.v. absorption spectrum 3=8276
 heavy water prep. by gaseous diffusion, use of fine-pored Ag membranes 0=18385
 heavy water prodn. from ammonia distillation 3=8940
 in hydrate crystals, vibration, effect on n.m.r. line splitting, theory 4=23059
 hydrated electron, absorption spectrum 3=6926
 hydration-dehydration of polyelectrolyte solutions 1=15865
 i.r. absorption 0=82
 i.r. absorption of H-bond 1=15882
 i.r. absorption, line broadening 2=14272
 i.r. absorption spectra, 42-2000 μ , natural and heavy water 2=1149
 i.r. scattering indicatrix of mists 4=29236
 i.r. spectra 1=6860
 intensity anomalies in underwater sound fields 1=12938-9
 intermolecular H-bonding, near-i.r. study 4=153
 internal pressure variation, with temp. 2=4981
 ionic solns., H-bonding, near i.r. meas. 4=154
 ionization, field, with W, Pt, Ir tips, mass spectra 4=24598
 ionization potential, higher, using electron impact Foxgun 3=14520
 ionization product change at high pressures 4=10646
 ionization, of solns., by gamma rays, H_2^+ , H_2O^+ struct. and stability 4=10651
 ions, dissociation due to collisions with mols., 3.5-100 keV 4=9783
 ions, mobility, in O_2 - H_2O mixtures 3=12080
 isotope contents of various samples 0=17680

Water—contd

isotope enrichment by slow evaporation, rate variation with sample origin 0=17681
 isotope separation factors 1=12268
 jet in air, mech. vibr. effect on break-up 4=21084
 jets, high-speed break-up 0=8619
 Kerr constant 4=5180
 lake, deep, inland, ambient noise 1=9457
 laser, far i.r., laser stimulated 4=21682
 laser, i.r., vapour pulsed discharge 4=19295
 layer adsorbed on silica gel, proton states, spin-relaxation study 193° to 374°K 4=7731
 light emission from cavitating H₂O 4=11166
 light and heavy, heat of mixing, formation of HDO 0=3306
 light scattering, Brillouin components 0=14847
 in liquid paraffin, changes in rheological props. on ageing 4=10662
 luminescence and Cherenkov radiation, X- and γ -ray excited 0=19158
 luminescence, ultrasonic effects, and cavitation 4=14117
 luminosity due to detonation transmission 3=21379
 on lunar surface, behaviour 1=18034
 magnetic susceptibility, protons contrib. 3=23907
 microbubble persistence 1=12856
 microwave discharges, OH radical production 2=6232
 microwave pulse absorption, dissociation 2=6882
 microwave spectrum, HDO and D₂O, h.f.s. 0=20667
 mists, stabilization by insoluble monolayers 1=11631
 model, rel. to sound absorpt. 4=14159
 as moderator, neutron spectra meas. 0=7657
 moisture content in wool, direct-reading balances 1=21154
 mol. structure det. from moments of inertia 3=2597
 molec. dissociation, rel. to OH($^2\Sigma^+$) momentum distrib. and emission spectrum 4=30485
 molecular excitation by γ -irradiation 4=5196
 molecular, $1s\pi s^1$ state, molecular orbital calc. 3=22561
 molecular stream, electronic excitation 2=8138
 molecular structure 0=5983
 molecular vibrations, in crystals 2=14681
 molecule, angular correlation diagrams, detailed numerical calcs. 4=6556
 molecule, far-u.v. spectrum 2=14284
 molecule, force field model 2=14243
 molecule, H-bonded in crystals, structure 2=15038
 molecule in inert gas lattice, rotation and ortho-para conversion 4=1275
 molecule, isotopically substituted, vibrational analysis 4=12433
 molecule, pure rotational lines map 2=17619
 molecule, SCF MO one-centre basis set 4=20048
 molecule, spectral line widths from collisions with H₂O and O₂ 4=22439
 molecule, valence vibration freq. rel. to H-bond energy 4=22384
 molecules, adsorbed on alumina, proton spin—lattice relaxation time 4=7342
 molecules adsorbed on crystals, hygroscopic, librations 4=22828
 molecules, in crystals, flip motion, n.m.r. 3=23268
 molecules, electron density distribution 3=12843
 molecules, force consts. and internuc. distances, one-centre calc. 3=22564
 molecules, ortho and para, trapped in solid A and Xe, near-i.r. absorption 0=15722
 molecules, u.v. absorption spectrum 3=8276
 molecules, vibr., in natrolite, l.f., from neutron scatt. spectra 4=4565
 molecules, and D₂O, force consts. and i.r. spectra, calc. 4=6596
 Mollier diagram, transformation for enthalpy—composition diagram 4=8531
 motion from expanding cylinder 3=107
 movement in porous materials 3=11819
 mutual potential energy of molecules periodic discontinuities 1=4324
 N.M.R. natural line width det. 1=12024
 n.m.r., nuclear spin state 2=14847
 n.m.r., p, temp. var. 4=8224
 n.m.r. of proton complexes at -75°C 1=11767
 n.m.r. signal, effect of liquid velocity 2=13354
 n.m.r., study O¹⁷ relaxation 2=19581

Water—contd

n.m.r., in zeolite, calc. 3=11126
 natural in hydrologic cycle, D content variation. 3=25898
 near i.r. absorpt., 27°-209°C 4=21137
 neutron age in 0=12982
 neutron age in D₂O—H₂O mixtures 0=12984
 neutron age to In resonance, from D(d, n)He³ reaction 0=12986
 neutron age, to In resonance, from Na—Be source 1=16802
 neutron age in, for Po—Be neutrons 4=6069
 neutron age in, from Pu—Be 0=15362
 neutron ang. and energy distrib. at graphite bdy. 4=27860
 neutron attenuation, in iron—water shields, calc. 2=20712
 neutron backscattering from reflectors, Monte Carlo calc. 4=21860
 neutron diffusion, asymptotic spectra 1=19207
 neutron diffusion hardening, det. 3=6016
 neutron diffusion length, 16°-89°C 2=5665
 neutron diffusion length, 20-50°C 2=20351
 neutron diffusion, 0, 20°C 3=6017
 neutron diffusion, 0°- -80° C meas. 3=4401
 neutron diffusion parameters 4=21868
 neutron diffusion parameters of heavy H₂O, meas. 4=6063
 neutron diffusion parameters, meas. 2=7860
 neutron diffusion, poisoned, var. with poisoning, Cd, B 3=22141
 neutron diffusion, thermal neutrons 2=3347-9
 neutron inelastic scattering study, 25°-75°C 3=127
 neutron moderation, lifetimes to Cd and Ga cut-off energies 4=27863
 neutron moderation, pulsed source 4=25113
 neutron reflection, angular and spectral distrib. 0=7366
 neutron rethermalization 4=3739
 neutron scattering 0=12940, 15360
 neutron scattering, approx. empirical formula 2=18119
 neutron scattering, dose albedo 0=12944
 neutron scattering in, energy distrib. 4=16092
 neutron scattering, fast, calc. 2=18116
 neutron scatt., hindered rotation theory 3=17284
 neutron scattering, lattice model 2=22527
 neutron scattering law, expt. in H₂O and D₂O 2=22526
 neutron scattering, low quantum transitions 1=11158
 neutron scattering by molecule 1=19625
 neutron scatt., at 0.005 eV, inelastic cross-section 0=6795
 neutron scattering, 0.2-2.7 $\times 10^{-3}$ eV, - 100° to + 200° C 1=13429
 neutron scattering, slow 2=3346, 20346
 neutron scatt, small-energy rotational transitions 3=23869
 neutron slowing-down and thermalization time 4=30234
 neutron slowing-down time, meas. 0=12977
 neutron slowing-down time, meas. method 2=7867
 neutron spectra 2=5648
 neutron thermalization parameters, meas. method 4=21877
 neutron transmission, 0.5-14 MeV, var. thicknesses, calc. 4=6070
 neutron transport in water and heavy water 3=2272
 neutrons, fast, scattering 3=7865
 neutrons, Fermi age in light water, calc. 1=16804
 neutrons scattering 1=16798
 neutrons from U²³⁵ fission, age 2=18127
 neutrons, U²³³ fission, age in water 1=17205
 noise, acoustic, falling 3=21503
 noise production, in turbulent boundary layer 0=2216
 normal and deuterated isotopes molecular beam, electronic excitation 4=1325
 nuclear spin—lattice relax., quasicryst. models 4=2713
 in nuclear reactors, fission, radiolysis 3=15265
 nuclear relaxation times, effect of C particles 2=5030
 nucleate boiling, under reduced pressure 0=14891
 ocean—atmosphere exchange, Antarctic 3=9027
 optical and r.f. props. 0=8665-6
 in organic solvents, proton exchange rates and H-bonding 3=9449
 oxidation to H₂O₂ by X-rays 1=15360
 partial structure 1=10497
 Pauling's model, rel. to thermodynamic props. 1=4326
 pendent drop, equilibrium theory 1=15825
 percolation through ion-exchange resins 0=12067

Water—contd

phase composition, water—vapour, in heated pipe 4=14456
 phase transformation, adsorbed in porous Vycor glass from expansion 4=10630
 phase transition, ice—water, equation of curve 0=6991
 phenol activity coeffs., calc. 4=4721
 photodissociation, OH rotational states 1=12321
 photoionization and absorption spectra, 600-1000 Å meas. 4=12460
 photoionization, continuous absorpt., and fluorescence 4=25690
 photolysis, vac. u.v. 2=4550
 photoneutron emission 2=18317
 planet, Mars, atmosphere, vapour, particle layers 3=18603
 polarization, atomic, calc. 2=8074
 polarized, pulse discharges 2=9540
 polarons in aqueous media, optical absorption, effective mass and radius 4=5209
 positron annihilation, ext. mag. field effect 2=13776
 positron annihilation in 0=9343
 positronium decay, mag. quenching, meas. 4=21844
 preadsorbed on powdered substrates, surface area 4=23548
 pressure pulse meas., damping due to viscous dissipation 0=4993
 proton conductance, anomalous, dipole rotation mechanism 0=4720
 proton conductance, theory 0=4721-2
 proton hydration enthalpy 3=21337
 proton magnetic resonance, in zeolites 3=5452
 proton resonance, elec. field effects, calc. 2=19583
 proton transfer study by n.m.r. 1=4360
 quasi-crystalline model 2=1135
 radar reflection from ice—water mixture 4=8951
 radial distribution analysis, by diff. 2=17438
 radiation chemistry 0=4730
 radiation chemistry, pulsed electron beam 2=6894
 radiation nucleation of bubbles 3=23864
 radiation protection properties 2=20357
 radiolysis of aq. solns. lightly enriched in O¹⁸ 1=6577
 radiolysis, by γ -rays and neutrons in reactor 2=8930
 radiolysis, light and heavy water 0=18438
 rain, Cl³⁶ radioactivity 1=13681
 rain water, Be⁷, P³², S³⁵ radioisotope concentrations 1=13680
 rainwater, Sr⁹⁰ determination, Mexican samples 4=25347
 Raman spectrum, dissolved alkali halides, effect 2=5021
 Raman spectrum, effect of dissolved SO₂, CO₂ 4=14169
 Raman spectrum, effect of electrolytes 2=5022
 reaction with NaCl faces 2=4400
 as reactor moderator, rel. to critical conditions 2=8023
 in reactor, primary circuit, behaviour 2=6059
 refractive index meas. 1=16065
 refractive index meas. 1=18577
 refractive index, temp. var. discontinuities, as for viscous flow 4=21125
 resistivity of pure H₂O and OH⁻ mobility determ. 4=24238
 in rhyolite glass, 350° to 850°C 4=11189
 ripples, damping out by cetyl alcohol films 0=12411
 rotational kinetic effect 0=8648
 rough surface refl. of microwaves, power 4=24833
 salt water—fresh water interface, flow and stress 0=8609
 "saturated", sound velocity 2=5010
 scattering of γ -rays, interpolated energy distrib. 4=27824
 sea-water distillation using fast reactor 3=19902
 self-diffusion coeff. 0=3513
 self-diffusion, from cold-neutron quasi-elastic scatt. 1=9386
 self-dissociation and protonic charge transport 0=7738
 shallow lake, acoustic interference versus freq. meas. 1=12944
 shallow, sound velocity variations 0=5083
 shallow water sound field, integral solution 1=5326
 shielding against high-energy neutrons 2=7868
 shock-front thickness, from acoustic spectrum 4=5290
 slow-neutron scatt., cross-section calc. 0=12941
 in soil meas. by neutron probe, calibration curve and configuration 4=7807
 solubility of inert gases 3=23877
 solubility of O₂, Ar and N₂ in distilled water 4=11184

Water—contd

solubility of O₂ and N₂, isotope effect 3=9450
 solutions in organic substances, i.r. absorption spectra, n.m.r. comparative study 0=16719
 sonoluminescence spectrum 4=193
 sonoluminescence spectrum, effect of dissolved A, He, O₂, N₂ 1=4345-6
 sorbed on Ca hydrosilicate, state investig. by n.m.r. 3=11127
 sorbed on cellulose, NMR study 1=11602
 sorbed on zeolite, i.r. study 0=10376
 sorption by cellulose, effect on dielec. dispersion 2=6514
 sound cavitation, U salts effects 3=18794
 sound intensity meas. by thermoelectric probe 4=2796-7
 sound propag., normal-mode, in layer over absorbing bottom 4=10693
 sound propagation, at l.f., in shallow reservoir 0=19268
 sound speed, free field 4=29624
 sound transmission, effect of cavitation 1=11812
 sound velocity, anomalous temp. dependence 1=15866
 sound velocity, as function of temp. and press. 0=19273
 sound velocity measurement, up to 300°C and 150 kg/cm² pressure 0=19274
 sparks, elec., channel broadening and shock 1=5430
 specific gravity, direct reading hydrostatic balance 0=8594
 specific heat, const. press. on saturation curve 3=11192
 specific heat, vapour and liquid, supercritical range, var. P, V, T 4=14467
 specific heat, water with water vapour 2=13485
 spectra, liquid and vapour, i.r., mol. aggregation differences 4=21138
 spectra ~ 8000 cm⁻¹, rel. to combination vibrations 4=21139
 spectra ~ 8000 cm⁻¹, rel. to H-bonded polymers 4=21140
 spectrum, i.r., H₂O, HDO, D₂O 4=11199
 spectrum, Landé factor and electric dipole moment sign 3=22562
 spectrum, 6. μ band, band model appl. 4=25602
 spectrum, 2. 7 μ bands, calc. 4=30447-8
 spectrum, OH, OD, C² Σ ⁻-X² Π ₁, 1770-1900 Å 4=30439
 spheres, i.r. absorpt. and scatt. cross-section 2=11502
 and steam mixtures, density meas. 0=10806
 structure, electron diff. exam. 4=2650
 structure in interlayers in layer silicates, from n. m. r. obs. 4=10347
 structure, light scattering obs. 4=29609
 structure, model for thermodynamic props. 2=17443-4
 structure, Raman spectral studies 4=21093
 structure, at room-temperature 3=9444
 structure and sound velocity, effect of press. 0=10657
 structure, theory 1=11749
 structure, theory 1=12864
 structure theory, significant 4=16090
 structure, theory and X-ray data 4=21092
 supercooled, nucleation 0=8153
 supercooled, viscosity meas. to -23.8°C 4=5162
 supercooling, by dispersion as emulsion, small volumes 3=16837
 supercooling, effect of solutes, rel. to structure 4=157
 supercooling, enhancement by dissolved substances, filtering effects 4=5456
 supersaturated vapour, growth of small ions 3=21712
 supersonic flow in tubes, wall friction meas. from temp. rise 0=12404
 surface boiling under free convection in subcooled H₂O, heat transfer 4=27380
 surface gravity waves, model 3=16595
 surface, molec. orientation 2=5001
 surface structure 3=21307
 surface structure, criticism 3=14139
 surface, temp. in evaporation study 2=22095
 surface tension, effect of N₂ and Ar, 1-120 atm 3=18795
 surface tension calc., 0° to 340°C 4=10595
 surface tension, dynamic properties, h.f. standing capillary waves 1=130
 surface tension, effects of rotation, temp. depend. 0=73
 surface tension, meas. by drop-weight method, viscosity effect 0=19082
 surface tension meas., interfacial, hydrophobic ring use 4=14128
 surface tension, rotational kinetic effect 0=8640
 surface tension, theory 1=15818
 surface velocity in winds, wave-damping 4=18154

Water—contd

surfaces, wind-induced stresses 4=8155
 synthesis, radiation induced, energy transfer from
 CO_2 4=23678
 in synthetic substances, n.m.r. 3=6768
 system with ethyl acetate, vapour-liq. curves 2=19785
 tensile strength 1=11771
 thermal conductivity, anomaly 0=19121
 thermal conductivity, 25°C 2=15571
 thermal expansion temp. var. discontinuities, as for
 viscous flow 4=21124
 thermal neutron diffusion 1=13445
 thermal neutron diffusion length, 25-296°C 1=16801
 thermodynamic props., comparison with 6 electro-
 lytes 4=21126
 thermomagnetic effects 0=6785
 transverse relaxation time meas. by spin-echo
 technique 1=1756
 triple point, temp.—time dependence 0=1056
 tritiated, occlusion and absorption on Ta films 4=7730
 tritiated, separation factor in fractional
 distillation 1=2306
 u.s. absorption 2=15707
 u.s. absorpt. at 5, 0, 11.6 and 12.9 Mc/s 4=24209
 u.s. absorption, meas. by radiation pressure
 method 3=21361
 u.s. cavitation, by cosmic-ray neutrons, model 4=21080
 u.s. cavitation, spectral indication of its origin 4=5143
 u.s. propagation, 15-80°C 0=14757
 u.s. propagation, nonlinearity parameter 2=9275
 u.s. propagation, effect of vapour bubbles 2=11453
 u.s. velocity, along saturation line 2=1145, 7209
 u.s. velocity, effect of diffr., interferometric
 meas. 4=21131
 u.s. velocity and latent heat of vaporization
 relationship 0=16768
 ultrasonic absorption, with plankton in
 suspension 4=4747
 ultrasonic propag., temp. depend., up to
 b.p. 1=8118
 ultrasonic variable delay line 0=14727
 ultrasonic waveform distortion at finite amplitude
 det. of nonlinear parameters 1=4337
 underwater sound reflection 0=8751
 vaporization, forced, at 25°C 0=14908
 vaporization, forced, thermodynamics 0=3694
 vapour, absorpt. bands 125°-200°C 3=15348
 vapour, adsorption in graphite 3=13569
 vapour, adiab. expansion and ice-crystal form. 0=5212
 vapour, adsorption on AgI 4=23606
 vapour, adsorption on charcoal, study using sorption
 balance and extensometer 4=10617
 vapour, adsorpt. on Ge, kinetics 4=20362
 vapour, adsorption on insoluble metal halides 3=1381
 vapour, adsorption on porous glass 2=15101
 vapour, afterglow discharge, microwave study 0=5294
 vapour, in atmosphere, 15-20km, abundance detm. 3=9020
 vapour, atmospheric, satellite meas. 2=6910
 vapour, atmospheric, solar rad. absorpt. 2=17143
 vapour, atmospheric spectrum, vibr. and vibr.-
 rot. 2=2509
 vapour, in cloudless atmosph., sunlight
 absorpt. 2=2482
 vapour, condensation on Au substrate 3=21635
 vapour, condensation by nucleation in nozzles 4=14462
 vapour, desorbed from satellite, ionization
 mechanism 2=9130
 vapour, dissociative electron capture, cross-
 section 1=13065
 vapour distribution in stratosphere above 90000 ft. 1=15226
 vapour, effect on adsorption of O_2 on Ge 0=16395
 vapour, effect of CdS photocond. 0=9992
 vapour, effect on sintering of MgO 4=23546
 vapour, effect on thermal cond. of $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ 1=14192
 vapour effects on surface props. of Ge and Si 4=20795
 vapour, effect on Al_2O_3 fracture strength 4=28935
 vapour, electron attachment coeff. 0=5277
 vapour-ethylene mixtures, electron trapping 2=22170
 vapour, flow in U-tubes during vaporization 1=4512
 vapour fluorescence, possibility 3=9513
 vapour, Ge transistors in, effect on parameters 2=6481
 vapour glow discharges, ion forms 3=7480
 vapour, h.f. resistance 3=9515

Water—contd

vapour, and H_2O vapour and H_2 mixture, drift velocities of
 electrons 4=8624
 vapour, i.r. absorption, 50-350 μ 0=6927
 vapour, i.r. attenuation 0=1967
 vapour, i.r. emissivity 1=15960
 vapour, i.r. spectra, rel. to adsorption on cell wall and
 N_2 addition 4=5247
 vapour, i.r. transmittance 4=11248
 vapour, interaction with low-energy electrons 3=16902
 vapour, ionization and breakdown 1=1891
 vapour, ionization and elec. breakdown 0=14961
 vapour, ion-pair formation, by 100-300 kV
 X-rays 2=7560
 vapour, mixture with H_2 , viscosity at 295°K 0=16721
 vapour, + N_2 , chemical reactions due to d.c. electric
 discharges 4=18758
 vapour, near i.r. absorption bands 0=14302
 vapour, non-isothermal diffusion 3=11820
 vapour, non-steady-state nucleation 2=13486
 vapour, nucleation theory, emendations 3=14426
 vapour and O_2 mixtures, sound absorption 4=21185
 vapour, precip. of droplets of ice 2=1313
 vapour, r.f. absorption 0=12717
 vapour, rotation line widths and strengths 4=9750
 vapour, rotational spectrum 0=4200
 vapour, slow-electron drift vel., 77-443°K 2=19900
 vapour, sound absorption, freq./press. depend. 1=8186
 vapour, sound absorpt. and vel., 100° and 250°C 4=27220
 vapour, spectral emissivities and integrated intensities
 of 1.87, 1.38 and 1.14 μ bands, 1000°-2200°K 4=28219
 vapour spectrum, far i.r. 1=18596
 vapour, spectrum, 166-600 cm^{-1} , spectrometer
 calibration 2=17617
 vapour, strength of ν_3 vib. 3=15347
 vapour, supersaturated, droplet formation 1=6849
 vapour, thermodynamic props. at high temps. 4=16147
 vapour, total absorptance in near i.r. 3=23933
 vapour, Townsend discharge, photon absorption 3=4029
 vapour, transmission functions for pure
 rotation band 1=831
 vapour, transmittance over stratospheric slant
 paths 4=23777
 vapour, tritiated, diffusion in silica glass 4=4078
 vapour, 2.7 μ band, spectral emissivities and integrated
 intensities, 530°-2200°K 4=12483
 vapour, u.s. absorpt., relaxation time 3=18857
 vapour, ultrasonic absorption, relaxation time 4=5245
 vapour, viscosity 0=16723
 vibration spectra of d and t substit. products 4=15347
 vibrational properties, liquid and solid 2=10321
 viscosity, absolute 3=11761
 viscosity, effect of dissolved air 1=9367
 viscosity, high temp. and press. 2=21876
 viscosity, rel. to pressure and temp. 4=133
 viscosity, step structure in intermolecular activation
 energy 1=15780
 vortex, tornado model, carbonated water 4=10705
 water-dioxane system, light scatt. 2=13345
 water-glycine-KCl, diffusion parameters 3=1681
 water-methanol solution, ultrasonic-wave velocity, rel.
 to cavitation 0=19129
 water-oil interfaces, oil drop coalescence 0=14610
 water vapour i.r. bands 1=6590
 water vapour, in M-type stars 3=11574
 water vapour, transmission spectrum, 2.7 μ region 4=3881
 wave damping by monomol. films 3=5423
 wave dimples in capillary-gravity region 1=15810
 wave profiles 0=8634
 wave scattering, initial, by inhomogeneous medium 3=7272
 waves breaking at angle with shore line, theory 1=15813
 waves, diffraction by cylinders 0=8633
 waves, dispersion 3=23851
 waves, dissipation 4=16083-4
 waves, Hamiltonian method 3=23580
 waves, shallow, profile and velocity components 3=7188
 X-ray scattering 0=7330
 X-ray scattering by slab, spectra and total flux
 meas. 1=19171
 X-ray study 1=11748
 X-rays and electrons scattered, intensities calc. using
 two methods 4=6522

Water—contd

- zeolitic, spin-lattice relaxation time 3=21415
 Ar solubility, heat and entropy 4=159
 in $\text{Ba}(\text{ClO}_3)_2 \cdot \text{H}_2\text{O}$, vibration, effect on n.m.r. line splitting, theory and expt. 4=23059
 with Ce ions, vol. mag. susceptibility meas. 4=8888
 CO_2 absorption, in flow along surface 2=9267
 CO_2 - H_2O system, in turbulent motion, mass transfer, conc. effect 3=16152
 CO_2 - H_2O , two phase region, up to 3500 bar 4=8508
 D determination, from i.r. absorpt. spectrum 2=12302
 D_2O , analysis by i.r. spectrometry 2=10997
 D_2O , concn. meas., falling drops method 2=11231
 D_2O detection in H_2O , i.r. analysis 3=23561
 D_2O , dissociative electron capture cross-sections, swarm meas. 4=25753
 D_2O , nuclear quad. relax. of D, meas. 4=8225
 D_2O , spectral shifts of transition metal ions and complexes in soln. 0=3531
 D_2O , speed of sound variation with temp. and pressure 1=5329
 D_2O , thermodynamic props., statistical model 4=24200
 D_2O vapour, ultrasonic attenuation and velocity 4=14214
 D_2O^{18} , liquid, density, thermal expansion up to $\sim 80^\circ\text{C}$, melting point 3=14144
 D_2O - H_2O vapour press. and composition 4=24450
 Fe^{2+} , Fe^{3+} , soln., electron transfer between ions, theory 3=14178
 H bond covalency 0=8662
 HDO, h.f.s. of microwave spectra 4=9733
 HDO, proton resonance, spin-spin coupling const. 2=16558
 H_2O -acetylene, deuterium exchange equil. 4=30894
 $(\text{H}_2\text{O})_4$ cubic complex properties 3=23868
 H_2O -dioxane and heavy water-dioxane, rel. to dielectric behaviour, rel. to molec. structure 4=18211
 H_2O -formic acid mixture, u.s. velocity and absorption 4=27174
 H_2O -gelatine, n. m. r. relaxation time rel. to adsorption 4=28263
 H_2O -silica gel, n. m. r. relaxation time rel. to adsorption 4=28263
 H_2O^{18} , liquid, density, thermal expansion up to $\sim 80^\circ\text{C}$, melting point 3=14144
 H_2O - $\text{C}_2\text{H}_5\text{OH}$ mixtures, u.s. relaxation 2=53
 H_2O - D_2O mixtures, mutual diffusion 1=2752
 H_2O and D_2O molecules, catalysis of vibr. energy transfer in collisions 2=23015
 H_2O - D_2O , proton mag. relax. temp. var., mechanisms 4=21158
 H_2O + D_2O , thermodynamics of mixing 4=29204
 H_2O -Hg-benzene system, contact angles, interfacial tensions 4=144
 H_2O_2 - H_2O and D_2O_2 - D_2O solutions, glass formation 1=6551
 H_2O^{16} - H_2O^{17} system, relative volatilities 2=19783
 N_2 solubility, heat and entropy 4=159
 O_2 solubility, heat and entropy 4=159
 T-activity measurement 4=15180

Wave mechanics

See Quantum theory

Waveguides

See Electromagnetic wave propagation, guided waves

Waves

See also Acoustic waves; Elastic waves; Electromagnetic waves; Liquid waves; Magnetohydrodynamics; Seismic waves; Shock waves

- Alfvén waves in rotational symm. mag. fields 4=679
 ammonium perchlorate-copper chromite-carbon pellets, deflagration waves at surface, initiation 4=23656
 amplification due to negative-energy quanta 4=8071
 amplification, travelling wave, mechanical analogue demonstration 3=21191
 atmospheric, on spherical earth, finite-amp. 3-dimens. 0=6830
 attenuation in dispersive medium 3=7093
 axially symm., linearized compressible flow 3=18701
 axially symm., plane boundary conditions 3=18702
 bending, propagation in plates 1=2805
 bending waves, radiation from vibrating plates 0=19283
 blast waves in spherical, cylindrical and plane shocks 1=12911

Waves—contd

- book 1=6806
 Bose hard-sphere system at very low temps. 1=5223
 branching processes, invariant imbedding 2=9
 Cauchy's problem, solution for plane waves 0=10595
 Cauchy's problem, wave eqn. soln. 0=822
 characteristic, of a uniform plane impedance surface 4=5017
 circumferential, in thin-walled air-filled cylinders in water 3=7271
 classification, kinds of wave motion 2=2598
 in compressed-air ducts 1=9412
 compression, amplification in combustion 1=18665
 compressional, rel. to petrol and benzene flame propag. in air 0=14895
 compressional, velocity in marine sand 0=2200
 coupling mode amplitudes, correl. with quantum operators 2=17337
 crystallization waves in supercooled phosphorus 3=9658
 in cylinder walls, hollow, elastic 1=1777
 cylindrical, reciprocity parameter 1=6927
 cylindrical wave in viscoelastic solid 3=1748
 deflagration, plane, stability 0=8850
 diffraction image on focusing, correl. 3=16495
 diffraction by smooth transparent object, geom. theory 4=18033
 diffraction, by transparent wedge 3=14001
 dilational, in viscoelastic solids, propagation 1=20337
 electric breakdown wave propag. in gases, theory 3=1956
 electrohydrodynamic, at fluid-fluid interface 3=475
 electrons, velocity modulation 3=16981
 equation with nonlinear interface condition, periodic soln. 1=15170
 equation solution in terms of hyperspherical harmonics 4=5024
 equations, expansion in terms of Bessel functions 2=1060
 expansion coeff. of wave fronts in continuum mech. 4=21021
 field-wave problems, use of conformal mapping, survey 4=5018
 finite disturbances, propag. in relaxing medium 2=21943
 flexural, finite-amplitude, in rod, constancy of profile 1=2807
 flexure, surface, refraction 2=21963
 fluctuating, scattering by large objects 3=18703
 fluctuating signal, mean and median values, rel. to calc. method 4=14023
 fluid, gravity waves due to explosion 1=18380
 fluid, effect on particle oscillations 2=13317
 in fluid, in radiation field 1=1733
 fluid, viscous, uniformly deep rotating layer 2=19526
 fluids, rotating, energy transfer by wave reflection 3=11758
 fluids, stratified, including gravity and rotation effects 3=21295
 formation in Prandtl-Meyer flow 1=6841
 free boundary problem, for wave eqn. 2=2676
 gas mixture, energy content of components 2=11419
 gases, viscous and heat conducting, wave-front velo. 4=8233
 generalized "cross-correl." field quantities 3=21203
 gravitational, exact, spherical 1=15647
 gravitational, null and type III, propagation laws 0=2100
 gravitational, plane-fronted 1=8042
 gravitational, Rumers' invariant theory 4=29519
 gravity, in flow of stratified fluids 4=29599
 gravity, standing axisymmetric, on water, period 3=11376
 Hamilton-Jacobi eqn., rel. to de Broglie waves in space-time 4=14024
 Hamiltonian method 3=23580
 Huygens' principle, generalization, and scanning operators 2=21786
 Huygens' principle, interpretation, appl. to acoustic, elastic and e.m. waves 0=11048
 Huyghen's principle, relationships with propagation, isotropic medium 3=16496
 hydromagnetic, in conducting sheet in mag. field 1=1967
 hydromagnetic waves due to upper atmospheric nuclear explosions 1=6658
 hydromagnetic, waves in inhomog. fields of constant direction 3=17034
 hyperspherical harmonic equation solns. and tensors 4=21016

Waves—contd

- inhomogeneous media, radiation forces and wave momentum 4=8025
- inhomogeneous medium, propagation with shadow formation 2=1048, 7110
- inhomogeneous medium, transit time fluctuations 2=19380
- interior and boundary value problems 3=22
- Kirchoff's theorem generalization for arbitrarily moving surface 4=11030
- Kramers-Kronig relations and gravity waves 4=5019
- liquid layer between elastic half spaces, e.f. 3=23960
- Lissajous figures, demonstration 4=8003
- long, one-dim. propag. theory 3=14023
- magnetic field effects on surface waves, var. with liquid depth 4=3119
- m. h. d., propag. in cylindrical pipes 4=19181
- magnetohydrodynamic, of finite amplitude 3=5828
- magnetohydrodynamic, in primeval nebula, ang. momentum transfer 0=292
- m. h. d., propag. into region at rest 4=8909
- m. h. d. reflection at boundary between anisotropic plasmas 4=14646
- magnetohydrodynamic, two-dimensional 1=16535-6
- magnetohydrodynamic, in waveguides 0=1200
- matter waves, total reflection, associated transverse shift 1=6924
- mechanical impedances, measurement 0=19249
- momentum and energy 2=1043
- monochromatic, in general relativity 2=9164
- multiple scattering 1=10571
- multipole fields, diffraction by semi-infinite rigid wedge 1=1798
- N-wave, propagating into stratified atmosphere 0=6829
- nonlinear eqns. class, spectroscopic-perturb. procedure 4=11021
- in nonlinear fields, propagation 0=10590
- nonlinear theory 0=11037
- ocean, wind-generated, as stochastic process 2=19191
- plane, aberration due to motion of the observer 1=1689
- plane, energy-momentum tensor 1=1783
- plane, finite-amplitude, in ideal gases 1=4370
- plane, nonlinear distortion in non-dissipative medium 2=5090
- plane, superposition approx. in n-dim. 2=19377
- planetary waves on rotating sphere 4=24138
- plasma shock-tube phenomenon, fast dynamical 3=1955
- plastic, in elastoplastic medium 3=1749
- power spectrum smoothing for increased dispersion and resolution 4=24010
- pressure and entropy production 0=8639
- in prestressed elastic solids, uniqueness 3=21471
- propag. in solids, mech. impulse excitatn. 3=1747
- propagation, autocorrel. of random inhomogeneities 4=27076
- propagation, developments, conference 3=11675
- propagation, geometrical methods and asymptotic expansions 3=21463
- propagation in ionized gases, longitudinal waves 4=3610
- propagation, isotropic medium, relationships with Huyghen's principle 3=16496
- propagation problems by iteration-variation method 1=16579
- propagation in randomly inhomogeneous media, focussing effects 4=8027
- propagation, space and time isotropy, in 4 dimensions 3=5332
- propagation thro. turbulent wake 3=23956
- props., direct numerical calculation 1=15808
- random medium, effective propag. const. 4=16016
- random sources on plane, field spatial correl. 4=24025
- rarefaction, in flow of gas into vacuum 2=5039, 11394
- ray-tracing computations 2=13238
- reactive fluids 2=19528
- reactive media, propagation 2=1114
- receiving array, improved directivity technique 2=1588
- reflection, acoustic, u. s., beamwidth var. 4=2789
- ripple tank apparatus 1=4231
- scattering, initial, by inhomogeneous medium 3=7272
- scattering, and microstructure of turbulence in atmos. 0=12176
- scattering, multiple, by arbitrary objects 2=2599

Waves—contd

- scattering of one-dimensional wave, phase-shift method 1=2707
- screen, cone or part, static and wave problem solns. 4=27028
- screen, thin sectored plate, static and wave problem solns. 4=27027
- sea, refraction, numerical calc. 3=13654
- sea surface, eqn. of state where large waves demolish small 3=9013
- in sea, wind-caused, freq. spectrum of energy 3=9012
- shear, non-Newtonian fluids, constitutive eqns. 4=27139
- simple flow in ducts 0=948
- simple harmonic, spatial problem 3=11847-8
- sinusoidal curve, segment spectrum 3=11849
- small amplitude in fully ionized plasma 1=5483
- solids, anelastic, visco-elastic, plastic and shock waves, review 3=21477
- Sommerfeld-Runge law in 3 and 4 dimensions 3=21
- space-charge waves, in cylindrical plasma 0=1132
- spectra calc. for impulse functions, by amplitude analysis 4=18023
- splash, mathematical theory 1=18352
- stress, in solids, review 4=11279
- surface, in multilayer anisotropic medium, dispersion 2=11444
- surface, on square lattice, effect of impurity layer 2=6267
- in thermal convection, damped 3=24084
- thermal, in He II, diffraction by spherical mirror 0=2282
- turbulent medium, unbounded, fluctuations, spatial correl. 4=11276
- ultra-relativistic waves, propagation theory 1=18439
- ultra-relativistic waves, propagation theory 2=7233
- unloading, theory 3=18887
- in upper atmosphere, internal gravity waves 1=1529
- velocity transformers, resonant 4=5272
- wakes behind cylinders 0=19071
- water, dispersion 3=23851
- water, shallow, profile and velocity components 3=7188
- water surface, rel. to acoustic propagation in plane layer 1=9448
- water surface, gravity, model 3=16595
- water waves height meas. 3=14084
- wave eqn., approx. soln. 3=21195
- wave eqn., ergodic theorem 1=16047
- wave equation, Kirchhoff formula, generalization for moving surface 4=20
- waveform, finite-amplitude, from hydrodynamics eqns. 2=9248
- wave function assignment to squares of abs. values, Fourier theory 4=5020
- and wavegroups, various props. 2=4917
- wavelength, non-dissipative and dissipative media 0=5077
- wave motion with strong discontinuity, appl. of Laplace transforms 4=24023
- wave-type solution, of nonlinear parabolic differential eqn. 0=14364
- waves breaking at angle with shore line, theory 1=15813
- H₂O, Hamiltonian method 3=23580

Waxes

- beeswax electret, polarity reversal problem 4=10117
- carnauba electrets 0=6159
- carnauba electrets, dipole moment and discharge current 4=12972
- carnauba, electrets, radiation effects 4=1668
- carnauba, ouricuri, American montan, dielec. props., -60° to +90°C, var. freq. 0=18089
- carnauba, production of electret state 3=17947
- conductivity, elec., var. with temp., voltage, near melting 4=1658
- electrets, decay 0=5261
- electrets, heterocharge, ionic space-charge layers 0=18106
- electrets, remanent polarization 2=8471, 10565
- p.m.r. in liquid and solid meas. 4=24250
- paraffin, electret effects meas. 3=8566
- paraffin, electroluminescence 4=22938
- paraffin wax-water wetting hysteresis 0=14615

Wear**(Heading introduced in 1962)**

- abrasion resistance, similarity effects 2=19020, 23797
- alloys, high temp., decrease due to oxide layer 3=20764

Wear—contd

- α -brass, frictional, and crystal plane orientation 4=13393
- brittle crystals, abrasion, friction rel. to wear 3=11188
- carbon brush materials 3=20761
- diamond on diamond in high vacuum 4=23152
- elastic deformation effects, in surface friction 2=4351, 12872
- electrographite 3=8787
- electrographitic brushes, influence of sliding conditions 2=21451
- graphite, on metals mechanism 3=6806
- graphite, on steel, effect of current, mechanism 3=6805
- initial rel. to stationary effect in vacuum 3=18220
- ionic crystals, "friction damage" 3=11189
- machine, on electron microscope 3=20762
- measurement using radioisotopes, review 3=1248
- metallic, mild-severe transition, surface films 3=16011
- metals, abrasion, groove volume proportion removed 2=8758
- metals, cavitation attack, initial phases 2=19018
- metals, during abrasion, different behaviour of hexagonal and cubic 4=13387
- n. t. f. e. on glass 4=23199
- physical aspects, review 2=23796
- reduction, by polar group adsorpt. 2=19019
- sapphire, sliding on steel 2=21452
- sapphire on steel, erratum 3=11191
- speed effects, bet. similar metals due to non-uniform temps. 4=23113
- steel, case-hardened, heat treated 3=1247
- steel, cavitation attack, initial phases 2=19018
- steel, mild, role of oxidation 2=4349
- study by ultra-high vacuum techniques 4=20639
- surface resistance, for sliding friction 2=14912
- Bi, abrasive wear, effect of brittle fracture 3=13386
- Cu films 2=19021
- Cu, frictional, and crystal plane orientation 4=13393
- Cu, under sliding Cu stylus 4=15706
- Ni, plastically deformed, abrasive wear 4=7438
- Sb, abrasive wear, effect of brittle fracture 3=13386
- WC, sintered material 3=3247

Weather

- See also Meteorology.
- and atmospheric electricity pot. gradient, Poona, IGY 3=18514
- ocean-atmosphere energy transfer, Antarctic 3=9027
- "red noise" power spectrum 3=16539
- satellite data, review 2=15416
- upper atmosphere active nuclei, effects 2=11020

Weighing

- See also Balances
- conference, 44th Nat. Weights and Meas. (1959) 0=6720
- effect of radio-meter forces in vacuum 4=5260
- mass meas. with resonating crystalline quartz 4=2509
- microbalance experiments, rel. to thermomolecular flow 4=2506
- platform weighbridges, accurate determination of burning rates 0=6723
- recording meter 0=6724
- and simultaneous temperature measurement, automatic apparatus 2=9231
- submicroscopic particles, photometric method 2=7164
- tetrafluoroethylene-hexafluoropropylene copolymers, by var. liquids 2=1127
- in vacuo, with magnetic suspension balance 4=2508
- vacuum microbalance techniques, conference, Los Angeles (1962) 3=21281
- Si, with Al 2=12539

Wetting

- See also Contact angle
- bulb breaking correction 0=5224
- calorimeter, recording, for rapid determ. 2=15795
- critical tension-contact angle plot 4=24147
- fluid saturation of porous media, r.f. measurement method 0=19083
- horizontal plate, pendent drop formation 1=15825
- paraffin wax and water, hysteresis 0=14615
- of porous system 3=20922
- recording calorimeter 0=7009
- rutile in n-butyl chloride 2=17426
- spreading coeff. meas. 0=5003
- and surface tension and contact angle 4=18167

Wetting—contd

- Al, powder, by hydrocarbons, in solution 3=16131
- Ge, by molten In 4=4655
- Ge, by In, and Ge surface energies, var. planes 4=13672
- Ge, with In and In alloys 0=14066
- by H_2 , liquid, of var. structural solids 4=11170
- Hg 1=15819-20
- Ni, by included Pb, dihedral angle, effect of stress 4=23533

Wind

- airflow on windward side of ridge 3=9028
- air layer close to earth, profile under unstable equilibrium conditions 4=29275
- airstream, stratified, over a ridge, lee waves 1=18450
- anemometer, standard cup contact 4=30926
- in atmosphere, truncation errors 3=1432
- barotropic zonal currents, dynamic instability 3=6955
- causing stresses on water surfaces 4=8155
- in clouds, C6 cells, up and down, by radiosonde balloon 3=13673
- cold air mass spilling over mountain ridge 3=9032
- currents, confluent and diffluent, theory 4=23742
- cyclones, tropical, structure and dynamics 4=29276
- diabatic profile, deriv. 2=15189
- diabatic profile, mixing length 0=6822
- E-region winds, Fourier analysis 1=4123
- eddy currents, k.e. variations rel. to jet stream 3=9029
- eddy fluxes, quasi-horizontal, 25-60 km 3=18497
- effect on gravity waves 2=17120
- effect on scattering of sound in atmosphere 1=20875
- effect on velo., acoustic-gravity waves, with wind shear 4=10732
- exponential profile 4=23743
- generating wave motion, spectra, analysis 4=13777
- geostrophic motion, in equatorial stratosphere 2=21628
- gravity-wave dispersion under wind shear, two model atmospheres 4=2189
- hurricane model, vortex flow normal to a flat surface 4=8141
- hurricane, steady-state, rel. to thermal structure. 3=25881
- hurricanes, forces and radial accel. 3=5199
- hurricanes, water distribution 3=25882
- indirect probing techniques using radar 3=5188
- ionosphere, E-region 0=18492
- ionosphere, F-region 0=14240
- ionosphere, meas. utilizing radio-star data 0=21347
- ionosphere, wind systems and drift motions 0=8378
- ionospheric 3=9077
- ionospheric, radar obs. of meteor trails 4=30946
- ionospheric, radio measuring method 3=9076
- irregularities, at 80-100km, radio echoes study 0=8368
- Japanese research 3=11391
- jet stream, subtropical and lower stratosphere winds 2=15190
- jet streams 3=21035
- local, nonlinear theory for turbulent atmosphere 2=19198
- in lower ionosphere, meteor trails study 3=16277
- matter convection in atmosphere 0=12177
- mesosphere, acoustic data deriv. 2=4627
- mesosphere measurements 1=20888
- in mesodecline, meas. 3=9063
- mountain waves, lee-wave eqn. 2=21630
- noise, acoustic, in trees 3=21503
- ocean-wave generation, as stochastic process 2=19191
- ocean waves, crit. height values, calc. 3=18483
- point-discharge current dependence 0=1116-7
- polar ionosphere, velocity 2=19209
- profile near ground, in stable stratification 4=23744
- profile parameters, eval. from speed-height obs. 2=17138
- profile, at 220 k ft. 2=21623
- radar meas. using Doppler effect in rain or snow 3=1433
- scale analysis of turbulence 2=12999
- shear, rise of isolated thermal 3=5198
- shear, in upper-atmos. turbulence 0=4788
- 60 to 110 km, exhaust trail obs. 3=9033
- solar, radar evidence 4=29479
- solar wind and gegenschein 1=10336
- solar wind, terrestrial accretion 1=11651
- spectral statistics, at 500 mb, review 2=17139
- speed rel. to magnetic bay theory 1=21093

Wind—contd

speed variations rel. to ozone content 1=20824
 statistics, for climatological purposes 2=6911
 stratosphere, equatorial, 26-month osc. and sun, u.v. radiation 4=10701
 stratosphere, tropical, double quasi-biennial cycles 4=29274
 stratospheric winds, sudden winter onset 1=20823
 stream function calc. from vertical motion. 3=25879
 and sun, eclipse, fleeting shadows obs., 15 Feb. 1961 4=29299
 and sun, eclipse shadow bands, 15 Feb. 1961 4=29298
 surface stress determination 3=11396
 symmetric waves, in stratified shear layers 2=21629
 thermals, in convection, turbulent interchange effects 4=10706
 thermals, theory and expt. compared 4=2191
 tornado vortex, carbonated water model 4=10705
 tropopause, stellar scintillation meas. 2=2486
 troposphere and stratosphere, diurnal variations 2=17129
 troposphere, upper, at mesoscale freqn. 3=16215
 tropospheric jetcurrent influence on fallout 1=20871
 turbulence spectra over waves, meas. 3=25880
 turbulence, spectra, validity of Taylor's hypothesis and Kolmogoroff's law 4=10707
 turbulence spectrum, effect of sampling and averaging 2=12998
 turbulence, time scale, l.f. errors 4=10710
 turbulence, vertical, 2500 ft., rel. between Lagrangian and Eulerian props. 4=10709
 turbulent transfer, in boundary layer 0=6827
 upper air, and star shadow band motion 4=10708
 upper atm. meas., using Na vapour trail data 4=7877-9
 upper atm., west-to-east, cause 4=29308
 upper atmos., from rocket soundings, formulae 1=10315
 upper atmosphere, effect of winds on rotation of satellite 0=18483
 upper atmosphere, 80 to 115 km, horizontal profile, by pitot-static tube 2=2496
 upper atmosphere, evidence from 195861 satellite 1=9301
 upper atmosphere, meas. April 1961 3=9062
 upper atmosphere, meas., Na, Li clouds, review 4=17916
 upper atmosphere, meteor trail observation 0=14390
 upper atmosphere, night, from chemiluminescence. 3=25918
 upper atmosphere, radio study 0=8367
 upper atmosphere, rocket-grenade meas. 0=14197
 upper atmosphere, semidiurnal tides 2=4624
 upper atmosphere, sodium rocket experiment 0=21331
 upper atmosphere, systematic study 2=2498
 upper atmosphere, twilight 4=13833
 upper atmospheric winds at medium latitudes 1=6605
 upper stratosphere, rel. to lower level movements 3=3458
 variation with height, horizontal position, troposphere 4=17911
 velo., horizontal, 6-12 km, statistics 3=18502
 velocity components, in lowest 300 m of atmosphere 4=4764
 velocity fluctuations, continuous computation 4=17880
 velocity, Kappa rocket meas., Japan 2=4593
 velocity, meas. by impulse register 2=21622
 vertical distribution, rel. to atmos. density 0=6440
 vertical fluctuations, 100-500 ft. 2=21631
 vertical, pulsation spectra, turbulence dissipation 4=15866
 water surface velocity, wave-damping 4=18154
 wind speed variations rel. to ozone content 1=20824
 zonal wind, baroclinic instability 4=17881

Wolfram

See Tungsten

Wood

adsorbed multimolecular layers, isotherms 2=17075
 beams, free flexural vibration 0=3580
 cork-rubber composition, thermal cond. 0=5204
 cushioning materials, analogue computer meas. of compression 1=21153
 density, recording microdensitometer 1=18338
 friction, on steel and PTFE 0=8137
 γ -ray backscattering 1=10869
 lignum vitae, frictional props. 1=4004
 piezoelectric parameters, symmetry 4=22783
 piezoelectric texture 1=17858
 radiocarbon dating 4=26981
 sawdust, ignition on hot surfaces 2=4539
 temp. meas. probes, for thermal regions 0=5218

Wood—contd

trees, living, elec. props., rel. to point discharge 4=10725
 under rolling cylinder, resistance, directional depend. 0=13920
 for violins 1=16031
 yellow birch, oven-dry, elec. polarization spectra 4=22772

Work function
 See also Electron emission
 anodes, in thermoelectronic converters 2=19885, 22160
 cathode surface, effect on breakdown of hydrogen 0=10871
 change due to adsorbed molecular layer 0=5327
 change due to adsorbed monolayer 3=24328
 changes during gas adsorption on metal films, meas. by static capacitor 3=9824
 changes produced by chemisorption 2=20011
 crystal planes, atomically perfect, field emission meas. 2=1473
 current stabilizer for measuring apparatus 1=5403
 diode electrodes, effect on diode characteristics 1=4643
 dyes 1=17798
 effect on sparking potential in H 0=5329
 electrode in Cs plasma, rel. to thermodynamic chemical potential 3=21820
 electron gas, free, rel. to sample size 3=15475
 from field emission studies 1=4381
 films evaporated from UC 3=4179
 Geiger-Müller cathodes, effect on counter-tube perform. 0=5438
 ionic crystals, thermionic emission, calc. 3=12227
 meas., retardation curve method 1=16408
 meas., vibrating electrode, adaptation for contact potential 3=16970
 measurement, initial current method 2=1472
 metal cathodes in H₂ rel. to material and surface nature 4=21554
 metal, correl. with electron Fermi energy 0=20766
 metal electrodes, effect in l.p. inert-gas discharges 2=5321
 metal films, on adsorption of H 4=2133
 metal films, independence of thickness 2=8268
 metal films, values for 23 metals 2=9612
 metal-insulator, Schottky emission through insulating films 2=13582
 metallic contact rel. to CdS at contact 4=12853
 metals, coated with metal films, variations 2=1474
 metals, effect of adsorbed dipole molecules 2=621
 metals, effect of disperse state 2=15941
 metals, effect of gas adsorption, review 1=4631
 metals, films, effect of adsorption of electropositive atoms 3=13040
 metals and semiconductors, change during adsorption 2=21132
 metals, temperature variation 1=5488
 organic photoconductors 2=6492
 oxide-coated cathodes, in H 0=5328
 potential distrib. between two plane emitting electrodes 0=7152
 relationship with cathode fall, review 2=15896
 Schottky effect, periodic deviations, numerical analysis 3=424
 secondary electron emission in solids 0=2374
 semiconductor thermionic cathodes 2=19707
 semiconductor thermocathodes 1=4632
 semiconductors, rel. to BaO adsorption 2=22241
 semiconductors, freq. depend 2=9611
 semiconductors, rel. to gas adsorption 2=22240
 rel. to surface lattice defects 4=19074
 thermionic cathodes, surface distrib., electron misc. meas. 3=2010
 in thermionic-emission data, interpretation, critical review 1=2989
 transition elements and cpds. 1=13103
 Ag, effect of adsorption of H, air, and dipole moment 4=11683
 Ag, effect of air and H₂ 4=14741
 Ag, effect of H₂ and CO chemisorption 0=18452
 Ag films, meas. 2=17867
 Al, during vacuum-air transition 0=19706
 Al, effect of adsorption of H, air, and dipole moment 4=11683
 Al, effect of air and H₂ 4=14741
 Al films, meas. 2=17867

Work function—contd

Al heated in air, variations 4=14740
 Al—Al₂O₃—Au—Ba, of Ba 4=8799
 Al₂O₃ films in contact with various metals 4=22761
 Au 2=1482
 Au, during vacuum—air transition 0=19706
 Au, effect of adsorption of H, air, and dipole moment 4=11683
 Au, effect of air and H₂ 4=14741
 Au, effect of H₂ and CO chemisorption 0=18452
 Au films, photoelectric 3=426
 Au—Ba system, on W 0=17023
 Au—Ba, on W, possible BaAu₅ 1=15174
 Ba, adsorption on W 1=12668
 Ba film, on Th oxide surface 2=17861
 Ba film on W, effect of absorption 1=15182
 Ba films on Cu, after 500°C heat treatment 1=13097
 BaO, adsorption on W 1=12668
 BaO cathodes, patches 4=24728
 BaO, films, on W, var. with temp. and deposition time 3=19296
 BaO films, on W, var. with temp. and deposition time 3=19297
 BaO-metal systems, depend. on surface coverage 4=29961
 Ba₃WO₆ cathodes 0=10935
 Bi₂Te₃, measurement 0=13636
 Cd on W 1=20693
 Cl on W 3=11323
 Co, effect of H₂ and CO chemisorption 0=18452
 Cr 2=1482
 Cr, effect of chemisorbed O₂ 4=23657
 Cs, adsorption on W 1=12668
 Cs, pure, in u.h.v., from photoemission 4=11697
 Cs—Rb—Sb photocathode 4=27564
 Cs₃Bi photocathodes, with adsorbed BaO 1=13111
 Cu, effect of adsorption of H, air, and dipole moment 4=11683
 Cu, effect of air and H₂ 4=14741
 Cu, effect of chemisorbed O₂ 4=23657
 Cu, effect of H₂ and CO chemisorption 0=18452
 Cu, single-crystal faces, temp. depend. 4=8795
 CuNi, GM counter meas. 3=2015
 CuO, effect of oxide additions 0=11710
 EuB₆ 0=14012
 Fe, absorbed F reduction effect 4=19075
 Fe, effect of chemisorbed O₂ 4=23657
 Fe, effect of H₂ and CO chemisorption 0=18452
 Fe, films, effect of adsorption of N₂ 4=7727
 Fe, surfaces cleaved in vacuum 0=2373
 Fe, var. O press. and temp. 4=19076
 GaAs, measurement 0=13636
 Ge, with adsorbed O 0=9059
 Ge, after exposure to oxygen 3=4174
 Ge, films, in ultra-high vacuum 3=20309
 Ge, local changes due to dislocations, meas. 4=21553
 Ge, measurement 0=13636
 Ge, rel. to O₂ and water vapour effect 4=20795
 Ge and surface energy 4=13672
 Ge, surface inhomogeneities meas. with electrode 3=2896-7
 Ge, slow relax. in gases, and surface props. 4=22715
 Ge, temp. depend. 1=14433
 HfB₂ 3=14616
 HfC 2=3070
 HfC 3=14616
 HfO₂ 3=14616
 HgTe, photoelec. work function 1=319
 In films, photoelectric determination 0=9060
 InAs, n-type, photoelectric, variation with photon energy 1=13107
 InAs, n-type, photoelectric, variation with photon energy 1=16380
 InSb, measurement 0=13636
 Ir 4=29983
 Ir, with adsorbed gases 2=15099
 K, temp. effect, meas. 2=1476
 K, temp. variation 2=22242
 KCl on W 3=11323
 MO, temp. depend., 600-1100°K 1=8340
 Mb, desorption of F1 effect 4=13691
 Mg, thin layers 4=16522
 MgO, rel. to secondary electron emission 3=14637

Work function—contd

Mo, rel. to adsorption energy of Cs ion 4=29196
 Mo cathodes, vapour deposited 4=16520
 Mo, during deformation, of electrons 4=8796
 Mo, effect of chemisorbed O₂ 4=23657
 Mo, effect of Na and Cs films 0=9062
 Mo filaments, effect of deformation 2=1475, 7636
 Mo filaments, electron work function 2=15941
 Mo, multiple values, patch effect 2=7643
 Mo, 700-1100°K, effect of surface poisoning 0=19710
 Mo, temp. dependence and meas. technique 0=9061
 Mo, var. O press. and temp. 4=19076
 Nb 4=6931
 Ni, effect of chemisorbed O₂ 4=23657
 Ni, effect of H₂ and CO chemisorption 0=18452
 Ni, films, effect of adsorption of Ba 3=13040
 Ni, films, effect of adsorption of N₂ 4=7727
 Ni films, effect of oxygen 0=19720
 Ni, rel. to adsorption energy of Cs ion 4=29196
 Ni oxide films, effect of hydrogen 0=19720
 Ni, 720-1025°K 0=19709
 Ni, temp. depend., 475-1025°K 1=8340
 Ni, temp. dependence 0=9063, 19708
 Ni, var. O press. and temp. 4=19076
 Ni₃Fe, rel. to temp. 2=17860
 NiO, effect of oxide additions 0=11710
 PbS films, effect of d.c. elec. field 4=11684
 PbS, under cyclical saturation with O₂ and water vapour 4=21552
 Pd, effect of H adsorption, photoelectric meas. 4=8794
 Pt, in O, var. press., γ -ray effects 4=8797
 Re 3=21856
 Re 4=29983
 Re, with adsorbed Th 3=21856
 Re, rel. to adsorption energy of Cs ion 4=29196
 Re, wholly or partly covered by Th, agreement with theory 4=11685
 Si 2=17872
 Si, adsorption effects of O₂ and atomic H 1=8948
 Si, local changes due to dislocations, meas. 4=21553
 Si, rel. to O₂ and water vapour effect 4=20795
 Si, p-type 4=14747
 Si, photoelectric emission, rel. to doping 3=9833
 SmB₆ 0=13468
 Ta, Co covered surface 3=14623
 Ta, during deformation, of electrons 4=8796
 Ta, photoelectric meas. 4=8794
 Ta, (110) face, in Cs vapour 4=11686
 TaC 2=2448
 TbB₆, measurement 0=14020
 Th, films and foil 2=17859
 Th oxide film, on W surface 2=17861
 Th, wholly or partly covering Re, agreement with theory 4=11685
 U carbide 2=11685
 U carbide evaporation 4=18499
 U, changes at phase transformations 2=3072
 U films and cpds. 4=5695
 U, films and foil 2=17858
 U, wire and films 0=3786
 UC, patch effects, thermal activation 4=5696
 UC, on W, 1200-2100°K 0=12626
 UC—Nb cathode, thermionic const. 1=13102
 UC—ZrC₄ 3=14616
 VC 3=14616
 W 4=29983
 W, rel. to adsorption energy of Cs ion 4=29196
 W, changes caused by sublimating BaO 3=19294
 W, clean and Ba-coated surfaces 2=17862, 20012
 W, coated with O and Ba 0=9064
 W crystal planes, 78 \pm 293°K 3=12228
 W, effect of adsorbed N 3=12225-26
 W, effect of adsorbed Ba 3=14615
 W, effect of adsorbed Ca 2=1477
 W, effect of adsorbed CO and N₂ 2=20011
 W, effect of adsorbed Sr 2=1478
 W, effect of adsorption 1=20742
 W, effect of Ba and CO adsorption 3=18394
 W, effect of chemisorbed N 2=15942
 W, effect of chemisorption, electron reflection study 1=7099
 W, films, effect of adsorption of Cs 3=13040
 W foil, polycryst., meas. technique 3=9825

Work function—contd

- W, GM counter meas. 3=2015
 W, impurity effect, theory 4=21555
 W, rel. to K adsorption 4=15828
 W Langmuir probe, in Ar plasma 4=14685
 W, oxygen-covered, effect of Ba adsorption 2=15104
 W, surface potential, rel. to N_2 adsorption 4=11687
 W, thermionic emission, Richardson eqn., ϕ and A values 4=8804
 W, 311 plane, and temp. var. 3=7626
 W, for various crystal faces 0=15047
 W—Ba system 1=13106
 W—BaC system 1=13106
 WC, meas. by Richardson line technique 3=2011
 ZnO, from cathodoluminescence 1=1186
 ZnO, effect of oxide additions 0=11710
 ZnO, modified, rel. to elec. cond. 0=11718
 Zr carbide 2=7637
 Zr films, on W 2=2428

Work hardening

See also Cold working; Surface texture

- alloys, ordered, theory 3=1233
 alloys, precipitation hardening, u.s. effects 3=16109
 α -brass, dislocation arrangements obs. 3=17738
 α -brass, shear, 4.2–500°K 3=20725
 brass, 30–35% Zn, rel. to lattice parameters 2=10902
 α -brasses 1=3968
 austenitic alloys, strain-hardening, transformation induced 4=17738
 austenitic steels 3=23483
 cementite, effect on Curie point 4=13167
 conference 1=956
 crystal dislocation velocity stress dependence effect 4=22580
 crystal, single, theory 4=28924
 crystals, f.c.c. rel. to plastic deformation 3=23341
 Cunco I, precipitation-hardened, microstructure 3=20895
 Cunife I, precipitation-hardened, microstructure 3=20895
 deformation ageing, dislocation theory 3=20723
 due to dislocation interactions, analysis 1=8908
 Duralumin, ageing study using n.m.r. 1=6540
 elastic, visco-plastic material, rel. to stress wave propag. 4=30747
 elasto-plastic materials with generalized plane strain 1=6460
 elliptical glide zone, dislocation distrib. 4=4049
 f.c.c. crystals, calc. from surface slip line meas. 3=20720
 f.c.c. crystals, electron microscope studies 4=4479
 f.c.c. crystals, long-range stress theory 4=4478
 f.c.c. crystals, rel. to grip effects and orientation on compression testing 4=30764
 in f.c.c. metal, rel. to point defects 1=17523
 glass, by heating and cooling 3=3229
 glasses, annealing as co-operative process 2=8868
 graphite, by abrasion 1=1352
 hexagonal close-packed and f.c.c. crystals 1=12598
 initial rate, low rel. to dislocation loops 3=23323
 isotropic media, stress-strain relationships 0=6321
 mechanism for crystals 2=6742
 metal single crystals, dislocation, electron mic. obs. 4=26481
 metals, b.c.c., rel. to brittleness 2=6749
 metals, during abrasion, different behaviour of hexagonal and cubic 4=13387
 metals, f.c.c., rel. to cross-slip behaviour 2=6756
 metals, f.c.c., rel. to defects 1=17527
 metals, f.c.c., orientation dependence 1=1332
 metals, f.c.c., by stress, contribution of jogs 2=6337
 metals, f.c.c., theory 3=23342
 metals, at low temps. 1=5083
 metals, mechanical model 2=12839
 metals, point defects prod. 4=1453
 metals, theories 4=28465
 metals, by torsional deform. to large strains 4=7389
 metals, under cyclic strain 3=13345
 mild steel, by cyclic stressing at fatigue limit 0=16241
 ordered alloys, jog theory 4=7456
 ordering alloys, strain ageing 3=8775
 orientation dependence 4=26494
 oriented, dependence on deformation temp. 1=10213
 plastic deformation effect, rel. to dislocation interaction 2=10387

Work hardening—contd

- by plastic deformation, elastic vibration damping 1=12592
 plastic mat., dynamic behaviour, calc. 4=28925
 plasticity theory, thermodynamic 2=10753
 rheology, model 2=18989
 rock salt, due to rotating steel rod 1=9094
 rock-salt struct. crystals, latent-, and slip effect on strain- 4=23105
 softening, metal crystals, by alternating rate of glide strain 2=2328
 solid solns., rel. to dislocations and plastic deformation 4=4448
 steel, 410 stainless, rel. to neutron irradiation 3=11171
 steel, rel. to hardness and dislocation density 2=16656
 steels, internal friction, temp. depend. 3=20696
 theory, plastic—elastic boundary yield parameter surfaces 4=7388
 Vicalloy, precipitation-hardened, microstructure 3=20895
 Zircaloy-2, rel. to neutron irradiation 3=11171
 Ag, during abrasion with emery cloth 2=8758
 Ag, fatigued, correl. with slip processes 3=20748
 Ag, latent hardening 4=30766
 Ag, strain hardening 0=21114
 Ag wires, by torsional deform. to large strains 4=7389
 AgCl, strain aging 3=17718
 β -AgMg, jog theory 4=7456
 Al alloy Alcoa 2011 4=20644
 Al alloy 35, by monotonic and cyclic loading 4=7402
 Al alloys, effect on precipitation dispersion 1=15150
 Al, and conductivity, electrical 3=13373
 Al, cyclic, dislocation arrangements 3=20738
 Al, effect of temp. and rate 1=1333
 Al, latent hardening 4=30766
 Al, mechanisms, dislocations 4=7408
 Al and other metals, induced by friction of steeling 1=10220
 Al and other metals, induced by friction of steel ring 1=6456
 Al, recognition criteria, temp. depend. 3=3230
 Al single crystals, high temp. deformation 1=14905
 Al single crystals, surface and interior difference, rel. to deformation 1=14878
 Al, softening 0=4562
 Al, strain hardening 0=21114
 Al, surface effects of dislocations 3=1232
 Al-3.85% Cu, age-hardening 2=19094
 Al-Cu aged alloys, mechanism of hardening 0=18265
 Al+1.7% Cu alloy 1=20602
 Al-Cu alloy single crystals 0=18264
 Al-4.5% Cu, after various heat treatments 1=20369
 Al-Mg alloys, effect on structure and properties 1=10266
 Al-Mg, mechanisms, dislocations 4=7408
 Al-Si alloy, effect of precipitation 3=13538
 Al-Zn alloys, age-hardening 1=20368
 Au, effect of temp. and rate 1=1333
 Au-Ni alloys, ageing and superparamagnetism 2=2411
 CdS, effect on absorption spectra at low temp. 0=18123
 Co-Ni-Nb alloys, age hardening 3=20724
 Cr, annealed between -196° and +900°C, tensile props. 1=20373
 Cu alloy, internally oxidized 4=26509-10
 Cu, and conductivity, electrical 3=13373
 Cu crystals, effect of strain amplitude 1=2515
 Cu, effect of temp. and rate 1=1333
 Cu foil 2=23763
 Cu foil crystals 3=23344
 Cu foil crystals, dislocation phenomena 4=1936-7
 Cu foils 3=23353
 Cu monocrystals 1=12598
 Cu, n.m.r. study 2=12860, 14897
 Cu, polycryst., strain, temp. depend. 3=18201
 Cu, polycrystalline, strain hardening 4=13397
 Cu, polycryst., torsion studies 4=28943
 Cu, recognition criteria, temp. depend. 3=3230
 Cu, shear, 4.2–500°K 3=20725
 Cu, single crystals, by alternating stresses 0=8124
 Cu, stages I and II, mech. relax. 4=4460
 Cu, strain hardening 0=21114
 Cu, rel. to strain rate 2=6735
 Cu, strain, vacancy cluster effects 3=25618
 Cu, under cyclic straining 3=20737
 Cu, unloading effects in three stages, meas. 4=20654

Work hardening—contd

- Cu—Al alloy, elastic limit anisotropy 3=11143
 Cu₃Au, plastically deformed 4=17729
 Cu—Be alloy, deformation of age hardened crystals 3=23315
 Cu—Be alloys 3=1349
 Cu—3%Co, rel. to precipitation 3=20898
 Cu—In, age hardening 4=4461
 CuO—Fe₂O₃, rel. to ferrimag. props. 3=18104
 Cu—Sn solid solutions, rel. to solute-dislocation interaction 2=23165
 Cu—Zn crystals, heat conductivity after strain 0=20801
 Fe, effect of neutron irradi. and temp. 3=11168
 Fe, micro heterogeneities 4=13650
 α -Fe single crystals, surface and interior difference, rel. to deformation 1=14978
 Fe₃Al, rel. to degree of ordering 4=4473
 Fe—Cr alloys, single crystal, tensile 3=11156
 Fe—Cr, Fe—Mn, thermoelec. props. 3=2984
 Fe—Ni alloys, phase, effect on H permeability 3=18344
 Ge, dynamic compression study 4=20655
 Ge, dynamical recovery 2=2330
 Ge, in plastic deformation, meas. 4=13405
 InSb, dynamic compression study 4=20655
 KCl, quench-hardening 3=11172
 KCl—KBr rel. to KBr conc. 4=4484
 Li rel. to polymorphic transitions (1.5° to 300°K) 1=11508
 LiF crystals, dislocation behaviour 0=7885
 LiF, extreme latent hardening 4=4474
 LiF, polycryst., meas. up to 500°C 4=23172
 Mg—Al, solid solution, rel. to slip lines 1=11515
 MgO, fatigue straining, dynamic recovery 3=20749
 Mn—Fe alloys 4=20669
 Mo, deformed by triaxial compression, recovery 1=1334
 NaCl 4=30786
 Nb, dislocation mechanisms and rate theory 4=7444
 Nb, 3 stages of hardening after plastic flow 4=7443
 Ni, and conductivity, electrical 3=13373
 Ni containing H₂ 4=15711
 Ni crystals, temp. depend. and long-range stress theory 4=4478

Work hardening—contd

- Ni, deformation ageing 3=20722
 Ni, deformation ageing, theory 3=5072
 Ni, effect of dissolved H 3=11153
 Ni, long-term strength after hot work-hardening 3=8778
 Ni, polycryst., rel. to temp., impurities and grain size 4=28969
 Ni, rel. to rigidity modulus, theory 4=10587
 Ni, rel. to rotational magnetic hysteresis 3=18076
 Ni, residual stresses, rel. to surface flow stress 2=8730
 Ni, study using mag. props., hardening curve det. 3=3231
 Ni wires, by torsional deform. to large strains 4=7389
 Ni—Co crystals, electron microscope studies 4=4479
 Ni—Fe alloys 4=20669
 Ni—Fe alloys, ordering, strain ageing 3=8775
 Ni₂Fe, rel. to order 3=23352
 Pt, effect on thermoelec. power 2=23486
 Ta—O alloy, dilute, strain aging, dual process 4=7460
 TiO₂, temp. and oxygen-pressure effects 3=23328
 U, partial annealing, ductility increase 3=6795
 U, rel. to recrystallization 4=2116
 U, 20°C, rel. to plastic deformation at -196°C 4=13449
 Va, strain ageing effect 4=29021
 W, deformed by triaxial compression, recovery 1=1334
 W, recovery detm. by Young's modulus and internal friction meas. 3=11174
 Zn, fatigue straining, dynamic recovery 3=20749
 Zn, fatigued, correl. with slip processes 3=20748
 Zn, fatigued by direct stress 4=7466
 Zn, first-stage, orient. and temp. depend. 4=13453
 Zn, hardening curve rel. to impurities 1=20367
 Zn, hardening curve, temp. effect 225°–344°K 1=20366
 Zn, liq. air temp., effect of impurities 2=10764
 Zn monocrystals, slip processes 1=6464
 Zn, polycrystalline in tension 3=18200
 Zn, pure and doped, coefft. meas. 4=20690
 Zn single crystals, Cd-doped 4=30791
 Zn, stage A, orient. depend., glide systems interpret. 4=13454
 Zn, tensile 4=23228

X-ray absorption

- See also X-ray spectra
 atomic edges, in single-crystal diffraction 2=14987
 attenuation coefficients, 40-412 keV meas. 2=12610
 attenuation coeffs., 10 keV-100 MeV 0=20106
 calcite, temperature distorted 0=3208
 coeff. of heterogeneous slabs, variation with particle size 0=7329
 in concrete, 4 MV 1=9665
 crystal lattices, deformed, calc. 4=2047
 crystal lattice, weakly deformed, wavefield rays 4=10511
 crystals, calc. method 3=23436
 cylindrical crystals, secondary extinction coeffs. 3=18292
 cylindrical sample cell 2=17434
 elliptical bodies, approx. method 3=18295
 energy absorption or transfer coeff. 2=5423
 filters, selection, coeff. of performance 4=5731
 in ionosphere, from solar flares 2=17164
 mass absorpt. coeffs. near K-edge, calc. 2=23578
 meas., for soft X-rays, counting spectrometer 1=4687
 measurement, double-beam method 3=9897
 mesic X-rays, appl. to muon mass meas. 0=20172-3
 nomogram, for monoenergetic X-rays 0=5535
 polycrystal line profiles, absorption correction 4=4579
 powders, meas. appar. 3=12281
 relation to mass per unit area 0=2522
 solids, detection with bubble chamber 0=20104
 source self-absorpt., electron-capturing radio-nuclides 3=10278
 statistical measurement errors 1=5711
 13 substances, from refl. coeff., 2316-113A 4=22846
 variable coeff., quantitative det. 3=21198
 water, bond study 0=8666
 Al, use in attenuation meas. 2=5422
 Al, mass absorpt. coeff. in 8-14 Å 2=12611
 Al, rel. to rocket meas. of solar radiation 2=13127
 Cu alloys and cpds., $\text{CuK}\beta_{2.5}$ emission 3=25474
 Cu, with $\text{CuK}\beta_{2.5}$ emission line 3=25474
 GaAs, atomic edges, in single-crystal diffraction 2=14987
 Ge, absorption coefficient 2=14987
 Ge, anomalous transmission 3=5099
 Ge, anomalous transmission 3=18307
 Ge, anomalous transmission, deform. effects 3=20197
 Ge, anomalous transmission, temp. depend. 4=20455
 Ge, containing dislocations, anomalous 3=20947
 Ge crystal, bent, anomalous transmission 4=26195-6
 Ge, $\text{Cu K}\alpha$, anomalous, var. with doping 3=10975
 Ge ideal crystals, anomalous, calc. 2=23579
 Ge, imag. part of atomic scatt. factor 3=11257
 Ge p-n junc., quantum efficiency 1=17679
 Li, total cross-section 1=6220
 Si, anomalous effects rel. to crystal thickness 2=15015
 Si, anomalous transmission, impurity effects 3=23098

X-ray analysis

See Chemical analysis, X-ray; Crystal structure, atomic; X-ray crystallography

X-ray crystallography

- For results of structure analysis see Crystal structure, atomic
 absorption, calculation method 3=23436
 absorption errors in intensity meas. of reflections from single crystals 4=23386
 accuracy determination, in tetra- and hexagonal lattice meas. 1=9127
 alloys, ageing, oscillating fotogr. 0=14003
 alloys, binary, effect of lattice distortions 2=14990, 19068
 alloys with "molecular" structure 3=8879
 alloys, ordered, theory, review 4=2062
 alloys, polycrystalline, size effects in diffuse scatt. 2=21505
 anisotropic temp. factor, rel. to electron density distrib. 0=13981
 anisotropy effects in lattice extension measurements 1=10256
 anomalous dispersion method for structure 1=1395
 anomalous dispersion treatment 4=13565
 anomalous scatt. use 4=29109
 by anomalous X-ray transmission 3=13185
 asterisms of Laue spots, slip element determination 1=11516

X-ray crystallography—contd

- atomic scatt. factor for electrons in exponential form 4=4588
 atomic scatt. factors, Fe transition series 1=19606
 atomic scatt. factors for Fe transition series, Hartree-Fock type 1=20518
 atomic scattering amplitudes, rel. to structure amplitudes 0=12025
 atomic scattering factor, aspherical, for S, S-, Cl 2=4412
 atomic scattering factor, new approx. 2=19073
 atomic structure factors, effect of atomic motion 2=2384
 book, esp. for biophysicists 1=9121
 Bragg's law, optical demonstration 1=9484
 Bragg's law, optical demonstration using emulsion 2=7403
 camera for orientation texture studies 2=4501
 chamber for fine structure investigation with counting goniometer 2=8807
 clay minerals, phase analysis 3=13480
 coherent range distortion field, extended regions, meas. method 2=14979
 coherent zone extension determ. 2=17007
 cold-worked metals, small-angle double Bragg reflections 1=6565
 composite diffraction profile analysis 0=8191
 Compton incoherent scatt. functions for Li, Li⁺, Be, Na, Na⁺, Al⁺, Al³⁺, K⁺, Cl⁻, Ca, Ca⁺, Ca²⁺ 0=8196
 conference on applications, Denver (1962) 4=7575
 conference, April 1961 (Glasgow, Scotland) 1=15020
 conference, inorganic and intermetallic crystals, Birmingham 1963 3=25683
 conference, Leningrad, June 1961 3=11243
 conference, Madras (1963) 4=20744
 conferences 0=8175, 16287
 consecutive Laue and Bragg reflections, in same perfect crystal 4=13563
 crystal in electric field 4=26629
 crystal surface, absorption correction 0=3193
 crystallite size determ. 2=4503
 cylindrical crystal with screw dislocation 2=14445
 Debye attenuation factor, for regular reflections 1=15052
 Debye line intensity, effect of stacking faults 1=15059
 defects, study, effect of emission-line asymmetry 0=3202
 deformed lattices, absorpt., deviation 4=2047
 diamond 0=12020
 diamond, Compton scattering, interference phenomena 1=20493
 diffraction angle meas., use of centroids of diffraction profiles 0=8187
 diffraction diagram of antiphase, non-integral periods 2=10835
 diffraction, dynamical theory, origin 3=3287
 diffraction, dynamical theory, recent developments 3=1301
 diffraction effects in plagioclase feldspars 1=15108-9
 diffraction line widths in Al, effect of plastic deformation 1=15057
 diffraction maxima of stacking faults 1=976
 diffraction maxima width rel. to crystal sizes 4=15777
 diffraction monographs, quality rel. to expt. conditions 2=14983
 diffraction patterns, light-optical analogues 1=7857
 diffraction patterns of polycrystals, graphical indexing methods 0=18339-40
 diffraction pattern, same for 2 different atom configurations 4=17800
 diffraction, single-crystal, collimation, geometry 2=10823
 diffraction theory with plane infinite incident wave 1=15048
 diffuse diffraction, optical analogue use 3=25698
 dislocations, causes of contrast 4=12763
 dislocation line observation 1=15049
 dislocations, single, in nearly ideal crystals 2=12905
 distorted crystals, dynamical diffraction, theory 3=13440-1
 distorted crystals, Fermat's principle for Bloch waves 4=7596
 distorted crystals, scattering theory, with and without use of atomic scatt. factors 0=12022-3
 distorted polycrystals, of 3 dimensional particles, scatt. in 2=2375
 distorted polycrystals, of 2 dimensional particles, scatt. in 2=2376
 elastic scatt., resonance from bound nuclei 2=14361
 elastically bent crystals, self-adjustment of internal radiation field 0=1904

X-ray crystallography—contd

elastically curved crystals, X-ray reflecting power 4=15773
 elastically deformed crystals, anomalous X-ray transmission 2=10836
 electron density, C, N, O, effect of thermal oscillation and finite reflection sphere radius 4=10498
 electron density distrib., review (1950-60) 2=21495
 electron-density projections for black-and-white symmetry groups 2=4402
 energy flow of X-rays in a perfect crystal, theory 0=8193
 extinction, exper. determination and reduction to minimum 3=1291
 extra reflections in spectrochemical analysis, aspects 0=16296
 f.c.c. crystals with stacking faults, diffrn. patterns 3=18299
 ferromagnetic, Debye-Waller factor rel. to spin-phonon interaction 4=10496
 filiform particles, scattered intensities 1=20485
 fluorescent X-ray emission during diffraction 3=10972
 form factors, crystalline field and spin polarization effects 0=20770
 Fourier projections of twinned crystals 2=15007
 at Fritz Haber Inst. (Germany), review 0=6351
 grain size meas. by powder diffraction 1=2551
 Hartree-Fock-Slater atomic scatt. functions 4=26627
 Hartree scatt. factors, for Z = 37 to 98 4=26628
 hexagonal metals, asterism in Laue photographs 2=4317
 high-angle diffraction, influence of spectral profile of $K\alpha_1, \alpha_2$ doublet, and broadening 1=15050
 incoherent scatt. functions, for N, O, F, Si, Ge atoms and ions 0=4620
 incompletely-ordered alloys, intensity calc. 2=6799
 inequalities for structure factors, matrix derivation 1=20491
 integrated absolute reflection intensities in transmission 1=20486
 intensities, influence of binding electrons 0=10300
 intensity calc. after refl. by dislocations 3=5063
 intensity distribution, in presence of screw and edge dislocations 4=13564
 interfaces and specific surfaces, small-angle scattering, theory 0=6350
 ionic crystals, charged defect and impurity scatt., theory 2=8818, 14996
 Kossel lines, effect of lattice distortions 2=14997
 lattice distortion relaxation curves 3=3288
 lattice parameter meas. refraction correction 1=15043
 lattice parameter measurement with cylindrical cameras 1=15033
 lattice parameters, measurement, effect of Co $K\alpha_1$ asymmetry 0=3201
 Laue-Bragg refl. rel. to point defect distrib. 3=8829
 Laue diagrams, optical analogy 4=13562
 layer faults in b.c.c. and f.c.c., diffr. 2=23840
 line broadening, by crystallites, size distrib. calc. 1=4037
 line broadening, dislocations in cold-deformed metals 2=21026
 line broadening, due to scatt. by defects 2=21506
 line broadening by screw dislocation, calc. 2=14998
 line broadening, variance as a measure of 3=5096
 line mean-square breadth, as broadening measure 2=17011
 line profile distortion 1=20473
 line profiles, meas. and interpretation (conference) 2=23831
 line shifts due to stacking faults, f.c.c. metals 4=4578
 line-width variations, det. by achromatic diagrams 0=8188
 local-order diffuse scatt., small-angle 4=29079
 Lorentz polarization absorption corrections 2=6798
 macromolecules of biological importance, review 3=23438
 martensite, peak shifts by layer faults 2=2384
 metals, b.c.c., aspherical 3d-electron atomic scatt. factor 1=12633
 metals, cold-worked, review 2=6743
 metals, non-ferrous impurity determ. by fluorescent spectroscopy 2=16648
 microanalyser, electron-probe, conference, Harrogate (1962) 2=23925
 microwave analogue for diffraction 1=9129
 monodim. disordered structure, X-ray diffraction intensities 1=20499

X-ray crystallography—contd

mosaic blocks, size distrib., effect on scatt. 1=4039
 multiple diffraction, systematic, in equi-inclination Weissenberg geometry 3=3285
 natural interference microscopy 4=30836
 non-diagram lines 3=23084
 non-negativity criterion for space groups 1=20482
 ordering alloys, with distorted lattice, scattering theory 1=20492
 organic cpds. similar to Cs_2ZnCl_4 0=3243
 organic molecules, effect of rigid-body and internal vibrations on diffracted intensities 0=4622
 oriented high-molecular substs. 3=13438
 origins and historical development 3=25682
 parameter variations, det. by achromatic diagrams 0=8188
 pattern caused by temp. diffuse scattering in a crystal 1=12634
 pattern intensity, meas. with GaAs barrier layer cell 0=3198
 "pendenlösung" fringes 1=20487-9
 Pendellösung fringes in distorted crystals, application to two-beam cases 4=13575
 perfect crystals, effects of thermal vibrations on Bragg reflections 2=18521
 perfect crystals, theory 2=12902
 perfect and mosaic crystals, reflection intensities 4=23380
 phase consts. and configurations, by Mössbauer effect 2=6797
 phase-transition points, second-order, scattering theory 0=16299
 photographic emulsions, grain surfaces 2=17658
 plastic crystals, thermal motion rel. to intensity 2=10901
 polycrystals, one-dimensional theory 2=10834
 polycrystals, secondary extinction 4=15776
 polyethylene filaments, line broadening 1=20697
 powder diffraction, Lorentz factor 1=20474
 powder diffraction patterns, standard, 37 substances 3=18324
 powder patterns, diffraction maxima intensity, effect of surface relief 0=8192
 powder photographs of f.c.c. crystals, effects of interchange faults 1=15056
 powder photographs, interpretation 3=16065
 powder samples, small-angle intensities from double reflections 0=4618
 powders, effects of granularity on diffracted intensity 4=23385
 powder ring structure, specimen in plane-stressed state 4=23394
 precession photographs, Bragg angle determ., formulae and nomograms 2=23842
 primary extinction, improved explanation 4=4576
 projection topographs, for dislocations study 0=1587
 quartz, diffuse scatt., before and after n-irrad. 1=15058
 quartz, reflection by 1010 plane 2=14988
 radiographs using Si single cryst. wafers 4=15478
 rare-earth ions, scattering factors 2=23675
 reciprocal lattice concept demonstration 3=5095
 reflection, anomalous extinction effects 3=8828
 reflection of hard rays from bent crystals, rel. to line shape 3=6835
 reflections, effect of mag. fields 0=10301
 refraction broadening in powder diffractometry 2=23839
 review, British achievements 0=13970
 satellites, in dissociated solid solns. 1=15122
 scattering factor, approximation 2=19073
 scattering by randomly distributed dislocation loops, theory 4=10507
 Schultz technique for pole figures, instrumental aberrations 0=6349
 secondary extinction, role, theory 2=19124
 semiconductor crystal imperfection direct obs. 2=21044
 semi-focusing method, with flat polycrystalline sample 0=3191
 simultaneous diffraction, anthracene 4=7652
 solid solutions, effect of short-range order 1=20490
 solid solutions, f.c.c., static distortions, intensity weakening 1=6524
 solid solutions, interstitial, theory 1=20574
 solid solutions, powder method 2=12908
 solid solutions, review 2=8865

X-ray crystallography—contd

- solid solutions, scattering amplitudes, Debye thermal factor 4=2046
 spot dimensions, on single-crystal photos, rel. to block size, disorient. and lattice non-uniform. 3=20826
 stored-energy calculation, from line broadening 0=20799
 stress derivation from line shift 1=11556
 use for study of solid-solution ordering 2=10918
 substitutional alloys 2=8815
 substitutional alloys, with domain structure of ordering 2=8814
 substructure of Fourier analysis of diffr. line 2=19072
 survey, interpretation of results 2=23829
 temperature factor, rel. to lattice freq. spectrum 2=19067
 temperature factor, rel. to lattice vibrations 2=2379, 6801
 thermal diffuse scattering in perfect crystals 3=11252
 thermal expansion determ., techniques compared 2=572
 thermal expansion, tensor axes determination 0=13492
 thermal motion in crystals and molecules, conference 0=21153
 twin fault probability meas., effect of $K\alpha_1\alpha_2$ doublet 2=19071
 unit cell parameters, precision meas., with diffractometer 0=13979
 variance of line profile, dislocation effects 4=7590
 wavefield partial reflection and superposition 4=23378
 wavefield rays in weakly deformed lattice, theory 4=10511
 Weissenberg camera for high and low temps. 1=20455
 Weissenberg photographs, spot-size correction for inclined incident beam 4=15775
 wire, Debye-Scherrer diffraction line-shifts 2=21501
 wires, fibrous texture, quantitative method 0=3284
 Ag, line intensities, effect of temp. 1=4042
 Ag-Pd, multilayer system, depth-dependent conc. gradient 2=21504
 Al crystal plates, deformation study 2=12850
 Al, deformation rel. to integrated X-ray intensity 1=20348
 AlSb, atomic scatt. factors, electron density distrib. 2=23843
 Au-Mn, powder patterns, phase structures 3=3312
 BaTiO₃-BaHfO₃, rel. to phase diagram 2=4359
 CaCO₃, anomalous transmission near K-edge 2=19079
 Cs₃Bi, comparison with CsBi₂ 0=14011
 Cu, atomic scattering factor, from TFD eqn. 2=20733
 Cu, scattering by stacking faults 0=20794
 Cu solid solutions, effect of deformation on pattern 0=1910
 α -Fe, line intensities, effect of temp. 1=4042
 Fe₃Al, 3d electrons in Fe by X-ray measurement 1=11561
 GaAs, single crystal polarity 0=721
 Ge, dynamical diffr. meas. with fluoresc. radiation 4=10509
 Ge, intensity variations, rel. to elec. cond. 0=586
 Ge, single dislocations study 2=12905
 Ge X-ray anomalous transmission and reflection of pure crystals 1=10253
 KO₂, structure model 2=15027
 Kr, 20-90°K, Debye-Scherrer powder study 0=9839
 LiF, polygonization, Berg-Barrett method 2=3921
 Mg(NO₃)₂·6H₂O, powder diffraction lines 2=4428
 MnO, scattering factors 2=17017
 NH₃-Ni cyanide complexes, powder patterns 3=1406
 Na ions, atomic scattering factors 1=1402
 NaCl, effect of temp. on Na and Cl displacements 0=14018
 Nb, peak shifts by layer faults 2=23840
 Ni, atomic scatt. factors, in metallic state and in NiO 3=25704
 Ni²⁺, form factor 0=20769-70
 O²⁻, scattering factor 0=8197
 Si, diffr. props. of atomic planes 2=23845
 Si films, diffraction rel. to heat treatment 2=16709
 Ta, peak shifts by layer faults 2=23840
 TiCl₃- δ , theory, model with disordered layers 2=10837
 Zn twinning, accommodation zone 0=12000

apparatus

- See also X-ray monochromators; X-ray spectrometers
 adaptation of single-crystal oscill. camera for X-ray texture studies 3=13430
 adsorption cell for diffraction meas. of clays 4=2058
 air-tight sample holder for Hagg-Guinier camera 4=29082

**X-ray crystallography—contd
apparatus—contd**

- apertures, from small angle reflection, different lattice plane distances 4=2057
 automatic defractometers 1=12628
 automatic single-crystal diffractometer 3=11244
 bent crystal spectrometer, aberrations, precision mounting 0=17297
 Bragg-Brentano spectrometer, for radioactive samples 1=20468
 Buerger precession camera, humidity control device 1=20456
 Buerger precession camera, unidirectional integrating mechanism 0=8182
 calibration of intensity meas. on diffractometer 2=17006
 camera, axial retigraph 0=8178
 camera for diffrn. radiography of dislocations 4=1491
 camera, high-temp., high-vacuum 1=12630
 camera, high temp., melting point calibration 15-800°C 3=16054
 camera, high-vacuum and high-temperature 0=13972
 camera, low angle diffr., divergence corr. 4=23397
 camera for low temp. 1=1389
 camera, low-temp., for counter goniometer 0=4611
 camera, microbeam back-reflection 0=4606
 camera mounting system 4=23402
 camera, for -190° to +600°C 0=716
 camera, for -175° to +300°C 0=16291
 camera, oscillating type, for single crystals 3=8819
 camera for polycrystalline diffuse scattering studies 1=12629
 camera, powder, Debye-Scherrer 3=6943
 camera, powder, high-temp., errors 2=23831
 camera, Rimsky retigraph, mechanism for centring single crystals 1=10246
 camera for structural defect meas. 3=25693
 camera, for up to 270°C 0=16289
 capillaries, thin walled, for pyrophoric single crystal work 4=23406
 cassette attachment for Weissenberg photographs 4=26636
 circular-arc slit, with fixed centre and adjustable radius, for diffraction pattern anal. 1=1351
 collimator using total internal refl. 2=23927
 compression apparatus for powder diffractometry 2=12900
 counter diffractometer 0=8187
 counter diffractometer, equi-inclination, reliability 4=10513
 cryostat and camera, low-temp. 0=3220
 cryostat, liq. N₂ to room temp. 4=353
 cryostat, liquefier-type, for use at liq. H temp. 1=6510
 cryostat for low temp. obs. 4=15780
 cryostat, -190°C, for monocrystals 0=12015
 crystal growing device, for use in cameras 0=8165
 crystal rotator for cryostat 1=9125
 crystal sphere orienter for non-opaque crystals 3=8821
 Debye-Scherrer camera with focussing for linewidth meas. 4=10520
 Debye-Scherrer camera, 19 cm dia., for -150° to +200°C 1=1388
 device for $K\alpha_2$ influence elimination 3=18291
 diffraction camera for large single crystal alignment 1=10245
 diffraction line point-by-point recording, photo-relay mechanism 2=21500
 diffraction meter, for -196° to 600°C 2=21498
 diffraction pattern electronic image-intensification 0=13974
 diffractometer adapter, for existing X-ray unit 1=15031
 diffractometer, adaptation for thin film studies by total X-ray refl. 4=10605
 diffractometer alignment 4=4586
 diffractometer attachment for direct obs. of thin films 3=20812
 diffractometer, automatic 2=232
 diffractometer for automatic crystal setting, theory 2=6795
 diffractometer, automatic digital, system evaluation 4=30838
 diffractometer, automatic, for monocrystals 2=10814
 diffractometer, automatic programmed 2=23835
 diffractometer, automatic, for single crystals, kinematics of the moving elements 0=8177

X-ray crystallography—contd**apparatus—contd**

- diffractometer, automatic, for single crystals, punched-card controlled 2=23836
- diffractometer, automatically recording, for NaCl structure amplitudes 0=18350
- diffractometer, with Bragg-Brentano focusing, sample eccentricity effect 3=25692
- diffractometer, computer-controlled 3=23425
- diffractometer, controlled atmosphere sample chamber 0=21180
- diffractometer, focusing attachment 3=25690
- diffractometer, Geiger 0=4609
- diffractometer, Geiger, for monochromatic radiation 0=8181
- diffractometer, goniometer and X-ray stabilizer details 1=1390
- diffractometer, high-speed, use of soft X-ray scintillation counter 0=13975
- diffractometer, high-temp. 0=4608
- diffractometer, high-temp., automatic recording 2=4404
- diffractometer, for high-temp. studies of metals 3=2067
- diffractometer for low-order-powder reflections 1=15029
- diffractometer monitor system, opposite-window, response to tube condition changes 1=16469
- diffractometer, multiple-anode 1=9123
- diffractometer, Philips, stepping mechanism, adaptation 3=6830
- diffractometer, rapid-scanning, design and performance 0=8179
- diffractometer, single-crystal 2=17001
- diffractometer, with system of slits before detector 0=3193
- diffractometer, triple-crystal, monochromator 2=21511
- diffractometer, two-circle, for diffuse diffraction abs. meas. 3=11245
- diffractometers, analogue and digital single-crystal 4=30837
- diffractometer, automatic 4=23404
- diffractometer, automatic, for polycrystals 4=10516
- diffractometer furnace, temperature controller 4=11396
- diffractometer, linear, adaptation to measure three reflections 4=23405
- diffractometer, liquid He Dewar attachment 4=2906
- diffractometers, in characteristic X-ray absorption meas. 1=11995
- diffractometers, single-crystal, automatic, review 3=8818
- diffractometers, 3 types, faults, comparative study 3=16056
- electron multipliers, for direct viewing of Debye-Scherrer patterns 4=10512
- extinction micrographs of single crystals 3=5094
- for fast exposure 4=29083
- fibres, specimen holder 3=13432
- films, commercial, comparison 4=3081
- filter chopper, for diffraction 2=11590
- fine-focus X-ray tube, conical camera 1=20696
- furnace and mount for single-crystal goniometer 3=18287
- furnace, for Seifert diffractometer 0=3192
- furnace for use with vertical diffractometer 4=10514
- generator, conditions for optimum intensity meas. 4=8881
- goniometer arc automatic correction device 4=4584
- goniometer attachment for high temp. work 1=11552
- goniometer, gimbal 2=21499
- goniometer for orienting single crystals 1=9124
- goniometer, specimen holder 3=13434
- goniometer, 3-circle, geometric props. 3=18288
- goniometer, three-circle, uses 3=1277
- goniometer, twin head, for diffusely reflected X-rays 0=8180
- goniometers, safe universal mounting system 1=20457
- goniostat, full circle, for diffrn. intensity data 3=8822
- graticule, for viewing powder photographs 0=8286
- Guinier camera, vertical, quickly adjustable 1=20454
- high pressure cell 4=28658
- high-temp. attachment for horizontal camera 1=20459
- high-temp. chamber, up to 1100°C 2=17003
- high temperature furnace for use with diffractometer 4=10517
- lattice plane orientation and lattice consts, counting tube technique 4=17802
- low temperature apparatus, 87-380°K 4=23403

X-ray crystallography—contd**apparatus—contd**

- microdensitometer, automatic, recording-type 1=20458
- microdensitometer, integrating video 4=7595
- microfurnace for high temp. observations 4=18471
- microfurnace for single-crystal X-ray camera 3=20813
- monochromators, use of 3=2069
- monochromators, wavelength distrib. at focus, effect on meas. 1=9122
- mosaic spread width, reflection curve 3=13428
- mounting of small oriented crystals, interchangeable axis 2=23838
- Norelco diffractometer, variable bent diffracting device 4=7594
- Philips powder camera, conversion for single-crystal use 3=13431
- photographs, influence of protective paper 0=12014
- polycrystals analysis under high pressure 3=20815
- powder camera attachment for preferred orientation in polycryst. specimens 4=30839
- powder camera, coaxial, modified 1=2531
- powder-camera, high pressure 4=23400
- powder camera, high pressure studies 2=23834
- powder camera, translating device 0=18336
- powder-diffraction apparatus, for high temperatures 0=4607
- powder diffraction cameras, cylindrical, axial divergence profiles 4=23399
- powder diffraction cameras, cylindrical, axial divergence profiles, centroid shifts, variances 4=23398
- powder diffractometers focusing geometry 2=10821
- powder diffractometry, heating and cooling attachments 2=14972
- powder meas., high pressure and temperature 4=10519
- powder pattern indexing, appl. to triclinic crystals 1=20515
- for powder patterns at pressures up to 500k bar 4=10518
- precession camera, with two-circle goniometer 0=3197
- proportional counter recorder 3=23427
- recorder, for URS-251 unit and GUR-2 goniometer 0=16290
- recrystallization rates 0=13945
- rotation chamber, for high pressure studies 1=5094
- sample changer for X-ray analysis 2=868
- scintillation counter apparatus, for recording diffraction patterns 0=12017
- scintillation counters, for single-crystal studies 0=4612
- simultaneous X-ray shadow picture and interference pattern production 1=11604
- single crystal, cooling technique for below 90°K 4=30834
- single crystal diffractometer, simultaneous meas. of multiple reflections 4=13573
- single crystal diffractometers, conference 3=13429
- small-angle, Kratky-type camera 2=14970
- small-angle scattering apparatus using quartz monochromator, linear collimation and Geiger counter 4=10515
- small-angle scattering using quartz monochromator, linear collimation and Geiger counter 4=10515
- specimen holder, humidity, temp. controlled 2=21497
- specimen holder for low temperatures 4=20755
- specimen holder, for powder cameras 0=21181
- specimen-rotating and oscillating device 3=20814
- spectrometer, roller 2=15977
- step drive for diffractometers, use of "Slo-Syn" 1=15032
- for temperature range from liq. He to liq. N₂ 2=19066
- three-circle goniometer 1=6509
- triple crystal diffractometer, theory 1=15030
- for ultra-high pressures 4=15779
- universal mount 2=1614
- vacuum furnace 0=8185
- wavelength meas., effect of counting efficiency variations 2=5428
- Weissenberg camera, integrating, for low- and high temp. studies 4=23401
- Weissenberg camera, low-temp. 2=17002
- Weissenberg, equi-inclination osc. photographs, for instability studies 3=11249
- Weissenberg goniometer low temp. attachment 4=30840

X-ray crystallography—contd**apparatus—contd**

X-ray spectrogoniometric meas. of lattice parameters,
Debye-Scherrer method 1=11553

BSV-1, 2, 6, 8, 9, efficiency comparison in structure
study 4=4590

calculation apparatus

histograph 1=20460

line profile analysis, step scan, automatic 3=19392

magnetic recorder double Fourier series

synthesizer 0=18341

mechanical structure-factor computer 0=4842

programme, digital, powder pattern reduced quadratic
form 3=23433

protractor for Laue photographs 0=4605

structure factor computing machine 1=15028

calculation methods

absorption corrections for precession method 1=9128

absorption factors for ellipsoidal crystals 1=20476

absorption and temperature factor correction,
simplified method 4=2054

alloys, effect of temp. on local order 2=10828

amplitude and sign assignments, arbitrary,
limitations 0=12030

angular inequalities, geom. solution 2=15000

anomalous scatt., centrosymmetric structures 2=21508

aspherical atomic scatt. factors in crystal struct.
refinement 4=26625

aspherical atomic scatt. factors for light atoms in
 sp^3 , sp^2 and sp valence state 4=26626

atomic scatt. amplitudes for light-atom
electrons 2=10858, 10863

atomic scatt. factor consts. graphical calc. 4=23388

atomic scatt. factors with aspherical electron
distrib. 2=15009

atomic scatt. factors and charge distrib. radii,
comparison of two methods 2=10857

atomic scatt. factors for He-like systems 2=10856

atomic scatt. factors for Th, U, Pu and O 2=15010

atomic scattering factor for Yb 2=10862

atomic scattering factors in polynomial form 4=10497

atomic space coords., rapid, from electron density
along certain lines 4=4573

automatic-diffractometer programmes 3=25684

axial divergence profiles, for cylindrical diffraction
cameras, analytic method 4=23398

axial divergence profiles, for cylindrical diffraction
cameras, graphical method 4=23399

β -synthesis method, use for L-cystine hydrobromide
structure 4=20767

bond lengths and angles, programme for Elea 9000
computers 3=3294

Buerger's treatment, symmetry phases in reciprocal
lattice 4=7576

calculating apparatus, programme 3=6836

camera radius, precise determination from diffraction
photographs 0=13973

centroid determination, by successive approx. 4=7585

centroid shifts, for cylindrical diffraction cameras,
analytic method 4=23398

centroid truncation procedures comparison 4=26630

centrosymmetric crystals, third set of coordinates 3=8832

charts for 2-parameter lattices 2=10844

collimation corrections, small-angle, machine
calc. 4=16603

composite diffraction profiles, analysis 0=8191

computer CAB 500, appl. 2=2380

computer programmes 0=8202, 18342

computer programmes 4=10502

computer programmes for Fourier syntheses
Saab D21 4=30831

computer programmes, least squares 4=10501

coordinate errors due to mol. rotation 2=10825

correction for extinction in crystals 1=15039-40

correction of spectra for dispersive distortion 2=14982

correlation of intersecting layers of X-ray
intensity data 0=10299

crystal fine structure determination from diffraction
line intensities 1=11558

crystal models, construction 1=20508

crystal orientation, from Laue diagrams 0=13977

crystallite size distrib., from line broadening 1=4037

X-ray crystallography—contd**calculation methods—contd**

crystallite size distrib., from X-ray line
broadening 3=13442

crystallite size, from line width 0=8189

cubic lattice parameters, explicit expression 2=10845

cylindrical crystals, secondary extinction
coeffs. 3=18292

Debye factor of line weakening 3=13437

Debye powder diffraction lines, analysis of
positions 3=13446

Debye-Waller factor, anisotropic for Cu-based solid
solutions 2=10830

deformation stacking faults, distance statistics 0=10304

Delaunay algorithm transform. for parallelepiped
quadrilateral figure 3=18231

$\partial^2\rho/\partial x^2$ at atomic positions, simple formula 1=15047
diffraction by monodimensional disordered structures,
matrix method 2=818

diffraction peak broadening, Fourier analysis, computer
programme 3=23435

diffractometer data, automatic computer processing 4=7593

digital computer programme for CAB500 4=20752

digital computer programme for 3-dimensional
refinement 4=13571

digital computer programmes, for Bull G.E.T. 4=20753

digital computer programmes, for I.B.M. 1620 4=20754

dislocations, Bragg refl., Fourier series model 4=9965

disordered structures, monodimensionally 2=4502

dispersion corrections 4=23389

divergence correction for low angle diffr.

camera 4=23397

effect of anomalous atoms in unit cell 2=14995

effective-D method 2=4410

electron density distrib., from Fourier series

formula 0=13994

electron density, generalized Fourier projections 0=13993

electron density levels, mapping 4=26633

experimental intensity conversion to absolute scale 4=7591

extinction coefficient evaluation 1=12636

extinction, theory and corrections for 1=11555

f.c.c. systems, calc. of Debye-Scherrer interference
function 1=2533

F phase problem, non-statistical approach 2=6806

F^{11} function in structure analysis, use analogously to

Patterson function method 4=17799

fibre photographs, structure factor calc. 2=14999

fitting plane to set of points by least squares 0=8203

forbidden domain method 2=15003

forbidden zones 4=26624

Fourier analysis, microdeformation detection 4=15801

Fourier and least square refinements 0=10302

Fourier method, as applied to C black 2=10841

Fourier profiles, analysis, refined formulae 4=26632

Fourier synthesis, apparent paradox 1=9132

Fourier synthesis, computer programming 2=8820

Fourier synthesis, sign sequences and structure

factors 0=3213

Fourier transform methods for slit-height correction
in small-angle scattering 4=10500

general equations in structure analysis using F
function 4=13567

graphical extrapolation tetragonal structures, lattice
parameters 3=6837

graphical methods 0=714, 3218

graphite, (h, k) reflections, effect of preferred orienta-
tion 4=23446

Guinier-Preston zones, structure analysis by Fourier
method 0=4630

Harker sections, location of true maxima 0=13997

harmonic analysis of diffraction lines shapes of
polycrystals 0=16301

helical structures, X-ray diffr., theory 1=20494

hexagonal crystals, interpretation of diffuse scatt.
photographs 1=20514

hexagonal, tetragonal crystals 2=4408

hkl indices, determination 4=13563

imperfect crystals containing dislocations, anomalous
transmission 3=20947

indexing powder photographs, Lipson-Hesse difference
method, most probable differences 3=20825

information theory methods 0=18337

X-ray crystallography—contd
calculation methods—contd

intensities, for monodimensional disordered structure 2=10838
 intensities, statistical analysis 3=23430
 intensity correction and parameter calc., programmes for IBM 1620 computer 3=3295
 intensity determination for monodimens. disordered structures 4=23387
 intensity laws, non-statistical derivation 2=6807
 intensity statistics to determine crystal symmetries 4=2048
 interference line-shape, harmonic analysis 4=15772
 isomorphous crystals, principle of max. superposition 2=10853
 isomorphous replacement method 2=10849
 isotropic temp. factor, equiv. to given anisotropic one 0=3216
 lattice constants of polycrystals 0=13978
 lattice distortion and particle size in polycrystals 0=6354
 lattice parameter calc. by computer 1=15061
 lattice parameter corrections, due to residual stresses and formation of solid solutions 3=6834
 lattice parameter determ. by centroid method 3=16064
 lattice parameters, precision determ. using computer 2=10847
 lattice sums, tabulated functions 0=21152
 lattice vibr. anharmonicity effects 4=23390
 Laue interference function, analysis 4=20750
 layer structures with mixes layers, Fourier analysis 2=2383
 least-squares and differential synthesis, refinements 3=8833
 least-squares plane through a set of points 2=6803
 least squares refinement 2=10848
 least squares refinement, parameter correl. 2=10842
 least-squares refinement, standard deviation estimates and accel. device 3=13443
 light atoms, determ. in presence of heavy atoms 2=819
 likelihood-ratio-method, tetragonal and hexagonal structures 4=7577
 line breadths, peaks, correct. for α_1, α_2 doubling 3=11254
 line broadening from polished surfaces, Fourier analysis 1=11557
 line centre determination, in broad lines 1=2532
 line-profile-maximum det. 4=29077
 line shape analysis by method of moments 4=23393
 M function tables for hindered rotator, extension 0=10303
 macromolecules isomorphism degree meas. 4=20749
 minerals, with mixed-layer structure, Fourier analysis technique 3=20832
 minimum function, Fourier integral 1=20516
 modulated electron density projections, Fourier expansions 1=15063
 molecular location, from minimum residual calc. 4=23376
 molecular structure calc. 4=4581
 molecular structure calc. with known orient. in lattice 4=13559
 molecular vibr. meas. from electron density distrib. 4=30511
 moments analysis, of diffraction lines 1=7861
 monoclinic powder patterns, indexing 3=25707
 multidomain crystals 2=15004
 multiple solns. of data 4=17800
 non-centrosymmetric crystals, deconvolution of Patterson function 0=3215
 non-centrosymmetric crystals, modified method of weighted Fourier synthesis 0=3212
 normal equations, modifications, for non-linearity 3=23431
 optical diffraction in structure determ. 0=12036
 optical Fourier synthesis for non-centrosymmetric projections 2=15008
 optical transforms, three-dimensional 1=20517
 orientation determination, plane projection and lattice row construction 0=13998
 orientation relationship, rapid calc. 1=20509
 orthorhombic structure factor and least squares calc. 2=10843
 "packing relations" and structure 1=7860
 parameter refinement procedure for simple structures 3=8834

X-ray crystallography—contd
calculation methods—contd

Patterson diagrams for structure with two atoms per asymmetric unit 2=15006
 Patterson diagrams in 2-dimensional space 1=20513
 Patterson and electron density functions, computer programme 0=8200
 Patterson function, for calc. of phases 2=15002
 Patterson function, deconvolution, centrosymmetric crystals 2=6804
 Patterson function, synthesis for deconvolution 0=3214-15
 Patterson functions, min. function diagrams 2=10852
 peak maxima, location and shape, Gaussian ellipsoid approximation 2=15001
 phase of amplitudes, determination by structure delineation 0=13925
 phase angles, importance rel. to structure amplitudes 2=4411
 phase det., method based on variances of individual terms, discussion 0=6352
 phase det. by heavy atom method 3=16067
 phase det., rational dependence and renormalization of structure factors 0=4621
 phase det., superposition method 0=16300
 phase det. using zero pts. of Patterson function 3=16066
 phase determ. by non-crystallographic symmetry conditions 3=8831
 phase determination, rel. to electron density maps 2=10850
 phase determination, type 3p, 1=15062
 phase determination, unified program 2=10839-40
 phase and Patterson function zeros 4=4577
 polarization correction for upper level geometry 0=10298
 pole figure technique, by reciprocal lattice 2=8822
 polycrystals, fine structure analysis, use of Fourier transforms 4=15800
 polycrystals, using reciprocal lattice 4=2049
 polycrystals, secondary extinction, corrections 4=13624
 polymer orientation, diffraction methods 4=10629
 Popov's method for lattice parameters of polycrystalline substances 1=12637
 positions of two atoms showing "inverse overlap" 3=23434
 positivity, point atoms and Pattersons 4=23374
 powder-diffraction, unit cell determ. computer programme 4=7580
 powder diffraction, unit cell reliability 1=20512
 powder patterns, computer evaluation method 4=105010
 powder patterns, indexing 4=10503
 powder patterns, indexing, distribution analysis 4=10504
 powder patterns, reduced quadratic forms 4=4580
 powder photographs, interpretation with log. charts 2=10846
 primary and secondary extinction, correction formulae compared 1=20478
 programme for powder intensity calc. of synthetic garnets 0=8226
 programming computers, U.S.S.R., survey 3=20831
 programming for electronic computation 3=13445
 proteins, structure analysis, accurate det. of position and shape of heavy-atom replacement groups 0=8249
 radial distribution curve formulae, calc. of integrals using strips 0=13996
 radial intensity distrib., graphical calc., for small-angle scatt. 1=7862
 random structures, 2-dimens. Fourier transform technique, example 1=9133
 refining structure coordinates, electronic computer programme 0=4623
 reflections from distorted lattices, Fourier analysis 1=10252
 residual term question 2=17012
 scale error effects, NaNO_3 4=7581
 scattering curves, small angle, unsmearing, computer flow diagram 4=2053
 scattering factor, imaginary part 3=3291
 scattering factors, atomic, analytic constants 4=7584
 sealing factors and temp. factors, from intensity pattern 1=20510
 secondary extinction, corrective formulae for polycrystal, applicability 3=8825
 semivariants for non-centrosymmetric space groups 2=6805

X-ray crystallography—contd**calculation methods—contd**

- sets, homometric, singular transformations 4=13558
- shifts from super-symmetry positions, use of Patterson and Fourier functions 3=13444
- Shubnikov groups, mosaics for 167 2-dimensional groups 2=2374
- sign choice, arbitrary 1=1394
- signs of structure factors, statistical method 4=23375
- single-crystal transmission factors, prismatic crystals 3=25696
- single-crystal transmission factors, Weissenberg photographs 3=25697
- size of crystallite effects 4=23384
- small distorted crystals, Fourier coeffs. 1=20505
- smearing effects, removal 0=8190
- space group determ. by moments of intensities 4=4575
- space-group determ., theoretical moments deriv. 4=4574
- space group, $P\bar{1}$, regression formulae for E_H 0=3211
- space groups, hexagonal system 0=13985
- space groups, mosaic for colour antisymmetry groups 2=4403
- on "Strela" (USSR) universal computer, programming 0=12034
- strongly absorbing crystals, absorption factors 2=12901
- structural amplitudes, signs 1=20516
- structural analysis, trial-and-error methods 0=12031
- structural information derivation from absorption effects 4=7588
- structure amplitude phases, use of minimalization function 1=7863
- structure amplitudes, cumulative distrib. function to distinguish centrosymmetric structures 0=6353
- structure analysis, electron density projections, generalized bounded 0=13995
- structure determination 1=7859
- structure factor calc. with anisotropic thermal parameters 2=4409
- structure factor formulae from projections formulae 2=6808
- structure factors, calc. 1=5095
- structure factors, computer programme 0=8201
- structure factors, correction for extinction 2=10859
- structure factors, inequalities 2=12907
- structure factors, joint distribution, regression formulae 0=3211
- structure factors, phases 3=3292
- structure invariants, new relationships 3=25700
- structure parameters, least-squares analysis, Taylor series approximation for ΔF 0=8198
- structure refining, computer programme 3=23432
- sub-unit detection in asymmetric units 2=10851
- temperature corr. effect on reliability coeff. 4=17797
- temperature diffuse scatt. in Laue-Bragg spots 2=17009
- temperature-diffuse scattering, for cubic powder patterns 1=20500
- thermal anisotropy parameters, from electron density distrib. 1=15064
- thermal scattering factor, determ. from diffrac. max. 4=29078
- transition elements, Compton incoherent scatt. functions 2=14984
- triclinic crystals, pattern indexing, graphical method 1=1392
- truncation methods for centroid lattice parameter determination 4=30833
- twinned tetragonal crystals 2=4366
- unit cell parameters 0=13979
- unsmearing low-angle curves using computer 2=17008
- variances, for cylindrical diffraction cameras, analytic method 4=23398
- vector space, appl. in structure investigation (book) 0=8199
- weighted electron-density projections, symmetries, for 74 space groups 1=4034
- weighting factors for single-crystal intensity data 1=20511
- Weissenberg intensities, correction for angle-factors 0=6348

X-ray crystallography—contd**calculation methods—contd**

- Weissenberg photographs, calc. of accurate lattice parameters 3=25699
 - width, unresolved $K\alpha$, graphical meas. 4=13560-1
 - Wulff chart, errors 3=16061
 - yielding phenomena study, e.g. in steels 2=21418
 - C atom, electron density peak shapes 2=820
 - Cl, anomalous scatt. factor 2=10860
 - Cl and Cl^- , X-ray scattering factors 1=17285
 - He-like ions, X-ray scatt. factors 1=17287
 - He and He-like ions, X-ray scattering factors 1=17286
 - Mo, anomalous dispersion corrections 3=6833
 - $Na_2CO_3 \cdot NaHCO_3 \cdot 2H_2O$, F^{II} function in structure analysis, use analogously to Patterson function method 4=17799
 - $PbTiO_3$, twinned 2=4366
 - S and S^- , X-ray scattering factors 1=17285
 - U, anisotropic irradiation growth prediction 3=4898
- structures**
- See Crystal structure, atomic
- technique**
- absolute configuration determ., anomalous scatt. method 4=23383
 - absorption errors in intensity meas. of reflections from single crystals 4=23386
 - adjustment of monocrystals, using X-ray image amplifiers 2=10816
 - aligned crystal transfer 4=4585
 - alloys, ordering processes, review of study methods 4=1879
 - angle between crystal surface and plane meas. 4=29035
 - anomalous scatt., for crystal phase calc. 4=29109
 - anomalous transmission method 2=16659
 - aperture width corr., single crystal 4=26635
 - apertures, minimum receiving, single crystal diffr. 4=4582
 - back-reflection micrography 2=4405
 - background elimination, diffraction intensity meas. at high Bragg angles 4=26687
 - binary alloys, liquid-like, scattering data interpretation 3=11282
 - bond lengths, precision meas. 1=20462
 - Bragg reflection, asymm., use of double spectrometer 2=4407
 - cellulose structure changes on heating, meas. technique 2=14980
 - centroid wavelengths, determination of Cu $K\alpha$ and Fe $K\alpha$ 4=15771
 - cooling device for Weissenberg cameras 2=14975
 - correction for absorption and incoherent scattering 4=4579
 - correction for α_1 - α_2 splitting 2=10829
 - correction, thermal, diffuse scatt. meas. 4=13566
 - cotton cellulose study, with Geiger counter spectrometer 0=1918
 - counter goniometer, lattice const., errors 4=2055
 - crystal orientation meas. by cylindrical camera 4=7592
 - crystal patterns in polarized light, photographing and projecting 1=1383
 - crystal setting 2=8808-9
 - crystal setting on axial retigaph 0=8178
 - cubic space groups, single-map determ., intermetallic cpds. 4=23377
 - d-values, temp. variation and expansion coeff. 2=6796
 - Debye-Scherrer photographs at long wavelengths 2=17005
 - defects study, oscillating film method 4=1451
 - deformations $< \sim 0.1^\circ$ arc, obs. by double spectrometer device 4=22572
 - diffraction intensities, integral, meas. 3=20818
 - diffraction pattern direct viewing and rapid photographic recording 2=8810
 - diffraction prints, prep. of positives 3=13435
 - diffractometer beam fluctuations, monitoring 2=813
 - diffractometry, single crystal, intensity meas. improvement 4=30832
 - displacement of c.g. of refl. as error source 2=17010
 - double crystal diffractometer meas., errors due to long-wave harmonics 1=7858
 - double-diffractometric transmission topography 4=26631
 - epitaxial layers, face polarity, from diffr. 3=20827
 - errors in lattice const. meas., due to monochromator wavelength distrib. 1=9122
 - exposure symmetry, effect on random error, in lattice period det. 1=20479

**X-ray crystallography—contd
technique—contd**

extinction errors correction 4=23379
 fibres, diffraction pattern enhancement by heavy-metal salts 0=10295
 use of film as filter 3=8820
 film powder method, for precision meas. of lattice parameters 3=8823-4
 fine angle adjustments, by Weissenberg goniometer 4=2056
 focusing, from bent crystal with microsource 2=14978
 geometrical and physical aberrations 1=20480
 grain size determination, from spotty diffraction rings 0=6345
 graphite, irrad., lattice parameter meas. 2=23844
 high-pressure studies using amorphous B as pressure vessel 2=8811
 high-temperature, use of diffractometers, errors 4=15778
 indexing powder photographs, Lipson—Hesse difference method, most probable differences 3=20825
 instability, use of equi-inclination osc. photographs 3=11249
 integrated intensity meas., comparison of ω and 2θ scans 4=20748
 intensity meas. with three-circle counter diffractometer 3=1282
 intrinsic diffraction profiles, method for obtaining 1=6511
 Kossel line technique, precision lattice const. determ. 2=6794
 lattice constant determ. by goniometer 4=26634
 lattice constant determination from weak reflections 2=14976
 lattice constant, precision meas. in monocrystals 1=20463
 lattice const. distrib. curve and lattice orient., meas. method 4=17798
 lattice parameter determination, error sources 1=15041
 lattice parameter determination, error sources 1=15042
 lattice parameter meas. by monochromatic radiation 1=15034
 lattice parameters, precision determination, conference 1=11550
 lattice parameters of tetragonal or hexagonal crystals, precision method 1=20465
 lattice period, random errors, exposure symmetry effect 1=20479
 Laue photographs, large single crystals 4=10506
 line intensity fluctuations, limitation by tube output stabilizer 0=20109
 low-temp., liq. He cryostat 2=10815
 macromolecules isomorphism degree meas. 4=20749
 masking of undesired specimen areas, amorphous Pb lacquer 1=9126
 metals, active, high temp. techniques 1=10247
 metals, cold-worked, lattice parameter meas. 0=4619
 metals, structure defect study using massive specimens 1=15186
 monochromators, curved-crystal, intensity distrib. 1=15044
 monocrystals, large, absorption corrections 1=20475
 optic angle determ. from extinction curve, appl. to X-ray diffr. 4=10156
 optical transform methods, for klockmannite structure determination 0=10313
 orientation adjustment, single crystals 2=10817
 orientation determ., using Weissenberg goniometer 4=13572
 oriented mounting of crystalline spheres 3=25686
 oscillating film, use in dislocation density meas. 1=14279
 perfection determination, from optical analogy 0=6346
 photographic recording, errors 4=7587
 photography of crystal surface 2=14977
 plastics, crystallinity detm. 3=18290
 polarized X-rays, use to study crystal perfection 0=4615
 polycrystal line profiles, scatt. correction 4=4579
 polycrystals, diffuse scatt. intensities, removal of extraneous effects 1=20477
 polymers, high, crystallinity determ. by absolute and relative methods 4=7681
 powder diffraction patterns, high pressure device 0=3195

**X-ray crystallography—contd
technique—contd**

powder diffractometry, inherent errors 4=10505
 powder method for composition of solid solutions 2=12908
 powder method, line displacement by mosaic blocks 2=4406
 powder photographs, microdensitometry 4=23396
 powder technique for absorption corrections 0=4616
 precession photographs, film-to-film scaling consts., determination 0=3200
 precision lattice parameter measurements 1=11554
 preparation of cylindrical samples 1=15036
 radioactive samples, review of methods, U—Mo system 1=20468
 reactive crystals, manipulation for diffraction analysis 1=15037
 reciprocal lattice record, extension, by composite precession photograph 0=10297
 reflection intensity for axially-textured sample 4=29081
 setting of crystals 1=20467
 simultaneous diffraction, indexing of umweganregung peaks 2=10818
 single crystal cooling, cryostat for use with liq. H 0=8184
 single crystal, inherent reflecting range determ. 3=25694
 single crystal orientation and perfection determ. 2=21463
 single-crystal parameters, accurate meas. 3=13436
 single crystals, multiple Bragg reflection areas, determined by image fringes 4=7589
 slit-height correction, small-angle scattering 2=14981
 small-angle scatt., intensity distrib. meas. 1=20461
 small-angle scattering, alloy micropore orientation 1=15117
 small angle scattering, correction for slit height 1=20472
 space group determ. using anomalous dispersion 3=8826
 specimen-surface displacement errors and correction 1=20466
 strong deflection in elastically bent crystals, meas. 4=15774
 structure factors, squares of moduli from texture photographs 2=17013
 substructure charact. and dislocation densities 2=23930
 survey 0=3614
 texture effects on line shape 4=17801
 total external reflection 0=8344
 transmission diffractometer determination of lattice parameters 1=15035
 for unit cell parameter meas., general technique and corrections 1=20469
 Weissenberg goniometer, det. of cell parameters 1=20507
 Weissenberg and precession techniques, corr. for volume effect 4=7586
 Bi single crystal orientation 0=6347
 Cr powder, reflection intensity decrease, prob. due to oxidation 4=20751
 Cu K α and K β radiation, use for systematic data collection 1=20464
 He-path diffractometry, for steel 4=13628
 Si, perfection assessment, semi-quantitative 2=17004
 Si powder, reflection intensity decrease, prob. due to oxidation 4=20751
 Ti—O solid soln., lattice distortion obs. for meas. of O-interstitials conc. 4=10557

X-ray diffraction
 See also X-ray crystallography; X-ray scattering
 anomalous dispersion for space group determ. 3=8826
 anthracene, simultaneous diffraction 4=7652
 anthracene single crystals 3=20859-60
 apparatus for study of liquid structures 3=14704
 by atoms distrib. at random at lattice sites 3=25689
 atoms, effects of electron correlation 4=30390
 Borrmann effect, polarizer-monochromator appl. 1=16473
 camera, using polaroid film 4=24775
 camera, small-angle, with linear collimation 2=5425
 cell, for liquid studies 3=7669
 by chain mols., effects of rotation of mol. 4=1331
 correction for secondary extinction 2=847
 crystal disorder problems, semiclassical approx. 4=23381
 crystal epitaxial layers, face polarity meas. 3=20827

X-ray diffraction—contd

crystal grating, u.s. 4=15416
 crystal lattice, weakly deformed, wavefield rays 4=10511
 crystal perfection, "mosaic blocks", rel. to primary and secondary extinction 4=22593
 crystals, coherence region size and microstresses analysis 3=20704
 crystals, diffuse, optical analogue use 3=25698
 crystals with dislocations, Debye-Scherrer line profiles 3=25281
 crystals, effect of thermal vibrations 2=12903
 crystals, elastically bent, strong defl. meas. 4=15774
 in crystals, energy flow, Fritz Haber Inst. studies, review 0=6351
 crystals with partial screw dislocation 4=25941
 crystals, streak pattern geometry, due to reciprocal walls 3=18297
 crystals, variance of line profile, dislocation effects 4=7590
 diffractometer for automatic crystal setting 2=6795
 diffractometer, counter, specimen transparency effects 3=8817
 diffractometer, effect of working conditions 3=20816
 diffractometer, for small angular range 2=8806
 diffractometer trace, lines due to scintillation counter window 4=27598
 discovery and development of X-ray analysis 3=25682
 distorted crystals, dynamical diffraction, theory 3=13440-1
 double, in Cu-Ge solid soln. 0=21192
 dynamical theory, origin 3=3287
 dynamical theory, test using Ge single crystals 1=9134
 effect of crystal dislocations 0=717
 errors due to long-wave harmonics in double crystal diffractometer meas. 1=7858
 expansion coeff., d-value change 2=6796
 extinction, theory and corrections for 1=11555
 films, specular refl., interference structure 4=3078
 Gauss and Cauchy profiles, distinction 3=16059
 grating, Au and Ti coated echelettes, 23.6-112 Å 4=11736
 gratings, concave, in soft X-rays, of powers comparison 4=18411
 gratings and echelettes for ultrasoft region 3=14705
 gratings, improvement 4=27597
 gratings, Pt and Au surfaces, grazing incidence 3=20943
 helical structures with irrational number of units per turn 1=20494
 high-angle, influence of spectral profile of $K\alpha_1\alpha_2$ doublet, and broadening 1=15050
 intensities on absolute scale 3=20823
 intensity rel. to applied stress direction 2=21503
 intensity correct. for beam ht., oriented specimens 3=8935
 line broadening, variance meas. 4=23382
 line profile, and width 4=23392
 line profiles study by photographic method 3=20817
 macroscopic analogue 0=8176
 maxima, intensity distrib. 3=25688
 metal film layered structures 3=23437
 metal zone-plate, for focusing 0=19444
 metals, interdiffusion study 3=2822
 monitor system, opposite-window, response to tube condition changes 1=16469
 by narrow freq. band, from bent-quartz monochromator 1=3030
 optical transforms, three-dimensional 1=20517
 oriented high-molecular substs. 3=13438
 pattern caused by temp. diffuse scattering in a crystal 1=12634
 pattern recording, point by point, fully automatic 3=25687
 peak, position and amplitude detm., errors, using scanning goniometer 3=19394
 perfect crystal, near total reflection 3=11253
 perfect crystals, effect of thermal vibrations 2=18521
 by perfect crystals, energy flow, theory 0=8193
 perfect crystals, theory 2=12902
 polarized X-rays, theory confirmed 0=4615
 polycrystal patterns, unified graphical indexing method 0=18339-40
 polyethylene 0=8251
 powder patterns, standard, 37 substances 3=18324
 primary and secondary extinction, correction formulae compared 1=20478

X-ray diffraction—contd

Prins function for reflection curves for perfect crystals 2=14986
 proportional counter recorder 3=23427
 quartz, ground and shattered 3=3352
 renal, biliary concretions, composition 3=3647
 silicone rubber, diffrn. from lattice planes 3=3349
 single-crystal transmission factors, prismatic crystals 3=25696
 single-crystal transmission factors, Weissenberg photographs 3=25697
 single crystals, atomic absorption edges 2=14987
 by single crystals, at low temp. 0=8184
 spherical waves, dynamic theory, Pendellösung fringes 0=12021
 steel, stress, lattice, residual, on plastic deform., meas. 3=18180
 textured specimens, relative intensities meas. 3=23526
 topography technique 1=7888
 21 powder patterns 0=18355
 wave-optical theory, for perf. and distorted single crystals 4=23362
 wave separation near total reflection 2=814
 Ag, Debye temp., temp. depend. 1=19722
 Ag, films and bulk metal 3=16062
 Al, broadening of lines after plastic deform. 3=20195
 Al, line intensities, temp. depend. 3=20864
 Al-Fe alloys, study of interatomic bonding forces 0=18399
 BeO, high temp. polymorph 3=1320
 CdS monocrystals, effect of X-ray intensity and optical illum. 0=12040-1
 Co diffraction line intensity variation with WC content 1=1396
 Cr-Fe alloy, line intensities, temp. depend. 3=20864
 CsI, thermal expansion meas. 0=6026
 Cu, filed, line broadening due to stacking faults 3=20208
 Cu, transmitted and reflected intensities 3=20828
 Cu-Si-(Mn) alloys, pattern change rel. to deformation and annealing 3=22701
 Fe, α -phase, Debye temp. meas. 3=17662
 Fe, stress, lattice, residual, on plastic deform., meas. 3=18180
 GaAs, single crystals, atomic absorption edges 2=14987
 Ge, anomalous transmission, temp. depend. 4=20455
 Ge, anomaly, rel. to thermal vibr. effect 2=12903
 Ge crystal, dynamical diffr. meas. with fluoresc. radiation 4=10509
 Ge, interference for coherent and incoherent source positions 2=14993
 Ge (111), asymmetrical Bragg case 3=5098
 Ge, single crystal pattern 1=15069
 La silicates, Pb and Pb-Mn activated 0=13710
 NH₃, and electronic structure 4=1271
 NH₃, theory 3=8220
 NH₃-Ni cyanide complexes, powder patterns 3=1406
 NaN₃, deformed, stacking faults 3=8443
 NaNO₃, thermal expansion meas. 0=15814
 Si plate, transmitted intensity, rel. to applied stress 3=23525
 Si, single crystals 3=5097
 Tb cpds., electronic configuration 0=1502
 Zn, study of electron transition probability from K-level 0=17915
 ZnSb-CdSb, pseudo-binary system, structure 3=1348

X-ray examination of materials

See also Chemical analysis, X-ray; Radiography
 alkali halides, β -irrad., interstitial defects 2=18572
 alkali halides, line broadening, and strain 3=8934
 alkali halides, thermal expansion 1=14185
 alloy analysis and film thickness meas. using radioactive sources 1=20786
 alloys, temp. var., lattice vibr. effects, calc. 4=6699
 α -brass, intragranular misorientation due to plastic strain 2=4507
 amorphous materials, Compton scatt. 2=5617
 amorphous, scatt., low angle, large incident beam 3=21446
 anatase-rutile, phase transitions 0=7895
 anodic oxide film sealing on Al 4=17841
 apparatus for contact microradiography at 200-500 V 1=18967
 Armco iron, oriented microstresses 4=23213
 austenite formation, rapid analysis, recording apparatus 4=23270

X-ray examination of materials—contd

Berg-Barrett method, crystal surface study 3=25660
 binary solid solutions, composition distrib. 1=20618
 brass, cold-deformed, back reflect., intensity extinction 1=4086
 calcite, distorted 0=3208
 calcite, plastic deformation 0=21130
 carbides, sintered, micro-stresses 3=25619
 chromite-olivine system, Fe K α intensity rel. to Fe content 3=3421
 clay minerals, swelling, X-ray diffr. study 2=8805
 conference 0=8175
 conference, Leningrad, June 1961 3=11243
 counter diffractometer, axial divergence rel. to powder lines 2=23932
 counter-tube goniometer, fine structure determ. 0=4610
 crystal dislocations, Bragg, Fourier series model 4=9965
 crystallinity determination method 2=10949
 crystallographic aspects of extra reflections 0=16296
 crystals, characteristic temp. det. from spectra intensity 0=17898
 crystals, molecular vibr. meas. from electron density distrib. 4=30511
 crystal point defect obs. 4=22593
 defects in mixed crystals, review 1=3651
 diamond, diffr. spikes, N impurity content, calc. 1=20524-5
 diamond, dislocation study of projection topography 0=17929
 diffraction intensity meas., polycrystalline materials at high Bragg angles, background elimination 4=26687
 diffraction, specimen oriented for neutron diffr. 2=4519
 dislocations and stacking faults in crystals 1=14262
 electron probe microanalysis, atomic no. effects 3=13630
 f.c.c. metals and alloys, twin fault determ. 2=15108
 ferrosinels, valence and distribution of Mn ions 0=12051
 films, interference linewidths 4=10604
 films, polaroid, for crystal orientation meas. 3=2010
 films, study of stresses of second type 1=1451
 film thickness, using radioisotope-induced X-rays 0=10630
 films, reflection studies of anneal and oxidation 0=14089
 fluorescence analysis, use of Tm¹⁷⁰ source 0=8343
 fluoroscopy, review 0=14154
 glass, distribution of heavy atoms 4=4686
 glass, oxide, containing fluoride ions 0=21218
 graphite, deformed, small-angle scattering 1=6566
 graphite salts, thermal expansion 4=22506
 graphite, study of radiation damage 1=3701
 graphite, thermal expansion 0=8291
 grids, moveable, operation mode 2=7699
 high-pressure rapidly running phase transitions 2=23806
 image intensifier, solid-state 2=9669
 imperfections in crystals, interferometric study 2=20989
 lighter elements, by total external reflection 0=8344
 low temperature apparatus, 87-300°K 4=23403
 low temps., suitable cryostat 4=15780
 material research review articles 4=13621
 metal films, thickness meas. by interference method 1=2552
 metal erosion products, in elec. discharges, in gases and dielec. liquids 2=9561
 metals, cold-deformed, X-ray refl. 2=23931
 metals, cold-worked, review 2=6743
 metals, f.c.c., asterism rel. to dislocation distrib. 2=6335
 metals, f.c.c., stacking fault widths in filings, obs. 1=17546
 metals, at high temp., adsorption vacuum pump 2=2784
 metals, interdiffusion study 3=2822
 metals, polycrystalline, double Bragg X-ray scattering 1=5107
 metals, polycrystalline, plastic deformation, initial stages 2=12853, 14881
 metals, thermal atomic vibr., anharmonicity meas. 4=6705
 microanalyser, development 3=3371
 microanalyser, electron-probe, conference, Harrogate (1962) 2=23925
 microanalyser recording system 3=2035
 microscope, emission 2=13624
 microscopy and microanalysis, conference 0=1944
 microscopy, interference filter 1=20699
 microscopy, reflection, contact, projection 2=23926
 mild steel, fatigue process, axial texture formation 4=23210

X-ray examination of materials—contd

monazite single crystal, thorium-bearing 0=3242
 monocrystals, secondary extinction, correction 3=20824
 mosaic crystal, vertical divergence rel. to rocking curve 2=4505
 narrow specimens, line width, intensity distrib., surface depend. 1=11603
 Nylon texture 0=8250
 point defects study in crystals 4=1459
 polycrystalline materials, review 4=13623
 polyethylene, small-angle diffr. 3=5153
 polyethylene terephthalate fibres, crystallinity meas. 0=14052
 polyethylene terephthalate, PET, crystallinity meas. comparison with n.m.r. meas. 1=1444
 polymers, crystallizing, effect of oscillating forces 2=23802
 polymers, one-dim. diffraction patterns 0=16298
 polymers, by scatt., colloid fibre swelling 4=17746
 polypropylene 1=9154
 polypropylene, crystallinity 2=10949
 polythene, γ -irradiated, study of action of heat 0=4681
 projection X-ray microscope 0=11138
 pseudo-orthorhombic diffr. pattern interpretation 4=30835
 quartz, radiation damage 3=8473
 radiograph optimum density and density range from visual effects 4=24782
 reactive metals, X-ray camera, high-vacuum, high-temp. 0=13972
 residual stress, coherence length, calc. 4=30749
 Rochelle salt, γ -irrad., diffuse scattering 1=12670
 scattering small-angle, absolute scale, theory 4=30863
 semiconductors, excess carrier decay time meas. 0=13589
 shock-wave reflection in solids and liquids, compressibility study 2=12847
 silica gel, small- and intermediate-angle scatt., effect of adsorbed H₂O and CCl₄ 2=6862
 single crystals, plastic deformation study, microbeam methods 0=18258
 small-angle scattering from cylinders, theory 2=4507
 solid solutions, cubic, elastic const. and phonon spectrum meas. 2=21389
 solid solutions, cubic, elastic const. and phonon spectrum meas. 3=5054
 specimen holder for low temperature 4=20755
 spectrophotometer for simultaneous analysis of several elements 4=30009
 sphere distrib. calc. from circles in section 4=2099
 steel, α -phase, oriented microstresses 4=23213
 steel, austenitic, macro surface stresses 0=10254
 steel, cold-deformed, back reflect., intensity extinction 1=4086
 steel, low-alloy, determination of minor constituents 2=4585
 steel, macrostructure 1=3967
 steel, stress studies 1=1506
 steels, yielding phenomena study 2=21418
 stress measurement, recording methods 2=6712
 stress measurement using back-reflection technique 2=4318
 stress, residual, sources of error 4=23098
 stresses, internal, reliability, steels, 0.01-1.25%C 3=13346
 substructure, crystals, from Fourier analysis of diffr. line 2=19072
 surface dislocations, diffraction study 1=17537
 textured specimens, relative intensities meas. 3=23526
 thermal scattering, effect of anharmonicity 2=21575
 tinplate, using fluorescent X-rays 0=8290
 transparent specimens, quantitative diffractometric analysis 4=29080
 X-ray spectra, continuous, K escape, iodine reduction 1=10110
 Ag-base alloys, stacking faults rel. to solute 3=2811
 Ag germanide, metastable phases 4=29833
 Ag telluride, metastable phases 4=29833
 AgBr, crystal size 2=4503
 AgCd, order-disorder transformations 3=3328
 AgCd-AuCd β -system, ordering 2=17040
 Ag-Cu alloys 0=14007
 Ag-In-Ga system 2=4438
 Al, cold-deformed, back reflect., intensity extinction 1=4086

X-ray examination of materials—contd

- Al hydroxide gels 0=3332
 Al, observation of dislocations 0=20804
 Al—Ag alloy, intensity distrib. near reciprocal lattice site in zonal ageing 4=10508
 4% Al—Cu alloy, primary extinction study of precipitation 1=15147
 Al—Cu, Guinier—Preston zones 0=8266
 Al—Fe alloys, study of interatomic bonding forces 0=18399
 Al—Zn solid solution, supersaturated 1=20572
 Au films, stress and strain rel. to internal state 4=23577
 Au germanide, metastable phases 4=29833
 Au telluride, metastable phases 4=29833
 Au—Ni, small-angle scatt., from double Bragg reflections 1=7890
 (Ba_{0.2x}R_{2x})(Nb_{0.1x}Fe_{1.1x})O₃₀ 0=11900
 BaSO₄, broadening of line in neutron irradiated crystal 1=9130
 BaTiO₃, diff. profile, and dielectric const. 4=17520
 BaTiO₃, grain size, effect on tetragonal to cubic transform. 3=8782
 BeO, irradiated, internal stresses 3=6550
 Bi₂Te₃, Laue patterns rel. to Brillouin zone structure 4=6797
 C, amorphous, predicted diffraction patterns 0=6371
 C, small- and intermediate-angle scatt., effect of adsorbed H₂O and CCl₄ 2=6862
 C steel, stress meas. 4=23097
 CdS, crystal stacking faults, wurzite ribbon 3=15500
 Ce, I-II, rel. to crit. end point 4=17757
 Co powders, deformed, elastic anisotropy and lattice strain 3=1231
 CoSi, thermal expansion coeff. 2=20942
 CoZn ferrites, ferromag. domains 0=1804
 Cr—Ni alloys, concentration dependence of lattice parameter 1=10267
 Cu, cold-deformed, back reflect., intensity extinction 1=4086
 Cu₃Au, ordering, type II antiphase boundaries 4=7490
 Cu—Ni powder compact, interdiffusion meas. 3=2823
 Cu—Ni solid solutions, composition distrib. 1=20618
 Cu₂O films on Cu crystals, strain 2=17065
 CuZn, CuGa alloys, order 2=4464
 Fe electrodes, overvoltage and H diffusion through, lattice parameters 0=8309
 Fe thin layers, lattice const. reduction 0=1798
 Fe—Si alloy, rocking curve 2=4505
 Fe—Si, domain width, optimum, meas. by powder pattern technique 1=3901
 GaAs, twin structures 3=13404
 Ge, dislocations 0=1902
 Ge, dislocations in single crystal 3=6526
 Ge, thin layers, deuteron-irradiated, small-angle scattering 0=20858
 KBr, line broadening, and strain 3=8934
 KCl—KBr, mixed crystals, diffusion formation 3=13004
 Li, Na, K carbonates and sulphates, fused, diffraction studies 2=15565
 LiF, neutron-irrad. 2=23158
 LiH, β -irrad., interstitial defects 2=18572
 MgGa₂O₄—MgMn₂O₄, 350–1250°C 4=15740
 MgO, line broadening, different evaluations 4=10584
 Mg₂SnO₄—Mn₂SnO₄ spinel system 2=4234
 Mn, phase transformations in electrodeposited solid 1=1413
 Mn—Ge system, four phases, 21.8–35.7 at.% Ge 1=20043
 MnS impurity phase in silicon steels 2=12703
 MnSi, thermal expansion coeff. 2=20942
 MnTe, antiferromagnetic transition, K _{α 1,2} X-ray lines of Mn, shape and width 4=15662
 NH₄NO₃, thermal transformations data 2=6762
 NaCl, dynamical effects of X-ray interference 2=6860
 NaCl, line broadening, and strain 3=8934
 NaF, line broadening, and strain 3=8934
 NaNO₃, anion rotational disorder above T_g, meas. 4=29019
 NaNbO₃(1-x). KTaO₃x, rel. to phase diagram 2=14919
 Na(Nb_{1-x}V_x)O₃, ferroelec. structure 2=12571
 Nb₂Al, structure and density 0=3221
 Ni, annealing investigation 0=21124
 Ni, cold-worked, structural changes on heating, study 1=978

X-ray examination of materials—contd

- Ni—Au, decomposition study 0=14075-6
 Ni—B system, 300–550°C 4=15742
 Ni—Cr, hetero-diffusion coeff., 450–900°C 1=12402
 NiO—Al₂O₃ system, thermal expansion rel. to structure 4=23242
 NiZn ferrite, constitution determination 0=16326
 Pd electrodes, overvoltage and H diffusion through, lattice parameters 0=8308
 PuC, 42–60 at.% C 3=10431
 S, plastic, structure 0=3517
 Si carbide, dislocations undetected by etching techniques 0=13538
 Si, dislocations 1=14278
 Si, modifications due to substitutional impurities 4=2091
 Si oxidation products 0=1970
 Si solar cells, crystal imperfections 4=7005
 Si—Ge layers, epitaxial, vapour grown 3=3281
 SrSO₄, spherulitic cryst. aggregates, growth 0=3180
 Te—Se alloys 0=12077
 Th—Mo alloy 3=8896
 U, cold-rolling effects 3=8766
 U₃O₈, up to 1026° 3=15445
 V single crystals, diffuse streaks on diff. pattern due to N impurity 0=8204
 W oxides, H reduction 0=1955
 W wires, recrystallization texture, temp., deformation effects 2=6834
 ZnSe—GaAs, existence of cont. series of solid solns. 0=729
 Zr hydrides, δ and ϵ phases, thermal expansion 0=15817
- liquids**
 apparatus, for refractory metals 4=21096
 benzene, compressibility study 3=21322
 benzene, fluctuational formations, temp. depend. 4=24169
 binary, low angle scatt., crit. opalescence and intermol. forces 4=16113
 camera for liquid-crystal structure det. 4=24171
 cell, for liquid studies 3=7669
 cylindrical sample cell, absorption corrections 2=17434
 diffraction Fourier analysis 3=18799
 diffraction studies, 8°–300°K, to 100 atm. 4=27156
 diffractometer 3=14704
 ether, compressibility study 3=21322
 ether, fluctuational formations, temp. depend. 4=24169
 haemoglobin, in aq. NaCl, small-angle scatt. 0=19115
 ionic solutions, structure det. 0=19117
 law of corresponding states, cross-section relations 0=14650
 liquid mixtures 1=5267
 metals, atomic distribution 4=2651
 metals, camera 4=14135
 metals, rel. to electronic structure 2=11349
 metals, Fourier analysis of sections of scatt. curve 4=18177
 metals, interference patterns, analysis 2=17435
 metals, structure 0=19123
 molten salts 0=6778
 monatomic liquids 3=21304
 nitro-benzene—n-heptane, low angle scatt., crit. opalescence 4=16113
 perfluoroheptane—i-octane solns., cluster formation 0=3519
 radial distrib. analysis 2=17438
 scattering, low angle, large incident beam 3=21446
 silanes, electron density distrib. 4=21097
 solns. of globular and rod-like particles, small-angle scatt., device and theory 1=15839
 structure data study 4=27154
 survey and bibliography 3=21303
 tetrafluoroboric acid, and salts, aq. solns. 4=21100
 thermal density fluctuations, long-range 4=8169
 two-phase, circulation parameters study 2=19529
 water 4=21092
 xylene, amplitude factor determ. 4=24167
 A, atomic distrib. meas. near triple point 2=13319
 Ag, structure, by separating scatt. pattern contribs. 3=9438
 Al nitrate hydrolysed solns., small-angle scattering 4=21098
 Al, 670–820°C 2=2704
 Au, structure, by separating scatt. pattern contribs. 3=9438
 Bi—Pb molten alloys 0=3521

X-ray examination of materials—contd**liquids—contd**

- C₇F₁₆—C₈H₁₈ solns. near critical region 4=27155
 Cu acetate aq. solns. 1=11748
 FeCl₃ soln. in HCl, tetrahedral Fe coordination by Cl 1=9377
 Ga, liq., electron transport props. 3=1710
 H₂O 1=11748
 He, use of Mylar container 4=5489
 Hf oxyhalide aq. solns., complex ion structure 0=14627
 Hg, structure, by separating scatt. pattern contribs. 3=9438
 Hg—In alloys, pair distrib. 1=9378
 In—Bi cpds. 4=21099
 K, structure 0=16692
 N₂ and mixtures with O₂, diffr. meas. 4=24170
 Na, structure 0=16692
 Na—K alloys, structure 0=16692
 Na—NH₃ solns., small-angle, in terms of cavity and cluster models 4=18178
 Ne, structure 2=2705
 Ni, intensity curve 4=21096
 O₂ and mixtures with N₂, diffr. meas. 4=24170
 S, structure 0=3517
 SiCl₄, electron density distrib. 4=21097
 Sn—Bi alloys, short-range order 1=12862
 Zn—Hg, short-range order, structure anal. 1=12860
 Zr oxyhalide aq. solns., complex ion structure 0=14627

microstructure

- ageing alloy, with intermediate layer between matrix and Hinde—Preston zones 4=20775
 alkali halide binary mixtures 4=23520
 alloys, antiphase domains, lattice structure 4=7472
 alloys, ordered, effect of domain structure 1=20593
 anodic oxide films on Al alloys 4=7711
 apparatus for high pressure high temp. meas. 4=10519
 apparatus for use as microanalyser or shadow microscope 3=25786
 apparatus for radioactive materials 4=17822
 Armco Fe powder, mosaic blocks, size 4=4648
 austenite, at very low temp. rel. to grain size 4=23486
 β -brass, theory 1=20616
 block size, from powder line profiles 3=8933
 camera for diffrn. radiography of dislocations 4=1491
 camera, microbeam, for deformation studies 3=9893
 carbon iron sheet, exaggerated grain growth 4=13651
 collimator using total internal refl. 2=23927
 crystal, dislocations, diffr., resolution 3=17752
 crystal dislocations, review 3=22782
 crystal distortions, micrographic estimation 0=10305
 crystal growth defects 4=13521
 crystal imperfections, grains, comparison of var. methods 4=12721
 crystal imperfections, growth and deformation, h. c. p., line breadth 4=10568
 crystallite size anal., diffraction methods, applicability 4=10566
 crystallites, substructural characts., from interference spot dimensions 3=20942
 crystals with small distortion, dynamical theory of diffraction 3=13576
 deformed metals, diffraction intensity meas., texture effects 4=26686
 diamonds, and u. v. absorpt., by platelet imperfections 4=28683
 diamond, X-ray diffr. spikes, topography 4=4646
 diffraction camera for orientation texture studies 2=4501
 dislocation meas. with oscill. film spectrograph 3=15490
 dislocations in crystals, modified technique 4=30568
 dislocations, image breadths, models 3=12979
 dislocations, without sharp focusing 2=12443
 electrodeposits, diffr. pattern elimination 4=29154
 electron probe microanalyser, scanning storage oscilloscope 2=4500
 f.c.c. alloys, filings, heavy faulting, by diffr. 3=8418
 f.c.c. metals, stacking-fault density meas. 2=10402
 fibre pole figure, computer programme 4=13666
 fibres in preferred orientations 3=18400
 fibres, small-angle diffr. patterns 0=12089
 fibrous materials, rel. to fibre lengths 4=15811
 Glycine sulphate, dislocations and ferroelectric domains 4=25943
 grain, single, theory 1=20695

X-ray examination of materials—contd**microstructure—contd**

- graphite crystal orientation 4=13516
 graphite, irradi. defect clusters 2=23156
 graphite, pyrolytic 2=19123
 graphite, pyrolytic, crystals, orientation 3=6820
 graphite, pyrolytic, rel. to double Bragg refl. 4=23528
 graphite, pyrolytic, small angle scatt. 4=20781
 iron, carbonyl powders, changes on annealing 3=20873
 Lang method, prod. of precise translation motion 4=1488
 lattice distortion and particle size, by reflection 5=18401
 "limited projection topographs" in diffrn. topography 4=7658
 liquids and amorphous solids, order study 2=9257
 magnetic domain config. and movements 3=5011
 martensite, at very low temp. rel. to grain size 4=23486
 metal films on amorphous support 2=10950-2
 metals, cavitation erosion 1=14915
 metals, deformed, domain size and lattice strain 2=15107
 metals, grain boundary width det. from background intensity 1=15115
 metals, grain orientation, Kossel line technique 2=6863
 metals, mosaic block misorientation, and tensile strength 3=20728
 metals, structure defects causing intensity variations in diffr. patterns, study using massive specimens 1=15186
 microcrystals, apparatus and procedure, fine-focus X-ray tube 1=20696
 micrographs, Berg—Barret, interf. fringes 4=30864
 microscopy, four methods, review 4=29155
 mosaic blocks in crystals, optical coherence 4=20774
 mosaic blocks, line-broadening rel. to secondary extinction 3=25784
 mosaic blocks, orientation, secondary extinction correction 2=847
 mosaic crystals, scatt. theory 2=2437
 mosaics, disorientated, by small angle scatt. 2=15110, 19125
 noble metal foils, condensed on LiF and mica 1=15011
 optical coherence between mosaic blocks 4=20774
 particle size and lattice distortion, by reflection 3=18401
 plastically deformed metals, lattice distortions, kinetics of relief 4=6847
 point defects study, X-ray scatt. 2=19122
 polycrystalline aggregate, distorted, particle size determ. 4=26685
 polycrystals, secondary extinction, corrections 4=13624
 polycrystals, short-range order, removal of extraneous effects 1=20477
 polyethylene, linear, crystallized at 131°C 2=4504
 polymers, cryst., small-angle scatt. evaluation 4=7660
 polymers, crystalline, nonoriented 1=11605
 polymorphism, solids 3=11207
 porosity, small-angle scatt. method 1=2550
 precipitation, solid solutions, supersaturated 4=10567
 quartz 0=4628
 quartz plate, ground, boundary effect of reflected X-rays 2=10953
 quartz, small-angle scatt., surface effects 2=8899
 quartz, vibrating, internal displacements, by diffr. 3=15982
 radiographs using Si single cryst. wafers, rel. to imperfection detect. 4=15478
 reflection anomalies due to phase relations between crystal domains 1=15189
 reflection technique, crystal surfaces 4=13625
 review, point projection 4=7662
 Rochelle salt, effect of u.s. on diffraction 2=16972
 ruby, rel. to Cr conc. and texture 4=23534
 ruby, synthetic, Cr distribution 3=8808
 secondary extinction correction, Darwin formula modification 4=4637
 silicate, layered, diffr. streaking 4=20289
 simultaneous X-ray shadow picture and interference pattern production 1=11604
 solid solutions, partially ordered, theory 1=20616
 stacking fault probability measurements on alloys 1=7586
 steel, case-hardened layer, phase substructure 3=1247
 steel, effects of machining 2=15112
 steel, elastically deformed 1=15188
 steel, Fe, cast, particle size and lattice distortions, by reflection 3=18401

X-ray examination of materials—contd**microstructure—contd**

steel, wear, structural distortions 1=15187
 surface, mechanical scanning of specimens 1=5106
 texture, compression, rocksalt type materials 1=20700
 topography of single crystals by diffraction 4=7659
 transformer steel, cube texture 2=23928
 "Tronalyzer", new electron-probe X-ray micro-analyser 4=13626
 two-crystal spectrometer, theory 4=20773
 two-dimensional defects in plastically deformed crystals 4=22594
 Udimet 700 Ni base alloy, solute distrib. near grain boundaries 4=13464
 ultrasoft rays, scatt., absorpt., fluorescence or photo-Auger electron emission, appls. 4=27594
 Ag films on pyrex, influence of vac. on struct. 4=23587
 Ag, grain boundary width 1=15115
 Ag halide grains, crystal imperfect. 4=12721
 Ag-Sb-Te, AgSbTe₂ phase formation 3=18345
 Al, deformation bands, microbeam study 0=6393
 Al, deformation texture and recrystallization, new method 4=13641
 Al, after plastic deformation 3=20195
 Al, polygonization substructure 2=6356
 Al single crystals, lineage struct. 4=23521
 Al-Ag alloys, ageing, effect of small additions of Cu Mg, Zn 1=15148
 Al-Ag alloy, γ' phase platelets, thickness distrib. 1=15121
 Al-Ag, Guinier-Preston zones, rel. to electron microscope exam. 4=13639-40
 Al-Cu alloys, conc. microheterogeneity in grains, various cooling rates 4=26690
 AlCu, anomalous lines after age hardening 2=15064, 19103
 Al-Cu, apparatus 3=25786
 Al-Zn alloys, G.P. zone formation 1=20600
 Au-Cu-Ni, phase transformation, order-disorder 4=7493
 Au-Pd short range order, persistence on cold work and heating 4=13645
 BaTiO₃, rel. to antiparallel 180° domains obs. 4=20418
 BaTiO₃, ferroelectric domains, diffraction microscopy 4=26115
 Be, cracks and heavier element distribution 0=18417
 Bi evaporated layers, structure and formation 1=15178
 Bi₂Te₃, structural changes, rel. to grinding 4=7668
 CCl₄, use as radiopaque penetrant in surface cracks 2=23933
 CaF₂, line broadening due to crystallites 4=23523
 CdS, crystal dislocation Burgess vector 4=22595
 CdS, dislocation images, senses of Burgers vectors 4=30560
 CdS films 2=12586
 CdS films, effect of substrate temp. 4=7710
 Co-P films, electrodeposited, single-domain platelet model 2=12722
 Co-Pt, ordering lattice distortion 4=23260
 Cr and antiferromag., spin density wave models 4=23026
 Cr crystalline texture of hard deposits 3=25782
 Cr, extruded, brittle fractures 0=8130
 Cr phase transform. 200°C, no anomalous thermal exp. 4=20700
 Cr-Ni alloy, mosaic block size, during ageing 2=8853
 Cu, filed, diff. line broadening due to stacking faults 3=20208
 Cu, grain boundary width 1=15115
 Cu, intercrystalline internal adsorption zones 2=23934
 Cu, line widths and crystal dislocations 3=20946
 Cu, polycrystalline specimens in several forms, diffuse and double Bragg reflection 4=15804
 Cu, polygonization, under deformation 1=12377
 Cu surface, after sliding of Cu stylus 4=15706
 Cu-Al alloys, segregation of Al 1=20598
 CuAl₃, plastic deformation, up to m.p. 3=20718
 CuAu₃, ordering 2=4461
 Cu-Ge solid solns., supersaturated, decomposition 1=15159
 Cu₂O-Nb₂O₅ 2=8359
 Cu-Sb, intercrystalline internal adsorption zones 2=23934
 Cu-Si-Mn, stacking faults, formation under tensile deformation 4=12774
 Cu-Zn, polygonization under deformation 1=12377
 Fe, cast, steel, particle size and lattice distortion, by reflection 3=18401
 Fe single crystal plate, mosaic structure 4=26695

X-ray examination of materials—contd**microstructure—contd**

Fe slip, intercryst., on weak plastic deform. and annealing 4=13432
 Fe-Al alloys, short-range order, lattice distortions, temp. composition var. 4=23529
 FeO, phase transformations 3=11200
 FeO, pre-precipitation 4=26557
 Fe-Si (8 at %), absence of lattice distortions 4=23530
 Fe-Si (3.5%) slip, intercryst., on weak plastic deform. and annealing 4=13432
 Ga-Sb-Te system 3=25732
 Ge 0=4628
 Ge, anomalous transmission, rel. to dislocation density 3=20196
 Ge, apparatus 3=25786
 Ge- α -Fe solid solution 3=3340
 Ge-Ni solid solutions, supersat., decomposition, microvoids 3=23486
 H isotope layers, 1.3-4.2°K, isotopic effects 4=17842
 (K, Na)Cl single cryst. solid solns. during decomposition 4=20784
 LiF, neutron radiation damage 4=18512
 LiF single crystals 1=9131
 MgO, dislocations, groups only can be observed 4=4051
 MgO smoke, grain size 4=30911
 Mg-Zn(6%) precipitation 4=17765
 Mo-35 at.%Re, crystal twinning, on deformation 3=23380
 NaNO₂, ferroelec. phase transition 3=25405
 NaNO₂, paraelec., ferroelec. domain analysis 4=26128
 Nb oxides, formation, on heating Nb films and powder 3=13458
 Nb, during recrystallization 2=19100
 Nb-Sn diffusion specimens, superconducting 4=27430
 Ni, "Kanigen" phase 4=7674
 Ni single crystals, sub-structure 2=6859
 Ni, slip, intercryst., on weak plastic deform. and annealing 4=13432
 Ni, substructures after deformation and creep testing 2=16960, 18998
 Ni, undercooled, crystallographic substructure 4=13652
 Ni-Ag alloy, undercooled, crystallographic substructure 4=13652
 Ni-Cr(13%) slip, intercryst., on weak plastic deform. and annealing 4=13432
 Ni-Fe (50/50), ordering, neutron effects 4=13207
 Ni-Fe (72%), phase transforms., $\gamma \rightleftharpoons \alpha$, X-ray diff. obs. 4=23271
 NiO single crystals, twin walls meas. 4=20783
 NiO, twin structure, antiferromag. state 2=21467
 Ni-Ti alloys, phase growth and coagulation 2=8855
 Pb, mosaic size 1=12669
 (Pb, Ba)(Ti, Zr)O₃, phase transitions 4=15739
 PbTe, cold worked and annealed 3=18203
 Sb vacuum-deposited films 4=10609
 Si 0=4628
 Si, dislocation density, crystalline perfection 4=4056
 Si, dislocations 2=21574
 Si, dislocations, direct obs. with white X-rays 4=25945
 Si, dislocation props. by 3-D topographs 4=22597
 Si, epitaxially grown, defects study 3=25286
 Si, layer structure, anomalous transmission study 1=11197
 Si, loop-shaped images 2=15113
 Si, study of imperfections by X-ray microscopy 2=10370
 Si-Fe alloy, compressed, elimination of texture effects 4=26686
 Si-Fe alloys, crystals from different growth rates 1=20096
 SiO₂, vitreous, small-angle scatt., surface effects 2=8899
 Sn single crystals, Ga-coated, break-up due to adsorption 0=6313
 SrTiO₃, crystal interstitials, split, due to neutrons 4=20272
 Ti-Ni, phase diagram 4=10439
 U carbides 4=13611
 U-Mo alloys, effect of ternary additions 4=29168
 UO₂, crystallite size and strain 2=23831
 U-6 wt.% Zr, orthogonal bands 2=4433
 W, particle size of deformed 3=25785
 W wires, crystallite size and lattice strain 2=6861
 WO₃, triclinic, domain structure, effects of stress 1=977

X-ray examination of materials—contd
microstructure—contd

- ZnS films, structure variations 4=15826
 Zr, solid solubility in α -Th 2=4474
 Zr (40) to Sn (50) K lines, electron-probe X-ray micro-analysis using LiF crystal 4=27601
 Zr-Fe, Zr_2Fe and Zr_3Fe phases 4=10442
- molecular structure**
 collagen, low-angle diffraction patterns 0=14038
 crystal, cylindrical, with screw dislocation 2=14445
 intermetallic cpds., thirty-four 2=4466
 keratin, 6 forms 0=10296
 plastics 2=23023
 water mol., H-bonded, study 2=15038
 Bi polymer present in Bi perchlorate aq. soln. 0=4247
 KCl whiskers 2=10805
 PbS-As₂S₃ glasses 1=5101
 S-P₄S₁₀ amorphous solid solutions, effect of P on S chain stabilization 3=20916
 TiCl₃, monodimensional disorder 2=12904

X-ray measurement

- See also Dosimetry
 absorption in powders, appar. 3=12281
 acetylene-oxygen reaction, densitometric study 2=4531
 in atmosphere rel. to sudden commencement of magnetic storm 1=15349
 auroral, during magnetic storm, May 12, 1959 1=21054
 beam quality, p-n junction detector meas. 4=19152
 beam strength, from 1 MeV electron accelerator 0=19822
 beams, half-value thickness meas. 2=5422
 beams, shape, intensity distrib. 2=3204
 betatron energy scale, control and calibration 0=7175
 camera construction, for small angle scatt. 3=2072
 Compton dosimeter 1=5712
 conference, Stanford (1962) 4=24773
 count-rate correction 1=10874
 counter, proportional, Ar-CH₄, resolving time, 10 keV 3=22103
 diffractometer, for small angular range 2=8806
 dosimetry, film, radiation "hardness" energy meas. method 4=5897
 dosimetry, semicond. Si-p-i-n junction, Li drifted 4=19475
 dosimetry of soft X-rays by Ce sulphate solns. 4=9017
 double proportional counter for electron capture absolute meas. 2=20307
 from elec. discharges, apparatus for "Tokamak 2" 1=1901
 electron multiplier for 0.1-3 MeV 3=4373
 film method, for checking output of X-ray machines 0=20110
 films, commercial, comparison 4=3081
 filters, for solar radiation flux meas. 2=19298
 fluorescence analysis, meas. technique 3=13633
 fluorescent in 10-50A wavelength region 2=9670
 fluorometers, comparison 1=5707
 free-air chamber, Canadian standard for medium quality rays 1=1951
 free-air ionization chamber 0=5441-2
 gas discharge counter for radioisotope equipment 4=27715
 Geiger counters, efficiency of commercial types 2=20085
 image intensifier, for diffraction patterns 0=13974
 image intensifier, solid state 2=9669
 interference, with counter goniometer, recorder inertia influence 3=19394
 ionization chamber, calorimetric calibr. 3=2151
 ionization chamber, capacitor-type, for pulsed X-rays 3=24420
 ionization chamber, long, anomalous response near guard tube 4=24941
 ionization chamber for X-ray tube output stabilization 0=20109
 iso-dose, automatic plotter 0=9242
 isodose automatic plotter 3=19391
 megavoltage, locally absorbed, by C calorimeter 4=11739
 multiplet densitometry, recording projection micro-meter 0=4982
 nonlinearity correction 2=3125
 nuclear emulsion sensitivity to X-rays 1=5619
 photocell 0=5340
 photon counters, mica and Be-types, meas. channels 4=5734

X-ray measurement—contd

- photon counters for space vehicles 2=19301
 by photoresistors 2=5429
 pinhole television camera, 1 to 2r/hr sensitivity 0=2512
 precision quantameter, for high energies 0=17298
 proportional counter system 2=1959
 proportional counters, nonlinearity 0=11139
 proportional counters with pulse-height analyser for Cu K α meas. 3=24421
 proportional counters, quantum efficiency 0=2518, 5439
 pulse recording on CRO, electron multiplier 2=7697
 radiography of radioactive specimens 3=7668
 recording X-ray counter, development 1=4686
 safety monitor, integrating multipoint, > 50 keV 4=27826
 scatt. by monodisperse dil. solns. 2=3126
 Sceptre, electron flux X-ray film, calibration 3=2068
 scintillation counter 4=16867
 semiconductor junction diodes 2=16095
 soft X-ray spectroscopy, bibliography 2=21256
 solar, monitor rocket-bourne 2=9034
 solar X-radiation, accompanying three 2+ flares 0=16539
 total beam energy, 6-170 MeV, by ionization chamber 2=20306
 ultrasoft rays, detect. methods, G. M., proportional and photoelectron multiplier counters 4=27594
 ultrasoft radiation, monochromator for efficiency meas. of detectors 4=16606
 wavelength discrimination, using proportional counter 0=17299
 wavelength, effect of counting efficiency variations 2=5428
 wavelength meas. with plane crystal spectrograph 2=15976
 wavelength scale, absolute, Si-crystal meas. 4=27595
 FeSO₄ solns., Fe³⁺ yields 0=3324
 NaI:Tl, response to diffracted X-rays 2=12621
 NaI:Tl scintillation response 2=22480

X-ray microscopes

See Microscopes

X-ray monochromators

- bent-crystal, for α_1 and α_2 isolation 4=11737
 bent-crystal, crystal-bending device 2=23837
 bent-quartz type, for narrow band selection 1=3030
 bent quartz, in X-ray small-angle scattering apparatus 4=10515
 crystal, higher-order reflection 0=16296
 d.c.-a.c. converter appl., using balanced Ross filters 2=11590
 diffracted beam monochromator, simple 4=27599
 double crystal, collimated beam 0=3194
 double-crystal unit, description and use 3=4231
 doubly-focusing, die-forming of LiF crystals 1=13145
 for efficiency meas. of X-ray detectors 4=16606
 Johansson unit, choice of parameters 3=2070
 precision-type 3=17013
 prochlorite (natural silicate) as diffraction crystals 3=4230
 quartz, for small-angle diffr. camera 2=5425
 with rotating diffraction grating 4=635
 for soft X-rays, able to count absolute number of quanta 1=3029
 theory, use 3=2069
 vacuum isolating window 4=24778
 with Ge dendrites 4=24777
 MgO, LiF crystals, polarization factor importance 4=27600

X-ray reflection

- alkali halides, intensity, temp. var., and Debye temp. 4=4249
 asymmetric surface effect, anomalous 3=25685
 bent crystal, focusing conditions with micro-source 2=14978
 bent crystals, hard rays, rel. to line shape 3=6835
 Bragg, from perfect crystals, effect of thermal vibrations 2=18521
 in crystals, Debye attenuation factor 1=15052
 crystal diffraction, amplitude atten. 3=13437
 at crystal surfaces, critical beam width 4=13625
 crystal surfaces, texture study 3=25660
 crystals, anomalous extinction effects 3=8828
 crystals, deformed 4=1706
 crystals, dislocations, intensity calc. 3=5063
 in crystals, effect of mag. fields 0=10301
 crystals, elastically curved with const. gradient 4=15773
 diamond, (111) face 0=12020
 dynamical theory, test using Ge single crystals 1=9134

X-ray reflection—contd

- from fibres in preferred orientations 3=18400
 - films, specular, interference structure 4=3078
 - from films, use in thickness meas. 4=17840
 - films, thin solid, annealing and oxidation studies 0=14089
 - glass (BK7), 1.54 Å 3=23093
 - glass, and crit. angle and absorpt. 4=28675
 - glass and titanated surfaces, ultrasoft X-rays 3=14706
 - grain, single, and rotating crystal, theories 1=20695
 - line intensity distrib., depend. on size and form of surface 1=11603
 - linear—elliptic polarization change in total refl. 4=634
 - perfect crystal, near total reflection 3=11253
 - polishing imperfections, effect 4=30007
 - powder samples, double reflections, small-angle intensities 0=4618
 - quartz, and crit. angle and absorpt. 4=28675
 - quartz, 1010 plane 2=14988
 - quartz plate, ground, boundary effect 2=10953
 - solid solutions, effect of thermal oscillations 3=3339
 - steel, effect of stress 4=23143
 - 13 substances, rel. to refr. index and absorpt. coeff., 236-113A 4=22846
 - total, wave separation 2=814
 - Al alloy, effect of stress 4=23143
 - Al, effect of temp. on integrated intensity 1=14194
 - Al films, 1.54 Å, 500-3000 Å thick 3=23093
 - Al films, reflectance, rel. to substratum 4=26708
 - Al, and crit. angle and absorpt. 4=28675
 - Au and crit. angle and absorpt. 4=28675
 - Cu crystals, rel. to transmission 3=20828
 - Cu, effect of stress 4=23143
 - Ge, dislocations, intensity calc. 3=5063
 - Ge, temp. depend., vibrational amplitudes 2=18522
 - Ge, (220) and (111) planes, meas. 3=1318
 - LiF crystals, increasing reflection power 0=8183
 - Mn ferrite, line width variations 3=3304
 - Mo filings, Fourier anal. and line breadths 3=16068
 - Si, anomalous absorption effects in single crystals 2=15015
 - Si perfect crystals, effect of thermal vibrations 2=18521
 - Si, temp. depend., vibrational amplitudes 2=18522
 - TiC, intensity dependence on heat treatment 2=823
- X-ray scattering**
- See also Compton effect; X-ray diffraction
- alloys, binary, effect of lattice distortions 2=14990, 19068
 - alloys, composition analysis 2=4575
 - by alloys, of substitution multicomponent type 0=8272
 - amorphous and homogeneous slab, coherent, in direction of primary beam 0=17294
 - anisotropic crystals, rel. to electron-phonon interaction 2=8163
 - anomalous dispersion and structure determination 1=1393
 - anthracene, temp. diffuse scatt. 1=9969
 - appl. to studies of solids and macromol. solutions 1=20719
 - rel. to atomic no., quality and quantity, effect on radiation protection 1=5710
 - atomic scatt. factors, function generator 1=15065
 - atomic scatt. factors for 2, 3 and 4-electron systems 4=3800
 - atomic scattering factors for rare-earth ions 2=23675
 - atoms, C to U, Ag K α and Co K α , dispersion corrections 4=3813
 - by atoms, sum rules, involving screening const., self-energy 3=12775
 - bound nucleus, elastic scatt. at resonance 2=14361
 - Bragg reflection influence on X-ray fluorescence analysis 1=10109
 - Bravais lattice, Debye-Waller factor, anharmonic contribs. 3=8827
 - by cell-model liquid 0=19116
 - characteristic modified scatt. by Li, Li₂O, LiF, Be, B 3=5982
 - colloidal systems, calc. for prisms 1=20772
 - colloidal systems, elliptical and hollow cylinders 2=8937
 - cubic powders, temp. diffuse scatt. 0=1920-1
 - crystal defects study, dynamic effects technique 4=1451
 - by crystal lattices, Baker-Hausdorff formula 2=19442
 - crystal, molecular, diffuse scattering, theory 4=26171
 - by crystal, partially ordered, diffused scatt. 4=13569
 - crystals, effect of anisotropic elastic constants and dislocation loops 4=4591

X-ray scattering—contd

- crystals, diffuse, small-angle, rel. to local order 4=29079
- in crystals, exciton formation 2=586
- crystals with screw dislocations, calc. 2=14998
- crystals, thermal, effect of anharmonicity 2=21575
- crystals, thermal scatt. factor, rel. to specific heat 4=1393
- Debye-Waller scatt. factor, det. using Mössbauer effect in Al, Pt, graphite and paraffin 0=11560
- X-rays in diamond crystal during Compton scattering 1=20493
- diamond, scatt. factors, rel. to covalent bonding 2=3808
- diffuse, crystals containing stiff groups of atoms 0=4617
- diffuse, elastic const. det. 0=13983-4
- diffuse, by tetragonal crystals, elastic const. det. 1=14842
- by distorted crystals, theory, with and without use of atomic scatt. factors 0=12022-3
- domain structure 1=7876
- elastic, near photoelec. threshold 0=11117
- electron gas, Coulomb correl. effect 4=30012
- by electrons (Compton effect) 2=272
- on electrons, in crystalline fields, outer electron config. 0=12028
- ellipsoids, triaxial, calc. 2=15169
- experimental intensity conversion to absolute scale 4=7591
- factors for neutral atoms, Hartree-Fock potential 4=17256
- fibres, glass, low angles, due to internal reflection and surface scatt. 4=29200
- fluctuating inhomogeneities in crystals 4=25836
- fluctuations, theory 0=16642
- fluorescent, in 10-50 Å wavelength region 2=9670
- gases of finite-sized atoms and mols., theory 4=2733
- gases, intensity calc., accuracy 4=16112
- gases, low angle, large incident beam 3=21446
- gases, review of results, electron size 0=1270
- gels, with hole structure 0=718
- grid reduction, limitations 0=2523
- hexamethylenetetramine, diffuse scattering, theory 4=26171
- incoherent scatt. functions for N, O, F, Si, Ge atoms and ions 0=4620
- intensity distrib., Compton line width 0=7717
- lattice vibrations, theory and expt., review 3=22634
- line broadening, use of variance 2=9668
- liquid two-component system, clustering study 1=6854
- liquids, intensity calc., accuracy 4=16112
- liquids, low angle, large incident beam 3=21446
- low-angle, recording technique for time variant scatter specimens 0=12018
- by macromolecular coils 4=15392
- by macromolecules, proteins, biological applications 4=15391
- measurement, small angle, standards 3=19393
- metallic coatings, back-scatt., for thickness meas. 2=15527
- metals, and free electron number 4=13588
- molecular crystals, diffuse scatt., temp. depend. 2=8160
- molecular crystals, diffuse, rel. to thermal agitation 4=23391
- molecular liquids, electron density distrib. meas. 4=11180
- by molecules, semi-stiff chain type, at low angles 0=11546
- montmorillonite clay suspensions, small-angle scatt. 2=19167
- mosaic crystals, coherent scattering regions, theory 0=13982
- mosaic crystals, theory 2=2437
- naphthalene, diffuse scatt., temp. depend. 2=8160
- non-crystalline solids 0=718
- particle system, small-angle, rel. to size distrib. 3=18402
- particle with arbitrary mag. moment, relativistic presentation 3=23749
- point defects study in crystals 4=1459
- polishing imperfections, effect 4=30007
- from polycrystalline metals, method of study of recrystallization 1=5107
- polymers and macroisotropic systems 3=16088
- rare earth ions, atomic scattering factors, erratum 4=28781
- Rayleigh, multiple scatt. at small angles, transport eqn. 1=16111
- screw dislocations, displacement field 3=2806
- silica sol mixtures, at small angles, rel. to particle size 0=12053
- small-angle, absolute scale, theory 4=30863

X-ray scattering—contd

- small-angle, from Al hydroxide gels 0=3332
 small-angle, Al-Ag alloys, γ' phase platelet thickness 1=15121
 small-angle, apparatus for obs. meas. 1=15839
 small angle, camera construction 3=2072
 small-angle, from cylinders, theory 2=4506
 small-angle, meas. apparatus 2=2438
 small-angle, by monodisperse dil. systems 2=3126
 small-angle, Na borosilicate glass 1=20716
 small-angle, particle size determ. 2=10931
 small-angle, particle-size determination of silica gel 0=8330
 small-angle, pile-irradiated graphite 0=20857
 small-angle, effect of stacking faults 1=975
 small-angle study of montmorillonite clay suspensions 1=6579
 small-angle, surface meas. of granular materials 0=21222
 Smekal-Raman type 0=347
 solid solns., small-angle, Guinier-Preston zones 3=8878
 solid solution, by thermal vibr., theory 3=11250
 solid solutions, critical opalescence, theory 4=8526
 solid solutions, disordered, lattice distribution effects 1=15054
 solid solutions, distorted, heterogeneous, theory 1=15153
 solid solutions, with highly distorted lattices, diffuse scatt. 1=4038
 solid solutions, rel. to concn. and degree of order 1=20616
 solids, diffuse, inversion temperature function 1=9972
 solids, low angle, large incident beam 3=21446
 solids and powders, diffuse scatt. 3=11251
 spectral distributions 0=12904
 stearic acid, temp. diffuse scatt. 1=9969
 structure factors of rotationally symm. shapes 4=878
 temperature depend., Debye temp. calc. 2=3843
 thermal, effect of vibrational anharmonicity, above Debye temp. 1=2372
 Thomas-Fermi-Dirac atoms, neutral, scatt. factors 4=3768
 II-VI cpds., structure factors, crystallographic polarity 2=6791
 transition metals, electron distribution 0=515
 1-3-5-triphenylbenzene, diffuse scattering 0=21206
 unsmeared low-angle curves using computer 2=17008
 in water, energy and ang. distrib. 0=7330
 in water phantom, meas. and calc. 3=7062
 water slab, spectra and integrated flux meas. 1=19171
 Al alloys, ageing, temp. diffuse scattering 0=14004
 Al, atomic scatt. factor, abs. meas. 1=7433
 Al, atomic scatt. factor, meas. 0=12026-7
 Al, Debye temp., calc. 2=3843
 from Al, low angle 3=2072
 Al, two-phonon scattering 0=7864
 AlCu, anomalous lines after age hardening 2=15064, 19103
 Ar, atomic scatt. factor, rel. to theory 4=3797
 Ar, critical opalescence, X-ray meas. 4=2880
 Au-Ni, small-angle, from double Bragg reflections 1=7890
 Br₂, f-values 2=6218
 CaF₂ crystal, Compton effect 0=8195
 CaF₂, lattice dynamics theory rel. to expt. 2=3819
 Cr, and atomic electron density 4=13588
 Cu, atomic scatt. factor, abs. meas. 1=7433
 Cu, in Cu₂O, atomic scattering factor 4=10530
 from Cu, low angle 3=2072
 from Cu, at 90°, rel. to half-value layer 1=1954
 Cu-Zn alloy, thermal scattering anomalies 0=16317
 Fe, atomic scatt. factor, abs. meas. 1=7433
 Fe, atomic scatt. factor and electron density 4=13591
 Fe, on d- and f- electrons, in crystalline fields, outer electron config. 0=12028
 Fe, scatt. factor for outer electrons in Fe₃Al 0=1915
 Fe₃N, atomic factor of N 3=8846
 Ge, atomic scatt. factor, imag. part 3=11257
 Ge, scatt. factor, imaginary part, theory and expt. 1=11559
 H atom in H₂ molecules, scattering factor calc. 4=3812
 H₂, coherent and incoherent, rel. to bonding electrons 1=19681
 H₂, high-pr. gas target 1=16626
 H₂O mols., intensities calc. using two methods 4=6522
 He atom, atomic scatt. factors calc. 3=25703
 He atom, cross-section and wave-functions 1=3518
 He atom, Schwartz method calc. 3=10445

X-ray scattering—contd

- He, coherent and incoherent 1=19681
 He and He-like ions atomic scatt. factors, calc. 4=10499
 He and He-like ions, X-ray scattering factors 1=17286
 Hg, liquid, temp. depend. 3=7198
 KCl-KBr solid solution, diffuse 0=16323
 Kr, atomic scatt. factor, rel. to theory 4=3797
 Li, electrons, Compton effect, rel. to momentum distrib. 4=6773
 Li, rel. to total cross-section 1=6220
 LiH, coherent, rel. to charge distrib. 2=14989
 MnO, scattering factors of Mn and O atoms, meas. 4=4587
 Mg-In h.c.p. alloy, local order obs. 3=25744
 N, and critical opalescence 4=29676
 by N₂, mol. wave-function 3=19985
 NH₃ mols., intensities calc. using two methods 4=6522
 Na borosilicate glasses, low-angle 0=10320
 Na borosilicate glasses, rel. to light scatt. 0=16040
 NaNO₂, critical, rel. to phase transitions 4=20716
 Ne, atomic scatt. factor, rel. to theory 4=3797
 Ni, on d- and f- electrons, in crystalline fields, outer electron config. 0=12028
 Ni, scattering factor 4=25506
 Ni-Cr alloy, thermal-scattering anomalies 0=16317
 Ni-V alloys, thermal scattering anomalies 0=16317
 Pb, image of Fermi surface 2=23115
 Pt, ang. distribution 0=7327
 Si, Compton effect, at $\sin \theta/\lambda = 0.34$ 4=26671
 Si, Compton scatt. 2=2371
 Si, crystal lattice optical and acoustic oscill. frequ. 293°K 3=15419
 Si, small-angle, thermal and incoherent 4=17581
 Xe, atomic scatt. factor, rel. to theory 4=3797
 ZnS, faulting effects 3=17771
- X-ray spectra**
 See also Atmospheric spectra; Chemical analysis, X-ray alloys, group transitions producing satellites 2=580
 atomic number and K-absorpt. edge energy 3=25470
 atoms in cpds., chemical bond effects 3=6658
 Auger, in j-j coupling, calc. 3=17524
 auroral zone, pulsating, 100 second period range 3=11455
 calc., deep-lying solutions of Schrödinger equation for single electron problem 4=1176
 cathode massive, yield by measuring photoeffect 3=6663
 conference, Rostov-on-Don (June-July 1959) 2=12609
 crystals, fluorescent, rel. to atomic site electric field meas. 3=10972
 even deformed nuclei, x-x coincidence, rel. to internal conversion 4=9382
 h.f.s. for $74 \leq Z < 95$ 1=14615
 isotopic shift 4=19940
 K- and L_{III} level widths rel. to Z 2=10212
 K-LI, Auger spectrum, empirical Z-depend. 3=2591
 K-series, term representation 1=5972
 K _{α} , K _{β} satellites, new relationship 2=10214
 K _{$\beta_{5,2}$} line, atoms Z=20-29, position 2=14208
 K _{β} line relative intensity, in different metal compounds, by superposing short-wave tails of K _{β_1} 3=23085
 L₁L_{2,3}M_{4,5} Coster-Kronig transitions, sensitivity to screening var., Sc to Sn 4=12349
 L _{$\beta_{2,3}$} , L _{β_{15}} , L _{γ} , intensities, substs with unfilled N shell 2=21260
 line width, intensity distrib. in reflection, surface depend. 1=11603
 metals, K-series, rel. to pre-excitation of interacting electrons 3=25471
 multipole radiation, various forms 0=19887
 non-diagram lines 3=23084
 Picker Vanguard machine, 140 kVp primary and scattered spectral distrib. 0=12905
 plasma, theta-pinch, Scylla I, 15-25A 3=24296
 rare earth hexaborides, analysis 3=10763
 review of techniques, past and present 0=3952-9331
 satellites, K, L, confirmation of theory by Ag 4=28708
 satellites, origin, survey 3=10442-3
 satellites, theory, two-electron transition 3=23091
 scattered X-rays, off beam-axis, spectral distrib. 0=12904
 screening model, from level widths 4=12349
 smearing aberrations, correction method 2=7696
 solids, rel. to energy band broadening 2=14406
 spectroscopic analysis 2=15170
 transition metals, group transitions producing satellites 2=580

X-ray spectra—contd

- van Allen belt electron absorption 1=15330
vector coupling 2=6589
X-ray fluorescence, influence of Bragg reflection on analysis 1=10109
Z = 38-47, K-LL Auger spectrum, in intermediate coupling region 3=2592
> 15 Å, distortion by Au-covered diff. grating 4=30008
Ag, L satellites, confirmation of theory 4=28708
Al, satellites of K α and K β lines, systematics 4=13018
Au, rel. to electron energy band structure 2=16625
Au, new L transition, non-quadrupole 3=8183
Be and BeO, ultra-soft, rel. to energy struct. 4=30544
Cr, broadening, rel. to chemical binding 4=1427
Cr, K-absorption 3=3030
Cs, fast neutron capture 3=6267
Cu K α_1 , line shift from Cu to CuO 3=20499
Cu thin foils, fine structure "melting" rel. to atomic thermal vibrations 3=10973
Cu-Pt solid solution thin foils, fine structure "melting" rel. to atomic thermal vibrations 3=10973
Fe group, asymmetry in K α_1 and K α_2 lines, cause 3=8184
Fe, K-absorption 3=3030
Fe transition group metals, K β s and satellites, temp., crystal var. 3=25475
Fe, trivalent, K β' line, origin 2=14210
Fe-Cr-Ni alloys, rel. to electron energy spectrum 2=16626
Ga, M-bands 3=9593
⁵³I¹²⁵, K-LL Auger spectra, satellites 3=4707
Mo, short wavelength limit meas. 3=4979
Mo, M_{IV,V}-N_{II,III} emission 2=22291
Nb, short wavelength limit meas. 3=4979
Ne, assignments for K α' and K α lines 2=14210
Ni-Cr, K α lines, electron excitation curves 2=5379
Pb, L-spectra, quadrupole and forbidden transitions 3=4712
Pd to Te, L, absorption and emission 4=19964
Pt, forbidden transition 1=3513
Pt thin foils, fine structure "melting" rel. to atomic thermal vibrations 3=10973
Pu, L-spectra 2=706
Re, L-spectra, quadrupole and forbidden transitions 3=4712
Re¹⁶, L-emission, quadrupole and forbidden lines 3=15293
S cpds, K α transition, rel. to outer shell 3=19997
Ta, short wavelength limit meas. 3=4979
⁸²Te¹²⁵, K-LL Auger spectra, satellites 3=4707
Th, L, non-quadrupole transitions 2=20746
W, L-spectra, quadrupole and forbidden transitions 3=4712
W, Planck's constant from short-wave limit 1=14623
W, short wavelength limit meas. 3=4979
W¹⁸¹ 1=17064
Yb, M γ , by 30-100 keV protons 4=30385
Zn, Ga, Ge 0=13469
ZnSb 1=11387
 ϵ -Zn₃Sb₂ 1=11387
ZnSb₃ 1=11387

absorption

- absorption edge positions, effect of chemical and physical states 0=20596
alloys, absorption edge deformation, vacancy mechanism 1=3848
characteristic absorption, diffractometer meas. 1=11995
edges, for chemical analysis, 0.53-2.2 Å 4=10674
fine struct., crystals, 9-573° K 4=10154
fine structure rel. to characteristic electron energy loss 2=14211
fine structure, temp. depend., theory 3=4977
inert gases, L 3=8189
Invar, K-edge position 2=17030
K-edge absorption, for various elements from V to Ge 4=4243
K-edge data, calc. of charge of atoms in mols. 2=14209
K-LL Auger lines, intensities, rel. to atomic number 3=17523
K-spectra calc. 0=7720
krypton, L 3=8189
mass absorpt. coeffs. near K-edge calc. 2=23578
metals, absorption edge deformation, vacancy mechanism 1=3848
metals, fine structure, inter-electron interaction effects 2=704

X-ray spectra—contd**absorption—contd**

- semiconductors, short wave limit displacement 3=4919
solid, fine structure, review of theories 4=15579
solids, fine structure, short-range order theory 3=6657
solid state 1=11386
technique, qualitative, quantitative analysis 2=8939
tinplate thickness meas. 0=8290
"total external reflection" filter 0=17293
transition metal cpds., covalent complexes, fine structures 3=8609
transition metal compounds, Fe group, with Al or Si 4=7144
transition metal compounds, K-absorption edge splitting 3=25175
transition metal silicides 1=14622
transition metals, K-absorption theory 2=23580
transition elements, K $\alpha_{1,2}$ lines, asymmetry index 2=14214
transition elements and silicides 2=8546
ultrasoft bremsstrahlung region 3=4232
xenon, L 3=8189
Ag 47-Te 52, L-edge rel. to electronic structure 1=20000
Ag, L-absorption, fine structure, theory 3=6661
Ag, L, rel. to lattice 2=21257
Al alloys and compounds, K 3=10974
Al, in wavelength range of L_{II,III} emission 2=4162
Al, K, L_{II,III}, rel. to electron states 2=4160
Al-Zn alloy, K-edge, common conduction zone 1=14616
AmO₂, M 4=7146
Ar, absorption coefficients, 2 to 8 Å, meas. 4=3784
A, atomic absorption factor 0=7720
Ar, K-absorption edge, counter response meas. 4=9636
As, K-absorption spectra after neutron irradiation 2=23583
Au and its alloys, rel. to electron states 1=19998
Au, K absorption edge, effect of spectrometer window 0=9760
Be, ultrasoft region 3=4232
from Be-window tubes, absorption analysis, data for 4 tubes 0=20105
Be, X-ray K-absorption fine structure theory 4=1723
Be, BeO, around K edge 4=26176
CH₄, K-LL fine structure 0=17715
Ca compounds, influence of charge on Ca ion 3=8273
Ca compounds, X-ray K absorption, influence of charge on Ca ion 3=8273
Ca, L_{II,III} absorpt., fine structure calc. 2=10611
Cd 48-Te 52, L-absorption 1=19999
CdTe, L-absorpt. 3=25472
Cl in KClO₄, KClO₄, X-ray effects 4=13029
Co compounds, K β , band and initial absorpt., correlations 4=7127
Co and Mn complete oxides, K-absorption, rel. to valence states 4=6691
Co-Fe alloys, K absorption edge shift 1=11388
Cr, bond characterization 1=14617
Cr, cubic and hexagonal, K absorption 4=7118
Cr, flash K-lines meas. 4=20453
Cr films, L-spectra meas. 2=12607
Cr, rel. to transition metals spectra interpretation 4=72852
CrB, bond characterization 1=14617
Cr-Fe alloys, K absorption edge shift 1=11388
Cr-Mo alloys, rel. to composition 0=1937
Cr₂O₃, bond characterization 1=14617
CrS_{1.17}, bond characterization 1=14617
CrSe, bond characterization 1=14617
CrTe, bond characterization 1=14617
CsCl, K-absorpt. of Cl, meas. 3=6660
CsClO₄, K-absorption of Cl 3=20498
Cu alloys 0=13469
Cu, comparison with supercond. CuS 0=14934
Cu, isochromat structure rel. to electronic states 2=4159
Cu, isolated fringes 0=13470
Cu, K absorpt. edge region, photoelec. emission 3=6351
Cu, K-absorption meas. 4=17562
Cu, K edge fine struct., from p-quasistationary states 4=13032
Cu, L_{II,III} fine structure, d quasistationary state energy calc. 4=13031
Cu, M_{II,III}, valence, quasistationary states 4=13030
Cu, single crystal, Kronig-structure variations 2=14696
Cu²⁹ in Cu₂S, CuS, CuCl, CuBr and CuI, L_{II,III} and L_{III} spectra 4=28679

X-ray spectra—contd
absorption—contd

Cu²⁹ in pure metal, cuprous and cupric oxides, L_{II}- and L_{III}-spectra 4=28678
 Cu-Al, Cu-Mg, K-absorption 2=6590
 Cu-Ni alloys, K-absorption meas. 4=17562
 CuS, K absorpt. edge, fine structure 2=21258
 Cu-Zn cpds, K-edge fine structure 3=5134
 Dy, flash L-lines meas. 4=20453
 Fe, in antiferromagnetics and ferrites, K-edge 0=672
 Fe-group, K absorpt. edge structure 2=16842-3
 Fe, K absorpt. edge for β, γ, δ iron 3=15691
 Fe, K-absorption edge 2=10609
 Fe, K absorpt. edge, plasma excitation and fine structure 2=14211
 Fe, K-edge, temp. dependence 0=1738
 Fe, K-spectrum, fine structure, effect of W impurities 3=8608
 Fe silicides, K β , line, shift rel. to Fe 3=20041
 Fe-Mo solid solutions, fine structure rel. to binding forces 3=5141
 Fe-Ni alloys, K absorption edge shift 1=11388
 Ga, K absorption spectrum, 17° and -185°C 0=20733
 Ga single crystals, K absorption anisotropy 2=18852
 Ge ideal crystals, anomalous, calc. 2=23579
 Ge, K-absorption, extended line structure, rel. to polarization 3=20500
 Ge, K-absorption, fine structure and theory 3=6659
 Ge, K-absorption, fine structure, orient. depend. 4=4258
 Ge, K-edge, fine structure 1=12501
 Ge, L series, effect of small Sb impurities 1=20002
 Ge in GeO₂, K, rel. to crystal structure 2=21261
 Ge-Al, K-edge 2=18853
 GeO₂ glass, fine structure 4=15591
 Hg, K-edge, calc., effect of including Lamb shift 0=1471
 In, in semicond. compounds, L_{III} fine struct. 4=20460
 K halides 2=3889
 K halides, K-absorpt of K 3=6662
 KCl, K-absorpt. of Cl, meas. 3=6660
 KCl, K-absorption of K and Cl 3=20497
 KCl, K-absorpt. for both K and Cl 2=10610
 KCl, K, var. with isolated line width 4=1753
 KCl, peaks, rel. to plasma oscillations 1=8997
 KClO₃, K-absorpt. of Cl 3=23090
 KClO₃, K-absorpt. of K and Cl 3=20497
 KClO₄, K-absorpt. of K and Cl 3=20497
 KClO₄, K-absorption of Cl 3=20498
 K₂Ni cyanide, K-absorption edge 2=18851
 KOsO₃N, L_{III} 2=14693
 LaF₃, Nd³⁺ doped, hidden selection rule 3=20481
 Li 1=6220
 LiCl, K-absorpt. of Cl, meas. 3=6660
 3LiClO₃·H₂O, K-absorpt. of Cl 3=23090
 LiClO₄·3H₂O, K-absorption of Cl 3=20498
 Mg, L 4=13044
 MnTe, rel. to structure and antiferromag. transition 1=6218
 N₂, K-L fine structure 0=17715
 NaCl, K-absorpt. of Cl, meas. 3=6660
 NaCl, K, var. with isolated line width 4=1753
 NaClO₃, K-absorpt. of Cl 3=23090
 NaClO₄·H₂O, K-absorpt. of Cl 3=20498
 NaI (Tl) narrow well for iodine K X-ray escape 1=10110
 Nb, L_{III}, L_{II} edges 3=23095
 Ne, absorption coefficients, 2 to 8 Å, meas. 4=3784
 Ni dimethylglyoxime, K-absorption edge 2=18851
 Ni, and hydrogen chemisorption 2=6587
 Ni, K-absorption meas. 4=17562
 Ni, K-shell, effect of proton irradiation 2=14698
 Ni phthalocyanine, K-absorption edge 2=18851
 Ni-Al, principal K-edge of Ni 2=21259
 NiAs type cpds., bond characterization 1=14617
 Ni-Fe alloy, K-shell, effect of proton irradiation 2=14698
 Ni-Fe alloys, fine structure 0=518
 Ni-Mo solid solutions, fine structure rel. to binding forces 3=5141
 Ni and Ni-Cu alloy, K-absorption spectra 0=13471
 NiS, K-edge, fine structure 2=21258
 O₂, K-L fine structure 0=17715
 Os complexes, study of charge and type of chem. bonds 0=20672
 [Os(NH₃)₆]Br₃, L_{III} 2=14693
 Pb, K-edge, rel. to μ -meson mass det. 0=11559

X-ray spectra—contd
absorption—contd

Pb-Sn alloys, rel. to composition 0=1937
 Pd and its alloys, rel. to electron states 1=19998
 Pd, L-spectra 3=4710
 Pt on alumina, L₃ absorpt. edge, effect of crystal size and gas adsorption 4=7152
 Pu, M 3=8610
 Pu, M 4=7146
 PuO₂, M 4=7146
 RbCl, K-absorpt. of Cl, meas. 3=6660
 RbClO₃, K-absorpt. of Cl 3=23090
 RbClO₄, K-absorption of Cl 3=20498
 S, comparison with supercond. CuS 0=14934
 S in covalent gaseous SO₂, SOCl₂, SO₂Cl₂, ionic gaseous H₂S and crystalline CaSO₄, K spectrum 3=23097
 Sc and Sc refractory compounds, K-absorption edge, fine structure 4=4272
 Se, K-absorption spectra after neutron irradiation 2=23583
 Se, K-edge 0=20734
 Se, K, in Se, and As₂Se₃, discontinuity shift 4=10192
 Se, K-spectrum, effect of chemical and intermetallic bonding 2=23582
 Se, theory 0=6127
 Si, anomalous transmission, 500-1540 XU 3=13185
 Te, theory 0=6127
 Ti 1=14621
 Ti, in BaO·TiO₂, rel. to ferroelec. props. 0=1739
 Ti, in BaTiO₃, fine structure of fund. edge 0=15809
 Ti, K-absorption 0=20595
 TiC 1=14621
 TiC-TiN solid solutions 2=707, 8541
 TiH 1=14621
 TiN 1=14621
 TiO₂ 1=14621
 V 1=2449
 V, flash K-lines meas. 4=20453
 V, K-spectrum, in various cpds. 0=1737
 VSi₂ 1=2449
 V₂Si 1=2449
 V₃Si₂ 1=2449
 WL β_1 and WL β_2 , breadth rel. to excitation conditions 2=7695
 Zn, flash K-lines meas. 4=20453
 Zn, K-absorption spectra after neutron irradiation 2=23583
 Zn²⁺, atomic absorption factor 0=7720
 Zn-Al, Zn-Mg, K-absorption 2=6590
 Zr, K-absorption spectra after neutron irradiation 2=23583
 Zr, ZrO₂, ZrOCl₂, K-edge, with Cauchois spectrograph 1=17905

emission
 angular distrib., absorption effect in solid target 4=13009
 from anticathodes at 35 and 45 keV, meas. and polarization 1=9745-6
 appl. for quantitative chem. analysis 1=20787
 asymmetry, effects in defect crystallography 0=3202
 atoms, Z = 40 - 51, L fluorescence yield 4=30386
 auroral, balloon observations during IGY 0=14266-7
 auroral, during storm (10-11 Feb. 1958) 0=8402
 β -excited, as energy reference source 0=3953
 β filter absorption, effect on emission lines 1=16472
 black-body source, temp. det. from absorpt. analysis 1=18969
 characteristic, intensity meas. by Geiger, proportional and scintillation counters 4=19482
 characteristic, from solid target, ang. distrib. due to absorption effect 4=13009
 continuous, from electron-opaque targets, ang. and energy distrib. 0=3951
 continuous, low energy, var. with electron energy 4=5733
 continuous spectrum, 80-180 Å, intensities 2=3311
 correction of distorted spectra, two methods 3=4238
 crystals, soft bands, rel. to Fermi level 3=4838
 cubic diamond-type lattice, derivation by band structure theory 3=10618
 in discharge, Penning, prod. by anode bombardment, max. energy 4=21468
 distortion, due to reabsorption, in layer thickness 3=6898
 doublet separation rel. to line width, linear in Z 2=10213
 effective depth of production, from emission profiles 1=14619
 elec. discharge, in "Tokamak 2" 1=1901

X-ray spectra—contd
emission—contd

electron probe microanalysis, X-ray intensities calc.
for elements 1=6219
elements, K and L satellites 1=2296
excitation characteristics by protons, electrons and
primary X-rays 4=28663
exploding wires, hollow, X-ray emissions meas. 4=16177
fluorescence of compound specimen, effect of
matrix 4=4285
fluorescence between elements, mutually induced,
theory 4=10208
gas discharge 0=5540
gas discharge, plasma ring config. 1=7039
graphite, and Brillouin zone 0=6007
graphite, and electron states 0=1545
h/e evaluation, from quantum limit 0=2094
hard, radiated from plasma in strong mag. fld., rel. to
E/p 4=11612
heavy elements, K relative intensities, calc., rel. to
retardation 0=11511
heavy elements, L intensities, 50 kV electron
excitation 3=8178
heavy elements, eleven, L spectrum 2=6588
heavy elements, nuclear size effect on $L_{II}-L_{III}$
splitting 1=8819
indirectly and directly produced line radiation,
ratio 1=14620
intensity calc. for electron probe microanalyser 0=14155
K α , K β satellites 2=10214
K α , L α , and L β , lines, expt. efficiency values 4=28662
K α satellites, interference with tail of K α , line 3=23426
K $\alpha_{1,2}$ lines rel. to chemical bonds 2=21262
K-emission, production efficiency 4=11738
K, 40-1000A 0=20594
K-shell fluorescence yield of several atoms 0=5851
K-spectra, of thick targets, efficiency of prod. 2=3124
K X-ray yields, low atomic no. elements 3=23089
L-series, intensities, unfilled N-shell 2=21260
line radiation, depth of formation 4=3077
linewidths, true values from meas. values 3=3029
M-bands, Cu and Ni, from Cu-Ni system 3=23087
M shell of Nd, Sm, Gd, Tb, Dy, Ho by 25-100
keV protons 4=25505
metals and alloys, broadening of edges 2=23581
metals, characteristic X-rays, comp. of theory
and expt. 3=13193
metals, screening effect 0=13512
metals, soft X-rays, double electron transition
contribution 4=12687
minerals containing U and Th, 5-200 keV 4=6249
moon, calc., and composition 3=13860
 μ -mesic atoms, K yields for light elements, theory, appl.
to Li, Be, B 0=13422
 μ -mesic atoms, from S to Mo 4=15310
 μ -mesic atoms, 2p-1s, calc., for capture
studies 4=30404
molecules, rel. to atomic charges 2=20765
neutron stars 4=23870
particle accelerator, synchrotron, Frascati,
electrons 4=3079-80
 π -mesic atoms, deficiency 1=12269
plasma, continua and line spectra of highly stripped
atoms 1=8820
plasma, magnetically compressed 4=18868
prod. by β -ray bomb. 1=20785
pulsed discharges 0=5317, 19650
quadrupole and nonquadr. transitions, screening
doublets 4=9632
rare earth elements, K α lines 0=481
rare earths, using bent crystal spectrograph 2=8544
self-absorption corrections, due to line and
continuum 3=23094
solar 1=15488
solar corona, Gaunt factor 0=18779
solar limb, rel. to atmospherics 0=16542
solid state 1=11386
solids, use of threshold energy electrons 1=6088
sparks, electron temp. 0=9010
from stars, in Galaxy 4=23869
from stars, neutron 4=29378
sun, centre-limb variation 0=18742
sun, 4-14A, UK1 satellite results 3=16388

X-ray spectra—contd
emission—contd

technique, characteristic lines 2=8939
transition metals, effect of impurities 0=9764
vacuum spark emission, 0.5-2.2A 4=29890
X-ray emission, observations and theory 3=13894-5
yields, 1.5-44A, due to 1.5 MeV protons 4=17593
Ag, continuous, Ohlin structure meas. 4=4242
Ag, L-shell fluorescent yield 0=15652
Ag, $N_{II,III}$ intensity distrib. 1=3514
Ag^{100m} decay, rel. to intermed. level search 4=27971
Al alloys and compounds, K β_X 3=10974
Al cpds., and valency from X-ray emission
K α spectrum 4=20062
Al, K β band, secondary excitation, difference from electron
bombardment 4=13016
Al, K-line, absolute intensity meas. 0=5876
Al, K-shell fluorescent yield 0=15651
Al, $L_{II,III}$ bands, using ultra-soft X-rays 2=4161
Al, liquid, L_{23} , rel. to structure 3=16628
Al, photoelectric emission 0.7-30 keV 3=14638
Al, using photomultiplier soft X-ray spectrometer 1=1953
Al, plasmon satellites 3=8607
Al, solid and liq., K β_X lines, analysis 4=13017
Al VII, electron temp. 0=9010
Al XII impurity in high-temp. deuterium plasma 3=7581
Al XII, in plasma 1=8820
Al₂O₃ (corundum), K β , line, complex nature 4=4251
Am, L-spectrum, nuclear size effect on $L_{II}-L_{III}$
splitting 1=8819
A, K fluorescence yield 2=20758
Ar, K β region, fluorescence meas. 4=7147-8
Au photoelectric emission, from films, effective depth,
0.28-9 keV 3=21864
B, soft X-rays, with photon-counting spectrometer 1=7439
Be, soft X-rays, with photon-counting spectrometer 1=7439
Be, valence band 3=8606
Bi, L-spectrum, nuclear size effect on $L_{II}-L_{III}$
splitting 1=8819
Bi, μ -mesic, 2P-1S transition 0=20567
Bi⁸³, L-emission, quadrupole and forbidden lines 0=20584
Bi²⁰⁸ decay 2=10061
C, K-lines, absolute intensity meas. 0=5876
Ca^{40,44} μ mesic atoms, K α isotope shift 4=25600
Cd, continuous, Ohlin structure meas. 4=4242
Cd, L_{γ} band 4=19955
CdS, continuous, Ohlin structure meas. 4=4242
Ce¹⁴¹, from internally converted γ -ray 1=5872
Cl, K-shell fluorescent yield 0=15652
Co, K α , asymmetry, effect in X-ray crystallo-
graphy 0=3201
Co, K-spectrum in flash tube, rel. to ionization 2=8547
Co, M α_1 , emission band shape 1=1173
Cr cpds., K $\beta_1\beta_1'$ line, effect of chemical bond 3=23086
Cr films, L-spectra meas. 2=12607
Cr, from K-electron capture 2=16362
Cr, structure near short wavelength limit 1=6217
Cr, 3d electrons config. in metal 3=4833
Cr₂O₃, K β' lines 0=20735
Cr₂O₃, structure near short wavelength limit 1=6217
Cr₂(SO₄)₃. nH₂O, K β' lines 0=20735
Cu, charact. $L_{II,III}$ shell, due to 100-500 keV
protons 4=15586
Cu, comparison with superconducting CuS 0=14934
Cu, K α_1 , asymmetry, effect in X-ray crystallo-
graphy 0=3201
Cu, K α centroid wavelengths 4=15771
Cu, K α , from inclined target 4=17561
Cu, K α production, 9-15 kV 0=5878
Cu, K α radiation under electron impact, meas. 4=9664
Cu, from K-electron capture 2=16362
Cu, M $\alpha_{1,II}$ intensity distrib. 1=3514
Cu, M-bands from Cu-Ni system 3=23087
Cu, M-series 3=23088
Cu in the metal, Cu₂O and CuO, $L\alpha_{1,2}$ β emission
spectra 4=28680
Cu, ratio of indirectly and directly produced line
radiation 1=14620
Cu, ratio of intensity of K α to white
radiation, 30 kV 3=25473
Cu⁶⁵, L fluorescence coeffs. 2=14213
Cu₃Au, soft X-rays 2=8545
Cu-Zn, M-series 3=23088

X-ray spectra—contd
emission—contd

D discharge, neutron prod. 1=7037
 D, pinched discharge 0=1140
 D, plasma in Scylla 0=13385-7
 Dy¹⁵⁹ 2=14051
 Dy^{185m}, L spectrum, L-fluoresc. yield eval. 4=6477
 Er, atomic excitation during electron-capture decay 4=3614
 Fe, critical potentials 0=17716
 Fe-group atoms, K β '-line origin 1=13941
 Fe, K α centroid wavelengths 4=15771
 Fe, K $\alpha_{3,4}$ lines 0=20735
 Fe K β_5 3=10976
 Fe, L_{III} bands, from conduction band shape calc. 2=20962
 Fe, M_{2,3} emission band shape 1=1173
 Fe, 3d electrons config. in metal 3=4833
 Fe-Al alloys, rel. to Al concentration 1=7719
 Fe-Co alloy, soft M_{2,3} 3=25476
 Fe(NH₄)₂(SO₄)₂·6H₂O, K β ' lines 0=20735
 Fe₂O₃, K β ' lines 0=20735
 Fe-V alloy, basic K-edge, rel. to electronic state 1=20585
 Fe-Zn alloys, rel. to Zn concentration 1=7719
 Ga, from K-electron capture 2=16362
 Ga⁷¹, L fluorescence coeffs. 2=14213
 from Gd(n, γ) reaction 0=11448
 Ge, L $\alpha_{1,2}$ and L $\beta_{3,4}$ effect of Ga and Sb 1=17904
 Hg¹⁹⁴→Au¹⁹⁴ 4=28002
 HgS, L-series of Hg, effect of I impurities 4=13049
 Ho¹⁶⁰ 2=14051
 In, continuous, Ohlin structure meas. 4=4242
 Ir, L-spectrum, forbidden transitions 3=2566
 Ir⁷⁷, L, quadrupole and forbidden lines 3=12762
 KCl, K β region of K and Cl, fluoresc. meas. 4=7147-8
 Li, using photomultiplier soft X-ray spectrometer 1=1953
 Li, K-emission 0=20732
 Li, soft X-rays, with photon-counting spectrometer 1=7439
 Li, valence band 3=8606
 Li-Al alloys, soft region 1=1174
 Li and Li-Mg alloys 0=20731
 Li-Mg alloys, soft region 1=1174
 Mg XI, in plasma 1=8820
 Mg, using photomultiplier soft X-ray spectrometer 1=1953
 Mg, soft L_{2,3} emission 0=7726
 Mg, valence band 3=8606
 Mg-Al alloys, soft region 1=1174
 Mn, from K-electron capture 2=16362
 MnO₂, K β ' lines 0=20735
 MnSO₄·4H₂O, K β ' lines 0=20735
 Mo, bremsstrahlung isochromats 1=6216
 Na, using photomultiplier soft X-ray spectrometer 1=1953
 Na, plasmon satellites 3=8607
 Na, soft X-rays, with photon-counting spectrometer 1=7439
 Na, valence band 3=8606
 Na X impurity in high-temp. deuterium plasma 3=7581
 Na X, in plasma 1=8820
 Nb, L β_a band, correction 3=4978
 Nb, L_{III}, L_{II} absorpt. edges 3=23095
 Nb, soft bands, rel. to Fermi level 3=4838
 Nb, soft X-rays 1=14618
 Nb, L β_2 emission band 2=12608
 Nb-N cpds., L β_2 band, correction 3=4978
 Nd¹⁴⁰ + Pr¹⁴⁰ 2=14051
 Ne and neighbours (10 ≤ 2 ≤ 14) K α satellites, identification 1=9912
 Ne IX and X, in plasma 1=8820
 Ni, K edge Kronig struct., H diffusion effects 4=17577
 Ni, K-shell fluorescent yield 0=15652
 Ni, M-bands from Cu-Ni system 3=23087
 Ni, M_{2,3} emission band shape 1=1173
 Ni, M_{2,3} intensity distrib. 1=3514
 Ni, soft, critical potentials 1=20001
 Ni, structure near short wavelength limit 1=6217
 Ni-Fe, fluorescence, thin films investigation 2=7162
 Ni-Mn alloys 2=705, 8540
 Np, L-spectrum, nuclear size effect on L_{II}-L_{III} splitting 1=8819
 O VIII, in plasma 1=8820
 Os⁷⁶, L-spectrum, quadrupole and forbidden lines 2=12293

X-ray spectra—contd
emission—contd

P, μ -mesic, critical absorption in Pb, μ mass and charge det. 1=517
 P, 3D-2P mesonic lines, rel. to μ -meson mass det. 0=11559
 Pa²³⁴, int. conversion coeff., 92 keV transition 0=15552
 Pb, fluorescence in γ -ray scatt., ang. distrib. 0=13259
 Pb, K relative intensities, rel. to retardation 0=11511
 Pb, μ -mesic atoms 1=4919
 Pb, μ -mesic, 2P-1S transition 0=20567
 Pd, continuous, Ohlin structure meas. 4=4242
 Pd, N_{7,8} intensity distrib. 1=3514
 Pd⁴⁶-Te³², L bands, influence of spectrometer props. 4=15288
 Pm¹⁴⁷, low-energy photon and electron spectra 0=20386
 Pt, bremsstrahlung, ang. dependence from thick targets 0=7327
 Pt, L-spectrum, nuclear size effect on L_{II}-L_{III} splitting 1=8819
 Pu 1=7718
 Pu, L II shell, fluorescence yield 1=9845
 Pu, L-spectrum, nuclear size effect on L_{II}-L_{III} splitting 1=8819
 Rh, continuous, Ohlin structure meas. 4=4242
 Rh, N_{7,8} intensity distrib. 1=3514
 S, comparison with supercond. CuS 0=14934
 S in PbS, L₂₃ 3=23096
 Sb, continuous, Ohlin structure meas. 4=4242
 Si 2=8939
 Si, K β -bands 0=20639
 Si, soft X-rays, with photon-counting spectrometer 1=7439
 Si XIII impurity in high-temp. deuterium plasma 3=7581
 Si XIII, in plasma 1=8820
 SiC, K β -bands 0=20639
 SiO₂, K β -bands 0=20639
 Sm¹⁴⁵ 2=14051
 from Sm(n, γ) reaction 0=11448
 Ta, bremsstrahlung isochromats 1=6216
 Ta⁷³, L, quadrupole and forbidden lines 3=12766
 Tb¹⁵⁹, K-radiation from de-excitation of first exc. state 0=4035
 Te, continuous, Ohlin structure meas. 4=4242
 Th, L-spectrum, nuclear size effect on L_{II}-L_{III} splitting 1=8819
 Th, μ -mesic, 2P-1S transition 0=20567
 Th⁹⁰, L-spectrum 3=8192
 Ti 0=20595
 Ti 4=22899
 Ti compounds, bond type and K β line changes 3=23092
 Ti cpds 0=5889
 Ti, pure and compounds 0=20736
 TiO_{0.102-0.461}, var. O content 4=22899
 Tl²⁰³, L-fluorescence yield 2=16844
 Tl²⁰⁴ decay, electron capture, K and L coincidences 4=28003
 Tm¹⁶⁷ 1=3428
 Tm¹⁶⁹, K α line, isomeric shift 3=12640
 Tm¹⁷⁰ source, for fluorescence analysis 0=8343
 U, L-spectrum, nuclear size effect on L_{II}-L_{III} splitting 1=8819
 U, μ -mesic atoms 1=4919
 U oxides, M_V last lines, and oxidation degree, valency 3=23558
 U^{234,238}, accomp. α -decay 0=11348
 U²³⁵, during thermal fission 3=10394
 U^{235,238}, μ -mesic, 2P-1S transition 0=20567
 V⁵¹, L-fluorescence coeffs. 2=14213
 W, bremsstrahlung isochromats 1=6216
 W, bremsstrahl.-isochromat, structure of short-wave limit 0=20593
 W, K and L α lines, true widths 3=3029
 W, L-spectrum, nuclear size effect on L_{II}-L_{III} splitting 1=8819
 W, L-spectrum, "s" and "t" lines 2=14215
 W, structure near short wavelength limit 1=6217
 Xe^{133m}, double quantum emission 1=5853
 Zn, M-series 3=23088
 Zn, and in Zn-Cu alloys, L-spectra 0=13421

X-ray spectrometers

See also Gamma-ray spectrometers; X-ray crystallography, apparatus.
 bent-crystal emission instrument 1=16471

X-ray spectrometers—contd

- bent-crystal vacuum spectrometer 2=1959
- bent-crystal, variable reflecting 2=20086
- beryl, single-crystal, diffraction, for deuterium plasma in Scylla 3=7581
- coincidence loss evaluated 2=3125
- collimation corrections, small-angle, machine calc. 4=16603
- counting spectrometer for soft X-ray attenuation meas. 1=4687
- coupling to pulse height discriminator, fluorescence anal. 4=13759
- curved-crystal fluorescence spectrograph 3=461
- curved crystals performance, 3-12 Å 4=633
- curved crystal, precision mounting, aberrations 0=17297
- curved crystal, resolving power 0=9330
- curved crystal, for 30-300 keV meas. 0=9671
- curved crystal, transmission type 0=20584
- curved-crystal, 2-metre (Caltech), intensity calibration 1=16738
- curved-crystal type 2=8544
- double-crystal, reading accuracy, analysis 4=16604
- double-crystal in vacuum region 2=7693
- double-in asymmetric Bragg reflection 2=4407
- DuMond, for X-ray attenuation coeff. meas. 2=12610
- fluorescence analyser, Tm⁷⁰ source 2=17108
- flow proportional counter, for 30-200 Å 0=15327
- high-resolution, operating in range 1.8-4.5 Å 3=8610
- high vacuum spectrograph, high resolving power 2=5424
- Johann-type, automatic, for chemical analysis 2=17111
- Johann-type, film holder, remotely controlled 2=22290
- Johann-type microfocus spectrometer 3=4233
- linear focusing, for electron probe X-ray microanalyser 4=10679
- magnetic Compton spectrometer, bremsstrahlung 2=3309
- many-crystal, exact adjustment of crystals 3=2071
- microanalyser, electron probe, with 90 deg. take-off angle 3=4237
- microanalyser, X-ray 2=17109
- multichannel Laue spectrometer 0=3338
- 0.7 Å range spectra study, use with electron-probe microanalyser 4=27601
- prochlorite (natural silicate) as diffraction crystals 3=4230
- proportional counters in coincidence 0=17131
- proportional counters with pulse-height analyser for Cu K α meas. 3=24421
- resolution of Johann mounting single-crystal type 3=4236
- review 2=1621
- rollers used instead of gears 2=15977
- rotating tube for vacuum spectrograph 1=1952
- scanning microanalyser 0=4761
- scintillation counters, for emission study 0=17296
- scintillation NaI spectrometer 0=17296
- scintillation, pulse-height distrib. 2=22481
- Siegbahn-Magnusson type, for Al spectrum 2=4161
- single crystal diffractometers, for absorpt. give structure meas., comparison 4=13758
- single-crystal multichannel scanning spectrometer 4=4726
- soft X-ray, using Be—Cu photomultiplier 1=1953
- for soft X-rays, pulsed source, phosphor-photomultiplier detector 2=22291
- for solar obs. from satellite 3=9152
- spectra shape correction circuit 3=5601
- spectrograph to determ. chemical composition in microvolumes 2=17110
- spectrophotometer for simultaneous analysis of several elements 4=30009
- with two concave gratings, resolving power calc. 0=14827
- two-crystal, theory 4=20773
- two-crystal scintillation pair-spectrometer. 4=6016
- two-crystals and spectrometers, for fine structure 3=17012
- with 2m arm 3=21919
- ultrasoft, with two forms of detection 3=9895
- vacuum-type, high resolution 3=4234
- window effects, on K absorption edge of Au 0=9760
- Si as focussing analyser crystal, for fine structure 3=21920

X-ray spectroscopy

- See also X-ray crystallography; X-ray diffraction.
- absorption spectrometry, review 4=14844
- use for alloy analysis 2=4585
- β filter absorption, effect on emission lines 1=16472
- camera, low temp. 3=21921

X-ray spectroscopy—contd

- characteristic absorption meas., diffractometer applic. 1=11995
 - chromite—olivine system, Fe K α intensity rel. to Fe content 3=3421
 - conference on applied spectroscopy 4=5378
 - conference, Kharkov, 1961 3=3028
 - continuous spectra, h.f. limit meas. using gas target tube 4=16605
 - correction, optimum, for dispersive distortion 2=14982
 - correction of spectral profiles, derivative method 3=7323
 - correction of spectral profiles for dispersion 3=7324
 - correction for symm. distortion 3=7670
 - counting statistics 1=16470
 - curved crystals performance 4=633
 - distortion due to bent crystal spectrograph 2=15974
 - dosimetry by film-badges, range extension 0=19977
 - emission, conference 0=18333
 - fluorescence, conference 0=8342
 - fluorescence, review 0=14154
 - fluorescence, sensitivity increase using background polarization 4=4725
 - fluorescence spectroscopy, review 3=16185
 - at high temp. prod. by solar furnaces 0=14896
 - histograph 1=20460
 - influence of spectrometer props. on L-emission bands, Pd⁴⁶—Te³² 4=15288
 - layered structures for sharp X-ray diffr. 3=23437
 - linewidth meas., effect of counter tube goniometer 4=24780
 - long wavelength, use in microanalysis 3=18467
 - photon and electron level energies, tables 2=14692
 - plasma, high-temp., interpretation 3=7503
 - use of potassium acid phthalate crystal 3=24296
 - radioactive isotopes, K α excitation 2=11002
 - resolving power 4=24779
 - review of techniques, past and present 0=3952, 9331
 - secondary-emission multipliers, choice 3=5802
 - soft, review of applications to solid state 0=4272
 - soft (13-44 Å) emission spectroscopy 3=463
 - solid state emission and absorption spectroscopy 1=11386
 - spark gap 4=24781
 - standard reference wavelengths, precision meas. 4=27596
 - teaching method 4=14845
 - two concave gratings at grazing incidence, useful width 3=21565
 - wavelength scale, absolute, Si-crystal meas. 4=27595
 - windowless tube, for increased intensity 3=14703
- X-ray tubes**
- camera, high resolution small angle 4=30011
 - coaxial flash tube, discharge mechanism 3=9894
 - Cosslett—Nixon microfocus tube modified as microanalyzer 1=13146
 - current stabilizer 3=9701
 - demountable microfocus tube, variable focal spot 2=7694
 - demountable microfocusing tube with var. focus 4=14842
 - electron optics, solution of paraxial ray eqn. 1=5640
 - filters, selection, coeff. of performance 4=5731
 - fine-focus, electrode system 0=348
 - fine-focus, 50 micron min-focus diameter 1=20696
 - fine-focus, 40 × 400 μ source 0=20108
 - fine-focus, orientation of mosaic blocks 0=16288
 - 5 kW, for attachment to X-ray spectrometer 3=4235
 - flash, low-inductance, for atomic spectra 1=19589
 - flash operation, with sharp focusing 1=4685
 - flash, review 4=11735
 - flash tube 2=8547
 - flash tube, use for hypersonic air-flow density meas. 0=19188
 - flash tube, using low inductance and high vacuum 0=17295
 - flash tube, 200 joules 0=20107
 - fluorescence excitation, target and inherent filtration 2=13625
 - fluorescent, in 10-50 Å wavelength region 2=9670
 - focusing tube, with filament replacement and spot-size adjust. 1=11994
 - generator, conditions for optimum intensity meas. 4=8881
 - image intensifier tubes, comparative efficiency 1=18968
 - microanalyser, electron probe with 90 deg. take-off angle 3=4237
 - microanalyser, microfocus source investig. 3=5801
 - nonlinearity correction 2=3125

X-ray tubes—contd

- output stabilization, by ionization chamber 0=20109
 parasitic radiations 3=9896
 point-focus, for chemical microanalysis 2=4583
 point-focus, for microprojection 0=7331
 in projection microscope 0=11138
 pulsed, emission charact. 2=15978
 radiation protection installation 3=462
 as radiation source, 90 kV 4=5732
 rotating anode of Re-W 3=17014
 rotating target, maximum safe loading 3=21918
 rotating tube for vacuum spectrograph 1=1952
 secondary, built-in, for K-emission excitation 3=14702
 small, for testing purposes 1=10754
 sources of short X-ray flashes 4=16602
 spectral contamination 0=2524
 spectral contamination, sealed-off tubes 3=17011
 stabilizer circuit for, in X-ray diffractometer 1=1590
 tele-focus electron gun, applications 0=2393
 ultrahigh-speed flash, review 3=21579
 ultrasoft rays prod., high-intensity demountable tube,
 operated up to 20 kV, at 2-4 kW anode power 4=27594
 universal tube, characteristics 2=7698
 use in biology and radiotherapy 1=10342
 windowless, for spectroscopy, increased intensity 3=14703
 Al membrane target, spectral distrib. 4=24774
 with Be-windows, X-ray spectra analysis, data for 4
 tubes 0=20105
 Cu membrane target, spectral distrib. 4=24774
 Cu target, ratio of K α to white radiation 3=25473
 NaI(Tl) narrow well for iodine K X-ray escape 1=10110

X-rays

- See also Gamma-rays
 absorption, in layer thickness, effect on emission
 spectrum 3=6898
 atmosphere radiation belts, balloon meas. rel. to
 electron dumping from mag. field 2=13055
 atmosphere, var., long period, and auroral electron
 precipitation 3=23631
 atmospheric, intensity increase rel. to magnetic storm
 sudden commencement 3=11471
 atomic ionization by protons, characteristic
 prod. 2=20757
 auroral belt, bursts, morphology contrib. 2=9023
 auroral, energy spectrum periodic variations 4=2233
 auroral, obs. at Minneapolis 2=13050
 auroral, rel. to visible aurorae 2=13049
 in auroral zone, balloon observation 1=15307
 auroral zone, balloon observations 1=21053
 auroral zone, rel. to bay-like mag. storms 4=13829
 auroral zone, east-west motion, (June 1961) 2=6952
 auroral zone observations, rel. to electron precipitation
 varn. with solar activity 3=1471
 auroral zone I, balloon observations 0=14272
 auroral zone pulsations, 1 to 15 sec period 3=13813
 in Bayard-Alpert vacuum gauges 4=18285
 beam prod. of narrow ang. spread 2=15975
 beam strength, from 1 MeV electron accelerator 0=19822
 from betatrons, beam instability, stabilizing 1=3027
 camera, Fresnel transformation method 3=16742
 comparison with Cherenkov radiation and
 bremsstrahlung 2=3306
 cosmic, increase above 30 km in S. American anomaly, due
 to radiation belts? 4=23791
 cosmic rays, primary, possible prod. mechanisms 3=22232
 detection, by exo-electron emission 3=12229
 double refraction of X-rays in silicon 1=3031
 effective depth of production, from emission
 profiles 1=14619
 emission by plasma in argon discharges 1=5456
 emission by plasma in argon discharges 1=11951
 energy loss per ion pair in air 1=10873
 energy reference source, β -excited emission 0=3953
 equipment, many-crystal, exact adjustment 3=2071
 filtering in ultra-soft region 0=17293
 fluorescence excitation, target and inherent
 filtration 2=13625
 Galactic, evidence 4=12085
 galactic, from supernova, type II shell 4=29399
 in galaxy and metagalaxy, due to cosmic-ray inter-
 actions 4=20885
 image intensification 0=5541, 13974, 19407-8
 image intensifiers, electroluminescent panels 2=5426

X-rays—contd

- interference effects in NaCl natural crystals 2=6860
 from interplanetary space 0=6550
 J-phenomenon, analysis 4=27602
 metrology, ionometric methods 3=21279
 microprojection 0=7331
 microscopy, Ag-activated nitrocellulose as recording
 material 0=21254
 moon, emission, calc., and composition 3=13860
 μ -mesic, 2p-1s, calculated energies, correction 3=8217
 outside solar system 3=18588
 photoelectric yield from metals 2=208
 polarization, by crystal reflection 0=3190
 polarizer-monochromator based on Borrmann
 effect 1=16473
 production in Au films, rel. to electron and X-ray
 microscopy 3=6903
 production by electrons in Au, by Bremsstrahlung effect,
 1-2 MeV, ang. intensity distrib. 2=22476
 production, high intensity, ultra-soft 2=17920
 production during l.p. gas discharge 0=7084
 production of line radiation, indirect and direct,
 ratio 1=14620
 production in linear accelerator 2=11732
 production, in mag. compressed plasma 2=3046
 production in metal films, efficiency, rel. to X-ray
 microscopy 3=6902
 production in small, theta-pinch 2=1442
 projection microscope 0=11138
 soft, spectroscopy, bibliography 2=21256
 soft X-ray telescope for astronomy, satellite use 1=8
 solar, rel. to cm-wave bursts and cosmic
 rays 2=13166
 solar corona, distribution 0=836
 solar, coronal effect on cosmic phenomena 2=21665
 solar flares, inverse Compton effect 4=29464
 solar flares, rel. to ionosphere ionizing effects 2=11054
 from solar flares, region of origin 2=7007
 solar, rel. to ionospheric D-region disturb. 3=6981
 solar, rocket and satellite obs. 2=4760
 solar X-rays 1=20878
 source, use of 90 kV generators 4=5732
 sources for 0-18 keV, tritium absorbed in Ti
 or Zr 4=6014
 sources outside solar system 3=7941
 from sun, flares, and earth, mag. field, var. 4=10775
 synchrotron emission by cosmic electrons rel. to 10^{14} eV
 cosmic photons 4=10794
 teaching, use of commercial spectrometer 1=1950
 theta pinch discharge before breakdown 3=12179
 thickness meas. 4=8005
 10 to 22 MeV pulse, 150 μ sec, from betatron 4=8882
 in upper atmosphere, bursts generated by electrons 2=15263
 X- γ angular correlation, spin relaxation 4=19655
 Al, yield, on electron bombard. 2=14697
 B, yield, on electron bombard. 2=14697
 Be, yield, on electron bombard. 2=14697
 C, yield, on electron bombard. 2=14697
 F, yield, on electron bombard. 2=14697
 O, yield, on electron bombard. 2=14697
 Xe^{135m}, X- γ and X-X coincidences 1=5853

effects

- See also Nuclear reactions due to photons
 air, weak ionization, electron cond. 3=3839
 alkali azides, colour centres 1=17577
 alkali halides, α and β absorption bands 0=16064
 alkali halides, α - and γ - band formation 3=22835
 alkali halides and azides, crystallite growth on cleavage
 planes 3=20254
 alkali halides, colour centres, role of impurities 2=12464
 alkali halides, CsCl-type, colour centres 2=6384
 alkali halides, defect generation mechanisms 2=12418
 alkali halides, defect formation, Varley mechanism 0=9894
 alkali halides, elastic modulus and internal friction 2=6331
 alkali halides, F-centre formation mechanisms 2=18617
 alkali halides, F-centre prod. at room and liq.
 He temp. 0=6052
 alkali halides, F $_2$ ⁻, Cl $_2$ ⁻, Br $_2$ ⁻, I $_2$ ⁻ molecular ion
 formation, optical absorption and e.s.r. 1=3840
 alkali halides, F and M-centre prod. and destruc-
 tion 4=12807
 alkali halides with impurities 2=3976
 alkali halides, induced expansion 2=23226

X-rays—contd

effects—contd

alkali halides, M-centres, X-ray generation 3=22845
 alkali-halide phosphors, de-exciting action 0=1750
 alkali halides, thermoluminescence 3=3073
 alkaline earth halides, colour centres 0=20837
 n-alkanes, ion mobility 2=15612
 anthracene, conductivity glow-curve 1=2422
 aqueous soln., yield of e and H atoms 3=3410
 aromatic cpds., aq. solns., luminescence 2=7222
 aromatics in boric acid glass, free radicals, e.s.r. 4=13742
 dl-aspartic acid, e.s.r. study 2=14482
 atoms, K-shell photoelectron ang. distrib. 2=12297
 benzene scintillator solns., luminescence decay times and energy transfer 0=19159
 chemical, non-metallic crystals 3=8975
 colour film and dosimetry 0=349
 creatine, e.s.r. of free radicals 4=13311
 diamonds, doped synthetic, crystal spikes, anomalous along $\langle 111 \rangle$ 4=6819
 diamonds, luminescence 2=23253
 dielectric cond., space research 4=17511
 electron yield, for various substances 1=2990
 elements, light, X-ray fluoresc. meas. 3=3033
 exo-electron emission, as detection method 3=12229
 exo-electron emission, from etched metals 0=15053
 F-centre formation in alkali halides 1=8923
 F-centre generation, low-temp., structure sensitivity 2=10421
 glass, induced elec. polarization 0=2926
 glasses, photosensitive, colouring 3=8478
 glycine, e.s.r., h.f.s. 3=18132
 glycine, rel. to low-temp. paramag. reson. 2=12822
 hydrocarbon gases, at 100-300 kV, ion-pair formation energy 2=15886
 hydrocarbons, saturated, liq., ionization current 4=27186
 inert gases, luminescence 3=21448
 inert gases, luminescence, increase due to electric field, pulsed 3=16664
 insulators, photovoltaic effect, bulk 4=26140
 ion-pair formation, by 100-300 kV X-rays, in various gases 2=7560
 ionization chamber, ion recomb. 2=3195
 linear energy transfer, spatial distrib. 4=871
 liquids, dielec., ionization current and energy 4=11210
 low-Z target, 600 kVp, secondary electron emission calc. 4=24737
 luminescence in alkali halides 1=20012
 luminescence, gases, increase due to electric field, pulsed 3=16664
 luminescence, ZnS:Mn, ZnCdS:Mn, a.c. components prod. by 10^4 V/cm at 400 c/s 3=15710
 metal cathodes, photoelectric, secondary emission effects 3=19310
 methyl malonic acid, free radical formation 2=2299
 multiplet prod. by 5-90 MeV X-rays in emulsion 2=5893
 optical transmission change, low-energy disometer 2=7798
 organic crystals, Cl nuclear quadrupole reson. 2=14863
 oxidation of water to H_2O_2 1=15360
 p.t.f.e., dielectric loss increase 4=20412
 paraffin oils, various viscosities, ion mobility meas. 4=27190
 perovskite ferroelectrics, excitation of anomalous layers 3=22993
 phosphor NE 102, fluorescent yield for 4-17 keV X-rays 3=25494
 phosphors, de-excitation of luminescence 3=13197
 photoconductivity, spurious constancy with beam intensity 4=10118
 photoelectric emission, cathodes, dielectric 3=19311
 photoelectric emission, 0.7-30 keV 3=14638
 photographic materials, quantum sensitivity 3=3902
 photographic sensitivity of plates and films, absolute determination 0=8815
 photovoltaic response of Se cells 1=14516
 polyethylene, diffusion recombination 3=20379
 quartz 0=16089
 quartz, annealing of damage 3=6555
 α -quartz, colour centre prod. at 77°K 0=2834
 quartz, etching 4=29037
 quartz, exoelectronic emission 1=18914

X-rays—contd

effects—contd

α -quartz, with Ge impurities, colour centres, e.s.r. study 3=22832
 quartz, luminescence 2=6602
 quartz, smoky colour origin 4=4100
 Rochelle salt, anomalous props. 0=11741
 Rochelle salt, damage, etching 1=18793
 Rochelle salt, damage to faces 4=2018
 Rochelle salt, ferroelec. crystal structure 4=7050
 Rochelle salt, ferroelec. props. 1=10J77
 Rochelle salt, ferroelec. transient phenomena 2=23500
 on Rochelle salt, paramagnetic resonance 1=11487
 rock salt, hardening due to X-rays 1=3987
 rocksalt, hardness 2=799
 rubber, vulcanization 0=6419
 rutile, paramag. Ti^{3+} centre formation 2=23633
 silica, fused, colour centre prod. at 77°K 0=2834
 silicone oils, induced elec. cond. 4=29640
 sucrose, e.s.r. identification of radicals 2=18946
 transition elements, fluorescence excitation 3=953
 triglycine sulphate, dielec. hysteresis loop 4=26131
 triglycine sulphate, thermal expansion 3=6481
 triglycine sulphate, piezoelec. props. 2=23508
 tungstates, electron traps, rel. to luminescence 2=21268
 water, conductivity changes 0=19113
 Ag photoelectric emission, from films, effective depth, 0.28-9 keV 3=21864
 Ag, photoelectric emission, 0.7-30 keV 3=14638
 AgBr emulsions, chem. sensitization 2=17659
 AgBr, S doped, optical absorption bands 1=19969
 AgCl, internal friction 0=13908
 AgCl, luminescence meas. 3=6671
 AgCl, photoconductivity under pulsed irradi., 80-280°K 1=3793
 AgCl and AgCl: Cd, luminescence 2=6604
 Al aerosols, crystallization 0=14144
 Al, crystal mosaic struct. 4=12775
 on Ar, subjected to reson. press. vars., pot. prod. 3=7449
 BaTiO₃, tetragonal-cubic phase transformation 4=15730
 BaTiO₃, thermoluminescence, dielec. loss 3=968
 Be photoelectric emission, from films, effective depth, 0.28-9 keV 3=21864
 Bi, dissolution and contact melting 1=19819
 Bi, L_{III} Auger spectrum 0=9574
 CaCO₃, dielec. loss and thermal bleaching 2=4085
 CaF₂, precipitated, thermoluminescence 0=6210
 CaF₂, with 0.01% Eu²⁺, dielec. loss 1=19920
 CaF₂, with 0.01% Eu²⁺, dielec. loss 2=8459
 CaF₂, Y-doped, coloration spectrum 3=8593
 CaF₂:Sm, increase of Sm²⁺ 2=6399
 CaF₂:Tm, self-trapped hole 2=16632
 CaO, paramagnetic defect centres 4=7320
 CaWO₄, luminescence, effects of impurities 2=6597
 CaWO₄, luminescence, wavelength depend. 3=4982
 Cd, dissolution and contact melting 1=19819
 CdF₂, single crystals 0=2823
 CdS, decomposition products diffused along dislocation lines 4=9985
 CdS, induced conductivity 2=6497
 CdS, photoconductivity 2=2191
 CdS, photoconductivity linearity 2=10530
 CdS, photoconductivity, spectral distrib. meas. 4=12986
 CdS, photoconductivity, X-ray pulse induced 2=12543
 CdS, photocurrent spectral distrib. 2=12545
 CdS, photoelec. props., effect of admixture of gold 1=19899
 CdS, photoelectricity, 15°, -176°C 3=20405
 CdS: Au, photoelec. props., X-ray sensitivity 2=4061
 Cl spectrum, absorpt., in KClO₃, KClO₄ 4=13029
 Cr, photoelec. emission, rel. to X-ray polarization 3=14630
 CsBr, F-centre prod. 0=7894
 CsF, absorption spectrum, 295, 80, 18°K 3=15676
 Cu, photoelectric emission, 0.7-30 keV 3=14638
 FeSO₄ solns., Fe³⁺ yields 0=3324
 Ge, elec. conductivity, quantum yield meas. 1=19849
 Ge, photocond. quantum yield 2=4064
 Ge photoelectric emission, from films, effective depth, 0.28-9 keV 3=21864
 GeO₂, vitreous, absorpt. band 2=4020
 α -HgS, enhancement of elec. cond. 2=23405
 α -HgS, enhancement of elec. cond. 3=6600

X-rays—contd
effects—contd

I crystals, thermoluminescence 3=6653
 K azide crystals, irradiat. at liq. N temp. formation of colour centres 0=8008
 K halides, doped, trapped paramag. N oxides, e.s.r. 1=14350
 KBr, anion vacancy formation, effect of impurity ions 2=2077
 KBr, coloration near fundamental edge 3=15517
 XBr, colour centre formation at 10°K 0=9910
 KBr, under elec. field luminescence 2=8575
 KBr, F-centre prod. efficiencies at liq. He temps. 4=12810
 KBr, interstitials, rel. to thermal cond. 2=21088
 KBr, V₄-centre 2=18621
 KBr:In, absorption and luminescence spectra 0=10065
 KBr:Ti, colour centres, at low temp. 0=1596
 KCl, Ca-doped, F-centre formation 2=16670
 KCl, coloration near fundamental edge 3=15517
 KCl, colour centre formation at 10°K 0=9910
 KCl, colour centre prod. at 5 and 78°K, effect of plastic deformation 0=6050
 KCl, colour centres, rel. to intensity 3=25297
 KCl, colouring, effect of prior ionizing radiation 2=6385
 KCl, density, expt. and theory 4=10015
 KCl, divalent-doped, Z₂ centres, growth and bleaching 3=22846
 KCl, effect on thermoluminescence 2=12639
 KCl, elec. conductivity 0=11658
 KCl, F-aggregates, equil. with F-centres 4=22631
 KCl, F-band growth at 140 kVp 1=996
 KCl, F-centre formation 0=15859, 15861-2
 KCl, F-centre prod. efficiencies at liq. He temp. 4=12810
 KCl, F-centre recovery after optical bleaching 1=3693
 KCl, F-centres, growth kinetics 0=4301
 KCl, F-centres and strain, rel. to intensity 3=6545
 KCl, imperfections 3=22708
 KCl, interstitials, prod. mechanism at low temp. 1=8922
 KCl, interstitials, rel. to thermal cond. 2=21088
 KCl photoelectric emission, from films, effective depth, 0.28-9 keV 3=21864
 KCl, V and F-centres, thermal bleaching 2=12472
 KCl, V₂-centre formation from OH⁻ 2=16671
 KCl, V₃-centres 1=17583
 KCl: Ag, nuclear double reson. 4=1889
 KCl: Ag, trapped holes and electrons 3=5044
 KCl and KCl:Ti, glow peak, quenched-in-cation— anion vacancy pairs explanation 4=25986
 KCl—KF mixed crystal, FCl⁻ hole centre meas. 4=6887
 KClO₃, V-centres 0=2825
 KCl:Ti, phosphorescence, decay meas. 4=13082
 KH₂PO₄, KD₂PO₄, e.s.r. 4=4414
 KI, loops and screws due to "white" Cu X-rays 3=13024
 KI, luminescence 2=10617
 KI, vacancy prod. and F-band growth, temp. depend 4=17423
 KI:Ti, colour centres, at low temp. 0=1596
 KI:Ti, luminescence, wavelength depend. 3=4982
 KN₃ crystals, NO and NO₂ production 2=21089
 KN₃, paramag. N oxides produced 4=26419
 KNO₃, absorption bands rel. to radicals 2=18832
 Kr, luminescence, increase due to electric field, pulsed 3=16664
 LiF, "antimorph" of F-centre, electronic structure 0=6053
 LiF, coloration, rel. to growth method 3=25298
 LiF, colouration, effect on fluoresc. 4=4302
 LiF, coloured, i.r. absorption, phonon-free transitions 4=17573
 LiF crystals, luminescence, absorption and electron emission 4=26206
 LiF, defects, low-temp. annealing 0=2836
 LiF, dielec. props. and thermoluminescence 3=8479
 LiF, F-centre antimorph, e.s.r. 1=20217
 LiF, F-centre prod. efficiencies at liq. He temp. 4=12810
 LiF, internal friction, rel. to theory 2=10738, 14871
 LiF, irradiation damage, e.s.r. 1=20218
 LiF, luminescence spectra, at 77°K 0=1748-9
 LiF, production of magnetic and luminescent centres 1=20051
 LiF, spectra, absorpt., sharp lines 3=23073
 LiF, volume expansion and coloration, low-temp. annealing 4=15505
 LiF:Co, optical props. and electron emission 3=8598

X-rays—contd
effects—contd

MgF₂, absorption bands 4=17575
 MgF₂:Mn, thermoluminescence 2=2265
 MgHPO₃·6H₂O, paramagnetic defects 2=10701
 MgO, colour centres, role of impurities 2=12464
 MgO, slip bands and microhardness 3=17761
 NH₄Cl, electron-deficiency centres, e.s.r. meas. 4=10006
 NH₄ClO₄, X-irradiated, paramag. defects 1=17594
 Na azide crystals, irradiation at liq. N temp., formation of colour centres 0=8008
 Na bromate crystals, optical absorption changes 4=13058
 NaCl, anion vacancy conc. 2=8256
 NaCl, coloration and resultant props. 0=18072
 NaCl, colour centres, rel. to intensity 3=25297
 NaCl, dielec. props. and thermoluminescence 3=8479
 NaCl, dislocation generation 4=12768
 NaCl, dissolution and contact melting 1=19819
 NaCl, expansion and coloration of undoped and doped crystals 0=2824
 NaCl, F-centres at dislocations 3=15518
 NaCl, F-centre formation 3=13011
 NaCl, F-centre prod. efficiencies at liq. He temp. 4=12810
 NaCl, F colour centre formation 3=22844
 NaCl, Fe, Co, Ni added, luminescence 2=18863
 NaCl, interaction of induced point defects with edge dislocations 4=28462
 NaCl, ionic conductivity fall 0=1622
 NaCl, luminescence, rel. to crystal imperfections 2=6606
 NaCl, mag. props. and thermoluminescence effects 2=6653
 NaCl, photocond., heat treated 0=6142
 NaCl, photoconductivity 3=4955
 NaCl, pulverized crystals, electrification 0=3714
 NaCl, stored energy meas. rel. to F-centre concn. 3=2839
 NaCl, surface hardening, annealing 1=2398
 NaCl, thermal expansion enhancement 2=3849
 NaCl-type crystals, defects 3=20185
 NaCl, vol. expansion and coloration 4=17464
 NaCl, volume expansion and colour centres 4=15510
 NaCl:Ca, dielec. loss changes 2=660
 NaCl:Co, luminescence 2=6607
 NaCl:Fe, X-ray luminescence 1=20011
 NaCl:Ni, luminescence 2=2251
 NaClO₃, colour centre, bands 4=4083
 NaCl:Pb, activator absorpt. spectrum 3=940
 NaF, colour centres, temp. var. 4=28495
 Na₂HAsO₄·7H₂O, e.s.r. of AsO₄³⁻ meas. 4=10316
 NaI:Ti, luminescence, temp. and TI conc. depend. 3=23107
 NaN₃, fine structure of trapped N atoms, e.s.r. 3=25574
 NaN₃, trapped N atoms produced by X-irradiation 1=8921
 Ne atom, K-shell ionization, readjustment processes 4=9653
 O₂, at 100-300 kV, ion-pair formation energy 2=15886
 O₂, weak ionization, electron cond. 3=3839
 Pb, dissolution and contact melting 1=19819
 Pb, secondary electrons, irradiat. at 320 kV 3=12241
 PbO, electron-hole pairs, formation energy 2=2066
 Pt, photoelectric emission, 0.7-30 keV 3=14638
 Si, p-n, electron—vacancy pair formation energy 3=20165
 Si, prod. of two acceptor levels 4=6788
 Si solar cells, photovoltaic effect 1=1095
 SiO₂, doped, colour centre prod., optical and thermal bleaching 4=15499
 SiO₂, vitreous dilatations and internal stresses 3=4899
 SrF₂, single crystals, coloration 1=19808
 SrF₂, Y-doped, coloration spectrum 3=8593
 Ti, photoelec. emission, rel. to X-ray polarization 3=14630
 TI azide, particle size changes and lattice expansion 3=22873
 TiN₃, lattice const. changes, diff. studies 4=1545
 U, irradiat.-growth after mechanical working 3=8480
 V³⁺ produced in Tutton salts 4=20603
 Xe, luminescence, increase due to electric field, pulsed 3=16664
 (Zn, Cd)S, luminescence, elec. field and i.r. effects 2=14736
 (Zn, Cd)S: Cu phosphors, crystal structure, atomic 3=23457
 ZnCdS:Mn, luminescence, a.c. components prod. by 10⁴ V/cm at 400 c/s 3=15710
 ZnS:Mn, luminescence, a.c. components prod. by 10⁴ V/cm at 400 c/s 3=15710
 ZnS:CdS:Mn, luminescence, field enhancement 2=728

protection

See Radiation protection

Xenon

absorption coefficients, 600-1025 Å 3=25056
 absorption cross-section and f value in ionization limit 4=19958
 acoustic wave propag., by localized r.f. breakdown 4=19019
 adsorbed in porous Vycor glass, from expansion 4=10630
 adsorption on carbon black 1=20684
 adsorption on graphite 2=6856
 adsorption in graphite, 2nd and 3rd virial coeff. 3=5150
 adsorption by metal films, and surface area meas. 4=13692
 adsorption on metals, use for surface meas. 2=15092
 adsorption on W and Ni, effect on sintering 2=10946
 adsorption on W, rel. to surface features 3=3369
 afterglow decay rates 4=24599
 afterglows, recombination 0=2345
 arc discharge tube, shock wave deterioration 4=8662
 arc, elec., low-pres., optical radiation phenom. 3=4078
 arcs, electric, and their radiation spectrum 2=9551
 arc, electric, 2 atm., radiative function 3=14555
 arcs, magnetic contraction, at medium current intensities 3=7486
 arc, u. v. spectral distrib. and aging characts. with filters 4=27306
 atmospheric, origin, and earth's origin and early development 4=20844
 atmospheric Xe^{132} , possible fission source 0=14323
 atom, autoionized energy levels, meas. and theory 4=6474
 atoms, electron scattering, elastic and inelastic, 25 keV 3=22495
 atoms, excitation, by Kr, in discharge, by collisions 3=19190
 atoms, inner shell electron excitation, optically obs. 4=17247
 atom, interaction, potential energy curve 3=8212
 atoms, interstitial in graphite, energy 1=12400
 atoms, ionization by colls. with Ne^{11+} 3=7426
 atoms, polarizability and mag. susceptibility 1=4914
 atom, recombination rate constants, three-body 4=17852
 atomic scatt. factor, X-ray, rel. to theory 4=3797
 atom, scatt. by Li, interact. potential eval. 3=15305
 atoms, scatt. of 615 keV electrons 0=7714
 atoms, spectral line excitation cross-sections 2=16479
 autoionization and efficiency curves 4=25483
 autoionization processes, threshold laws 4=18673
 binary mixtures with K, Ar, Ne, He, viscosity and thermal cond. 1=159
 boiling and triple points, detm. 3=9659
 in bubble chambers 2=3226
 catalyst in O_2 dissociation, efficiency 2=10981
 continuous spectra, behind shock wave 3=14218
 critical pressure determ., theory 4=18501
 crystalline equilibrium props. 1=14145
 crystal impurity in Ar films, electron state 10°K, from spectrum 4=1721
 crystals, surface energy calc. 4=17336
 dense gas, polarizability change due to many-body interact. 3=1705
 diffusion, in Ag, 500-800°C 0=15868
 diffusion in ceramic oxides 4=20293
 diffusion in Cs-halides, after n irradi. 3=15508
 diffusion factor, thermal, trennschaukel meas. 3=11822
 diffusion in H 2=1194
 diffusion, in H_2 and D_2 , 300-700°K 0=961
 diffusion in He, thermal, calc. 3=7233
 diffusion in N 2=5051
 diffusion in NH_3 2=19608
 diffusion in O 2=5050
 diffusion phenomena and isotope effects 0=15620
 diffusion in ThO_2 - Y_2O_3 solid solns., of Xe^{133} , on irradi. and heating 4=15496
 diffusion in UC powder 3=2834
 diffusion in UO_2 , after fission, on annealing at 1400°C 4=12805
 diffusion in UO_2 , increase on irradiation 4=6879
 diffusion in UO_2 - Y_2O_3 solid solns., of Xe^{133} , on irradi. and heating 4=15496
 diffusion of Xe^{133} in UO_2 2=6362
 discharge, elec., d.c., e.m. noise reson., micro-wave 4=21473-4
 discharge, glow, anomalous, charge-exchange 3=19219
 discharge, high-pressure, radial temp. and mobility 3=19192

Xenon-contd

discharge, pulse, possible maser action 4=489
 discharge, vacuum u.v. spectra 3=7462
 effect on radiolysis of CO 0=12108
 elec. arcs, a.c., cathode mechanism 0=16990
 elec. arcs, h.p., long discharge 0=2342
 elec. arcs, h.p., modulated, dynamic props. 0=12599
 elec. arcs, h.p., probe studies 0=16992
 electric arc, high-pressure, voltage-current charact. 3=24262
 elec. arcs, h.p., wall stabilized 0=1107
 elec. arcs, temp., spectral meas. 0=19520
 elec. breakdown, 2800 Mc/s 0=253
 elec. discharges, effect of H and He admixture 3=4045
 elec. discharge, h.p., transparency 0=9011
 elec. discharges, repetitive, spark channel explosions 3=1950
 elec. discharge, s.h.f., mean frequency of ionization by electrons 0=15029
 elec. discharge, $\text{Xe}-\text{N}_2$ -Ba, metastable state of N_2 3=2618-19
 electron avalanches, mean energy and drift velocities 4=11546
 electron momentum-transfer collision frequ. in He mixtures 3=24220
 electron orbit angular momentum, distrib., pressure depend. 0=13388
 electron-photon showers in, fluctuations 4=3384
 electron scatt., multiple, 40-130 keV, spatial distrib. 4=887
 electron stopping power 0=352
 enthalpy-entropy diagram 2=11421
 equation of state, expt., for solid Xe 4=15436
 eqn. of state, internal energy and entropy 1=6896
 equation of state, 0°-150°C 4=21175
 flash source, intensity meas. 0=8789
 flashtube, spectrum 0.4-1.1 μ 2=7369
 in flashtubes, thermal radiation characteristics 4=14442
 force parameters, calc. using exp 6-8 model 0=1515
 gas, corresponding states theory 2=15643
 gas discharge, density and temp. gradient meas. 4=14588
 gas discharge flash tube, for masers, optical, ruby, design 3=19217
 gas discharge tube, temp. meas., by spectral line self reversal 4=18786-7
 gas, ionization by H^- and O^- ions 1=4558
 gas, ionized, rarefied, charge-carrier diffusion 3=16906
 gas, slow-electron drift vel. 77°-443°K 2=19900
 glow, admixture rel. to Ne reference tube 3=4054
 intermolecular potential functions, 2nd virial coeff. 1=7503
 ionic complexes with acetylene, by electron irradi. 2=6893
 ionization, double, by electrons 0=2317
 ionization by electron impact, structure near threshold 1=7025
 ionization by electrons, mass spectrometer study 2=15883
 ionization and formation of long-lived excited ions 4=25492
 ionization by h.f. pulse, recombination 3=4024
 ionization, multiple, by electrons 0=2318, 7070
 ionization potential of multiply charged Xe 1=7023
 ionization potential by photoelectron energy spectra 3=7434
 ionization rates in shock-heated gas 4=11522
 ionization, relativistic increase 0=1099
 ionization in shock tubes, early processes 4=5554
 ionized by m.h.d. shock tube, elec. cond., 5800, 8000°K 4=14581
 ions in air, charge exchange cross-sections, meas. 4=27491
 ions, appearance potential 4=24546
 ion beams, multiply-charged, in isotope separator 3=14669
 ion beam, range in metals from sputtering yield 3=5721
 ions bombarding W, ionic entrapment and thermal desorption 4=13693
 ions, charge exchange with molecules, meas. 4=14574
 ions, in Cu, Ni, Mo crystal lattices, 5-30 keV 4=19120
 ions, ionization of inert gases 0=12578
 ions, multiply-charged, ionization potential 2=13538
 ions (133), range in Al, 0.5-240 keV 3=19372
 ions, range in monocryst. Si, 5-80 keV 4=22652
 ions, range in W, keV energies 3=22878
 ions, vacuum u. v. spectra 2=1201
 ions, Xe IX, spectrum, grazing incidence meas. 4=25490

Xenon—contd

ions, Xe^+ and Xe^{2+} , ionization cross-sections, for electrons 4=16433
 ions, Xe^{133} , range in Al and Au 3=12608
 isotope enrichment, by thermal diffusion 0=4126
 isotopes, mass spectra 2=13611
 isotopic composition in Richardson meteorite 0=4041, 14405
 isotropic composition in enstatite chondrites 1=4918
 lamp for colorimetry, stability 2=7316
 lamps for i.r. spectroscopy 1=4467
 lamps, short-arc, for optical communication 2=7347
 light source lamps, spectra, 230-1200 μm , effect of structure and excitation 3=16760
 light source, pulsed, spectra, var. time, discharge 4=24355
 liquid, density and short-range coordination 2=21893
 liquid, neg. ion mobility in 3=1678
 liquid, positive ion mobility 2=21895
 liquid, self-diffusion 2=13328
 liquid, thermal cond., expt. and theory 4=169
 luminescence, α -ray excited, weak, 2400-5000 Å 3=21447
 luminescence spectra, by α -ray excitation, variation due to N_2 and Hg impurities 1=8165
 luminescence, X-ray excited, increase due to electric field, pulsed 3=16664
 luminosity behind shock waves 1=15938-9
 maser, optical 3=17074
 maser, optical, discharge, pulse, possible 4=489
 maser, optical, effect of He on electron temp. and density 3=17091
 maser, optical, i.r., 2.5-13 μ , new freq. possibilities 3=17075
 maser, optical, 3.5 μ 3=24516
 melting line, to 1500 atm. 2=5220
 melting temp. at 300 atm 1=919
 in meteorite Abee 1=18066
 in meteorites, and their history 4=26930
 mixtures with A, bands in cathode glow of discharge 0=7766
 mixtures with A and H, binary and ternary, thermal cond. 0=5054
 mixtures with A and He, mutual diffusion 0=8702
 mixtures with A and Kr, h.v. discharge, visible band spectrum 0=4182
 mixtures with inert gases, thermal cond. 0=104
 mixtures with O_2 , excitation of spectra by electrons 0=15657
 molecular parameters, self-consistent set 1=12335
 n.m.r. of Xe^{129} , chemical shift 3=16667
 n.m.r. of Xe^{129} in liq. and gas 3=16666
 nuclear mag. resonance of Xe^{129} in liquid and gas 1=1758
 perxenate ion, configuration, Xe—O bond length 4=4629
 phase transformation, adsorbed in porous Vycor glass, from expansion 4=10630
 photoionization cross-sections, $^2\text{P}_{1/2}$ to 280 Å 4=21465
 photo-ionization efficiency curves, 9-14 eV 3=24211
 plasma in anode-glow mode, neg. resistance 3=5635
 plasma, cold, negative radiation temperature 3=9787
 plasma, partially ionized, anomalous microwave radiation at cyclotron resonance 4=5613
 plasma, r.f., stationary and running striations 3=4165
 plasma, radiation temperature resonances, r.f. meas. 3=4121
 plasma, use of vac. u. v. radiation as probe 4=14686-7
 plasma, z-pinch effect at high gas densities 4=14693
 poisoning in high-flux reactors, calc. 3=4696
 population inversion in discharge, Doppler broadening 3=22493
 positive column with 0.1% N_2 , positive characteristics 2=13549
 power reactor buildup, absorbed radioactivity calc. using sliderule 0=9723
 powerful impulsive discharges, electron energy meas. 3=7452
 production of π^0 , by 9 GeV/c π^- reaction 4=30251
 reactor control, temp. effects 2=6015
 reactor poisoning, steady states 2=3660
 refractive index and verdet const., theoretical deriv. 1=8164
 saturated vapour pressure difference for $\text{Xe}^{130,136}$ 3=21633
 scattering of electrons and positrons, 7-17 MeV 0=5764
 scattering of Li and K atoms, velocity depend. of cross-section 3=711

Xenon—contd

scattering of 153 MeV oxygen ions 2=16489
 in scintillation counter, and mixed with N, Ne 1=3077
 in scintillation counters, with organic u. v. converters 2=1626
 scintillator, used at 75 atm. 0=15190
 shock-heating 1=169
 solid, absorption spectrum, vac. u. v., at 4.2°K 0=13699
 solid, density and expansivity (20°-120°K) 1=9982
 solid, density and thermal expansion 3=6480
 solid, environmental perturbations on foreign atoms and molecules 0=20661
 solid films, electron energy loss 2=1514
 solid and liq., n.m.r. of Xe^{129} 3=18154
 solid, rotation and ortho—para conversion of water molecules 4=1275
 solid, scintillation due to α -particles 2=725
 solid, u. v. absorpt. and electron states 3=2998
 solutions in Kr, solid and liquid 0=8846
 sorption in graphite, high temp. 2=6855
 spark discharges, high-temp. prod. 0=7105
 spectra, continuous 2=16473
 spectrum, atomic, reson. 1469.6 Å line, satellites prod. by mixing with inert gases 4=22311
 spectrum, auto-ionizing states, u. v. 4=15280
 spectrum, continuous absorpt., energy levels 3=17535
 spectrum, continuous, vacuum u. v. 3=7246
 spectrum, continuous, visible, shock excited 4=29678
 spectrum, 400-800 Å, absorpt. ms— μs lines 4=12380
 spectrum, solid, 1070 Å 4=17584
 spectrum, trapped in Ar, Kr at low temps. 4=7160
 sputtering of K 2=3093
 stroboscopic flash source 0=10778
 thermal diffusion, at tracer concentrations, in other gases 0=8696
 thermal ionization, kinetics 3=14515
 thermal ionization, rate and mechanism 1=18768
 triton range, 0.2-2.7 MeV 3=10180
 u.s. absorpt. 2=7256
 use in bubble chambers with Freon and propane 4=16773
 vapour press. below 90°K 2=1175
 vapour pressure of isotopes in solid state 1=6067
 viscosity, high-temp. calc. from intermolecular data 2=2771
 viscosity, meas. 0=16723
 viscosity meas., effect of press. up to 820 atm 4=27214
 X-ray spectra, L-absorption 3=8189
 Xe^+ ions, sputtering of Cu, 25 to 60 keV 4=20321
 Xe^+ , ionization near metallic surface and highly excited states, long-lived 4=25514
 Xe^+ sputtering of Cu, Ni, Fe, Mo, 100-1000 eV 3=4216
 Xe^+ , sputtering of quartz 1=3026
 Xe^+ , sputtering yields, atomic number depend. 2=11726
 (Xe^+ , Xe) charge transfer 2=22167
 Xe^+ and Xe^{2+} , ionization by electron impact 4=5560
 Xe^{2+} , resonance charge exchange 0=8999
 $\text{Xe}^{2+,3+}$ ionization near metallic surface and highly excited states, long-lived 4=25514
 $\text{Xe}^{3+,4+}$ ions in Ne, charge exchange 2=15891
 Xe^{4+} , $^{4+}$ ions in Ne, charge exchange 3=5630
 Xe_2 , excitation by shock waves, u. v. and visible emission 0=15728-9
 Xe^{126} ion range in amorphous Al_2O_3 , WO_3 , meas., comp. to theory 4=27580
 Xe^{129} ages in meteorites 1=15440
 Xe^{129} in atmosphere, rel. to solar system chronology 3=9165
 $\text{Xe}^{129,131}$, n.m.r. relaxation time rel. to gas density 3=23944
 $\text{Xe}^{129}/\text{Xe}^{132}$ in meteorite Bruderheim chondrules 3=11524
 $\text{Xe}^{129}/\text{Xe}^{136}$ formation interval, rel. to solar system chronology 3=9166
 Xe^{133} , diffusion in ThO_2 0=15874
 Xe^{133} , diffusion in U oxides 0=1607
 Xe^{135} instability problem in reactor 2=20703
 Xe^{137} , 3.9 min, decay scheme rel. to superconducting nuclear matter 4=3609
 Xe I, i. r. spectrum, new lines 2=3703
 Xe—F, i. r. spectral study of mixture 4=2836
 Xe—He gas system immiscibility conditions obs. 4=5215
 Xe—He, maser, optical, very high gain, 3.5 μ 3=17089
 Xe—He mixtures, ionization by relativistic electrons 2=11613
 Xe^{n+} —Ne, and Xe— Ne^{n+} collisions, ionization 2=3718

Xenon—contdXeⁿ⁺—Ne; and Xe—Neⁿ⁺ collisions; ionization 3=2583

Xe—water vapour mixtures, afterglow decay rates 4=24599

Xenon compounds

fluorides, bonding wavefunctions 3=17589

Mössbauer effect 4=20170

A—Xe mixtures, solid—liquid phase equil. 1=1848

Xe fluorides, reaction with oxides of nitrogen, rates 4=23630

Xe-hydrocarbon ions, formation from nuclear decay 3=16183

Xe—methyl iodide, SF₆ "indicator-cpds", ionization by electron bombardment 4=29868XeF, radical, in γ -irradiated XeF₄, e.s.r. spectrum 3=25136XeF₂, chemical shifts, calc. 4=20074XeF₂, crystal and molec. structr. 3=16073-4XeF₂, forbidden electronic transitions 4=17298XeF₂, molec. electronic structure 3=15356XeF₂, n.m.r., chemical shifts 3=17617Xe¹²⁹F₂, Xe¹²⁹F₄, Na₄Xe¹²⁹O₆.H₂O, hydroquinone clathrate, Mössbauer effect, 4.2°K 3=17634XeF₂, XeF₄, binding mechanism 3=15357XeF₂, XeF₄, bond nature 3=20000XeF₂, XeF₄, mol. structure, calc. 3=15355XeF₂, XeF₄, neutron diff. crystal structure meas. 4=29147XeF₄, crystal and molec. structr. 3=16073, 16075XeF₄, crystal structure 3=6846XeF₄, crystal structure, atomic, monoclinic phase 3=23452**Xenon compounds—contd**XeF₄, diamag. suscept., LCAO—MO calc. 4=12490XeF₂, electronic structure and spectrum, MO treatment 4=17299XeF₄, F¹⁹ n.m.r. spectrum 3=15387XeF₂, forbidden electronic transitions 4=17298XeF₄, mean vibr. ampl. and thermodyn. functions 4=25688XeF₄, molec. electronic structure 3=15356XeF₄, n.m.r., anisotropy of F¹⁹ shift, -110°C 4=7348XeF₄, n.m.r., anisotropy of shielding tensor 4=23069XeF₄, n.m.r., chem. shifts and nuclear coupling 3=17617XeF₄, n.m.r. of F¹⁹ 4=20613XeF₄, nuc. mag. res. of F¹⁹ 3=12868XeF₄, polycrystalline, F¹⁹ mag. shielding anisotropy, sign 4=23070XeF₄, structure 3=12844XeF₆, chemical shifts, calc. 4=20074XeF₆, n.m.r., chemical shifts 3=17617XeF₆ (n = 2, 4, 6) chemical shift calc. 4=9769XeF₆—HF, liquid, F¹⁹ n.m.r., e.s.r., anomalies 4=21157XeF₂:XeF₄, crystal structure 4=4628

XeN, 4925 Å system, rotational structure 2=6168

XeO, visible spectrum 2=6169

XeO₃ in H₂O, Raman spectrum 4=25689XeOF₄, chemical shifts, calc. 4=20074XeOF₄, microwave spectrum, 20-40Gc/s 4=26225XeOF₄, n.m.r., chem. shifts and nuclear coupling 3=17617XeOF₄, n.m.r. of Xe¹²⁹, by second r.f. appln. 3=20016XeOF₄, spectra and melting point 3=17590

Ytterbium

- atom, K α X-rays from radioactive sources 4=9665
 atom, self-consistent wave functions 3=8197
 atoms, spectra, h.f.s. 3=2364
 crystal line compounds, electronic structure, Yb³⁺ in cubic potentials and exchange field, calc. 4=6696
 diffusion of O₂ and N₂, between interstitial sites 4=15497
 electrical conductivity, effect of very high pressures 2=619
 electrical conductivity, 1.5-20.3°K 4=17473
 elec. resistance, effect of temp. and press. 3=13038
 elec. resistivity, 1.3-300°K 0=6080
 electronic structure by positron annihilation 4=17413
 fusion curve and f.c.c. — b.c.c. transition to 40 kbar 4=29022
 half-life, positron spectra 2=3520
 heat capacity from 15°-350°K 4=25861
 impurity in CdS, i.r. absorption 1=11380
 ions, relaxation in ferrimag. resonance 2=21356
 ions, Yb³⁺, absorption spectrum in CaF₂ single crystal 2=16828
 ions, Yb³⁺ in crystals, mag. and spectroscopic theoretical investigation 2=21295
 isotopes, masses meas. 3=4727
 laser action of ions in silicate glass, simultaneous with Nd ions 3=7737
 neutron diffraction, Debye temp. 1=2219
 paramag. resonance and optical spectra of Yb³⁺ in CaF₂ 0=11938
 phase transform and behaviour at h.p. 4=17767
 resistance, elec., 4-lead meas. system 4=30612
 semiconducting region at 20-40 kbars 3=17899
 specific heat, 0.4-4°K, meas. and theory 3=8368
 stacking faults, energy calc. 4=12769
 target prep. from the oxide 2=19114
 transition from f.c.c. to b.c.c. 3=6817
 virtual bound state model for high-pressure resist. 3=2756
 X-ray atomic scatt. factor 2=10862
 X-ray spectrum, M ν , by 30-100 keV protons 4=30385
 Yb³⁺, ionic distrib. coefficient in CaF₂ 1=14990
 Yb³⁺ crystal field in YGa garnet 4=12560
 Yb³⁺ e.s.r. in CaF₂ 3=3172
 Yb³⁺, e. s. r. in CaWO₄, at 20°K and 3 cm 4=20604
 Yb³⁺ e.s.r. and spin-lattice relax. in CdF₂ 4=26442
 Yb³⁺, e.s.r. in SrTiO₃ 4=26441
 Yb³⁺, electron structure, free and in cryst. field 3=8379
 Yb³⁺ energy levels in YGa and YAl garnets 4=1354
 Yb³⁺ in garnets, crystal field 4=25806
 Yb³⁺ magnetization process, in gallate garnets, high temp. var., calc. 4=20517
 Yb³⁺ paramag. resonance, g-value shifts by exchange interactions 4=7318
 Yb³⁺ in soln., near i.r. transitions 3=23885
 Yb³⁺ in CaWO₄, e.p.r. 4=23058
 Yb³⁺ in CdF₂, spin-lattice relax., 2-77°K 3=18138
 Yb³⁺ in Y₂O₃ e.s.r. 3=18135
 Yb¹⁷¹ n, m, r. in metal and cpds., Knight shift 4=10348

Ytterbium compounds

- Yb ethyl sulphate, spin-lattice relaxation 1=14809
 Yb gallate, magnetic saturation, high pulsed fields 4=19154
 Yb garnet gallates, Yb g-factor anisotropy 0=10189
 Yb garnets, paramag. resonance 0=10239
 Yb(III) aqua ions absorption bands, with sulphate ligands 4=2685
 Yb¹⁷⁰ oxide crystals, nuclear hyperfine struct. 2=20910
 YbAl₃, mag. moment and Curie pt. 3=991
 Yb(Al²⁺)₂, large anisotropic Knight shift 1=9069
 YbB₁₂, crystal prep. and structure 4=7649
 YbC₂, neutron diffract. and paramag. scatt. analyses 3=1328
 YbC₂, neutron diffraction 1=2219
 YbC₂, structure 2=4419
 YbCl₃·6H₂O, absorption spectrum 1=19977
 YbFe garnet, absorption and reflectivity 0=10045
 YbFe garnet, anisotropy of exchange 2=23566
 YbFe garnet, exchange field splitting, by neutron scatt. 2=23679
 YbFe garnet, exchange fields 3=1159
 YbFe garnet, far-i.r. exchange resonance 1=14612
 YbFe garnet, ferrimag. anisotropy, Yb-ion relaxation 2=21356
 YbFe garnet, ferrimag. resonance and magnetocrystalline anisotropy 1=3925

Ytterbium compounds—contd

- YbFe garnet, ferrimagnetic resonance in far i.r. 3=15930
 YbFe garnet, ferromag. resonance, theory 0=1820
 YbFe garnet, low-temp. thermodynamic and mag. props., calc. 1=12541
 YbFe garnet, Yb—Fe exchange interaction, spectral study 1=8996
 YbFe garnet, Yb spin-lattice relax. time 2=23711
 Yb₃Fe₅O₁₂, containing rare earths, mag. props. 0=4517
 Yb₃Fe₅O₁₂, e.s.r. observation 0=4516
 YbGa garnet, mag. suscept. and cryst. field levels 4=1846
 Yb₃Ga₅O₁₂, containing rare earths, mag. props. 0=4517
 Yb₃Ga₅O₁₂, e.s.r. observation 0=4516
 YbH, rotational analysis of band system 5000-8000 Å 2=14278
 YbMnO₃, antiferromagnetism and ferroelectricity 4=13258
 YbMnO₃, ferroelec. and antiferromag. 4=28860
 Yb₂O₃ crystals, flame fusion growth 3=8805
 Yb₂O₃, Mössbauer effect, Tm¹⁷⁰ source, h.f.s., 20°K 4=12589
 Yb₂O₃, specific heat and thermodyn. props. 3=20105
 Yb₂O₃, thin films, dielectric constant 3=8555
 Yb₂(SO₄)₃·8H₂O, susceptibilities, magnetic, principal, crystal field nature 3=25510

Yttrium

- adiabatic demagnetization of alloys with rare earths 1=11414
 atom, Y⁹¹, h.f.s. 3=2361
 diffusion, in Y₂O₃, 1400-1800°C 3=22827
 elec. resistivity, single-crystal and polycrystal values 1=11261
 electrical resistance, high pressures 2=318
 electron pair annihilation, ang. correl. of rad., and band struct. 4=15466
 growth of large single crystals 4=4551
 magnetic properties, single crystal and polycrystalline 4=17628
 physico-chemical properties 4=1335
 positron mean life, meas. 3=17695
 single crystals, elastic constants, 4.2-400°K 0=8104
 single crystals, elec. resistivity, 1.3-300°K 0=2843
 solubility in Be, X-ray diffract. study 3=20908
 specific heat, 1.7° to 4.2°K 1=19720
 spectrum, in CaF₂, SrF₂, BaF₂, after 2 MeV β irradi., d¹ 4=10167
 spin wave transitory growth on microwave pumping 4=13227
 thermal expansion, anisotropic, below 0°C 2=2056
 vapour pressure 2=2937
 vapour pressure, 1100-1480°C 4=16502
 Y I spectrum, 4d5s5p h.f.s. and electron struct. 4=25509
 Y³⁺ influence on NO₃⁻ u.v. spectrum in ionic melts 2=15593
 Y⁸⁸ on high activity Zr⁹⁵ fallout particles 3=12612
 Y⁸⁹ hyperfine structure by atomic beam resonance 0=1484-5
 Y⁸⁹ yield from neutron fission of U²³⁵ 2=33635
 Y⁹¹ fission productions; diffusion in UO₂ 2=6377
 Y₂ molec. dissociation energy determ. 4=12525

Yttrium compounds

- borides, electron requirements 3=8330
 ethylsulphate, thermal study of crystal field splitting 3=4799
 ferrite, ferromagnetic resonance 0=6251
 ferrite garnet, etching 3=18240
 ferrites, initial permeability, var. with freq., temp., garnet struct. 3=6723
 garnet, Faraday effect, transmission and reflection spectra 1=7704
 garnet, ferromagnetic resonance 0=10208
 garnet, gyromagnetic resonance, effect of method of prep. 3=8699
 garnets, mag. props. of Al, Ga and Cr substituted ferrites 0=13827
 garnet, magnetoacoustic resonance 0=3090
 garnets, with rare earth garnets, magnetic and lattice properties 1=10171
 garnet, substituted, effect of porosity on absorption width 0=8076
 halides, molecular structure 0=15774
 hexaboride, preparation, structure and props. 0=1879
 (5-x)Fe₂O₃·xAl₂O₃·3Y₂O₃, variation of absorption line-width and g-factor 0=13859
 yttria-urania solid solns., plasticity, 940°C 2=4476
 yttrium iron garnet, elastic consts. of single crystals 1=11502

Yttrium compounds—contd

- Y ethylsulphate, spin—lattice relax of Dy^{3+} 4=7326
 Y ferrite garnet, ferrimagnetic resonance, —196° to 20°C
 rel. to domain structure 4=7313
 Y ferrites, hydrothermal synthesis 3=18272
 Y ferrites, paramag. susceptibility 1=20142
 Y garnet, excitation of ferrimagnetic resonance by
 pulsed mag. field 1=14783
 Y garnet, ferrimagnetic resonance 1=20184
 Y garnet, microhardness 2=21449
 Y garnet single crystals, growth by pulling
 technique 4=13549
 Y garnet, effect of substitution of Fe by Sc on mag. props.
 and crystal structure 4=7650
 Y garnet with rare-earth impurities, resonance
 line width 3=25558
 yttrium iron garnet, growing of monocrystals 1=11544
 Y orthoaluminate, e. s. r. of Fe^{3+} , Gd^{3+} 4=30733
 Y oxide, growth, burner used 2=19056
 Y oxide, secondary electron emission 2=1498, 7653
 Y with rare earths, adiabatic
 demagnetization 1=11414
 Y tungstate, red luminescence under u.v.
 excitation 3=13206
 Y—Al, crystal structure, new cpds. 2=4437
 YAl garnet, Cr^{3+} ground state, zero-field splitting 1=14806
 YAl garnet, energy levels of Yb^{3+} 4=1354
 YAl garnet, Pr-doped, absorption and fluorescence
 spectra, Pr bond covalence 3=23072
 YAl, YGa and YGd garnets, Nd-doped, laser oscilla-
 tions 4=19309
 $Y_3Al_3Fe_2O_{12}$, ionic distrib. 1=20562
 YB_6 , powder, emissivity 0=16919
 YBe, and ABe_{13} cpds, crystal structure 4=15797
 YBi, crystal structure, atomic 4=2094
 $(Y_{2.75}Bi_{0.25})Fe_{5-x}Al_xO_{12}$, effect of Bi^{3+} substitution 4=23023
 Y chromates, crystal structure 4=29135
 YC_2 neutron diffract. & paramag. scatt. analyses 3=1328
 YC_2 , structure 2=4419
 YCl_3 , rare earth ion e. s. r. 4=30731
 YCo_5 ferromagnetic, props. room temp. and
 below 3=15731
 YCo_5 , mag. structure 3=8682
 YCo_5 , thermomag. studies 2=10640
 YCu_2 , crystal structure, atomic, twinning 4=4630
 Y—Dy garnets, magnetic properties 1=20144
 Y—Eu mixed garnets, mag. props. 3=3124
 YFe ferrite, ferromag. resonance 3=6738
 YFe ferrite, rotational magnetization reversal 3=15873
 YFe, Ga-substituted, n.m.r. of Ga^{69} and Ga^{71} 4=28897
 YFe garnet, acoustic losses 2=12688
 YFe garnet, acoustic parametric amplification at micro-
 wave freqs. 4=20208
 YFe garnet, adiabatic demagnetization and spec. heat mag.
 field depend. at 1.45°K 0=16143
 YFe garnet, Al-substituted, ferrimag. resonance 1=14781
 YFe garnet, anisotropy calc., Fe^{3+} in YGa
 garnet 1=6362
 YFe garnet, anisotropy energy 1=2496
 YFe garnet, chem. faults and dislocations, etching
 method 2=23814
 YFe garnet containing Nd, Pr, La ions, unit cell
 dimensions 1=20567
 YFe garnet, crystal field calc. for 3 sites 3=2693
 YFe garnet, crystal orientation from etch patterns 2=23815
 YFe garnet, crystal structure, refinement 3=8834
 YFe garnet, Curie temp. meas. 1=14749
 YFe garnet disk in microwave cavity 0=2448
 YFe garnet, disks, ferrimag. reson. 0=9187
 YFe garnet disks, ferrimag. resonance 1=6405
 YFe garnet, divalent iron substitution 0=13836
 YFe garnet, domain structure 0=16141
 YFe garnet, domain structure 2=751
 YFe garnet, domain wall mobility 1=6367
 YFe garnet, effect of Nd substitution 2=21339
 YFe garnet, e. m. dispersion and magnetoacoustic
 waves 4=26365
 YFe garnet, for electromagnetic mm wave appls. 4=19187
 YFe garnet, electron spin relaxation 0=6258
 YFe garnet, ellipsoidal samples, resonant
 frequency shift 1=6400
 YFe garnet, exchange interactions 4=28849

Yttrium compounds—contd

- YFe garnet, ferromag. relaxation mechanism for M_z 0=10200
 YFe garnet, Fe^{57} h.f.s. from Mössbauer effect,
 internal fields 1=9036
 YFe garnet, Fe^{57} magnetic resonance and
 relaxation 1=7804
 YFe garnet, Fe^{57} relaxation 3=23252
 YFe garnet, ferrimagnetic parallel pumping spin-wave
 anisotropy 4=13294
 YFe garnet, ferrimagnetic resonance 2=18934
 YFe garnet, ferrimag. resonance, effect of Tb 1=20185
 YFe garnet, ferrimag. resonance at high power 1=12554
 YFe garnet, ferrimag. reson. line width and n, m, r.,
 effect of rare earth doping 4=7312
 YFe garnet, ferrimag. resonance and nuc. relax.,
 impurity effects 4=7315
 YFe garnet, ferrimagnetic resonance, rare-earth doped,
 theory 3=23216
 YFe garnet, ferrimag. res. saturation effects 0=10205
 YFe garnet, ferrimag. resonance width 2=18936
 YFe garnet, ferrimagnetic resonance, 1496 and 1010
 Mc/s 4=7314
 YFe garnet ferrites, r.f. dispersion, electron
 diffusion effects 1=20125
 YFe garnet, ferro-acoustic resonance 3=11129
 YFe garnet, ferromag. relaxation at low temp. 1=14777
 YFe garnet, ferromag. relaxation at low temp.,
 theory 1=7761
 YFe garnet, ferromag. reson. 3=3154
 YFe garnet, ferromagnetic resonance 1=20181
 YFe garnet, ferromag. resonance freq. shift 4=7308
 YFe garnet, ferromag. reson., In^{3+} substitution effects below
 100°K 4=26362
 YFe garnet, ferromagnetic resonance rel. to induced
 anisotropy 3=8702
 YFe garnet, ferromag. reson., magnetostatic modes,
 instability 4=26361
 YFe garnet, ferromag. resonance, order—disorder
 effects 4=28863
 YFe garnet, ferromag. resonance, effect of surface of
 crystal 0=10195
 YFe garnet, ferromag. resonance, subsidiary absorption
 suppressed by modulation techniques 1=7779-80
 YFe garnet, ferromag. resonance, theory of giant
 anisotropy anomalies 0=6252
 YFe garnet, Ga and Al substituted, ferromag.
 resonance 4=7302
 YFe garnet, heat transport by spin waves 3=8374
 YFe garnet, hyperfine Zeeman splitting, 85° and
 300°K 3=994
 YFe garnet, impure, Fe^{57} relaxation calc. 2=6704
 YFe garnet, impurity-doped, ferrimag. resonance 0=10211
 YFe garnet, interaction of photons and spin waves 0=18210
 YFe garnet, internal fields at Fe nuclei in a and d
 lattices, by Mössbauer absorption 1=7769
 YFe garnet, low-temp. specific heat, spin wave
 contrib. 4=9855
 YFe garnet, mag. anisotropy at 0°K 1=6363
 YFe garnet, magnetic anisotropy 1=6366
 YFe garnet, magnetic anisotropy, induced, with Si and Mn
 additions 4=13254
 YFe garnet, magnetic annealing 0=3091
 YFe garnet, mag. component due to spin waves 2=16924
 YFe garnet, mag. domains, effect of crystal growth 2=14800
 YFe garnet, magnetic initial permeability, var. density,
 5 kc/s—7.5 Gc/s 4=13252
 YFe garnet, magnetic lag effects 0=3092
 YFe garnet, mag. meas. and mol. field model 4=20559
 YFe garnet, magnetic props. 1=12537
 YFe garnet, magnetic props. 1=14734
 YFe garnet, mag. props., substitution lattice site
 effects 4=26343
 YFe garnet, mag. res. instability in crystal
 spheres 0=10210
 YFe garnet, mag. reson., strong dispersion, field
 var. 4=26363
 YFe garnet, magnetization, temp. depend. 2=12686
 YFe garnet, magnetoelastic interactions in parallel
 pumping 3=15884
 YFe garnet, magnetoelastic r.f. pulses, freq.—time—mag.
 field characteristics 4=12632
 YFe garnet, magnetostrict., meas. and theory 3=15801
 YFe garnet, magnetostriction 3=15852

Yttrium compounds—contd

- YFe garnet, microwave absorption in parallel-pumping expts. 3=15883
 YFe garnet, microwave acoustic losses, temp. depend. 2=10322
 YFe garnet, microwave generation, second harmonic 1=14751
 YFe garnet, microwave magnetic and dielectric props. 0=11896
 YFe garnet, microwave permeability 1=14778
 YFe garnet monocrystals, ferrimag. resonance 2=10687
 YFe garnet, morphology 4=10458
 YFe garnet, multiple magnon processes 3=18122
 YFe garnet, n.m.r. of Fe⁵⁷ 1=7805
 YFe garnet, n.m.r. freq., anisotropy 3=3205
 YFe garnet, Nd-substituted, ferrimagnetic properties 3=25546
 YFe garnet, Nd-substituted, mag. and crystallographic study 1=12542
 YFe garnet, nonlinear response of ferromag. resonance 1=6409
 YFe garnet, optical interaction, at ferrimagnetic resonance 3=6644
 YFe garnet, orientation using ferrimagnetic resonance 1=14782
 YFe garnet, phase transform., by differential thermal anal. 3=8796
 YFe garnet, rare-earth doped, ferrimag. reson. linewidth 2=18939
 YFe garnet, rare earth doped, ferrimag. reson. 4=13295
 YFe garnet, rare-earth doped, ferrimag. resonance 0=18211
 YFe garnet, rare-earth-doped, ferrimag. resonance and spec. ht., theory 1=14611
 YFe garnet, rare-earth substituted, ferrimag. res. rel. to temp. 3=23215
 YFe garnet, rare earth substituted, magnetic flux reversal speed 4=13253
 YFe garnet, relax., near instability threshold 3=3157
 YFe garnet, relaxation at low microwave frequencies 1=6402
 YFe garnet, relaxation mechanisms in ferromag. resonance 1=7781
 YFe garnet, resonances in waveguide, effect of freq. modulation 2=6685
 YFe garnet, Sb⁵⁺ substituted for Fe³⁺, mag. moment var., Curie temp., and crystallography 4=26344
 YFe garnet, single crystal, saturation magnetostriction 3=15888
 YFe garnet, size effects on ferrimag. resonance absorption 0=21066
 YFe garnet, Sn-substituted, canted spin arrangements 0=1779
 YFe garnet, specific heat at low temps. 0=9855
 YFe garnet, specific heat, 1.5–4.2°K 1=7539
 YFe garnet sphere, cause of magnetoacoustic resonance 1=6408
 YFe garnet spheres, ferrimag. res. line width 0=3122
 YFe garnet spheres, magnetoacoustic resonance 0=3862
 YFe garnet, spin-wave growth under parallel pumping 3=15899
 YFe garnet, spin-wave normal modes calc. 4=7293
 YFe garnet, spin-wave propag. and magnetoelastic interaction 3=15889
 YFe garnet, spin-wave propag., proposed expt. 2=4233
 YFe garnet, spin-wave propagation 2=21338
 YFe garnet spin-wave relaxation in ferromag. resonance 0=3113
 YFe garnet, spin-wave resonance curve width rel. to Dy impurity 4=10305
 YFe garnet, spin-wave spectrum 1=1250
 YFe garnet, spin-wave spectrum anisotropy 1=6387
 YFe garnet, spin-wave spectrum anisotropy 3=23209
 YFe garnet spin-wave spectrum, temp. dependence 1=6353
 YFe garnet, spin waves excited by parallel pumping 4=10285
 YFe garnet spin wave transitory growth on microwave pumping 4=13227
 YFe garnet square hysteresis loops 3=15868
 YFe garnet, static crystal-field effects on ferromag. resonance 2=21353
 YFe garnet, subsidiary resonance at 9253 Mc/s 1=6407

Yttrium compounds—contd

- YFe garnet, substitution of divalent transition metal ions 2=12690
 YFe garnet, substitution of Mn²⁺, Fe²⁺ and Ni²⁺ 3=3129
 YFe garnet, susceptibility in strong r.f. mag. field 2=6661
 YFe garnet, use of ferromag. resonance in magnetometers 4=21615
 YFe garnet, terbium doped, ferrimag. reson. 2=14820
 YFe garnet, torque measurements 1=6364
 YFe garnet, transverse ferroacoustic resonance 4=9846
 YFe garnet, with Tb impurity, ferrimagnetic resonance curve width fine structure ang. dependence 4=1862
 YFe garnet, 2-magnon scatt. processes 3=15916
 YFe garnet, use in u.h.f. delay line 3=14778
 YFe garnet, wall effect in ferrimag. resonance 1=1254
 YFe garnet, Yb doped, ferrimag. reson., relax. theories 4=13296
 YFe garnets, with Al³⁺ and Cr³⁺, magnetic props. 0=13835
 YFe garnets, dipolar ferrite modes 0=9188
 YFe garnets, ferromag. reson. line widths, temp. and freq. depend. 3=23210
 YFe garnets, ferromag. reson., temp. depend. 0=11929
 YFe garnets, ferromagnetic resonance 0=10197
 YFe garnets, growth by floating zone method 1=6499
 YFe garnets, high-permeability 0=21056
 YFe garnets, i.r. absorption of silicate ion 0=2941
 YFe garnets, impurities occluded during crystal growth 1=14986
 YFe garnets, magnetization and resonance props. 3=6721
 YFe garnets, method for growth 0=10286
 YFe garnets, with Nd, prep. and saturation magnetization 0=21057
 YFe garnets in pulsed mag. fields, resonance expts. 0=10177
 YFe garnets, rare-earth doped, ferrimag. resonance 1=6406
 YFe garnets, spin wave linewidth, rel. to subsidiary resonance suppression 3=18119
 YFe oxide mixtures, phase transform., by differential thermal anal. 3=8796
 Y-Fe, X-ray analysis of rare earths 4=10677
 YFeAl ferrite, ferrimagnetic resonance 3=6743
 Y₃Fe₂(FeO₄)₃, crystallization 1=14966
 (1-x) {Y₃} [Fe₃] (Fe₃)O₁₂ - x {YCa²⁺} [Fe₃] (Fe₃V³⁺)O₁₂, ferromag. props. 3=5025
 (1-x) {Y₃} [Fe₃] (Fe₃)O₁₂ - x {Ca²⁺} [Fe₃] (Si⁴⁺)O₁₂, ferromag. props. 3=5025
 YFeO₃, magnetic domains by Kerr effect 3=18103
 YFeO₃, remanent mag., field depend. 3=11063
 Y₃Fe₂O₁₂ crystal growth 3=20801
 Y₃Fe₂O₁₂, neutron diff. exam., mag. structure 3=23186
 YFe and YGa garnets, method for growth 0=10286
 YFeAl ferrite, ferrimagnetic resonance 2=21354
 Y₃Fe_{5-x}Al_xO₁₂, mag. spectra, 0.1–3000 Mc/s 4=30724
 Y₃Fe₂Fe₃O₁₂-Ca₃Fe₂Sn₃O₁₂, crystal chemistry and mag. props. 0=6359
 YFe-GdFe garnets, mag. moments and lattice consts. 0=3089
 Y₃Fe_{5-x}In_xO₁₂, ferrimagnetic resonance line-width 1=1255
 YFeO₃, exchange interaction, antisymmetric 2=12666
 Y₃Fe₅O₁₂ containing rare earths, e.s.r. study 0=4516
 Y₃Fe₅O₁₂ containing rare earths, mag. props. 0=4517
 Y₃Fe₅O₁₂, crystal growing 0=13953
 Y₃Fe₅O₁₂, Faraday effect at 1.9 μ 0=13677
 Y₃Fe₅O₁₂, ferromagnetic resonance 0=6251
 Y₃Fe₅O₁₂, field depend. of mag. susceptibility in saturation fields 4=30723
 Y₃Fe₅O₁₂, garnet structure, u.h.f. props. 0=6243
 YGa garnet, absorpt. spectrum of Er³⁺ 3=13172
 YGa garnet, crystal field for Yb³⁺, 9 parameters 4=12560
 YGa garnet Cr³⁺ ground state, zero-field splitting 1=14806
 YGa garnet, with Cu²⁺, absorption spectrum 1=14609
 YGa garnet, Dy³⁺ e.s.r. lines 3=15937
 YGa garnet, energy levels of Yb³⁺ 4=1354
 YGa garnet, Fe²⁺ crystal field parameters, YFe garnet anisotropy calc. 1=6362
 YGa garnet, Fe³⁺ ground-state cubic crystal field splitting parameter, sign 0=1824
 YGa garnet, Fe³⁺ resonance in octahedral and tetrahedral sites 1=2496

Yttrium compounds—contd

- Y Ca garnet, Yb^{3+} absorption spectrum 1=2442
 YGa garnet, Yb^{3+} crystal field 4=25806
 YGa garnets, method for growth 0=10286
 YGa garnets, rare-earth activated, visible luminescence at 77°K 1=5055
 YGaFe garnet, transverse ferroacoustic resonance 4=9846
 $\text{Y}_2\text{Ga}_2(\text{GaO}_4)_3$, crystallization 1=14966
 $\text{Y}_3\text{Ga}_5\text{O}_{12}$ containing 1% Yb^{3+} , e.s.r. obs. 0=4516
 YGd garnet, ferromagnetic resonance 0=10208
 YGd garnets, mixed, spontaneous magnetization 2=750
 Y(Gd)Cl₃.6H₂O, u.v. absorpt. spectrum 3=10945
 $\text{Y}_{3-x}\text{Gd}_x\text{Fe}_2\text{O}_{12}$, mag. spectra, 0.1-3000 Mc/s 4=30724
 $\text{Y}_{1-x}\text{Gd}_x\text{Os}_2$, ferromag. superconductor, heat capacity 1=1863
 $\text{Y}_{0.5}\text{Gd}_{1.5}\text{Se}_{2.0}$, ferromagnetism, below 47°K 4=13181
 YH₂ and YD₂, sp. ht. and thermodynamic props. 2=6278
 YH₃ and YD₃, heat capacity, thermodynamic functions, and i.r. spectra 3=17658
 YHo garnet, ferromagnetic resonance 0=10208
 Y—Ho garnets, ferrimagnetic props. 1=14750
 YI garnet, remanent mag., field depend. 3=11063
 YI₃, crystal structure 3=25714
 $\text{Y}_3\text{In}_x\text{Fe}_{5-x}\text{O}_{13}$, ($x < 0.5$), preparation and ferrimag. resonance 3=20800
 Y—Ir, superconductivity 4=18622
 YLa molec. dissociation energy determ. 4=12525
 Y—LaFe garnet, mag. props. and ferromag. resonance 4=1847
 Y—Lu, elec. cond. and mag. phenomena 3=13033
 Y—Mn alloys, structure and mag. props. 2=12925
 YMn₃, magnetic characteristics 1=9024
 YMnO₃, antiferromagnetism and ferroelectricity 4=13258
 YMnO₃, structure and mag. props. 4=7294
 YNd garnet, neutron diffraction investigation 3=23183
 YNi₂, magnetic props. of Laves phase 3=15746
 YO, B[∞] term, multiplet splitting 3=6388
 YO, Franck-Condon factors of band system 4=25660

Yttrium compounds — contd

- YO, molecular structure 2=10247
 YO vapour, dissociation energy and free energy 4=12528
 Y_2O_3 , Cr^{3+} e.s.r., 4.2-300°K 1=9053
 Y_2O_3 crystals, flame fusion growth 3=8805
 Y_2O_3 , electron emission, secondary, with thermal emission current 3=24343
 Y_2O_3 i.r. transmittance 1=14568
 Y_2O_3 , mixture with ZrO_2 , phase change temps. 4=23296
 Y_2O_3 , 10 and 15 wt % in HfO_2 , thermal effect expansion var. 4=30525
 Y_2O_3 , work function 0=19707
 Y_2O_3 , Y diffusion in, 1400-1800°C 3=22827
 Y_2O_3 .2BeO, crystal structure 2=17020
 Y_2O_3 :Eu, absorpt., excitation and fluorescence spectra, luminescent efficiency 4=10221
 Y_2O_3 :Eu³⁺, fluorescence and energy transfer 4=20489
 Y_2O_3 :Eu³⁺, fluorescence and stimulated emission 4=7181
 $(3-x)\text{Y}_2\text{O}_3 \cdot x\text{Gd}_2\text{O}_3 \cdot 5\text{Fe}_2\text{O}_3$, initial permeabilities 0=10137
 $3[(1-x)\text{Y}_2\text{O}_3 \cdot x\text{Gd}_2\text{O}_3][5(1-y)\text{Fe}_2\text{O}_3 \cdot y\text{Al}_2\text{O}_3]$, ferrimag. props. 2=6675
 Y_2O_3 :Nd³⁺, stimulated emission, 77°K 4=10199
 $(3-x)\text{Y}_2\text{O}_3 \cdot x\text{Sm}_2\text{O}_3 \cdot 5\text{Fe}_2\text{O}_3$, lattice constants, mag.
 YP, crystal structure 3=11258
 Y—Rh, superconductivity 4=18622
 $\text{Y}_2(\text{SO}_4)_3 \cdot 8\text{H}_2\text{O}$, Gd³⁺ e.s.r. 2=10698
 YSb, crystal structure, atomic 4=2094
 YSi, crystal structure, rel. to similar types 3=18338
 YT, where T=Mn, Fe, Co or Ni; preparation and structure 1=7877
 YT₂, where T=Mn, Fe, Co or Ni; preparation and structure 1=7877
 YT₃, where T=Mn, Fe, Co or Ni; preparation and structure 1=7877
 Y₃T, where T=Mn, Fe, Co or Ni; preparation and structure 1=7877
 Y—Zn system, phase diagram, solid-liquid, thermodynamic props. 4=5444

Zeeman effect

a.c. field, normal, calc. 3=22473
 alkali metal, upper hyperfine multiplet, theory 4=11812
 alkali metals, D-doublet pumping, collision allowance 4=6468
 crystal exciton spectra 3=22689
 crystals, down to 1.3°K and mag. fields up to 130 kG, apparatus 4=10158
 crystals, mag. ion, term intersection theory 4=3972
 crystals in strong pulsed mag. fields, apparatus 2=23526
 cubic crystals Γ_8 level 3=15669
 cubic crystals, on Γ_8 level in paramag. reson. 4=28866
 effect of r.f. resonance of natural line form 1=5958
 formaldehyde, combined Stark-Zeeman effect 1=7465
 formaldehyde, microwave spectrum 1=7464
 Galactic magnetic field meas. from hydrogen line splitting 1=31
 galactic Σ 1 cm line, splitting, measurement attempt 3=13927
 Γ_8 levels in cubic symm., theory 2=16622
 ground-state sublevels, r.f. perturbing field 0=464
 laser, He-Ne, polarization rot. 4=5850
 maser, optical, tuning, He-Xe, 2.026 μ 3=17076
 mechanical analogue in spectrum of the earth, rotational multiplets 1=10302
 molecules, asymmetric top 4=28133
 Mössbauer effect appl. 1=17394
 nuclear quadrupole reson. spectroscopy, modulator 2=20176
 in nuclear quadrupole resonance in crystalline powder 1=20279
 nuclear, Sn^{119} Mössbauer absorption in Mn-Sn alloys 1=621
 1,3,5-trichlorobenzene, Zeeman effect of nuclear quadrupole resonance 1=9076
 p-chlorobenzoic acid, nuclear quadrupole resonance 1=8857
 p-dibromobenzene, quadrupole resonance 0=8094
 p-dichlorobenzene, nuclear quadrupole resonance 1=8857
 paramag. atoms in crystalline fields, splittings, calc. 0=4418
 plasma mag. field meas. 4=18916
 rare-earth atoms, ground multiplets, theory 1=9901
 relative line intensity, dipole transition, free atom, $J = \frac{1}{2}$ 3=17520
 ruby, absorption B_1 and B_2 lines in strong pulsed mag. fields 2=10599
 ruby, B and R absorption lines, in strong mag. field 4=4271
 ruby laser control using Zeeman splitting 2=23548
 ruby, pulsed, time var., spin relax. 4=22886
 semiconductors, techniques 1=6203
 sunspots, mag. field, intensity and orientation 3=18628
 Zeeman split levels, inversion, maser applications 1=10587-8
 zero-field splitting of molecular Zeeman levels 1=4939
 Am^{2+} in LaCl_3 2=2232
 Au^{197} γ -rays in Fe, Co and Ni 4=9811
 Ba atoms 1=4901
 Bi^{209} nuclear quadrupole resonance, zero splitting cone 1=14831
 CN, rotational perturbations, theory 2=22962
 $\text{C}(\text{NH}_2)_2$, $\text{Cr}(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$, 2 fine red lines 4=1759
 CS_2 , near u.v. bands 4=25670-1
 Ca^{42} , in solar flare spectra, mag. field study 0=18759
 CaF_2 : Eu^{2+} (0.01%) crystal, 4.2°K, 4130 Å 3=17983
 CaF_2 (Eu^{2+}), 17 to 60 kG 3=10943
 CaF_2 :Ho, magneto-optical, in strong fields 4=7101
 CaF_2 : Sm^{2+} , in absorption and luminescence spectra 3=18026
 CaF_2 : Tm^{2+} crystal, 1.116 μ line 4=26183
 CaF_2 : Tm^{2+} fluorescence 4=28726
 Ca I , 4s4p³P, term, g_J factor meas. 3=2564
 Cd^{106} , (5s5p)³P₁ state 3=19931
 CdS , edge fluoresc. at low temps. 4=4293
 CdS , exciton fluorescence, anomalous effect 2=8559
 CdS , excitons 2=23527
 CdS fluorescence spectra, 4.2°K 0=1745
 CdS , Zeeman splitting of $n=2$ exciton state, direct observation of exciton motion 1=3636
 CdSe , exciton spectra rel. to structure 2=10359

Zeeman effect-contd

CeCl_3 , crystal field components of electronic ground state 4=7217
 Cl, atomic, microwave 1=11068
 Cl, mult. quadrupole, recording r.f. spectrometer 0=17123
 Cl, in 6-chloro-2-nitrotoluene, n.q.r. Zeeman spectrum 4=17704
 Cl_2 , solid, n.q.r. line broadening 3=15411
 Cl^{35} , n.m.r., det. of upper limit for anisotropy of inertial mass 0=10561
 Cl^{35} n.q.r. in cpds. 4=25739
 Cl^{35} n.q.r. in ortho-dichlorobenzene 4=13355
 Cl^{35} in $(\text{PNCl}_2)_3$, nuclear quadrupole resonance 3=23264
 ClO_2 , microwave spectrum 2=20831
 Co, crossing two levels with same M value 4=22301
 CoCs_2Cl_6 , 20-1.6°K, 15-40 kG 3=13166
 CoCs_2Cl_6 , Co^{2+} decomposition, and two crystalline phases at low temps. 4=15585
 Cr^{3+} in Al_2O_3 , theory and exper. 0=645-6
 Cr_2O_3 , R absorption lines 3=15674
 Cs, D level hyperfine structure 1=17260
 Cs, 600-3000 G 3=17520
 Cu_2O , anisotropic absorption, calc., symmetry of excitons 1=7476
 Cu_2O , crystal excitons, polarization, up to 140 kOe 3=18002
 Cu_2O , exciton transitions 2=684, 18556, 20971
 Cu_2O , exciton yellow line 4=22854
 Cu_2O , excitons 1=6203
 Dy^{163} crystalline salts, 58° and 4.2°K 0=16054
 Dy salts 2=4156
 Er trivalent crystalline salts 1=1165
 Er^{3+} in crystalline salts 1=10099
 $(\text{Er}, \text{Gd})_2\text{O}_3$, 20° and 90°K 2=10606
 $(\text{Er}, \text{La})_2\text{O}_3$, at 20°K 2=10605
 $(\text{Er}, \text{Y})_2\text{O}_3$, 20° and 90°K 2=10606
 Eu bromate, visible spectrum 0=648
 $\text{EuCl}_3 \cdot 6\text{H}_2\text{O}$, visible spectrum 0=649
 EuFe garnet, spectrum, $^7\text{F}_0 \rightarrow ^7\text{F}_4$ line fine struct. 4=13054
 F, atomic, microwave 1=11067
 Fe^{57} , nuclear, γ -ray polarization 2=12125
 Fe^{57} in CoFe_2O_4 , 14.4 keV γ lines, investigated by Mössbauer effect 4=15402
 GaP, bound excitons, recomb. radiation 3=25254
 Ge, acceptor states 4=28706
 Ge donors 2=2231
 Ge, exciton and impurity levels 2=23128
 Ge, excitons 1=6203
 Ge: Cu, i.r. at low temp. 0=18124
 Ge: Zn, i.r., at low temp. 0=18124
 $\text{H}\beta$ splitting, in solar prominences 2=24117
 H_2 , r.f., metastable electronic state established 0=20645
 He 0=476
 He-Ne laser, 1.153 μ transition meas. 4=8982
 He-Ne lasers, at 3.39 μ 4=14936
 in He-Ne optical maser 2=16025
 He-Ne planar laser 3=2145
 Hg atoms, fluorescence modulation by light and r.f. waves 1=17275
 Hg atoms, resonance fluorescence 1=12246
 Hg^{198} Zeeman filter wavelength rel. to that of 2537Å absorpt. line of atomic beam 4=6478
 Hg^{198} Zeeman-split absorption filter, wavelength passed 4=2830
 HgI and II spectra 3=15286
 Ho ethyl sulphate, due to $^5\text{I}_8 \rightarrow ^6\text{I}_5$ and $^5\text{I}_8 \rightarrow ^5\text{I}_4$ transitions 2=12605
 InH, new apparatus 4=30436
 $\text{K}^{39}\text{F}^{19}$, h.f.s., mol. beam resonance meas. 4=3867
 Lu I spectrum 3=22481
 $\text{MgO}:\text{Cr}^{3+}$, red fluorescence line 1=1180
 Mn^{+} 4=25503
 Mn I 1=13940
 MnI, first spectrum, use in analysis of 2030 lines 4=15281
 NH_3 4=6583
 NH_3 , obs. using maser spectrometer 3=12354
 NO_2 , far i.r., microwave interferometric obs. 4=17295
 Na, D level hyperfine structure 1=17260
 Na D-lines, differential filter design for optical pumping 1=11075
 Na, transition frequency and probability 0=464

Zeeman effect—contd

- Na I, in solar flare spectra, mag. field study 0=18759
 NaCl colour centre, search 4=30583
 Nd salts, energy level assignments 0=7686
 Nd³⁺ ion in NdCl₃ 1=8984
 NdI spectrum 4=9644
 O, fine level transitions, e.s.r. 4=6481
 O, rotational fine structure 0=3869
 OH and OD, microwave 1=7496
 O¹⁶H free radical, ²II_{1/2} levels 2=12335
 Os I and II 1=2293
 Os I, II 0=20588
 Pr, in ethylsulphate:Ce 1=1164
 PrCl₃, crystal field components of electronic ground state 4=7217
 Rb⁸⁷ and electron g factor 4=30382
 Ru I, 207 lines, 0.24-0.54 μ 0=7730
 Si, acceptor states 4=28706
 Si, impurity levels 0=11765
 Sm ground multiplet 1=13947
 Sm(C₂H₅SO₄)₂·9H₂O 1=6207
 SmCl₃, absorption and fluorescence spectra 3=3016
 SmMg nitrate 1=2443
 Sn¹¹⁹, in γ resonance absorption 1=2164
 Sn¹¹⁹, 24 keV transition, splitting in ferromagnetic metals 1=6273
 SrF₂:Sm²⁺, in absorption and luminescence spectra 3=18026
 Tb 0=17714
 Tb³⁺ ions in crystalline salts 2=6574
 Tl²⁰³F¹⁹, molecular-beam Stark—Zeeman effect 1=12293
 Tm ethyl sulphate 1=6209
 Tm I, II, arc and spark spectra 2=20747
 Tm¹⁶⁹, h.f.s., and nuclear mag. moment, from atomic beam mag. reson. 4=12378
 Y³⁹, h.f.s. splittings 0=1484-5
 Yb I, II, arc and spark spectra 2=20747
 YbFe garnet, anisotropy of exchange 2=23566
 ZnO, Cu²⁺, impurity, rel. to wavefunctions 4=4042

Zeta-potential

See Electrokinetic effects.

(Heading abolished in 1963; for later entries see Electrokinetic effects)

- colloids 2=23965
 oil droplets, in surface-active agent solns 0=19605
 Ag, AgBr, Ag₂S 2=1381

Zinc

- absorption spectrum, i.r., and Zeeman effect, as impurity in Ge 0=18124
 absorption of ultrasound at low temp. in mag. fields 1=3598
 adsorption of Ga, and diffusion 4=26729
 adsorption of Hg, and diffusion 4=26729
 amalgamated monocrystals, crack growth and fracture 0=16239-40
 anomalous skin effect and Fermi surface 1=17596
 arc stability 1=1899
 atom, first ¹P₁ state lifetime meas. 4=19968
 atom, μ-mesonic, X-ray transition energies 3=6370
 atom, visible triplet, intensity ratios at liq. N₂ temp. 4=22312
 atom, Zn^{65,67}, h.f.s., τ(³P₁) and g_J(³P₁) 4=15295
 atomic emission spectrum, intensity ratios of triplets 1=13952
 atomic i.r. emission spectra, 1.6 to 3.7 μ 4=3799
 atomic spectral line (6362A) narrowing 3=5465
 atoms, interatomic potential energy functions, from viscosity 4=25592
 atoms, mesic, μ⁻ decay anomaly 3=15312
 atoms, Zn^{65,67}, ³P₁ state, h.f.s. meas. 4=15294
 band structure and Fermi surface calc. 2=10352
 bicrystals, grain-boundary sliding 2=14895
 breaking strength, dep. on stress duration 1=14907
 breaking strength, dep. on stress duration 1=20370
 brittle fracture of amalgamated crystals 2=2334
 brittle fracture, effect of surface impurities 0=6316
 brittle fracture, rel. to surface phenomena, -200° to +200°C 4=10363
 brittle rupture 0=689
 cell substructure, rel. to orientation and rate of growth 2=2359
 coating on Cu, bonding phase structure 3=5146
 coating on steel, bonding phase structure 3=5146

Zinc—contd

- compressibility, quantum defect model, exchange correl. 4=28966
 condensation, on Si 4=29810
 condensation in vacuum and props. of condensate 3=16036
 contact potential, effect of illum. 2=8275, 10431
 crack development, due to locally applied drop of Hg or Ga 4=7465
 crack formation, during plastic deformation 0=688
 crack initiation, effect of Hg 4=13451
 cracks, development in presence of Ga and Hg 3=20757
 creep, heat cycling effects 4=13452
 creep, polycrystalline, anomalous activating energy 3=18190
 creep, pressure depend. 3=25633
 creep tests showing additional strain due to temp. variation 4=10405
 creep and viscosity of monocrystals, in air and under Sn layer 0=6311
 critical resolved shear stress, rel. to impurities 2=23745
 crystal, cleaved pits, spirally terraced, etching obs. 3=22787
 crystal dislocation arrays and substructures, etching obs. 4=6852
 crystal dislocations formed in growth or deform., etching obs. 4=9968
 crystal etching, electron microscope study 1=20415
 crystal, equilibrium form, from interatomic forces 4=7532
 crystal growth, large single crystals 0=8164
 crystal growth, large single, for neutron monochromatization 3=23403
 crystal growth, low disorientation and dislocation, by soft mould 4=17788
 crystal growth, simple method 0=3174
 crystal growth, u.s. effects 3=23392
 crystal growth, under high pressure 1=5090
 crystal growth from vapour phase 1=20432
 crystal nucleation from vapour on to glass 2=6781
 crystal twinning, plastic deform. induced 3=16026
 crystallization, re-, polygonization, from stress-strain relations 4=7519
 crystallization in u.s. field, role of insoluble impurities 4=26603
 crystals, cathodic sputtering, anisotropy 4=12823
 crystals, cleavage planes 4=23314
 crystals, etching with 8 keV A ions 0=8173
 crystals, phonon dispersion relation 2=20923
 crystals, slip, intergranular, by interferometry 3=6528
 crystals, work-softening 2=2328
 cyclotron resonance 1=17485
 deformation by hot torsion in polycrystalline Zn 4=28990
 deformation, rapid after-effect 3=18197
 deformation of single crystals, anisotropic effects of irradiation 4=23226
 de Haas—van Alphen effect 3=11029
 de Haas—van Alphen effect, low-field, model 2=10641
 density variation under thermal cycling, to 250°C 3=6868
 diffusion of Ag¹¹⁰ and In¹¹⁴, anisotropy 2=2101
 diffusion in Al and Al—Zn alloys, effect of fatigue 1=19807
 diffusion in Al, effect of mosaic structure 1=6110
 diffusion, in Al, temp. depend. 2=6380
 diffusion in AlSb 2=16665
 diffusion in Ar, temp. var., spectral absorpt. meas. 4=18244
 diffusion of Cd^{113m} and Au¹⁹⁸, anisotropic 3=17793
 diffusion in Cu, grain-boundary and lattice mechanism 0=1602
 diffusion in Cu, saddle-point config. model 3=2789
 diffusion in CuZn alloy, Ne⁺ ion irradiation effect 1=14322
 diffusion, in Cu₂O, microstructure effects 0=11640
 diffusion, in GaAs 0=9918
 diffusion in GaAs, to achieve low surface concs. 4=22614
 diffusion in GaAs Esaki diodes, rapid 4=17504
 diffusion in GaAs, under excess As vapour 4=22615
 diffusion in GaAs and GaP, mechanism expts. 4=22617
 diffusion in GaAs, interstitial mechanism 2=21066
 diffusion in GaAs, interstitial—substitutional 3=20225
 diffusion in GaAs through SiO₂ films 4=22616
 diffusion in Ge 2=12453
 diffusion of Hg, temp. var., surface and volume 4=1521

Zinc—contd

diffusion, impurity, screened interaction model 4=9997
 diffusion in InP, 600°-900°C meas. 4=22619
 diffusion, in InSb 0=9920
 diffusion in InSb 2=6381
 diffusion in InSb, single- and polycrystals 1=14308
 diffusion in liquid tin 1=141
 diffusion, in NaCl, temp. and conc. depend. 4=12803
 diffusion in Si, in elec. fields 3=17790
 diffusion in Sn crystals 2=605
 diffusion and solubility in GaP 3=10686
 diffusion and solubility in GaP 4=12790
 diffusion from vapour into GaAs 1=17565
 discontinuous yielding after prestrain 2=6738
 dislocation etch pits 0=20819
 dislocation etch pits on basal plane surface 1=14288
 dislocation generation in single crystals, effect of microsegregation 1=17534
 dislocation-loop climb 1=3669
 dislocation loops, electron microscope exam. 3=6525
 dislocation loops after plastic deform. 3=4873
 dislocation reactions resulting from slip 3=2797
 dislocation relaxation at low temp. 1=17535
 dislocation relaxation, in single crystals 0=17944
 dislocation sources at inclusions 4=25940
 dislocation structure, atom movements 2=3917
 dislocations, etch study 0=713
 dislocations and impurities in melt-grown crystals 1=19772
 dislocations, ion bombard. etching 4=1477
 dislocations, rel. to irradiation 3=20178
 dislocation loops during low-temp. pyramidal glide 1=10003
 dislocations, motion in whiskers and platelets 0=20808
 dislocations, non-normal direction 2=21024
 dislocations, revealing by etching 1=14961
 dislocations in single crystals, effect of annealing 2=14440
 dislocations, in plastically-deformed specimens, density anisotropy 4=1498
 dislocations prod. by spark discharge 3=12969
 distribution coeff. in GaAs 1=15143
 ductility and fracture due to cyclic stresses 2=21428
 elastic wave surface 1=5322
 elastic waves, reflection and refraction 1=4399
 elec. resistance, rel. to impurity 3=25324
 elec. resistance, 10°-14°K 3=2852
 electric conductivity for high purity, meas. analysis 4=12865
 electrical migration, current density depend. 1=14304
 electrical transfer, in AgZn 2=8247
 electrical transfer in Al, effective charge 2=10416
 electrode potential, strain-induced, of plated Cu wires in ZnSO₄ soln. 1=6571
 electrodeposition on Zn cathodes 2=15145
 electrolytic thermoelectric effect in Zn salt solns., and heat of reaction 4=7768
 electron emission, photostimulated, on reaction with NaOH or KOH 1=16376
 electron energy losses 2=2073
 electron energy structure, spin-orbit splitting 1=19737
 electron states, 3d, two-centre integrals 2=3862
 electron transition probabilities, to Brillouin zones 0=17915
 electronic structure, from acoustic data 3=10623
 electronic structure, calc. 0=9888
 embrittlement by liq. Hg 3=16006
 equations of state, at high pressure 0=11549
 etch figures 0=18331
 etch pits 0=556
 etching, cinephotomicrographic study 1=7844
 etching and dislocations on {1010} faces 3=10676-7
 etching, revealing basal-plane deformation 1=19794
 Ettingshausen—Nernst effect, 4.2°K, effect of pressure 0=13581-2
 evaporation rate, effect of sorbed gases 4=14466
 exo-electron emission 0=2383, 10937
 exo- and photoemission of electrons 1=16374
 fatigue by direct stresses 4=7466
 fatigue fracture, autoradiography 2=19015
 fatigue, slip processes correl. with hardening 3=20748
 fatigue straining, dynamic recovery 3=20749
 fatigue strength in bending, single and polycrystals 1=14922
 Fermi surface 3=25244
 Fermi surface area rel. to theory 1=19745

Zinc—contd

Fermi surface, magnetoelec. data 3=12945
 Fermi surface, pressure depend. 4=4023
 Fermi surfaces, open cross-sections 3=17687
 film on amorphous support, microstructure examination 2=10952
 film orientation on Cu substrate, orientation 1=10282
 films, electron probe meas. 0=10336
 films, 0.003-0.01 in. thick, density, porosity, pore size 2=2427
 films, oxidation kinetics, atmospheric corrosion 4=26748
 films, work function 2=9612
 foils, prep. as isotope targets 2=17978
 fracture, delayed, by cyclic unloading during extension 4=23228
 fracture mechanism, effect of surface-active metallic melts 1=20383
 fracture mechanism, effect of surface-active metallic melts 2=6751
 galvanomagnetic effects, isothermal, at low temp. 0=9944
 galvanomagnetic props., mag. breakdown effects 4=28539
 galvanomagnetic and thermomagnetic potentials at liquid He temp. 0=13581
 as Geiger—Müller cathode, work function 0=5438
 gettering effect on Si p-n junctions 0=18032
 glide systems, subsidiary 4=1919
 grain boundaries, low-angle, mechanical and thermal stability 1=11218
 growth of single crystals, effect of sound waves 3=6828
 growth of single hexagonal crystals in macrosonic fields, orientation 4=23351
 Hall effect, two vector component meas. 4=28538
 hardening curve, rel. to impurities 1=20367
 hardening curve, temp. effect 225°-344°K 1=20366
 hardening at liq. air temp., effect of impurities 2=10764
 hardness, micro, effects of electrons, alphas, with and without Sn 4=23229
 impurity substructure in crystals grown from melt 4=2095
 internal electric-field gradient, calc. 1=11143
 internal friction changes on heating 2=12843
 internal friction, dislocation damping theory 2=21406
 internal friction, effect of surface active Hg, Sn, Bi, Wood's alloy, Pb 2=21569
 internal friction, polycrystalline, and creep 3=18190
 ion emission, laser induced velo. var. with pulse height 4=19111
 ionization, multiple, by electron impact, 0 to 500 V 4=465
 ions in metal, mobility, effective charges 2=18609
 ions, Zn IV, spectrum 4=19967
 irradiation growth 2=20995
 lattice dispersion relns. of anisotropic system, by neutron scatt. 4=1381
 lattice vibr. spectrum by root sampling method 4=20194
 liq. and solid, diffusing in solid Fe 4=1515
 liquid, density, rel. to temp. 2=9255
 liquid flow, activation energy jumps and cluster formation 4=5137
 liquid, Hall effect 3=16636
 liquid, self-diffusion 4=5169
 liquid, self-diffusion in Sn plus Zn mixture 3=5432
 liquid, self-diffusion, temp. depend. 0=5008
 macromosaic structure, sandwich form 2=14451
 magnetic props., effect of elastic deformations, low temp. 0=1773
 magnetic susceptibility, 1.2-300°K 2=21291
 magnetoacoustic attenuation, de Haas—van Alphen oscillation 1=9014
 magnetoacoustic effect, parallel field, liquid He temps. 4=15422
 magnetoplasma resonance, l.f., meas. 3=8409
 magnetoresistance, dimensional and purity effects at low temp. 3=15554
 magnetoresistance, pressure depend., Fermi surface 4=4023
 magnetoresistance, transverse, and periodic mag. breakdown 3=20276
 mech. and phys. props., effect of cyclic heat treatment 0=4569
 mechanical props., elec. cond., structure, effect of Ga film 1=14910
 mechanical strength, of monocrystals, effect of Ga coating 0=1871
 mechanical strength, torsion, and tensile strength—endurance relation 3=18208

Zinc—contd

mechanical strength, variation with time and temp. 0=21149
 meteorites, abundance 3=11527
 microstructure changes, due to thermal cycling and external stress 4=13657
 molten, elec. resist. and Hall effect 3=9475
 molten, viscous flow, activation energy increase 4=155
 monocrystals, cathode disintegration anisotropy 3=7658
 monocrystals, slip, twinning and dislocations 1=14904
 nearest-neighbour force consts. rel. to elastic consts. 2=3818
 nucleation and twinning 1=14981
 optical consts. of single crystal, 0.6-5 eV meas. 4=20450
 optical props. of surface, effect of oxide 0=9075
 plastic deformation, crystal fragmentation and twinning 0=13909
 plastic deformation, initial 3=18181
 plastic deformation, with basal slip, dislocation distrib. 1=14880
 plastic deformation, without basal slip, temp. depend. 1=14879
 plastic deformation, mechanism 2=2327
 plastic deformation, and work hardening in Cd-doped crystals 4=30791
 plastic flow, surface removal effects 4=7430
 plasticity, irradiation, n , β , effects 4=1914
 plasticity, single crystals, temp. transition from brittleness 3=23316
 polycrystals, grain boundary and lattice diffusion 0=7901
 polygonization of bent crystals 1=11216
 polygonization in bent crystals, effects of solutes 2=8235
 positive ions, 5-25 keV, sputtering of Cu 1=8363
 positron annihilation in γ -ray ang. correl. 2=8194
 properties calc. from first princs. 3=8395
 properties and structure, changes at 120 and 180°C 0=13496
 range of 0.07-1.0 MeV Ga atoms 4=28505
 recovery after neutron irradiation, point defect processes 4=4102
 recrystallization and boundary migration 3=23407
 self-diffusion, in AgZn, temp. depend. 2=8247
 shear fracture of bi- and monocrystals 1=1309
 shear strength, -50° to 200°C, up to 10^8 kg cm⁻² 3=13375
 shear stress, critical, rel. to impurities 2=2318
 shock compression up to 9×10^8 atm 2=6728
 shock compression up to 9×10^8 atm 3=6786
 shock wave propag. 0=12453
 single crystals, dislocations by electric erosion 1=14282
 single crystals, dislocations by electric erosion 1=17531
 single crystals, fatigue-induced after-effect 1=20360
 single crystals grown by Bridgman method 1=20444
 single crystals, growth spirals and closed-loop patterns 4=17789
 single crystals, growth by zone recryst. from wire 3=5088
 single crystals, microhardness anisotropy 4=1955
 size effects, due to thermal cycling and external stress 4=13657
 slip lines in deformed single crystals 4=28991
 slip, multiple, active basal and pyramidal slip systems 0=13547
 slip, pyramidal 4=4493
 solid solubility (153-260°C) in Cu 2=15072
 solubility and distrib. coeffs. in GaAs and GaP 4=13458
 solubility in GaAs 3=16122
 in solution, motoelec. effect rel. to temp. 2=8923
 solution rate in Hg 4=5156
 sp. ht., in normal and supercond. states 0=8947
 spark discharge, ion concn., time variation 3=2553
 spark spectrum, wavelength shift meas. 1=3511
 specific heat 1=6075
 specific heat, anomalous, at liq. He temps. 2=10331
 specific heat, 1.3-4.2°K 1=3607
 spectra, in plasma, effect of metallic oxides 3=9812
 spectrochemical anal. 2=19177
 spin-orbit coupling in electron band structure 3=10626
 sputtering by Ar⁺, 1.2 MeV, preferential ejection 3=7656
 sputtering, deposit patterns 3=22877
 sputtering patterns, from 30 keV Ar ions 4=12828
 stacking faults 0=7887
 strain hardening of single crystals 2=14896
 strain recovery, nonelastic, meas. 3=8776
 strength and plasticity, rel. to surface-active melt and irradiation 4=10404

Zinc—contd

stress/strain effects, rel. to irradiation 3=18174
 structural and mech. props. rel. to liq. Ga coating 4=10353
 structure distortions 0=7879
 substructure microsegregations and critical shear stress 3=6792
 superconducting, absorption, u.s., and $2\epsilon_0$ 4=16477
 superconducting state, structure at critical temp. 0=18337
 superconducting, thermal cond., anisotropy 1=18724
 superconducting transition, supercooling and anomalous spec. ht. discontinuity 1=4533
 superconductivity crit. temp. decrease by Mn impurity 4=18566
 surface features of monocrystals 1=15173
 surface friction, wear rate and polishing 2=23795
 surface morphology, thermal evaporation 4=29179
 surface texture, effect on spreading of liquid Hg 3=5427
 tensile strength, combined effect of Hg and α , β and γ -irradiation 4=28989
 tensile strength of foil 2=19007
 tensile strength, rel. to β -irradiation 3=8781
 tensile strength, specimens coated with Zn-Sn, Zn-Cd and Zn-Pb, electron irradiation effects 4=23227
 thermal cycling effect on mechanical, elec. props. 2=23776
 thermal cycling effect on mechanical, elec. props. 3=3233
 thermal diffusivity, capacity and conductivity, meas. by flash method 1=13006
 thermal expansion, anisotropic, below 0°C 2=2056
 thermal expansion, 4°K to room temp. 4=15434
 thermal expansion rel. to crystal orientation 4=17377
 thermal vacancies, formation energy specific resist. 1=11192
 thermo e.m.f. in circuit of deformed and undeformed regions 1=7679
 thermocycling and recrystallization 1=12625
 thermoluminescence, electron traps rel. to activator conc. 1=14661
 thin films, effect of ultrasonics on structure 1=1450
 time-to-fracture, constant and cyclic stresses 4=23124
 torsional strength, long-term 2=12862, 14900
 trace element in Se, neutron activation chem. anal. 4=23692
 twinned, accommodation zone, X-ray diffract. study 0=12000
 twinned layers, load depend. 0=13936
 twinned, pits prod. by vacuum thermal etching 0=16286
 twinned single crystals, recovery 2=21465
 twinning, effect of various inclusions 1=4010
 twinning, structure of accommodation region 3=8801
 twins, wedge-shaped, props. of boundaries 4=10454
 u.s. absorption coeff., quantum oscillation 2=6264
 u.s. absorption coeff., quantum oscillation 3=2723
 u.s. absorption, 17-70 Mc/s, in mag. field, liq. He temps. 0=11576
 use in decoration of defects in NaCl 1=3677
 vacancies, energies of formation, movement 3=10646
 vacancies, formation energy and conc. 1=7575
 vapour, anomalous flow through Pyrex tubing 3=14195
 vapour, exchange with polycrystalline ZnO 1=9166
 vapour, in flames and inorganic cpd. vapours, anomalous excitation 4=9658
 vapour, mag. resonance of excited atomic levels 0=13880
 vapour, mixture with Hg, elec. discharges with negative optical absorption 0=19360
 vapour, multiple ionization, by Auger effect, meas. 4=11520
 vapour, selective reflection at 2139 Å 2=1199
 viscosity, temp. var., m. p. to 1000°C 4=5160
 whiskers, mechanical strength 1=20371
 whiskers, microcreep 1=1327
 whiskers, strength, dislocations and crack formation 1=1544
 work hardening, first-stage, orient. and temp. depend. 4=13453
 work hardening and fracture 3=18200
 work hardening props. of pure and doped crystals 4=20690
 work hardening, slip processes 1=6464
 work hardening, stage A, orient. depend. analysis 4=13454
 X-ray emission spectra, M-series 3=23088
 X-ray lines, K, from flash tube, meas. 4=20453
 X-ray spectra, L-spectra, in Cu-Zn alloys 0=13421

Zinc—contd

X-ray spectrographic study 0=13473
 zone refining 2=23825
 As content detm. by radiochemistry 3=1399
 in Sn, effect on structure and microhardness 3=3334
 in Sn recrystallized surface, effect on microhardness and structure 3=20760
 Zn diffusion in ZnO, 720° to 840°C 1=14320
 Zn monocrystals, amalgamated, brittle fracture 1=6471
 Zn I spectral lines, oscillator strengths 1=13953
 Zn II free ions, mag. dipole resonance 0=2715
 Zn VIII triplet at 160 Å 3=9593
 Zn²⁺, X-ray K-spectrum 0=7720
 Zn⁶⁵, diffusion rate in Cu, small penetration 3=13001
 Zn⁶⁷ atom, ³P state h.f.s. 2=14189
 Zn: Cd, elongated cells, dislocation densities 0=11620
 Zn: Cd, Zn: Cu, fibrous substructure, effect of impurities 0=18303

Zinc compounds

binary phosphate glasses, properties 0=21216
 alloys, impurity electronic structure 3=22757
 α -brass, grain boundaries, pore formation 2=3928, 8234
 α -brass, intragranular misorientation due to plastic strain 2=4507
 brass, mag. susceptibility, 1.2-300°K 2=21291
 dihalides, linear symmetrical, mean amplitudes of vibr. and Bastiansen-Morino shrinkage effect for T = 1000°K, 1250°K and 1500°K 4=30441
 "Electrofax", properties, review 0=4387-8
 emission band found in shock tube excitation 2=696
 ferrites, Cu substitution, heat capacity, Néel temp. 0=4498
 ferrites, mixed, permittivity, a.c. fields rel. to temp. 1=10081
 ferrites, mixed, permittivity in a.c. fields rel. to temp. 1=11329
 franklinite, neutron scatt., spin wave dispersion relation 1=20119
 hopeite, morphology, natural rel. to synthetic 4=13513
 silicate, Mn activated, decay of cathodoluminescence 3=3066
 ternary carbides, with Ni, Co, Fe, Mn 0=16324
 Tutton salts, VO²⁺ e.s.r. 4=20603
 willemite, fluorescence and phosphorescence 1=14639
 wurtzite, optically active lattice vibrations 4=12605
 zinc blende, elastic properties, model 1=20300
 zincblende, electro-optical effect 1=3825
 zincblende, space group selection rules 2=19065
 zincblende, structural stability under high-pressure 3=23375
 Ag-Zn alloys, transport numbers, various phases 3=11354
 (Ba,Sr)₂Zn₂Fe₁₂O₂₂ [Zn₂Y], magnetization process 1=6251
 CdS(Ag) emission bands 1=19978
 MnF₂-ZnF₂, optical absorption and anti-ferromagnetism 1=1162
 NiZn ferrites, Hall effect and semicond. props. 0=7935
 NiZn ferrites, magnetization, meas. using ferromag. resonance 1=1240
 NiZn ferrites, solubility of ferric oxide 0=21232
 NiZn ferrites, Young's mod. and internal friction 0=11971
 Zn acetate aq., u.s. absorption 3=3803
 Zn acetate, aq., u.s. velocity and absorpt. 2=11369
 Zn alloys, macromosaic structure, striations 2=14451
 Zn alloys with Mn, Fe, and Co, ζ -phase crystal structure 2=15046
 Zn amalgam, ultrasound velocity 2=7210
 Zn amalgams, viscosity and elec. cond. 1=11757
 Zn amalgams, viscosity, elec. cond., density 1=12872
 Zn antimonide, elec. transport props. 2=4042
 Zn-blende, fundamental reflectivity spectrum 1=17762
 Zn blende, optically active lattice vibrations 4=12605
 Zn borate, anhydrous, luminescence rel. to As, Sb, Bi impurities 2=6619
 Zn chalcogenides, ternary, photoelectric properties 1=11321
 Zn, dilute, elec. cond., low temp. anomaly 1=14364
 Zn ferrite, atomic displacement due to thermal agitation and local distortions 2=3913
 Zn ferrite, decay phenomena, rel. to domain walls 3=8689
 Zn ferrite, effect of grinding on coercive force 2=10664

Zinc compounds—contd

Zn ferrite, formation by explosive compression 4=4701
 Zn halide films, rapid prep. 0=14081
 Zn halides, aq., dissociation rel. to u.s. data 2=15152
 Zn halides in aq. soln., u.s. velocity rel. to conc. 1=1740
 Zn oxide, interstitial defect meas. by emanation method 4=22568
 Zn oxide, Mn-activated, red luminescence 0=10068
 Zn oxide, red luminescence 0=10068
 Zn oxide and rubber mixtures, permittivity 0=6151
 Zn oxide spheres, sintering, in air, O₂, H₂, He 0=1958
 Zn-rare earth alloys, crystal structure 4=10559
 Zn rhodamide, Pb activated, excitation, absorption and luminescence spectra 4=28739
 Zn sulphides, electron trap centre distrib. 0=13721
 Zn, with surface-active additions, phase precipitation 0=8269
 Zn titanates, dielectric properties rel. to neutron irradiation 1=12475
 Zn tungstate, growth, dislocations and crystallography 4=15477
 Zn-Al alloys, v.p. meas. by radioactive tracer dew point method 4=11412
 ZnAl, electron emission microscopy 3=20973
 Zn-Al, plastic deformation and phase transformations 0=16230
 Zn-Al system (40-75 at % Zn), phase transformations 4=23299
 ZnAl₂O₃, Mn²⁺ e.s.r. 0=3131
 Zn-Al, Zn-Mg, K-edge absorption 2=6590
 ZnAl₂O₄, solubility and crystal growth in molten PbF₂ 4=29614
 ZnAl₂O₄ spinel, containing Fe³⁺ ions, paramagnetic resonance 2=769
 Zn₃As preparation and properties 1=14462
 ZnAs₂ preparation and properties 1=14462
 ZnAs₂, semiconducting props. 1=2416
 Zn₃As₂, semiconducting props. 1=2416
 Zn-2% Au, crystal structure, rapidly solidified, regular cell pattern 3=23470
 ZnBaFe garnet, ferrimagnetic reson. linewidth reduction 4=13289
 ZnBeSiO₄, luminescence, field-stimulated, absence below 2 × 10⁵ V/cm 2=12629
 ZnBeSiO₄, luminescence of powders in elec. fields 2=14737
 ZnBr₂, aq. soln., u.s. velocity anomaly 1=15671
 ZnBr₂, bending vibrations and ionic model 2=14255
 ZnBr₂, electrolytic enrichment with Br⁷⁹ 0=11495
 ZnBr₂, heat contents, room temp. to 700°C 4=14156
 ZnBr₂, molten, self-diffusion of Zn²⁺ 2=11361
 ZnBr₂-nitrile complex, CN stretching freq. 2=14320
 ZnBr₂, vapour pressure and dimerization 4=11413
 ZnBr₂-KBr-H₂O u.s. vel. and adiabatic compression 2=17459
 Zn-Cd alloys, age-hardening 4=1965
 Zn-(0.2 to 0.5%) Cd, brittle fracture, rel. to surface phenomena, -200° to +200°C 4=10363
 (Zn, Cd, Hg)S, electroluminescence 0=16114
 Zn-Cd sulphide, luminescence, 0.75-1.2 μ , 4.2-77.4°K 4=1780
 ZnCdS, a.c. photocond. with blocking layers 2=21184
 ZnCdS:Ag, electroluminescence flashes, wavelength and pulse-width depend. 1=5059
 (Zn, Cd)S, Ag and Cu activated, optical props. 0=6161
 (Zn:Cd)S:Ag, 75: 25, luminescence, for temp. meas. 3=8622
 (Zn, Cd)S, complex dielectric permeability meas. 0=10010
 ZnCdS, luminescence rel. to activator 2=6614
 ZnCdS, luminescence, i.r. quenching 2=8555
 (Zn:Cd)S mixed crystal phosphors, emission band spectral displacement 2=4180
 Zn-CdS, Mn activated, α scintillation, magnification by elec. fields, temp. var. 4=30699
 (Zn-Cd)S, luminesc., activator chemistry 3=3051
 ZnCdS:Mn, luminescence intensification by electric fields 1=20015
 (Zn_{1-x} + Cd_x) S, Mn²⁺ e.s.r. wipe-out number 4=26370
 ZnCdS phosphor, electrophotoluminescence 2=10633
 (Zn,Cd)S phosphors, coactivator emission 3=10998
 (Zn,Cd)S phosphors, emission spectra, influence of activators 4=1781
 ZnCdS phosphors, trapped electrons, e.s.r. 3=23238
 ZnCdS phosphors, yield 2=6624

Zinc compounds—contd

- (Zn, Cd)S, photodielec. props., powder layers 0=6158
 ZnCdS, photovoltaic effects, positive hole motion 1=12464
 (Zn, Cd)S, temp. depend. of luminescence 0=1062
 ZnCdS, trapping centre conc. determ. 2=23607
 (Zn, Cd)S, X-ray luminesc., elec. field and i.r. effects 2=14736
 (Zn, Cd)S:Ag, luminescence, rel. to CdS concn. 0=2959
 (Zn, Cd)S:Ag, luminescence efficiency 0=16091
 Zn—CdS:Ag, luminescence peaks at 0.04 eV and 0.19 eV 2=12629
 ZnCdS:Ag phosphor, Gudden-Pohl effect 2=12628
 (Zn, Cd)S:Ag, fluorescence 0=16096
 (Zn, Cd)S:Cu, candoluminescence and luminescence 0=10052
 (Zn, Cd)S:Cu, Cl, preparation and electroluminescence 0=16110
 (Zn, Cd)S:Cu phosphors, electroluminescence, emission range extension 4=1783
 ZnCdS:Cu and Ag, luminescence 2=6615
 (Zn, Cd)S:Cu phosphors, crystal structure, atomic, X, γ -ray effects 3=23457
 ZnCdS:Mn, elec. field enhancement of u.v. luminescence 2=12626
 ZnCdS:Mn, luminesc., prior sensitization 3=10994
 ZnCdS:Mn, luminescence, by X-rays a.c. components prod. by 10^4 V/cm at 400 c/s 3=15710
 ZnCdS—Mn, luminescence, enhancement by electric field 3=6673
 (Zn, Cd)(S, Se), red-emitting electroluminesc. 3=13217
 Zn—Cd—Sb, liquid, electrical resistivity study of short-range order 1=5284
 Zn_xCd_{1-x}Sb, i.r. absorption pleochroism 3=923
 Zn_xCd_{1-x}Sb, Seebeck coeff. 2=23487
 Zn_xCd_{1-x}Sb, semiconducting props. 4=12918
 Zn_xCd_{1-x}Sb, single crystals, preparation 1=20433
 Zn_xCd_{1-x}Sb solid solns., elec. and optical props. 2=23415
 Zn_xCd_{1-x}Sb solid solns., structure 2=23889
 (Zn, Cd)Se, photocond., spectral response 0=15996
 (Zn, Cd)(Se, S) base, luminor electroluminescence props. 4=22925
 ZnCl₂, α - and β -phases, structure 0=1908
 ZnCl₂ amine complex, structure, moments 3=15358
 ZnCl₂, aq. soln., freezing 3=3927
 ZnCl₂, bending vibrations and ionic model 2=14255
 ZnCl₂ fused mixtures with LiCl and KCl, complex ions 4=183
 ZnCl₂, fused, refractive index rel. to temperature 3=11796
 ZnCl₂, geometry and bonding, from deflection in elec. field 4=22378
 ZnCl₂, glass forming, liquid structure 0=14626
 ZnCl₂, heat contents, room temp. to 700°C 4=14156
 ZnCl₂, ionic melt, transport numbers and temp. depend. 2=15144
 ZnCl₂, molten, shear and structural relaxation 4=11176
 ZnCl₂ phosphor, sulphide activated 3=950
 ZnCl₂ solutions, Raman spectra 4=5184
 ZnCl₂, vapour pressure and dimerization 4=11413
 ZnCl₂—KCl—H₂O u.s. vel. and adiabatic compression 2=17459
 Zn—Cr, magnetoresistance at liq. He temps. 2=3991
 Zn—Cu alloys, corrosion, by NH₃-containing atmosphere 3=8953
 Zn—Cu liquid alloys, thermodynamic and structural props. 4=24203
 Zn with Cu, spectrochemical analysis, in discharge, effect of Si, Na, time var. 3=25845
 Zn₂Cu(AsO₄)₂ (stranskiite), structure and refractive index 1=4058
 Zn_{0.95}Cu_{0.05}K₂(SO₄)₂·6H₂O, e.s.r. spectrum 0=4510
 ZnD, far u.v. band system 2=20824
 ZnF₂, e.s.r. of Mn²⁺ impurity, F¹⁹ super-h.f.s. 0=6272
 ZnF₂, e.s.r. of Ni²⁺, V³⁺ and Cr³⁺ 0=10233
 ZnF₂, fused bath, electronic & ionic conductance, 1100°C 3=1394
 ZnF₂, geometry and bonding, from deflection in elec. field 4=22378
 ZnF₂, growth of highly-perfect single crystals for masers 3=23397
 ZnF₂, lattice thermal cond. 2=16616
 ZnF₂, Mn²⁺ e.s.r. in 1=3936
 ZnF₂, thermal cond., rel. to phonon-spin interactions 2=23082

Zinc compounds—contd

- ZnF₂, thermal cond., 3-300°K 1=8889
 ZnF₂, thermal expansion, from crystal structure, atomic, temp. var. 4=9863
 ZnF₂, molecular vibrational consts. 4=28232
 ZnF₂:Mn, crystal growth 0=21163
 ZnF₂:U, luminescence, line spectrum, 77°K 1=2455
 (Zn_{1-y}Fe_y)Fe₂O₄, ferromagnetic crystalline anisotropy 1=14696
 ZnFe₂O₄, grain growth and structure 2=4479
 ZnFe₂O₄, sp. ht., 1.8-20°K 2=571
 ZnFe₂O₄, superparamagnetism, induced by high-pressure squeezing 4=26275
 (ZnFe₂O₄)_{1-y}(Fe₃O₄)_y, electrical conductivity 1=12425
 ZnFe₂O₄—NiFe₂O₄ system, superparamagnetism 3=8645
 Zn—GaAs, distribution coeff. of Zn 1=15143
 ZnGa₂O₄, spinel structure 1=15093
 ZnGeAs₂, conductivity, thermal 100-700°K and order-disorder transform. 3=20118
 ZnGeAs₂, solubility of Ge, X-ray, thermal obs. 4=4496
 ZnGeAs₂, thermoelec. power, resist., Hall const., thermal cond. and diffusivity 3=8518
 ZnH, far u.v. band system 2=20824
 (Zn, Hg)S, electroluminescence 0=16114
 Zn(Hg):Zn²⁺ aq., electrolytic Peltier effect rel. to inactive ions 2=17089
 ZnI₂—nitrile complex, CN stretching freq. 2=14320
 ZnI spectrum, h.f.s. and intercombination lines 2=16480
 ZnI₂—KI—H₂O u.s. vel. and adiabatic compression 2=17459
 ZnIn spectrum 4=30440
 Zn—In—Ga liquid system, thermodynamic props. 2=15580
 ZnIn₂S₄, photoconductivity 2=23475
 ZnIn₂S₄, photoconductivity and electrical properties 1=10066
 ZnIn₂S₄ single crystals, optical props. 4=28713
 ZnIn₂S₄ and ZnIn₂S₄:Cu, single crystals, luminescence 4=28738
 ZnIn₂Se₄, crystal structure and electrical properties 3=25350
 ZnIn₂Se₄, semiconductor, prep. and props. 3=864
 ZnIn₂Te₄, crystal structure and electrical properties 3=25350
 ZnIn₂Te₄, semiconductor, prep. and props. 3=864
 (Zn, Mg)S:Cu, halide phosphors, electroluminescence 4=4311
 Zn—Mn alloy, de Haas—van Alphen effect 3=11029
 Zn—0.01 at.% Mn, de Haas—van Alphen effect 2=12643
 Zn—Mn dilute alloys, showing low-temp. resist. anomalies, mag. suscept., s-d interactions 4=20518
 ZnMn ferrites, elec. conductivity 1=17635
 Zn—Mn ferrites, relaxation phenomena 1=17974
 Zn—Mn (0.4 at. %), mag. elec. props., low temp., spin ordering effects 4=17623
 Zn—Mn, magnetoresistance at liq. He temps. 2=3991
 Zn + 0.1% Mn, thermoelectricity below 100°K 2=6510
 Zn_{3-x}Mn_xAs₂, magnetoresistance, negative 4=4177
 Zn—MnF₂, mixed crystals, Néel temp. 1=9046
 Zn—Mn—Fe ferrites, permeability, anisotropy 3=20619
 Zn_{0.8}Mn_{0.2}O₄, antiferromag., < 200°K 4=26345
 ZnMn₂O₄, refined structure calc., computer programme 0=4623
 Zn_{1-x}Mn_xO₄, exchange anisotropy 1=7768
 Zn_{1-x}Mn_xO₄, prep., elec. cond., tetragonal distortion 4=15555
 Zn_{1-x}Mn_xO₄ ferrimag. O ≤ x ≤ 0.6, low temps. 4=26345
 Zn_{1-x}Mn_xO₄, prep., elec. cond., tetragonal distortion 4=15555
 Zn₂Mn[SiO₄][OH]₂, crystal structure 4=13614
 Zn(NH₄)₂(SO₄)₂·6H₂O, crystal struct. 4=30857
 Zn(NH₄)₂(SO₄)₂·6H₂O, impurity distrib. during crystallization 4=29062
 Zn(NO₃)₂·6H₂O, volume changes, anomalous, rel. to thermal cycling, down to -180°C 4=10424
 ZnNi ferrite, permeability and domain walls 1=20139
 ZnNi ferrites, ferromagnetic relaxation 1=17973
 (Zn—Ni)SiF₆·H₂O mag. props. below 1°K 2=10650
 ZnO, absorpt. bands, dispersion shift 2=23565
 ZnO, absorption edge, press. depend. 0=4408
 ZnO, action of 2-10 kV electrons 0=1162
 ZnO, activation energies for diffusion 1=12398
 ZnO, adsorption of O₂ 4=10623
 ZnO, adsorption process, effect of γ -rays 2=12949
 ZnO, adsorption rates of CO 0=752
 ZnO aerosol, precip. in acoustic field 2=23974

Zinc compounds—contd

ZnO, aerosols, precipitation, by l.f. spiral acoustic field 3=18462
 ZnO, α -scintillations, low temp. depend. 0=10078
 ZnO, average electrom. brightness voltage depend. 4=22912
 ZnO, chemisorption of H_2 and CO 2=8916
 ZnO, chemisorption of O_2 , effect of u.v. irradi., rel. to model as n-type semiconductor 0=8303
 ZnO, conductivity rel. to donor conc. 1=19886
 ZnO, crystal growth by heating ZnF_2 in air 2=4383
 ZnO, crystal perfection, studies by X-ray intensities 4=22593
 ZnO crystal, polar props. perpendicular to c-axis 4=6680
 ZnO, crystallographic polarity 3=11259
 ZnO, Cu^{2+} substit. impurity, wave functions 4=4042
 ZnO, dielec. const. 0=7973
 ZnO, diffuse reflectance absorpt. spectrum 3=13190
 ZnO, diffusion of Zn^{65} and O^{18} in, solubility of Zn for vapour 1=2395
 ZnO, dipolar absorption studies 1=14535
 ZnO, donors and acceptors, e.s.r. 3=13309
 ZnO, donors, paramagnetic resonance 1=20240
 ZnO, doped with Li, Ni, Cu, luminesc. 3=23111
 ZnO, double acceptor luminescence 3=15704
 ZnO, e. s. r. of photosensitive Ni 4=13323
 ZnO, "edge" and green luminescence emission rel. to elec. cond. 3=3048
 ZnO, effect on Bi_2O_3 polymorphism 4=23253
 ZnO, effect of light on contact potential 0=1626
 ZnO, elastic moduli of single crystals 3=1213
 ZnO, elec. cond., effect of illumination and adsorption 2=16759, 18753
 ZnO, elec. cond., Hall effect 2=2117
 ZnO, elec. cond., pressure depend. 0=6085
 ZnO, electrical cond. 0=2849
 ZnO, electrical dark conductivity and green luminescence 1=11311
 ZnO, electrodes, charge and potential distributions 0=13618
 ZnO electrodes in electrolytes, surface charge distribution 1=1484
 ZnO, electroluminescence 4=1764
 ZnO, electroluminescence rel. to applied voltage 2=21282
 ZnO, electroluminescence, effect of u.v. and gas adsorption 0=16116
 ZnO, electroluminescence meas. 3=18048
 ZnO, electroluminescence, with rectifying contacts 2=23622
 ZnO, electroluminescence and surface props. rel. to adsorbed gases 2=16853
 ZnO, electron density distrib. 1=20538
 ZnO, electron paramagnetic resonance, photo-induced 3=6751
 ZnO, electrophotographic, charging in discharge 4=18443
 ZnO, electrophotographic latent image formation and decay 3=5544
 ZnO, electrophotographic props. 3=9629
 ZnO, excitons and absorption edge 1=17477
 ZnO, exciton spectrum, from u.v. absorption and reflection 1=19982
 ZnO, Fe^{57} n. m. r., meas. and theory 2=12820
 ZnO, field effect mobility, effect of O_2 , N_2 , and light 2=16733
 ZnO films, adsorption and desorption, rel. to irradi. 3=6896
 ZnO films, luminescent, sublimation 3=16144
 ZnO, films, photoconduction sensitization with eosin 4=15570
 ZnO, glass, Young's modulus rel. to refr. index, ht. effect 4=22864
 ZnO, H_2 chemisorption, temp. dependence 0=750
 ZnO, high-pressure polymorph 3=3254
 ZnO, high temp. induced e. s. r. signals, u. v. sensitive centres 4=30739
 ZnO, higher order i. r. absorpt., spectra, 5-33 μ , 4=28714
 ZnO, hydrothermal crystal growth 4=20737
 ZnO, i. r. absorption, calc. 1=14607
 ZnO, i. r. absorption and electrical conductivity 0=654
 ZnO, i. r. absorption, 1-13 μ 0=2945
 ZnO, i. r. reflection spectrum 0=11767
 ZnO, i. r. spectrum and adsorption of CO_2 0=8002
 ZnO, large crystal growth 1=2525
 ZnO, latent electrophotographic image, formation 2=15756, 19733

Zinc compounds—contd

ZnO, lattice parameters, effect of thermal history 4=23500
 ZnO, luminescence and absorption 3=957
 ZnO, luminescence and cond. elec., effect of absorbed O 3=6679
 ZnO, luminescence due to 9 kV electrons 0=6202
 ZnO, luminescence, edge emission, tight binding model 0=2956
 ZnO, luminescence, effect of Cu activation 3=20524
 ZnO, luminescence quenching 2=16852
 ZnO, mag. props. rel. to n-irrad. 2=21340
 ZnO, mag. suscept. of Ni^{2+} analysis 4=17616
 ZnO, magnetothermal effects at high-temp. 2=23066
 ZnO, modified by Na_2O , Li_2O , $ZnSO_4$, ThO_2 , elec. cond. and work function 0=11718
 ZnO, Mössbauer spectrum at 92 keV 2=14358
 ZnO, Mössbauer spectrum at 92 keV 3=6460
 ZnO, Ni-doped, optical absorption 1=17887
 ZnO, Ni^{2+} , Co^{2+} , and Cu^{2+} absorption spectra 2=14673
 ZnO, non-ohmic cond., rel. to u.s. amplification 3=12919
 ZnO, nuclei, structure 4=4555
 ZnO, O chemisorption, changes in elec. props. 1=20741
 ZnO, optical experiments demonstrating exciton existence 0=11606
 ZnO, optical second harmonic generation, by laser beams 4=28666
 ZnO, optically sensitized, photocond. 2=10540
 ZnO, oxygen chemisorption 2=6693
 ZnO paint layers, refr. index and size of particles 2=10993
 ZnO, paramag. resonance of Fe^{3+} ions 2=12819
 ZnO phosphors, cathodoluminescence 1=1186
 ZnO phosphors, prep. and cathodo-props. 2=16854
 ZnO, photocond. decay, chemisorption model 2=2193
 ZnO, photocond., O photodesorption study, temp. depend. 0=18074
 ZnO, photocond. and oxygen photodesorption 2=12548
 ZnO, photocond. as surface phenomenon 2=8415
 ZnO, photoconductivity, kinetics, effect of binders 3=17964
 ZnO, photoconductivity and photodielectric effect 1=11327
 ZnO, photoconductivity and photodielectric effect 3=23023
 ZnO, photocurrent and luminescence, ruby-laser induced 4=26153
 ZnO, photo-e.m.f. sensitized with chlorophyll and analogues 0=1676
 ZnO, photoelec. emission 2=5370, 11694
 ZnO, photosorption and desorption of O_2 and CO 1=4082
 ZnO piezoelectric scattering and phonon drag 1=17857
 ZnO, piezoelectricity and conductivity 0=16027
 ZnO powder, effect of adsorbed CO_2 on i. r. spectrum 2=6582
 ZnO, reactions of Li as a donor and acceptor 1=17764
 ZnO, semicond., dielec., optical props., and crystal struct. 4=22725
 ZnO, semiconducting props. and dielectric absorption 2=6517
 ZnO, single crystals, fluorescence, polarization 0=11782-3
 ZnO smoke, electron diffraction patterns for hard and soft electrons, recoil effect 4=7784
 ZnO, smoke, particle weight meas. by electron diffr. 4=4718
 ZnO, smoke particles, electron diffraction 1=16421
 ZnO star, electron microscope stereoscopic invest. 1=20708
 ZnO, sublimation and thermodynamic props. 4=29811
 ZnO, surface cond., variation by adsorption transverse fields and irradiation 1=3738
 ZnO suspension, light transmission meas. 2=10992
 ZnO, synthetic and natural, e. s. r. of Mn^{2+} 2=23702-3
 ZnO, thermoluminescence 3=8633
 ZnO, thermoluminescence, rel. to impurities 2=6648
 ZnO, u.v. and cathodoluminesc., mechanism 3=3047
 ZnO, use in u.s. amplifier 4=22488
 ZnO, valence band structure, quasi-cubic model 1=19983
 ZnO, work function, effect of oxide additions 0=11710
 ZnO, X-irradiated, electron emission 0=2375
 ZnO, xerographic layers, charging, effect of dielectric breakdown 2=6529
 ZnO, xerographic, reciprocity failure 0=6956
 ZnO, yellow luminescence 2=6620
 ZnO, yellow luminescence, rel. to excess O and crystal form 2=16851

Zinc compounds—contd

ZnO, Zn diffusion, elec. cond. 0=569
 ZnO, Zn diffusion, 720° to 840°C 1=14320
 ZnO, Zn exchange with Zn⁶⁶ vapour 1=9166
 ZnO₂, diffuse reflectance absorpt. spectrum 3=13190
 ZnO—Al₂O₃, system, semiconducting properties 2=23416
 ZnO:B₂O₃, host crystal in luminescence 2=2254
 Zn₄O(BO₃)₆, crystal structure 2=10896
 ZnO—Bi₂O₃, electroluminescence, field and time depend. 1=6242
 ZnO—CdO—P₂O₅, phase equilibrium and Mn activated luminescence 4=30796
 ZnO:Co, optical absorption 2=4142
 ZnO:Cu phosphors, groups of traps 4=20490
 ZnO:Cu²⁺, absorption spectrum 1=14609
 ZnO:Li, u.v.-induced centre, e.s.r. 3=13310
 Zn₃(OH)₂(CO₃)₂, crystal structure 4=26680
 7ZnO.Sb₂O₅ spinel, growth and lattice const. 3=3274
 7 ZnO.Sb₂O₅, structure and ratio Zn:Sb 4=4631
 ZnO:Se, photo- and cathodoluminescence, effect of Cu, Fe, Ni impurities 0=21008
 ZnO—TiO₂, polycrystals, dielec. props., freq., temp. and composition depend. 1=2432
 ZnO—TiO₂—NiO ceramics, temp. coeff. of resist. 3=13117
 ZnO:Zn, luminescence, H₂⁺ excited, decay times 0=1755
 ZnP₂, structure of tetragonal, monoclinic forms 3=16072
 Zn₃(PO₄)₂, γ-phase, crystal structure and luminescence 3=6849
 Zn₃P₂O₇—Cd₃P₂O₇, phase equilibrium and Mn activated luminescence 4=30796
 Zn(PO₃)₂—Cd(PO₃)₂—Mg(PO₃)₂ system, phase equilibria and luminescence 4=26573
 Zn₃(PO₄)₂—Cd(PO₄)₂, phase equilibria and luminescence 4=10444
 Zn₃(PO₄)₂.4H₂O films, evaporation behaviour 2=2421
 Zn₃P₂O₇:Mn and Zn₃P₂O₇:Cu crystals, phase transitions, e.s.r. study 4=26572
 ZnS, a.c. electroluminescence, mechanism 2=6647
 ZnS, a.c. field excit. of rare earths 3=25496
 ZnS A-centre, e.p.r., g-factor anisotropy at 77°K 4=26443
 ZnS, A centres, e.s.r., g-shift calc. 4=10333
 ZnS, A-centres, thermally activ. motion, e.s.r. meas. 4=26446
 ZnS, absorption edge, press. depend. 0=4408
 ZnS, absorption edge shift in elec. field 1=19988
 ZnS, absorption edge, rel. to vector orient. 3=10970
 ZnS, absorption edge shift rel. to elec. field 3=6655
 ZnS, absorption spectra of crystals 0=13700
 ZnS, absorption spectrum 0=10048
 ZnS, activated, electroluminescence at low voltages 0=1765
 ZnS, activated, luminescence of evaporated films 2=719
 ZnS, activated, piezoluminescence 2=10635
 ZnS, activator-free, luminescence centres 2=4181
 ZnS(Ag) as scintillator for fission detection in U and Th cpds 1=2247
 ZnS(Ag) emission bands 1=19978
 ZnS, ag and Cu activated, optical props. 0=6161
 ZnS, α-ray scintill., field quenching model 3=13208
 ZnS antireflection films for i.r. detectors 1=9502
 ZnS, average electrolum. brightness voltage depend. 4=22912
 ZnS, band structure, symmetry props. 0=11783
 ZnS, use in blooming of metallic films 2=7378
 ZnS, carrier distrib. due to inhomog. excitation 3=2928
 ZnS, Cl impurity incorporation 4=6821
 ZnS, Co²⁺ e.s.r., spin Hamiltonian 1=3934
 ZnS, colour centres in single crystals 1=11231
 ZnS, crystal formation from powder 0=21165
 ZnS, crystal growth by chem. transport process 2=12889
 ZnS, crystal growth from flux 2=16985
 ZnS, crystal growth, Frerich's method 3=6826
 ZnS, crystal growth, from melt, 100–200 atm. of N₂ 3=18244
 ZnS crystal growth from NaCl solvent flux 1=20442
 ZnS, crystal growth by sublimation 2=4384, 10789
 ZnS, crystal growth, rel. to temp. and temp. gradient 1=20434
 ZnS, crystal growth from vapour, morphology 2=14942
 ZnS, crystal growth from vapour phase 3=8804
 ZnS crystal growth, with HCl as vapour solvent 3=13412
 ZnS crystal, luminescence transitions 4=28740

Zinc compounds—contd

ZnS, crystals, forbidden bandwidth and effective ion charge 3=20344
 ZnS crystals, refl. spectra, temp. depend., 300–370mμ, 77°K–room temp. 4=26226
 ZnS, crystals, refractive index 3=13152
 ZnS crystals, stacking faults 4=20290
 ZnS crystals, thermal expansion 1=918
 ZnS, Cu or Ag-activated, luminescence mechanisms 4=28744
 ZnS (Cu, Al) phosphors, electroluminescence frequency dependence and mechanism 4=10223
 ZnS, Cu and Mn activated, d.c.—a.c. excitation, electroluminescence brightness waves 0=16112
 ZnS, Cu and Mn activated, electroluminescence, total luminance 0=16111
 ZnS, cubic, Fe³⁺ e.s.r. 2=12825
 ZnS, cubic and hexagonal, e.s.r. of Cr³⁺ 3=3170
 ZnS, use in dielectric mirror systems 2=1251
 ZnS, dielec. props. at 7.25 Mc/s 3=17932
 ZnS, dielectric and optical properties 1=11330
 ZnS, dielectric screening, charge distrib. 2=3806
 ZnS, diffusion of activators in luminescence 0=655
 ZnSb, diffusion of Fe and Cd 0=6056
 ZnS, diffusion of Zn in crystals 1=8914
 ZnS, dislocations and wide stacking faults 3=4874
 ZnS, double acceptor luminescence 3=15704
 ZnS, e.s.r. of Cr³⁺, Mn²⁺, Fe³⁺ 3=20648
 ZnS, e.s.r. of Mn²⁺, cubic and hexagonal 4=1882
 ZnS, e.s.r. of Mn²⁺ in, pressure effects 1=7786
 ZnS, e.s.r. and optical absorption of Fe²⁺ in 0=10229
 ZnS, e.s.r. of photosensitive Fe, Ni and V 4=13323
 ZnS, e.s.r. study of A and B centres 2=23605
 ZnS, effect of ball milling on structure and electroluminescence 4=26253
 ZnS, elastic const. meas. 1=20284
 ZnS, elastic constants 3=8751
 ZnS, elastic constants, temp. depend. 4=13450
 ZnS, elec. cond. due to electron bombard. 2=18652
 ZnS, electrets, effect of elec. fields and temp. 0=16092
 ZnS, electroelastic props., meas. and model 3=8556
 ZnS, electroluminescence 3=4992
 ZnS, electroluminescence 3=8631
 ZnS, electroluminescence and crystal structure 0=4454
 ZnS electroluminescence crystallites, etch pits 1=12615
 ZnS, electroluminescence, Cu activated, a.c., pulsed 3=18046
 ZnS, electroluminescence due to minority carriers, theory 1=14659
 ZnS, electroluminescence, effect of crystal size 3=20537
 ZnS, electroluminescence, effect of ultrasound 0=18152
 ZnS, electroluminescence, efficiency, theory 0=2968
 ZnS, electroluminescence and electron emission, voltage var., distrib. 4=21558
 ZnS, electroluminescence and electrophoto-luminescence 3=963
 ZnS, electroluminescence excitation processes 2=8593
 ZnS, electroluminescence, four aspects 3=23124
 ZnS, electroluminescence, frequ. factor and trap depth 3=23125
 ZnS, electroluminescence at low voltages 1=17922
 ZnS, electroluminescence, mechanism 1=1190
 ZnS, electroluminescence, microscopic study 2=4193
 ZnS, electroluminescence stimulation methods 2=16873
 ZnS, electroluminescence, study by birefringence 2=10632
 ZnS, electroluminescence theory, electron tunnelling and recomb. 0=4463
 ZnS, electroluminescence, rel. to voltage phase angle 3=3068
 ZnS, electroluminescence of powder particles 3=11012
 ZnS, electroluminescence, review 3=13220
 ZnS, electroluminescent brightness waves, principal peaks 1=5058
 ZnS, electroluminescent cells, brightness, freq. depend. 2=18881
 ZnS electroluminescent cells, dielec. props. 3=2947
 ZnS, electroluminescent striations 4=1782
 ZnS, electroluminophor 2=14757
 ZnS, electron emission, electron- and α-excited 1=8344
 ZnS, electron states, configurational instability 2=10346
 ZnS, electronic band structure, perturbation calc. 1=19735
 ZnS, energy bands in zincblende, wurtzite and mixed crystal structures, by LCAO method 0=1541

Zinc compounds—contd

- ZnS, etch pit studies 2=2351
 ZnS, evap. films, ageing effects 0=3638
 ZnS, evap., u.v. absorption coeff. 3=926
 ZnS, evaporated layers, dielectric props. 4=4206
 ZnS, faulted, birefringence bands, uniform 4=15602
 ZnS, Fe and Cr ion charge transfer, e.s.r. meas. 4=1357
 ZnS film growth on rocksalt, electron diffr. exam. 4=4670
 ZnS, films, adhesion to glass and silica, effect of oil vapour contamination 0=14087
 ZnS films, d.c. electroluminescence 3=15720
 ZnS, films, dielec. props., Al/ZnS/Al sandwiches 0=16007
 ZnS films; dielec. props.-thickness anomaly 2=23493
 ZnS, films, dielectric losses 1=14536
 ZnS films, electroluminescence at 2V d.c. 1=7730
 ZnS films, luminescent, sublimation 3=16144
 ZnS, films on Mylar, for α -scintillation counting 1=560
 ZnS, films, structure from optical const., adsorption formation theory 3=13560
 ZnS films, structure variations 4=15826
 ZnS, fluoresc. correl. with stoichiometry deviation 4=22926
 ZnS, fluorescence, self- and Cu-activated 0=13716
 ZnS, fluorescent band-edge emission 2=8573
 ZnS, forbidden band width and effective charge 3=10621
 ZnS formation from vapour, chem. transport 3=25673
 ZnS, γ -ray induced conductivity 3=2908
 ZnS, γ -ray luminescenc., effect of elec. field 3=8629
 ZnS-group phosphors, luminescence excitation by modulated light 3=20525-6
 ZnS, growing monocrystals from vapour phase 2=811
 ZnS, growth and crystallography 1=6500
 ZnS, growth of hollow hexagonal crystals 3=11237
 ZnS, growth from the melt 0=8163
 ZnS, growth from vapour phase in H_2S and HCl mixture 2=8788
 ZnS, Gudden-Pohl flashes 3=18050
 ZnS, hexagonal, band struct., theoretical investigation 2=23265
 ZnS, hexagonal crystals, phys. props. 0=1880
 ZnS, i.r. emission and electroluminescence, effect of Cu concn. 1=17919
 ZnS, i.r. luminescence, model of centre 3=8621
 ZnS, injection electroluminescence 4=26234
 ZnS, internal force const. calc. 3=10580
 ZnS, irradiated, luminescence 2=4166
 ZnS lattice absorption, 8° to $420^\circ K$ 3=10967
 ZnS lattice absorption i.r. bands, shell model applic. 3=10927
 ZnS lattice, current carrier energy spectrum change due to deformation 2=4010
 ZnS lattice, current carrier energy spectrum change due to deformation 3=2877
 ZnS layers for high u.v. reflectance 2=17641
 ZnS, light centres, review paper 4=1526
 ZnS, luminesc., activator chemistry 3=3051
 ZnS, luminesc., double activation by Ag and Sm 3=3057
 ZnS, luminesc. temp. coeff. and cond., under 60 keV electrons 4=13091
 ZnS, luminescence 4=7167
 ZnS, luminescence activation thermodynamics 2=14734
 ZnS, luminescence after room temp. prep. 3=10997
 ZnS, luminescence, anti-Stokes, rel. to 2-step optical excitation 2=23593
 ZnS, luminescence, blue bands 3=10995
 ZnS, luminescence of charged layers in d.c. fields 2=6644
 ZnS, luminescence rel. to cryst. morphology 2=16859
 ZnS, luminescence rel. to crystal size 3=954
 ZnS, luminescence and defect properties, thesis 1=20014
 ZnS, luminescence rel. to defects 3=22705
 ZnS, luminescence, edge emission, tight binding model 0=2956
 ZnS, luminescence, effect of growth conditions 3=6675
 ZnS, luminescence, effect of synthesis conditions 3=25487
 ZnS, luminescence, electric field effects on quenching and enhancement 4=15617
 ZnS, luminescence, electro-luminescence and i.r. cooling, on zone model 2=21273
 ZnS, luminescence emission shifts, rel. to activators, lattice extension and compression 3=8625
 ZnS, luminescence: i.r. effect and anti-Stokes emission 3=3049

Zinc compounds—contd

- ZnS, luminescence, i.r. quenching 2=8555
 ZnS, luminescence intensity decrease rel. to mech. crushing 2=18868
 ZnS, luminescence, n irradiated, quenching by Cu or Co 3=18039
 ZnS, luminescence phosphors with Cu, As, Li and Ti 2=10624
 ZnS, luminescence polarization rel. to colour centres 2=23591
 ZnS, luminescence of powder in elec. fields 2=14737
 ZnS, luminescence, pressure effect 3=18035
 ZnS, luminescence quenching in nucl. reactor 3=4987
 ZnS, luminescence, red, preparation conditions 3=18038
 ZnS, luminescence saturation 2=4179
 ZnS, luminescence, self-activ. 3=8623
 ZnS, luminescence, self-activated, polarization, $77^\circ K$ 3=20531
 ZnS, luminescence, spectral composition, temp. depend. 0=11780
 ZnS, luminescence, starting intensity, theory 2=16860
 ZnS, luminescence, steady-state variation with excitation intensity 2=16857
 ZnS, luminescence, temp. var., and association centres 4=7191
 ZnS, luminescence rel. to uncrushed crystal size 2=718
 ZnS, luminescent centres, electronic structure 1=1182
 ZnS, luminescent efficiency, thin layers 0=2963
 ZnS, luminescent screen prep. 2=23606
 ZnS, Ni^{2+} and Co^{2+} absorption spectra 2=14673
 ZnS, Ni and Co activated, electroluminescence 0=2965
 ZnS, ohmic contacts 3=8530
 ZnS(110) face, micro-etch figure orientation, electron microscope exam. 4=30865
 ZnS, optical, elastic piezoelectric props. 1=899
 ZnS, optical quenching, thermal activation energy 2=16855
 ZnS, optically active phonon processes 4=17560
 ZnS, outer field emission 0=261
 ZnS, persistent internal polarization, theory 2=4089
 ZnS, phase transition due to pressure 2=16705
 ZnS, phosphor, thermoluminescence rel. to neutron irradiation and ageing 4=28741
 ZnS, phosphors activated with rare earth metals 0=1757
 ZnS phosphors, activation mechanism 2=6621
 ZnS, phosphors, with Ag, Cu, Au activators, Al, Sc, Ga coactivators 0=13717
 ZnS phosphors, ageing 1=14640
 ZnS phosphors, cathodolumin., elec. field effects 3=3065
 ZnS phosphors, coactivator emission 3=10998
 ZnS, phosphors, conversion of heat into light 0=10049
 ZnS phosphors, with Cu, Cl, Mn, electroluminescence maintenance 1=1187
 ZnS, phosphors, deep trapping 0=6197
 ZnS, phosphors, disorder phenomenon 0=18151
 ZnS phosphors, electroluminescence curves 1=9011
 ZnS phosphors, electroluminescence excited by square pulses 3=15722
 ZnS, phosphors, electroluminescence mechanism and efficiency 0=11794
 ZnS, phosphors, electroluminescence, voltage depend., particle distrib. 0=2967
 ZnS phosphors, luminescence, reversible transformations 1=17914
 ZnS phosphor films, production 1=6560
 ZnS phosphors, cathodoluminescence induced by electron bombardment 1=14652
 ZnS phosphors, electron trap depth, infrared light 2=717
 ZnS phosphors, escape of trapped electrons 3=20529
 ZnS phosphors, excitation energy storage, transfer 3=15699
 ZnS phosphors, excitation spectra meas. 3=18037
 ZnS phosphors, excitation spectra theory 3=18036
 ZnS phosphors, flash, three-trapping-levels model 3=3050
 ZnS, phosphors, i.r. stimulation 0=11786
 ZnS phosphors, i.r. stimulation and quenching 3=6677
 ZnS, phosphors, i.r. and u.v. excited, trapped electrons 0=18139
 ZnS phosphors, with impurities, spectroscopic analysis 3=941
 ZnS phosphors, influence of fluxes 2=23603-4
 ZnS, phosphors, infrared quenching 0=16097
 ZnS phosphors, luminescence, $14-77^\circ K$, and shallow trapping levels 3=23132

Zinc compounds—contd

- ZnS phosphors, luminescence, steady-state 2=16858
 ZnS phosphors, luminescence, steady-state 3=20527
 ZnS, phosphors, opt. and elec. props. 0=10084
 ZnS phosphors, photodielec. effect 3=13105
 ZnS phosphors, photodielec. meas. and models 4=22808
 ZnS phosphors, preparation, particle growth 1=1380
 ZnS phosphors, range of energy propagation 2=6593
 ZnS, phosphors, self-activated, luminescent centre 0=2951
 ZnS, phosphors, with Tl, Ag, Cu, prep. and props. 2=10623
 ZnS phosphors, trap filling by field excitation 3=23126
 ZnS phosphors, u.v.-excited, i.r. effects 3=23110
 ZnS, photochemical behaviour under u.v. 4=13737
 ZnS, photocond. and luminescence at low temp. 2=8413
 ZnS, photocurrents and photovoltages, effect of polarized light 0=2907
 ZnS, photodielec. props., powder layers 0=6158
 ZnS, photoelectret state 0=13661
 ZnS photoelectrets, effects of γ , β -rays 3=15622
 ZnS, photoelectroluminesc., u.v. 3=3070
 ZnS, photoluminescent emissions, exptl. study 4=4307
 ZnS, photovoltage model 3=25421
 ZnS, photovoltaic effect, anomalous, theory 2=4072
 ZnS, photovoltaic effect rel. to polar props. 4=22807
 ZnS, piezo-, elasto-, and electro-optic constants 1=7702
 ZnS, piezoelectricity, lattice theory 2=12575
 ZnS, polygonization, growing from vapour phase 2=6777
 ZnS, powders, a.c. properties 0=13722
 ZnS, powders, contact electroluminescence, rel. to charge injection 4=28745
 ZnS powders, htd, in Zn atmosphere, carrier conc. 3=13084
 ZnS, prep. of phosphor layers on glass plates 1=3868
 ZnS, pyroelectric effect in cubic structure 0=13663
 ZnS on quartz, blue luminescence at 200° to 350°C 2=21270
 ZnS, recomb. probability rel. to drift velocity 2=12402
 ZnS, red luminescence 4=10225
 ZnS, reflection and emission of polarized light 1=10090
 ZnS, reflection, light, photoelectric emission, 1600-3000 Å 4=7161
 ZnS, reflection spectrum of wurtzite structure 3=8583
 ZnS, reflectivity in interband transition region 3=8582
 ZnS in scintillation detector, optimal grain size 2=20443
 ZnS, scintillation efficiency increase 3=23119
 ZnS, screw dislocation, elec. field and charge distrib. 4=6846
 ZnS, screw dislocations, elec. potential calc. 4=6845
 ZnS, self activated, e.s.r. 4=1892
 ZnS, self-activated, Fe³⁺ and A-centres 2=21274
 ZnS, self-activated, paramagnetic resonance det. of centres and traps 1=14642
 ZnS, self- and Cu-activ., diamagnetism 3=11028
 ZnS, single crystals, electroluminescence due to Cu migration 3=13216
 ZnS, single crystals, fluorescence, polarization 0=11782-3
 ZnS, single crystals, growth and heat treatment 0=10287
 ZnS, single crystals, polarization of luminescence 0=16093
 ZnS, space-charge-limited photocurrents 1=17792
 ZnS, spectra, thermoluminescence and luminescence rel. to impurities 3=20528
 ZnS, stacking faults 3=8444
 ZnS, stacking faults, pressure-induced 3=20207
 ZnS, stacking faults, X-ray scatt. 3=17771
 ZnS, structure changes 4=13508
 ZnS, synthetic, bombardment conductivity 0=18055
 ZnS, thermally-stimulated electron emission, effect of Cu and Pb activation 4=570
 ZnS, thermionic and photo emission, thermoluminescence 1=18917
 ZnS, thermoluminescence 1=6244
 ZnS, thermoluminescence and luminescence rel. to α -ray bombardment 1=11409
 ZnS, thermoluminescence, trap parameters 1=7732
 ZnS, thin films, dielectric constant 3=8555
 ZnS, thin films, electron microscopy image contrasts 4=23574
 ZnS, transition metal impurities, luminesc. and crystal fields 3=3054
 ZnS, trapping levels, thermoluminesc. data 3=11019
 ZnS, u.v. irradi. in different gases 3=10969
 ZnS, u.v. luminescence 3=4989
 ZnS, u.v. refl. spectrum, polarization effects 4=4279
 ZnS, u.v., visible and luminescent spectra at 4.2°K, rel. to excitons 2=14672

Zinc compounds—contd

- ZnS, use in dielec. multilayer 4=21291
 ZnS, vacancy concn., Dember effect meas. 3=20161
 ZnS, valence band structure, quasi-cubic model 1=19983
 ZnS, vapour-phase grown, stacking faults 2=6354
 ZnS, vapour-phase growth, structure 1=2524
 ZnS, whiskers, mechanical strength 1=20371
 ZnS, wurtzite and blende type, phonon interactions 4=25837
 ZnS, wurtzite form, elastic moduli 3=18159
 ZnS (wurtzite), i.r. absorption, calc. 1=14606
 ZnS, wurtzite type crystal excitons and absorption, light, anisotropy 4=4278
 ZnS, zinc blende, bond character rel. to SiC and A^{III}B^Vcpds. 3=2688
 ZnS, Zn separation by u.v. photolysis 2=4553
 ZnS:Ag, α -scintillations, low temp. depend. 0=10078
 ZnS:Ag, with B coactivator, prep. and spectrum 2=10625
 ZnS:Ag, c.r.t. screens 0=18149
 ZnS:Ag, Debye-type relaxation 2=8460
 ZnS:Ag, In, luminescence, effect of CdS addition 0=11784
 ZnS:Ag, ion irradi; excitation and deterioration 1=9002
 ZnS:Ag, luminescence, behaviour of excited electrons and holes 1=5054
 ZnS:Ag, luminescence decay props. for α and γ -ray excitation 0=21009
 ZnS:Ag, luminescence efficiency 0=16091
 ZnS:Ag, luminescent efficiency in electron diffractometry 2=10955
 ZnS:Ag, luminescence emission shifts 3=8625
 ZnS:Ag, luminescence excitatn. by ions 3=970
 ZnS:Ag scintillators, crystal parameters 4=21699
 ZnS:Ag:MgCl₂, thermoluminescence and temp. quenching 0=4461
 ZnS:Ag:Mn, luminescence rel. to electron or optical excitation intensity 0=21010
 ZnS:Ag, Ni, cathodoluminescence, rel. to preparation materials 2=23616
 ZnS:Ag phosphor, Dy, Sm, Gd, B loaded, neutron determ. 2=20361
 ZnS:Ag, thermoluminescence 2=23623
 ZnS:Ag, as X-ray screen coating 2=14735
 ZnS:Ag+(Zn, Cd)S:Ag, adherence 2=6617
 ZnS:Ag, ZnS:Ag, Ni, luminescence rise and decay 0=659
 ZnS:Al, Cu, electroluminescence of single crystals 2=6641
 ZnS:Al, luminescent centre e.s.r. 3=8717
 ZnS:Al²⁺, e.s.r. correl with photocond. meas. 3=18128
 ZnS:Au, luminescence emission shifts 3=8625
 ZnS, CdS:Ag, luminesc., effect of high pressures 2=21271
 ZnS, CdS:Ag, as X-ray screen coating 2=14735
 ZnS-CdS, Cu-activated, reaction enthalpy 3=6678
 ZnS-CdS phosphors, energy levels from luminesc. data 2=10626
 ZnS-CdS, photocond., 3400-5100 Å 2=6502
 ZnS-CdS, structure and electroluminescence 1=9012
 ZnS-CdS:Cu, luminescence change due to adsorption of H 4=7193
 ZnS:CdS-Cu, luminescence radical-recombination, rel. to elec. field 2=21272
 ZnS, CdS:Cu, Ag, photodielectric effect 2=6518
 ZnS, CdS:Cu:Ag, photodielectric properties 1=7686
 ZnS-CdS:Cu:Ag photodielectric effect, theory 4=30647
 ZnS:CdS:Mn, α -ray luminescence, effect of elec. fields 1=14656
 ZnS:CdS:Mn, luminescence due to α -rays and a.c. field 1=14655
 ZnS:CdS:Mn, various effects in luminescence 2=728
 ZnS-CdS-Mn, Mn²⁺, excitation bands 3=6676
 ZnS, CdS: Mn, X-ray luminescence, a.c. field enhancement 1=3862-3
 ZnS-CdS-NaCl 2%, luminescence emission bands 2=716
 ZnS:Cl cubic crystals, fluorescence 2=4178
 ZnS:Co, Ag, luminescence, flashlike rise 1=20016-17
 ZnS:Co, luminescence, flashlike rise 1=20016-17
 ZnS:Co, optical quenching, thermal activation energy 2=16855
 ZnS:Cu, a.c. depolarization, electroluminescence 1=2463
 ZnS:Cu, α -irradiated, luminescence decrease 2=4166
 ZnS:(Cu, Ag or Al), crystalline transformations 0=11998
 ZnS:Cu, Al, action of elec. fields 0=4248
 ZnS-Cu, Al, Cl phosphors, role of holes in electroluminesc. kinetics 4=26251
 ZnS:Cu, Al, (20 wt%Cu), electroluminescence pulses 2=16869

Zinc compounds—contd

- ZnS:Cu:Al, electroluminescence 2=6645
 ZnS:Cu, Al, electroluminescence, polarization 0=16109
 ZnS:Cu, Al phosphor, anomalous storage of light sums 4=22927
 ZnS:Cu:Al phosphor, initial stages of electroluminescence 2=6646
 ZnS:Cu(Cl,Br,I), electroluminescence 3=11009
 ZnS:Cu, Cl, electroluminescence, temp. depend. 3=11013
 ZnS:Cu, Cl, electroluminescence 2=16872
 ZnS:Cu, Cl, electroluminescence, effect of elec. contact 2=8592
 ZnS:Cu, Cl, growth 2=16987
 ZnS:Cu/Cl, luminescent and elec. props. 2=2253
 ZnS:Cu, Cl, photoconductive effect, impedance changes 3=911
 ZnS:Cu, Cl, preparation and electroluminescence 0=16110
 ZnS:Cu, Cl, stacking faults and electroluminescence 3=23123
 ZnS:Cu, Cl, structural transformations 4=10445
 ZnS—Cu, Cl(Al), temp. depend. of electroluminesc. intensity 4=28717
 ZnS:Cu, Co, electret effects 2=6530, 8472
 ZnS:Cu:Co phosphor, i. r. sensitivity 2=12627
 ZnS:Cu:Co phosphor, photodielec. effect 2=14604-5
 ZnS:Cu, Co, phosphorescence decay rel. to temp. and electron-trap filling 2=16856
 ZnS:Cu, containing Nd or Eu, electroluminescence and photoluminescence 0=6206
 ZnS:Cu, conversion of green to blue centres 3=25488
 ZnS:Cu crystals, electroluminescence 1=17920
 ZnS:Cu, current carrier trapping, thermal activation 2=16878
 ZnS:Cu, Debye-type relaxation 2=8460
 ZnS:Cu, dielec. const. and electroluminescence, Cu conc. depend. 2=18882
 ZnS:Cu, effect of i. r. radiation on luminescence 1=14641
 ZnS:Cu, effect of small electric perturbation 1=17921
 ZnS:Cu, elec. and electroluminescence props. 3=20345
 ZnS:Cu, electroluminescence 0=1764, 10080
 ZnS:Cu, electroluminescence 2=8554, 16870
 ZnS:Cu, electroluminescence 3=11016
 ZnS:Cu, electroluminescence, avalanche processes 3=18049
 ZnS:Cu, electroluminescence, avalanche processes 3=11014
 ZnS:Cu, electroluminescence, blue and green bands 2=6643
 ZnS:Cu, electroluminescence rel. to Cu diffusion temp. 3=15723
 ZnS:Cu, electroluminescence, definition of pot. barriers responsible 4=4308
 ZnS:Cu, electroluminescence, effect of u. s. waves at 0.68 Mc/s 1=1189
 ZnS:Cu, electroluminescence, effect of u. v. irradiation 0=2964
 ZnS:Cu, electroluminescence, excitation freq. var. 4=22928
 ZnS:Cu, electroluminescence meas. 4=20493
 ZnS:Cu, electroluminescence processes 4=1784
 ZnS:Cu, electroluminescence in quenched phosphors 4=7192
 ZnS:Cu, electroluminescence, rel. to short elec. pulses and sinusoidal voltage 4=20492
 ZnS:Cu, electroluminescence, temp. and freq. depend. 0=4462
 ZnS:Cu, electroluminescence, u. v. effects 2=4190
 ZnS:Cu, electroluminescent panels 0=10085
 ZnS:Cu, electroluminescent, photodielec. effect 3=15614
 ZnS:Cu, fluorescent emission bands 2=12642
 ZnS:Cu, halide, electroluminesc., effect of CdS 4=4309
 ZnS:Cu, halogen phosphors, electroluminescent deterioration kinetics 4=26252
 ZnS:Cu, In, luminescence, effect of CdS addition 0=11784
 ZnS:Cu, i. r. emission 0=11781
 ZnS:Cu, infrared and visible luminescence, optical and electrical properties 1=10112
 ZnS:Cu, layers, electroluminescence, 20 c/s to 15 kc/s excitation 2=8590
 ZnS:Cu, luminesc., rel. to Cu incorporation 3=10996
 ZnS:Cu, luminesc., role of additional impurities 3=8624
 ZnS:Cu, luminescence, behaviour of excited electrons and holes 1=5054

Zinc compounds—contd

- ZnS:Cu, luminescence, blue and green emission bands, theory 1=7722
 ZnS:Cu, luminescence centres, constitution 2=10622
 ZnS:Cu, luminescence coactivation by In 2=6623
 ZnS:Cu, luminescence, coactivation by In 3=4988
 ZnS:Cu, luminescence, rel. to Cu conc. 4=20491
 ZnS:Cu, luminescence emission shifts 3=8625
 ZnS:Cu, luminescence, exciting light stimulation 1=17915
 ZnS:Cu, luminescence and growth defects 3=3055
 ZnS:Cu, luminescence kinetics, excited by α -rays and light pulses 3=955
 ZnS:Cu, luminescence—photoconductivity relationship 3=25422
 ZnS:Cu, luminescence polarization 3=3056
 ZnS:Cu, luminescence rel. to preparation 2=6622
 ZnS:Cu, luminescence, tribo, efficiency 4=4310
 ZnS:Cu luminescence, var. with exciting wave-length 4=7196
 ZnS:Cu, luminescent, intense yellow and red, preparation 4=26250
 ZnS:Cu, luminescent light-expulsion by ultrasound 2=8556
 ZnS:Cu, Mn, Al, electroluminescence 0=6207
 ZnS:Cu, Mn, Cl films, d. c. electroluminesc. 2=23620
 ZnS:Cu, Mn, electroluminescence 0=10082-3
 ZnS:Cu, Mn, electroluminescence 2=16870
 ZnS:Cu, Mn, electroluminescence, d. c. and a. c. excitation 0=10081
 ZnS:Cu, Mn films, electroluminescence 4=13087
 ZnS:Cu, Mn, Cl films, preparation and properties 4=20813
 ZnS:Cu, Mn phosphors, electroluminescence 1=17923
 ZnS:Cu, by neutron irradiation of ZnS, optical props. 3=13207
 ZnS:Cu, partly-illuminated, photocond. 2=23476
 ZnS:Cu phosphor, orange, electrolytic preparation 4=7194
 ZnS:Cu phosphor, de-excitation by X-rays 3=13197
 ZnS:Cu phosphor, thermoluminescence rel. to neutron irradiation and ageing 4=28741
 ZnS:Cu, phosphorescence, effect of ultrasound 1=5056
 ZnS:Cu phosphors, activated, exo-electron emission 3=956
 ZnS:Cu phosphors, electroluminescence 3=11010
 ZnS:Cu, phosphors, In co-activator 2=12625
 ZnS:Cu, photoconductivity, i. r. enhancement and quenching 1=6182
 ZnS:Cu, photodielectric effect, addition of Co as "killer" 0=626
 ZnS:Cu, photoelec. polarization 2=23477
 ZnS:Cu, photoluminescence rel. to temp., excited wavelength, and modulation of u. v. source 4=17610
 ZnS:Cu, S, Zn, luminescence, H_2^+ excited, decay times, 0=1755
 ZnS:Cu, Si phosphors, orange fluorescence 1=10118
 ZnS:Cu, Sn, Gudden—Pohl effect 4=4290
 ZnS:Cu, 6700 Å red emission, model 4=1778
 ZnS:Cu, suspended in highly refract. medium, electroluminescence 1=1188
 ZnS:Cu, theory versus exper. 0=1757
 ZnS:Cu, thermoluminescence 0=6209
 ZnS:Cu, u. v. excited luminescence, sample temp. 0=16095
 ZnS:Cu, u. v. irradiation, electroluminescence 2=16874
 ZnS:Cu, ZnS:CdScu, luminescence and dielectric props. 4=4284
 ZnS:Cu:Al, electrolum. of single crystals 3=6683
 ZnS:Cu; Al luminor, thermoluminescent light sums rel. to electroluminescence 3=3074
 ZnS:Cu:Al phosphors, electroluminescent pulse excitation 3=18047
 ZnS:Cu:Cl, luminescence, build-up of blue and green bands 3=3052
 ZnS:Cu:Cl, luminescence, rel. to gaseous environment 4=10224
 ZnS:Cu:Cl, monocrystals, electroluminescence 1=7729
 ZnS:Cu:Cl, pulse excitation 0=10086
 ZnS:Cu:Cl, thermoluminescence 0=4464
 ZnS:Cu:Cl, transients in blue and green luminescence 1=6230
 ZnS:Cu:Co, photodielectric effect 1=6192
 ZnS:Cu:Co, photodielectric effect 1=14545-6
 ZnS:Cu:Co, u. v. photodielec. effect 1=1129
 ZnS:Cu:Fe, photodielec. effect, temp. depend., thermal polarization of electrons 1=14547
 ZnS:Cu:Fe, thermostimulated, photodielec. effect 2=21283

Zinc compounds—contd

- ZnS:Cu and Mn, electroluminescence 3=11015
 ZnS:Cu:Mn, electroluminescence changes due to local heating and thermal quenching 1=20032
 ZnS:Cu:Mn, electroluminescence and electrical conductivity 1=10123
 ZnS:Cu:Pb, electroluminescence 3=20545
 ZnS:Cu:Pb, electroluminescence excited by unipolar pulses 2=14754
 ZnS:Cu,Pb, electroluminescence, rectangular pulse excitation, mechanism 0=21015
 ZnS:Cu,Pb, electroluminescence, time-dependent spectra 0=21017
 ZnS:Cu,Pb, optical flash, energy of thermal activation 0=10089
 ZnS—Cu,Pb, optical flash regularities 3=3053
 ZnS:Cu:Pb:Cl, photocond. and luminescence 2=4071
 ZnS:Cu(Pb,Cl), pulse excitation 0=10086
 ZnS—Cu₂S, injection electroluminescence 4=13088
 ZnS:Cu and ZnS:Cu:Mn, electroluminescence 0=10082
 ZnS:Fe³⁺, n.q.r. and luminescence centres 4=7351
 ZnS:Ga phosphors, thermoluminescence and e.s.r. studies 3=23131
 ZnS:Gd, photoconductivity, paramag. resonance detection of trapping 0=11729
 ZnS—HCl system, vapour transport of solid 3=8945
 ZnS:I, vapour-solvent growth system, solid transport rate 4=15768
 ZnS:In crystals, emissions, yellow and green, under u.v. excitation 4=7189
 ZnS:In, luminescence, association and dissociation of centres 1=20018
 ZnS—MgF₂, in optical filters, band transmission 0=6912
 ZnS:Mn, cathodoluminescence, field enhancement and quenching 1=7728
 ZnS:Mn, crystal field symmetry on Mn²⁺ activator 4=20494
 ZnS:Mn,Cu, pulsed square-wave excitation 0=11793
 ZnS:Mn, effect of i.r. illumination 0=10069
 ZnS:Mn, electro-cathodoluminescence rel. to temp. 2=23611
 ZnS:Mn, electroluminescence efficiency meas. 4=7195
 ZnS:Mn, electroluminescence, excited by unipolar pulses 2=14754
 ZnS:Mn electroluminescent cells, brightness effect of dielectric 4=1785
 ZnS:Mn, energy levels structure, transitions 0=8027
 ZnS:Mn, fast neutron irradiated 2=2252
 ZnS:Mn, interference of luminescent emission 2=6618
 ZnS:Mn, luminescence, effect of i.r. radiation 0=16090
 ZnS:Mn, luminescence, rel. to electron or optical excitation intensity 0=21010
 ZnS:Mn, luminescence excited in charact. Mn absorption region, decay 4=22930
 ZnS:Mn, luminescence extinction and enhancement by i.r.-irrad. 2=8560
 ZnS:Mn, luminescence, fine struct. and phonon coupling 4=22903
 ZnS:Mn, luminescence, by X-rays a.c. components prod. by 10⁴V/cm at 400 c/s 3=13710
 ZnS:Mn phosphor, electroluminescence, excited by unipolar elec. pulses 4=22929
 ZnS:Mn, phosphorescence decay 0=18145
 ZnS:Mn phosphors, luminescence and kinetics of excitation 1=2457
 ZnS:Mn, photo-, thermo- and electroluminescence, temp. depend. 0=16115
 ZnS:Mn, photoelec. rel. to luminescence 3=15711
 ZnS:Mn, spectrum, absorpt. fine struct. and phonon coupling 4=22903
 ZnS:Mn, sublimated, effect of temp. on photo-luminescence 0=16094
 ZnS:Mn, sublimated, electroluminescence 0=11792
 ZnS:Mn, thermoluminescence and localization levels 0=16118
 ZnS:Mn, trapping levels 0=4455
 ZnS:Mn (2% NaCl), luminescence, O and heat treatment effects 4=1762
 ZnS:Mn²⁺, antiferromag. coupling, 20-800°K 4=13124
 ZnS,Mn²⁺ activated, absorpt. spectrum 4=22875
 ZnS:Mn²⁺, formation kinetics e.s.r. study, rel. to luminescence 4=20596
 ZnS:Mn,Ni,Cl, luminescence, electron excited 0=16106
 ZnS:Mn,Ni luminescence flash intensity, wavelength var. 4=28742

Zinc compounds — contd

- ZnS:MnS, mag. suscept., Mn²⁺ exchange coupling 4=10248
 ZnS:MnS, spectra, 4.2°-300°K, rel. to exchange-coupled Mn²⁺ 4=7162
 Zn(S,O):Cu,Cl, pulsed square-wave excitation 0=11793
 Zn(S:Se):Cu phosphors, electroluminescence 3=13218
 Zn(S:Se):Cu type phosphors, electroluminescent props. 4=15619
 ZnS:Se, lumines. activation thermodynamics 2=14734
 Zn(S_{1-x}Se_x), Mn²⁺ e.s.r. wipe-out number 4=26370
 ZnS,Se:Cu,Cl, luminescence 3=6674
 ZnS:Sm, luminescent, preparation, spectrum 4=130f
 ZnS:Tm, luminesc. kinetics, spark excited 4=28743
 ZnS:Tm, luminescence, blue lines 3=13210
 ZnS:Tm³⁺ and :Ho³⁺, luminesc. and absorpt., energy terms 4=13089
 ZnS:V, luminescence and crystal field 3=20530
 ZnS:V, 2μ fluorescence, excitation spectra 0=13715
 ZnS and (Zn,Fe)S, lattice spacing 0=10316
 ZnS—ZnSe, electroluminescence 4=10226
 ZnS,ZnSe:Cu phosphors, luminescence and grain structure 4=13086
 ZnSO₄, aq. soln., dissociation, u.s. study 4=26739
 ZnSO₄, aq. soln., dissociation, u.s. study 4=26740
 ZnSO₄.H₂O, crystal structure 3=18327
 ZnSO₄.7H₂O, containing Fe²⁺, conductivity thermal, and phonon diffusion 4=1383
 ZnSO₄.7H₂O, i.r. absorption spectra, 350-4000 cm⁻¹ 4=22880
 ZnSO₄.7H₂O, thermal conductivity below 10°K 1=14192
 ZnSO₄.7H₂O, u.s. velocities, elastic const., and structure 3=20690
 ZnSO₄, 2-20°K, effect of FeSO₄.7H₂O impurity 1=3612-13
 ZnS—ZnO:Cu,Al,Cl electrolumino. deterioration 2=729
 ZnS—ZnO melts, electroluminescence 1=10124
 ZnS and ZnS:Al, electron and photoluminescence 4=1779
 ZnS and ZnS:Mn films, structure 4=15825
 ZnS—ZnSe phosphors, separation of Se band 2=10621
 ZnSb, crystal growth, zone melting 3=8807
 ZnSb, crystal structure and semicond. props. 1=15076
 ZnSb, crystals growth, zone technique 1=14991
 ZnSb, cyclotron reson. 2=23133
 Zn—Sb, elastic parameters rel. to composition 4=23158
 ZnSb, electrical properties, rel. to temp. 3=25373
 ZnSb, crystal structure 4=29148
 ZnSb, electron oscillations and scatt., interminimum transitions 4=25887
 ZnSb, electron states 3=17685
 Zn—Sb, growth 1=11543
 ZnSb, K_α X-ray lines and chem. bonds 1=11387
 ε-Zn₃Sb₂, K_α X-ray lines and chem. bonds 1=11387
 Zn₄Sb₃, K_α X-ray lines and chem. bonds 1=11387
 ZnSb, p-type, optical and elec. props. meas. 4=12919
 Zn—Sb, phase composition, X-ray analysis 3=8895
 ZnSb preparation and properties 1=1446z
 ZnSb, Seebeck coeff. 2=23487
 ZnSb, semicond. props. 0=15967
 ZnSb, semiconducting props. 1=2416
 ZnSb, semiconducting, electron states, extremal points, dispersion 3=17684
 ZnSb, spectrum absorpt. edge, polarization 11 to each crystal axis 4=22902
 ε-Zn₃-Sb₂, conductivity electrical and thermoelectricity, 20-470°K 3=20346
 Zn₄Sb₃, semiconducting props. 3=15597
 β-Zn₄Sb₃, semiconducting, conductivity, thermoelectricity, crystal growth 3=22956
 ZnSb, symm. and structure of energy zones 2=18552,20965
 ZnSb, thermoelec. power and elec. cond., 4.2-300°K 2=657
 β-Zn₄Sb₃, unit cell. 0=6379
 ZnSb—CdSb, elec., thermoelec. props. 2=18762
 ZnSb—CdSb films, semiconductivity, var. with conc., temp. 4=12917
 ZnSb—CdSb, pseudo-binary section, structure 3=1348
 ZnSb—CdSb, structure 0=16237
 ZnSe, absorption edge, press. depend. 0=4408
 ZnSe, atom displacement by electron beams 3=8476
 ZnSe, carrier mobility and shallow impurity states 3=10843
 ZnSe, Co²⁺ e.s.r., spin Hamiltonian 1=3954
 Zn—Se, condensation mechanism, structure and props. 4=23239
 ZnSe crystal growth of films, struct. 4=23352
 ZnSe, crystals hexagonal modification 3=16070

Zinc compounds — contd

- ZnSe, (cubic), Mn^{2+} paramag. resonance, transitions, allowed and forbidden 4=23052
 ZnSe, double-acceptor defect by electron irradi. 3=25268
 ZnSe, double acceptor luminescence 3=15704
 ZnSe, e. s. r. of $3d^5$ config. of Cr^{+} 4=13312
 ZnSe, edge emission, by i.r. irradiation rel. to temp. 1=17912
 ZnSe, electrical and optical props. 1=17763
 ZnSe, electroelastic props., meas. and model 3=8556
 ZnSe, electron effective mass 4=22726
 ZnSe, electro-optical effects 3=15657
 ZnSe, exciton absorption spectrum and energy bands 2=18827
 ZnSe, fluorescent band-edge emission 2=8573
 ZnSe, γ -ray induced conductivity 3=2908
 ZnSe, growth from the melt, prep. and props. 0=8163
 ZnSe, induced elec. cond., by electron irradi. 2=6463
 ZnSe, layers, fundamental absorption edge 1=3842
 ZnSe, luminescence, edge, 4.2°K 3=23109
 ZnSe, luminescence, effect of oxygen 2=18867
 ZnSe, negative photocond., mechanism 1=2426
 ZnSe, opt. and photoelec. props. 0=13671
 ZnSe, optical absorption 2=14679
 ZnSe, p-n junctions, electroluminescence 3=11011
 ZnSe, phase transition due to pressure 2=16705
 ZnSe, phonon assignments, optical and acoust. 4=3981
 ZnSe, photocond. and luminescence at low temp. 2=8413
 ZnSe, polymorphism 1=4006
 ZnSe, red electroluminescence 2=8594
 ZnSe, red electroluminescence 4=7190
 ZnSe, refractive index 4=13061
 ZnSe, single crystals, with growth defects, structure 1=4045
 ZnSe, solubility in CdS 3=4886
 ZnSe, surface triangular growth patterns 3=18273
 ZnSe thermal expansion, anomalous negative low-temp. values 3=10603
 ZnSe, thermal expansion, 20-360°K 1=8885
 ZnSe, u. v., visible and luminescent spectra at 4.2°K, rel. to excitons 2=14672
 ZnSe, vapour pressure, 1060°-1393°K meas. 3=1871
 ZnSe: Au, luminescence properties 1=17913
 ZnSe-CdSe, film formation and semicond. props. 2=21157
 ZnSe-CdSe, film formation and semicond. props. 3=2882
 ZnSe: Cu, Cu_2Se -coated, electroluminescence 1=6239
 ZnSe- Cu_2Se , injection electroluminescence 4=13088
 ZnSe-GaAs, solid solns. 0=729
 ZnSe-HgSe, film formation and semicond. props. 2=21157
 ZnSe-HgSe, film formation and semicond. props. 3=2882
 ZnSe-HgSe solid solutions, lattice parameter rel. to Zn concentration 4=15798
 ZnSe: V, 2μ fluorescence, excitation spectra 0=13715
 $ZnSiF_6 \cdot 6H_2O$, e. s. r. of Fe^{2+} 2=16932
 $ZnSiF_6 \cdot 6H_2O$, paramag. resonance of Mn^{2+} in 0=18220
 $ZnSiF_6 \cdot 6H_2O$, V^{2+} paramag. resonance 1=3928
 Zn_2SiO_4 , liquids and glasses, crystallization 4=23353
 Zn_2SiO_4 , luminescence, field-stimulated, absence below 2×10^5 V/cm 2=12629
 Zn_2SiO_4 , luminescence of powders in elec. fields 2=14737
 $ZnSiO_3$: Mn fluorescence quantum efficiency 1=12506
 $ZnSiO_3$: Mn, luminescence 0=4453
 Zn_2SiO_4 : Mn, luminescence peaks at 0.25 eV 2=12629
 Zn_2SiO_4 : Mn, c.r.t. screens 0=18149
 Zn_2SiO_4 : Mn, coated with Al, cathodoluminescence 0=11789
 Zn_2SiO_4 : Mn, synthesis flux effects with KCl or $LiSO_4$ 4=10211
 Zn_2SiO_4 : Mn, trapping centres rel. to luminescence 3=13209
 Zn-Sn, lamellarspacing rel. to freezing velocity 4=8503
 Zn-Sn, liq., density rel. to temp. 2=9255
 Zn-Sn monocrystals, growth by zonal recryst. from wire 3=5088
 $ZnSnAs_2$, conductivity, thermal, 100-700°K and order-disorder transform 3=20118
 $ZnSnAs_2$, crystal structure 0=8224
 $ZnSnAs_2$, crystal structure, chalcopyrites or zincblende? 3=11287
 $ZnSnAs_2$, evaporation, mass spectrometric study 1=19672
 $ZnSnAs_2$, p-type, elec. props., 80°-600°K 4=30629
 $ZnSnAs_2$, structure, elec., thermal props. 2=23417
 $ZnSnAs_2$, thermoelec. power, resist., Hall const., thermal cond. and diffusivity 3=8518
 Zn-Sn-Bi system, miscibility gap, calc. from thermodynamic functions 1=142

Zinc compounds — contd

- Zn-Sn-Pb thermodynamic determination of miscibility gap 1=6529
 ZnTe, absorption edge press. depend. 0=4408
 ZnTe bound excitons 3=10630
 ZnTe, carrier mobility and shallow impurity states 3=10843
 ZnTe, cleavage plane 2=8776
 ZnTe, crystal structure 2=8829
 ZnTe crystals, growth and decoration 3=16049
 ZnTe diodes, injection luminescence meas. 4=28747
 ZnTe, e. s. r. of $3d^5$ config. of Cr^{+} 4=13312
 ZnTe, electroelastic props., meas. and model 3=8556
 ZnTe, fluorescent band-edge emission 2=8573
 ZnTe, γ -ray induced conductivity 3=2908
 ZnTe, i.r. absorpt. edge. 2=8529
 ZnTe, lattice distortion by Mn^{2+} , e. s. r. det. 3=25167
 ZnTe, mirror absorption and fluorescence 2.58°-4.2°K 2=16861
 ZnTe, Mossbauer effect with Te^{129m} source 3=2367
 ZnTe, opt. and photoelec. props. 0=13671
 ZnTe, optical absorption 2=14679
 ZnTe, optical transitions, direct and phonon-assisted 3=10968
 ZnTe, p-type, electroluminescence, by minority carrier injection 4=28746
 ZnTe, p-type, i.r. rel. to photon energy 2=21251
 ZnTe, phase transition due to pressure 2=16705
 ZnTe, photoelectric emission, asymmetries 2=7644
 ZnTe, polymorphism 1=4006
 ZnTe, reflection and luminesc. spectra 3=25467
 ZnTe, reflection peaks near exciton line 4=705
 ZnTe, reflectivity and band structure 3=17979
 ZnTe, refractive index 4=13061
 ZnTe, resistance and Hall coeff. 3=25374
 ZnTe, solubility in CdS 3=4886
 ZnTe, surface props. of (111) and ($\bar{1}\bar{1}\bar{1}$) faces, asymmetries 2=7644
 ZnTe, thermal expansion, 20°-340°K 4=1404
 ZnTe in Zn vapour, high-temp. cond. 4=17496
 ZnTe: Al, Zn^{2+} , crystal vacancy trapped hole, e. s. r. obs. 4=30556
 ZnTe-CdS heterojunctions, growth and props. 3=23419
 ZnTe-CdS heterojunctions, I-V characteristics 1=14483
 ZnTe-CdTe, film formation and semicond. props. 2=21157
 ZnTe-CdTe, film formation and semicond. props. 3=2882
 ZnTe-CdTe, liquid phase diagram, dissociation, from elec. cond. 4=11185
 ZnTe-HgTe solid solutions, lattice parameter rel. to Zn concentration 4=15798
 ZnTe: Mn, spin resonance, 3a cubic fld. splittings 3=1192
 $ZnTiO_3$, dielectric losses, under irradiation 1=19926
 $ZnTiO_3$, dielectric losses, under irradiation 2=4096
 Zn-Tl(0.1%), crystal dislocations, etching polishing obs. 4=28472
 Zn-Tl, phase diagram at low Tl concentrations 1=9147
 $ZnWO_4$: Cr^{3+} , e. s. r. and spin-lattice relax. 3=25569
 $ZnWO_4$, e. s. r. of Cr^{3+} 3=3169
 $ZnWO_4$, e. s. r. of Fe^{3+} 4=30734
 $ZnWO_4$, growth of single crystals for e. s. r. studies 0=6265
 $ZnWO_4$, luminescence decay time, ion excitation 0=1756
 $ZnWO_4$, luminescence decay rel. to traps 2=6613
 $ZnWO_4$: Fe^{3+} , e. s. r. and spin-lattice relax. 3=25569
 Zn_2Y , spin-wave excitation in parallel pumping 3=15885
 (ZnY) ($Ba_2ZnFe_{12}O_{22}$) ferrite, linewidths and high-power props. of single-crystal spheres 4=7316
 ZnY_2 , acoustic wave instabilities 4=13255
 Zn_2Y , resonance props. 2=14818

Zirconium

- adsorption of Br^- and SO_4^{2-} , Zr surface treatment effects 4=13696
 adsorption of phosphate ions, P^{32} tracer meas. 4=4677
 α -particle range in, 4.5 MeV 0=9446
 anodic film, structure 3=23507
 arc zone melting, purification 0=8169
 atom, spectrum, isotope shift meas. 4=1219
 β - α transformation, habit planes and orientation 0=16312
 cold-work recovery rel. to neutron irradi. 3=11171
 corrosion in HBr, effect of α -rays 0=12100
 creep, meas. under 4-26 kg/cm² at high temps. 4=13455

Zirconium—contd

crystal dislocations, regrouping on phase transformations, β to α 4=1486
 crystal electron Fermi surface cellular approx. 4=28418
 crystal twinning, deformation, on {1121}, possible double process 3=20779
 crystal twinning, {1121}, α Zr 4=7531
 crystals, twinning, zig-zag 3=11214
 crystal whisker growth, by h.c.p. - b.c.c. phase transform. cycling 4=13554
 crystal zone purified, elec. cond., recrystallization temp. 4=17790
 damping peak at low temp. 4=26533
 data manual, phys., mech., chem., and irradiation props. 2=22875
 de Haas-van Alphen effect, up to 190 kG 3=25502
 deuteron scatt., 11.8 MeV, elastic and inelastic 3=17490
 diffusion coeffs. for H in β -Zr 4=1522
 diffusion, self, thermal, high temps. 3=22828
 diffusion, thermal of O and N 1=14326
 diffusion of Zr⁹⁵ and Nb⁹⁵ 4=6881
 dislocation movement, electron microscope obs. 2=21039
 dislocations in deformed Zr 3=10674
 dislocations, rel. to impurities 3=17745
 elastic constants and spec. heat, 14-300°K 0=21103
 elastic moduli, adiabatic 2=4306
 electrical resistance up to 250000 kg/cm² rel. to polymorphic transformation 2=618
 electrode, oxidized, mechanism of rectification 1=20747
 electron arc, as i.r. source, spectral charact. 2=17632
 electron band structure 2=20964
 electron emission due to Ar⁺ bombardment 3=9843
 electron emission, filament temp. 3=14629
 electron energy losses 2=2073
 electron secondary emission 2=3077
 equations of state, at high pressure 0=11549
 films on Cu substrates, nuclear target, preparation 4=16717
 films, oriented, oxidation 4=26715
 films sprayed, ultralow pressure prod. by gas sorption 2=19628
 films, on W, emission props., and microstructure 2=2428
 foils, nuclear targets, reducing Mo impurity 4=3233
 foils prep., as isotope targets 2=17978
 grain boundary absorption, superhighplasticity 1=14883
 interdiffusion with Al 4=28478
 internal friction, cold-worked metal 2=21407
 ions, hot, from U fission, exchange with ZrCl₄ 3=21006
 irradiation growth 2=20995
 Lamb wave propagation 1=10559
 lattice stability, b.c.c. and h.c.p. modifications, free energy difference 0=15800
 liquid, surface tension meas. 4=2643
 magnetoelectric props., 4.2-78°K, up to 27 kOe 0=11661
 mechanical props., effect of internal irrad. 4=4494
 mechanical strength increase by dispersing La₂O₃, Y₂O₃, 1200°F 4=13456
 in molten U, diffusion 0=3515
 neutron absorption cross-section meas. 2=6035
 neutron irrad., relaxation strains 3=20717
 oxidation, high temp., in O₂ and H₂O 4=15254
 oxidation, surface temp. increase 4=23641
 oxygenated, elec. resistivity, temp. depend. 2=3983
 phase change, resistivity effect 2=4451
 phase transformation, β to α , crystal dislocation regrouping 4=1486
 phase transformation, calorimetric meas. 2=21548
 phase transformation, internal friction study 2=21544
 phase transformations, solid-solid, 0-90 kbar 3=20887
 photovoltaic effect at low temps. 3=15636
 point defects, prod. by low-temp. plastic deformation, mobility 1=12380
 positive ions, 5-25 keV, sputtering of Cu 1=8363
 preparation and ductility, by iodide refining 2=21480
 reaction kinetics, in dry air, at high temps. 0=12102
 reaction temp. of metal with water 2=4540
 recrystallization texture, Zr wires 2=4472
 resolidified drops, voids 1=20631
 rolling and recrystallization texture 2=4363
 secondary-ion emission, under H₁⁺, H₂⁺, H₃⁺, He⁺, C⁺, N⁺, Cl⁺, A⁺, Mo⁺, 10-100 keV 2=220, 22273
 self-diffusion 1=6115
 self-diffusion 1=17567

Zirconium—contd

self-diffusion, anomalous, in b.c.c. phase 4=1520
 self-diffusion, effect of Fe and Ni impurities 1=6116
 sheet, deformation and strength anisotropy 2=10746
 shock wave propag. 0=12453
 single crystals, Nb⁴⁺ e.s.r., 77°K 4=1883
 single crystal elastic moduli and h.c.p. \rightarrow b.c.c. transformation 4=26530
 solubility in Be, X-ray diffract. study 3=20908
 solubility in solid α -Th 2=4474-5
 solubility in solid Mg 2=17056
 specific heat, 1.1°-4.5°K 3=15437
 spectrochemical analysis 2=19177
 strength rel. to crystal structure change 4=28960
 superconductive temp. controller, below 1°K 3=1880
 superconductivity, effect of press. up to 24 000 atm 4=18623
 superconductivity, press. induced polymorph 4=16378
 supercond. transition temp., effect of Fe in dilute solutions 1=3882
 target, Zr on Cu and Ag base-layers 2=17979
 thermal cycling growth 2=23883
 thermodynamic functions at high temps. 4=3989
 thin films evaporation and deposition for tritium targets 0=8280
 thin films, oxidation 4=4696
 trace impurities of Ca, Ti and Al, spectrochemical determ. 2=23983
 X-ray absorpt. spectra, K 1=17905
 Young's modulus data, rel. to temp. 4=30788
 zone melted, elec. cond. at liq. H and liq. H temp. 0=562
 Fe diffusion in, temp. depend. 4=15498
 H₂ sorption, at low pressures 0=6427
 Zr-T target, deuterium ion bombarded, neutron prod. 2=7875
 Zr³⁺ e.s.r. in glass, 450-9320 Mc/s, 77°-295°K 3=20660
 Zr⁹⁵ fission product ions, diffusion in UO₂ 2=6377
 Zr⁹⁵-Nb⁹⁵ pair, analysis by β - γ coincidences 3=5990

Zirconium compounds
 alloys, diffusion of H, heat of transport 4=6880
 Zr alloys, dilute, specific heat 1.2°-4.5°K 3=25199
 alloys, effect of irrad. on mech. props. 4=4494
 Zr alloys, self-diffusion 1=6115
 alloys, superconductivity 3=16873
 alloys, yield strength and ductility rel. to n-irrad. 2=23765
 borides and carbides, thermoelec. power with Cu 1=12465
 Zircaloy, dimensional changes during annealing in temp. gradient 4=20691
 Zircalloy, high temp., in O₂ and H₂O 4=15254
 Zircaloy-2, α - β transformation 4=7520
 Zircaloy-2, cold-work recovery rel. to neutron irrad. 3=11171
 Zircaloy-2, diffusion of H, thermal, theory 4=6882
 Zircaloy-2, H content rel. to Hall effect 2=14501
 Zircaloy-2, heat treatment effects at high temps. 4=26534
 Zircaloy-2, hot-worked, structure changes 2=4460
 Zircaloy-2, hydrogen diffusion 0=18406
 Zircaloy-2, hydrogen distribution and heat of transport 1=20581
 Zircaloy-2, neutron absorption cross-section meas. 2=6035
 Zircaloy-2, Ni-enriched, hydrogen absorption 0=8332
 Zircaloy-2 and other alloys, data manual 2=22875
 Zircaloy-2, reaction kinetics in air, at high temps. 0=12102
 Zircaloy-2, reduction of corrosion and hydrogen embrittlement 4=10994
 Zircaloy-2, tensile props., effect of neutron irradiation 1=20379
 Zircaloy-2, tensile strength, rel. to irrad. effects 3=11170
 Zircaloy-2 and 3, second phase, composition 3=5131
 zircon, Gd³⁺ paramag. resonance 4=15673
 zirconates, dielectric props. 0=13645
 Zirconia, neutron and fission fragment damage 0=2822
 zirconia, stabilized, growth using induction plasma torch 2=2365
 zirconia-urania solid solns., thermodynamic props. 1=14193
 zirconyl perchlorate dihydrate, crystal structure 4=4632
 Zr anodic oxide films, u.v. absorption 0=4412
 Zr-based, ω -phase 1=4062
 Zr borides, carbides and nitrides, elec. props. 1=3707
 Zr carbide, thermal expansion, 26° and -196°K 4=1405

Zirconium compounds—contd

- Zr diboride, evaporation and thermodynamic props. 2=2936
 Zr hydride, bonding, slow neutron scatt. study 2=547
 Zr hydrides, elec. resistivity, 1.2-400°K, optical mode scattering contribution 0=15884
 Zr hydride, neutron thermalization, diffusion 2=18129
 Zr hydride, scattering of neutrons 0=12940
 Zr hydrides, thermal expansion of δ and ϵ phases, by X-ray diff. 0=15817
 Zr oxide anodic films, i.r. spectrum 4=23566
 Zr oxyhalide aq. solns., complex ion structure 0=14627
 Zr solid solns. with Co, Rh and Ir, superconductivity 4=8575
 Zr—Al alloys, structure rel. to gettering props. 4=21200
 ZrAl, crystal structure 2=15047
 ZrAl₂, crystal structure, comp. with Zr₂Al₃ 2=10886
 ZrAl₃, structure 1=5099
 ZrAl₃, alloy growth in Zr—Al interdiffusion 4=28478
 ZrAl₃, hot-hardness 2=2337
 Zr₂Al₃, crystal structure 0=4631
 Zr₅Al₃, crystal structure 0=3223
 Zr—Al—Si, phase study 2=17045
 ZrB₂, anisotropic thermal vibrations 0=13488
 ZrB₂, powder, emissivity 0=16919
 ZrB₂, quadrupole bond, n.m.r. meas. and calc. 3=11121
 ZrBe₃, preparation and structure 0=724
 Zr₂Be₁₇, preparation and structure 0=724
 ZrBi₂ orthorhombic unit cell dimensions 1=20579
 ZrC, electron and ion emission, appl. energy converters 2=17863
 ZrC, lattice constant 0=10315
 ZrC, thermal conductivity, 200°-2000°C 4=20227
 ZrC, thermionic emission, 1300°-1900°K 3=16974
 ZrC, phase transform., ~2200°C, fruitless search 4=17774
 ZrC, phase transform., ~2200°C, fruitless search 4=17775
 ZrC, plastic deformation, effect of temp., strain rate, surface and composition 4=15718
 ZrC, thermal diffusivity meas., 1300°-1650°C 4=6754
 ZrC, work function 2=7637, 22160
 (ZrC)_{0.8}(UC)_{0.2}, anomalous thermionic emission 0=17027
 ZrC and ZrN, expansion, thermal rel. to at. vibr. amplitudes 4=17376
 ZrC and ZrC—UC, thermionic emission 1=11964
 Zr_{0.84}Ca_{0.16}O_{0.84} ceramics, grain boundary conductivity 4=7037
 ZrCl, band spectra 2=3736
 ZrCl₄, exchange with Zr⁹⁷ ions, hot from U fission. 3=21006
 ZrCl₄, i.r. spectrum 1=4936
 ZrCl₄, infrared spectrum 1=11790
 ZrCo₂—ZrFe₂ alloys, structure and mag. props. 3=20880
 ZrD, specific heat 1=11164
 Zr—Dy alloys, h.c.p.—b.c.c. transformation rel. to composition 2=21546
 Zr—Er alloys, h.c.p.—b.c.c. transformation rel. to composition 2=21546
 ZrF₄, infrared spectrum 1=11790
 ZrFe₂, anisotropic mag. h.f.s., Mössbauer meas. 4=22457
 Zr—Fe, Zr₂Fe and Zr₃Fe phases 4=10442
 Zr—H system, precipitation 3=20905
 Zr—H system, thermodynamic functions 4=3989
 Zr—H systems, X-ray structural phase anal. 0=14024
 ZrH, diffusion of H 2=6367
 ZrH, neutron spectra 2=5648
 ZrH_{1.58}, specific heat 1=11164
 ZrH_{1.78}, neutron thermalization, temp. dependence 4=21878
 ZrH₃, lattice dynamics by axisymm. model 3=2711
 ZrH₂, phase transformation, twinning, anelastic phenomena 1=14939
 β —ZrH₂, statistical model 4=20766
 ZrH₂, ZrD₂, heat capacities and thermodynamic functions 1=7538
 ZrH₂, precipitation in Zr, by electron micr. 3=11294
 Zr—H—U alloy, creep props. 2=4329
 Zr—Ho alloys, h.c.p.—b.c.c. transformation rel. to composition 2=21546
 ZrN, current carrier activation energy meas. 4=12906
 ZrN, thermoemissive props. 4=3027
 Zr—Nb alloy, dimensional changes during annealing in temp. gradient 4=20691
 Zr—Nb (15%), ω phase, formation and reversion, electron microscope obs. 4=13507

Zirconium compounds—contd

- Zr—Nb, heat treatment 2=19090
 Zr—Nb, heat treatment, neutron effects on mech. props. 3=1234
 Zr—Nb, paramag. susceptibility, rel. to temp. 3=999
 Zr—Nb, paramagnetic susceptibility 2=4209
 Zr—1% Nb—0.33% Be, structure rel. to n-irrad. 2=23765
 Zr—Nb, superconducting in high mag. fields 3=16879
 Zr—Nd alloys, h.c.p.—b.c.c. transformation rel. to composition 2=21546
 ZrO α (C \rightarrow X) band system 2=14256
 Zr—O cpds., band structure calc. 2=6298
 Zr—O crystal, cohesive energy, Ligand field treatment 4=9807
 Zr—O crystals, energy band structure, theoret. investigation 4=15459
 ZrO, spectral band intensities in M and S stars rel. to temp. 2=994
 ZrO₂, crystal orientation in phase transformations 4=23297
 ZrO₂, crystal structure 0=3225
 ZrO₂, crystal structure of monoclinic form (baddeleyite) 1=10261
 ZrO₂, defect structure rel. to O₂ press. 3=12957
 ZrO₂, diffusionless phase transition meas. 4=13509
 ZrO₂, effect on spectral line intensity of carriers 4=26224
 ZrO₂ films, damage due to irradiation 1=3700
 ZrO₂ films, monoclinic-tetragonal transform. and twinning 4=23298
 ZrO₂ films optical props., 0.2-1.6 μ , rel. to appl. 4=22893
 ZrO₂ films, optical props. and structure 3=8577
 ZrO₂ heated to 1000°C, spectral emittance 4=14443
 ZrO₂, hydrated and anhydrous, X-ray absorpt. spectra 1=17905
 ZrO₂, with MgO and other oxides, elec. cond. 0=4321
 ZrO₂, mixtures with Y, Mg, CaCe oxides, phase change temps. 4=23296
 ZrO₂, molecular vibr. and rot., calc. 4=26233
 ZrO₂, monoclinic-tetragonal transition 3=25654
 ZrO₂ ppt. on grown-in dislocations in MgO 3=10973
 ZrO₂, phase change and recovery, radiation-induced 4=4512
 ZrO₂, phase transform., radiation induced, necessity of impurities 4=17776-7
 ZrO₂, polymorphic transform. under cooling, kinetics 4=29023
 ZrO₂, prepared under high pressure, phase transitions 4=10443
 ZrO₂, Schumann u.v. absorption spectrum 1=17893
 ZrO₂, solid solns., irradiation induced phase transformations 0=21211
 ZrO₂, stabilized, elec. resist. meas. 3=20376
 ZrO₂, tetragonal, crystal structure 3=6845
 ZrO₂, thermal exp., Y stabilized 4=22510
 ZrO₂, U-doped, radiation effects 2=18623
 ZrO₂, vibrational spectra 4=1282
 ZrO₂, work function 0=19707
 ZrO₂—CaO, fluorite phase, X-ray and elec. cond. study 3=25728
 ZrO₂—CaO, phase transform., order—disorder 4=17778
 ZrO₂—CaO solid solution, electrical conductivity ionic 3=8550
 ZrOCl₂, solid and in solution, X-ray absorpt. spectra 1=17905
 (87%)ZrO₂—(13%)La₂O₃, electrical conductivity, 1200°-1650°C 3=17901
 ZrO₂—La₂O₃ system, cond., elec., var. temp., freq., composition 4=25990
 ZrO₂—PbO—TiO₂ system 3=3255
 ZrO₂/Sn,Bi films, semicond. props. 1=1088
 ZrO₂—UO₂—ThO₂ system, structures 0=8229
 ZrF, β — α structure transformation 4=2003
 Zr₃(PO₄)₄, crystal structure 1=2537
 ZrPd₂, structure 1=5099
 Zr—Rh alloys, superconducting transition temp. 3=21669
 Zr—Rh, superconductivity 3=9688
 ZrSiO₄, colour centres, e.s.r. study 2=12466
 ZrSiO₄, zircon, e.s.r. 3=23239
 ZrTe₈, supercond. transition temp 1=11881
 Zr—Th alloys, $\beta \rightarrow \alpha$ phase transformation 4=29024
 Zr—Ti—O long-range ordering 3=3289
 Zr_{1-x}U_xFe₂, hyperfine field 3=15412

Zirconium compounds—contd

- Zr-U-H alloy, transformation kinetics 2=4458
 Zr(V_2Co_{1-x})₂, alloys, crystal structure, atomic, c_{14} laves phase, Co, V distrib. 4=7651
 Zr-Y alloys, h.c.p.-b.c.c. transformation rel. to composition 2=21546
 Zr-Zn system, ξ -phase, structure 1=20546
 ZrZn₂, electrical resistivity 2=2118
 ZrZn₂, ferromagnetic, neutron diff. exam., spin density 4=20552
 Zr-ZrO₂ system, constitution 2=4459

Zodiacal light

- absolute intensity, at 4630, 5280 and 6165 Å 1=4196
 balloon observations (20 July 1963) 4=26956
 brightness, influence of the moon 4=4895
 brightness meas. 4=20915
 cloud models, i.r. appearance rel. to elongation 4=29434
 connection with asteroids and periodic comets 0=18721
 constitution rel. to electron density 4=20916
 continuum, flux ratio, 5577Å-5250Å 2=17178
 dust cloud around earth 2=13117, 17236
 elimination of atmospheric luminescence 2=21660
 false light, rel. to exospheric density 2=4658
 gegenschein, energy distrib. and annual latitude variation 1=1634-5
 gegenschein, spectral distrib., 3900-6500Å 4=13927
 gegenschein, systematic study rel. to earth's dust tail 2=4731
 measurement, and gegenschein, corrected for airglow 4=4897
 measurement and theory of light and counter-glow 3=11529
 night sky light, component separation 2=4660
 observations from high altitude stations 1=12745-8
 optical props., rel. to interplanetary matter models 2=11105
 photoelectric obs. at Tien-Shan 4=2414
 photometric data and interplanetary electron densities 4=7981
 photometric studies, tropospheric scatt. effect 4=10890
 photometry in three colours 1=5146
 polarization, airglow effect, white light versus narrow band obs. 4=4896
 polarization due to dust 2=918
 polarization, light scattering on spherical particles 1=2609
 polarized component, rel. to dust particle diff. 2=9030
 radiation belt, rel. to polar light variations 2=11082
 review 2=15328
 rel. to scattering by dust particles, hypothesis for gegenschein 4=15936
 space density det. 3=7023
 spectrum 0=3414
 spectrum, energy distrib. 2=955
 spectrum, H β absorption line profile, calc. 4=10891
 spectrum, H β line profile and low electron density, blue shift 4=23903
 spectrum, rel. to interplanet. electron density 3=1509
 tropospheric scatt. effect 3=11530
 1957 observation in Egypt 0=18722

Zone melting and refining

- activation energy check, by rezoning, in metals 4=30555
 alkali halides 3=6825
 alkali halides, high-purity crystals 4=13529
 alkali metal cyanides and halides, zone-melting apparatus 4=23324
 alloys, zone levelling technique, optimum procedure 2=8212, 10383
 analogue apparatus 0=18316
 analytical solutions, 2 geometries, levelling process 1=2528
 apparatus using focused electron beam, without a crucible 2=2364
 arc image furnace for floating zone technique 1=2529
 automatic refining apparatus 0=16272
 continuous, apparatus, eqns. describing system 4=11000
 continuous, steady-state equations 4=23318
 continuous, theory 4=20722
 electron beam floating zone melting furnace, modes of operation 4=10999
 electron-beam zone melting, beam deflection cage 4=23323
 by electron bombardment, apparatus 0=4592
 electron bombardment furnace for refractory metals 4=2030

Zone melting and refining—contd

- electron-bombardment furnaces, focussing technique 1=16411
 equalization of impurity conc. along sample 2=10799
 ferroelectric crystal growth from melt 2=14952
 free-convection, effects 4=29058
 in gas phase, theory 1=15002
 glass production, diffusion role 4=26730
 high-melting point metals, deformation-free, using electron beam 4=20677
 hot finger method, modification 4=4538
 imidazole, effect on semiconducting props. 3=10826
 impurity distrib., ultimate, in finite ingot 4=20723
 impurity motion, infinite ingot 3=20802
 impurity movement in finite ingot 3=25674
 impurity var. with cycle number, theory 3=25676
 induction heating, > 2000°C 3=11238
 insulators, technique 2=11229
 length, as length of solid melted, and density ratio solid/liquid 4=10465
 metals, f.c.c., effect on stress/strain curves 4=26495
 migration of liquid zone through solid 3=23408-9
 mixture, eutectic, solute redistrib. calc. 4=27373
 naphthalene segregation coeff. in anthracene, luminescence meas. 4=29057
 naphthalene- β -naphthol and naphthalene-benzoic acid, effect of free convection 4=29058
 organic cpds., automatic zone refiner 3=8809
 organic materials, 3 refiners 0=6329
 peritectic semiconducting compounds 1=5093
 Pfann's distrib. function, applicability 2=19054
 pressure-supported molten zones in horizontal sheets, stability 1=7853
 purification, elec. analogue of impurity distribution 1=1382
 purification factor, theory 1=1381
 pyrolytic coating, for quartz and ceramic vessel, toluene in N₂ 0=21167
 refining theory 1=15000
 refractory metals 4=23322
 review 2=13229
 sealed-solid method, for decomposable cpds. 2=11228
 semiconductors, ultrapurification, conference 4=23319
 sintered carbonyl iron rods, purification 1=10144
 solid-state diffusion effects and use of getter 4=23321
 surface and floating zone melting by glow discharge 2=11633
 technique for simultaneous purification and simple crystal growth 2=16992
 temp. distribution, analogies from liquid drawing of wire 0=12534
 terminal zone cropping 0=8168
 two-component system, math. analysis 3=25675
 vacuum refining, thermal conditions 1=10613
 zone levelled ingots, impurity distrib. 0=10288
 Ag halides 1=4029
 Al 3=23487
 Al, impurity distributions 4=4540
 Al, introduction of preferred orientations 1=10236
 Al, soundness of lattice of recrystallized metal 0=6355
 Al, super-pure 3=20803
 As₂SeTe₂, electrical cond. of vitreous material and crystals 0=15944
 Au, activation analysis 3=3345
 B 0=707
 BaTiO₃ 4=23330
 BaTiO₃-type ferroelectrics 0=709
 Bi-Sb alloys, single-crystal growth 4=23334
 Cd 2=23825
 CdSb single crystals 3=5087
 CoSi, cold hearth method 1=11545
 CoSi₂, cold hearth method 1=11545
 CsI, in study of ionic cond. and luminesc. 2=14508
 Cu, apparatus 0=8170
 Cu, high purity single crystals growth 4=29049
 Cu, polygonization tendency 1=4012
 Cu, residual resistance ratio 2=18632
 Cu, tracers-doped, segreg. directions 4=23336
 Fe, causing stacking faults and twins in thin foils 4=9974
 Fe, damping effects due to directional ordering 0=10167
 Fe, directional ordering effects 1=6447
 Fe, effect of velocity on coercivity 1=2473

Zone melting and refining—contd

GaAs, contamination 3=1274
 GaAs, floating zone refining 4=29054
 GaAs, floating-zone refining apparatus 0=18317
 GaAs growth from Ga 3=23410
 GaAs, horizontal melting 0=8166
 GaP 1=17734
 GaSb-InSb 0=730
 Ge films, single-crystal growth, microzone melting technique 4=2125
 Ge, improved agitation method 2=812
 Ge, single crystals, uniform impurity distrib. 0=13944
 Ge-Al liquid zone, migration through Ge 3=23408-9
 Ge-Si, occurrence of imperfections 2=2363
 HgIn₂Te₄, purification 0=565
 InAs, difficulty of removing S and Se 1=15002
 InP, difficulty of removing S and Se 1=15002
 InSb 0=1669
 InSb, apparatus for casting homogeneous ingots 4=17785
 KBr and KCl 0=8167
 KCN 4=26608
 KCl purification 1=15001
 Li, two-stage refining technique 4=17787
 LiF bicrystals, rel. to grain boundary migration 4=23531
 Mo, production with electron-beam floating-zone melt 4=2030
 Mo, without crucible 2=2364
 NH₄ alum, reagent grade 3=1265
 Pb 3=23487
 Sb₂S₃ 2=8796
 Sb₂Se₃ 2=8796
 Sb₂Se₃, single crystal prep. 0=620
 Se, Sn distrib. 0=13942
 Si, using arc image furnace 1=2529
 Si, effect on dislocations and diode performance 4=29060
 Si, by electron bombardment 0=706
 Si, high-purity crystal growth 0=16268
 Si, horizontal, in non-reactive crucibles 4=29059
 Si, induction vacuum apparatus without quartz 3=25677
 Si, rel. to lifetime and dislocation density 2=23368
 Si, p-type, zone levelling 0=6330
 Si rod floating zone growth, chuck design 1=10241
 Si, shape of melt-crystal interface 2=8793
 Si, single crystals, uniform impurity distrib. 0=13944
 Si, use of electron bombardment 4=15762

Zone melting and refining—contd

Sn, suitability, limitations and technique 4=29061
 Sn, with vacuum heat treatment 0=13962
 Sn-Ag alloys, dilute, Ag distribution 1=7852
 Te, elec. resistance purity test 0=13963
 Te, high-purity, prod. and analysis 3=18684
 ThSe, p-type single crystals, preparation 0=18054
 U, Zr, and Th, purification by arc zone melting 0=8166
 W, analogue simulation 1=10240
 W, effect on tensile props. 3=25617
 W single crystals, room-temp. slip investigation for ~10% plastic deform. 4=30790
 W, without crucible 2=2364
 YFe garnets, crystal growth 1=6499
 Zn 2=23825
 ZnSb, crystal growth 3=8807
 ZnSb crystals, growth technique 1=14991
 Zr, elec. cond. at liq. H and liq. N temp. 0=562

Zoology

animal in satellite, obs. 2=11210
 bats, use of u.s. pulse compression 1=9217
 brine shrimp suspension, u.s. attenuation 1=9449
 bullfrog, retina, spectral sensitivity 1=15383
 cats, 8th nerve action pot. 2=7069
 cats, hearing thresholds 0=6505
 cats, medial superior-olivary-unit response patterns to clicks 4=10972
 cats, physiological nystagmus 0=3384
 eye melanin free radical kinetics, and rel. to O₂ adsorption by semiconductors 4=20875
 fish, acoustic scatter patterns 3=1775
 fish, lateral line mode of action 2=7068
 frogs, electroretinogram, effect of prep. and electrode placement 0=14357
 frogs, standing potential in eye 0=8456
 guinea pigs, bone conduction in ears 0=2046
 hummingbird feathers, iridescent colours 0=16870
 marine animal sounds 2=17576
 mice, blood flow velocity 0=12217
 pigs, inner secretions on acoustic attack 2=4887
 rabbit fundi, photic exposure reactions 4=10978
 rodents, effect of noise stress 0=806-7
 steer, entoptic scatter as function of wavelength 0=8454
 steer eye, entoptic scatter, rel. to human eye 4=30998

